DRAFT 5/30/2024

BELLA COLLINA
RESIDENTIAL IRRIGATION SYSTEM

ENGINEER'S REPORT

FOR

BELLA COLLINA
COMMUNITY DEVELOPMENT DISTRICT

BY

BOYD
ENVIRONMENTAL
ENGINEERING, INC.

JUNE 2024

BELLA COLLINA
RESIDENTIAL IRRIGATION SYSTEM

ENGINEER'S REPORT

PREPARED FOR:

BELLA COLLINA COMMUNITY DEVELOPMENT DISTRICT
219 E. LIVINGSTON STREET
ORLANDO, FL 32801
407-841-5524

PREPARED BY:

BOYD ENVIRONMENTAL ENGINEERING, INC.
175 WEST BROADWAY STREET, SUITE 101
OVIEDO, FL 32765
407-542-4919
REGISTRY LICENSE NO. 6444

JUNE 2024

DRAFT 5/30/2024

BELLA COLLINA
RESIDENTIAL IRRIGATION SYSTEM

ENGINEER'S REPORT

TABLE OF CONTENTS

SECTION	PAGE
INTRODUCTION	1
DESIGN CAPACITY CRITERIA	3
DESCRIPTION OF EXISTING AND PROPOSED IMPROVEMENTS	4
Lake Siena Pump Stations No. 1 and No. 2	4
Bella Collina West Booster Pump Station	6
Irrigation Transmission Piping	6
Irrigation Wells	7
DUKE ENERGY TRANSFORMERS	9
CONCEPTUAL OPINIONS OF PROBABLE CONSTRUCTION COST	10

LIST OF TABLES	PAGE
Table 1 – Lake Siena Surface Water Pump Stations Design Data	5
Table 2 – Bella Collina West Booster Pump Station Design Data	5
Table 3 – Bella Collina Irrigation Wells Design Data	5
Table 4 – Bella Collina Irrigation Wells Construction Data	8

CONCEPTUAL OPINIONS OF PROBABLE CONSTRUCTION COST	PAGE
Table 5 – Lake Siena Pump Station No. 1	11
Table 6 – Lake Siena Pump Station No. 2	12
Table 7 – Bella Collina West Booster Pump Station	13
Table 8 – Irrigation Well No. 6	14
Table 9 – Irrigation Well No. 7	15
Table 10 – Irrigation Well No. 14	16
Table 11 – Irrigation Well No. 15	17
Table 12 – Irrigation Well No. 17	18
Table 13 – Bella Collina Residential Irrigation System	19

BELLA COLLINA
RESIDENTIAL IRRIGATION SYSTEM

ENGINEER'S REPORT

TABLE OF CONTENTS (CONTINUED)

LIST OF FIGURES (ATTACHED)

Figure 1 – Bella Collina CDD Location Map

Figure 2 – Improvements Location Map

Figure 3 – Plan View of Lake Siena Pump Station No. 2

Figure 4 – Plan View of Bella Collina West Booster Pump Station

Figure 5 – Section View of Irrigation Well No. 6

Figure 6 – Section View of Irrigation Well No. 14

APPENDIX A – PUMPING FACILITY CAPACITY DERIVATIONS

Table A-1 - Pumping Facility Capacity Derivation – Pine Island PUD (Bella Collina East)

Table A-2 - Pumping Facility Capacity Derivation – Hillcrest PUD (Bella Collina West)

INTRODUCTION

The Bella Collina Community Development District ("CDD") is located along County Road 455, just south of the Town of Montverde in Lake County, Florida. The Bella Collina CDD is comprised of two planned unit developments. The Pine Island Planned Unit Development ("PUD") is located on the east side of County Road 455, while the Hillcrest PUD is located on the west side of County Road 455. Accordingly, the Pine Island PUD is commonly referred to as "Bella Collina East," while the Hillcrest PUD is commonly referred to as "Bella Collina West" (see Figure 1 for corresponding Location Map). Development within the Bella Collina CDD generally consists of single-family residential units, condominium units (Siena Lodge), an 18-hole golf course and clubhouse facilities.

Water usage within the Bella Collina CDD is regulated by the St. John's River Water Management District ("SJRWMD"). Two separate CUPs have been issued by the SJRWMD, specific to each PUD. These permits are summarized as follows:

1. Consumptive Use Permit No. 50115, issued January 13, 2010 for the Pine Island PUD (a.k.a. "Bella Collina East").
2. Consumptive Use Permit No. 2900, issued June 10, 2008 for the Hillcrest PUD (a.k.a. "Bella Collina West")

Each consumptive use permit authorizes water usage from the following three sources:

1. Ground water from the upper Floridan aquifer obtained via wells.
2. Surface water from the old Hyponex peat mine located in Bella Collina East which has been reconfigured into a surface water body called "Lake Siena."
3. Reclaimed water produced by the Pine Island Wastewater Treatment Facility ("WWTF") located in Bella Collina East.

The conservation of ground water from the upper Floridan aquifer is a high priority of the SJRWMD. Consequently, each consumptive permit mandates that surface water from Lake Siena eventually become the primary water source for irrigating common areas and residential properties. Reclaimed water produced by the Pine Island WWTF is entirely dedicated to irrigating the golf course located within Bella Collina West.

Both permits authorize the use of ground water from the upper Floridan aquifer for irrigation purposes during the early stages of development and as a backup water source if surface water from Lake Siena is temporarily unavailable due to pumping station mechanical issues or low water level conditions. Heretofore, all water used for residential irrigation has been sourced from the upper Floridan aquifer via potable water wells associated with the Pine Island Water Treatment Plant and the Hillcrest Water Treatment Plant. This circumstance was due to lower than anticipated growth rates during the early stages of development and the lack of facilities necessary to draw water from Lake Siena for residential irrigation. However, development activity within the Bella Collina CDD has recently accelerated and thus it is now necessary under the two CUPs to construct the facilities required to draw water from Lake Siena as the primary irrigation source. It is also necessary to construct irrigation wells as the backup water source for residential irrigation. Figure 2 depicts the locations of these proposed facilities. Within Bella Collina East, the following water withdrawal facilities will be constructed:

1. Lake Siena Pump Station No. 1
2. Lake Siena Pump Station No. 2
3. Irrigation Well No. 14
4. Irrigation Well No. 15
5. Irrigation Well No. 17

Within Bella Collina West, the following water withdrawal facilities will be constructed:

1. Irrigation Well No. 6
2. Irrigation Well No. 7

It will also be necessary to construct the Bella Collina West Booster Pump Station which, as depicted in Figure 2, will actually be located in Bella Collina East since it will connect to an existing irrigation main at that location. The purpose of this station is to boost the pressure of the water being pumped to Bella Collina West from the water withdrawal facilities located in Bella Collina East.

Currently, an existing surface water pump station provides water from Lake Siena for irrigating common areas within Bella Collina East and the golf course located in Bella Collina West (the supply of reclaimed water from the Pine Island WWTF is insufficient to meet the golf course irrigation demand). There is also an existing Irrigation Well No. 3 located in Bella Collina West which is available as a backup ground water source for the golf course. However, all of these existing facilities are dedicated to common area and golf course irrigation and thus are unavailable for residential irrigation purposes. Consequently, it is necessary to construct the two new surface water pump stations and the five new backup irrigation wells for residential irrigation purposes as summarized above. Within Bella Collina West, common area located along the residential streets (referred to as "Schedule C Landscape" within CUP No. 2900) will also be irrigated via these proposed improvements.

In addition to the new surface water pump stations, backup irrigation wells and booster pump station, it is also necessary to construct the following associated improvements:

1. Irrigation transmission piping as required to connect the new surface water pump stations and backup irrigation wells to the existing residential irrigation distribution system.
2. Electrical transformers as supplied by Duke Energy for powering the new surface water pump stations and backup irrigation wells.

The above improvements are intended to be financed by the CDD through the issuance of tax-exempt bonds, i.e., the two Lake Siena pump stations, the five irrigation wells, the booster pump station, the irrigation transmission piping and the Duke Energy transformers, all of which are described in this report, constitute the "Project" for purposes of the CDD's bond issue. Accordingly, the purpose of this report is to provide a description of probable costs for the Project. The report also provides a summary of the design capacities associated with all proposed improvements. A conceptual opinion of probable construction cost for the entire Project is provided in Table 13.

DESIGN CAPACITY CRITERIA

Since it is mandatory for the Bella Collina CDD to comply with the water allocations specified in the two consumptive use permits, all proposed residential irrigation facilities are designed to comply with these permitted water allocations. Authorized residential irrigation usage within Bella Collina East (as controlled by Pine Island CUP No. 50115) varies by lot size. The annual residential irrigation allocations specified by CUP No. 50115 are translated into flow per lot as follows:

1. Lots 1 acre or greater – 286,640 gallons
2. Lots at least 3/4 acre but less than 1 acre – 268,725 gallons
3. Lots less than 3/4 acre – 107,490 gallons

For Bella Collina West, the annual residential irrigation allocation (as controlled by Hillcrest CUP No. 2900) is calculated to be 39,336 gallons per residential lot. It should be noted that the lots within Bella Collina East are much larger than the lots in Bella Collina West, thus resulting in higher permitted irrigation allocations for the Bella Collina East lots (a typical Bella Collina West lot is less than 0.2 acres in size).

In order to convert the above annual permitted allocations into design pumping rates for the proposed facilities, it is necessary to consider the number of residential units at build-out, peak seasonal irrigation demands and design irrigation windows. All of these factors are incorporated into the calculations included in Table A-1 for the Pine Island PUD (Bella Collina East) and Table A-2 for the Hillcrest PUD (Bella Collina West) as provided in Appendix A. As detailed in these tables, the design peak irrigation rates for each PUD are as follows:

1. Pine Island PUD (Bella Collina East) – 3,216 gallons per minute ("gpm").
2. Hillcrest PUD (Bella Collina West) – 583 gpm

Based on the above values, the combined design peak irrigation rate for Bella Collina East and Bella Collina West is 3,799 gpm. As detailed in later sections of this report, the two lake water pump stations (working in concert) will be capable of meeting the above peak irrigation rates as will the five backup irrigation wells (working in concert).

Based on a review of historical irrigation water usage within the Bella Collina CDD, it is acknowledged that many existing residential customers are exceeding the above summarized annual permitted water allocations per lot. Consequently, the CDD has implemented an automated irrigation control system which is designed to limit the irrigation usage of each residential customer to comply with his or her permitted irrigation allocation. The proposed improvements described in this report are based on the premise that this automated control system will be successful.

DESCRIPTION OF EXISTING AND PROPOSED IMPROVEMENTS

Lake Siena Pump Stations No. 1 and No. 2

As previously discussed, two new surface water pump stations, utilizing Lake Siena as the primary water source for residential irrigation within Bella Collina, will be constructed in support of this Project. Both stations will be located in Bella Collina East. As depicted in Figure 2, Lake Siena Pump Station No. 1 will be located on the west shore of Lake Siena, just east of County Road 455, while Lake Siena Pump Station No. 2 will be located on the north shore of Lake Siena, just south of Bolsena Avenue. These pump stations, working in concert, will be designed to meet the design peak residential irrigation demands within Bella Collina. It is necessary to construct two pump stations rather than only one station due to the nature of the existing residential irrigation piping system. Specifically, the existing piping system consists of 8-inch diameter pipe. Some piping sections are looped (primarily within Bella Collina East), while the remaining piping sections are dead ended. Based on the design peak residential irrigation demands and associated frictions losses in the piping, the existing 8-inch piping system cannot be fed from one location and still maintain adequate system pressure, which is intended to be a minimum of 50 pounds per square inch ("psi"). Consequently, two stations, feeding from widely separate locations, are required in order to maintain adequate system pressure under peak flow conditions.

Table 1 provides a design data summary for the two surface water pump stations. As noted in the table, each station will be equipped with five pumps. The two smallest pumps (40 gpm and 300 gpm) will handle low demand conditions, while the three largest pumps (700 gpm each) will handle higher demand conditions. The function of the smallest pump (40 gpm) is to maintain system pressure during extremely low flow conditions and thus will not be operating during a normal irrigation cycle. As noted in Table 1, each pump station is designed to provide a constant 90 psi discharge pressure. All pumps (except for the 40 gpm pressure maintenance pump) will be equipped with a variable frequency drive ("VFD") in order to closely match pump output to the instantaneous demand. The pumps, control panel and associated equipment will be located inside a composite fiberglass enclosure with a 160 mph wind rating.

As noted in Table 1, with one 300 gpm pump and one 700 gpm pump out of service due to periodic maintenance or repair, the remaining pumps can provide a total flow of 3,800 gpm, which is adequate to accommodate the 3,799 gpm design peak residential irrigation demand within Bella Collina. This pump redundancy helps to provide a reliable pumping system. All large pumps will be programmed to automatically alternate. The proposed layout of Lake Siena Pump Station No. 2 is provided in Figure 3. The layout of Lake Siena Pump Station No. 1 will be very similar, except that the depicted concrete gravity wall and aluminum handrail will not be necessary.

As shown in Figure 3, a separate composite fiberglass enclosure will house a sodium hypochlorite feed system (identical feed systems will be located at each pump station site). Both algae and Bryozoa (aquatic organisms) are present within the Lake Siena surface water. Although each pump station will be equipped with filters (as shown in Figure 3), these filters will quickly clog if they are required to remove high concentrations of aquatic organisms, thus resulting in very frequent filter backwashing and premature filter failure. This problem can be addressed by chlorinating the water prior to filtration. The chlorine dose (in the form of sodium hypochlorite) will kill the aquatic organisms and provide a free chlorine residual within the downstream residential irrigation piping system, thus also helping to keep the piping system in a well-maintained condition.

Table 1 Lake Siena Surface Water Pump Stations Design Data				
Pump Station No.	Pump No.	Capacity (gpm)	TDH (Feet)	Pump Motor Horsepower
Lake Siena Pump Station No. 1	1	40	250	5
	2	300	264	40
	3	700	258	75
	4	700	258	75
	5	700	258	75
Lake Siena Pump Station No. 2	1	40	250	5
	2	300	264	40
	3	700	258	75
	4	700	258	75
	5	700	258	75
Total (Not Including 5 HP Pressure Maintenance Pumps)		4,800		
Total (With One 300 gpm and One 700 gpm Pump Out of Service)		3,800		

Notes

1. TDH = Total Dynamic Head, Feet
2. Each pump station is designed to provide a constant 90 psi discharge pressure.

Table 2 Bella Collina West Booster Pump Station Design Data				
Pump Station No.	Pump No.	Capacity (gpm)	TDH (Feet)	Pump Motor Horsepower
Bella Collina West Booster Pump Station	1	40	90	3
	2	180	90	7.5
	3	700	80	20
	4	700	80	20
Total (Not Including 3 HP Pressure Maintenance Pump)		1,580		
Total (With One 180 gpm and One 700 gpm Pump Out of Service)		700		

Notes

1. The booster pump station is designed to provide a 30 psi pressure boost.

Table 3 Bella Collina Irrigation Wells Design Data				
Pump Station No.	Pump No.	Capacity (gpm)	TDH (Feet)	Pump Motor Horsepower
Irrigation Well No. 6	1	415	286	40
Irrigation Well No. 7	2	415	286	40
Total (Bella Collina West)		830		
Irrigation Well No. 14	3	1,400	268	125
Irrigation Well No. 15	4	1,900	251	150
Irrigation Well No. 17	5	500	257	50
Total (Bella Collina East)		3,800		
Total (With Irrigation Well No. 17 Off-Line)		3,300		

Notes

1. The selected well pumps are designed to maintain a minimum 50 psi pressure within the residential irrigation piping system under peak demand conditions.
2. Irrigation wells No. 6 and No. 7 will be equipped with submersible pumps, while irrigation wells No. 14, No. 15 and No. 17 will be equipped with vertical turbine pumps.

The negative effects of algae and Bryozoa populations within the Lake Siena surface water will also be mitigated via the utilization of self-cleaning pump suction screens. Beginning at the shoreline, individual pump suction lines constructed of high density polyethylene ("HDPE") pipe material will extend into the lake. At the end of each suction line will be a foot valve (to maintain the pipe in a flooded condition) and a suction screen. The suction screen will be equipped with a rotating bar which will spray pressurized chlorinated water (supplied by the pump station pumps) onto the entire screen surface, thus helping to keep the screen from clogging. As shown in Figure 3, the sodium hypochlorite feed system will consist of two, 360-gallon double-wall storage tanks, skid-mounted metering pumps, a chlorine residual analyzer and a pump control panel. The sodium hypochlorite feed rate will be paced using a "compound loop" control signal as required to maintain a 2.0 parts per million chlorine residual at the pump station discharge.

Bella Collina West Booster Pump Station

Bella Collina West lies at a higher elevation in relation to Bella Collina East. Consequently, since all surface water will be provided by pump stations located in Bella Collina East, it is necessary to boost the pressure of surface water traveling from Bella Collina East to Bella Collina West. This function will be provided by the Bella Collina West Booster Pump Station which will be located northeast of the Bella Collina Sales Office, near the guard station (see Figure 2).

The booster pump station will boost the water pressure by 30 psi. Table 2 provides a design data summary for the booster pump station. As noted in the table, the station will be equipped with four pumps. The two smallest pumps (40 gpm and 180 gpm) will handle low demand conditions, while the two largest pumps (700 gpm each) will handle higher demand conditions. The function of the smallest pump (40 gpm) is to maintain system pressure during extremely low flow conditions and thus will not be operating during a normal irrigation cycle. The proposed layout of the Bella Collina West Booster Pump Station is provided in Figure 4.

All pumps (except for the 40 gpm pressure maintenance pump) will be equipped with a VFD in order to closely match pump output to the instantaneous demand. The pumps, control panel and associated equipment will be located inside a composite fiberglass enclosure with a 160 mph wind rating. As noted in Table 2, with one 180 gpm pump and one 700 gpm pump out of service due to periodic maintenance or repair, the remaining pump can provide a total flow of 700 gpm, which is adequate to accommodate the 583 gpm design peak residential irrigation demand within Bella Collina West. This pump redundancy helps to provide a reliable pumping system. The 700 gpm pumps will be programmed to automatically alternate.

Irrigation Transmission Piping

In order to connect the proposed surface water pump stations, backup irrigation wells and booster pump station to the existing 8-inch residential irrigation piping system, it is necessary to install associated irrigation transmission piping. Necessary piping includes improvements which have already been installed and improvements which will be installed in the future. Already installed improvements generally consist of the following items:

1. 300 linear feet ("LF") of 6-inch PVC irrigation main installed via open cut.
2. 35 LF of 8-inch PVC irrigation main installed via open cut.
3. 2,700 LF of 12-inch PVC irrigation main installed via open cut.
4. 100 LF of 12-inch ductile iron irrigation main installed via open cut.

5. 2,040 LF of 12-inch HDPE irrigation main installed via directional drill.
6. 730 LF of 16-inch PVC irrigation main installed via open cut.
7. Valves, fitting and appurtenances associated with the above listed piping.

Irrigation Wells

As previously discussed, a total of five backup irrigation wells, utilizing the upper Floridan aquifer as the water source, will be constructed in support of this Project. These five wells, working in concert, will be designed to meet the design peak residential irrigation demands in the event that the surface water pump stations are temporarily unavailable due to mechanical issues or low water level conditions. Specifically, both CUPs specify that water can only be withdrawn from Lake Siena if the water level elevation is above two seasonal benchmarks, 65.7 feet (wet season, June – October) and 64.7 feet (dry season, November – May).

The locations of the irrigation wells were established during the CUP application process with the intent of minimizing drawdown impacts to the upper Floridan aquifer. Such drawdown impacts are minimized by locating the wells in widely separate locations. This circumstance, which provides multiple connection points, has the added benefit of helping to maintain adequate pressure in the existing residential irrigation piping system as discussed above for the surface water pump stations. The construction details for the five backup irrigation wells are provided in Table 4. A contract price has already been established for the well construction detailed in Table 4.

Irrigation Wells No. 6 and No. 7. As depicted in Figure 2, these two wells will be located in Bella Collina West. Irrigation Well No. 6 will be located southeast of the Volterra Point cul-de-sac, while Irrigation Well No. 7 will be located on the north side of Vetta Drive, just west of the clubhouse.

Irrigation Wells No. 14, No. 15 and No. 17. As depicted in Figure 2, these three wells will be located in Bella Collina East. Irrigation Well No. 14 will be located within an open space area bounded by Lucca Lane and Pendio Drive, while irrigation wells No. 15 and No. 17 will be located on the Pine Island WWTF site. Irrigation Well No. 17 will be located approximately 50 feet northwest of irrigation Well No. 15.

Table 3 provides a design data summary for the irrigation wells. The two wells (No. 6 and No. 7) located in Bella West will provide a backup water supply for Bella Collina West. As indicated in Table 3, the two wells will provide a combined capacity of 830 gpm, which is adequate to accommodate the 583 gpm design peak residential irrigation demand within Bella Collina West. The proposed layout of Irrigation Well No. 6 is provided in Figure 5. The layout for Irrigation Well No 7 will be identical. The submersible pumps installed at wells No. 6 and No. 7 will be equipped with VFDs in order to closely match pump output to the instantaneous demand.

The three wells (No. 14, No. 15 and No. 17) located in Bella East will provide a backup water supply for Bella Collina East. Irrigation wells No. 15 (1,900 gpm) and No. 17 (500 gpm), which will both be located on the Pine Island WWTF site as noted above, are designed to operate in sequence. During lower demand periods, the lower capacity Well No. 17 will be in operation. As the demand exceeds 500 gpm, the larger capacity Well No. 15 will come online and Well No. 17 will go offline. Irrigation Well No. 14 (1,400 gpm capacity) will come on-line if the irrigation demand exceeds the capacity of Well No. 15 (1,900 gpm). The reverse sequence will occur as the irrigation demand diminishes. The vertical turbine pumps installed at wells No. 14, No. 15 and No. 17 will be equipped with VFDs in order to closely match pump output to the instantaneous demand.

Table 4 Bella Collina Irrigation Wells Construction Data					
Construction Detail	**Well No. 6**	**Well No. 7**	**Well No. 14**	**Well No. 15**	**Well No. 17**
Surface Casing Diameter (Inches)	NA	NA	24	24	NA
Surface Casing Depth (Feet)	NA	NA	160	180	NA
Production Casing Diameter (Inches)	12	12	18	18	12
Production Casing Depth (Feet)	160	200	245	265	180
Open Borehole Diameter (Inches)	12	12	18	18	12
Open Borehole Length (Feet)	80	80	205	185	80
Total Well Depth (Feet)	240	280	450	450	260
Construction Cost ($) - See Note 2	$150,000	$160,000	$357,000	$372,000	$155,000

Notes

1.NA = Not Applicable

2. The construction cost of each well is in accordance with an agreement executed with Thompson Well & Pump, Inc. on August 15, 2023.

As indicated in Table 3, wells No. 14 and No. 15 (with Well No. 17 offline due to the above-described operational sequencing) will provide a combined capacity of 3,300 gpm, which is adequate to accommodate the 3,216 gpm design peak residential irrigation demand within Bella Collina East. The proposed layout of irrigation Well No. 14 is provided in Figure 6. The layout for Well No 15 will be identical. The layout for Well No. 17 will be similar except that the discharge piping will be 8-inch instead of 12-inch and a 550-gallon bladder tank will be installed in order to maintain system pressure during extremely low flow conditions (operates similar to a pressure maintenance pump).

Please note that all irrigation wells (except for Irrigation Well No. 17 as discussed above) will need to be online in order to meet the design peak residential irrigation demands within the Bella Collina CDD. Unlike the provision of redundant pumps for the surface water pump stations and booster pump station, it is not practical to provide redundant irrigation wells due to their high construction cost. Furthermore, these wells will be operating as a backup water source and it is considered unnecessary to provide a backup source for a backup source.

Duke Energy Transformers

It is necessary to provide an electrical transformer at each pump station and irrigation well site in order to provide a 3 phase, 460 volt, 60 Hz power supply for the associated pumps. The following transformers have already been installed by Duke Energy along with associated support pads and conduit installed by a contractor (RCM Utilities, LLC):

1. Lake Siena Pump Station No. 1 – 300 kilo-volt amps ("kVA")
2. Lake Siena Pump Station No. 2 – 300 kVA
3. Bella Collina West Booster Pump Station – 75 kVA
4. Irrigation Well No. 6 – 75 kVA
5. Irrigation Well No. 7 – 75 kVA
6. Irrigation Well No. 14 – 150 kVA

An existing 150 kVA transformer associated with the Pine Island WWTF is located near irrigation wells No. 15 and No. 17 but it has insufficient reserve capacity to power both wells. Accordingly, it will be necessary to upgrade the existing transformer to a 350 kVA unit. It is noted that specific components of the Duke Energy improvements that are privately held or maintained may be determined to be ineligible for funding from bond proceeds.

CONCEPTUAL OPINIONS OF PROBABLE CONSTRUCTION COST

Conceptual opinions of probable construction cost for the above-described improvements are provided in the following tables:

1. Table 5 – Lake Siena Pump Station No. 1
2. Table 6 – Lake Siena Pump Station No. 2
3. Table 7 – Bella Collina West Booster Pump Station
4. Table 8 – Irrigation Well No. 6
5. Table 9 – Irrigation Well No. 7
6. Table 10 – Irrigation Well No. 14
7. Table 11 – Irrigation Well No. 15
8. Table 12 – Irrigation Well No. 17

Table 13 provides a composite of the above listed cost opinions. Table 13 and also includes costs for improvements which have already been installed.

In regard to proposed improvements, it is anticipated that the associated bid results will be obtained in calendar year 2024, thus locking-in the pricing. Accordingly, the cost opinions are based on 2024 dollars.

As indicated in Table 13, the total projected cost for the Bella Collina Residential Irrigation System is $10,000,000. The projected cost includes a 10-percent contingency as well as the projected cost for surveying, design, permitting and construction administration services (the projected cost for these services includes funds which have already been expended for such services).

The improvements will be owned by the CDD or other governmental units and such improvements are intended to be available and will reasonably be available for use by the general public (either by being part of a system of improvements that is available to the general public or is otherwise available to the general public) including nonresidents of the CDD. All of the improvements are or will be located on lands owned or to be owned by the CDD or another governmental entity or on perpetual easements in favor of the CDD or other governmental entity. The improvements, and any cost opinions set forth herein, do not include any earthwork, grading or other improvements on private lots or property, unless such improvements are located within perpetual easements. The CDD will pay the lesser of the cost of the components of the improvements or the fair market value.

Table 5
Lake Siena Pump Station No. 1
Conceptual Opinion of Probable Construction Cost (2024 Dollars)

Item	Description	Units	Quantity	Cost
1.0	**Watertronics Pre-Fabricated Pump Station and Appurtenances**			
1.1	Watertronics Pre-Fabricated Pump Station	LS	1	$ 488,000
1.2	Submerged Suction Piping	LS	1	$ 68,000
1.3	Precast Concrete Support Pad	LS	1	$ 16,000
2.0	**Sodium Hypochlorite Feed Facility**			
2.1	Feed System Metering Pumps and Storage Tanks	LS	1	$ 43,000
2.2	Fiberglass Enclosure	LS	1	$ 90,000
2.3	Feed System Piping	LS	1	$ 5,000
2.4	Installation of Metering Pumps and Storage Tanks	LS	1	$ 5,000
2.5	Precast Concrete Support Pad	LS	1	$ 13,000
			SUBTOTAL	**$ 728,000**
3.0	**Site Setup and Temporary Utilities**	%	2	$ 15,000
4.0	**Sitework**			
4.1	General	%	7	$ 51,000
4.2	No. 57 Bedding Stone	LS	1	$ 4,000
5.0	**Site Electrical, Instrumentation, and Controls**	%	19	$ 138,000
6.0	**Pump Station Start-up Assistance**	%	2	$ 15,000
			SUBTOTAL	**$ 951,000**
7.0	**Process and Yard Piping**	LS	1	$ 175,000
			SUBTOTAL	**$ 1,126,000**
8.0	**Contractor Mobilization & Demobilization**	%	10	$ 113,000
			TOTAL	**$ 1,239,000**

Table 6
Lake Siena Pump Station No. 2
Conceptual Opinion of Probable Construction Cost (2024 Dollars)

Item	Description	Units	Quantity	Cost
1.0	**Watertronics Pre-Fabricated Pump Station and Appurtenances**			
1.1	Watertronics Pre-Fabricated Pump Station	LS	1	$ 488,000
1.2	Submerged Suction Piping	LS		$ 50,000
1.3	Precast Concrete Support Pad	LS	1	$ 16,000
2.0	**Sodium Hypochlorite Feed Facility**			
2.1	Feed System Metering Pumps and Storage Tanks	LS	1	$ 43,000
2.2	Fiberglass Enclosure	LS	1	$ 90,000
2.3	Feed System Piping	LS	1	$ 5,000
2.4	Installation of Metering Pumps and Storage Tanks	LS	1	$ 5,000
2.5	Precast Concrete Support Pad	LS	1	$ 13,000
			SUBTOTAL	**$ 710,000**
3.0	**Site Setup and Temporary Utilities**	%	2	$ 14,000
4.0	**Sitework**			
4.1	General	%	7	$ 50,000
4.2	No. 57 Bedding Stone	LS	1	$ 3,000
4.3	FDOT Gravity Wall	LS	1	$ 35,000
4.4	Aluminum Handrail	LS	1	$ 4,000
5.0	**Site Electrical, Instrumentation, and Controls**	%	19	$ 135,000
6.0	**Pump Station Start-up Assistance**	%	2	$ 14,000
7.0	**Process and Yard Piping**	LS	1	$ 123,000
			SUBTOTAL	**$ 1,088,000**
8.0	**Contractor Mobilization & Demobilization**	%	10	$ 109,000
			TOTAL	**$ 1,197,000**

Table 7
Bella Collina West Booster Pump Station
Conceptual Opinion of Probable Construction Cost (2024 Dollars)

Item	Description	Units	Quantity	Cost
1.0	**Watertronics Pre-Fabricated Pump Station and Appurtenances**			
1.1	Watertronics Pre-Fabricated Booster Pump Station	LS	1	$ 223,000
1.2	Precast Concrete Support Pad	LS	1	$ 10,000
			SUBTOTAL	**$ 233,000**
2.0	**Site Setup and Temporary Utilities**	%	3	$ 7,000
3.0	**Sitework**			
3.1	General	%	10	$ 23,000
3.2	No. 57 Bedding Stone	LS	1	$ 1,000
4.0	**Site Electrical, Instrumentation, and Controls**	%	37	$ 86,000
5.0	**Pump Station Start-up Assistance**	%	5	$ 12,000
			SUBTOTAL	**$ 362,000**
6.0	**Process and Yard Piping**	LS	1	$ 27,000
			SUBTOTAL	**$ 389,000**
7.0	**Contractor Mobilization & Demobilization**	%	15	$ 58,000
			TOTAL	**$ 447,000**

Table 8
Irrigation Well No. 6
Conceptual Opinion of Probable Construction Cost (2024 Dollars)

Item	Description	Units	Quantity	Cost
1.0	**Well Drilling and Outfitting**			
1.1	Well Construction (See Note 1)	LS	1	$ 150,000
1.2	Well Pump and Appurtenances	LS	1	$ 71,000
1.3	Control Panel	LS	1	$ 48,000
1.4	Precast Concrete Support Pad	LS	1	$ 6,000
1.5	Wellhead Piping	LS	1	$ 44,000
			SUBTOTAL	**$ 319,000**
2.0	**Site Setup and Temporary Utilities**	%	2	$ 6,000
3.0	**Sitework**			
3.1	General	%	7	$ 22,000
4.0	**Site Electrical, Instrumentation, and Controls**	%	30	$ 96,000
5.0	**Pump Station Start-up Assistance**	%	4	$ 13,000
			SUBTOTAL	**$ 456,000**
6.0	**Contractor Mobilization & Demobilization**	%	15	$ 68,000
			TOTAL	**$ 524,000**

Notes

1. The well construction cost is in accordance with an agreement executed with Thompson Well & Pump, Inc. on August 15, 2023.

Table 9
Irrigation Well No. 7
Conceptual Opinion of Probable Construction Cost (2024 Dollars)

Item	Description	Units	Quantity	Cost
1.0	**Well Drilling and Outfitting**			
1.1	Well Construction (See Note 1)	LS	1	$ 160,000
1.2	Well Pump and Appurtenances	LS	1	$ 76,000
1.3	Control Panel	LS	1	$ 48,000
1.4	Precast Concrete Support Pad	LS	1	$ 6,000
1.5	Wellhead Piping	LS	1	$ 42,000
			SUBTOTAL	**$ 332,000**
2.0	**Site Setup and Temporary Utilities**	%	2	$ 7,000
3.0	**Sitework**			
3.1	General	%	4	$ 13,000
4.0	**Site Electrical, Instrumentation, and Controls**	%	28	$ 93,000
5.0	**Pump Station Start-up Assistance**	%	4	$ 13,000
			SUBTOTAL	**$ 458,000**
6.0	**Contractor Mobilization & Demobilization**	%	15	$ 69,000
			TOTAL	**$ 527,000**

Notes

1. The well construction cost is in accordance with an agreement executed with Thompson Well & Pump, Inc. on August 15, 2023.

Table 10
Irrigation Well No. 14
Conceptual Opinion of Probable Construction Cost (2024 Dollars)

Item	Description	Units	Quantity	Cost
1.0	**Well Drilling and Outfitting**			
1.1	Well Construction (See Note 1)	LS	1	$ 357,000
1.2	Well Pump and Appurtenances	LS	1	$ 152,000
1.3	Control Panel	LS	1	$ 59,000
1.4	Precast Concrete Support Pad	LS	1	$ 12,000
1.5	Wellhead Piping	LS	1	$ 84,000
			SUBTOTAL	**$ 664,000**
2.0	**Site Setup and Temporary Utilities**	%	2	$ 13,000
3.0	**Sitework**			
3.1	General	%	3	$ 20,000
4.0	**Site Electrical, Instrumentation, and Controls**	%	14	$ 93,000
5.0	**Pump Station Start-up Assistance**	%	2	$ 13,000
			SUBTOTAL	**$ 803,000**
6.0	**Contractor Mobilization & Demobilization**	%	10	$ 80,000
			TOTAL	**$ 883,000**

Notes

1. The well construction cost is in accordance with an agreement executed with Thompson Well & Pump, Inc. on August 15, 2023.

Table 11
Irrigation Well No. 15
Conceptual Opinion of Probable Construction Cost (2024 Dollars)

Item	Description	Units	Quantity	Cost
1.0	**Well Drilling and Outfitting**			
1.1	Well Construction (See Note 1)	LS	1	$ 372,000
1.2	Well Pump and Appurtenances	LS	1	$ 156,000
1.3	Control Panel	LS	1	$ 61,000
1.4	Precast Concrete Support Pad	LS	1	$ 12,000
1.5	Wellhead Piping	LS	1	$ 92,000
			SUBTOTAL	**$ 693,000**
2.0	**Site Setup and Temporary Utilities**	%	2	$ 14,000
3.0	**Sitework**			
3.1	General	%	3	$ 21,000
4.0	**Site Electrical, Instrumentation, and Controls**	%	14	$ 97,000
5.0	**Pump Station Start-up Assistance**	%	2	$ 14,000
			SUBTOTAL	**$ 839,000**
6.0	**Contractor Mobilization & Demobilization**	%	10	$ 84,000
			TOTAL	**$ 923,000**

Notes

1. The well construction cost is in accordance with an agreement executed with Thompson Well & Pump, Inc. on August 15, 2023.

Table 12
Irrigation Well No. 17
Conceptual Opinion of Probable Construction Cost (2024 Dollars)

Item	Description	Units	Quantity	Cost
1.0	**Well Drilling and Outfitting**			
1.1	Well Construction (See Note 1)	LS	1	$ 155,000
1.2	Well Pump and Appurtenances	LS	1	$ 96,000
1.3	Control Panel	LS	1	$ 48,000
1.4	Precast Concrete Support Pad	LS	1	$ 10,000
1.5	Wellhead Piping	LS	1	$ 76,000
1.6	Bladder Tank	LS	1	$ 15,000
			SUBTOTAL	**$ 400,000**
2.0	**Site Setup and Temporary Utilities**	%	3	$ 12,000
3.0	**Sitework**			
3.1	General	%	5	$ 20,000
4.0	**Site Electrical, Instrumentation, and Controls**	%	23	$ 92,000
5.0	**Pump Station Start-up Assistance**	%	3	$ 12,000
			SUBTOTAL	**$ 536,000**
6.0	**Contractor Mobilization & Demobilization**	%	14	$ 75,000
			TOTAL	**$ 611,000**

Notes

1. The well construction cost is in accordance with an agreement executed with Thompson Well & Pump, Inc. on August 15, 2023.

Table 13
Bella Collina Residential Irrigation System
Conceptual Opinion of Probable Construction Cost (2024 Dollars)

Item	Description	Units	Quantity	Cost ($)	Cost Basis
1.0	**Pump Stations**				
1.1	Lake Siena Pump Station No. 1	LS	1	$ 1,239,000	Projected (See Table 5)
1.2	Lake Siena Pump Station No. 2	LS	1	$ 1,197,000	Projected (See Table 6)
1.3	Bella Collina West Booster Pump Station	LS	1	$ 447,000	Projected (See Table 7)
2.0	**Irrigation Transmission Piping**				
2.1	16-Inch Dry Line Irrigation Main	LS	1	$ 158,078	Expended (DPR Excavation, Inc.)
2.2	Irrigation Piping Improvements	LS	1	$ 1,303,337	Expended (Carr and Collier, Inc.)
2.3	Sidewalk and Sod Restoration	LS	1	$ 73,056	Expended (Gorrill Management LLC)
3.0	**Irrigation Wells**				
3.1	Irrigation Well No. 6	LS	1	$ 524,000	Projected (See Table 8)
3.2	Irrigation Well No. 7	LS	1	$ 527,000	Projected (See Table 9)
3.3	Irrigation Well No. 14	LS	1	$ 883,000	Projected (See Table 10)
3.4	Irrigation Well No. 15	LS	1	$ 923,000	Projected (See Table 11)
3.5	Irrigation Well No. 17	LS	1	$ 611,000	Projected (See Table 12)
4.0	**Duke Energy Transformers**				
4.1	Duke Energy Transformers for Pump Stations and Wells	LS	1	$ 185,962	Expended (Duke Energy)
4.2	Transformer Pads and Secondary Conduit Installation	LS	1	$ 14,425	Expended (RCM Utilities, LLC)
4.3	Duke Energy Transformer, Pad and Conduit for Well No. 15	LS	1	$ 31,000	Expended for Lake Siena PS No. 2
			SUBTOTAL	**$ 8,116,858**	
5.0	**Contingency**	%	10	$ 812,000	
			SUBTOTAL	**$ 8,928,858**	
6.0	**Surveying, Design, Permitting, and Construction Administration**	%	12	$ 1,071,000	
			TOTAL	**$ 10,000,000**	

LIST OF FIGURES

Figure No.	Title
1	Bella Collina CDD Location Map
2	Improvements Location Map
3	Plan View of Lake Siena Pump Station No. 2
4	Plan View of Bella Collina West Booster Pump Station
5	Section View of Irrigation Well No. 6
6	Section View of Irrigation Well No. 14

SCALE: 1" = 1,500'

0 1,500

(FEET)

THIS PLAN MAY HAVE BEEN REDUCED IN SIZE. VERIFY BEFORE SCALING DIMENSIONS.

BELLA COLLINA RESIDENTIAL IRRIGATION SYSTEM

BELLA COLLINA CDD LOCATION MAP

JUNE 2024

FIGURE 1

BOYD
ENVIRONMENTAL ENGINEERING, INC.
175 W. BROADWAY STREET, SUITE 101
OVIEDO, FL 32765
REGISTRY LICENSE NO. 6444 PHONE: (407) 542-4919

SCALE: 1" = 1,200'

0 1,200
(FEET)

THIS PLAN MAY HAVE BEEN REDUCED IN SIZE. VERIFY BEFORE SCALING DIMENSIONS.

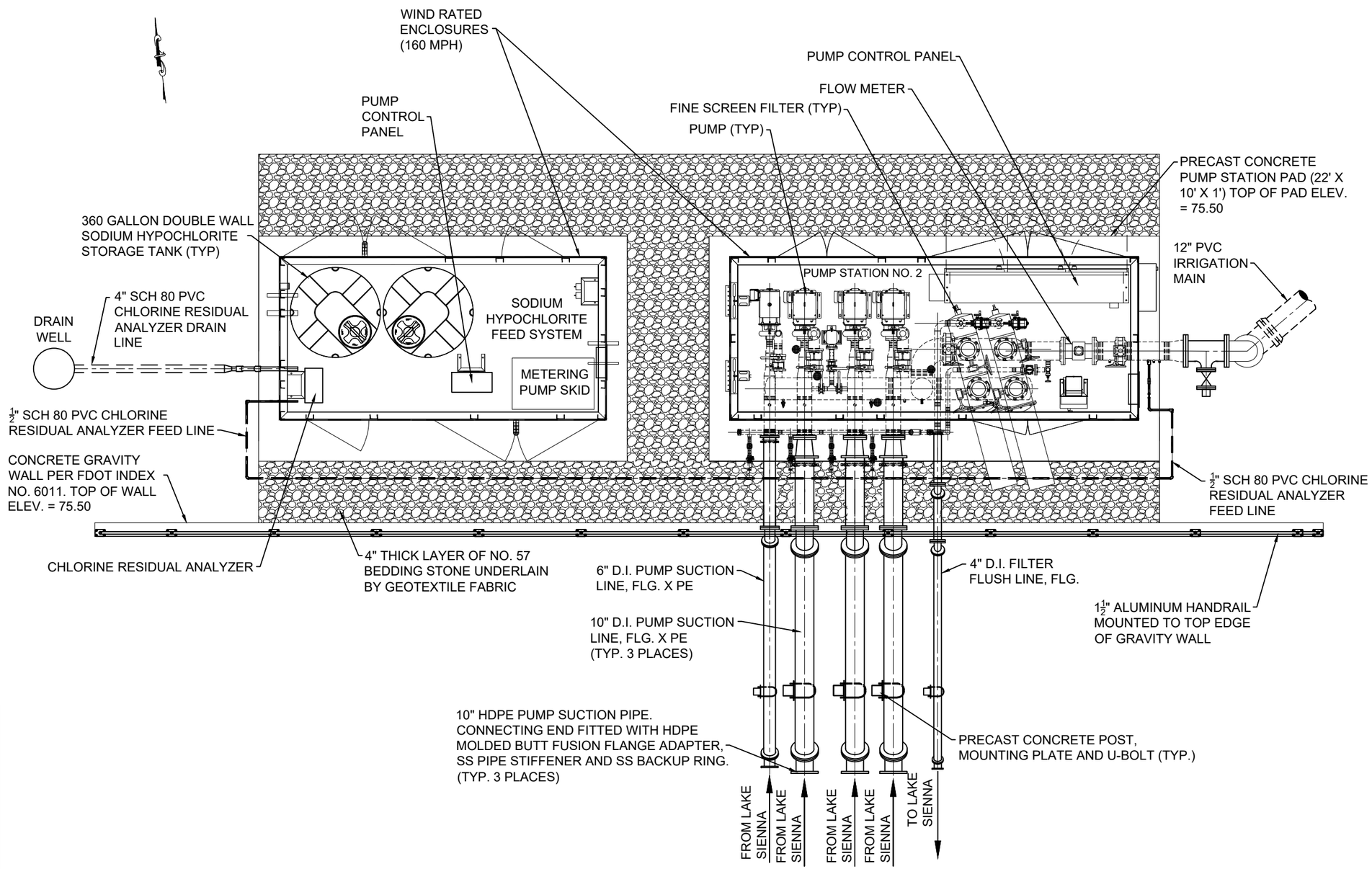
BELLA COLLINA RESIDENTIAL IRRIGATION SYSTEM

IMPROVEMENTS LOCATION MAP

JUNE 2024

FIGURE 2

BOYD
ENVIRONMENTAL ENGINEERING, INC.
175 W. BROADWAY STREET, SUITE 101
OVIEDO, FL 32765
REGISTRY LICENSE NO. 6444 PHONE: (407) 542-4919



SCALE: $\frac{3}{16}$" = 1'-0"

THIS PLAN MAY HAVE BEEN REDUCED IN SIZE. VERIFY BEFORE SCALING DIMENSIONS.

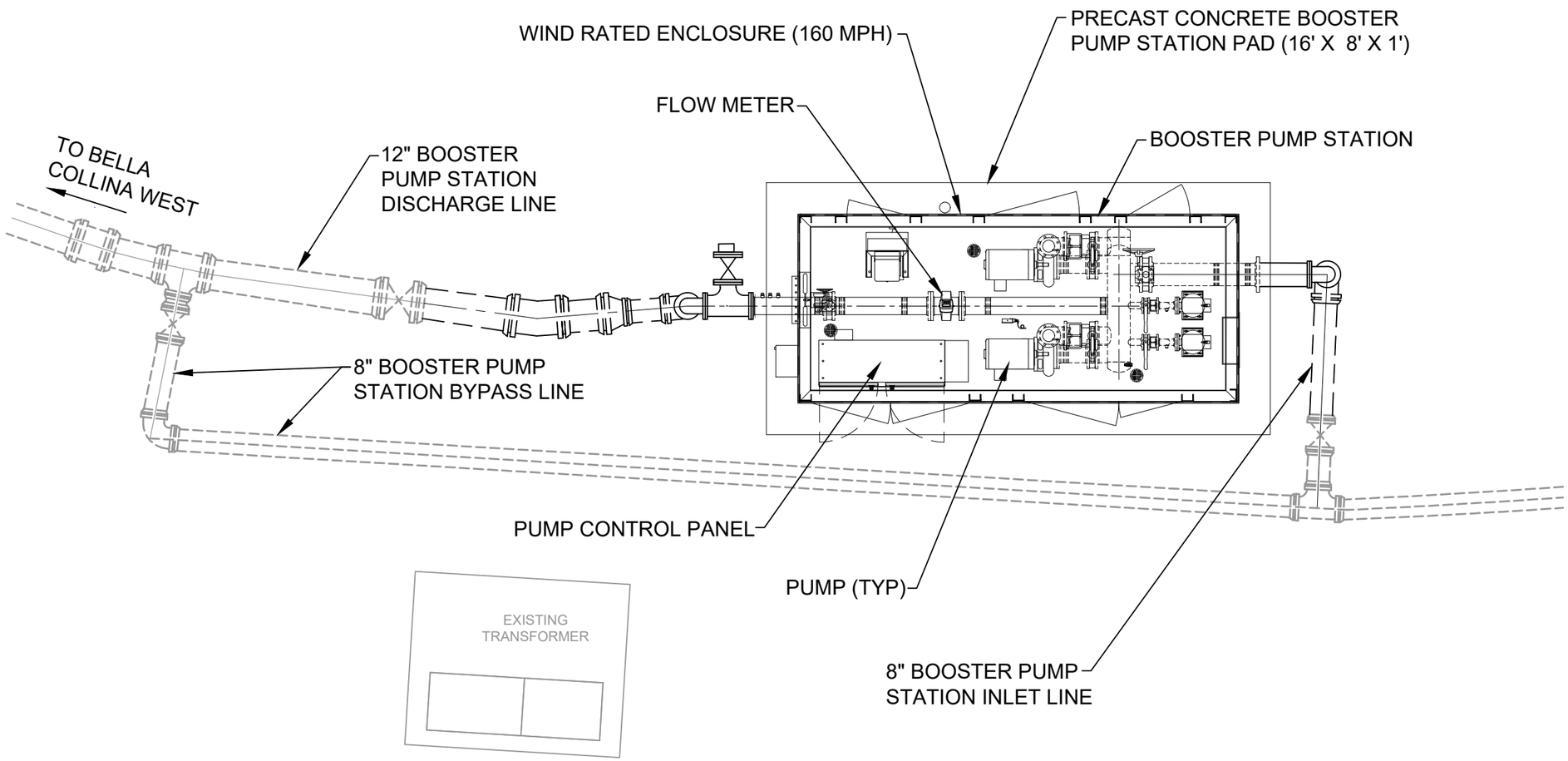
BELLA COLLINA RESIDENTIAL IRRIGATION SYSTEM

PLAN VIEW OF LAKE SIENA PUMP STATION NO. 2

JUNE 2024

FIGURE 3

BOYD
ENVIRONMENTAL ENGINEERING, INC.
175 W. BROADWAY STREET, SUITE 101
OVIEDO, FL 32765
REGISTRY LICENSE NO. 6444 PHONE: (407) 542-4919



SCALE: $\frac{1}{4}$" = 1'-0"

THIS PLAN MAY HAVE BEEN REDUCED IN SIZE. VERIFY BEFORE SCALING DIMENSIONS.

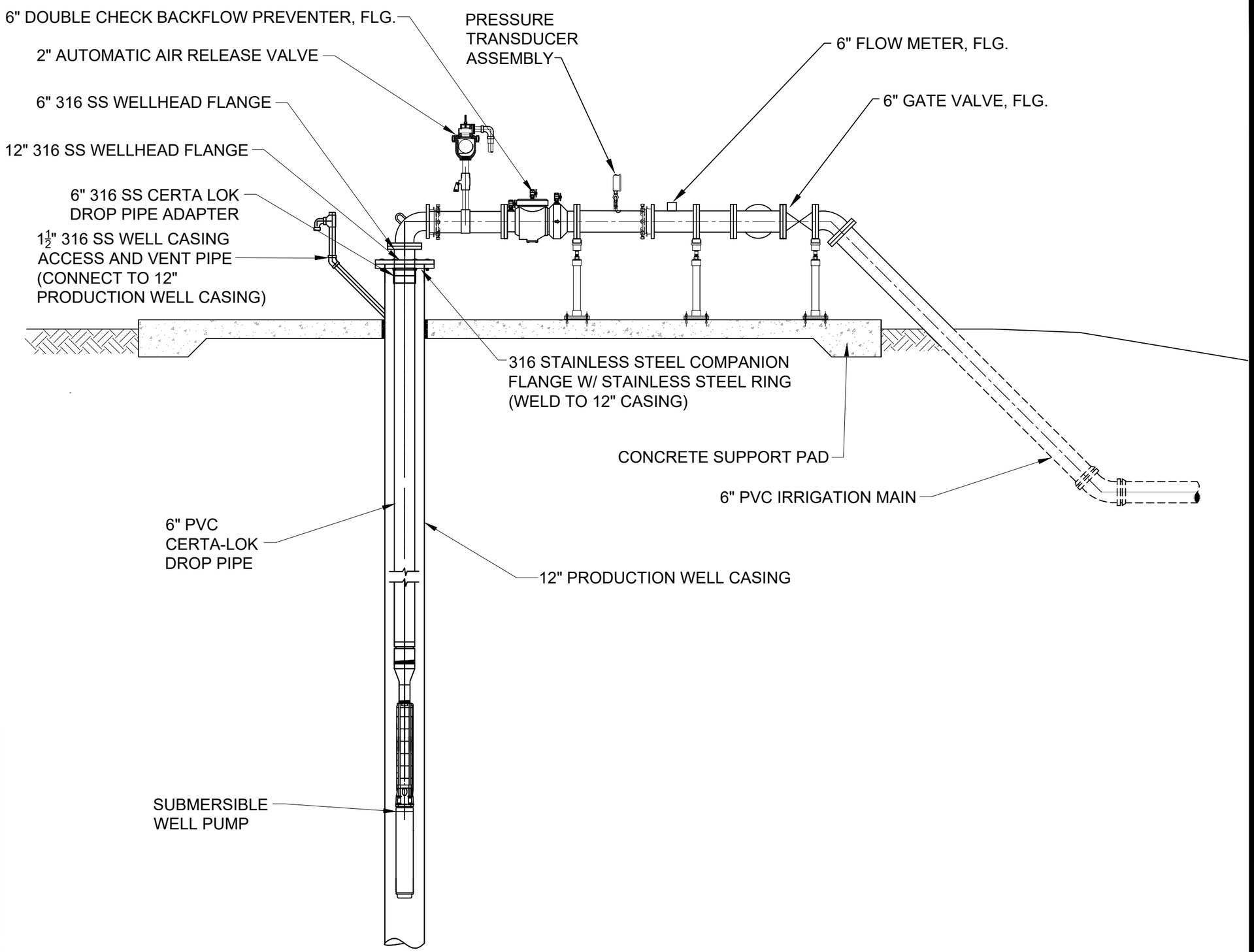
BELLA COLLINA RESIDENTIAL IRRIGATION SYSTEM

PLAN VIEW OF BELLA COLLINA WEST BOOSTER PUMP STATION

JUNE 2024

FIGURE 4

BOYD
ENVIRONMENTAL ENGINEERING, INC.
175 W. BROADWAY STREET, SUITE 101
OVIEDO, FL 32765
REGISTRY LICENSE NO. 6444 PHONE: (407) 542-4919



SCALE: $\frac{3}{8}$" = 1'-0"

THIS PLAN MAY HAVE BEEN REDUCED IN SIZE. VERIFY BEFORE SCALING DIMENSIONS.

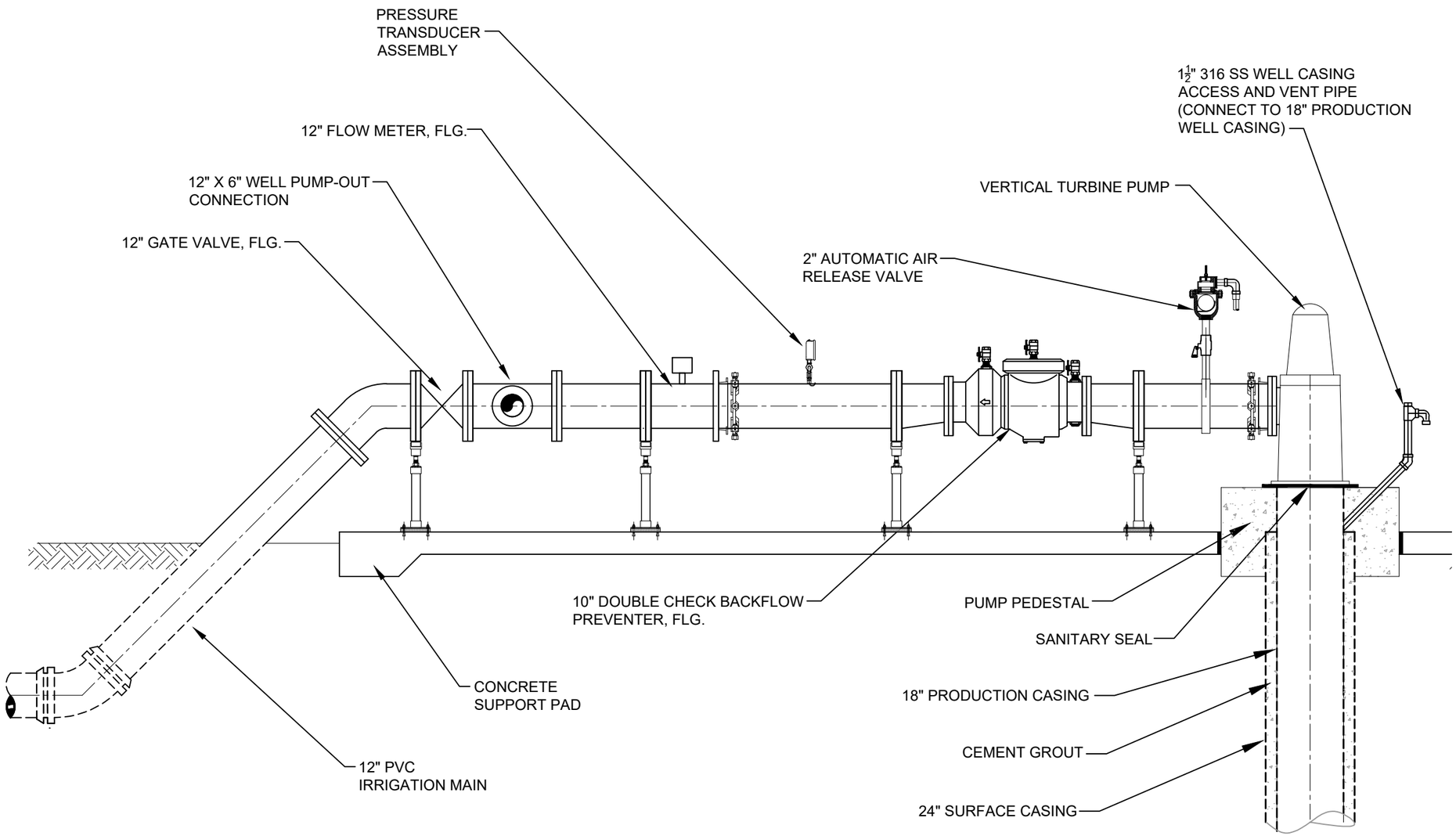
BELLA COLLINA RESIDENTIAL IRRIGATION SYSTEM

SECTION VIEW OF IRRIGATION WELL NO. 6

JUNE 2024

FIGURE 5

BOYD
ENVIRONMENTAL ENGINEERING, INC.
175 W. BROADWAY STREET, SUITE 101
OVIEDO, FL 32765
REGISTRY LICENSE NO. 6444 PHONE: (407) 542-4919



SCALE: $\frac{3}{8}$" = 1'-0"

THIS PLAN MAY HAVE BEEN REDUCED IN SIZE. VERIFY BEFORE SCALING DIMENSIONS.

BELLA COLLINA RESIDENTIAL IRRIGATION SYSTEM

SECTION VIEW OF IRRIGATION WELL NO. 14

JUNE 2024

FIGURE 6

BOYD
ENVIRONMENTAL ENGINEERING, INC.
175 W. BROADWAY STREET, SUITE 101
OVIEDO, FL 32765
REGISTRY LICENSE NO. 6444 PHONE: (407) 542-4919

APPENDIX A

PUMPING FACILITY CAPACITY DERIVATIONS

Table No.	Title
A-1	Pine Island PUD (Bella Collina East)
A-2	Hillcrest PUD (Bella Collina West)

Table A-1 - Pumping Facility Capacity Derivation - Pine Island PUD (Bella Collina East)								
Pine Island PUD Residential Irrigation Projections - Per Irrigation Event								
Land Use	**Total Irrigable Area (sq. ft.)**	**Primary Irrigable Area (sq. ft.)**	**Annual Primary Use (gal)**	**Secondary Irrigable Area (sq. ft.)**	**Annual Secondary Use (gal)**	**Annual Total Use (gal)**	**Maximum Monthly Use (gal)**	**Irrigation Event Use (gal)**
1/4-acre lot	6,534	4,901	95,678	1,634	11,812	107,490	17,736	2,217
3/4-acre lot	16,335	12,251	239,195	4,084	29,530	268,725	44,340	5,542
1 acre lot	17,424	13,068	255,141	4,356	31,499	286,640	47,296	5,912
Lodge	117,612	88,209	1,722,202	29,403	212,618	1,934,819	319,245	39,906

Land Use	**No. Lots During Irr. Event**	**Irrigation Event Use (gal)**	**4 Hour Watering Window (gpm)**	**8 Hour Watering Window (gpm)**	**Total (gpm)**
1/4-acre lot	40	88,679		185	185
3/4-acre lot	54	299,292		624	624
1 acre lot	182	1,075,975		2,242	2,242
Lodge	NA	39,906	166		166
Total	**276**	**1,503,852**			**3,216**

Land Use Notes

1. The Pine Island CUP (No. 50115) was based on the following residential land use plan:
   1/4 acre lots = 81
   3/4 acre lots = 76
   1 acre lots = 326
   Total lots = 483
2. In 2017, an additional 67 lots were added, increasing the total number of lots to 550.
   In addition, a 100 unit lodge parcel was added with an estimated irrigable area of 117,612 sq. ft.
   The revised residential land use plan is as follows:
   1/4 acre lots = 79
   3/4 acre lots = 107
   1 acre lots = 364
   Total lots = 550

3. Per SJRWMD requirements, irrigation during daylight savings time is limited to twice per week, with odd numbered addresses watering on Wednesday and Saturday, and even numbered addresses watering on Thursday and Sunday. Thus, during any single irrigation event, approximately 1/2 of the residential lots will be watered.
4. Allowable irrigable area per lot size is specified in the Bella Collina Landscape Design Guidelines. The allowable irrigable area is as follows:
   1/4 acre lots = 6,534 sq. ft.
   3/4 acre lots = 16,335 sq. ft.
   1 acre lots = 17, 424 sq. ft.

Irrigation Assumptions

Primary Area Percentage	75.00%	Per CUP No. 50115 Technical Staff Report (TSR), 12/10/09
Primary Area Irrigation Rate (in/yr)	31.32	Per CUP No. 50115 TSR, 12/10/09
Secondary Area Percentage	25.00%	Per CUP No. 50115 TSR, 12/10/09
Secondary Area Irrigation Rate (in/yr)	11.60	Per CUP No. 50115 TSR, 12/10/09
Maximum Month Irrigation Percentage	16.50%	Based on GWRAPPS model (April is maximum month)
Maximum Month Irrigation Events	8	Based on 2 irrigation events per week for 4 weeks

It is assumed that the 276 residential lots will be watered over an 8-hour period. Since the lodge is a single connection, it is assumed that it will be watered over a 4-hour period.

Lake Siena Pump Station Flow Requirement

Based on the above evaluation, it is projected that the pump station which will draw water from Lake Siena for irrigation of residential lots within the Pine Island PUD must be capable of providing a flow of **3,216 gpm** during the maximum irrigation month.

Table A-2 - Pumping Facility Capacity Derivation - Hillcrest PUD (Bella Collina West)								
Hillcrest PUD Residential and Schedule C Landscape Irrigation Projections - Per Irrigation Event								
Land Use	**Total Irrigable Area (sq. ft.)**	**Primary Irrigable Area (sq. ft.)**	**Annual Primary Use (gal)**	**Secondary Irrigable Area (sq. ft.)**	**Annual Secondary Use (gal)**	**Annual Total Use (gal)**	**Maximum Monthly Use (gal)**	**Irrigation Event Use (gal)**
Residential Lot	2,040	1,224	25,179	816	14,156	39,336	6,490	811
Turf Care Facility	43,124	25,874	532,272	17,250	299,255	831,527	137,202	17,150
Schedule C Lndscp.	292,723	175,634	3,613,029	117,089	2,031,325	5,644,354	931,318	116,415

Land Use	**No. Lots During Irr. Event**	**Irrigation Event Use (gal)**	**4 Hour Watering Window (gpm)**	**8 Hour Watering Window (gpm)**	**Total (gpm)**
Residential Lots	159	128,997		269	269
Turf Care Facility	NA	17,150	71		71
Schedule C Lndscp.	NA	116,415		243	243
Total	**159**	**262,562**			**583**

Land Use Notes

1. The Hillcrest CUP (No. 2900) was based on the following residential, commercial and "Schedule C" land use plan:
   318 lots, average lot size = 6,800 sq. ft.
   13.44 acres (585,447 sq. ft.) of "Schedule C" landscaping along the road ROW
   3.3 acre turf care facility
   5.43 acre clubhouse tract

2. The clubhouse tract is irrigated by the golf course irrigation system, and thus is not part of this analysis.

3. The Hillcrest CUP residential and commercial irrigation allocations were based on a 30% irrigable area percentage.
   Thus, the irrigable areas for a residential lot and the turf care facility are calculated as follows:
   Residential lot irrigable area = (6,800 sq. ft.)(0.30) = 2,040 sq. ft.
   Turf care facility irrigable area = (3.3 ac.)(0.30) = 0.99 ac. = 43,124 sq.ft.

5. Per SJRWMD requirements, irrigation during daylight savings time is limited to twice per week, with odd numbered addresses watering on Wednesday and Saturday, and even numbered addresses watering on Thursday and Sunday. Thus, during any single irrigation event, approximately 1/2 of the residential lots will be watered.

6. The entire 13.44 acres (585,446 sq. ft.) of "Schedule C" landscape area along the road ROW will be irrigated. It is assumed that 1/2 of the area will be watered on an odd watering day, and the remaining 1/2 will be watered on an even watering day. Thus, the area watered on any given day is 6.72 acres (292,723 sq. ft.).

Irrigation Assumptions

Turf Area Percentage	60.00%	Per CUP No. 2900 Technical Staff Report (TSR), 5/5/08
Primary Area Irrigation Rate (in/yr)	33.00	Per CUP No. 2900 TSR, 5/5/08
Moderate Use Area Percentage	40.00%	Per CUP No. 2900 TSR, 5/5/08
Secondary Area Irrigation Rate (in/yr)	27.83	Per CUP No. 2900 TSR, 5/5/08
Maximum Month Irrigation Percentage	16.50%	Based on GWRAPPS model (April is maximum month)
Maximum Month Irrigation Events	8	Based on 2 irrigation events per week for 4 weeks

It is assumed that the 159 residential lots and the 6.72 acres of Schedule C landscaping will be watered over an 8-hour period. Since the turf care facility is a single connection, it is assumed that it will be watered over a 4-hour period.

Lake Siena Pump Station Flow Requirement

Based on the above evaluation, it is projected that the pump station which will draw water from Lake Siena for irrigation of residential lots and Schedule C landscaping within the Hillcrest PUD must be capable of providing a flow of **583 gpm** during the maximum irrigation month.