Fiscal Year 2016-17 (FY17) Districtwide Cost-Share (DWCS) Application

INSTRUCTIONS FOR USE OF THIS FORM:
This form is designed to assist in submitting a complete application for consideration by the St. Johns River Water Management District (SJRWMD) for the FY17 DWCS Program. Detailed guidance on completing this application can be found in the Funding Guidance Document. All sections of the form must be completed to be considered a complete application. If additional space is needed to fully complete a section, please attach separately. County governments, municipalities, water supply authorities, and other interested public and private entities are eligible to submit.

A. BASIC INFORMATION		
A-1	**PROJECT NAME:** Town of Oakland Stormwater/Drainage Improvements	
A-2	**Applicant**	
	Name/title: Michael Parker, Public Works Director	
	Email address: mparker@oaktownusa.com	
	Mailing address: PO Box 98 Oakland, FL 34760	
	Office Phone: (407) 656-1117 x 2302	Mobile Phone: (407) 427-8835
A-3	**Contact (if other than applicant)**	
	Name/title:	
	Email address:	
	Mailing address:	
	Office Phone: ( )	Mobile Phone: ( )
A-4	**What County is this project located?** ☐ Alachua ☐ Baker ☐ Bradford ☐ Brevard ☐ Clay ☐ Duval ☐ Flagler ☐ Indian River ☐ Lake ☐ Marion ☐ Nassau ☒ Orange ☐ Osceola ☐ Putnam ☐ Seminole ☐ St. Johns ☐ Okeechobee ☐ Volusia	
A-5	**What Water Supply Planning Region is this project located (***Refer to map at floridaswater.com/watersupply/planning.html)***?** ☐ North Florida (North Florida Regional Water Supply Partnership/North Florida Water Initiative) ☐ Central Springs and East Coast ☒ Central Florida (Central Florida Water Initiative)	
A-6	**Is the Applicant a Rural Economic Development Initiative (REDI) Community?** ☐ Yes ☒ No	
	If yes, please attach a signed Waiver of Matching Funds Letter on your letterhead. See format at *floridaswater.com/funding*	
A-7	**For County or Municipal applicants: Do you have an adopted Landscape Irrigation Ordinance?** ***(Scoring Criterion #5)***: ☒ Yes ☐ No *Include a copy of an adopted landscape irrigation ordinance. The District's model ordinance can be found here: floridaswater.com/wateringrestrictions/pdfs/updated_model_ordinance-landscape_irrigation.pdf.*	

B. PROJECT INFORMATION

B-1 PROJECT TYPE

Check all that apply and provide evidence for each in Section B-3. Projects that include more than one project type may receive additional scoring consideration.

☐ Water Supply ☐ Water Conservation ☒ Water Quality
☒ Flood Protection ☐ Natural Systems

For Water Quality projects:

56.21 Lbs/year TN reduced annually 10.01 Lbs/year TP reduced annually

For Water Supply/Conservation projects:

_____ Gallons per day conserved/alternative water supplied

For Flood Protection projects:

39.2 Acres protected from flooding

For Natural Systems projects:

Acres Wetlands Restored/Enhanced

Acres Uplands Restored/Enhanced

B-2 PROJECT DESCRIPTION *(Scoring Criterion #2)*

What is the project going to do and how is it going to do it? Describe the problem and how the project will address the problem. If the project is a water supply or water conservation project, discuss any benefits to MFL water bodies or springs, if applicable. For water conservation projects include the % water saved by this project. If the project is a water quality project discuss if the receiving water body has a TMDL and approved BMAP or Reasonable Assurance Plan and the total TMDL nutrient-load reduction will be achieved by the project. For phased projects, the overall master plan identifying each phase should be included in the submittal. Attach pages as needed.

a. Project Description, Objectives and Benefits:

A two-phased project, the purpose of the overall project is to provide flood relief to residential and commercial areas within the project area, and to reduce the level of nutrient loadings in the stormwater runoff being discharged into Lake Apopka.

The project area within the Town of Oakland is divided into two basins, identified as Upper Basin and Lower Basin. The topographic low areas within both basins are subject to flooding conditions during intense rainfall events, which threaten residential and commercial structures. During these events, the Lower Basin eventually fills to a capacity that can no longer be controlled by an aging drainage well and the untreated floodwaters eventually spill over the land and ultimately to Lake Apopka. The proposed two-phase project includes new stormwater conveyance piping, new and/or retrofitted treatment ponds, swales and control structures - which will minimize the potential for floodings - and provide for a reduction in the Total Phosphorus and Total Nitrogen currently being discharged into Lake Apopka.

PROBLEM: Poor Drainage in land-locked basins result in higher instances of flooding. Moreover, due to the low elevations of such basins, high concentrations of nitrogen and phosphorus accumulate and eventually contribute to Lake Apopka's nutrient pollution.

SOLUTION (Phase 1 of 2): Construct initial set of drainage swales and retention ponds in the Town's Upper Basin. A nutrient-adsorbing material will line these drainage systems.

The Town of Oakland is seeking funding for Phase One of the total project. Phase One portion of the project includes construction of stormwater collection system comprised of biofiltration retention ponds (BMP's), storm pipes and inlets, and swales (BMP's). There will be three biofiltration retention ponds designed for this system. They will utilize a material known as "Bold and Gold," designed by the University of Central Florida Storm water Academy, to assist in reducing nutrient loading. The treatment area of the ponds is approximately 15,884 SF and shall be designed as a parallel pond system. The recovery of the runoff from the ponds will be via percolation through the BMP material to underdrains, which will convey the filtered

stormwater to the proposed stormwater collection system and to the existing Star Gardens retention pond, which includes a drain well for discharge to the Upper Floridan Aquifer.

Completion of Phase One will allow 1.8 acres of treatment ponds and swales and drainage systems to offer flood protection of 39.2 acres of residential and commercial land owners. The same 1.8 acres will also treat stormwater runoff from a cumulative 39.2 acres that eventually lead to Lake Apopka, an impaired water body.

SOLUTION (Phase 2 of 2): Continue construction of treatment swales and conveyance piping to further direct cleaned water to Lake Apopka.

Phase Two of the project will be under separate contract and will include additional outfall pipes from the Star Gardens retention pond to a series of swales which will ultimately outfall to the Motamassek Ditch (aka Johns Lake Outfall Ditch) and subsequently to Lake Apopka (WBID 2835D). Construction of the Phase Two portion of the project will allow for the elimination of the aging drain well which discharges to the Upper Floridan Aquifer, as noted above. The completion of Phase 2 will allow an additional flood protection of an additional 55 acres, for a total of 94.2 acres.

WATER QUALITY PROJECT: TMDL + BMAP

According to Lake Apopka's TMDL (https://www.dep.state.fl.us/water/tmdl/docs/tmdls/final/gp1/apopka-tp-tmdl.pdf), the lake currently exceeds its Allowable Phosphorus Loading by 335.81%, which equates to 45.55 MT annually (pg 13). The flood control measures implemented by the project will result in a reduction in nutrient discharges into Lake Apopka in accordance with the aims of the TMDL and the Upper Ocklawaha BMAP. Flood attenuation provided by the proposed structures will reduce the total cumulative discharge volume (and by extension, nutrient loadings) to Lake Apopka for a continuous 10-year rainfall period. The resulting 90 & 60 percent reduction in TP and TN, respectively, is in line with the objectives of the BMAP.

Based on Table ES-1 listed on page 15 of the abovementioned BMAP, Lake Apopka is experiencing a decreasing trend of TP loading. However, because the lake is significantly impaired due to compounding years of excess nutrient loading, the lake still needs a reduction of 12,761 lbs/year before it will meet TMDL parameters. The Town's project will roughly contribute to a reduction of .08% towards that goal (10.02lb/year). This number is commensurate with the most recent TP load reduction figures from our neighbor, Winter Garden. Shown in Table 9: Managament Strategies to Reduce Nutrient Loading to Lake Apopka on page 51 of the referenced BMAP, completed projects average 14.41 lb/year of TP load reduction. These are the most current figures given for the second phase of management strategies of Lake Apopka basin. We believe the estimated 10.02lb/yr the Town can circumvent away from surface waters is comparable to documented recent efforts and is one more step toward the cumulative effort of restoring Lake Apopka.

b. Purpose and goals of the project:

By constructing both the Upper Basin (Phase 1) and Lower Basin (Phase 2) collection systems, the project will resolve many of the issues needing to be addressed.

PHASE 1 - Upper Basin:
The proposed plans for the Upper Basin will assist in reducing the duration of the inundation to the Basin while providing significant water-quality improvement. The peak duration of flooding will be reduced for the depression area within the Upper Basin. The project is also designed to reduce the amount of Total Nitrogen being discharged to Lake Apopka. The proposed improvements will rely on the installation of a media known as "Bold & Gold", a type of Biosorption Activated Media. This innovative media was developed by the University of Central Florida to assist in reducing nutrient loading.

PHASE 2 - Lower Basin:
A new outfall structure is added to assist in controlling the peak flood elevation in an existing depression (stormwater pond). The current outfall is not sufficient for flood control. The design will result in a reduction in peak stage elevations for the typical storm events (e.g., mean annual, 10yr/24hr, 25yr/24hr, 100yr/24hr) and to provide flood protection to the lowest lying residential structures along the rim of the depression.
The second objective of the modification is a reduction of total cumulative discharge volume (and by extension, Total Phosphorus loading) to Lake Apopka for a continuous 10-year rainfall period. Because Phase 2 adds additional drainage ponds and swales to the Phase 1 parallel pond system, direct benefits from the construction of Phase 1 (i.e., cleaner stormwater) will be manifested in Phase 2 results.

c. How will you measure success? Describe your plan of action to measure the effectiveness of your project?

A water level logger will be utilized in each basin to record flood intensity and duration data. This data will be used to assess the impacts of intense rainfall events for the purpose of determining future improvments or modifications.

A stormwater sampling station will be installed downstream of the "Bold & Gold" nutrient-reducing media to enable the collection of nutrient-loading data.

Monitoring will be conducted at two (2) locations, inflows and outflows, and will include the following parameters:

- Daily rainfall (to nearest 0.01 inch) measured at the sampling location with verification from the local weather station.
- A water level logger will be utilized in the basin to record flood intensity and duration data. This data will be used to assess the impacts of intense rainfall events for the purpose of determining future improvements or modifications.
- Flow using approved flow activated flow meters
- A stormwater sampling station will be installed downstream of the "Bold & Gold" nutrient-reducing media to enable the collection of nutrient-loading data for the following parameters.

Parameter	Detection Limit	Method
Total Cadmium	1 ug/l	Composite*
Total Chromium	5 ug/l	Composite*
Total Copper	5 ug/l	Composite*
Total Zinc	10 ug/l	Composite*
NO2+NO3	0.1 mg/l	Composite*
TKN	0.3 mg/l	Composite*
Total Ammonia	0.05 mg/l	Composite*
Or Total N		Composite*
Total Phosphorus	0.05 mg/l	Composite*
Ortho Phosphate	0.05 mg/l	Composite*
TSS	1 mg/l	Composite*
Oil/Grease	1 mg/l	Composite*
Fecal coliform	N/A	Grab** if possible

- The Town will hire an outside consultant to maintain the monitoring program.

d. Describe how this project relates to larger projects and or goals of the applicant:

The grant and match funded portion of the project is Phase One of a two-phase project. The overall project involves several ponds, swales, and storm water pipes and inlets. Phase Two of the project, which is to be constructed at a later date, includes an additional 1,250 feet of 38" x 60" elliptical reinforced concrete stormwater pipeline as well as additional swales, and ponds. The overall construction cost of (Phase I and II) is estimated at $1,333,830.

1. This project has a current SJRWMD stormwater permit.
2. This project is proposing to use proven nutrient-reducing media developed by the University of Central Florida Stormwater Academy.
3. This project is designed to reduce the amount of Total Phosphorus and Total Nitrogen being discharged first to a drain well and then to Lake Apopka, thus aiding in the overall recovery of the lake.
4. The area proposed for both stormwater ponds and the collection system are available for construction.
5. The community supports the proposed project as it will improve the stormwater runoff and collection as well as reduce the duration of peak stage flooding.
6. The construction will make possible the future abandonment of the existing drain well (will be resolved in completion of Phase 2), which, in turn, will reduce the amount of surface water being discharged directly to the Upper Floridan aquifer and will reduce the potential for groundwater contamination.

	7. The Town is developing documents for a stormwater utility as a revenue source for additional maintenance of its infrastructure.
	e. Describe the location and include a map. The map should identify any potentially affected MFL, TMDL, or impaired water bodies, or affected wetlands or springs... The Upper and Lower Basins lie within the historically older section of Oakland, and only a few thousand feet from the south shore of Lake Apopka. The proposed improvements are within these basins and extend in an east/northeast direction to an existing drain well and stormwater outfall structure along the Motamassek Ditch. The ditch then discharges directly into Lake Apopka. A location map is provided with this application packet.
B-3	**BENEFITS TO DISTRICT MISSIONS *(Scoring Criterion #1)*** *Describe the benefit to one (or more) of the District's main missions (Water Supply/Conservation, Water Quality, Flood Protection and/or Natural Systems). Indicate which is the primary mission benefit. Attach separate pages if necessary.* The Saint Johns River Water Management District has long since recognized the growing concern for preserving Florida's most precious resource: water. The agency has been instrumental in educating the public, as well as local governments, of the impact Florida's population growth has had on Florida's water supply and quality. More people create a larger demand on water; moreover, the increase in population indicates improved economic climates, which leads to greater development of the State's aquifer-recharging surface area. Therefore, the State is left in a precarious situation: we have growing water demands and fewer opportunities to recharge our acquifers. The small Town of Oakland is not exempt from this observed impact on the State's resource. Although 2.1 square miles, the Town is experiencing greater demands due to recent annexations and development. We continue to expect demands to maintain current levels, if not grow, within the next 5-10 years, as the Town anticipates an expansion of commercial and residential development. Improvements to our current water storage capacity, the implementation of sewer infrastructure, and the acres of commercially-zoned, undeveloped properties along the SR-50 corridor lend promise to future commercial development. This is in addition to the planned and approved 150+ acres slated for new residential communities within Oakland limits. With the increased development, we can expect an increase in fertilizer application and less surface area for natural percolation of clean water. Following the natural grade of the land, this runoff will collect in highly-concentrated amounts, eventually to be lead to one of two water bodies: Lake Apopka and the Upper Floridan aquifer. Therefore, we see a great need to offset the unintended negative consequences this future development will bring to the water quality of our aquifer-recharge areas and surface-water runoff. The "Town of Oakland Stormwater/Drainage Improvements" project's primary objective is to reduce the amount of Total Nitrogen and Total Phosphorus found in the natural low areas, aptly named Upper and Lower

	Basin, within the mostly built-out part of Town and redirect the treated water to Lake Apopka. The proposed retrofitting of the retention ponds within the Upper and Lower Basins, to include the "Bold & Gold" treatment medium, will remove 56.21 lb/yr of Total Nitrogen and 10.02 lb/yr of Total Phosphorus. This proposed project will include the installation of infrastructure that will redirect and discharge the treated water into Lake Apopka. Currently, during periods of heavy rainfall, the Upper and Lower Basins overspill into either a drainage well - a direct conduit to the Upper Floridan aquifer - or into the Motamassek Ditch, a contributing source to Lake Apopka. Not only will this project provide water-quality improvements to stormwater, a secondary benefit mitigates the flood potential of the Upper and Lower Basins. Reworking the land gradient, as well as providing directional stormwater infrastructure, will help direct topographical watershed away from the flood-prone zone and into an available water body. The improvements will not eliminate the potential for flood occurances, but rather assist in reducing the duration a flood may persist in the area. Future phases of this project will include abandonment of the Town's drainage well and installation of the "Bold & Gold" medium in optimal areas of Town.
B-4	**BENEFIT TO SPRINGS** Identify springs that will be benefit from this project, identify the spring(s) on a map in relation to the project, and provide a brief description of the benefits. N/A

B-5 If the Project is for Water Resource Development or Alternative Water Supply Development identify the source water *(check all that apply)*:

- ☐ **Fresh Groundwater**
- ☐ **Brackish Groundwater**
- ☐ **Stormwater**
- ☐ **Reclaimed Water**
- ☐ **Surface Water: Identify surface water body:**
- ☐ **Brackish Surface Water: Identify surface water body:**
- ☐ **Other: Identify Source:**

B-6 **District Permit Information:**
If the applicant has an SJRWMD-issued Consumptive Use Permit and or an Environmental Resource Permit for the project site, provide the following:

Permit Type:	Permit #	Expiration date/Compliant (yes / no)
CUP Individual	2-095-3347-4	October 10, 2016 (yes)
ERP	40-095-86986-2	January 15, 2018 (yes)

B-7 **Project likelihood of successful completion within the current fiscal year:**
a. Project Readiness *(Scoring Criterion #3)*: *Check all that apply and supply requested dates (month/day/year) and attach a detailed project construction schedule. Include documentation that demonstrates that the construction start date is realistic (e.g. critical milestones, commission approval dates, procurement timeline, etc.).*

		Current % Complete					
	Planning	100	%	Start Date:	NA	Completion Date:	Fall 2012
	Design	100	%	Start Date:	NA	Completion Date:	December 2012
	Permitting	100	%	Start Date:	NA	Completion Date:	January 2013
	Bidding	0	%	Start Date:	July 2016	Completion Date:	August 2016
	Construction			Start Date:	September 2016	Completion Date:	March 2017
	Future Phases			Start Date:	Dependent upon funding	Completion Date:	
	Other			Start Date:		Completion Date:	

b. Project partners: *Check one below and if multi-jurisdictional include the percent of funding to be contributed by each partner.*

☐ Single entity

☐ Multi-jurisdictional (attach copy of partnership agreement or memorandum of understanding, if available, and includes status of agreement). Identify other partners:

c. Funding Sources: *Identify any other outside sources of funding including State or Federal appropriations or grant monies, municipal bonds. Identify source of applicant funding.*
Town of Oakland

d. Technology or Methodology:
Describe the technology or methodology to be used in the project:
Biosorption Activated Media (BAM) targets specific compounds for removal by addressing the properties and attributes of such compounds. These carefully-designed mixtures of organic and inorganic materials (known as BAM) are scientifically studied and proven to react to or cause a reaction with the undesired compound when set in close proximity with each other. "Bold & Gold" is a type of Biosorption Activated Media, specifically designed to attract nitrogen and phosphorus. To further explain the methodology of "Bold & Gold", we are going to refer to the published paper titled, "Assessment of Biosorption Activated Media under Roadside Swales for the Removal of Phosphorus from Stormwater" by A. Hood, M. Chopra, and M. Wanielista (file:///C:/Documents%20and%20Settings/Assistant%20Specialist/My%20Documents/Downloads/water-05-00053.pdf)

In this study, expanded clay (75% volume) and tire crumb (25% volume) compose "Bold & Gold". (pg. 55) It is effective at removing phosphorus three fold. First, the media's mixture facilitates biosorption. It does so by providing a natural habitat for algae and bacteria, which are natural consumers of phosphorus. Second, clay is a natural attracter of phosphorus, "via anion exchange", and third, depending on the pH values of incoming stormwater, tire crumb effectively adsorbs phosphate. (pg. 63)

For this study, the team simulated stormwater runoff from a mock roadway and swale. Constructed using FDOT-regulated roadway and shoulder dimensions and slopes with a likewise regulated sodded swale, the experiment commensed. The swale was split into two sections for testing: sandy-soil bottomed and the other lined with "Bold & Gold" media. Water (controlled with quantifiable chemical and pH makeup) was washed over the constructed surface at controlled rates and quantities. The effluent, or percolated, swale water was captured and sent to a lab for analysis. To help control for external influencers in data collection, a second comparison experiment was performed in a more-controlled "column test".

The column test showed "Bold & Gold" media removed 60% of total phosphorus and the sandy soil removed 14%. The team hypothised that the efficiency of "Bold & Gold" in removing total phosphorus should be greater in the constructed 'field experiment' than what resulted in the column test, as the column test was too new and hadn't developed "significant biological activity, i.e., biosorption, yet." (pg. 59)

The constructed 'field experiment' produced even greater results for the efficiency of "Bold & Gold" in the removal of total phosphorus: 71%. The study also calculated the average removal efficiency of certain types of phosphorus called Soluable Reactive Phosphorus (SRB) to be 95%. As for the sandy-soil side of the constructed 'field experiment', no conclusions could be made towards its effeciency due to the "significant leaching of total phosphorus from the sod." (pg. 60) Therefore, the team turned to the sandy-soil results from the 'column test', which showed 14% removal efficiency.

Comparing the sandy-soil results with those of the "Bold & Gold" media, the team concluded, at a 100% confidence level, "the Bold & Gold bio-filtration system has a 78% lower average effluent concentration of total phosphorus than sandy soil bio-filtration system." (pg. 61) Considering the results for the SRB removal, "the Bold & Gold bio-filtration system has a 96% lower average effluent concentration of soluable reactive phosphorus than the sandy soil bio-filtration system", at a 100% confidence level. (pg. 62)

Simply put, basins used in the collection, re-direction, or percolation of stormwater are better served with Bold & Gold as the bio-filtration media than a sandy-soil bottomed filtration system for the removal of phosphorus.

For the Town of Oakland's application of "Bold & Gold", specifications are outlined in the project's DEVO Engineering Report*. Located on page 12 of the DEVO report, specifications follow:

1. Sorption capacity (>0.005 mg OP/mg media)
2. No more than 10% of the particles less than 0.05 mm in size
3. Infiltration rate by double ring infiltrometer exceeds 3 inch/hr
4. Permeability of at least 0.04 cm/sec
5. Water-holding capacity of at least 35%
6. No more than 5% organics by volume
7. Unit weight is no more than 45 pounds per cubic foot when dry and no more than 65 pounds per cubic foot when wet
8. pH between 6.5 and 8.0
9. Soluble salts less than 3.5g (KCL)/L

*An electronic copy of the DEVO Engineering Report for this project is available upon request.

e. Local Government / Public Support: *Describe the public support for your project (meetings attended, community workshops, presentations to councils, notification in newsletters, etc.)*

There is strong public support from the immediately affected property owners within the two land-locked basins. These homeowners face a greater potential for flooding due to the topographical foundation on which their homes were built. The surrounding build out over the years has exacerbated the potential for flooding of the lots located in the Upper and Lower Basins. These citizens are the ones most greatly affected by the current conditions, and would benefit the most from the proposed improvements.

Lake-front and lake-view property owners are the most affected by the lake's condition, and they are the group most favorable toward the restoration of Lake Apopka. Perhaps not every property owner is an environmentalist, but we can all agree the restoration of Lake Apopka brings more marketable value to landowners, greater enjoyment of the unique natural scenery lakes bring to a land, and safer opportunities for natural recreational use (e.g., swimming, fishing, kayaking). Overall, whether the incentive be one of self gain or environmental benefit, the Town has heard strong support for efforts we can take to restore the lake.

There is also reasonably strong support from the public "at large" for the creation of a Town-wide Stormwater Utility.

C. PROJECT COST INFORMATION

C-1

a. Breakdown of project cost *(provide details in separate attachment)*

Attach a table or spreadsheet with detailed project costs for each task or segment of the project. The District will contribute only to the construction costs of the project. Indicate at the conclusion of the table/spreadsheet, a cost effectiveness evaluation as described below.

b. Cost-share request funding table

The District's share (C) cannot exceed 33% for Alternative Water Supply, Water Quality, Flood Protection and Natural Systems projects and 50% for Water Conservation projects of the total construction cost (B) except for REDI communities that have submitted a waiver, up to 100% of total construction cost can be reimbursed.

A. Total estimated project cost: (includes capital, construction, land acquisition, planning, permitting & design costs)	$ 560,010.16	
B. Construction cost:	Year 1 (FY2017) $ 560,010.16	Year 2 (FY2018) $ 0.00
C. Cost-share amount requested:	$ 184,803.35	
D. Applicant's share:	$ 375,206.81	
E. Estimated Applicant's Annual Operation & Maintenance Costs:	$ 4,160	
F. Estimated Service life of components:	15 years filter media, 60 years conveyance years	

C-2

Cost Effectiveness ***(Scoring Criterion #4)*** *(complete for all that apply)*

For Water Supply and Water Conservation projects, and for Water Quality projects , please attach the Cost Effectiveness Calculator (as provided at www.floridaswater.com/funding) and appropriate supporting documentation. For Water Quality, Flood Protection, and Natural Systems projects, please provide methodology used and additional supporting documentation, including, for Water Supply and Water Quality projects, the cost effectiveness calculator.

Water Supply:	N/A cost per 1000 gallons made available
Water Conservation:	N/A cost per 1000 gallons conserved
Water Quality (TP or TN):	$512.90 cost per lb TN divided by service life (years)
Flood Protection: Benefit/Cost ratio	$2875.10 cost per lb TP divided by service life (years)
Natural Systems:	N/A cost per acre or linear feet shoreline

Provide the required attachments: project map, construction schedule/timeline, project cost table or spreadsheet; plus additional information required for your specific project type in accordance with the District's 2017 DWCS Funding Program Guidance.

I certify that all information on this form and the attached document(s), if applicable, is true and correct.
Signature of the person with authority to enter into a contractual agreement.

Name (print): Michael Parker

Signature: Michael Parker

Title: Public Works Director

Date: 4-19-2016

Cost Share Program Cost Effectiveness Calculator

Interest rate (annual %) = **3.125%** **FY2016 Federal Water Resource Planning Discount Rat**

Project / components	lbs TN removed/ year	Total Estimated Cost*	O&M ($/year)	Service Life	$/lbs TN removed
Example Treatment Project	**2,300**	**$ 2,000,000**	**$ 2,000**	**20**	$ 60.00
Line items 1-29	**56**	**$ 231,066**		**40**	$ 181.45
Line item 30 (Adsorption Material)	56	$ 39,675		15	$ 59.88
Line items 31-38, 40-47	56	$ 162,600		40	$ 128.17
Line item 39, Silt Fence	56	$ 150		1	$ 2.76
Line item 48-50	56	$ 16,958	$ 4,160	5	$ 140.64
					$ -

Project / components	lbs TP removed / year	Total Estimated Cost*	O&M ($/year)	Service Life	$/lbs TP removed
Example Treatment Project	**20,000**	**$ 2,000,000**	**$ 2,000**	**20**	$ 6.90
Line items 1-29	10	**$ 231,066**		**40**	$ 1,018.93
Line item 30 (Adsorption Material)	10	$ 39,675		15	$ 335.36
Line items 31-38, 40-47	10	$ 162,600		40	$ 717.73
Line item 39, Silt Fence	10	$ 150		1	$ 15.47
Line item 48-50	10	$ 16,958	$ 4,160	5	$ 787.61
					$ -
					$ -
					$ -

* Total Estimated Cost - include capital , total construction, land acquisition, planning, permitting and design costs

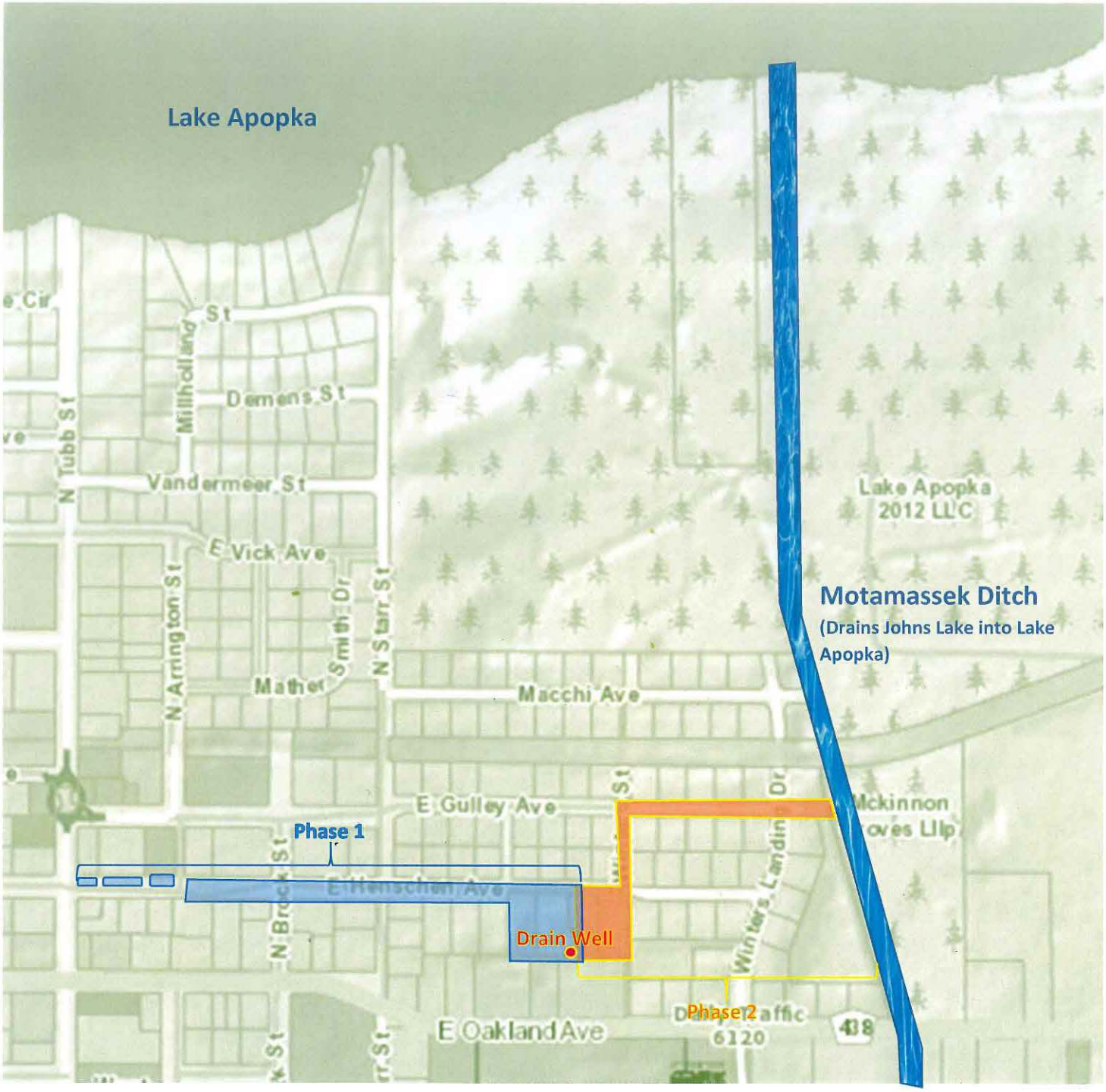
Town of Oakland Stormwater/Drainage Improvements
Phase 1
Opinion of Probable Cost

Date: 2/23/2016
By: ACL
Project No: O4603.1

Item	Description Phase 1/Phase 2	Quantity	Unit	Unit Cost	Total Phase 1
GENERAL ITEMS					
1	Mobilization/demobilization (10% Site Work Subtc	1	LS	$ 39,483.10	$ 39,483.10
2	Site layout and surveying	1	LS	$ 6,500.00	$ 6,500.00
3	Clearing and grubbing	1.8	AC	$ 5,500.00	$ 9,900.00
SITE WORK					
4	Remove/replace existing spillway	1	LS	$ 2,000.00	$ 2,000.00
5	Remove 8" PVC storm pipes	5	LF	$ 17.50	$ 87.50
6	Remove existing culverts (CMP,PVC,RCP)	215	LF	$ 22.50	$ 4,837.50
7	Remove existing concrete driveway	96	SY	$ 20.00	$ 1,920.00
8	Remove and reset speed limit sign	1	LS	$ 250.00	$ 250.00
9	Remove/relocate existing wood utility pole	0	LS	$ 3,000.00	$ -
10	Remove existing 24-inch storm pipe	0	LF	$ 30.00	$ -
11	Remove sidewalk	0	SY	$ 12.00	$ -
12	Construct stabilized driveway	309	SY	$ 17.00	$ 5,253.00
13	Construct concrete driveway	38	SY	$ 45.00	$ 1,710.00
14	Construct curb and gutter (Type F)	0	LF	$ 25.00	$ -
15	Construct concrete sidewalk	0	SY	$ 30.00	$ -
16	Construct gravel driveway	0	SY	$ 25.00	$ -
17	Abandon exiting sotrm pipe, in place	0	LF	$ 50.00	$ -
18	Stockade gate	0	EA	$ 3,000.00	$ -
19	Remove tree	10	EA	$ 725.00	$ 7,250.00
20	Relocate tree	1	EA	$ 1,000.00	$ 1,000.00
	STORM COLLECTION SYSTEM				
21	Install ERCP 12"x18"	749	LF	$ 75.00	$ 56,175.00
22	Install ERCP 38"x60"	0	LF	$ 225.00	$ -
23	ADS 15" storm pipe	140	LF	$ 25.00	$ 3,500.00
24	ADS 18" storm pipe	1464	LF	$ 30.00	$ 43,920.00
25	RCP 15" storm pipe	140	LF	$ 35.00	$ 4,900.00
26	RCP 24" storm pipe	0	LF	$ 45.00	$ -
27	Underdrain header pipe 10"	93	LF	$ 15.00	$ 1,395.00
28	Perforated pipe 6", underdrain	1650	LF	$ 25.00	$ 41,250.00
29	Jack and bore (16-inch casing)	0	LF	$ 125.00	$ -
30	Storm pond absorption material	345	CY	$ 115.00	$ 39,675.00

Item	Description Phase 1/Phase 2	Quantity	Unit	Unit Cost	Total Phase 1
	STRUCTURES				
31	Type C inlets	2	EA	$ 3,000.00	$ 6,000.00
32	Type E inlets	2	EA	$ 4,500.00	$ 9,000.00
33	Type H inlets	0	EA	$ 8,000.00	$ -
34	Mitered end section	21	EA	$ 2,500.00	$ 52,500.00
35	Type J, FDOT type 200 inlets	0	EA	$ 5,000.00	$ -
36	4-foot diameter manhole	8	EA	$ 4,000.00	$ 32,000.00
37	5-foot diameter manhole	0	EA	$ 5,000.00	$ -
38	Storm inlet (cut in to ERCP)	1	EA	$ 2,500.00	$ 2,500.00
39	DFDOT Type III silt fence	75	LF	$ 2.00	$ 150.00
40	S-1 asphalt (1.5" thick)	0	SY	$ 4.00	$ -
41	Limerock back (8" thick) (dirt road)	3030	SY	$ 20.00	$ 60,600.00
42	Headwall	0	EA	$ 8,000.00	$ -
43	Rip-rap headwall	0	EA	$ 2,500.00	$ -
44	Energy dissipator	0	EA	$ 5,000.00	$ -
45	Concrete splash pad (for 6-inch underdrain)	0	EA	$ 1,500.00	$ -
46	Concrete flume	0	LF	$ 30.00	$ -
47	CMU block wall	0	SF	$ 25.00	$ -
OTHER					
48	Sodding	8479	SY	$ 2.00	$ 16,958.00
49	Riprap	0	SY	$ 30.00	$ -
50	FDOT 57 stone scuff pad	0	SY	$ 25.00	$ -
	SITE WORK SUBTOTAL				**$ 394,831.00**
	PROJECT TOTAL				**$ 450,714.10**

SUPPLEMENTAL ITEMS					
53	Maintenance of traffic	1	LS	$ 5,000.00	$ 5,000.00
54	Contingency (15% of sitework subtotal)	1	LS	$ 59,224.65	$ 59,224.65
55	Bond (10% of project total)	1	LS	$ 45,071.41	$ 45,071.41
	PROJECT TOTAL				**$ 560,010.16**


Lake Apopka
Millholland St
Demens St
N Tubb St
Vandermeer St
E Vick Ave
N Armington St
Smith Dr
N Starr St
Mather
Macchi Ave
E Gulley Ave
Phase 1
N Brock St
E Hanschen Ave
Drain Well
Winters Landing Dr
Lake Apopka 2012 LLC
Motamassek Ditch
(Drains Johns Lake into Lake Apopka)
Phase 2
E Oakland Ave
438