

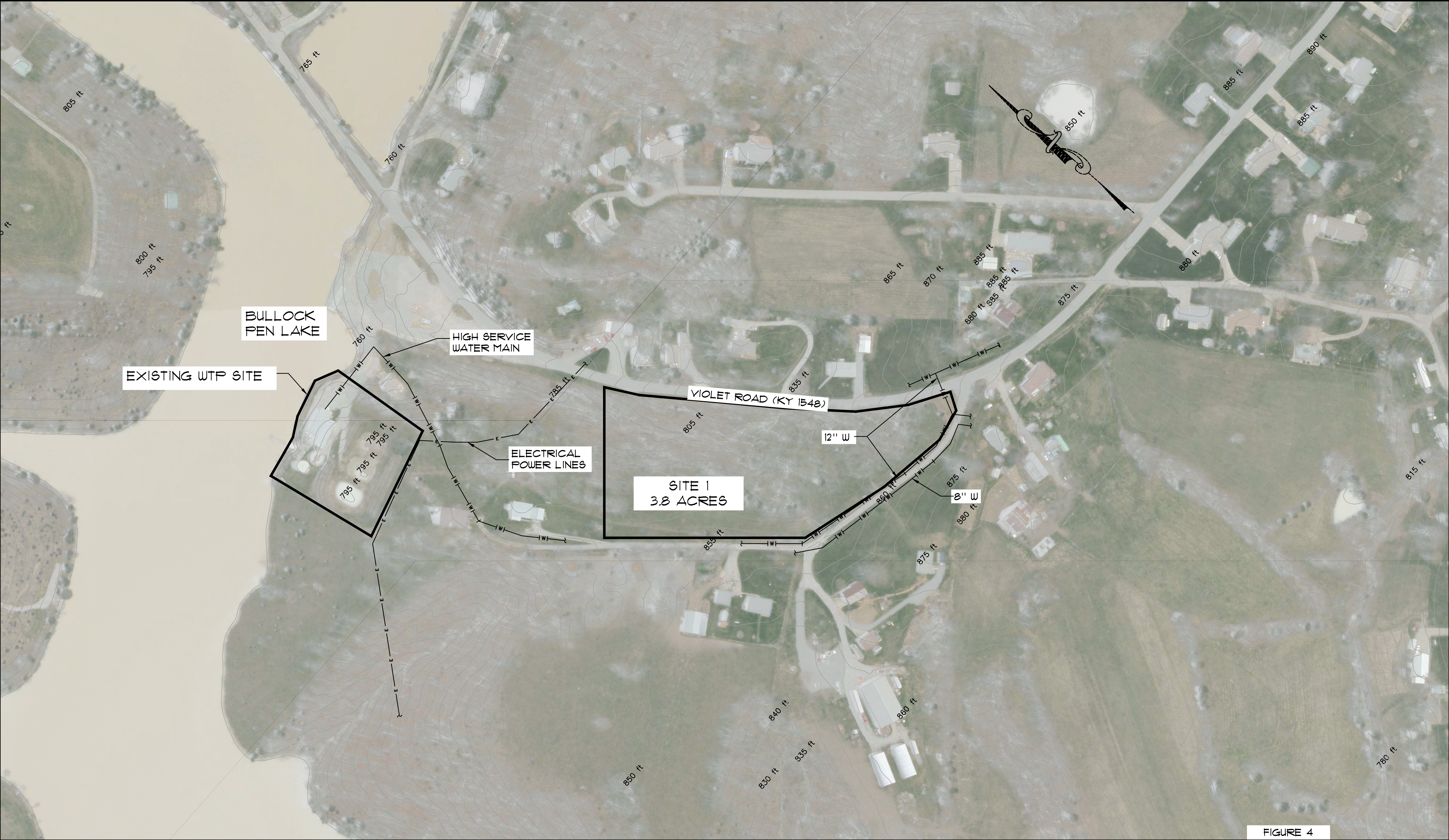


FIGURE 4

NO.	DATE	REVISIONS	CHK'D	APPR'D	DATE

PROJECT: 4222.01 DATE: APR 2021		
SCALE: 1"=100' (22x36 SHEET)		
DESIGNED BY	NAME	DATE
DRAWN BY		
CHECKED BY		
RECORD DUGS.		



3 HMB CIRCLE
FRANKFORT, KENTUCKY
(502) 695-9800
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**WATER TREATMENT PLANT
BULLOCK PEN WATER DISTRICT
GRANT COUNTY, KENTUCKY**

POTENTIAL WTP SITE 1

SHEET
34

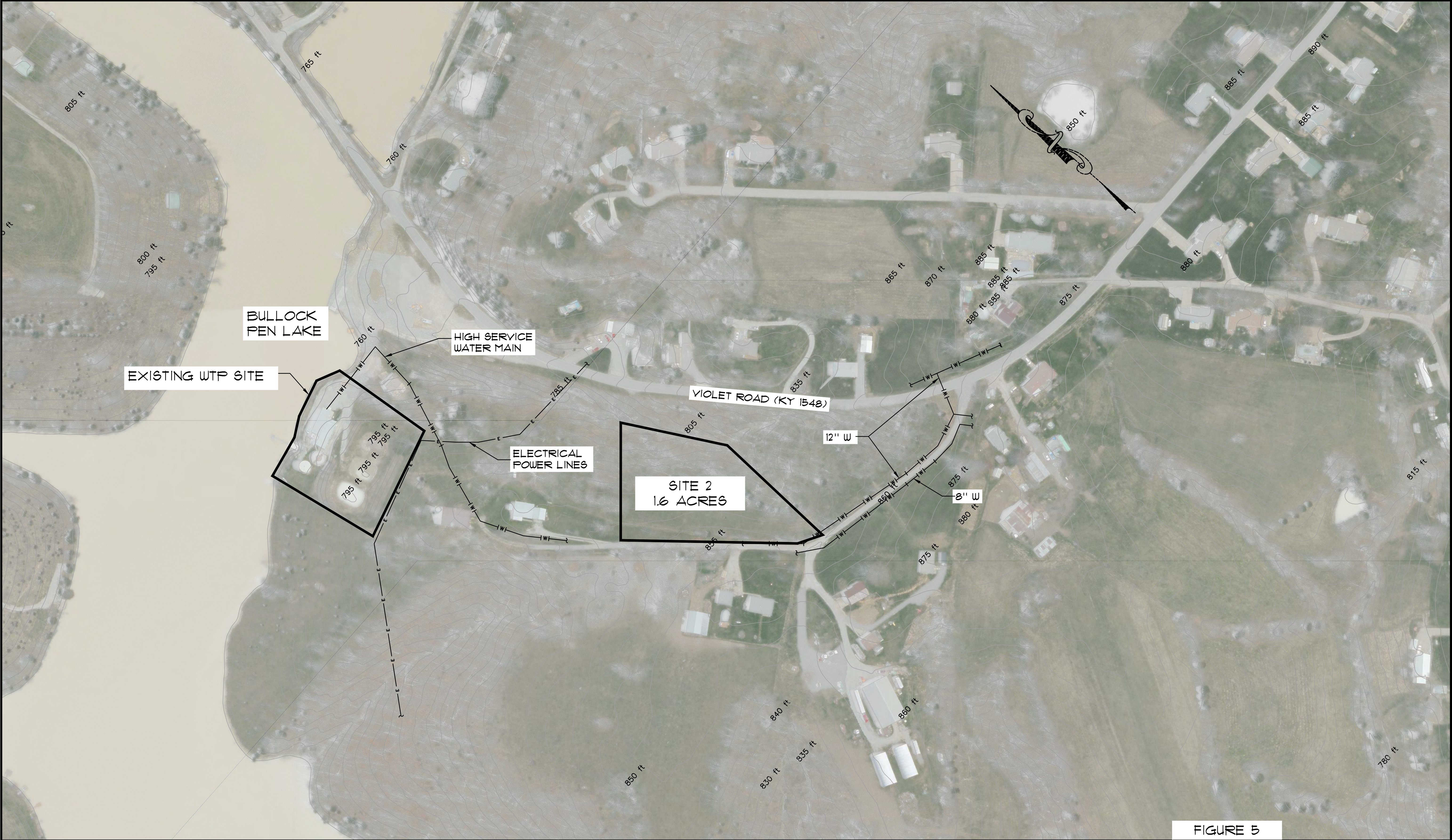


FIGURE 5

NO.	DATE	REVISIONS	CHK'D	APPR'D	DATE

PROJECT: 4222.01 DATE: MAR 2021		
SCALE: 1"=100' (22x36 SHEET)		
DESIGNED BY	NAME	DATE
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WATER TREATMENT PLANT BULLOCK PEN WATER DISTRICT GRANT COUNTY, KENTUCKY	
POTENTIAL WTP SITE 2	

SHEET
35



FIGURE 6

NO.	DATE	REVISIONS	CHK'D	APPR'D	DATE

PROJECT: 4222.01 DATE: APR 2021		
SCALE: 1"=100' (22x36 SHEET)		
DESIGNED BY	NAME	DATE
DRAWN BY		
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**WATER TREATMENT PLANT
BULLOCK PEN WATER DISTRICT
GRANT COUNTY, KENTUCKY**

POTENTIAL WTP SITE 3

SHEET
36

E. Finance

There are four possible methods or combinations of methods that the project could be financed as follow:

- Cost savings to produce water versus purchase water
- Retirement of existing indebtedness
- Grants (Rural Development (RD)/American Rescue Plan Act)
- Loans (RD/ KIA/ KACO)

Produced water potential savings is summarized in Tables 11 and 12 based on two scenarios, using FY2019 water data. Scenario 1 looks at produced water cost associated with a water purchase of 120% over the average daily contractually required amount of 0.50 MGD or a daily purchased amount of 0.60 MGD. Scenario 2 looks at produced water cost associated with a water purchase of 150% over the average daily contractually required amount of 0.50 MGD or a daily purchased amount of 0.75 MGD. If the WD reduced the amount of water purchased from the four water wholesalers to 0.60 MGD as shown in Table 11, and assuming a cost to the WD to produce water at \$2.60 per 1000 gallons, a yearly savings of \$207,600 would be realized. If the amount that was purchased was 0.75 MGD from the wholesalers, then the yearly savings would be \$144,700, as shown in Table 12. These possible savings could be used to off-set debt retirement from a loan to construct a new 2.0 MGD WTP. Based on a 2.0% interest loan over a 20-year term, a yearly savings of \$207,600 would cover a \$3.4M loan where \$144,700 would cover a \$2.4M loan.

Table 11 Produced Water Potential Savings (120% off Minimum) (Based on FY 2019)				
Item	City of Williamstown	City of Walton	Northern KY WD	Boone Co. Water
Water Purchased (MG)	166.51	16.21	190.80	49.58
Purchase Agreement Minimum (MG)	36.5	0	109.5	36.5
Amount Purchased (MG)	43.8 ¹	6.48 ²	131.4 ¹	43.8 ¹
Amount Produced Versus Purchased (MG)	122.71	9.73	59.4	5.78
Purchased Cost (Cost per 1,000 Gallons)	\$416,000 (\$3.39)	\$45,100 (\$4.64)	\$236,400 (\$3.98)	\$23,800 (\$4.11)
BPWD Cost to Produce ³	\$319,000	\$25,300	\$154,400	\$15,000
Potential Savings	\$97,000	\$19,800	\$82,000	\$8,800
Total Yearly Produced Water Potential Savings			\$207,600	

Notes: ¹ Assumed that the purchased agreement minimum is increased by 20%

² Assumed that water purchased is 40% of FY 2019 usage

³ Assumed the cost for BPWD to produce water is \$2.60 / 1,000 Gallons

Water Treatment Plant Feasibility Study | Bullock Pen Water District

Table 12 Produced Water Potential Savings (150% of Minimum) (Based on FY 2019)				
Item	City of Williamstown	City of Walton	Northern KY WD	Boone Co. Water
Water Purchased (MG)	166.51	16.21	190.80	49.58
Purchase Agreement Minimum (MG)	36.5	0	109.5	36.5
Amount Purchased (MG)	54.8 ¹	6.48 ²	164.3 ¹	54.8 ¹
Amount Produced Versus Purchased (MG)	111.71	9.73	26.5	0
Purchased Cost (Cost per 1,000 Gallons)	\$378,700 (\$3.39)	\$45,100 (\$4.64)	\$105,500 (\$3.98)	\$0 (\$4.11)
BPWD Cost to Produce ³	\$209,400	\$25,300	\$68,900	\$0
Potential Savings	\$88,300	\$19,800	\$36,600	\$0
Total Yearly Produced Water Potential Savings			\$144,700	

Notes: ¹ Assumed that the purchased agreement minimum is increased by 50%

² Assumed that water purchased is 40% of FY 2019 usage

³ Assumed the cost for BPWD to produce water is \$2.60 / 1,000 Gallons

Current indebtedness by the WD is summarized in Table 13. This indicates that the current indebtedness by the WD will be reduced by \$245,000 per year upon the ending of FY 2024. If the retirement indebtedness is not obligated to fund other activities, then all or a portion could be used to offset debt retirement from a loan. Based on a 2.0% interest loan over a 20-year term \$245,000 per year would cover a \$4.0M loan.

Therefore, approximately \$6.4M to \$7.4M could be financed without resulting in any additional indebtedness.

Money from a RD loan/grant package could be obtained. These typically are a combination RD loan to grant in the amount of approximately 75% loan to 25% grant.

The American Rescue Plan Act is a grant program that may be available for use for a project of this type.

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Table 13 Indebtedness Summary		
Bonded Indebtedness Instrument	Approx. Yearly Payment	Retirement / Last Year of Indebtedness
Water Works System Revenue Bonds U.S. Dept. of Agriculture 1982	\$7,000	2022
KY Rural Water Finance Corp. Revenue Bonds, Series 2001C – Refinancing	\$44,000	2021
KY Rural Water Finance Corp. Revenue Bonds, Series 2005B – Phase 8	\$33,000	2031
KY Rural Water Finance Corp. Revenue Bonds, Series 2005B – Phase 10	\$19,000	2031
KIA – Drinking Water Supply Project 2002	\$25,000	2022
KIA – Drinking Water Supply Project 2003	\$81,000	2024
KIA – Drinking Water Supply Project 2010	\$146,000	2030
KIA – Drinking Water Supply Project 2012	\$109,000	2034
KIA – Drinking Water Supply Project 2015	\$14,000	2036
BB&T – 2013 Capital Lease	\$88,000	2023
	Shaded areas represent indebtedness that will be retired by the end of FY 2024. The total indebtedness is reduced by \$245,000 per year.	

APPENDIX A

**Bullock Pen Lake Water Withdrawal Correspondence from Kentucky Department of Fish & Wildlife
Resources and Kentucky Division of Water**

APPENDIX B

Opinion of Probable Project Costs

2.0 MGD & 1.5 MGD Water Treatment Plants



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**BULLOCK PEN WATER TREATMENT PLANT
BULLOCK PEN WATER DISTRICT
2.0 MILLION GALLONS PER DAY
OPINION OF PROBABLE CONSTRUCTION COSTS**

CONSTRUCTION ITEM		UNIT	COST
1	Mob / Demob. @ 1%	LS	\$ 87,870
2	Bonds & Insurance @ 2%	LS	\$ 175,740
3	General Conditions @ 3%	LS	\$ 263,610
4	Site Work	LS	\$ 100,000
5	Rapid Mix (1)	LS	\$ 80,000
6	Flocculation Basins (2)	LS	\$ 270,000
7	Sedimentation Basins (2)	LS	\$ 580,000
8	Gravity Filters (3)	LS	\$ 500,000
9	Clear Wells (2)	LS	\$ 580,000
10	Operations Building (30' x 80')	LS	\$ 430,000
11	Treatment Building (150' x 100')	LS	\$ 1,950,000
12	Raw Water Intake	LS	\$ 200,000
13	High Service Pumps	LS	\$ 150,000
14	Air and Water Backwash System	LS	\$ 120,000
15	Process Piping	LS	\$ 300,000
16	Small Piping	LS	\$ 200,000
17	Misc. Metals	LS	\$ 150,000
18	Coatings	LS	\$ 100,000
19	Handrail System	LS	\$ 80,000
20	Chemical Feed Pumps and Tanks	LS	\$ 250,000
21	Bridge Crane	LS	\$ 150,000
22	Standby Generator	LS	\$ 350,000
23	Stairs and Walkways	LS	\$ 100,000
24	Solids Lagoons	LS	\$ 200,000
25	Fences and Gates	LS	\$ 100,000
26	Bituminous Pavement	LS	\$ 100,000
27	Plumbing	LS	\$ 50,000
28	HVAC	LS	\$ 150,000
29	Electrical System @ 15%	LS	\$ 1,160,000
30	Instrumentation System @ 5%	LS	\$ 387,000
Subtotal Construction Cost			\$ 9,314,220
Contractor Overhead and Profit @18%			\$ 1,676,560
			\$ -
Opinion of Probable Construction Cost			\$ 10,990,780



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**BULLOCK PEN WATER TREATMENT PLANT
BULLOCK PEN WATER DISTRICT
2.0 MILLION GALLONS PER DAY
OPINION OF PROBABLE PROJECT COSTS**

Opinion of Probable Construction Cost	\$10,990,780
Contingencies @ 10%	\$1,099,078
Engineering Costs:	
Planning: Preliminary Engineering	\$20,000
RD Fee Scale: Engineering Design	\$493,000
Advertising & Bidding	\$71,000
Construction Administration	\$141,000
Construction Observation	\$455,000
Other: Geotechnical Investigation	\$50,000
Property Survey	\$15,000
Miscellaneous*	\$50,000
Legal Expenses	\$15,000
Administration (All Funding Sources)	\$20,000
Environmental (CatEx Only)*	\$10,000
Archaeological*	\$20,000
Opinion of Probable Project Cost	\$13,449,858
<i>USE</i>	\$13,500,000

*if required.



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**BULLOCK PEN WATER TREATMENT PLANT
BULLOCK PEN WATER DISTRICT
1.5 MILLION GALLONS PER DAY
OPINION OF PROBABLE CONSTRUCTION COSTS**

CONSTRUCTION ITEM		UNIT	COST
1	Mob / Demob. @ 1%	LS	\$ 85,460
2	Bonds & Insurance @ 2%	LS	\$ 170,920
3	General Conditions @ 3%	LS	\$ 256,380
4	Site Work	LS	\$ 100,000
5	Rapid Mix (1)	LS	\$ 80,000
6	Flocculation Basins (2)	LS	\$ 240,000
7	Sedimentation Basins (2)	LS	\$ 510,000
8	Gravity Filters (3)	LS	\$ 460,000
9	Clear Wells (2)	LS	\$ 540,000
10	Operations Building (30' x 80')	LS	\$ 430,000
11	Treatment Building (150' x 100')	LS	\$ 1,950,000
12	Raw Water Intake	LS	\$ 190,000
13	High Service Pumps	LS	\$ 140,000
14	Air and Water Backwash System	LS	\$ 110,000
15	Process Piping	LS	\$ 300,000
16	Small Piping	LS	\$ 200,000
17	Misc. Metals	LS	\$ 150,000
18	Coatings	LS	\$ 100,000
19	Handrail System	LS	\$ 80,000
20	Chemical Feed Pumps and Tanks	LS	\$ 250,000
21	Bridge Crane	LS	\$ 150,000
22	Standby Generator	LS	\$ 350,000
23	Stairs and Walkways	LS	\$ 100,000
24	Solids Lagoons	LS	\$ 200,000
25	Fences and Gates	LS	\$ 100,000
26	Bituminous Pavement	LS	\$ 100,000
27	Plumbing	LS	\$ 50,000
28	HVAC	LS	\$ 150,000
29	Electrical System @ 15%	LS	\$ 1,137,000
30	Instrumentation System @ 5%	LS	\$ 379,000
Subtotal Construction Cost			\$ 9,058,760
Contractor Overhead and Profit @18%			\$ 1,630,577
			\$ -
Opinion of Probable Construction Cost			\$ 10,689,337



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**BULLOCK PEN WATER TREATMENT PLANT
BULLOCK PEN WATER DISTRICT
1.5 MILLION GALLONS PER DAY
OPINION OF PROBABLE PROJECT COSTS**

Opinion of Probable Construction Cost	\$10,689,337
Contingencies @ 10%	\$1,068,934
Engineering Costs:	
Planning: Preliminary Engineering	\$20,000
RD Fee Scale: Engineering Design	\$479,000
Advertising & Bidding	\$68,000
Construction Administration	\$138,000
Construction Observation	\$443,000
Other: Geotechnical Investigation	\$50,000
Property Survey	\$15,000
Miscellaneous*	\$50,000
Legal Expenses	\$15,000
Administration (All Funding Sources)	\$20,000
Environmental (CatEx Only)*	\$10,000
Archaeological*	\$20,000
Opinion of Probable Project Cost	\$13,086,271
<i>USE</i>	\$13,100,000

*if required.