



December 1, 2020

Mr. Jonathan Batista  
Acting Executive Director  
City of Riviera Beach; Utilities Special District Administration  
600 West Blue Heron Blvd.  
Riviera Beach, Florida 33404

**COPY SENT VIA EMAIL  
ORIGINALS HAND DELIVERED**

**Re: Proposal for Water System Distribution Valve & Fire Hydrant Validation & Flushing Plan**

Dear Mr. Batista,

CES Consultants, Inc. (CES) is pleased to offer and render our Professional Services to the City of Riviera Beach Utility Special District (RBUSD) to manage, oversee and coordinate the validation, repair and/or replacement of distribution valves and fire hydrants, and the Flushing Plan actions and operation of the water system in the West Area Zones of the City (the Project).

At the request of RBUSD, CES is pleased to submit this proposal to perform coordination, management and project oversight of the Project for the Water Supply System Distribution Valve and Fire Hydrant (FH) Validation and Flushing Plan Events. The scope of work involves the location, verification, validation of water main valve/fire hydrants; update of RBUSD ArcGIS database; maintenance, repair and/or replacement of valves/FH; performance of Flushing Plan events; and assistance with public outreach. The performance of this project will consider water system component site access and configuration, valve/FH site restoration, valve/FH operational considerations and all other applicable RBUSD Flushing Plan and water supply and water system criteria and standards.

Attached for your review and further processing is the Scope of Work (Services) for the Distribution Valve and Fire Hydrant Validation & Flushing Program, and the associated Fee Estimate Table for West Area Zones 1-11 (All Events). The currently anticipated completion period for this work is 120 Calendar Day; and CES proposes to perform these services/work on a T&M basis for a Not-to-Exceed Fee of \$163,720.00. If you have any questions, please contact me.

CES is prepared to begin work on this Project immediately upon receiving NTP from RBUSD.

Sincerely,  
CES Consultants, Inc.

A handwritten signature in blue ink that reads 'David A. Hoot'.

David A. Hoot, P.E.  
Vice President

Cc: Bud Goblisch, P.E.; John Armstrong, P.E.; File

Enclosure(s): As stated



## **Scope of Work for City of Riviera Beach West Service Area**

### **Distribution Valve and Fire Hydrant Validation & Flushing Program**

The City of Riviera Beach has tasked CES to assist with implementing their system-wide Flushing Plan, (developed by Hazen and Sawyer in 2018). Based on work performed in 2019, (by Hydromax USA), along with a number of water main breaks, it was clear to the City that the valves and fire hydrants indicated in their flushing plans must first be verified, inventoried, and repaired/replaced as needed prior to performing any flushing. Additionally, the City directed CES to focus their efforts first on the West Area Flushing Plan, as this area has seen the most issues and homeowner complaints.

In order to carry out the valve / hydrant verification and maintenance, CES first reviewed the 2018 Flushing Plans prepared by Hazen & Sawyer, 2019 field work data provided by Hydromax, and the latest existing City ArcGIS data. As per the information provided by Hydromax, there are some valves and hydrants identified in the Flushing Plans which were not accessed, not located and/or non-operable. Upon review of the data and at the City's request as part of Task 1, CES performed preliminary field recon to verify/validate the missing or non-operable valves, fire hydrants and fire hydrant valves from this list generated by Hydromax. Additionally, CES has performed some initial research and developed a base GIS inventory of the existing valve and hydrant data related to the Flushing Plan for the West Area in ArcGIS. The next step will be to continue the preliminary verification on the remaining valves and hydrants identified in the Hydromax Valve/FH In-operable list, and those specified in the 2018 West Area Flushing Plan. These verifications would be to confirm existence/location and to record the existing condition of accessible system components to indicate necessary maintenance and repairs or need for replacement. The data collected will also be added to the ArcGIS database and used to determine the appropriate action plan or modification for initiating flushing of the system. Additionally, if there were valves and hydrants that could not be found or accessed, the flushing plan events that include these items will be reevaluated. Updates to these flushing plan events will be made by the City, Hydromax or CES as appropriate, and further field verifications may need to be performed to confirm the new changes or modifications to the flushing event.

Following the field verifications, the City has tasked CES to coordinate with a valve contractor, Hydromax, and City staff (design & Operations) to subsequently identify and perform the required maintenance and repairs to the water system's distribution valves, fire hydrants and hydrant control/isolation valves. Any data resulting from maintenance and repairs performed will be provided to CES and indicated in the ArcGIS database and summarized in a Technical Memo or Report. Once the system component updates, verifications, and maintenance and repairs have been completed for each or all West Area Zones, the City will be ready to carry out the Flushing Plan Events for the West Area. It should be noted that per the West Area Flushing Plan, there are multiple flushing Events in each Zone. Within each flushing Event there are specific/associated valves which needed to be identified and operated. There are some valves and hydrants which are common in different events and will need to be exercised multiple times to satisfy flushing requirements for that Zone or Event.

CES will assist the City/RBUSD with the associated public outreach and notifications prior to and during the flushing events. Following the success of Water System maintenance and the Flushing Plan in the West Area,

and the use of Lessons Learned from the Program, CES will re-evaluate or recommend modifications to the Valve/Hydrant Action Plan and Approach, and develop, utilize and/or prepare the same approach, procedures and actions required to accomplish the Flushing Program for the Central and East Flushing Plan Areas for the City.

The following section includes a further breakdown of anticipated tasks for this scope of work and action items associated with the West Area Flushing Plan and Valve/Hydrant Maintenance Plan.

**CONCEPTUAL ACTION PLAN:**

1. Identify and/or verify valves and hydrants needed for West Area Flushing Events. Record conditions and update GIS data/system, based on field information provided by RBUSD, Hydromax or valve contractor.
2. For several zones, coordinate the repair of dysfunctional or in-operable valves or hydrants that are critical for flushing to take place. Update GIS and modify flushing plan as required. Flush repaired zones in accordance with H&S Spot Flushing Plan.
3. As flushing proceeds, repair next group of zones, then flush repaired zones. Repeat till West Area done.
4. Perform/assist with public outreach and notification prior to and during all flushing events.
5. CES will be available to RBUSD for additional or as-needed support related to valve/FH identification or validation, and project management/coordination of repair, flushing and/or system issues.

**TASK OVERVIEW:**

All tasks will be managed, coordinated, performed and/or completed by CES Consultants. Hydromax will be involved with simple maintenance or repairs and the flushing events. More complex repairs and replacement of valve, hydrants or water system components will be handled by a valve contractor or RBUSD.

**Task 1 - Preliminary Valve/FH Location & Verification/Validation and Field Survey Inspection – CES, Hydromax, Valve Contractor, and City**

- 1.1 Coordination and/or limited site visits to identify or verify locations of inline distribution valves and fire hydrant valves which were reported as “Not Accessed” (CNA), “Not Located” (CNL) and “Non-Operable” (CNO) by Hydromax. (CES, Valve Contractor, City)
- 1.2 Identified or verified valves and hydrants to be exercised to determine the functionality. (Valve Contractor, Hydromax, City)
- 1.3 Metal detectors to be used to locate and mark valves which are paved over or buried under soil. (Hydromax, Valve Contractor, City)
- 1.4 Verifying valves boxes condition and removal of any debris inside. (Valve Contractor, City)
- 1.5 Verifying valves boxes sleeves are straight and nut can be accessed. (Valve Contractor, City)

Deliverable:

- ❖ Brief Technical Memo with Summary of Findings, associated data/spreadsheets, maps, etc.

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## **Task 2 – Updated Flushing Plan and ArcGIS Database - CES**

- 2.1 Locate and record coordinates for inline valves, gate/control valves and fire hydrants (provided by Others) for use in ArcGIS. This may include location survey, photos, Esri/GPS, etc. (Hydromax, Surveyor or GPS by CES)
- 2.2 Update ArcGIS inventory/database with collected field data. CES to coordinate with James Shaw (City GIS staff) and FTC to identify, update and incorporate GIS data files to City's system. This will also include information, data and results developed during Task 3.
- 2.3 Reevaluate & update Flushing Plan Events with alternative valves and hydrants due to proposed or existing valves/hydrants that could not be located or accessed. (CES, City, Hydromax) Revise & verify maintenance and flushing plans accordingly based on City confirmation and approval.

### Deliverables:

- ❖ Revised Flushing Plan – West Area Zones
- ❖ Updated valve and hydrant shapefiles (uploaded on to Utility's ArcGIS Online Atlas by FTC)

## **Task 3 – Valve/FH Maintenance, Repair & Replacement Services (Corrective Actions) – CES to manage, oversee and coordinate with City (valve opening), Hydromax (small repairs), and valve contractor (replacements) related task and actions.**

- 3.1 Locate, assess, access, repair and/or replace CNL, CNA or In-operable, and begin remediation and maintenance on these components. (CES, Valve Contractor, Hydromax, or City)
- 3.2 Exercising all the distribution gate valves to confirm function, record required data for City operation. (Hydromax, Valve Contractor, or City)
- 3.3 Open FH control/isolation valves and FH, flush fire hydrants to confirm function.
- 3.4 Repair or replace the valves which are not functional.
- 3.5 Repair or replace fire hydrants which are not functional.
- 3.6 Record and include information for all valve locations, conditions, maintenance/repairs that are performed into the ArcGIS database.

## **Task 4 – Perform Flushing Program Events – CES to manage, oversee and coordinate the flushing events for each zone, as outlined by H&S Plan or modified by CES. This will occur in conjunction with Task 3.**

- 4.1 The flushing program will be performed by Hydromax as indicated in the 2018 Hazen and Sawyer Spot Flushing Plan, and/or modified events/plans developed or confirmed by CES.

## **Task 5 – Public Outreach and Notification – CES to manage, coordinate and/or assist with this a Task in conjunction with the City/RBUSD.**

- 5.1 Prior to the start of flushing, CES will coordinate with and assist the City with public outreach and notification which describe the flushing activities, benefits, and potential water quality changes. It will also include the schedule, website, and phone number related to the flushing program.
- 5.2 During flushing activities, CES will assist the City with notifications and updates to residents and keep them informed of the progress in their Zones.

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## Task 6 – RBUSD As-Needed Support / Other Services

- 6.1 CES will remain available to the RBUSD for additional or other as-needed support related to the Flushing Plan, valve/FH validation, repair, flushing events and/or system issues. This may include any miscellaneous services, unanticipated work items that come up, and additional services.

## ADDITIONAL CONSIDERATIONS AND ASSUMPTIONS

The Scope of Work, tasks and deliverables outlined above are based on the following assumptions and considerations:

1. Hydromax will train and advise RBUSD staff on relevant details, materials and operational considerations as the flushing events are being done. The City's goal is for RBUSD staff to continue and maintain the flushing plan for each Zone of the system in future years.
2. CES will not review, observe, inspect, or validate every distribution gate valve or fire hydrant operational status, location, or repair or replacement corrective action that was associated, used, or operated during the Flushing Plan. CES may rely on data and information that is provided by Others, RBUSD, Hydromax or the Valve Contractor for Valve, Fire Hydrant or System evaluation, analysis and documentation for GIS and Flushing Program purposes.
3. CES will promote and utilize the RBUSD's latest standard forms (including H&S Flushing Plan forms and tables), standard design details, water system design criteria and policies, and construction and maintenance procedures in completing the Valve Operation and Flushing Plan for the for the West Area.
4. CES may request as-built or record plans from RBUSD or other utilities, as necessary. RBUSD will provide as-built/record plans for the corresponding Water Main and Fire Hydrant system components.
5. RBUSD, Hydromax and/or Valve Contractor will provide electronic copies of daily field, maintenance, repairs, or construction inspection reports to CES for review, coordination, and planning. It is assumed that the preparation of a field report for each initial site visit (for the valve/FH identification, location, or condition assessment) may not be required.
6. Valve/FH Maintenance and Repair and Services during Facility Construction or Replacement (Task 3.0) will be provided up to the estimated professional staff hours (See Table) based on CES's current Project understanding and valve conditions, and do not include additional or significant valve replacement/activities or unforeseen conditions/issues. If additional services and effort are required beyond these staff hours, an Amendment will be required.
7. All Valves and Fire Hydrants listed as CNL, CNA or CNO on Hydromax's Spreadsheet and initial investigation, and confirmed/validated by CES previously, will require some sort of minor or major repair or adjustment, or replacement.
8. Hydromax's, Valve Contractor's, or RBUSD's ability to perform Minor/Major Repairs (Assumed):
  - a. Minor Repairs = 2 – 4 Hours (Ave.)
  - b. Major Repairs = 4+ Hours, depending on level of difficulty, and short of excavation or use of additional equipment.
  - c. Valve Replacement = 1 – 3 Days, depending on location and difficulty.
9. Hydromax's ability to perform Flushing Events in various Zones (Assumed per Hydromax):
  - a. Flushing Events = Typically 6 – 12 Events per day; CES Assumed 8 – 10 Events/Day/Zone.

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10. RBUSD, Valve Contractor and/or Hydromax will limit the Open Cut (as needed) area of pavement where gate valves are buried or inaccessible, and verify the location, access, and functionality of buried valves. Assumed to be 4+ hours/valve.
11. RBUSD, Valve Contractor and/or Hydromax to repair any damaged water main or component associated with the valve and fire hydrant repair or replacement.
12. RBUSD or Contractor to restore pavement or grassed areas back to their original condition.
13. RBUSD or Contractor to restore sidewalks or other disturbed areas to their original condition.
14. The design of dewatering systems, sheeting or any temporary structure required during repair or replacement construction are excluded from this SOW.
15. Hydromax or Contractor will be responsible for all Maintenance of Traffic (MOT) plans, permitting and execution. Detailed MOT Plans or coordination from CES are not included in the SOW.
16. Public Outreach activities will be in accordance with current City/RBUSD guidelines and Flushing Plan Specifications (see H&S Spot Flushing Plan).
17. Presentations are not included in CES's Scope of Work unless requested/authorized under Task 6.0
18. The Professional Services included/provided by CES Consultants are limited to those described in this proposal. Any other service or services not explicitly described above shall be considered as excluded or considered additional/other services under Task 6.0 or requiring an Amendment.

## SCHEDULE OF IMPLEMENTATION

CES Consultants will manage, oversee and coordinate with RBUSD, Hydromax and a Valve Contractor (TBD) regarding valve operation and validation, valve/FH repairs and valve/FH replacement tasks and actions, including the Flushing Plan Events, and develop or support the associated project schedule that is mutually agreed upon with RBUSD. The start date will coincide with the written Notice to Proceed (NTP). The review periods for each Task, Submittal, GIS Database/File or Flushing Event should not exceed ten (10) calendar days and be included in the project schedule. Throughout the duration of the field, repair, and flushing phases for this Project, CES will maintain and provide schedule updates of the system maintenance, repairs, and flushing activities.

CES anticipates the completion of the **Repair Phase and Flushing Plan for this Project within a period of 120 Calendar Days from NTP**, or in accordance with the agreed to Project Schedule, but understands that the project duration and review/repair of existing system facilities and components may depend on RBUSD and Hydromax/Valve Contractor staff availability and other external factors. We also understand that RBUSD may have a priority for specific Zone/Event sites, which will be scheduled accordingly.

CES is prepared to begin work on this Project immediately upon receiving the written NTP from RBUSD. The Schedule for this Project will be developed and agreed upon with CES, RBUSD and Hydromax prior to initiation of the Project or specific valve, fire hydrant or Flushing Event review or activity.

Deliverables:

- ❖ General Project Schedule to be provided monthly, in Microsoft Project format.

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## COMPENSATION

The Professional Services described herein will be performed under the Terms and Conditions of the currently active **RBUSD Professional Continuing Engineering Services Agreement between City of Riviera Beach and CES Consultants, Inc., and the 2018 Rate Schedule (Exhibit B)**. CES proposes to perform these services/work on a **Time and Materials (T&M) basis for a proposed Not-to-Exceed (NTE) Fee of \$163,720.00**. Our SOW includes a Reimbursable Expense Fee of \$4,250.00, and may include mileage, equipment, field supplies, permitting fees, and reproduction costs. A breakdown of CES's Project Cost Estimate by Task is provided in the West Area Flushing Program Table (Attached).

### **Invoicing and Payment:**

Invoicing will be as per the currently active Agreement (Article 3 – Payments to Consultants) outlined above, and with Tasks and Deliverables as detailed in this proposed Scope of Work and as approved by RBUSD. Payment will be made following receipt, review and acceptance of Project Tasks or Deliverables by the RBUSD Project Manager for each Task or Subtask in accordance with the scope outlined above and the attached Fee Table for the Flushing Program for the West Area. Payment may be made by RBUSD/City for a portion of a Task, or by specific Repair, Action or Event, if the Monthly Status Report clearly indicates work effort has been accomplished on that Task as reviewed and accepted by RBUSD. Partial Task/Subtask payments will be based on the Facility, Action or Flushing Event completed or percentage of work shown in the Monthly Status Report that the RBUSD's PM deems has been completed and approved.

**Unidirectional Flushing Program  
WM Valve FH Validation and Flushing Program  
West Area Zones 1-11; All Events**

City of Riviera Beach Utility Special District  
WM Valve/FH Validation & Flushing Project - Phase 2  
PO# ?????????

Fee Estimate 11/20/2020

Task No.	Task Description	Project Director	Sr. Project Manager	Sr. Discipline Specialist	Senior Design Engineer	Project Engineer	Engineer	Engineer - GIS	Assoc. Engr. / Designer	Sr. Technician	Project Analyst	Clerical	Total Hours	Expenses	Subconsultant	Cost/Task
<b>Phase 2 WM Flushing Program - West Area Zones/Events</b>																
<b>1.0</b>	<b>Preliminary Valve/FH Location &amp; Validation - Field Survey Inspection</b>												<b>318</b>			<b>\$ 38,230.00</b>
1.1	Site visits to verify flushing valves / FH locations	4	16		4		40	32	12			8	116			\$ 13,620.00
1.2	Verified valves to determine functionality		4		4		24	8					40			\$ 4,760.00
1.3	Locate valves under asphalt or buried	2	4	4	4		24	24	8			2	72			\$ 8,470.00
1.4	Verify valve box / FH conditions and remove debris		12	2	8		40		4				66			\$ 8,520.00
1.5	Verify valve boxes sleeves are straight, nut can be accessed		4				16	4					24			\$ 2,860.00
<b>2.0</b>	<b>Updated Flushing Plan and ArcGIS Database</b>												<b>228</b>			<b>\$ 27,280.00</b>
2.1	Locate and record coordinates inline valves, FH valves, hydrants		8				20	28					56			\$ 6,560.00
2.2	Update ArcGIS inventory/database with collected field data		8				4	60	16				88			\$ 9,760.00
2.3	Reevaluate & update Flushing Plan Events for valves/hydrants that couldn't be located		12	8	16		4	32		4		8	84			\$ 10,960.00
<b>3.0</b>	<b>Valve/FH Maintenance, Repair &amp; Replacement Services - Fieldwork</b>												<b>408</b>			<b>\$ 48,840.00</b>
3.1	Locate, assess & repair/replace CNL, CNA or in-operable valves/FH	4	12		8		24	8	8				64			\$ 8,480.00
3.2	Exercise all the distribution gate valves - Flushing Plan		8		4		20	12	4				48			\$ 5,900.00
3.3	Open FH control/isolation valves and flush to confirm function		4				16						20			\$ 2,440.00
3.4	Repair/replace non-functional valves (gate / FH)	4	12	12	8		80	12	16	4			148			\$ 18,200.00
3.5	Repair/replace non-functional fire hydrants		4				20	16	8				48			\$ 5,300.00
3.6	Record information for all valve locations, conditions, repairs, etc.		8				16	32		16		8	80			\$ 8,520.00
<b>4.0</b>	<b>Management/Coordination of Flushing Events</b>												<b>192</b>			<b>\$ 23,520.00</b>
4.1	Perform Flushing Events per 2018 Hazen and Sawyer Plan	4	24		20		80	48	16				192			\$ 23,520.00
<b>5.0</b>	<b>Public Outreach &amp; Notification</b>												<b>86</b>			<b>\$ 10,960.00</b>
5.1	Prior to flushing - Perform or support public outreach activities	2	16		8		8	20	20			4	78			\$ 9,780.00
5.2	During flushing - City or CES to update residents on progress		4					4					8			\$ 1,180.00
<b>6.0</b>	<b>RBUSD As-Needed Support / Other Services</b>												<b>76</b>			<b>\$ 10,640.00</b>
6.1	As needed support to RBUSD; Other Related Services	4	24		8		16	20				4	76			\$ 10,640.00
													0			\$ -
	<b>Expenses: Mileage, Equipment, Field Supplies, etc.</b>													<b>\$4,250</b>		<b>\$ 4,250.00</b>
	<b>TOTAL HOURS/LABOR COST</b>	<b>24</b>	<b>184</b>	<b>26</b>	<b>92</b>	<b>0</b>	<b>452</b>	<b>360</b>	<b>112</b>	<b>24</b>	<b>0</b>	<b>34</b>	<b>1308</b>	<b>\$ 4,250.00</b>	<b>\$ -</b>	<b>\$ 159,470.00</b>
	Direct Labor Rate (N/A - See Rate Sheet)															
	Proposed Hourly Rate (Per Contract Rates)	\$200.00	\$190.00	\$190.00	\$160.00	\$125.00	\$105.00	\$105.00	\$95.00	\$95.00	\$80.00	\$55.00	--	--	--	--
	<b>GRAND TOTAL</b>	<b>\$ 4,800.00</b>	<b>\$ 34,960.00</b>	<b>\$ 4,940.00</b>	<b>\$ 14,720.00</b>	<b>\$ -</b>	<b>\$ 47,460.00</b>	<b>\$ 37,800.00</b>	<b>\$ 10,640.00</b>	<b>\$ 2,280.00</b>	<b>\$ -</b>	<b>\$ 1,870.00</b>	<b>\$ 159,470.00</b>	<b>\$ 4,250.00</b>	<b>\$ -</b>	<b>\$ 163,720.00</b>