

Joe's Creek
Bacterial Pollution Control Plan
(WBID 1668A)



February 29, 2016



Table of Contents

1.0 Background	1
1.1 Purpose	1
1.2 Description of Joe’s Creek	1
1.3 Fecal Coliform Impairment and TMDL	1
1.4 Steps to developing a Bacterial Pollution Control Plan	2
2.0 Bacteria Source Identification	4
2.1 Planning and Data Collection	4
2.2 Maps on the Table Meeting	6
2.3 Microbial Source Tracking	7
2.3.1 Wet Season	7
2.3.2 Reclaimed Water	10
2.3.3 Dry Season	10
2.4 Walk the Watershed Exercise	13
2.4.1 Sanitary Sewer Issues	14
2.4.2 Homeless	15
2.4.3 Pet Waste	16
2.4.4 Litter and Debris	17
2.4.5 Manure	18
2.4.6 Wildlife	19
2.4.7 Citrus	20
3.0 Management Actions	21
3.1 Structural Management Actions	21
3.1.1 Structural Management Actions Completed to-Date	21
3.2 Nonstructural Management Actions	23
3.2.1 Sanitary Sewer Inspection and Maintenance	23
3.2.2 Stormwater Inspection and Maintenance	26
3.2.3 Stormwater Pond Compliance and Enhancement	30
3.2.4 Code and NPDES Enforcement	30
3.2.5 Litter and Debris Removal	31

3.2.6 <i>Public Outreach and Education</i>	33
3.2.7 <i>Policy</i>	37
3.3 Anticipated Load Reductions	38
4.0 Monitoring and Reporting.....	39
5.0 Summary	40
Appendix A – Joe’s Creek Bacterial Pollution Control Plan Stakeholders and Working Group	A-1
Appendix B - Microbial Source Tracking Sample Sites	B-1
Appendix C - Joe’s Creek Field Inspection Map	C-1
Appendix D – Joe’s Creek Field Inspection Tracking Form.....	D-1
Appendix E – Miles Creek Follow-up Inspection.....	E-1
Appendix F - Pinellas County Joe’s Creek Basin SSO information.....	F-1

List of Figures

Figure 1. Location of Joe's Creek WBIDs in Pinellas County.	2
Figure 2. Joe's Creek WBIDs and water quality sampling sites.	5
Figure 3. Example of marked up map from the maps on the table meeting.....	6
Figure 4. Joe's Creek microbial source tracking sites.....	8
Figure 5. Manure found on the bank near JC-1 during the May sampling event.	12
Figure 6. Evidence of unreported SSOs near Joe's Creek.....	15
Figure 7. Homeless camp near Joe's Creek prior to 2011 cleanup events (left) and homeless camp found along Joe's Creek bank during the walk the WBID field investigations (right).	16
Figure 8. Location of pet waste found during the follow-up investigation in Greenway Park.	17
Figure 9. Cat litter in a dumpster at an animal kennel with an open lid and no plug	17
Figure 10. Trash in a commercial parking lot (left) and a dumpster with an open lid near a pond in Joe's Creek (right).	18
Figure 11. Evidence of a leaking dumpster at a restaurant adjacent to Joe's Creek	18
Figure 12. Wildlife sightings in Joe's Creek (east) and areas where wildlife commonly reside.....	19
Figure 13. Wildlife sightings in Joe's Creek (west).	20
Figure 14. Citrus found during field investigations of Joe's Creek.	20
Figure 15. Sanitary sewer sub-basins within the City of St. Petersburg.	25
Figure 16. Map showing the extent of Pinellas County recent stormwater maintenance.....	28
Figure 17. CSX bridge crossing at 38th Ave before (top) and after (bottom) CSX biohazard cleanup.	32
Figure 18. Examples of signs posted along Joe's Creek and in Greenway Park.	34
Figure 19. Photos from Joe's Creek and Greenway Park community outreach and cleanup events.	35
Figure 20. Pinellas County's ambient water quality monitoring stations in Joe's Creek	39

List of Tables

Table 1. Fecal coliform means for Pinellas County water quality sites (2003 -2013)	5
Table 2. Joe's Creek microbial source tracking wet season results.	9
Table 3. St. Petersburg reclamation facility sampling results.	10
Table 4. Joe's Creek microbial source tracking dry season results.	11
Table 5. Joe's Creek tributary ditch sampling results.....	15
Table 6. Summary of Joe's Creek management actions included in the Bacterial Pollution Control Plan.	22
Table 7. Joe's Creek tributary sampling results.....	26
Table 8. Pinellas County recently sodded ditch sampling results.....	29

1.0 Background

1.1 Purpose

This report outlines the Bacterial Pollution Control Plan for Joe's Creek and documents the process followed for development of the plan. Pinellas County, the City of St. Petersburg, and Town of Kenneth City combined efforts to develop this plan with the support of other stakeholders within the watershed. This report fulfills the requirements in Part VIII.B.4 of the National Pollutant Discharge Elimination System (NPDES) Municipal Separate Storm Sewer System (MS4) permit for Pinellas County, the City of St. Petersburg, and Kenneth City to address the Joe's Creek fecal coliform Total Maximum Daily Load (TMDL).

1.2 Description of Joe's Creek

The Joe's Creek watershed is a 9,256 acre drainage basin located in south-central Pinellas County (Figure 1). The watershed includes the City of Pinellas Park, City of St. Petersburg, Kenneth City and unincorporated Pinellas County (the Lealman area). Land uses are predominately residential with some commercial, industrial, and open spaces.

The main channel of Joe's Creek is divided into a tidal segment (WBID 1668E) and a freshwater segment (WBID 1668A). The freshwater segment begins just east of I-275 near the City of St. Petersburg and extends approximately 2.3 miles west until it reaches the uppermost portion of the tidal influence. The main channel flows from east to west discharging into the Cross Bayou Canal and ultimately Boca Ciega Bay. Two tributaries, Bonn Creek (WBID 1668D) and Pinellas Park Ditch #5 (WBID 1668B), flow into the tidal segment of the creek. Another tributary, Miles Creek, flows into the freshwater segment of the creek from the south and is primarily located within the City of St. Petersburg. The WBID boundaries as described are shown in Figure 2. This plan focuses on the freshwater segment of Joe's Creek (WBID 1668A) which includes Miles Creek encompassing 5,847 acres.

1.3 Fecal Coliform Impairment and TMDL

Joe's Creek (WBID 1668A) was identified as impaired for fecal coliform by Florida Department of Environmental Protection (FDEP) and was included on the 1998 303(d) list of impaired waters and the Verified List of impaired waters adopted by Secretarial Order in December 2007. A TMDL was adopted in April, 2008 to establish loading limits to Joe's Creek that would help restore the waterbody to its Class III designated use of fish consumption, recreation, and propagation and maintenance of a healthy, well balanced population of fish and wildlife as defined by FDEP. The adopted TMDL requires a fecal coliform load reduction of 50% for the main channel of Joe's Creek and 57% for the Miles Creek tributary. Potential fecal coliform

sources identified in the TMDL document include wildlife, leaks and overflows from sanitary sewer systems, illicit discharges of sanitary waste, runoff from improper disposal of waste materials, and domestic animals (dogs in particular). There are no point sources in the watershed and septic tanks are not believed to be a source of bacteria to the creek.

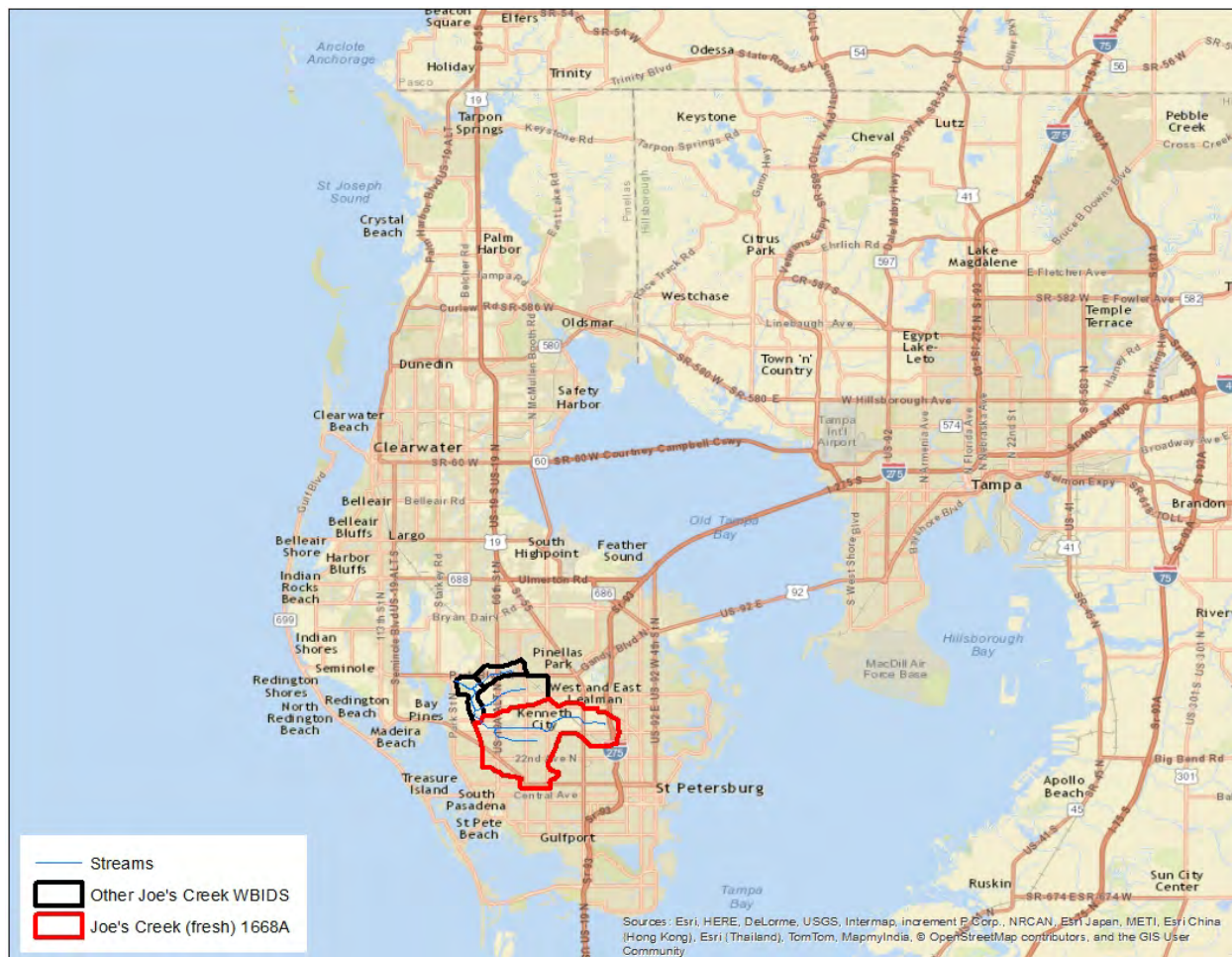


Figure 1. Location of Joe's Creek WBIDS in Pinellas County.

1.4 Steps to developing a Bacterial Pollution Control Plan

Fecal coliform bacteria sources may include pet waste, failing septic systems, areas of concentrated wildlife, bacterial re-growth in storm sewers and sediments, leaking sanitary sewer systems, and illicit discharges among other possibilities. In order to develop this Bacterial Pollution Control Plan, Pinellas County and stakeholders used the assessment tools and methodology in the FDEP's Fecal Coliform TMDL Guidance On-Line Tool Kit that is available online at: http://www.dep.state.fl.us/water/watersheds/docs/fcg_toolkit.pdf.

The general steps followed in accordance with the FDEP guidance document included:

1. Understanding the Basin
 - Compile and evaluate existing data
 - Identify stakeholders
 - Coordinate with FDEP
2. Potential Source Identification
 - Maps on the Table
 - Strategic sampling and microbial source identification
 - Walk the Watershed
3. Develop Management Actions
 - Structural solutions: flood control projects and water quality projects
 - Nonstructural activities: inspection and maintenance of sanitary sewer and stormwater infrastructure, stormwater pond compliance and enhancement, litter and debris removal, public outreach and education, and policy
4. Documentation and Reporting
 - Bacterial Pollution Control Plan
 - Monitoring Plan
 - Reporting

2.0 Bacteria Source Identification

Identifying potential bacteria sources in the Joe's creek watershed required collecting and analyzing existing data, coordinating with stakeholders and recording their knowledge through maps of the watershed, strategic sampling and microbial source tracking, and conducting detailed field investigations. All of the potential sources identified in the TMDL document were confirmed plus additional minor sources from homeless, manure, and citrus were identified through these efforts.

2.1 Planning and Data Collection

The first step in developing the Bacterial Pollution Control Plan for Joe's Creek was to collect existing information on the watershed by identifying stakeholders and gathering data from various sources. A complete list of stakeholders participating in this process can be found in Appendix A. Data collected for this effort included:

- Ambient water quality data (FDEP IWR database, Pinellas County Public Works and Utilities)
- Sampling locations (FDEP IWR database, Pinellas County Public Works and Utilities)
- Stormwater GIS data (Pinellas County, City of St. Petersburg)
- Stormwater atlas (Kenneth City)
- Wastewater GIS data (Pinellas County, City of St. Petersburg)
- National Hydrography Dataset (USGS)
- Septic tank locations (Florida Department of Health (FDOH), Pinellas County, City of St. Petersburg)
- Sanitary Sewer Overflow (SSO) records (Pinellas County, City of St. Petersburg)

Stakeholders identified included:

- NPDES staff (Pinellas County, City of St. Petersburg, Kenneth City, FDOT)
- Stormwater operations and maintenance (Pinellas County, City of St. Petersburg)
- Wastewater operations and maintenance (Pinellas County, City of St. Petersburg)
- Vegetation management (Pinellas County)
- Community Development (Pinellas County)
- Code enforcement (Pinellas County, City of St. Petersburg)
- Pinellas County Department of Health
- Florida Department of Environmental Protection

Existing water quality data from the Pinellas County Environmental Management ambient water quality monitoring database and Pinellas County Utilities was analyzed for spatial and seasonal patterns of fecal coliform concentrations. Only stations with long term monitoring data within WBID 1668A were included in the analysis (Figure 2). Fecal coliform averages were higher at the Miles Creek site than the Joe's Creek sites, which corresponds with the TMDL required reductions (57% for Miles Creek and 50% for Joe's Creek). On average, concentrations were higher during the wet season (June-October) than the dry season (November-May), so stakeholders performed initial watershed investigations during the wet season (Table 1).

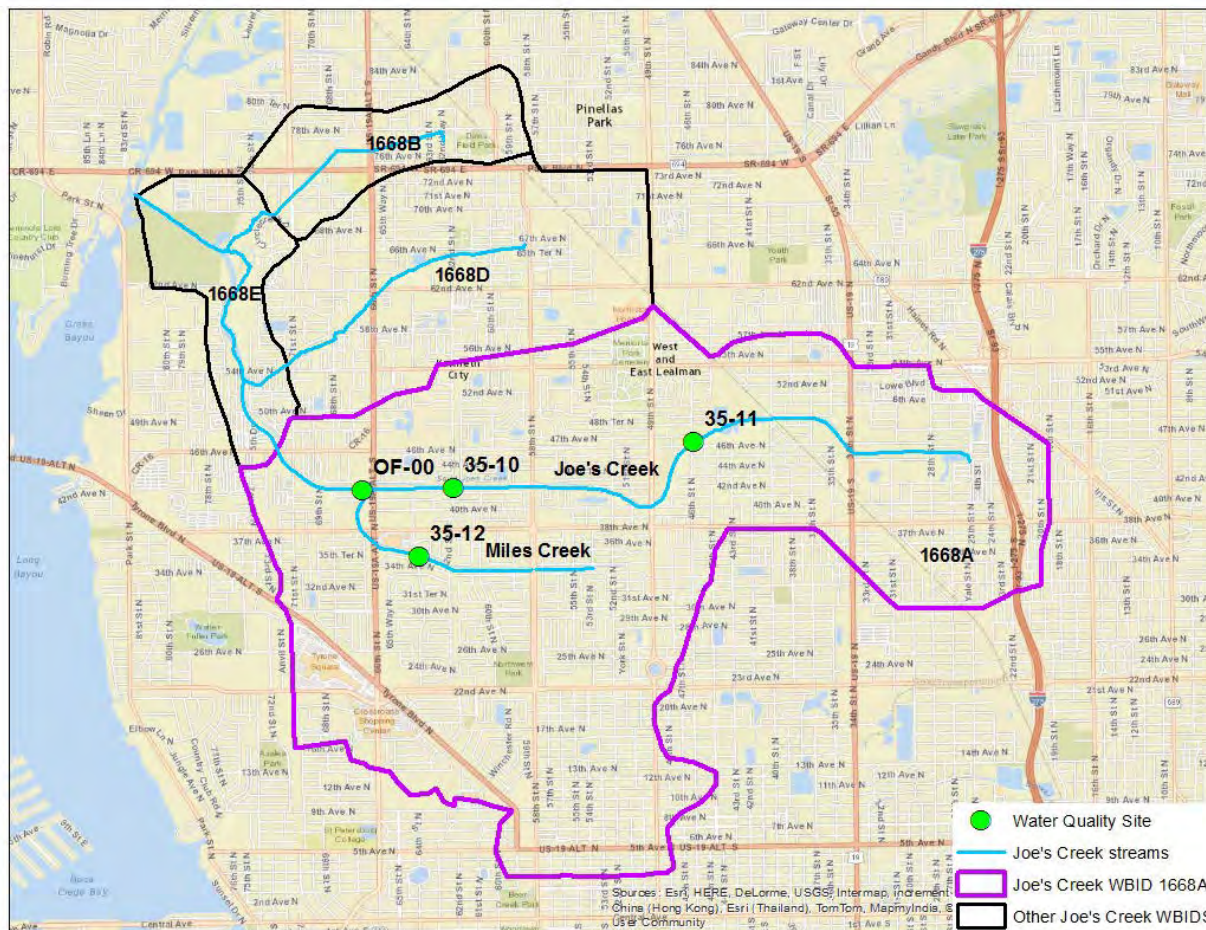


Figure 2. Joe's Creek WBIDs and water quality sampling sites.

Table 1. Fecal coliform means for Pinellas County water quality sites (2003 -2013)

Station	n	Mean Fecal Coliform (CFU/100ml)		
		Overall	Dry Season	Wet Season
OF-00	36	1477	954	2119
35-10	63	1319	440	2747
35-11	66	757	253	1699
35-12	63	2614	1398	4727

Pinellas County also created detailed watershed maps using the collected data listed above for use in stakeholder meetings, planning field investigations, and monitoring events.

2.2 Maps on the Table Meeting

On August 4 and August 13, 2014, Pinellas County hosted 'Maps on the Table' meetings for stakeholders of the Joe's Creek watershed. The purpose of the meetings was to review available information with individuals that have specific knowledge of the area and identify possible sources of fecal coliform pollution. Groups represented at the meetings were Pinellas County, City of St. Petersburg, Kenneth City, Florida Department of Environmental Protection (FDEP), Florida Department of Transportation (FDOT), and the Florida Department of Health (FDOH). Individuals from these groups included staff in water quality monitoring, public works, wastewater, code enforcement, and community development. A complete list of participants can be found in Appendix A.

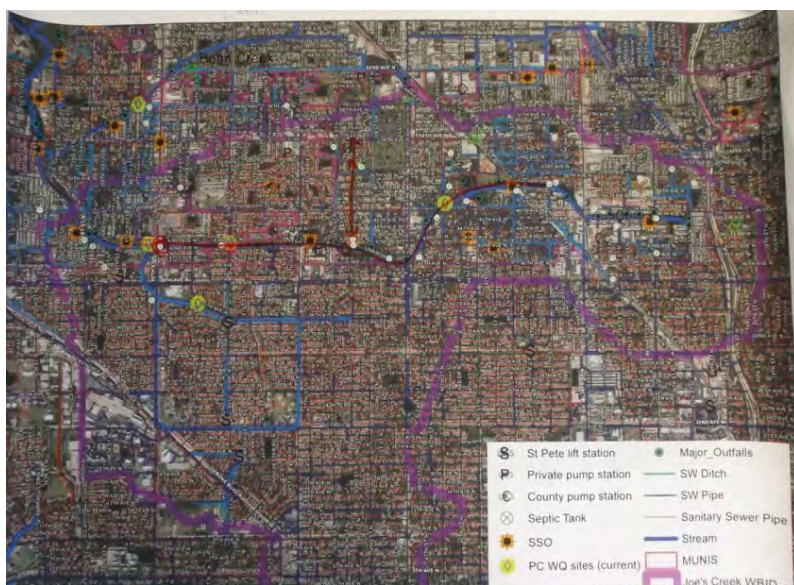


Figure 3. Example of marked up map from the maps on the table meeting.

The meetings opened with an overview presentation that explained the purpose of the meeting, the significance of bacterial pollution, potential sources of bacteria, and the process for developing a Bacterial Pollution Control Plan. Next, stakeholder teams marked specific areas of concern on large print maps (Figure 3). Influences on water quality such as homeless populations, dog walking routes, leaking sanitary sewer,

and stormwater pipes were considered. Data was then combined into a single spreadsheet and map which served as a guide for developing a sampling plan and field investigation routes. Team members appointed a subset of representatives with infrastructure knowledge, access capabilities, field sampling experience, and enforcement authority to participate in the 'Walk the Watershed' field investigation.

2.3 Microbial Source Tracking

On August 25, 2014, staff from Pinellas County and the City of St. Petersburg conducted a field reconnaissance in order to gain a better understanding of the watershed, contributory sources for fecal pollution, and to determine feasibility and access for the proposed sampling sites identified using the Maps on the Table meeting information and locations of major outfalls or tributaries. Sites were confirmed or adjusted as needed. A total of twenty sampling sites were identified for wet and dry season sampling. An overview map of the sampling sites is shown in Figure 4 and larger scale maps are in Appendix B.

2.3.1 Wet Season

On September 15, 2014, staff from Pinellas County, FDEP, and the City of St. Petersburg collected twenty surface water samples. All twenty samples were analyzed for fecal coliform and *E. coli* by the Pinellas County Utilities Department or City of St. Petersburg Water Resources Department laboratory. A subset of the samples was shipped to FDEP Central Laboratory in Tallahassee for microbial source tracking analysis. FDEP tested twelve of the twenty samples for sucralose and acetaminophen. Sucralose passes through wastewater treatment processes virtually unchanged and is an indicator that either untreated wastewater (sanitary sewer overflows or failing septic tanks) or treated wastewater (reclaimed water) is present. Acetaminophen is typically removed from wastewater treatment processes and can help differentiate between untreated wastewater and reclaimed water sources. Results from these tests can indicate a problem with leaking sewer and/or septic systems. Five of the samples sent to FDEP were also analyzed for detection and quantification of human-specific HF183 *Bacteroides* genetic marker with quantitative polymerase chain reaction (PCR) in order to determine if fecal coliform from human sources was present.

Lab results, presented in Table 2, helped to guide the ‘Walk the Watershed’ exercise. Fecal coliform results from the City of St. Petersburg laboratory are not included because they were all qualified as “too many colonies present for accurate counting” due to insufficient dilution. Although most of the fecal coliform results were elevated at levels above the current water quality standard of 400 MPN/100 ml (Chapter 62-302 F.A.C.), *E. coli* results were much lower and only 3 of 20 samples were above FDEP’s new criteria of 410 MPN/100 ml. All three samples were in tributary ditches and not in the main branch of Joe’s or Miles Creeks and the highest result was at JC-5, a tributary ditch to Miles Creek in the City of St. Petersburg.

Acetaminophen was detected in six of the twelve samples collected. Given the small number of known septic systems in the watershed, the sanitary sewer collection system is the most likely contributor to positive acetaminophen results. The human genetic marker was only detected at site JC-16. This site was downstream from the ditches north of 54th Ave N on 37th Ave N where a sanitary sewer issue was found and corrected as discussed in sections 2.4.1 and 3.2.1.

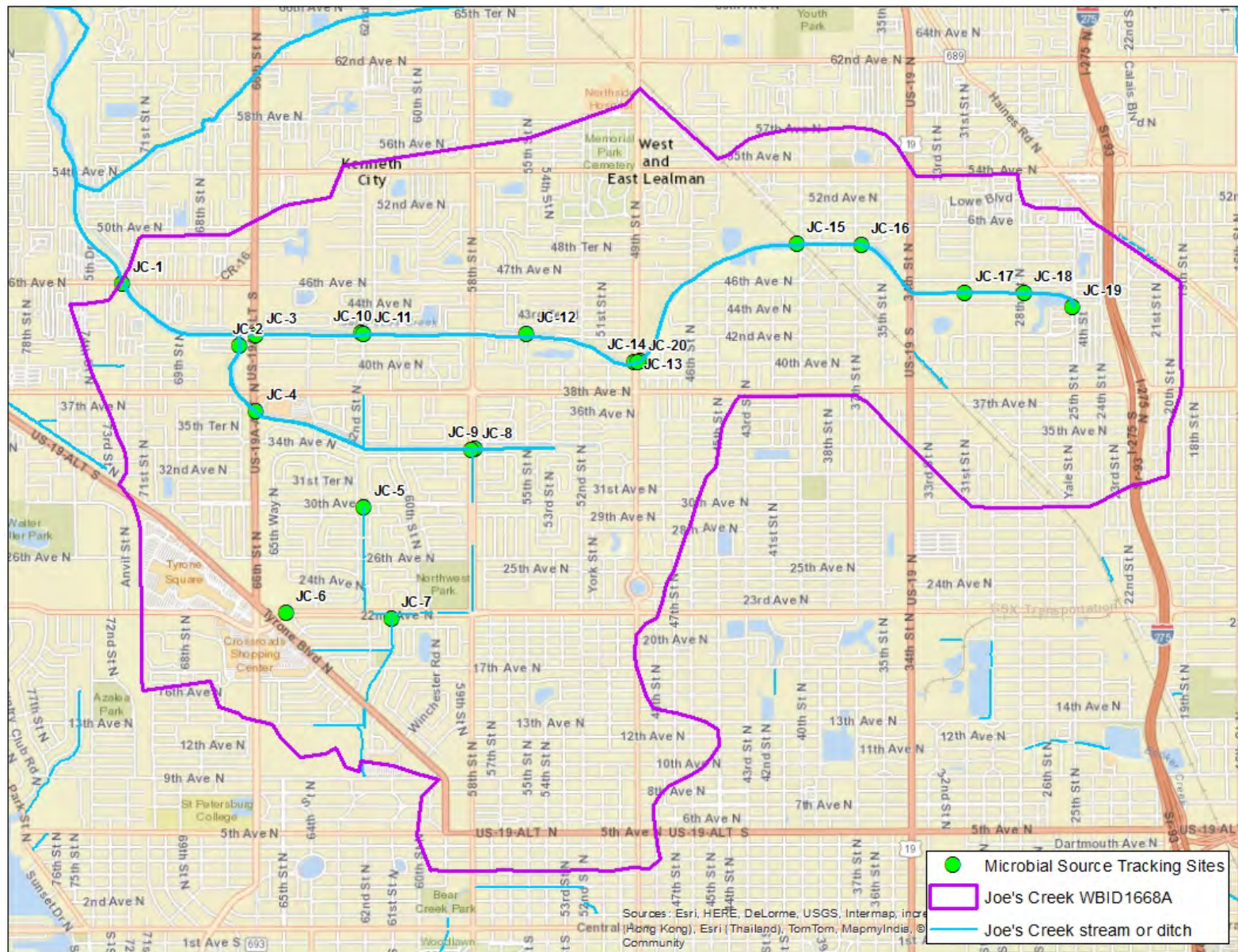


Table 2. Joe's Creek microbial source tracking wet season results.

Lab ID	Site description	Bacteria Lab	Fecal (MPN/ 100 mL)	<i>E. coli</i> (MPN/ 100 mL)	Suc. (µg/L)	Acet. (µg/L)	HF183-qPCR (GEU/ 100mL)
JC-1	most downstream Joe's/Miles Creek site	St. Pete	Z	170	-	-	-
JC-2	most downstream Miles Creek site	Pinellas	3280	146	0.56	0.0078	U
JC-3	most downstream Joe's Creek site	Pinellas	865	41	0.041	0.0052	U
JC-4	Miles Creek upstream of outfalls	St. Pete	Z	270	-	-	-
JC-5	Miles Creek tributary ditch	St. Pete	Z	1200	-	-	-
JC-6	ditch prior to closed conveyance	St. Pete	Z	450	-	-	-
JC-7	Miles Creek tributary ditch	Pinellas	1110	108	U	U	-
JC-8	Miles Creek tributary ditch	Pinellas	6870	158	0.4	U	-
JC-9	main channel headwaters to Miles Creek	Pinellas	6870	259	0.032	U	-
JC-10	pipe outfall/downstream from pipe outfall	Pinellas	1080	134	0.042	0.0065	-
JC-11	pipe outfall or upstream from pipe outfall	Pinellas	1600	199	0.043	0.0062	-
JC-12	Joes Creek tributary ditch	St. Pete	Z	530	-	-	-
JC-13	West outfall under 49th street bridge	Pinellas	132	10	0.28	U	U
JC-14	upstream of pipe outfalls	Pinellas	384	175	0.046	U	-
JC-15	Joe's Creek downstream from 3 outfalls	St. Pete	770	200	-	-	-
JC-16	Joe's Creek near 37 th St N	Pinellas	530	121	0.048	0.0028	7000
JC-17	pipe outfall or Joe's Creek downstream of outfall	Pinellas	1190	148	0.05	0.00088	-
JC-18	discharge from silver lake at notch weir	St. Pete	800	130	-	-	-
JC-19	south silver lake inflow	Pinellas	5790	148	0.36	U	-
JC-20	East outfall under 49th street bridge	Pinellas	5790	262	-	-	-

*Z=too many colonies present for accurate counting, U=reported value was less than the detection limit

2.3.2 Reclaimed Water

The City of St. Petersburg provides reclaimed water to a portion of the Joe's Creek watershed. Due to the use of reclaimed water, sucralose was expected to be detected in the surface water samples and not a reliable indicator of untreated sewage. The presence of acetaminophen in half of the surface water samples, however, did indicate untreated sewage as a potential source of fecal coliform to the creek. Although not common, previous studies have detected some levels of acetaminophen in wastewater treatment plant effluent. In order to rule out reclaimed water as the source of acetaminophen found in the watershed and compare surface water results to reclaimed water, samples were collected from all three City of St. Petersburg Water Reclamation Facilities and submitted to FDEP for sucralose, acetaminophen, and human source identification through PCR analyses on May 7, 2015. Pinellas County Utilities also analyzed these samples for fecal coliform and *E. coli*. Samples were collected as close as possible to the distribution line leaving the plants during typical plant operating conditions, so were representative of reclaimed water used for irrigation in the watershed. Results are given in Table 3. As expected, sucralose was detected at high levels in the reclaimed water. Acetaminophen was detected in only one of the three samples at a level near that found in the creeks. Given the expected dilution that would occur from the reclaimed source to the creek, the results indicate that reclaimed water is not likely the cause for detecting acetaminophen at levels found in the creeks.

Table 3. St. Petersburg reclamation facility sampling results.

Lab ID	Site description	Fecal (MPN/ 100 mL)	<i>E. coli</i> (MPN/ 100 mL)	Suc (µg/L)	Acet (µg/L)	HF183-qPCR (GEU/ 100mL)
SW	Southwest Water Reclamation Facility effluent	2	U	41	0.0028	168000
NW	Northwest Water Reclamation Facility, after storage tank	U	U	52	U	75700
NE	Northeast Water Reclamation Facility distribution	U	U	50	U	130000

U=reported value was less than the detection limit

2.3.3 Dry Season

Joe's Creek sampling was repeated at the end of the dry season to determine the impact of stormwater on fecal coliform sources. Dry season sampling occurred May 20, 2015. The same sites were sampled during the dry season as in the wet season with only two sites differing in the parameters analyzed. The changes were made based on the results of the initial sampling, expected changes during the dry season, and FDEP laboratory capacities. Results are given in Table 4. Pinellas County Utilities Laboratory analyzed for fecal coliform and *E. coli*. All other analyses were conducted by the FDEP laboratory.

Table 4. Joe's Creek microbial source tracking dry season results.

Lab ID	Site description	Fecal (MPN/ 100 mL)	<i>E. coli</i> (MPN/ 100 mL)	Suc (µg/L)	Acet (µg/L)	HF183- qPCR (GEU/ 100mL)
JC-1	most downstream Joe's/Miles Creek site	24200	1990	-	-	-
JC-2	most downstream Miles Creek site	209	73	0.098	U	U
JC-3	most downstream Joe's Creek site	120	31	0.093	0.002	U
JC-4	Miles Creek upstream of outfalls	197	41	-	-	-
JC-5	Miles Creek tributary ditch	3650	2190	0.33	0.012	U
JC-6	ditch prior to closed conveyance	323	31	-	-	-
JC-7	Miles Creek tributary ditch	959	420	0.11	0.016	-
JC-8	Miles Creek tributary ditch	1160	197	0.29	U	-
JC-9	main channel headwaters to Miles Creek	733	213	0.03	0.0032	-
JC-10	pipe outfall or downstream from pipe outfall	269	120	0.078	0.0021	-
JC-11	pipe outfall/upstream from pipe outfall	161	63	0.086	U	-
JC-12	Joes Creek tributary ditch	1250	504	-	-	-
JC-13	West outfall under 49th street bridge	327	135	0.081	0.0026	U
JC-14	upstream of pipe outfalls	327	146	-	-	-
JC-15	Joe's Creek downstream from 3 outfalls	496	97	-	-	-
JC-16	Joe's Creek treatment area outfall	4110	738	0.06	0.016	U
JC-17	pipe outfall or Joe's Creek downstream of outfall	410	189	0.082	0.0029	U
JC-18	discharge from silver lake at notch weir	328	131	-	-	-
JC-19	south silver lake inflow	670	281	0.07	0.0027	-
JC-20	East outfall under 49th street bridge	31	10	-	-	-

U=reported value was less than the detection limit

Nine sites had higher results for *E. coli* during the dry season than the wet season and eleven sites were lower. Out of the fifteen fecal coliform samples that had reported values during the wet season for comparison, only two were greater in the dry season (Sites JC-13 and JC-16).

While all fecal results were above the 400 MPN/100 ml standard during the wet season, only half were above the limit during the dry season. The number of *E. coli* above the 410 MPN/100 ml target increased slightly from three during the wet season to five during the dry season. Results indicate that fecal coliform levels in Joe's Creek are higher during the wet season, which is also evident from the historical data as discussed in section 2.1. The highest result for *E. Coli* was again the tributary ditch to Miles Creek (JC-5) indicating a need to investigate bacteria sources to the ditch further. Follow-up investigation by the City of St. Petersburg described below and in Appendix C found no signs of bacteria sources along the banks; however, the ditch does exhibit low flow and heavy vegetation, conditions that could enhance bacteria counts in the water.

Due to the unusually high dry season results at JC-1, the areas along the creek upstream and downstream of the site were investigated two days following the sampling event. The only sign of bacteria sources were two piles of manure on the bank near the sampling site (Figure 5). The banks had recently been mowed and it appeared that the manure was run over and flattened by the mower. No sanitary sewer overflows (SSOs) in the area had



Figure 5. Manure found on the bank near JC-1 during the May sampling event.

been reported and no manholes in the area showed signs of recent SSOs. The source of the manure is unknown; however, it is unlikely manure was the only contributor to the extremely elevated levels of fecal coliform.

Acetaminophen was detected in nine of twelve samples in the dry season, an increase from the wet season results (Table 4). This indicates untreated wastewater may be a source of fecal coliform to the creek during both wet and dry weather. The human genetic marker was not detected in any samples and is an indication that the sanitary sewer issue previously impacting site JC-16 was corrected as a result of follow up actions to the field investigations as discussed in section 3.2.1.

2.4 Walk the Watershed Exercise

The Walk the Watershed exercise is a field investigation to determine sources of fecal coliform and identify opportunities to develop strategies and management actions to reduce bacterial pollution. The exercise improves communication within departments and between stakeholder agencies in the watershed. Collaboration facilitates the identification of existing programs and ongoing activities. Together, participants can identify ways to address bacterial pollution and identify gaps in programs that need to be addressed.

On September 25, 2014 representatives from Pinellas County, FDEP, City of St. Petersburg, and Kenneth City conducted a 'Walk the Watershed' exercise through the Joe's Creek watershed to investigate possible sources of fecal coliform pollution. In general, the investigation followed a pre-determined route based on the Maps on the Table meeting and sampling results (Appendix C, sites 1 through 63). Several problems were identified including leaking sanitary sewers, homeless camps, and pet waste.

Pinellas County Public Works staff conducted an additional follow-up investigation on October 17 and 20, 2014. This follow-up was primarily focused on walking both sides of the entire length of the main segment of Joe's creek, which due to the size of the watershed and number of problem areas identified, only small portions were included in the previous walk. One representative from Pinellas County Utilities joined Publics Works staff for a portion of this walk.

Pinellas County Utilities staff conducted a third evaluation in search of sanitary sewer related issues in response to a request from FDEP Domestic Wastewater following an SSO associated with the South Cross Advanced Wastewater Treatment Facility that occurred September 27, 2014. Utilities conducted the investigation on November 5, 2014. Although the overflow occurred in the tidal portion of the creek (WBID 1668E), much of the investigation occurred in the freshwater portion (WBID 1668A).

The City of St. Petersburg completed a follow-up investigation in Miles Creek in July of 2015 to supplement the Walk the WBID exercise by traversing the banks of Miles Creek and the main ditches leading into Miles Creek. The purpose of the additional site assessment was to investigate in more detail whether there was a propensity for residents to use the banks of the ditches for pet walking and to generally document the conditions of the ditches. A description of the finding and associated map are included in Appendix E.

All of the possible sources of fecal pollution that were identified during the Walk the Watershed and follow-up investigations were entered into a working spreadsheet so staff could generate work orders and initiate investigations to make corrections. Examples of issues found during all three investigations are described in the following section and additional details can be found in

Appendix D along with the maps in Appendix C. Map and point references in the following sections can be found in these appendices. Potential sources found included sanitary sewer overflows, pet waste, homeless activity, and a small amount of wildlife.

2.4.1 Sanitary Sewer Issues

The Pinellas County Utilities Department tracks sanitary sewer overflow (SSO) information. Public Works staff mapped sanitary sewer overflows using addresses and structure IDs from Utilities SSO records. From 2004 to 2015 there were a total of seventeen County SSO records in the Joe's Creek WBID 1668A. County SSO information can be found in Appendix F. Joe's Creek is tidally influenced at least as far upstream as the Miles Creek confluence. Sources in the tidal portion of the creek may impact water quality in the lower parts of the freshwater WBID, so information on SSOs within the larger County delineated basin boundary for Joe's Creek, Basin 35, is also included. This included the tidal portion of Joe's Creek and the Bonn Creek and Pinellas Park Ditch #5 tributaries.

The majority of the WBID within the City of St. Petersburg lies in the service area for the Northwest Water Reclamation Facility (NWWRF) which is operated by the City's Water Resources Department (WRD). Like many of the service areas in St. Petersburg, the NWWRF historically experienced frequent SSOs in both wet weather and dry weather. Historically, within the NWWRF service area, SSOs had the potential to affect the bacteria levels within Miles Creek, and therefore Joe's Creek, but improvements in recent years have reduced the number of occurrences as discussed in section 3.2.1.

Participants in the Walk the Watershed found several potential sanitary sewer issues in the Pinellas County service area. For example, two manholes showed signs of recent overflows that were not recorded in the Utilities tracking database. The manholes were outside of the freshwater WBID in the tidal portion of Joe's Creek. As seen in Figure 6, the manholes were located directly adjacent to the Creek (Map C-5, Point 0).

Two tributary ditches on 37th Ave N, north of 54th Ave N had brown "slime" on top of the water and a distinct sewage odor (Map C-4, Point 22). Samples were taken from both ditches and analyzed for fecal coliform and *E.coli* bacteria. Results confirmed high bacteria counts as shown in Table 5.



Figure 6. Evidence of unreported SSOs near Joe's Creek.

Table 5. Joe's Creek tributary ditch sampling results.

Sample Date	Sample Time	Site	FC Result (MPN/100mL)	<i>E.coli</i> Result (MPN/100mL)
9/25/2014	11:25	west 37 th Ave	19900	1350
9/25/2014	11:27	east 37 th Ave	13000	6130

Other sanitary sewer issues found included odors, manholes that required maintenance, and possible signs of past SSOs near manholes. These were forwarded to Pinellas County Utilities for follow-up as described in Section 3.2.1 and Appendix D.

2.4.2 Homeless

During the Maps on the Table meeting, sixteen different locations in the Joe's Creek watershed were noted as areas frequented by homeless or potential long term homeless camps. However, several of the worst problem areas were cleaned up through a joint effort between Pinellas County Public Works and Keep Pinellas Beautiful in 2011 (Figure 7). Part of the cleanup efforts included Brazilian Pepper removal, which increases visibility and discourages the reestablishment of the camps. Participants visited these sites during the field investigation and they were found in clean condition with little or no sign of homeless activity (Map C-9, Point 40).

Two areas investigated appeared to be actively used by homeless or transient populations. One was along the bank of Joe's Creek in the tidal portion (Figure 7) and the second was the CSX bridge over 38th Ave (Maps C-5 and C-9, Points 0 and 41). The Pinellas County Sheriff and CSX responded to these issues. There were some other minor signs of homeless activity and associated accumulated trash in a few areas that are listed in the table in Appendix D.



Figure 7. Homeless camp near Joe's Creek prior to 2011 cleanup events (left) and homeless camp found along Joe's Creek bank during the walk the WBID field investigations (right).

2.4.3 Pet Waste

During the Maps on the Table meeting, thirteen areas in the watershed were noted to be popular dog walking areas and most were along the right-of-way directly adjacent to Joe's Creek. It was not feasible to walk this entire area during the initial Walk the Watershed, so Public Works staff conducted a follow-up investigation to document the extent of the problem. Staff walked an approximately four-mile stretch of the Creek (both sides) on October 17 and 20, 2014. Evidence of owners not picking up after their pets was observed along the entire four miles. In addition, pet waste was found at Greenway Park, which borders both sides of Joe's Creek near 46th St N and 46th Ave N (Figure 8). These areas were primarily on County-owned land, so Public Works responded with posting signs, adding pet waste stations, and distributing educational material to nearby homeowners as described in Section 3.2.6 and Appendix D. Public Works staff found other minor pet waste related issues near businesses in the watershed (Figure 9). For detailed information and follow-up actions, see Appendix D.



Figure 8. Location of pet waste found during the follow-up investigation in Greenway Park.



Figure 9. Cat litter in a dumpster at an animal kennel with an open lid and no plug (Map C-9, Point 27).

2.4.4 Litter and Debris

Accumulated trash and debris exposed to rainfall were observed in several areas of the watershed. Open dumpster lids and missing plugs were also noted at several businesses (Figures 10 and 11). These issues were forwarded to the appropriate NPDES inspectors for corrective actions and enforcement as described in Section 3.2.5 and Appendix D.



Figure 10. Trash in a commercial parking lot (left) and a dumpster with an open lid near a pond in Joe's Creek (right). (Maps C-4 and C-13, Points 43 and 22).



Figure 11. Evidence of a leaking dumpster at a restaurant adjacent to Joe's Creek. (Map C-11, Point 63)

2.4.5 Manure

The two tributary ditches on 37th Ave N north of 54th Ave N that were sampled during the Walk the Watershed (due to the strong sewage odor) had recently been cleaned, regraded, and sodded by Pinellas County Public Works (Map C-4, Point 22). Cow manure was found on the ditch on the east side of the street on top of the new Bahia sod and along the bank near site JC-1 during the May sampling event; however, manure is not considered a major source of

bacteria to Joe's Creek. Additional investigations and final corrective actions regarding manure on new sod in County ditches is described in Section 3.2.2.

2.4.6 Wildlife

Birds are the major wildlife contributor of fecal coliform to Joe's Creek and Miles Creek. Wading birds were found in many sections of the creek during Public Works' follow-up investigation and have been observed routinely in Miles Creek by City staff (Figures 12 and 13). Otters, birds, and turtles were observed in Miles Creek during the City of St. Petersburg's follow-up investigation. Birds and other wildlife are also a likely fecal coliform contributor near Greenway Park, close to the widened portion of Joe's Creek just downstream from 34th St N, and Silver Lake at the headwaters of the Creek (Figure 12). Public Works field staff regularly encounters birds, otters, and other wildlife in these areas. Wildlife contributions are considered a natural source of fecal coliform and are not addressed in this Bacterial Pollution Control Plan.

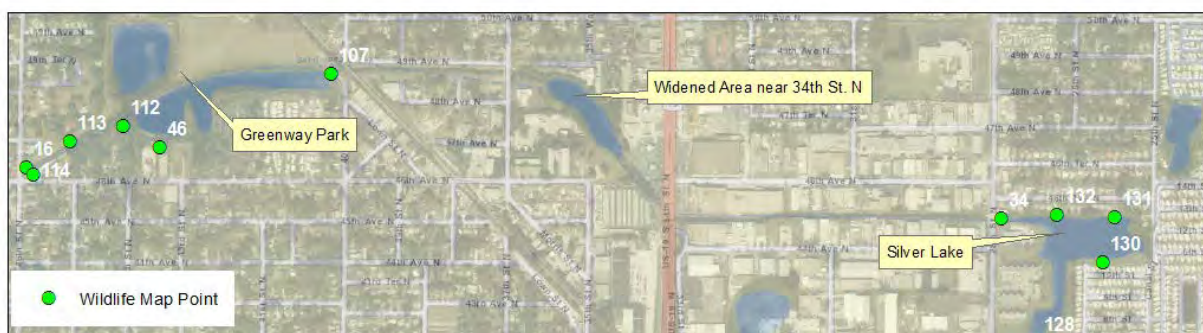


Figure 12. Wildlife sightings in Joe's Creek (east) and areas where wildlife commonly reside.

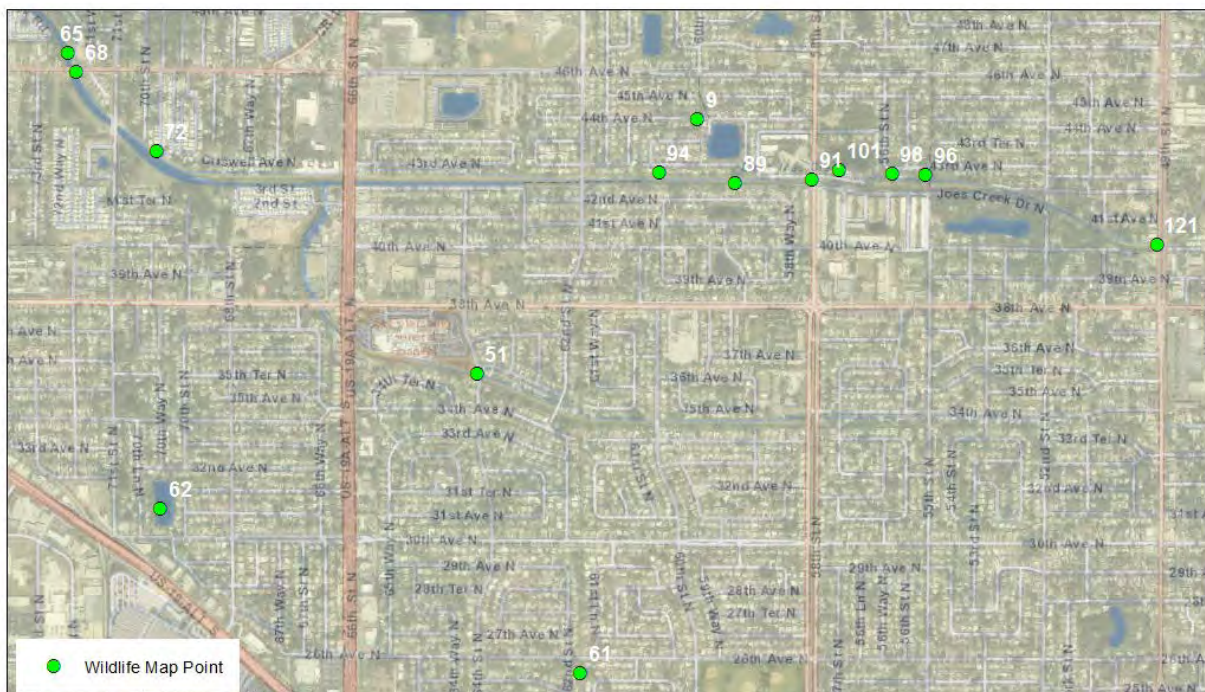


Figure 13. Wildlife sightings in Joe's Creek (west).

2.4.7 Citrus

During the Walk the Watershed exercise and the follow-up walk by Pinellas County Public Works, citrus fruit was noted on the ground at eight locations on the right-of-way at the creek banks. The largest concentration of citrus was just upstream from the County's ambient water quality sampling site 35-10 (Figure 14). Bacteria associated with citrus are detected in fecal coliform analyses and the presence of citrus fruit could be impacting ambient water quality monitoring data. Citrus is not addressed in this Bacterial Pollution Control Plan.

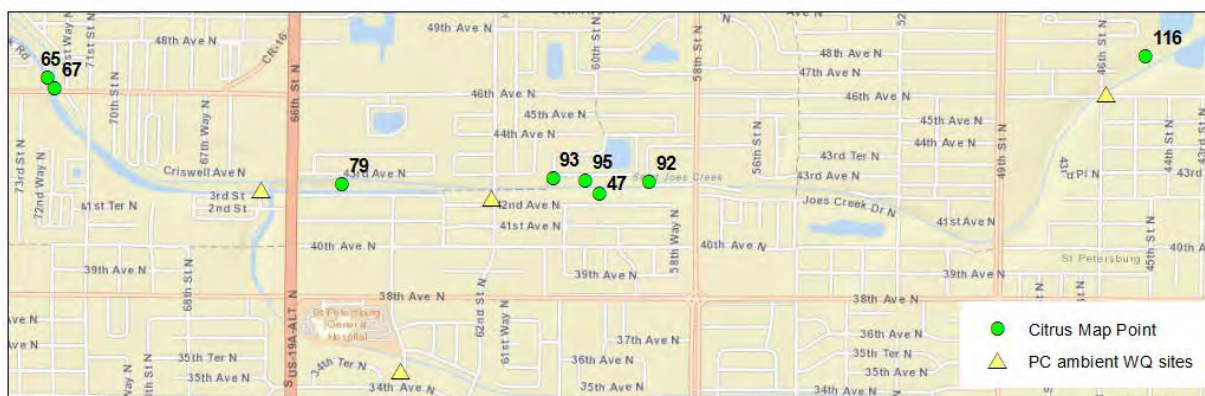


Figure 14. Citrus found during field investigations of Joe's Creek.

3.0 Management Actions

Most management actions to reduce bacterial pollution are ongoing in the Joe's Creek basin and County-wide. In addition, several inspections specific to the problems found during the three investigations have already occurred or are ongoing. Some of the ongoing maintenance and operations work reported in this section is for the entire Joe's Creek basin used for County planning and operations, which extends beyond the boundaries of WBID 1668A and includes the tidal portion of Joe's Creek, along with Bonn Creek and Pinellas Park Ditch #5 tributaries (Figure 2). Management actions are divided into structural and nonstructural activities. A summary of management actions and the responsible entity are linked to the sources of bacteria found in Joe's Creek in Table 6.

3.1 Structural Management Actions

Pinellas County is currently leading the effort to develop a Watershed Management Plan for Joe's Creek in cooperation with the Southwest Florida Water Management District (SWFWMD) and City of St. Petersburg. The plan will recommend flood control and water quality improvement projects in the Joe's Creek watershed. Flood control projects not only help reduce the amount of nonpoint source pollution to surface water after a rain event but also prevent flooding in septic tank areas, alleviating conditions that can cause septic tank failures. Septic tanks, however, are not believed to be a large contributor to fecal coliform loads in Joe's Creek, so the major improvement from flood control projects will be the improvement of flood conditions that result in infiltration to the sanitary sewer system, which will reduce the occurrence of SSOs. Water quality project recommendations from the plan will primarily address the dissolved oxygen and nutrient impairment; however, many stormwater treatment BMPs such as ponds and swales can also reduce fecal coliform loading. The Watershed Management Plan is scheduled for completion in December of 2016. Pinellas County and the City of St. Petersburg will prioritize projects to be included in the Capital Improvement Program as funding and schedules allow. Project descriptions and the proposed schedule for construction will be included in the Joe's Creek TMDL Implementation Plan for the dissolved oxygen and nutrient TMDL expected to be complete July of 2017.

3.1.1 Structural Management Actions Completed to-Date

Pinellas County constructed a 2.12 acre stormwater treatment pond near 58th Ave N and 62nd St N in 2014, referred to as the Lealman Pond. The pond, which serves a 77 acre drainage basin, was designed to reduce flooding and improve downstream water quality and included extensive littoral shelf plantings.

Table 6. Summary of Joe's Creek management actions included in the Bacterial Pollution Control Plan.

Management Action	Entity	Bacteria Sources found in Joe's Creek					
		Sanitary Sewer	Storm-water	Home-less	Pet Waste	Litter and Debris	Manure
Watershed Management Plan Projects	County, St. Pete		X			X	
Lealman Pond	County		X			X	
Sewer main lining	County	X					
38 th Ave & 58 th St N Pond	St. Pete		X			X	
46 th Ave & 60 th St Ditch Rehab	Kenneth City		X			X	
Sanitary Sewer Inspection and Maintenance	County, St. Pete, KC	X					
Stormwater Inspection and Maintenance	County, St. Pete, KC		X			X	X
Stormwater Pond Compliance and Enhancement	County		X			X	
Code and Stormwater Enforcement	County, St. Pete, KC	X	X	X	X	X	X
Street Sweeping	County, St. Pete, KC					X	
Litter Cleanups	County, St. Pete, KC			X		X	
Public Outreach and Education	County, St. Pete, KC		X		X	X	X
Pet Waste Ordinance	County, St. Pete, KC				X		
Stormwater Ordinance	County, St. Pete, KC		X			X	
Land Development Codes and Stormwater Manual	County, St. Pete		X			X	

*County = Pinellas County, St. Pete = City of St. Petersburg, KC = Town of Kenneth City

In 1991, the City of St. Petersburg obtained a permit from SWFWMD to construct Area Improvement Projects 58, 59 and 61 which lie within WBID 1668A. The improvement projects

include a dry pond with filtration to filter stormwater prior to discharge into Miles Creek. The dry pond is located near 38th Avenue and 58th Street North.

The Town of Kenneth City recently completed a large stormwater improvement project to address basic infrastructure needs and improve the quality of stormwater discharged into Joe's Creek. A major drainage ditch serving 268 acres of single family residences, roadways, and several small lakes that had historically experienced retaining wall failures and washouts causing large volumes of (potentially pollutant-laden) sediment and debris to be washed into the ditch and eventually Joe's Creek. The Town of Kenneth City completed a rehabilitation project in 2015 that included the removal of deteriorating retaining walls, bank stabilization, a treatment swale, a nutrient separating baffle box, ditch bottom plantings to increase nutrient uptake, and debris baskets at contributing side street inlets.

3.2 Nonstructural Management Actions

Pinellas County, St. Petersburg, and Kenneth City perform maintenance and repair on infrastructure that could potentially be a source of fecal coliform bacteria. Continuing effective maintenance programs will reduce fecal coliform loading from sanitary sewer and stormwater sources. This section describes recent and planned maintenance activities in Joe's Creek. Infrastructure maintenance and repair is an important element of the Bacterial Pollution Control Plan for Joe's Creek.

3.2.1 Sanitary Sewer Inspection and Maintenance

Pinellas County Utilities is responsible for the repair and maintenance of sanitary sewer systems in the Pinellas County service area, which includes Kenneth City and unincorporated areas within the Joe's Creek watershed. Repair and maintenance occurs in response to incidents and includes proactive investigations. Although Kenneth City does not own sanitary sewer infrastructure, staff does notify the County (or FDEP if needed) if SSOs are observed or collection system issues are believed to exist.

Standard Operating Procedures (SOPs) are in place to guide and document response to sanitary sewer incidents. Recent infrastructure upgrades and inspections may be either proactive or response based. These include the cleaning of more than 71 miles of the 110 miles of sanitary sewer pipe within the Joe's Creek basin, lining of approximately 16 miles of sanitary sewer main pipes, and smoke testing 43 miles of pipe. In addition, 302 of the 2,398 manholes in the basin have been lined and three out of fourteen pump stations have been improved in recent years. Upcoming projects include lining of the remaining sections of gravity main running the length of Joe's Creek, which will complete the lining of pipes along that run almost the entire length of

the creek and help prevent potential future sewer breaks. The project should be complete within five years at cost of an estimated \$2.6 million.

Preventative sanitary sewer programs are also in place. The County has a Grease Management Program (GMP) to effectively manage grease waste in an environmentally sound manner and reduce the occurrence of blockages and SSOs caused by fats, oils, and grease originating from food service establishments. Effective and continuous management, operation and maintenance, as well as ensuring adequate capacity and rehabilitation when necessary are critical to maintaining collection system capacity and performance while extending the life of the system. Pinellas County Utilities is committed to focusing on issues and solutions related to inflow and infiltration (I&I), SSOs, pipe rehabilitation, TV inspection and cleaning, smoke testing, and other Capacity, Management, Operations, and Maintenance (CMOM) program activities.

In March, 1998, the City of St. Petersburg consultants, Tampa Bay Engineering (TBE), completed a final technical report entitled “Sewer System Evaluation and Management Report” that evaluated the sewer system and developed a management program. In 2000, the City agreed to work under a consent order with FDEP to address the SSOs citywide. Between 1997 and 2008, the City invested over \$96,000,000 in corrective actions to reduce or eliminate sanitary sewer overflows citywide pursuant to the consent order. Significant maintenance projects and Capital Improvement Projects were implemented within WBID 1668A since two areas within the WBID were identified as needing I&I reduction to reduce SSOs. These areas are identified as 301 and 304 on Figure 15 and lie adjacent to Joe’s and Miles Creeks. The other basins were ranked in order of priority for addressing issues. The City is using an Assessment Management Program (AMP) to track the sanitary sewer system inspection and maintenance program. The purpose of this AMP is to provide the Water Resources Department with a comprehensive document to communicate and guide current and future AMP efforts. The City owns 123 miles of pipe within WBID 1668A. Inspection and maintenance activities for the areas within WBID 1668A from the AMP includes 109 miles of pipe TV inspected and cleaned and 551 repairs or replacements on 12 miles of pipe. Inspection of the system, using closed circuit TV (CCTV), is on a six-year cycle.

Upon completion of the activities required by the consent order, in a letter dated March 9, 2010 from the FDEP to the City determining that the City had completed the corrective action required by the Consent Order, the Department closed the case.

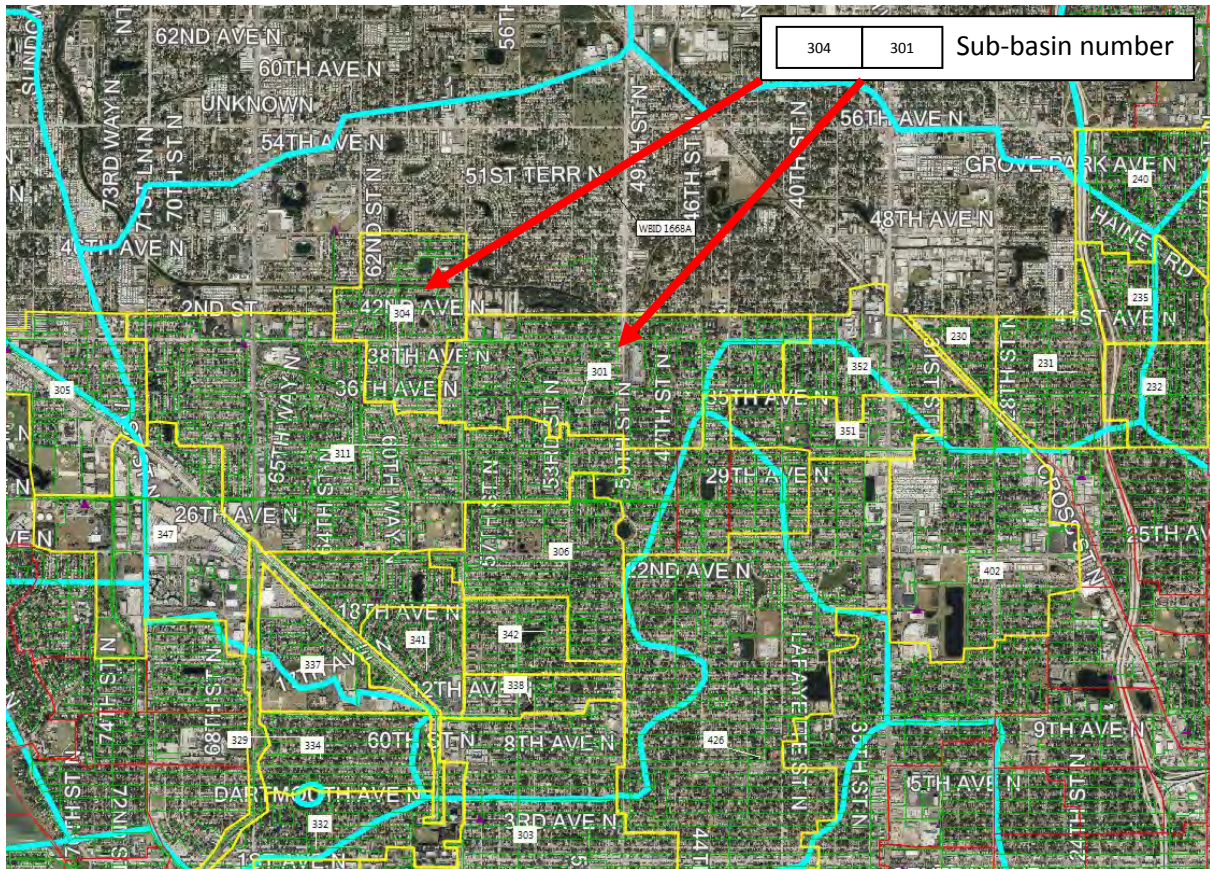


Figure 15. Sanitary sewer sub-basins within the City of St. Petersburg.

Pinellas County generated several work orders based on findings from the initial Walk the Watershed and follow-up investigations that occurred in 2014. The two tributary ditches north of 54th Ave N on 37th Ave N that had brown film on top of the water and distinct sewage odor were reported to Utilities for assessment and action and sampled two more times to ensure the problem wasn't continuous (Map C-4, Point 22). Fecal coliform results in both ditches increased over the five days between sampling events (Table 8). Results were forwarded to Utilities as support for the need for continued investigations.

Table 7. Joe's Creek tributary sampling results.

Sample Date	Sample Time	Site	FC Result (MPN/100mL)	E.coli Result (MPN/100mL)
9/25/2014	11:25	west 37 th Ave	19900	1350
9/25/2014	11:27	east 37th Ave	13000	6130
10/01/2014	10:15	west 37 th Ave – Site A	24200	6870
10/01/2014	10:20	west 37 th Ave – Site B	17300	10500
10/01/2014	10:25	east 37th Ave – Site A	24200	13000
10/01/2014	10:30	east 37th Ave – Site B	24200	1840
12/1/14	11:00	west 37 th Ave	180 B	-
12/1/14	11:05	east 37th Ave	420	-

Investigations included TV inspection and cleaning of stormwater pipes in the area to confirm no illicit connections and TV inspection of sanitary sewer mains and lateral lines under the ditches and in the nearby area. Although not all lateral lines could be inspected due to the inability to obtain all of the needed homeowner permissions to install cleanouts, no sanitary sewer issues were found. The sanitary mains were also cleaned. Sampling occurred again after most of the investigation and maintenance was complete and the results were significantly lower than previous sampling and no longer indicated a potential sanitary sewer issue (Table 7). These findings suggest the problem was a short-term event that may have been corrected through cleaning the sanitary sewer lines and not an ongoing leak or illicit connection.

Sanitary sewer mains run parallel to a large portion of Joe's Creek. During the field investigations, several manholes along the creek showed signs of possible unreported SSOs (see Appendix D and Figure 6). Most follow-ups found no problems with the manholes or associated pipes, although seven work orders did result in manhole repair or resealing. Utilities staff will monitor manholes along the Creek and document the occurrences of any SSOs that may occur.

3.2.2 Stormwater Inspection and Maintenance

The County Public Works Department, City of St. Petersburg Stormwater Department, and the Town of Kenneth City perform regular maintenance on stormwater pipes, culverts, ditches and County/City permitted stormwater facilities. The County and municipalities respond to

requests and complaints and have a rotating schedule for proactive maintenance and inspections. Specialized equipment is used to regularly maintain stormwater conveyances to remove trash, debris, accumulated sediment, and any other types of blockages that occur.

Since approximately 2012, Pinellas County uses asset numbers to track maintenance activities enabling staff to query for work completed in the Joe's Creek basin since that date. Public Works mechanically cleaned approximately 6.4 miles of 25 total miles of ditches in the basin. Mechanical cleanout typically includes removal of accumulated sediments, debris, vegetation, and grading and sodding. Out of 72.5 miles of stormwater pipe in the basin, approximately 12.5 miles of pipes and structures have been cleaned. This maintenance, along with permitted facilities cleanouts, totaled approximately 12,500 cubic yards of sediment and debris removed from the stormwater system in Joe's Creek since 2012. The location of work completed is in Figure 16. The City of St. Petersburg is developing an Asset Management Program for the City's stormwater facilities and currently tracks all activity by work order and maintains inspection records.

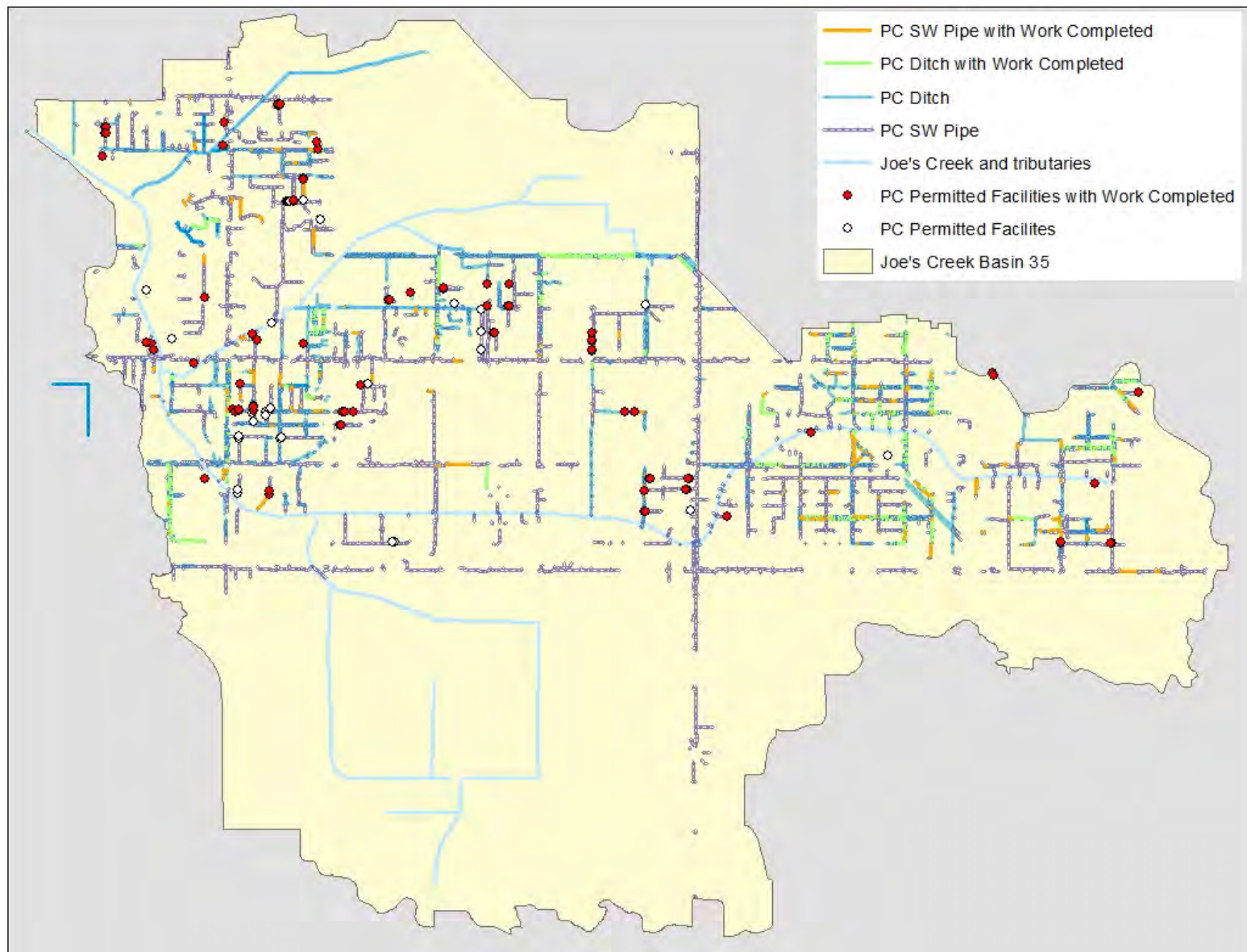


Figure 16. Map showing the extent of Pinellas County recent stormwater maintenance.

The County adopted a Surface Water Utility fee in 2013. This fee enabled the County to increase its stormwater operation and maintenance budget to include additional crews, funding for contract ditch cleaning, and purchasing equipment to allow access to ditches that previously had to be cleaned by hand. Joe's Creek was made a priority basin for maintenance in anticipation of this Bacterial Pollution Control Plan. Equipment purchases included a Keiser machine. Many ditches that were previously cleaned by hand were only cleared enough to allow some flow but remained primarily overgrown with nuisance vegetation and canopy that blocked sunlight. With the new equipment, these ditches can now be completely cleared increasing the exposure to sunlight and reducing bacteria levels.

In response to the manure found on the recently sodded ditches, Pinellas County Public Works staff had phone conversations with the County's sod contractor, the sod supplier, the County contract manager, and Public Works Operations management. It was determined that sod used by the County originates from cattle pastures and may be a source of fecal coliform countywide. Several samples were taken from newly sodded ditches in various locations around the County following rain events to determine the impact of manure associated with new sod (Table 9). The Pinellas County sod contract was recently renewed through 2017, so no changes in requirements could be made at the time of this Bacterial Pollution Control Plan, but the contractor has verbally agreed to clear all sod of visible manure prior to job completion. Supervisors directed stormwater operations crews to report manure findings to National Pollutant Discharge Elimination System (NPDES) enforcement staff. Unless future inspections or sampling results justify further action, no additional actions are proposed at this time.

Table 8. Pinellas County recently sodded ditch sampling results.

Sample Date	Sample Time	Site	Site Event Number	Fecal Coliform (CFU/100mL)
12/09/2014	12:45	42nd Ave	1	740
12/09/2014	10:50	58th St	1	1000
12/09/2014	9:40	Whitney	1	4100
12/22/2014	9:30	Tanglewood	1	2300
12/22/2014	10:40	Whitney	2	3100
12/22/2014	11:20	113th	1	2100
12/22/2014	13:00	58th St	2	4900
12/22/2014	13:15	115th	1	1600
12/22/2014	13:50	42nd Ave	2	980
01/13/2015	11:30	69th Ave	1	5000
01/13/2015	10:45	20th Ave	1	4500

3.2.3 Stormwater Pond Compliance and Enhancement

Improved function of stormwater ponds can reduce fecal coliform loads to Joe's Creek. In 2014, the County created a new position and hired a Stormwater Compliance Specialist for site plan compliance and enforcement. The Environmental Management Division is currently developing an inventory of all stormwater facilities in the Joe's Creek watershed. Joe's Creek has been designated a priority basin for proactive site plan compliance reviews. Once the stormwater inventory is complete, the facilities will be prioritized for inspections. The owners of any facilities deemed out of compliance with associated site plans will be notified and the County will work cooperatively with the owners to develop and implement an improvement plan. Problems with facilities permitted by the Southwest Florida Water Management District (SWFWMD) will be forwarded to SWFWMD for follow up. Nine facilities have been inspected to date in the Joe's Creek watershed either in response to complaints or following a Surface Water Assessment credit application. Corrective actions were developed for these ponds which included vegetation management, removal of trash, sediment removal, repair of structures, and shoreline stabilization.

Financial incentives for owners to bring stormwater facilities into compliance include eligibility for Surface Water Assessment fee credits or participation in the County's Adopt-a-Pond program. The County Surface Water Assessment fee funds stormwater management programs and property owners that demonstrate onsite treatment are eligible for up to a 75% mitigation credit.

In 2014, as a result of the adoption of the Surface Water Assessment fee, the County reinstated the Adopt-a-Pond program. The Adopt-A-Pond program partners with citizens to increase the functionality of their stormwater ponds to achieve benefits such as improved water quality, habitat restoration, drainage improvement, flood protection, and increased environmental stewardship. The original Adopt-a-Pond program included two ponds adjacent to Joe's Creek. Both were adopted in 2006. In 2014, two more ponds in the Joe's Creek basin were adopted. Activities associated with these ponds include educational presentations, storm drain marking, development of pond management plans, extensive removal of exotic vegetation, and native plantings. Education is a large part of this program and pet waste will be included in the topics of presentations and educational materials as part of the County's Bacterial Pollution Control Plans.

3.2.4 Code and NPDES Enforcement

The Pinellas County Division of Environmental Management, Watershed Protection Section, is responsible for the enforcement of the County's Stormwater Ordinance. Dedicated staff investigate complaints from citizens and other County staff and proactively inspect areas of concern looking for potential illicit discharges and connections. One of the activities included in

proactive inspections is conducting source-tracking investigations of areas with high bacteria counts. This typically involves working closely with local utilities to check sewer lines and locating any potential animal inputs such as veterinary offices, pet care centers or farms, and wildlife areas. Once a source is identified, Pinellas County staff work on eliminating it through public education and enforcement action. For larger and wide-ranging problems, staff and volunteers conduct neighborhood outreach events such as marking storm drains, distributing flyers and door hangers, and conducting community events to engage residents to reduce pet waste. St. Petersburg and Kenneth City staff perform similar enforcement and follow-ups.

3.2.5 Litter and Debris Removal

Several actions occurred immediately following the first field investigation including follow-up on dumpsters with open lids or missing plugs and removal of abandoned grease barrels and other trash at vacated businesses. One follow-up inspection after discussions with an initially reluctant convenience store owner about trash and dumpster issues revealed the site was still being cleaned and maintained eight months after the initial discussion. These types of efforts are ongoing as part of County and City codes and NPDES enforcement described in the previous section.

Two areas of concern were identified during the investigations along the CSX railroad tracks in Joe's Creek. In response, CSX performed a cleanup of trash and biohazards in January 2015. The biohazard site included human waste and drug paraphernalia including hypodermic needles. During a follow-up visit in May 2015, the site was in clean condition (Figure 17 and Map C-9, Point 41). Since that time, Pinellas County has had several conversations with CSX environmental coordinators about collaborating to keep the tracks clean and clear of homeless activity, which is a common problem in the County.

The County street sweeping program maintains arterial roads at least twelve times per year and local roads were recently increased from six to ten times per year. A County contractor is currently sweeping local roads, but that service will be brought in-house in fiscal year 2016 to allow more flexibility in sweeping activities and additional sweeping in target areas in the Joe's Creek watershed. The City of St. Petersburg sweeps arterial roads every two to three weeks and residential streets are swept at least twice per year with an emphasis placed on heavy leaf collection areas in the fall and winter. Kenneth City also performs street sweeping through a contractor and reports sediment removed in their NPDES annual report.



Figure 17. CSX bridge crossing at 38th Ave before (top) and after (bottom) CSX biohazard cleanup.

Pinellas County works together with Keep Pinellas Beautiful, a volunteer-based community action and education organization, twice per year (spring and fall) to organize cleanup events on Joe's Creek and Cross Bayou. Volunteers pick up trash along the shoreline from land and canoe in the tidal portion of Joe's Creek. During the March 28, 2015 event, 67 volunteers removed 3,880 pounds of trash and debris from these waterways and recycled 1,080 pounds of plastics and aluminum. Public outreach campaigns hosted by partners in the area include several additional litter cleanup events scheduled each year in the Lealman area of the Joe's Creek watershed. These are described in the following section.

The Town of Kenneth City maintenance personnel remove litter from right-of-ways, when and where encountered, during daily work activities. This litter is bagged and the extent of trash removed is reported in the NPDES annual report. Kenneth City has also held public events to promote stormwater quality to residents and business owners. Recently, they held a Lake

Cleanup event at various lakes within municipal limits. Volunteers accessed the lakes using kayaks and removed nearly 20 bags of trash, two tires, three tables and other miscellaneous items. Kenneth City staff intends on holding these cleanups on a regular basis.

The City of St. Petersburg's Parks Department maintains the City's main right-of-ways consisting of medians and linear parkways. The Parks Department performs the maintenance including litter removal within WBID 1668A on a 19 cycles per year schedule. Additionally, the city coordinates and assists with neighborhood and lake cleanups through the City's Community Services Administration, the Sanitation Department and the Stormwater Department.

3.2.6 Public Outreach and Education

Public education is important to water quality and the watershed management process. Educational campaigns can enhance the public's understanding of the challenges of water quality in an urban setting. Several outreach activities were completed as a direct response to problems found during the Joe's Creek investigations.

Dog waste was found in several popular dog walking areas directly along the banks of Joe's Creek. To increase awareness in these areas and attempt to change behavior through education, Public Works interns walked door-to-door distributing educational materials on pet waste and water quality impacts. A total of 164 door hangers were distributed and the interns were prepared to explain and answer questions from the residents they encountered along the way.

Signs were also strategically placed along Joe's Creek in the problem areas and in Greenway Park. Both pet waste and trash were addressed. Pinellas County staff and volunteers posted six pet waste and six litter signs along the Joe's Creek right-of-way. Although pet waste signs and waste bag stations were already in place at Greenway Park, additional signage and stations were warranted as pet waste was still found during the park investigations led by Pinellas County staff. Examples of signs already in place and new signs installed in 2015 are in Figure 18. The County will continue to work with other departments and agencies to install signs and trash receptacles when additional areas of concern are identified as an ongoing effort to reduce fecal coliform pollution County-wide. The City of St. Petersburg also uses signage in areas that have been determined to be areas of high pet waste. Pet waste door hangers are placed by community service representatives in neighborhoods surrounding high pet waste areas. The City will continue to monitor Miles Creek banks and will use signage as needed.



Figure 18. Examples of signs posted along Joe's Creek and in Greenway Park.

Pinellas County began setting up displays at pet related events in 2015. Two events were attended so far in 2015, the Spring Pet Festival on April 11th and Bark at the Ball Park on May 3rd. Information on pet waste and impacts to surface waters were distributed along with pet waste bags and other related items. Staff was on site to talk to residents and answer questions. The County partnered with the Humane Society of Pinellas for these events and will continue to work with the Humane Society and other local agencies to increase pet owner awareness. An initial target of two to three events per year has been established. During the Spring Pet Festival, Pinellas County staff handed out more than 50 pet waste bag containers, 100 brochures and spoke to about 75 people. Many people understand that you 'should' pick up after your pet, but many did not know 'why'. The educational board, materials, and conversations helped address the 'why'.

A grant provided by the Tampa Bay Estuary Program (TBEP) in 2012 provided funding for a water quality education campaign focusing on the connection between trash and debris and water quality in the Joe's Creek/Lealman neighborhood. County staff partnered with the

Lealman and Asian Neighborhood Family Center (LANFC), an affiliate of the Juvenile Welfare Board, to develop educational materials in English and Vietnamese in an effort to reach out to the sizeable Vietnamese community in the area. The County, TBEP, LANFC, and Keep Pinellas Beautiful held three cleanups in the Joe's Creek watershed that were supported by this grant. The three events held in March, September and November of 2013 included 86 volunteers and removed several tons of trash and recyclables from the roadside and area waterways. Numerous dumped tractor/trailer sized tires were recovered from a pond adjacent to one of the cleanup sites. Vietnamese translated literature included educational door hangers, area trash schedule, storm drain placards and matching refrigerator magnets. Volunteers from the LANFC and community installed approximately 80 English/Vietnamese stormdrain markers in the Lealman area.

The Pinellas County Community Development and Planning Division (CDPD) identified the Lealman area as a target neighborhood for redevelopment. As a result of this designation, special efforts have been made to reach out and educate citizens in this area on a variety of local issues. The CDPD works together with several non-profit service organizations including the LANFC, The Florida Dream Center, Pinellas Sheriff's Police Athletic League (PAL), and Keep Pinellas Beautiful to conduct a series of community engagement events combining education and recreation to foster a better sense of community and citizen stewardship for their neighborhood. Educational materials regarding stormwater, water quality, and pet waste will be distributed at these events. It is anticipated that a yearly water-based cleanup stemming from Joe's Creek Greenway Park will be held to support this continuing effort to improve water quality and education.



Figure 19. Photos from Joe's Creek and Greenway Park community outreach and cleanup events.

Pinellas County Environmental Management currently has an extensive public outreach and education program. As part of the County's Bacterial Pollution Control Plans, bacterial pollution will be incorporated into educational messages where appropriate. The County's

Environmental Management website has been available to residents and visitors for several years. In 2010, the website was redesigned to coincide with the County's Watershed Education Campaign initiatives. The website can be found at www.pinellascounty.org/watershed. The website includes explanations of various monitoring and protection activities. Assortments of brochures regarding protection of water resources from stormwater pollution are available, some for free download, from the website. Examples of educational materials include information on pet waste and other sources of fecal coliform bacteria. New materials specific to pet waste are currently being developed and will be included on the website in 2016.

In addition to being available on the website, printed brochures are used by staff during complaint response or proactive residential and commercial inspections, and are distributed to interested citizens through outreach events. There are also a variety of door hangers used by volunteers for proactive or complaint-driven distribution to communities. Some of these door hangers include topics such as storm drain marking, pollution prevention, pet waste pollution prevention, erosion prevention, landscape maintenance, and fertilizer application for nutrient pollution prevention.

Public Service Announcements are also available for viewing on the website. Six videos have been created since 2012 that promote the Public Works motto of "Pinellas County is a Watershed, where we Live, Work, and Play". Each video advertizes how we live, work, and play in Pinellas County and how every activity has the potential to impact our waterways. In 2014, the videos ran on local cable network television (a variety of channels) and in three local movie theaters on both the lobby televisions and during the large-screen movie preview sessions. These videos, along with interactive banners and education messages, were also used for digital advertising outreach. In 2013 and 2014, the County advertised the Watershed Campaign on Facebook, Twitter, Tampa Bay Online, and BayNews 9 Online (a local news affiliate). Pet waste and litter are topics covered in several of the videos.

Pinellas County developed a Facebook page in 2015 devoted to environmental news: <https://www.facebook.com/PinellasEnviroNews>. Activities, events, and other news related to stormwater pollution will continue to be posted to this site. Posts specific to fecal coliform pollution prevention will be included in this effort.

Dozens of communities within Pinellas County have their own local newspapers, which have weekly and monthly issues. In 2014, the Watershed Campaign poster was published in color in each of these newspapers as well as larger, regionally distributed, newspapers on multiple occasions. Several of these newspapers are distributed throughout the Joe's Creek watershed (Suncoast News, St. Pete Tribune, The Weekly Challenger, and Tampa Bay Times).

Storm drain marking placards and door hangers have been distributed for years to volunteers as requested throughout the County and municipalities. Out of 2,173 County inlets in the Joe's Creek basin, 245 have been marked with placards containing an "only rain down the drain" message since 2008. In the City of St. Petersburg, at the end of 2008 and early 2009, Girl Scout troop 50 conducted a "silver award" project with Tampa Bay Watch and the City of St. Petersburg. Stormwater education was provided to the girl scouts and they placed placards north of 22nd Ave N between 49th Street and 66th Street. The project was concluded with letters to the homeowners associations stating the work accomplished.

Each spring, the County partners with the City of Largo to provide the Lakes & Ponds Education Seminar. This half-day seminar is open to all interested citizens in Pinellas County. The event includes exhibitor displays and speaker presentations related to the function and maintenance of stormwater ponds in Pinellas County. Attendees also have the opportunity to take home materials (educational brochures, door hangers, and native plants) to assist them in managing their privately-owned stormwater ponds. Properly functioning stormwater ponds can help reduce fecal coliform loads. The event has occurred annually since 2006.

The City of St. Petersburg holds various events throughout the city in which stormwater education materials are displayed including pet waste messages. The Green Thumb Festival attracts a large number of attendees and is located close to WBID 1668A. Various educational materials relating to stormwater, pet waste and pollution are given away including brochures developed by the County modified to include the City's contact numbers and website. The purpose of using similar educational materials throughout Pinellas County is to maintain a consistent message to all citizens.

The Town of Kenneth City provides various outlets for the public to receive information on stormwater quality and activities that could have an adverse impact on water quality. Pamphlets available at Town Hall and the Town's website, <http://www.kennethcityfl.govoffice2.com>, contain links where additional information regarding watering restrictions, fertilizer use, herbicide use, pesticide use and illicit discharges is available to the public.

3.2.7 Policy

Pinellas County, the City of St. Petersburg, and the Town of Kenneth City all have several ordinances to protect water quality including fecal coliform pollution. Each entity has an ordinance related to pet waste. For example, the Section 14-36 of the Town of Kenneth City code states:

Any droppings, excrement or feces from any dog on any public street, right-of-way, public parkway or private property of any person other than the owner or person under

whose control the dog may be at such time shall be instantly removed by such person. Failure of such person to remove it shall constitute a violation of this article, and such person shall be punished as provided in section 1-15.

Article VI of Pinellas County Code addresses stormwater and surface pollution including illicit discharges and connections. Chapter 27, Article IV of the City of St. Petersburg code and Section 70 of the Town of Kenneth City code has similar language. Per County code, fines of up to \$10,000 per violation, plus cleanup costs can be levied. The County is also currently reviewing and updating Land Development Codes to reflect new policies being developed in conjunction with a new Stormwater Manual. The manual and code updates will include Low Impact Development design options for development and redevelopment and establish the required stormwater quality performance standards. These new design options and performance standards will reduce pollutant loads from development including fecal coliform loads. The City of St. Petersburg has reviewed the draft of the manual and will move forward with land use code changes, as appropriate, to incorporate relevant sections of the manual.

3.3 Anticipated Load Reductions

Information on the efficiency of structural management actions to reduce fecal coliform loads is limited, so the effectiveness of future projects implemented from the Joe's Creek Watershed Management Plan, the Lealman and St. Petersburg ponds, and the Kenneth City ditch rehabilitation project are difficult to estimate. The majority of management actions included in this plan and the strategies that will likely have the most impact on fecal coliform loads are non-structural controls including sanitary sewer and stormwater maintenance and public outreach and education. Fecal coliform load reductions from these types of management activities cannot be directly measured and the County and municipalities are unaware of any existing guidance for estimating load reductions from these programs. Therefore, the anticipated load reductions resulting from this plan cannot be estimated with any meaningful accuracy.

Evaluating the effectiveness of this plan will therefore rely on the results of the ambient water quality monitoring program and future assessments against the water quality standards for bacteria. Monitoring conducted in support of this plan in September 2014 and May 2015 included *E. Coli* analysis, which is the new standard for bacteria in freshwater. Only 20% of the samples collected exceeded the *E. Coli* criteria of 410 MPN/100 ml. Reduction in the number of exceedances over time will be used as an indication of plan effectiveness.

4.0 Monitoring and Reporting

Monitoring in support of this Bacterial Pollution Control Plan will be conducted through the Pinellas County Environmental Management ambient water quality monitoring program. Samples are collected eight times per year and analyzed for a suite of parameters including fecal coliform at three sites in Joe's Creek. *E.coli* analysis was added to the ambient water quality monitoring program in June of 2015 following certification of the Pinellas County Utilities Laboratory for this method. In addition, Pinellas County Utilities samples at the confluence of Joe's and Miles Creeks four times per year (Figure 20). The Utilities data will be available to supplement Environmental Management's data if needed. All samples are collected according to FDEP standard operating procedures and analyzed by NELAC certified Pinellas County Utilities Laboratory (E54357). Data is uploaded to FDEP's STORET database quarterly. Annual *E. coli* exceedances, an assessment of the effectiveness of this plan, and any plan updates will be included in the NPDES annual report or in updates to the Stormwater Management Plan.

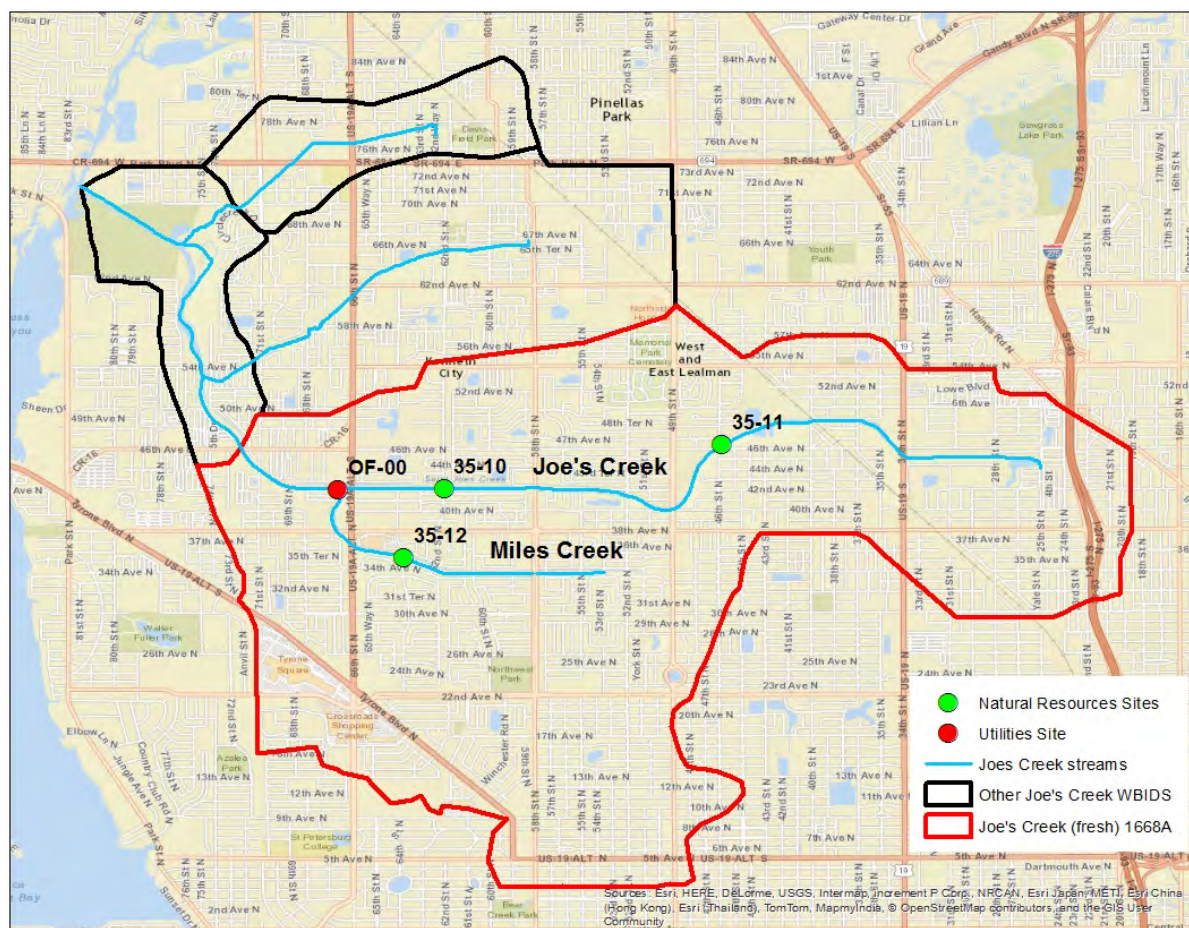


Figure 20. Pinellas County's ambient water quality monitoring stations in Joe's Creek

5.0 Summary

The efforts in Joe's Creek to identify bacteria sources through targeted sampling, desktop exercises, and field investigations was successful in engaging stakeholders to work collaboratively toward the common goal of identifying and reducing fecal coliform sources to the creek. Potential sources of fecal coliform bacteria found in Joe's Creek include:

1. Sanitary sewer issues
2. Homeless
3. Pet Waste
4. Litter and debris
5. Manure
6. Wildlife

Many anthropogenic sources were eliminated through corrective actions that occurred immediately following their identification. However, additional management strategies are needed to restore Joe's Creek to its designated use and achieve water quality targets. Both the immediate and future actions were detailed in Section 3 and linked to the identified sources in Table 6. A summary of the ongoing and future management actions by the stakeholders to reduce fecal coliform pollution in Joe's Creek includes:

Structural

- The Joe's Creek Watershed Management Plan is scheduled for completion in December 2016. Recommended BMPs from the plan will be prioritized and scheduled for implementation. Pinellas County has allocated funding for project design beginning in 2017 and for construction beginning in 2018.
- Lining of the remaining portions of unlined gravity sewer main that runs along Joe's Creek is scheduled to be complete by 2018 at an estimated cost of \$2.6 million.

Non-structural

- Sanitary Sewer Inspection and Maintenance
 - Sanitary sewer inspection and maintenance will continue in the watershed including additional inspection of manholes along Joe's Creek for signs of unreported SSOs.
- Stormwater Inspection and Maintenance
 - Stormwater inspection and maintenance will continue at the current level of service at a minimum.
 - Joe's Creek was designated as a high priority for ditch maintenance in 2014 by Pinellas County. A large volume of work has been completed since that time and it will remain a high priority until bacteria levels decrease.

- Removal of accumulated sediment and nuisance vegetation from an approximately three quarters of a mile stretch in Joe's Creek from 46 St. N to 37th St. N is planned for completion within the next few years.
 - Visual inspection for manure by both the County contractor and Stormwater Operations staff and removal from sodded ditches.
- Stormwater Pond Compliance and Enhancement
 - Pinellas County began a Stormwater Pond Compliance and Enforcement Program and reestablished the Adopt-a-Pond program in 2014. Both programs are aimed towards improving privately owned stormwater ponds. Joe's Creek is a high priority watershed in both programs.
- Code and NPDES Enforcement
 - Code and NPDES enforcement will continue in the watershed.
 - Elevated results from ambient or NPDES water quality sampling will be investigated by NPDES inspectors. Corrective actions will be implemented as appropriate.
- Litter and Debris Removal
 - Street sweeping, community clean-up events, and other litter removal are ongoing management actions in the basin. Several community events are specifically focused on problem areas in the Joe's Creek basin.
 - Pinellas County is working to identify target street sweeping areas for Joe's Creek along with a more frequent sweeping schedule.
- Public Outreach and Education
 - Public outreach and education on water quality and stormwater issues will continue County-wide and bacterial pollution information will be added to existing outreach campaigns wherever feasible.
 - Popular dog walking spots and public access areas will continue to be monitored and signage will be posted and dog waste stations provided in problem areas when needed.
 - Pinellas County began setting up educational booths at dog-related events in 2015 and will attend at least two events per year in order to reach the target audience for pet waste related issues.
 - The City of St. Petersburg will continue to include pet waste messages at the City's educational events.
- Monitoring
 - Pinellas County will continue monitoring fecal coliform and *E.coli* at the three existing sites on Joe's and Miles Creek eight times per year.
 - Monitoring data will be submitted and available for viewing and download at the Pinellas County Water Atlas and STORET.
 - Annual exceedances of the water quality standards will be used to track the success of this plan and included in the NPDES annual report.
 - Investigations will be conducted to determine potential causes for results elevated above the typical range and corrective actions will be implemented as appropriate.

- o If a high number of annual exceedances occur over consecutive years, options for additional monitoring may be evaluated as part of this plan.

Appendix A – Joe’s Creek Bacterial Pollution Control Plan Stakeholders and Working Group

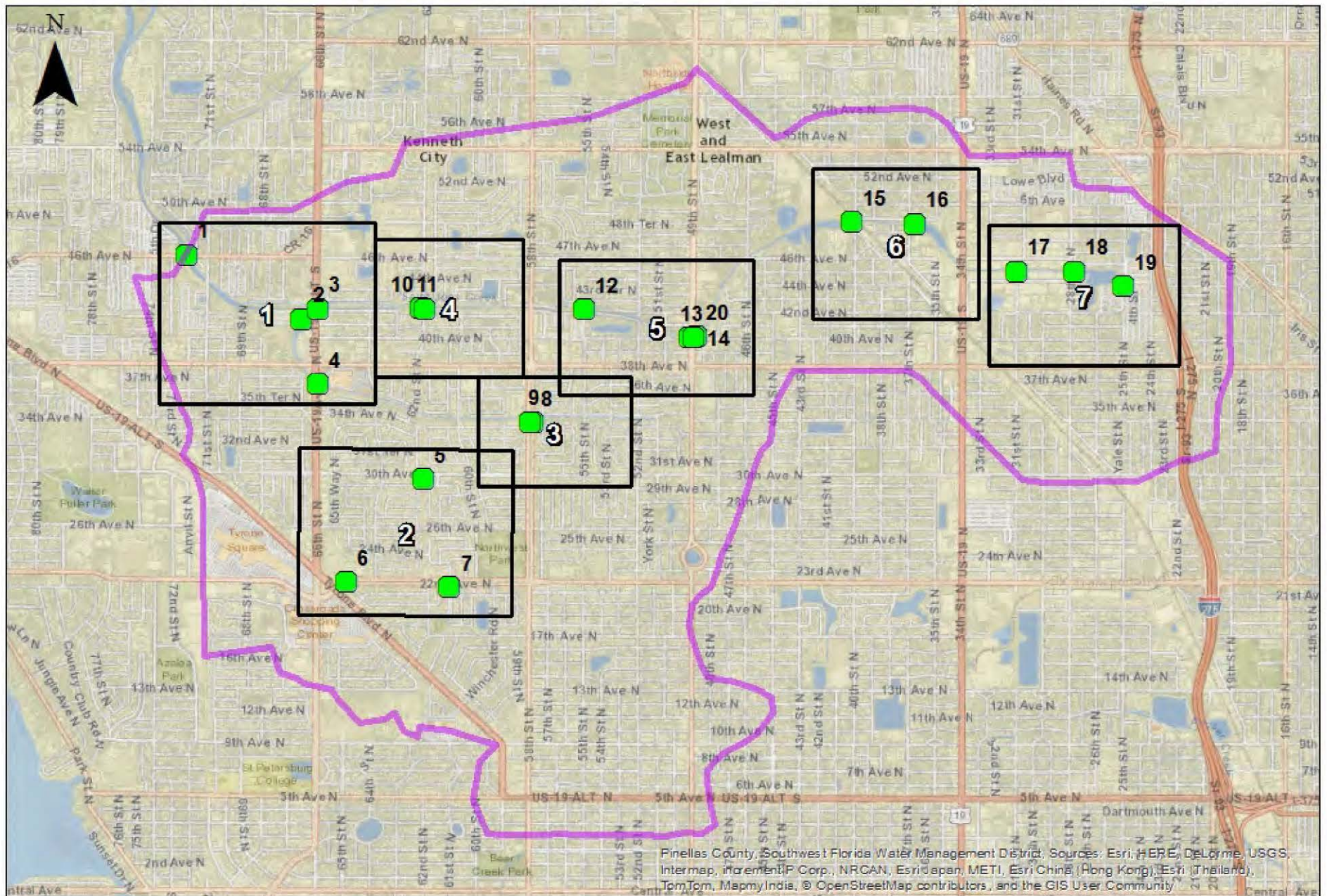
Organization	Department	Last Name	First Name
City of St. Petersburg	Code Compliance	Vasallo	Jose
City of St. Petersburg	Code Compliance	Vold	Mike
City of St. Petersburg	Engineering	Frey	Carlos
City of St. Petersburg	Stormwater	Huber	Scott
City of St. Petersburg	Stormwater	Sturgill	Sam
City of St. Petersburg	Water Resources	Lee	Anthony
City of St. Petersburg	Water Resources	Longley	Lane
City of St. Petersburg	Water Resources	Stanton	John
City of St. Petersburg	Water Resources	Zimmermann	Paul
City of St. Petersburg	Water Resources	Zinck	Rachael
CSX	Environmental Field Services	Zacker	Brian
Florida DEP	Environmental Assessment and Restoration	Nash	Anita
Florida DEP	Southwest District Watershed Monitoring	Rasnake	Erin
Florida DOH	Environmental Health	Kunce	Henry
Florida DOT	Maintenance	Kelly	Timothy
Florida DOT	Maintenance	Moore	Sue
Keep Pinellas Beautiful	Executive Director	DePlasco	Pat
Pinellas County	Code Enforcement	Martinjak	Robin
Pinellas County	Community Development	Bowman	Frank
Pinellas County	Public Works/Infrastructure	Ballard	Karen
Pinellas County	Public Works/Infrastructure	Bauer	Martin
Pinellas County	Public Works/Infrastructure	Cooper	Renee
Pinellas County	Public Works/Infrastructure	Councill	Gary
Pinellas County	Public Works/Infrastructure	Farrand	Thomas
Pinellas County	Public Works/Infrastructure	Hedden	Carol
Pinellas County	Public Works/Mosquito Control	Lawton	Brain
Pinellas County	Public Works/Environmental Management	Levy	Kelli
Pinellas County	Public Works/Stormwater	Fehrmann	Eric
Pinellas County	Public Works/Stormwater	Gras	Joseph
Pinellas County	Public Works/Stormwater	Grizzell	Dennis
Pinellas County	Public Works/Vegetation Management	Jackson	Kelvin
Pinellas County	Public Works/Vegetation Management	Novich	Mike
Pinellas County	Public Works/Vegetation Management	Reed	Debbie
Pinellas County	Public Works/Watershed Management	Harji	Rahim
Pinellas County	Public Works/Watershed Management	Harrison	Melissa
Pinellas County	Public Works/Watershed Management	Malone	Sarah
Pinellas County	Public Works/Watershed Management	McWilliams	Robert
Pinellas County	Public Works/Watershed Management	Vogel	Julie
Pinellas County	Public Works/Watershed Protection	Heintz	Chip

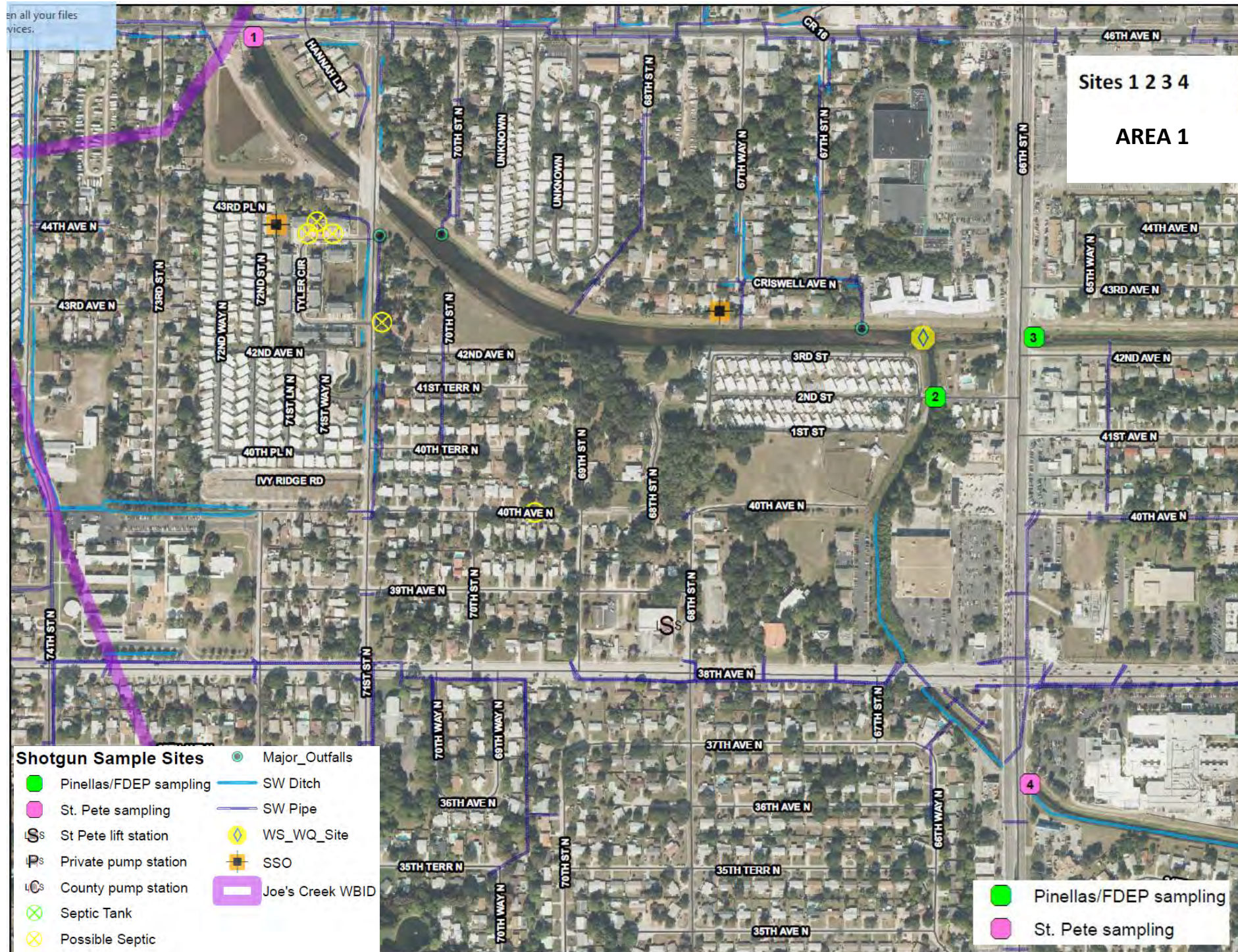
Organization	Department	Last Name	First Name
Pinellas County	Public Works/Watershed Protection	Sova	William
Pinellas County	Public Works/Watershed Protection	VanDerGracht	Sean
Pinellas County	Public Works/Watershed Protection	Weed	Melanie
Pinellas County	Sheriff's Department	Lawson, Jr.	William
Pinellas County	Utilities	Allen	Steve
Pinellas County	Utilities	Becotte	Kevin
Pinellas County	Utilities	Bingham	Joey
Pinellas County	Utilities	Bollenbacher	Alan
Pinellas County	Utilities	Dulaney	James
Pinellas County	Utilities	Englemann	Michael
Pinellas County	Utilities	Lovely	Sheri
Pinellas County	Utilities	Maccini	Michelle
Pinellas County	Utilities	Milford	Michelle
Pinellas County	Utilities	Mitchell	Anderson
Pinellas County	Utilities	Moretuzzo	Ron
Pinellas County	Utilities	Roldan	Angel
Pinellas County	Utilities	Ross	Megan
Town of Kenneth City	Stormwater Consultant	Keller	Justin
Town of Kenneth City	Town Manager	Campbell	Matthew
UF/IFAS	Extension	Milligan	Lara

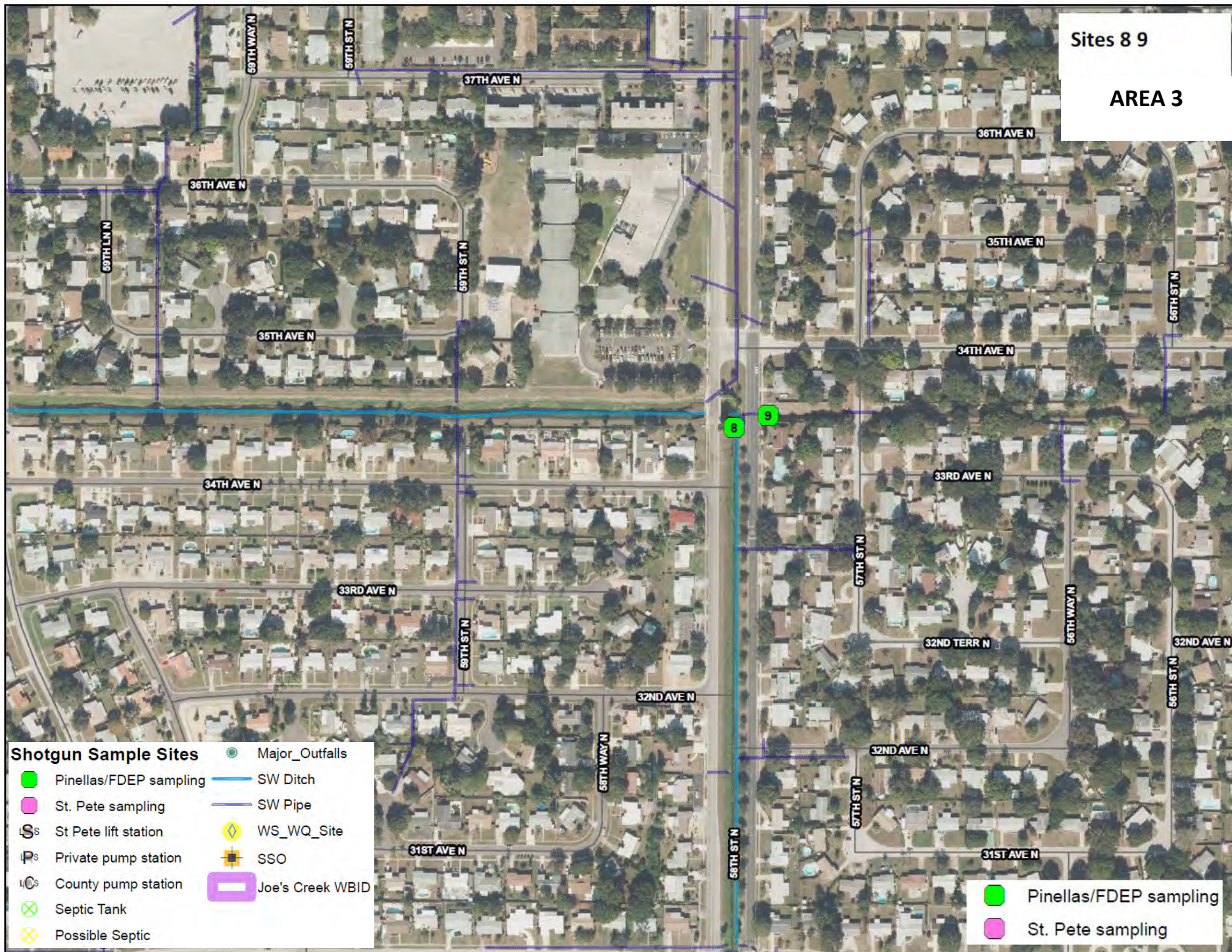
Appendix B - Microbial Source Tracking Sample Sites

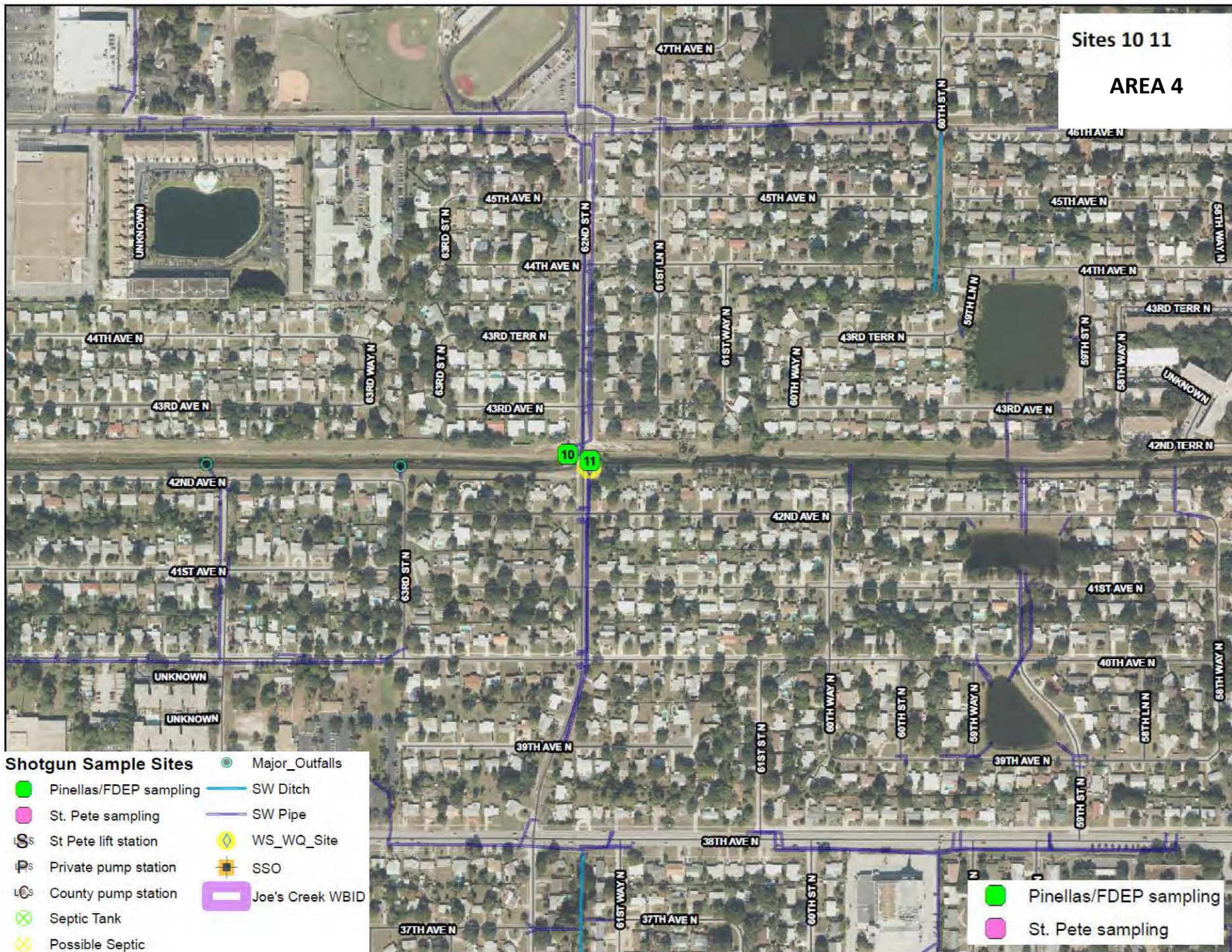
Microbial Source Tracking Sites

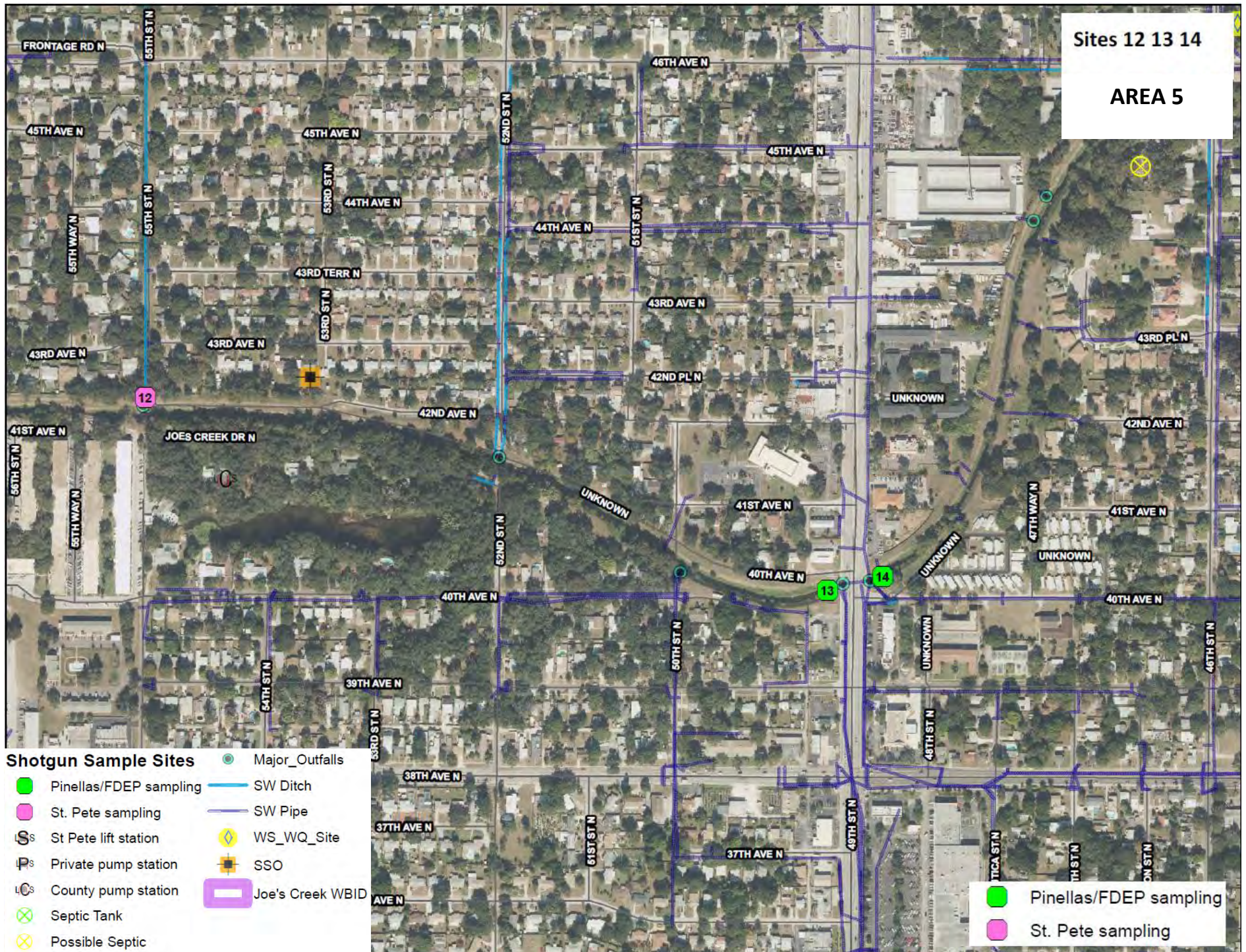
OVERVIEW







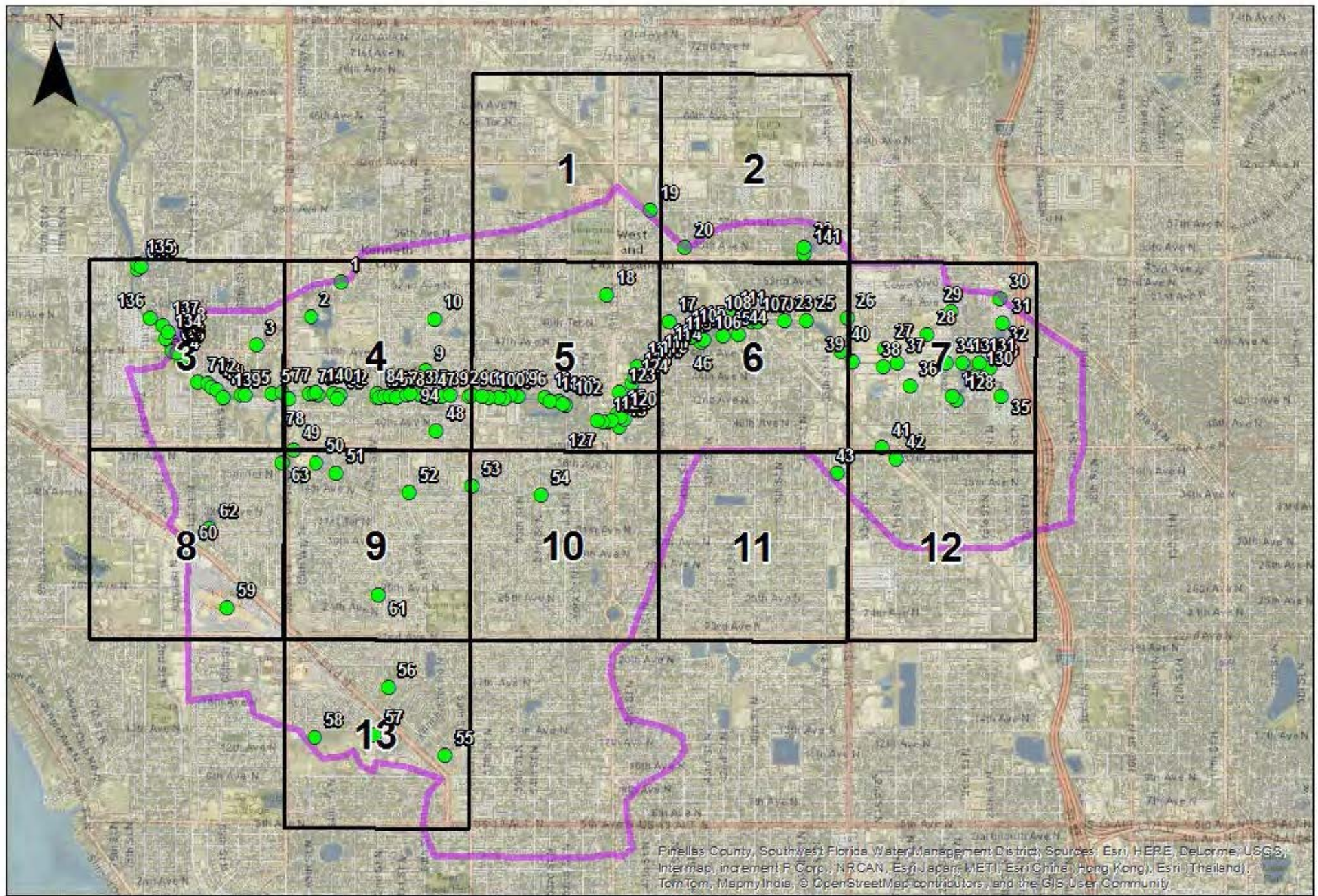




Appendix C - Joe's Creek Field Inspection Map

Joe's Creek Inspection Points

OVERVIEW



Joe's Creek WBID 1668A Inspection Point

0 500 1,000 2,000 Meters

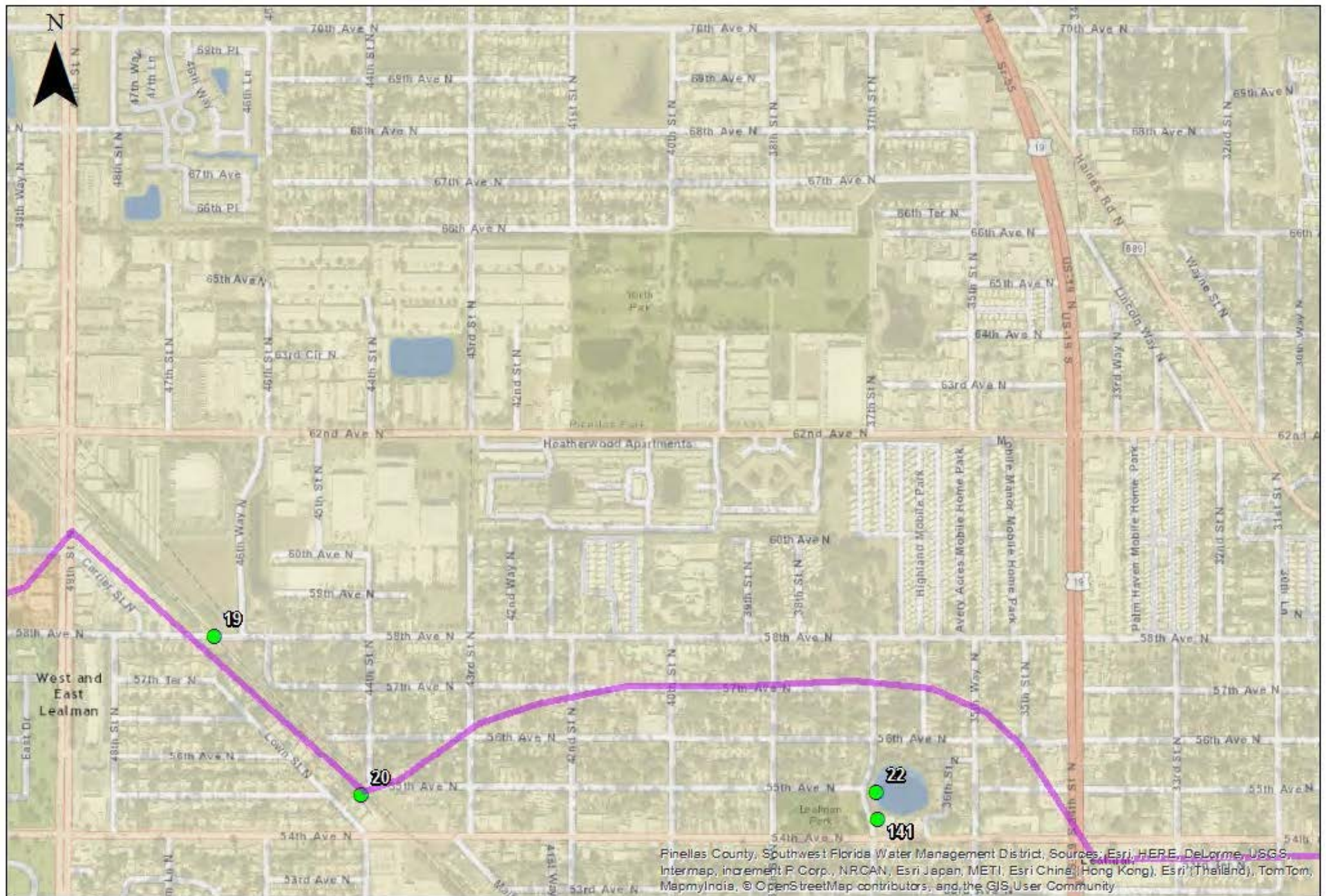
AREA 1



0 125 250 500 Meters

Joe's Creek Inspection Points

AREA 2



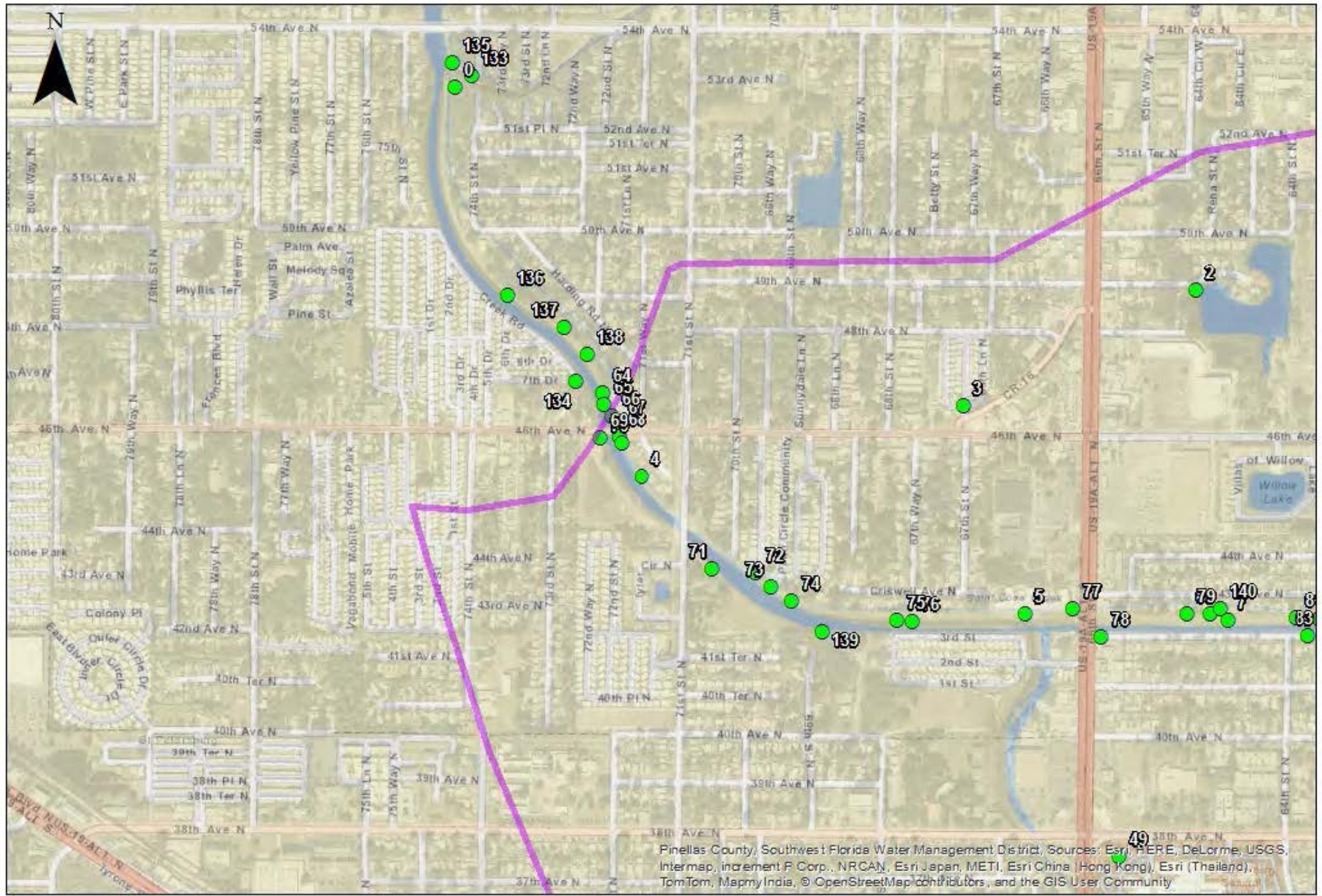
 Joe's Creek WBID 1668A ● Inspection Point

0 125 250 500 Meters

C - 4

Joe's Creek Inspection Points

AREA 3



Joese Creek WBID 1668A Inspection Point

0 125 250 500 Meters

C - 5

AREA 4

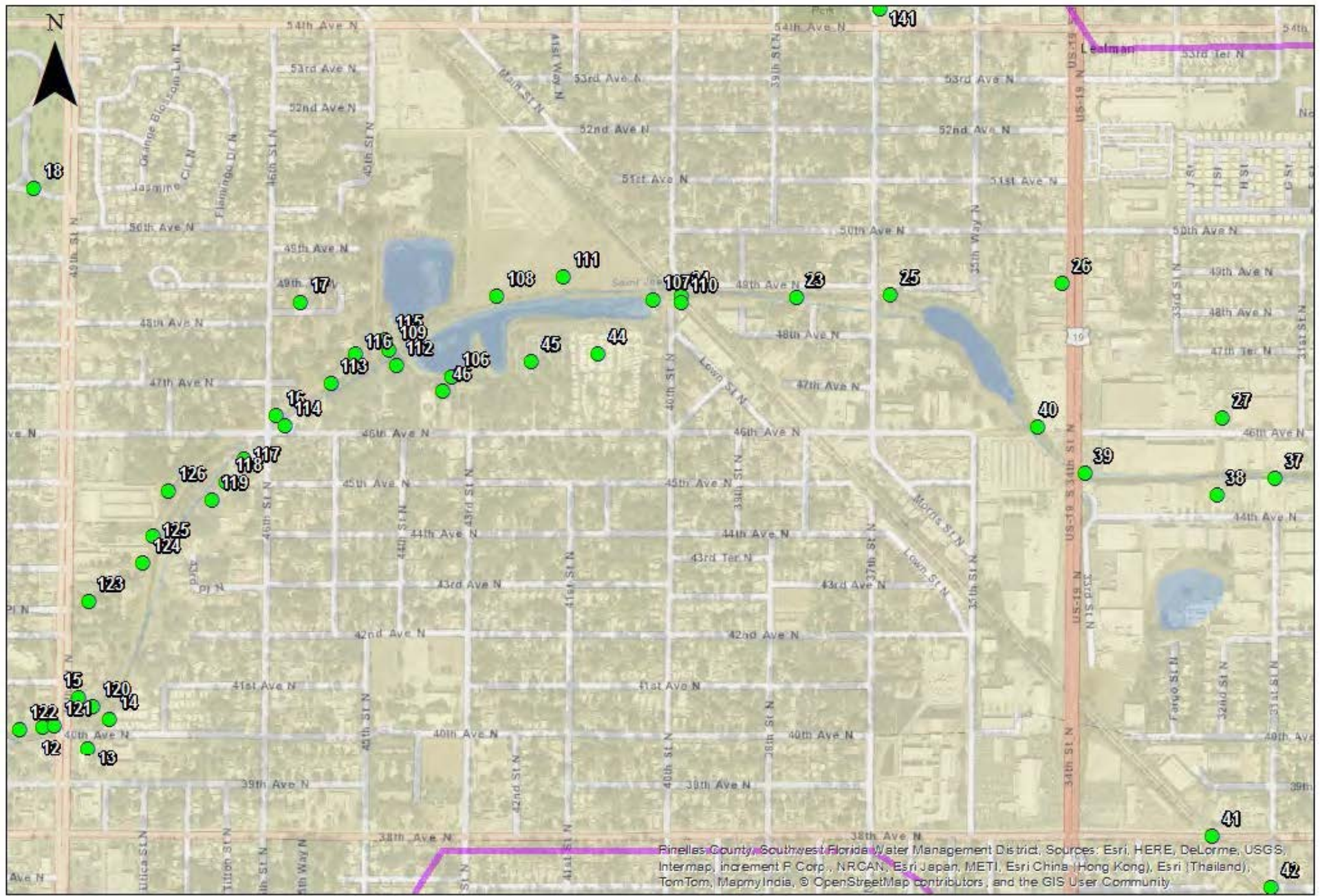


AREA 5



Joe's Creek Inspection Points

AREA 6



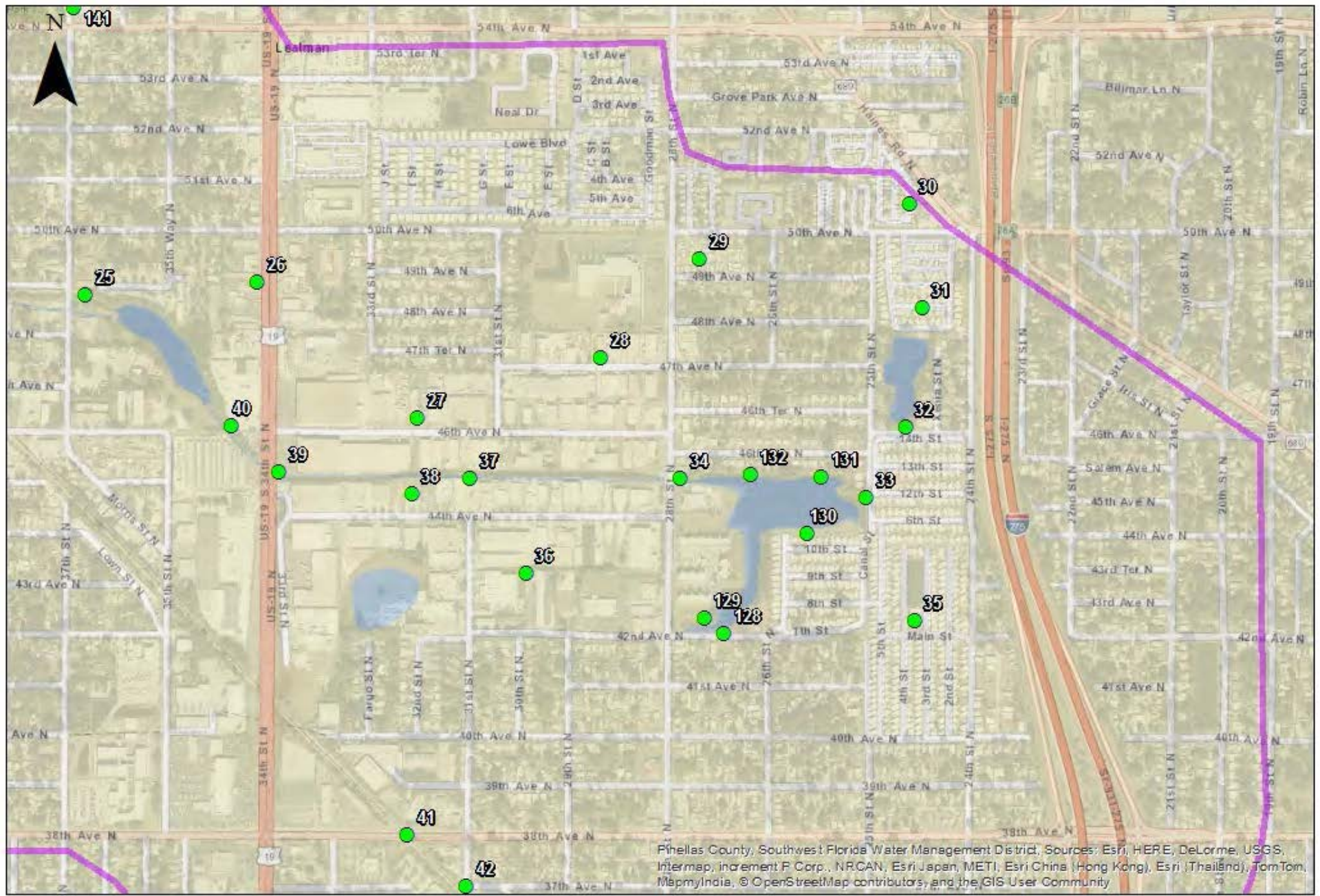
Joe's Creek WBID 1668A ● Inspection Point

0 125 250 500 Meters

C - 8

Joe's Creek Inspection Points

AREA 7

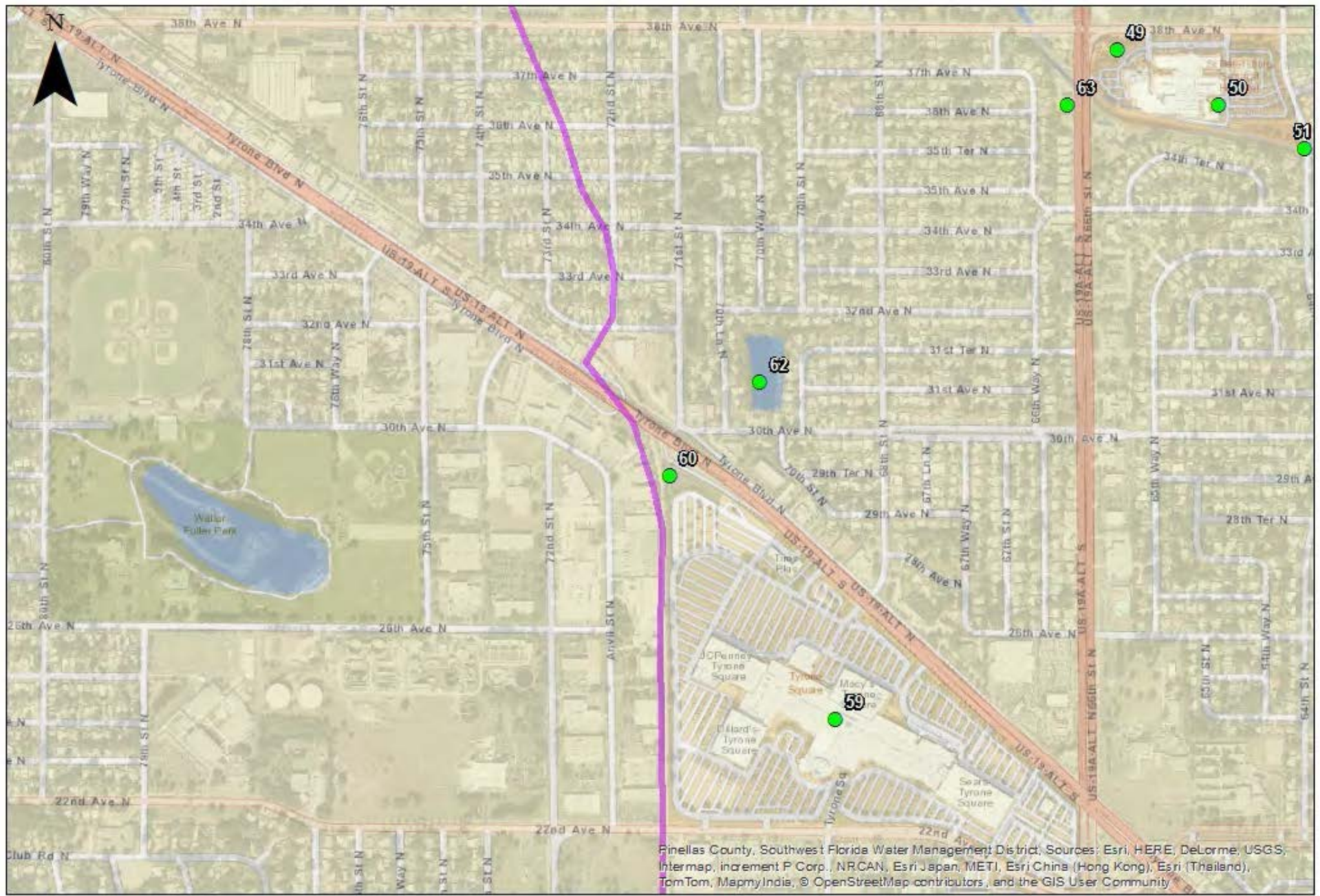


Joe's Creek WBID 1668A Inspection Point

0 125 250 500 Meters

Joe's Creek Inspection Points

AREA 8



Pinellas County, Southwest Florida Water Management District, Sources: Esri, HERE, DeLorme, USGS, Intermap, increment P Corp., NRCAN, Esri Japan, METI, Esri China (Hong Kong), Esri (Thailand), TomTom, MapmyIndia, © OpenStreetMap contributors, and the GIS User Community

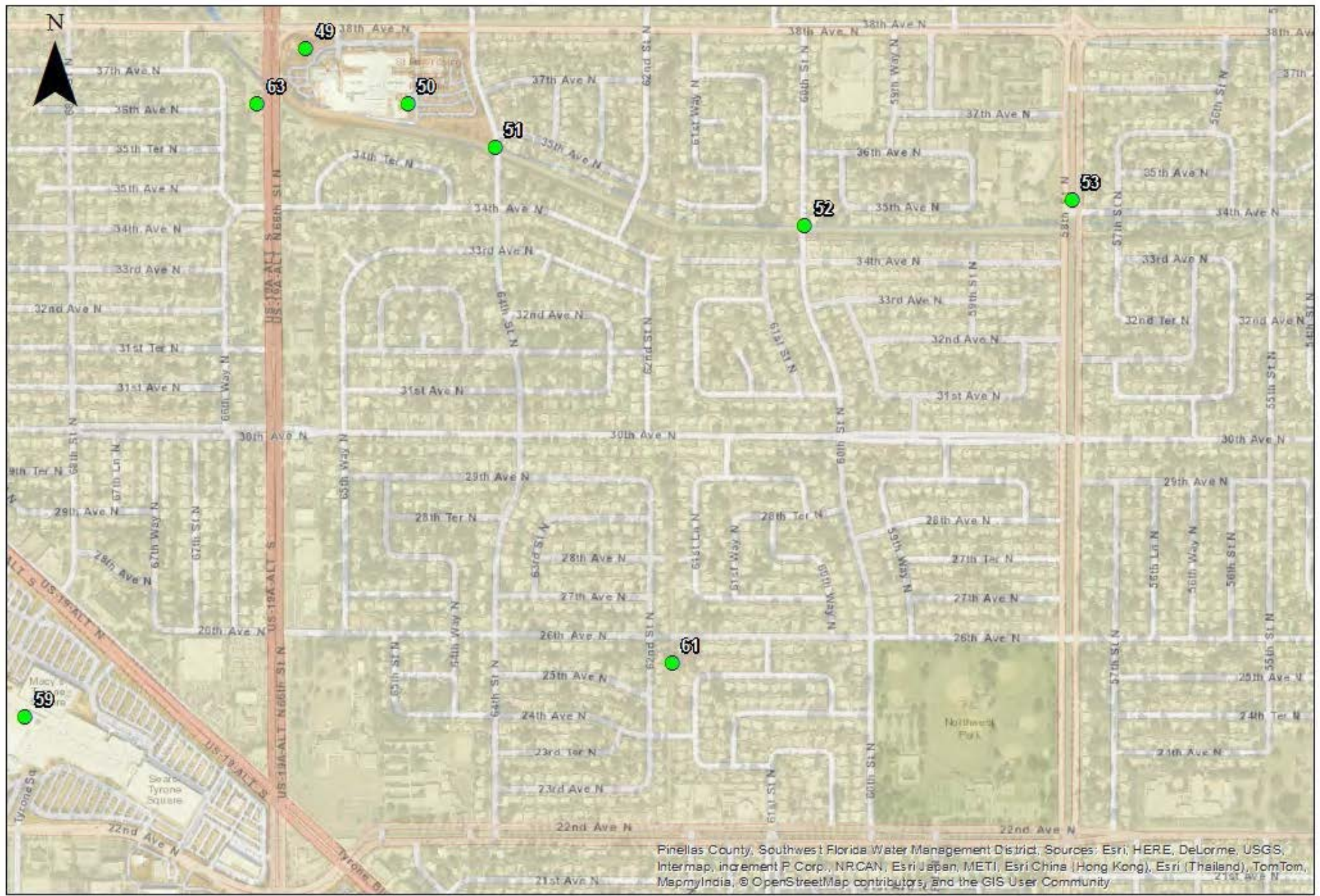
Joese Creek WBID 1668A Inspection Point

0 125 250 500 Meters

C - 10

Joe's Creek Inspection Points

AREA 9

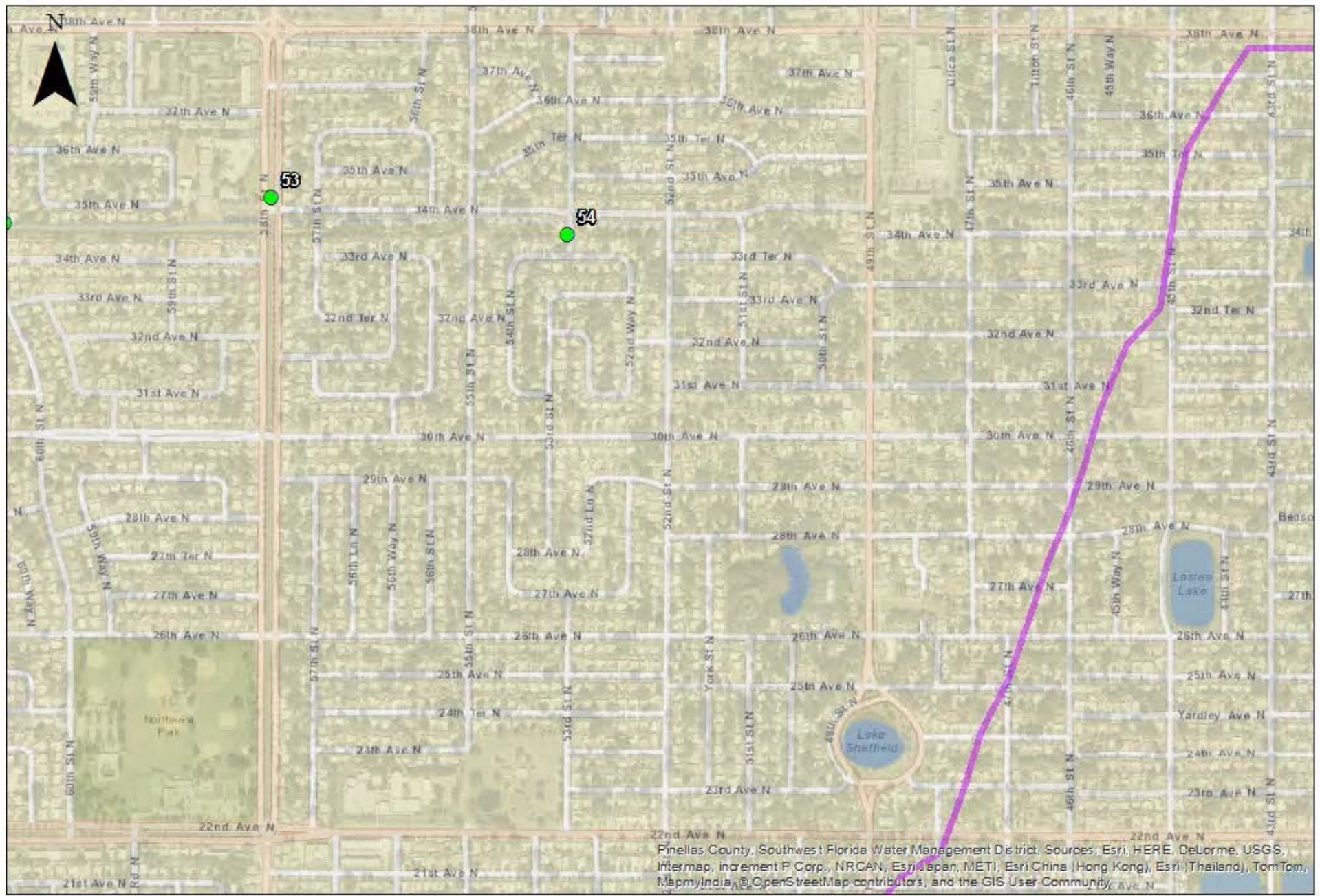


 Joe's Creek WBID 1668A ● Inspection Point

0 125 250 500 Meters

Joe's Creek Inspection Points

AREA 10

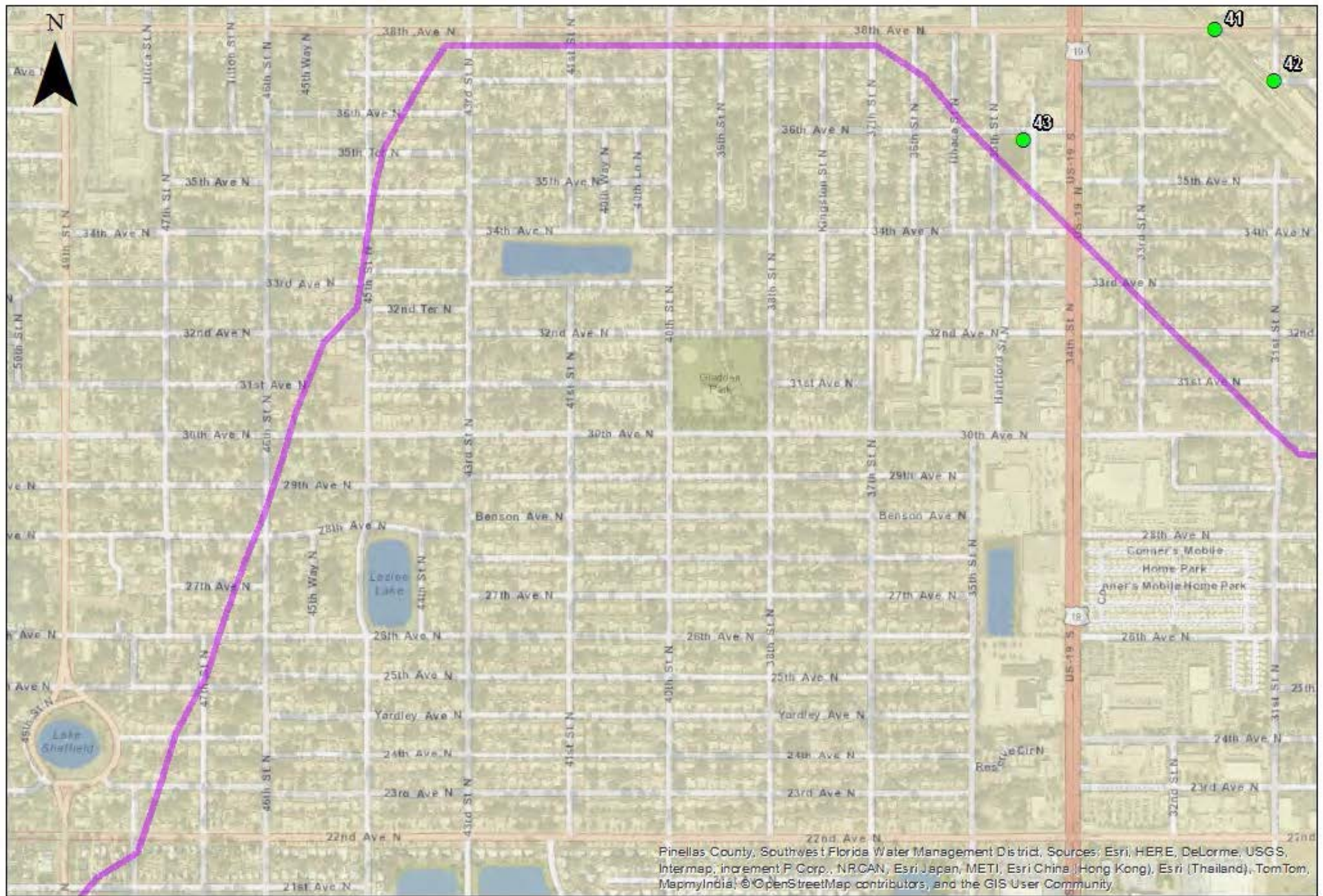


 Joes Creek WBID 1668A ● Inspection Point

0 125 250 500 Meters

Joe's Creek Inspection Points

AREA 11

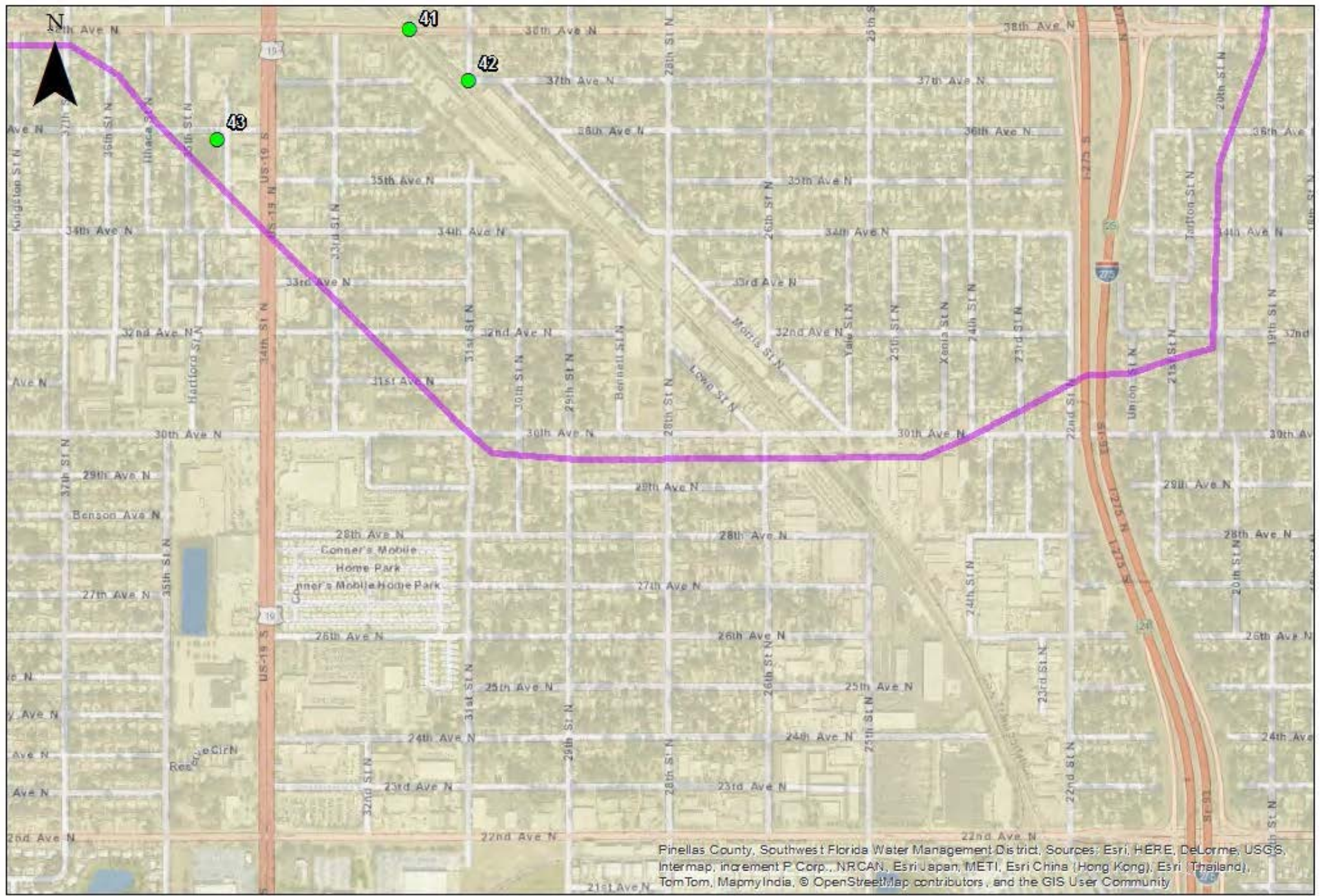


Joe's Creek WBID 1668A Inspection Point

0 125 250 500 Meters

Joe's Creek Inspection Points

AREA 12

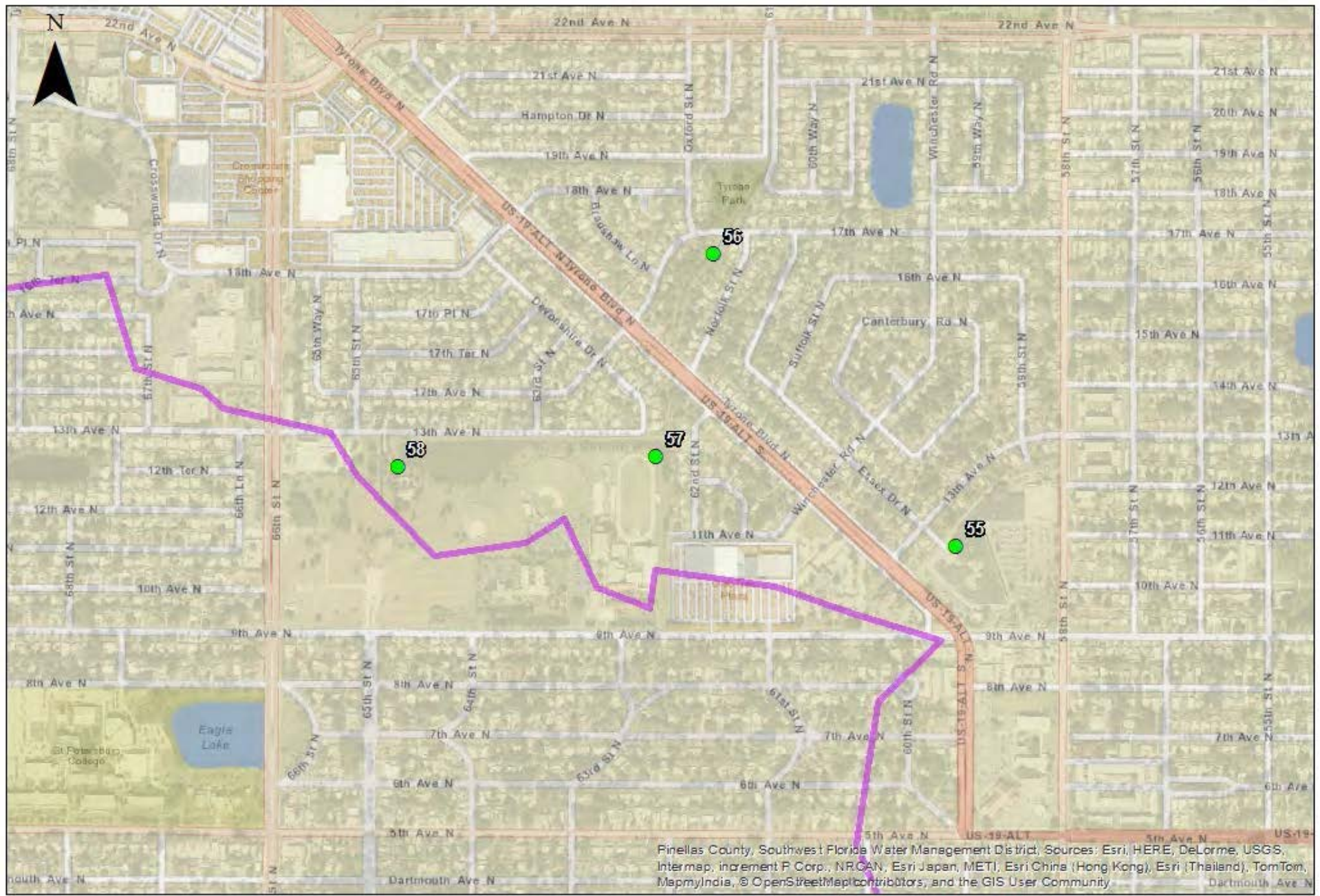


Joe's Creek WBID 1668A ● Inspection Point

0 125 250 500 Meters

Joe's Creek Inspection Points

AREA 13



Joe's Creek WBID 1668A Inspection Point

0 125 250 500 Meters

C - 15

Appendix D – Joe’s Creek Field Inspection Tracking Form

Map Point	Map Page	Location Description	Issue Description from Maps on the Table	Problems Found	Category	Jurisdiction	Follow up needed?	Responsible party	Actions taken	Additional Findings	Action Completion Date
0	C-5	74th St and 54th Ave (not under bridge, but one block south of intersection)	homeless camp	Active homeless camp, tents, trash, people present. About 10 dogs in yard that back up to the creek	Homeless	County	Yes	NPDES	Inspected by NPDES staff.	Found one abandoned camp and no active camps in the vicinity. Dec. 23rd MH met with Deputy Lawson to inspect area for homeless activity, lots of trash, and possible code violations, but no apparent active homeless camps	10/08/2014
0a	C-5	52nd Ave N and 74th St S	n/a	2 man holes show signs of recent SSOs, ID 15HN-SM2804 and 15HN-SM1024	Sewer	County	Yes	Utilities	generate work order for followup/corrective action - WO #'s 1558826, 1564384	The main lines along Joe's Creek that were located here were cleaned. There are no breaks in the segments and the line is flowing normally. New ring and covers were installed and additional concrete was poured to ensure a proper seal. See photos #1 & #2 (duplicated - map point 133)	11/26/2014
0b	C-5	South side of Bonn Creek near 74th St N	n/a	yard waste being thrown from back yard into creek	Other	County	Yes	NPDES	send to PPWMD by Tom Farrand on 9/26/14 and again by Chip Heinz	n/a	n/a
1	C-6	5105 64th St N	potential homeless camp and other possible pollution sources	drive by only, don't suspect any current bacteria sources	Homeless	County	No	n/a	n/a	n/a	n/a
2	C-6	Dixie Hollins	trash, homeless (Dixie Hollands)	looks like it has been cleaned up by the school board, Muscovy ducks in the pond	Homeless	County	No	n/a	n/a	n/a	n/a
2a	C-6	66th St N and 50th Ave N (w of 66th)		fruit stand with a dumpster needs a plug, area looks clean	Trash	County	Yes	NPDES	NPDES Staff inspected site	Dumpster needs drain plug/was installed by staff from Solar Sanitation	09/03/2015
3	C-5	N of 46 th Ave N east of 66th St N	MHP poorly maintained, trash	coyote waste	Animal	County	No	n/a	n/a	n/a	n/a
4	C-5	SW corner of 46th Ave and 71st St	dog walking area	fish cleaning (guts and bones on a manhole), white film at outfall from pond and flowing downstream	Animal	County	Yes	NPDES	Inspected by NPDES staff.	No white film, water discharging from pond was clear.	11/08/2014
5	C-5	66th st on Joe's Creek (north side)	poorly maintained nursing home (check out back on creek)	dumpster open and overflowing, could not see if there was medical waste. According to Tom, this area used to be a problem, but is now much cleaner	Trash	County	Yes	NPDES	Inspected by County NPDES staff.	No trash on site or along the creek found. Dumpster area was clean. Staff says this area is typically clean now.	11/08/2014
6	C-6	62nd on Joe's Creek	Sanitary pipe could be cracked? High flow event could cause it to flex and leak)	only seen from afar	Sewer	County	Yes	Utilities	Checked maps and discussed with St. Pete staff.	Determined this is a potable water pipe, not wastewater. No follow up needed	n/a
7	C-6	north side of Joe's from 58th to 66th	dog walking area	skipped	Animal	County	Yes		inspected during County PW and Utilities follow up	see follow up entries	10/23/2014
8	C-6	61st st at the creek	sanitary pipe encased in concrete in the creek channel	skipped	Sewer	County	No	n/a	n/a	n/a	n/a
9	C-6	60th st to 44th ave N to 46th Ave n	Ducks and dead animals (Ditch goes south past 44th ave and turn west then to Joe's creek).	currently under construction. Witnessed dog walking	Animal	County	No	n/a	n/a	n/a	n/a
10	C-6	49th ave N east of 58th St N	Pump station has had some SSOs	This was redone 1.5 years ago. Looks good, clean	Sewer	County	No	n/a	n/a	n/a	n/a
11	C-7	N of Joe's Creek at 42nd Ave N	dog walking area	skipped	Animal	County	No	n/a	n/a	n/a	n/a
12	C-7	49th St at Joe's Creek	dog walking area (north side), possible homeless	none	Animal	County	No	n/a	n/a	n/a	n/a

Map Point	Map Page	Location Description	Issue Description from Maps on the Table	Problems Found	Category	Jurisdiction	Follow up needed?	Responsible party	Actions taken	Additional Findings	Action Completion Date
13	C-7	49th Ave n south of Joe's Creek	Biff Burgers - dumpsters	clean	Trash	County	No	n/a	n/a	n/a	n/a
14	C-7	49th St N and 40th Ave N	MHP, possible septic	clean	Septic	County	No	n/a	n/a	n/a	n/a
15	C-7	McDonald's on 49th (n of Joe's Crk)	Trash, dumpsters	clean	Trash	County	No	n/a	n/a	n/a	n/a
16	C-8	46th and 46th	ducks	skipped	Animal	County	No	n/a	n/a	n/a	n/a
17	C-9	49th Terr N	Several homes with no sanitary sewer billing info , may be on septic	nothing found	Septic	County	No	n/a	n/a	n/a	n/a
18	C-10	W of 49th - Memorial Park Cemetery	wildlife, coyotes	drive by only	Animal	County	No	n/a	n/a	n/a	n/a
19	C-3	58th Ave and 46th Way N at railroad tracks	homeless camp	went to 20b instead	Homeless	County	Yes	NPDES	Inspected by NPDES staff, forwarded to CSX for cleanup. Cleanup schedule Jan 2015	Abandoned homeless camps. CSX completed cleanup	01/31/2015
20	C-3	N of 54th Ave near railroad tracks	homeless camp	went to 20b instead	Homeless	County	Yes	NPDES	Inspected by NPDES staff, forwarded to CSX for cleanup. Cleanup schedule Jan 2015	Ditch full of trash. CXS completed cleanup .	01/31/2015
20b	C-3	Dead end of Main St N S of 54th Ave N		sanitary manhole in ditch looks okay. Oily film on water in ditch, air potato, iron bacteria in ditch (reddish-brown slime)	Sewer	County	Yes	NPDES	Follow up inspection	Filamentous algae growing, but no iron colored slime. Light colored fungus feeding of of dead vegetation	09/04/2015
21	C-4	Quickie Mart near 54th Ave and 37th st	dumpster	lid open, trash around and looks like it gets flushed into pond	Trash	County	Yes	NPDES	Inspected by NPDES staff	Homeless hang out and drink in this area. Owner agreed to police the area and pick up trash.	10/08/2014
22	C-4	pond N of 54th Ave, E of 37th St.	trash	some trash in pond	Trash	County	No	NPDES			
22a	C-4	ditch west of 37th St N north of 54th Ave N		sewage smell, brown slime in water	Sewer	County	Yes	NPDES	Follow up samples taken, forwarded to water and sewer, WO# 1558827 and 1559390 to 1559393, 1559395, and 1559397 to 1559400	TV'd storms sewer, sanitary main, and laterals. Cleaned sanitary main and storm sewer.	11/21/2014
22b	C-4	ditch east of 37th St N north of 54th Ave N		manure on sod, manure smell in water, turbidity plume from pipe	Animal	County	Yes	NPDES	Researched sod company, confirmed with Tom's sod and that Bahia was from a cattle pasture purchased from Desoto sod. No answer from RB sod on St. Augustine. NPDES is sampling newly sodded ditched to determine if this is a County wide issue. If so, changes will be made to ditch maintenance process.	Ditches sampled day of walk and again on 10/1/2014 with high results (10k to 25k). Storm sewer and sanitary main were TV'd same as 22a.	ongoing
22c	C-4	s side of 54th Ave N west of 37th St N		Animal hospital with poo station in front, but 4 poos found	Animal	County	No	n/a	n/a	n/a	n/a
23	C-8	South of 49th west of 37th St	Dog walking area	drive by only	Animal	County	No	n/a	n/a	n/a	n/a
24	C-8	40th St N at Joe's Creek (under railroad tracks)	accumulation of trash and debris and possible homeless	Some trash, neighbor confirmed homeless sleep under tracks at times	Homeless	County	No	n/a	n/a	n/a	n/a
25	C-8	37th St N and Joe's Creek	homeless and trash in culvert	looks okay	Homeless	County	No	n/a	n/a	n/a	n/a
26	C-8	34th St, north of Joe's Creek on west side	poorly maintained hotels	drive by only	Other	County	No	n/a	n/a	n/a	n/a
27	C-9	34th st and 46th ave N (or 47th Terri N, E of 34th st)	Kellogg's Kennel	no plug in dumpster, kitty litter in dumpster, open cans of pet food in dumpster, lid open. Spoke to owner who said Waste Management puts the dumpster too close to the fence to close lid	Animal	County	Yes	NPDES	Follow up inspection by NPDES	Dumpster lid closed and plug installed.	10/08/2014

Map Point	Map Page	Location Description	Issue Description from Maps on the Table	Problems Found	Category	Jurisdiction	Follow up needed?	Responsible party	Actions taken	Additional Findings	Action Completion Date
28	C-9	2911 47th ave N 47th	Friends of Strays adoption center - ditch runs directly behind facility, dogs are walked in the dry pond	oily sheen/yellow foam in ditch behind building, walked ditch - industry backs up to it with litter, buckets, scrap metal, etc. Piles of dirt at school, with no silt fence - signs it has made its way into the ditch. Pond in dog walking area was wet. No signs of poo, but may be good to talk to owner. Some trash in the ditch	Animal	County	Yes	NPDES	Follow up inspection by NPDES	No feces, trash or other animal issues in evidence. Heavy rains have caused a standing water issue in ditch which is in County easement. Manager was given Stormwater Ops # to submit a drainage complaint	09/04/2015
28a	C-9	46th Ave N west of 28th St N	Sammy's Seafood	seafood company. Smelled fishy. Didn't look in back. Clean out front	Restaurant	County	Yes	NPDES	Inspected by NPDES staff	Confirmed flow from this location was not contributing to discharge at site 34	10/08/2014
29	C-9	n of 48th Ave N	MHP - older and not well maintained	drive by, run down, but nothing else to note	MHP	County	No	n/a	n/a	n/a	n/a
30	C-9	Haines and 50th	MHP poorly maintained	skipped	MHP	County	No	n/a	n/a	n/a	n/a
31	C-9	All MHPs in area	MHPs poorly maintained	drive by only	MHP	County	No	n/a	n/a	n/a	n/a
32	C-9	N of 46th ave between 24th and 25th st	homeless	no signs of homeless, fairly clean, 7 wading birds	Homeless	County	No	n/a	n/a	n/a	n/a
33	C-9	Dead end of 25th st N	Silver Lake - trash	skipped	Trash	County	No	n/a	n/a	n/a	n/a
34	C-9	28th st at Joe's Creek, under bridge	homeless, trash	pipe discharging into creek, faint fish smell detected. Animal waste (raccoon?)	Animal	County	Yes	NPDES	Inspected by NPDES staff	Flows appear to be natural groundwater and ditch flows	10/08/2014
35	C-9	46th ave and 25th st	MHP that drains to Silver Lake, not well maintained	drive by only	MHP	County	No	n/a	n/a	n/a	n/a
36	C-9	44th ave N and 28th st N	industry and homeless	drive by only	Homeless	County	Yes	Codes	Inspected by NPDES staff	Follow up inspection did not find any homeless, but this area will continue monitored	09/04/2015
37	C-9	south side of Joe's Creek between 28th and 34th	industry, across the creek is the county pump station with an end wall that is compromised	drive by only	Sewer	County	Yes	Utilities	Follow-up: part of the wall along the creek (on private property) is eroded - the pump station is intact and is not compromised. No leaks detected. The owner was notified of the problem, but the County has no mechanism to force the private owner to repair the wall.	n/a	n/a
38	C-9	3121 44th ave N	Crematory	drive by only	Other	County	Yes	NPDES	Follow up inspection.	Very well maintained, no problems observed	09/04/2015
39	C-9	US 19 N and Joe's Creek	Kanes Furniture, birds and trash	drive by only	Trash	County	Yes	NPDES	Inspected by NPDES staff.	No trash found. Two birds were in the culvert (egret and limpkin)	10/08/2014
40	C-9	34th St n and Joe's (west side)	history of large homeless camps on north side, new camps on south side	North side looks clean	Homeless	County	Yes	NPDES	South side inspected by NPDES staff.	No evidence of homeless.	10/08/2014
41	C-9	38th Ave N and Railroad tracks	St. Pete stormwater pump at underpass and homeless on entire rail line from here S	RR track bridge - discarded clothing and trash, areas where homeless use the bathroom and sleep, signs of drug use - needles, spoons, razor blades. St. Pete is getting permits to clean ditch to the north	Homeless	St. Pete	Yes	DOH, St. Pete PD?	Pinellas County forwarded to CSX. CSX scheduled clean up for Jan 2015. Asked St. Pete NPDES group to notify St. Pete PD so the area can be monitored and stay clean.	CSX completed bio waste cleanup. CSX and Pinellas County to work on collaboration for maintenance of ditches, mowing, trash pick up along railroad, and security/homeless issues.	01/31/2015
42	C-9	37th ave and 31st st - railroad tracks	homeless along railroad tracks	walked 42 north to 41, fairly clean	Homeless	St. Pete	No	n/a	n/a	n/a	n/a
43	C-13	36th Ave N and Hartford St N	Pond, homeless, birds, trash, dogs	some trash in pond. Duck droppings. Trash at Value Pond appears to have been there for some time. Value Pond needs to be asked to clean lot	Trash	St. Pete	No	St. Pete	Forwarded to St. Petersburg 8/27/2015	Hartford Lake is maintained by City quarterly or more frequently. Homeless in area are relocated by City staff on a regular basis.	08/27/2015
44	C-8	46th Ave N west of 40th St N	MHP - Wood Acres	skipped	MHP	County	No	n/a	n/a	n/a	n/a
45	C-8	46th between 40th and 46th	nurseries	skipped	Other	County	No	NPDES	n/a	n/a	n/a

Map Point	Map Page	Location Description	Issue Description from Maps on the Table	Problems Found	Category	Jurisdiction	Follow up needed?	Responsible party	Actions taken	Additional Findings	Action Completion Date
46	C-8	Greenway Park	birds, turtles, wildlife	skipped	Animal	County	Yes	NPDES	Follow up inspection by TMDL staff. See 106 to 112.	n/a	n/a
47	C-7	42nd ave N between 58th ST and 62nd st	citrus in back yard of homes that fall on easement on creek, otters	skipped	Citrus	County	Yes	NPDES	walked area during second investigation	n/a	n/a
48	C-7	Sunhaven Lake 39th ave and 58th st N	dogs, ducks, and trash on lake	skipped	Animal	St. Pete	?				
49	C-6	66th st N and 38th ave	homeless camp	drive by only, didn't see anything	Homeless	St. Pete	No				
50	C-11	66th st N and 38th Av N - St. Pete General	hospital - parking lot sheet flows to creek	open construction dumpster, some leaking, leaves covering inlet grate - needs cleaning, smelly, oily, and rusty concrete around dumpsters, biohazard bins in back (all closed)	Other	St. Pete	Yes				
51	C-11	Miles Crk from Hospital to 47th St N	drive the ditch, wildlife, dog walking, trash, other	drove as much of ditch as we could, 2 birds, 3 turtles, on pipe discharging into ditch	Animal	St. Pete	No				
52	C-11	Miles Crk from Hospital to 47th St N	drive the ditch, wildlife, dog walking, trash, other	see 51	Animal	St. Pete	?				
53	C-12	58th St N north of Miles Creek	shallow pond, dog walking	skipped	Animal	St. Pete	?				
54	C-12	Miles Crk from Hospital to 47th St N	drive the ditch, wildlife, dog walking, trash, other	see 51, ditch is heavily vegetated east of 58th	Animal	St. Pete	?				
55	C-15	9th ave N and 58th st N	Tyrone Gardens strip mall, poorly maintained, dumpster diving	About 20 dumpsters and several grease containers. Most were pretty clean. 3 open dumpsters. 3 bags of trash not in dumpsters. 2 grease containers with some staining around concrete, one was behind Win Dixie. One person actively dumpster diving	Trash	St. Pete	?				
56	C-15	Norfolk and 19h ave N	ditch, walk and park w/ drainage easement. Lots of dog walking, wildlife, some otters	skipped	Animal	St. Pete	?				
57	C-15	Tyrone Blvd	St. Pete Catholic HS, homeless	drive by only	Homeless	St. Pete	?				
58	C-15	Tyrone Blvd	Homeless (private property)	drive by only	Homeless	St. Pete	?				
59	C-10	Tyrone Blvd	Tyrone Square mall - no WQ treatment	Several dumpsters were in the truck wells - does this get washed into the MS4? Dumpster behind Hooters had staining on concrete. Grease container looks like it had been an issue in the past, but now has secondary containment	Trash	St. Pete	?				
60		Pinellas Trail near Tyrone Square mall	homeless camp	skipped	Homeless	St. Pete	?				
61	C-11	62nd St from 38th Ave to 22nd Ave N	urbanized, alley, lots of wildlife, trash accumulation at end of 38th	skipped	Trash	St. Pete	?				
62	C-10	Lake Teresa	wildlife, ducks, dog, no trash service in passive green space	skipped	Animal	St. Pete	?				
63	C-11	Arigato's	dumpster that discharges to creek, grease problems in past	Rancid small coming from dumpster. Grease drums need to be removed. Two toilets next to dumpster	Restaurant	St. Pete	Yes	St. Pete	Dumpsters changed out by sanitation dept, drums pumped out and removed, toilets and other debris removed. Dumpster can't be moved per code.		09/26/2014
64	C-5	North of 46th	n/a	Trash Accumulation	Trash	County	No	n/a	n/a	n/a	n/a
65	C-5	Joe's Creek right of way	n/a	Wildlife feeding, fruit trees	Animal	County	No	n/a	n/a	n/a	n/a
66	C-5	Joe's Creek right of way	n/a	Sewer smell	Sewer	County	Yes	NPDES	Reinspected on 11/5/14 - no odor	n/a	11/05/2014
67	C-5	Right at 46th Ave.	n/a	Citrus tree	Citrus	County	No	n/a	n/a	n/a	n/a
68	C-5	46th Ave.	n/a	Trash, birds near pipe on 46th	Animal	County	No	n/a	n/a	n/a	n/a

Map Point	Map Page	Location Description	Issue Description from Maps on the Table	Problems Found	Category	Jurisdiction	Follow up needed?	Responsible party	Actions taken	Additional Findings	Action Completion Date
69	C-5	46th Ave.	n/a	Dog feces at bridge, many food wrappers, major trash accumulation at sewer pipe, long filamentous surface scum	Animal	County	Yes	Watershed Interns	Distribute door hangers to Apt. Complex at 7211 46th Ave. N	10 doorhangers distributed	02/09/2015
70	C-5	46th Ave. on top of bridge	n/a	Dead cat	Animal	County	No	n/a	n/a	n/a	n/a
71	C-5	Joe's Creek right of way	n/a	Few dog feces near large grassy area.	Animal	County	Yes	Watershed Interns	Distribute door hangers to all homes south of 46th Ave. N between 71st St. N and 68th St. N	15 doorhangers left with front office to distribute	02/09/2015
72	C-5	Joe's Creek right of way	n/a	Moorhens	Animal	County	No	n/a	n/a	n/a	n/a
73	C-5	Joe's Creek right of way	n/a	Dog feces (small)	Animal	County	Yes	Watershed Interns	Distribute door hangers to all homes south of 46th Ave. N between 71st St. N and 68th St. N	n/a	02/09/2015
74	C-5	Joe's Creek right of way	n/a	Food articles- bread slices, lobster tails and bones (someone is feeding wildlife)	Animal	County	Yes	Watershed Interns	Distribute door hangers to all homes south of 46th Ave. N between 71st St. N and 68th St. N	n/a	02/09/2015
75	C-5	Joe's Creek right of way	n/a	Dog feces	Animal	County	No	n/a	n/a	n/a	n/a
76	C-5	Joe's Creek right of way	n/a	Irrigation pipe, erosion	Other	County	No	n/a	n/a	n/a	n/a
77	C-5	66th st. crossing	n/a	Lots of trash (both sides)	Trash	County	No	n/a	n/a	n/a	n/a
78	C-5	66th st. crossing	n/a	East side of bridge, smells like a dead animal. Lots of food and other trash.	Animal	County	Yes	n/a	n/a	n/a	n/a
79	C-6	Joe's Creek right of way	n/a	Citrus trees	Citrus	County	No	n/a	n/a	n/a	n/a
80	C-6	Joe's Creek right of way	n/a	Dog feces	Animal	County	Yes	Watershed Interns	Doorhang all "creekside" homes along 43rd Ave. N and 42nd Ave. N between Alt. 19 and 62nd St. N	67 doorhangers distributed	02/09/2015
81	C-6	Joe's Creek right of way	n/a	food pieces (someone feeding wildlife)	Animal	County	Yes	Watershed Interns	Doorhang all "creekside" homes along 43rd Ave. N and 42nd Ave. N between Alt. 19 and 62nd St. N	n/a	02/09/2015
82	C-6	Joe's Creek right of way	n/a	feral cat	Animal	County	No	n/a	n/a	n/a	n/a
83	C-6	Joe's Creek right of way	n/a	dog feces	Animal	County	Yes	Watershed Interns	Doorhang all "creekside" homes along 43rd Ave. N and 42nd Ave. N between Alt. 19 and 62nd St. N	n/a	02/09/2015
84	C-6	Joe's Creek right of way	n/a	sewer lid under trailer- smells bad. Near construction zone.	Sewer	County	Yes	Utilities	generate work order for followup/corrective action - WO # 1564405	Installed ramneck into manhole to give manhole lid a tighter seal. No evidence of leakage at this structure.	11/26/2014
85	C-6	43rd ave. and 62nd by construction	n/a	worker witnessed many irresponsible dog owners	Animal	County	Yes	Watershed Interns	Doorhang all "creekside" homes east of 62nd St. N to "canal"	7 doorhangers distributed	02/09/2015
86	C-6	Joe's Creek right of way	n/a	cat litter dumped at top of bank	Animal	County	Yes	Watershed Interns	Doorhang all "creekside" homes east of 62nd St. N to "canal"	n/a	02/09/2015
87	C-6	Joe's Creek right of way	n/a	feral cat	Animal	County	No	n/a	n/a	n/a	n/a
88	C-6	Joe's Creek right of way	n/a	dog feces at "no dumping" sign	Animal	County	Yes	Watershed Interns	Doorhang all "creekside" homes east of 62nd St. N to "canal"	n/a	02/09/2015
89	C-6	Joe's Creek right of way	n/a	Lots of turtles	Animal	County	No	n/a	n/a	n/a	n/a
90	C-6	Joe's Creek right of way	n/a	broken storm pipe/drain	Other	County	Yes	Stormwater	E-mail for inspection request sent to PW/LASmith		09/17/2015
91	C-6	Joe's Creek right of way	n/a	Lots of ducks and turtles	Animal	County	No	n/a	n/a	n/a	n/a
92	C-6	Joe's Creek right of way	n/a	citrus trees	Citrus	County	No	n/a	n/a	n/a	n/a
93	C-6	Joe's Creek right of way	n/a	citrus trees and avocado trees	Citrus	County	No	n/a	n/a	n/a	n/a
94	C-6	Joe's Creek right of way	n/a	eggs	Animal	County	No	n/a	n/a	n/a	n/a
95	C-6	Joe's Creek right of way	n/a	citrus	Citrus	County	No	n/a	n/a	n/a	n/a
96	C-6	Joe's Creek right of way	n/a	Lots of turtles and a great blue heron	Animal	County	No	n/a	n/a	n/a	n/a
97	C-6	Joe's Creek right of way	n/a	Several dog piles of feces	Animal	County	Yes	Watershed Interns and TMDL staff	Doorhang homes along 43rd Ave. N. Add appropriate signage to grassy area near creek.	18 doorhangers distributed. (Other 'No Dumping' signs existed in area. No additional signs were added.)	02/09/2015
98	C-6	Joe's Creek right of way	n/a	turtles	Animal	County	No	n/a	n/a	n/a	n/a

Map Point	Map Page	Location Description	Issue Description from Maps on the Table	Problems Found	Category	Jurisdiction	Follow up needed?	Responsible party	Actions taken	Additional Findings	Action Completion Date
99	C-6	Joe's Creek right of way	n/a	Numerous dog piles of feces (behind white fence)	Animal	County	Yes	Watershed Interns and TMDL staff	Doorhang homes along 43rd Ave. N. Add appropriate signage to grassy area near creek.	n/a	02/09/2015
100	C-6	Joe's Creek right of way	n/a	Dog piles of feces	Animal	County	Yes	Watershed Interns and TMDL staff	Doorhang homes along 43rd Ave. N. Add appropriate signage to grassy area near creek.	n/a	02/09/2015
101	C-7	Joe's Creek right of way	n/a	turtles	Animal	County	No	n/a	n/a	n/a	n/a
102	C-7	Joe's Creek right of way	n/a	cooler in creek (sunk without lid)	Trash	County	No	n/a	n/a	n/a	n/a
103	C-7	Joe's Creek right of way	n/a	feces	Animal	County	Yes	Watershed Interns	Doorhang homes at corner of 52nd St. N and 42nd Ave. N	24 doorhangers distributed	02/09/2015
104	C-7	Joe's Creek right of way	n/a	feces in green tied bag left on roadway	Animal	County	Yes	Watershed Interns	Doorhang homes at corner of 52nd St. N and 42nd Ave. N	n/a	02/09/2015
105	C-7	Joe's Creek right of way	n/a	feces	Animal	County	Yes	Watershed Interns	Doorhang homes at corner of 52nd St. N and 42nd Ave. N	n/a	02/09/2015
106	C-8	Greenway park	n/a	feces	Animal	County	Yes	TMDL and PCR staff	Add signage and extra trash service to Greenway Park	Parks Department installed additional bag dispensors on north side of park	3/2015
107	C-8	Greenway park	n/a	wildlife	Animal	County	Yes	TMDL and PCR staff	Add signage and extra trash service to Greenway Park	Parks installed additional signage at park: Both Keep Lelaman clean signs and educational feces signs	3/2015
108	C-8	Greenway park	n/a	possible feces park- three dogs and owners running around without feces bags	Animal	County	Yes	TMDL and PCR staff	Add signage and extra trash service to Greenway Park	n/a	3/2015
109	C-8	Greenway park	n/a	feces	Animal	County	Yes	TMDL and PCR staff	Add signage and extra trash service to Greenway Park	n/a	3/2015
110	C-8	Greenway park	n/a	feces	Animal	County	Yes	TMDL and PCR staff	Add signage and extra trash service to Greenway Park	n/a	3/2015
111	C-8	Greenway park	n/a	feces	Animal	County	Yes	TMDL and PCR staff	Add signage and extra trash service to Greenway Park	n/a	3/2015
112	C-8	Greenway park	n/a	wildlife	Animal	County	Yes	TMDL and PCR staff	Add signage and extra trash service to Greenway Park	n/a	3/2015
113	C-8	Joe's Creek right of way	n/a	bread feeding of wildlife	Animal	County	Yes	TMDL and PCR staff	Add signage and extra trash service to Greenway Park	n/a	3/2015
114	C-8	Joe's Creek right of way	n/a	wildlife	Animal	County	Yes	TMDL and PCR staff	Add signage and extra trash service to Greenway Park	n/a	3/2015
115	C-8	Joe's Creek right of way	n/a	feces	Animal	County	No	n/a	n/a	n/a	n/a
116	C-8	Joe's Creek right of way	n/a	citrus	Citrus	County	No	n/a	n/a	n/a	n/a
117	C-8	Joe's Creek right of way	n/a	feces	Animal	County	Yes	TMDL Staff	Add signage to Intersection of 46th St. N and 46th Ave. N		03/03/2015
118	C-8	Joe's Creek right of way	n/a	trash	Trash	County	Yes	TMDL Staff	Add signage to Intersection of 46th St. N and 46th Ave. N	2 "Scoop the feces" and 2 "Pick up Trash" signs added to NE intersection, and 1 "scoop feces" sign and 1 "pick up trash" sign added to SW fence along grassy area near creek.	03/03/2015
119	C-8	Joe's Creek right of way	n/a	feces	Animal	County	Yes	TMDL Staff	Add signage to Intersection of 46th St. N and 46th Ave. N		03/03/2015
120	C-8	Joe's Creek right of way	n/a	mobile home park dumpster overflow	Trash	County	Yes	Watershed Interns and TMDL staff	Doorhang MHP and add signage to 4750 40th Ave. N	23 doorhangers distributed, 3 "scoop feces" and 3 "pick up trash" signs added to intersection of 40th Ave. N and 49th St. N	02/09/2015
121	C-8	Joe's Creek right of way	n/a	duck feces near dumpster	Animal	County	Yes	Watershed Interns and TMDL staff	Doorhang MHP and add signage to 4750 40th Ave. N	n/a	02/09/2015
122	C-8	Joe's Creek right of way	n/a	feces	Animal	County	Yes	Watershed Interns and TMDL staff	Doorhang MHP and add signage to 4750 40th Ave. N	n/a	02/09/2015
123	C-8	Joe's Creek right of way	n/a	Loitering area behind McDonalds	Trash	County	No	n/a	n/a	n/a	n/a

Map Point	Map Page	Location Description	Issue Description from Maps on the Table	Problems Found	Category	Jurisdiction	Follow up needed?	Responsible party	Actions taken	Additional Findings	Action Completion Date
124	C-8	Joe's Creek right of way	n/a	feces	Animal	County	No		Signage installed nearby.	n/a	03/03/2015
125	C-8	Joe's Creek right of way	n/a	feces	Animal	County	No		Signage installed nearby.	n/a	03/04/2015
126	C-8	Joe's Creek right of way	n/a	feces	Animal	County	No		Signage installed nearby.	n/a	03/05/2015
127	C-8	Joe's Creek right of way	n/a	feces	Animal	County	No		Signage installed nearby.	n/a	03/06/2015
128	C-9	Silver Lake	n/a	wildlife- wading birds	Animal	County	No	n/a	n/a	n/a	n/a
129	C-9	Silver Lake	n/a	large quantity of trash on other side of fence near apt. complex	Trash	County	No	n/a	n/a	n/a	n/a
130	C-9	Silver Lake	n/a	wildlife	Animal	County	No	n/a	n/a	n/a	n/a
131	C-9	Silver Lake	n/a	flock of birds nesting in trees near water	Animal	County	No	n/a	n/a	n/a	n/a
132	C-9	Silver Lake	n/a	osprey family	Animal	County	No	n/a	n/a	n/a	n/a
133	C-5	SE corner of Joes /Bonn Creek intersection	n/a	possible leaky sanitary sewer. Jim H. said he would make a report and take care of it.	Sewer	County	Yes	Utilities	generate work order for followup/corrective action - WO # 1564384	This work order was created from map point 37 - refer to corrective action.	11/26/2014
134	C-5	Sunshine Mobile Home Park	n/a	One loose cat. One homeowner said pet owners fling feces into creek. Pink trailer with green dock- homeowner said every few months there is a sewer overflow from one of the grates/holes. Many Ibis.	Animal	County	Yes	Utilities	generate work order for followup/corrective action - WO # 1564393	No issues. This was a storm sewer inlet	11/26/2014
135	C-5	52nd Ave N and 74th St. ID 15HN-SM2804	n/a	1 manhole - possibly shows signs of recent SSOs, ID 15HN-SM2804. Odor, washout around manhole- needs shoring, tree growing against with roots wrapping around structure - evaluate 3 barrel structure	Sewer	County	Yes	Utilities	generate work order for followup/corrective action - WO# 1564384	Wash out was not caused by a sewer discharge, but was due to soil run-off from the top side of the creek. Rip-rap is on order.	11/26/2014
136	C-5	Behind 4950 Harding Rd. N. manhole ID 15HN-SM1784	n/a	ID 15HN-SM1784 manhole top is offset from structure, shows signs of past overflow. Mower damage? Possibly needs to be aligned and sealed. Als possibly needs to be re-shored.	Sewer	County	Yes	Utilities	generate work order for followup/corrective action - WO# 1564393	Manhole ring and cover resealed. Upon evaluation, the manhole top did not need to be reset. See photo #8	11/26/2014
137	C-5	Behind 4890 Harding Rd. N. manhole ID 15HN-SM1755	n/a	odor - possibly needs re-sealed	Sewer	County	Yes	Utilities	generate work order for followup/corrective action - WO# 1564395	The man holes did not require any corrective work. The main lines along Joe's Creek that were located here were cleaned. There are no breaks in the segments and the line is flowing normally. Nothing was found to indicate there were any defects in the piping or the man holes.	11/26/2014
138	C-5	Behind 4840 Harding Rd. N. manhole ID 15HN-SM1754	n/a	odor - possibly needs re-sealed	Sewer	County	Yes	Utilities	generate work order for followup/corrective action - WO# 1564400	Manhole ring and cover resealed. See photo #4	11/26/2014
139	C-5	4158 68th Street N. ID 15HS-SM4512 Southside of Joe's Creek	n/a	Concrete all around top of manhole destroyed, needs repoured and possibly re-sealed.	Sewer	County	Yes	Utilities	generate work order for followup/corrective action - WO# 1564401	Manhole ring and cover resealed. See photo #5	11/26/2014
140	C-6	6458 43rd Ave. N Kenneth City Sewer line perpendicular to Joe's Creek on North side.	n/a	Resident expressed concern of occasional subsidences in his yard between manholes 15IS-SM3012 and 15IS-SM3013. Wants the line to be lined so no more subsidences occur on his property.	Sewer	County	Yes	Utilities	generate work order for followup/corrective action - WO# 1564402 - work order generated based on customer complaint	Manhole ring and cover resealed. See photo #6	11/26/2014
141	C-6	Behind 6202 43rd Ave. N. along N side of Joe's Creek (under yellow flatbed trailer)	n/a	Strong sewer odor, lid does not look like it is aligned correctly. May also need possibly re-sealing.	Sewer	County	Yes	Utilities	generate work order for followup/corrective action - WO# 1564405	Corrective Action - Manhole ring and cover resealed. See photo #7	11/26/2014

Appendix E – Miles Creek Follow-up Inspection

Miles Creek and Ditches Field Reconnaissance – July 2015

A field reconnaissance was conducted in July, 2015 to supplement the Walk the WBID exercise by traversing the banks of Miles Creek and the main ditches leading into Miles Creek. The purposes of the additional site assessment were to investigate in more detail whether there was a propensity for residents to use the banks of the ditches for pet walking and to generally document the conditions of the ditches. Referring to Figure XX, Miles Creek consists of Sections A, B and C. The 58th Street Ditch is Sections D, E, F, and G. Section H includes an open water ditch adjacent to 62nd Street North.



Figure E-1 – Miles Creek and Ditches Field Reconnaissance

Sections A, B and C are deeply incised and fairly well maintained. Storm drains discharge into the flowway from both the north and south sides. At the time of the site inspection, some of the drains had flow and others were dry. No significant flow was noted. Exposed sanitary and reclaimed pipe lines appeared to be in good shape. No animal feces were observed on the banks. However, wildlife in Miles Creek was noted including two (2) otters, turtles and herons.

Section D of the 58th Street North ditch consists of a dry retention pond that was installed under Area Improvement Project 58 in the early 1990's. The pond is inspected and maintained as required by SWFWMD. No concerns were noted during the field inspection.

Sections E, F and G of the 58th Street ditch include an incised ditch with a concrete bottom. The ditch is maintained by the city's stormwater department. The ditch was in good condition with no animal waste noted. The ditch had flow at the time of the inspection.

Section H, a small open water ditch, is located within a residential area. Standing water and low flow were observed along with vegetation in the ditch, conditions that could enhance bacteria counts in the water. One resident was observed blowing grass clippings towards the ditch. No other concerns were noted. This section has exhibited high fecal coliform results (sample location JC-5) as noted by the data. Further investigation of this ditch and surrounding areas by the city of St. Petersburg is planned.

Appendix F - Pinellas County Joe's Creek Basin SSO information

Date	Location	Reason	Gallons
01/27/04	54th Ave N & 66th St N	Grease	<1000
07/20/04	4490 28th St. N	Rain	<1000
09/27/04	5961 49th Ave N	JEANNE Hurricane Power Outage	37,590
02/15/05	5731 42nd Ave N	Bypass hose backed out/relining 27"	~500
06/07/06	4355 43rd St N	Grease blockage	200
09/02/06	40th St. N at Joe's Creek	Grease blockage	>1,000
01/25/07	5900 74th St	pump malfunction	130,000
01/28/07	5290 43rd Ave N	obstruction, debris/roots	500
06/10/07	6940 71st Ave N	grease	360
07/21/07	5319 75th St N	obstruction, unknown	100-350
02/17/08	6512 Creek View Ter	obstruction, grease	1,000
02/21/08	7950 Park Blvd	mechanical, valve failed to close	10,139
10/25/08	6835 54th Ave N	obstruction, grease	<10
05/15/09	5961 49TH Ave. No., Kenneth City	By-Pass pump failure	500
09/20/09	4500 28th St. No., St. Petersburg	Power Failure	109,200
02/07/10	4100 42nd St. N, St. Petersburg	Obstruction - Grease	100
10/20/10	4390 71st St N, St. Petersburg	Grease	1,580
03/18/11	Intersection of 71 St. No. & 68 Ave. No.,	Electrical/mechanical failure at SCB plant	10
08/21/12	7049 71st Avenue North, Pinellas Park	I & I from heavy rains	20,000
08/21/12	6839 Circle Creek Drive, Pinellas Park	I & I from heavy rains	500
08/22/12	7101 73rd Street North, Pinellas Park	I & I from heavy rains	800
06/13/13	7401 54th Avenue, St. Petersburg	42-inch pipe failure - storm water retention basin reached full capacity	48,000

Date	Location	Reason	Gallons
06/14/13	7401 54th Avenue, St. Petersburg	Associated with 42-inch pipe failure - bypass pump failure and discharge of bypass pump priming, coupled with intermittent heavy rainfall	20,000
07/02/13	7401 54th Avenue, St. Petersburg	Associated with 42-inch pipe failure-dislodged inflatable plug in the pipe break, coupled with bypass pump failure and heavy rains	274,500
07/03/13	7401 54th Avenue, St. Petersburg	Associated with 42-inch pipe failure-dislodged inflatable plug in the pipe break, coupled with bypass pump failure and heavy rains	1,950
09/25/13	43rd Avenue and Criswell Avenue, Kenneth City	Heavy rain exceeded system capacity	100,000
02/17/14	7401 54th Ave North, St. Petersburg	Line Break	2,000
06/12/14	7401 54th Ave North, St. Petersburg	Severed post chlorine disinfection supply line	833,280
7/26/14	7401 54th Ave North, St. Petersburg	Process water line failure	1,000
9/27/14	7780 62nd Ave North, St. Petersburg	Force main break	1,030,572
10/3/14	5400 66th St, St. Petersburg	Obstruction - grease	100
12/2/14	3020 46 th Ave N, St. Petersburg	Grease (food processing)	500
8/1/15	7401 54th Avenue No, St. Pete	Heavy rain I&I	n/a
8/2/15	7401 54th Avenue No, St. Pete	Heavy rain I&I	n/a

Date	Location	Reason	Gallons
8/3/15	5750 44th Avenue No, Kenneth City	Heavy rain I&I	72,000
8/3/15	43rd Avenue East of 62nd St & 61st Way, Kenneth City	Heavy rain I&I	1,036,800
8/4/15	6098 44th Avenue N, Kenneth City	Heavy rain I&I	28,880
8/4/15	5861 42nd Terrace N, Kenneth City	Heavy rain I&I	28,880