

Kimley»Horn

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Springs Initiative Grant Application by Crystal River



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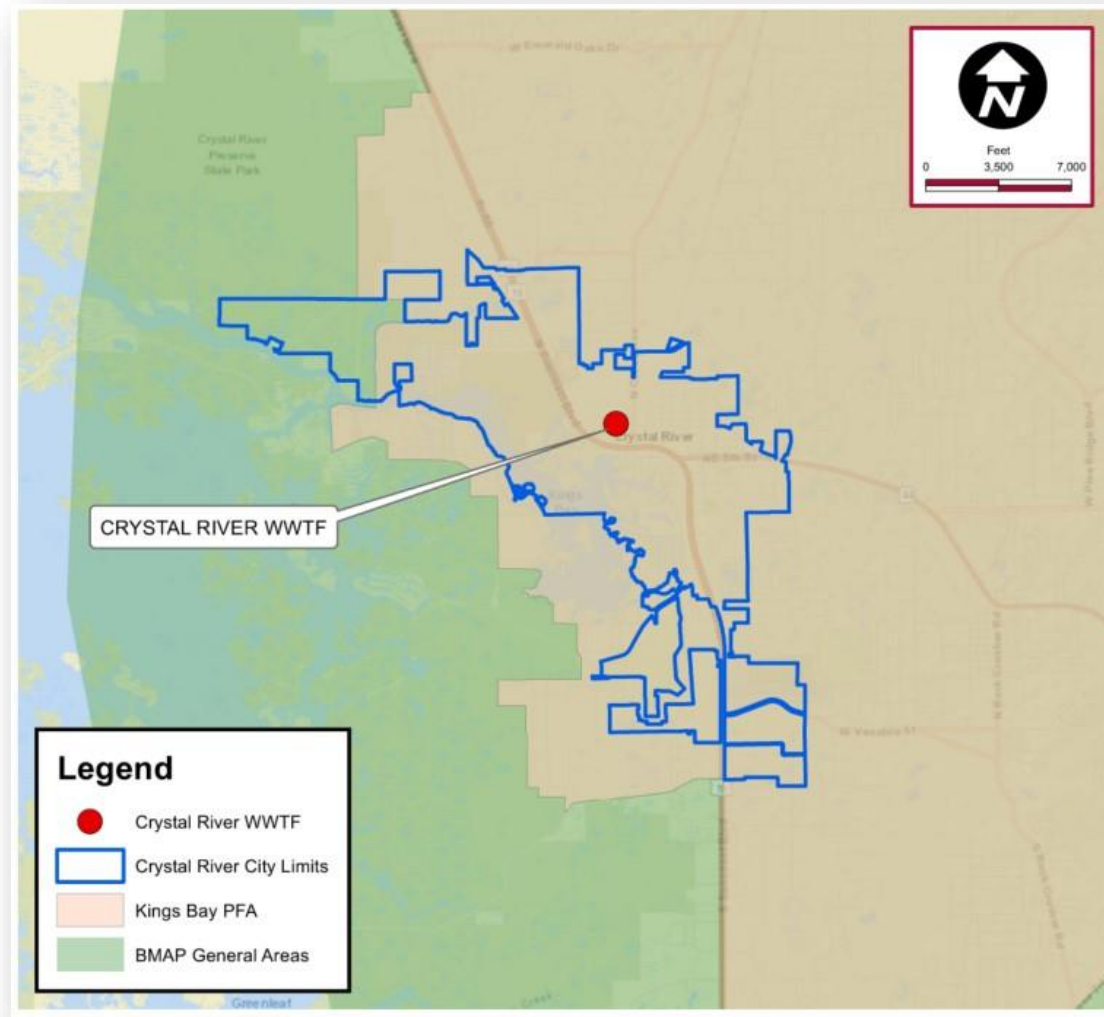
GOVERNMENT SERVICES GROUP, INC.
An Anser Advisory Company

Crystal River WWTF Upgrade

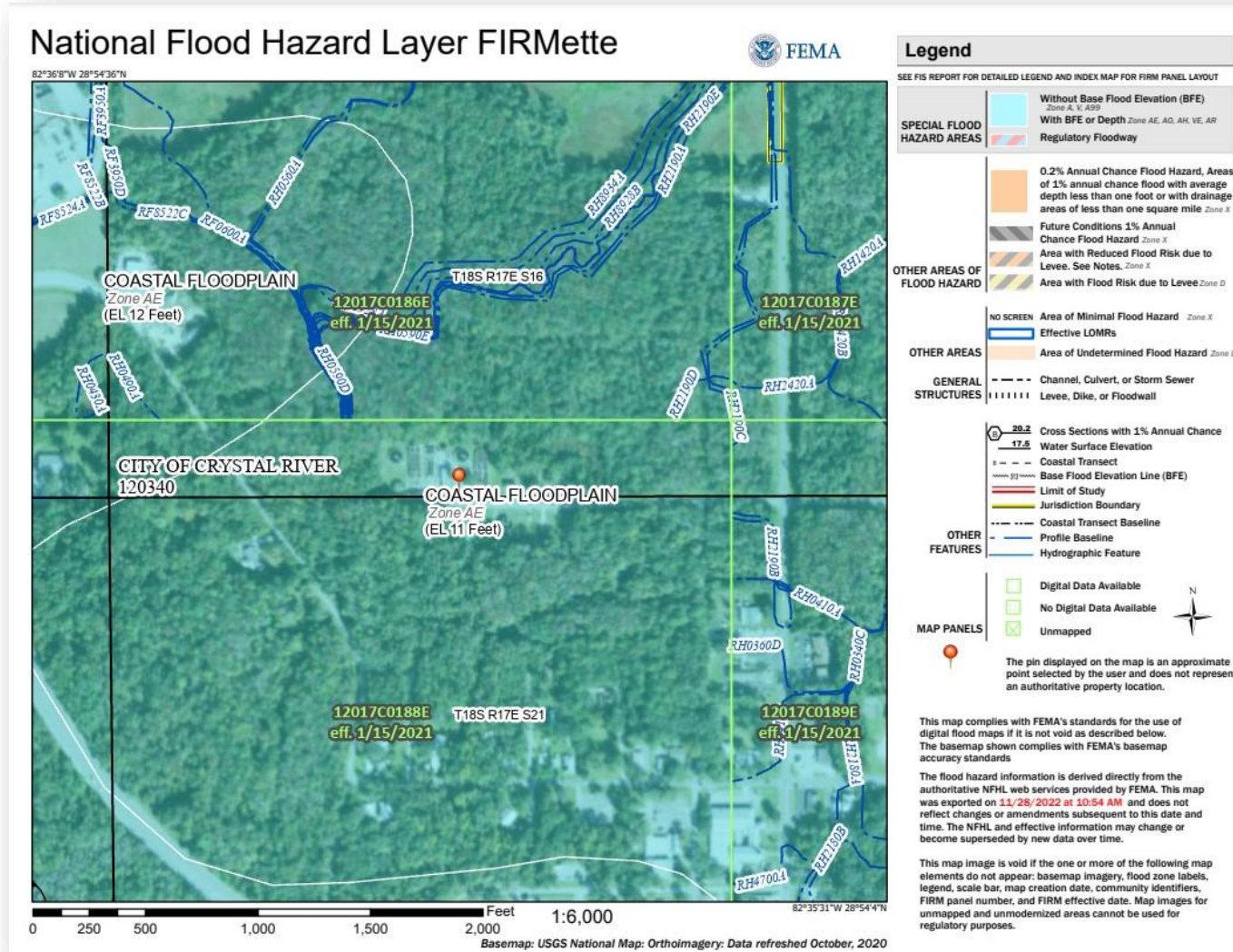
Project Description:

- The existing WWTF is providing secondary treatment. With a permitted TN limit of 12 mg/l while the plant regularly attains a TN removal of 4.34 mg/l.
- New permitted limits of 3 mg/l are expected with next permit renewal.
- FEMA Flood Zone elevation published in 2021 is 11 ft
- Project includes improvements to the plant to reduce nitrogen discharge from the plant and harden infrastructure
- Project to benefit Kings Bay
 - Located within PFA for Kings Bay
 - 0.5 miles from Kings Bay
- Project Duration 2-3 years.

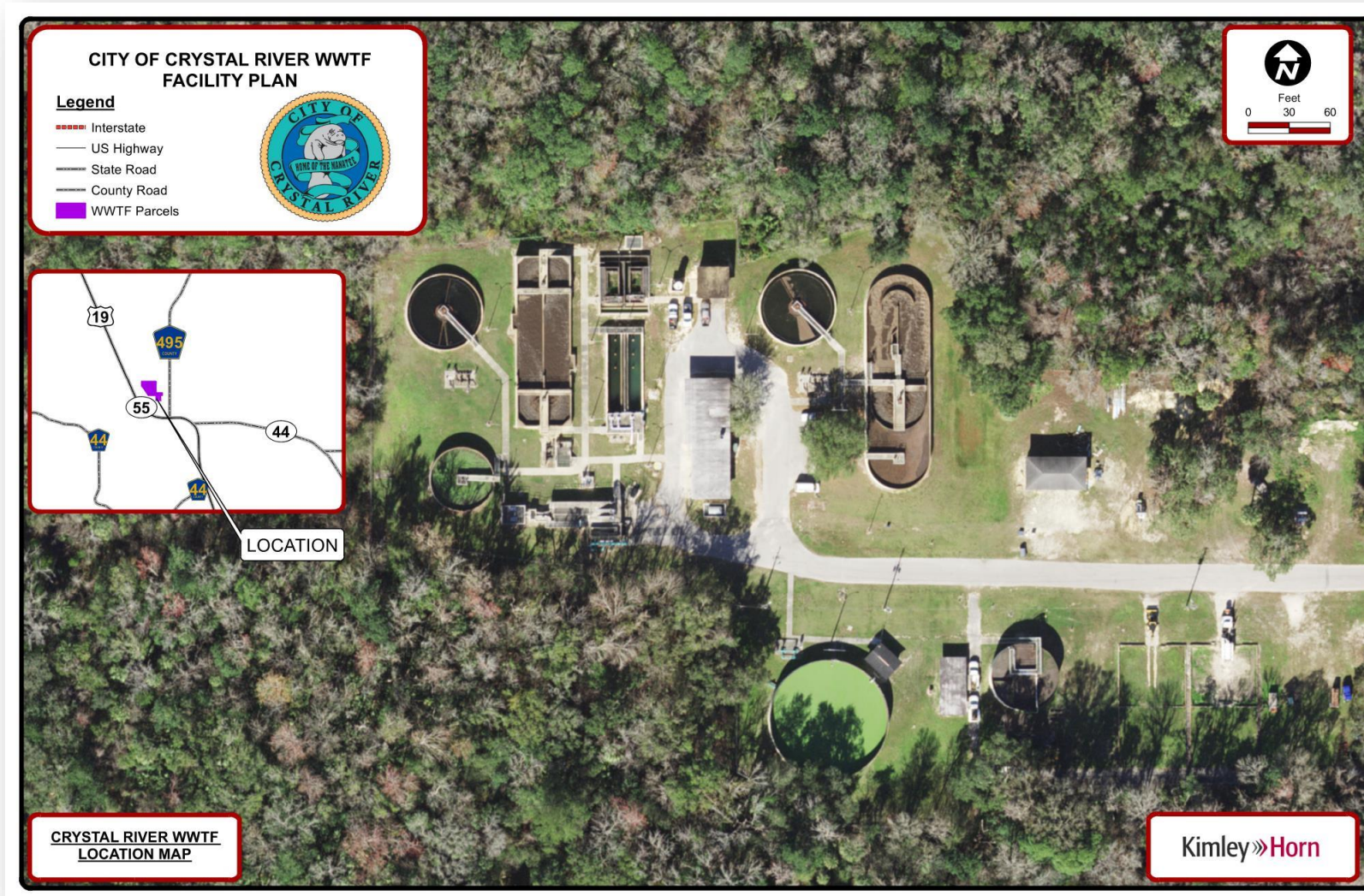
Project Proximity to BMAP and PFA



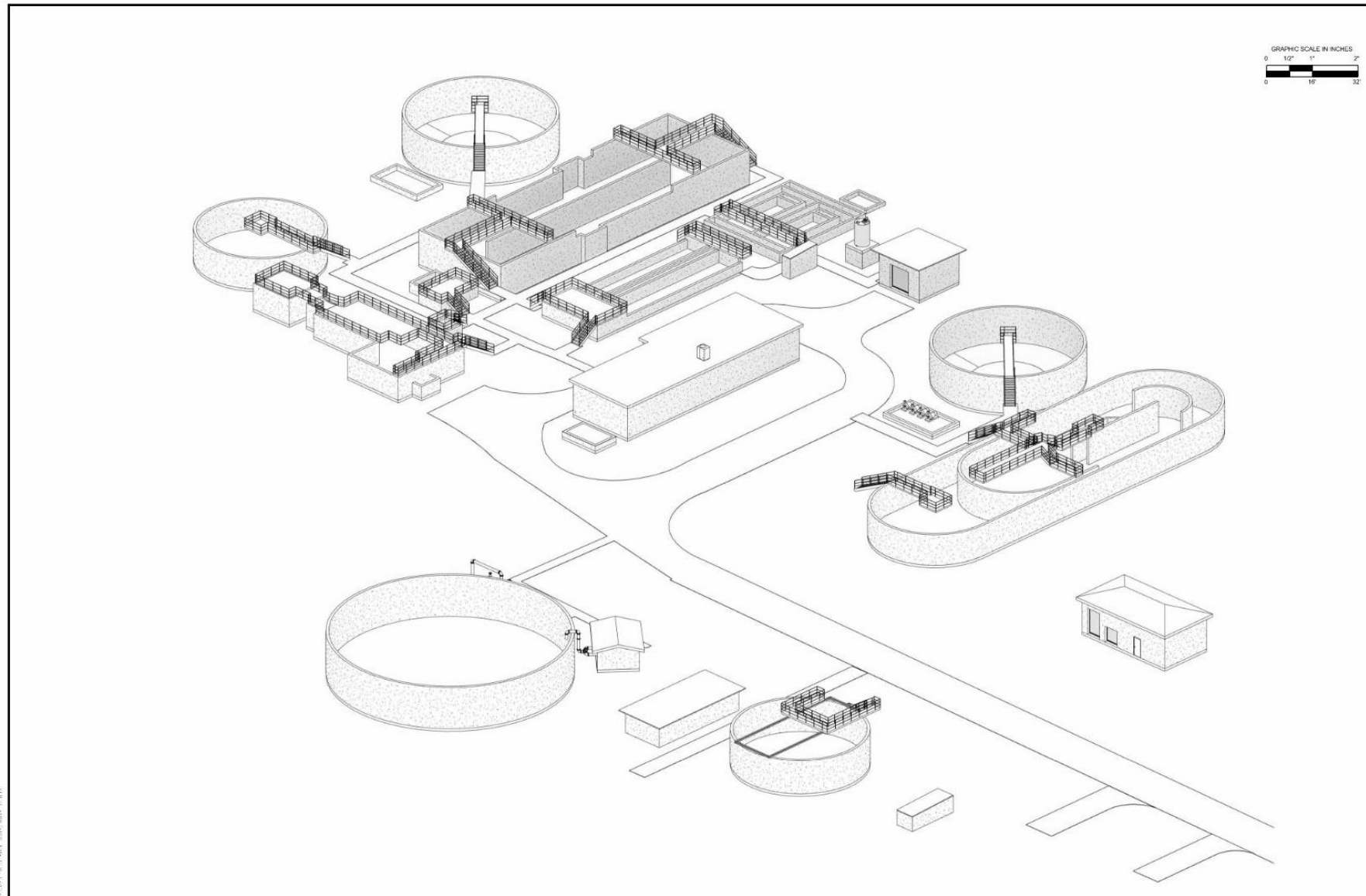
FEMA Flood Zone Map



Crystal River WWTF Upgrade



Crystal River WWTF Upgrade



Crystal River WWTF Upgrade OPC

Seeking funding for 75% of total project cost

COST ESTIMATE FOR GRANT APPLICATION					
CITY OF CRYSTAL RIVER					
WASTEWATER TREATMENT FACILITY UPGRADES					
ITEM	DESCRIPTION	QUANTITY		UNIT PRICE	AMOUNT
1	REHAB EXISTING HEADWORKS.	1	LS	\$ 750,000	\$ 750,000
2	NEW 3 MGD IR PUMP STATION ON ELEVATED SLAB ABOVE 100 YR FLOOD PLAIN	1	LS	\$ 400,000	\$ 400,000
3	SURFACE AERATORS (3 50 HP SURFACE AERATORS)	3	EA	\$ 225,000	\$ 675,000
4	REPLACE RETURN ACTIVATED SLUDGE / WASTE ACTIVATED SLUDGE PUMP STATIONS	1	LS	\$ 400,000	\$ 400,000
5	NEW DIGESTER TANK AND ASSOCIATED PUMPING AND PIPING	1	EA	\$ 668,000	\$ 668,000
6	ELECTRICAL IMPROVEMENTS	1	LS	\$ 562,000	\$ 562,000
7	INSTRUMENT & CONTROLS IMPROVEMENTS	1	LS	\$ 455,000	\$ 455,000
8	SOFT COSTS (TO INCLUDE DESIGN, PERMITTING, BIDDING, ETC)	1	LS	\$ 1,759,500	\$ 1,759,500
				TOTAL	\$ 5,669,500

Crystal River WWTF Upgrades

- **Existing WWTF Nitrogen Removal Rate**
 - Annual Average TN = 4.34 mg/l
 - Actual Annual Average Flow = 0.71 mgd
 - 0.9 Attenuation Multiplier
 - 0.4 Recharge Factor
 - 3,379 lbs. of TN/Year
- **Upgraded WWTP Plant Efficiency**
 - 2.9 mg/l of Nitrogen-Discharge Concentration
 - Actual Annual Average Flow = 0.71 mgd
 - 0.9 Attenuation Multiplier
 - 0.4 Recharge Factor
 - 2,258 lbs. of TN/Year
- **Cost Effectiveness for 30-year period**
 - 1,121 lbs. of TN/Year removed Spring Shed
 - Project cost = \$5,966,895
 - \$177.41 per lb. TN removed over 30 years.

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