NEW WATER BOOSTER PUMP STATION

Pipeline Route Study Technical Memorandum

B&V PROJECT NO. 403737

PREPARED FOR

City of Venice



6 FEBRUARY 2020



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Section 1- Background

The City of Venice, Florida (City) owns and operates a 4.48 million gallons per day (mgd) brackish groundwater reverse osmosis (RO) water treatment plant and associated potable water (PW) distribution system. The potable water distribution system includes piping throughout the City, consisting of areas on both sides of Interstate-75 (I-75). The City has modeled the distribution system and has concluded that a New Water Booster Pump Station (BPS) is needed east of I-75 to improve customer service and water quality and to meet future water demands as the City continues to develop.

This project, known as the New Water Booster Pump Station (Project), consists primarily of constructing a water booster pump station building, a 2 million-gallon storage tank, and off-site potable water transmission mains that will provide connections to the City's distribution system. The off-site potable water improvements in this Project also include a new bi-directional emergency interconnect station with Sarasota County. In addition to these potable water improvements, this Project also includes an "off-site" fiber optic service extension that will involve extending the City's fiber optic service to this new BPS facility as well as an "off-site" wastewater discharge forcemain that will be routed from the BPS site to the nearest wastewater collection system which is located at a neighboring development, Toscana Isles.

The City plans to design and construct this new BPS on an approximately 40-acre City-owned parcel (STR # 22-38S-19E, Account # 0365001100), which is located along Gene Green Road east of Knights Trail Road, as shown in Appendix A, Figure 1. The Project parcel has been subdivided and Miami Valley Ready Mix of Florida owns a 5-acre portion of the northwestern portion of the parcel. Properties surrounding the Project parcel include two residential subdivisions: Venetian Golf & River (VGR) Club to the south, and Toscana Isles to the west. There are several properties north of the parcel which are currently zoned as industrial developments owned and operated by Ajax Paving Industries. The Ajax properties are mineral and gravel processing, as well as cement plants, which comprise of heavy equipment and large industrial facilities. Some of the heavy equipment used is currently stationed on a parcel located just north of the City's parcel (22-38S-19E, Account #0365001050). The property to the east of the City's parcel is an open use drainage reservoir owned by Sarasota County, known as Dona Bay. There is an existing privately-owned unpaved roadway named Perimeter Road, which abuts the City's parcel to the west and travels south from Gene Green Road to Laurel Road.

Section 2- Purpose

The purpose of this technical memorandum (TM) is to identify and evaluate the off-site utility routes and to define the preliminary design criteria for the preferred utility routes. This TM is meant to serve as a preliminary planning document which is intended to assist the City in determining the following:

• Selection of offsite utility routes for potable water transmission mains, fiber optic extension to the BPS site, and a wastewater forcemain pipeline that will leave the site.

- Selection of the best location for the proposed potable water emergency interconnect with Sarasota County.
- Identification of the recommended utility easements that will be required to install City owned utilities to and from the BPS site and the emergency interconnect station.
- Summarize preliminary design criteria for the proposed off-site potable water transmission mains and wastewater forcemain.

Section 3- Summary of Off-Site Utility Routes

3.1 Project Area Research and Site Reviews

Site visits were performed, and research was conducted to determine potential pipeline alignments. This effort consisted of the following activities:

- Collection of existing utility and underground facility location records from utility companies and agencies.
- Review of the Sarasota County property appraiser website to obtain existing parcel information, ownership status, and existing easement information.
- Review of the most recent available aerial photography and detailed site aerial surveys of existing uses of lots and properties.
- Site visits to observe prospective pipe and fiber optic routes.
- Identification of preliminary pipe alignments for field and office study.
- Site visual surveys of existing surface features along the routes, particularly those indicating the presence of underground utilities such as air-release valves, valve boxes, and culvert crossings.

Site visits were conducted to identify existing conditions along the proposed routes to help determine the alignment for the new water transmission mains (WM) and their approximate tiein locations to the existing water mains. Refer to Figure 2 in Appendix A, which depicts the two primary WM routes to and from the BPS facility. The site visits included coordination with Toscana Isles to identify the new sewer forcemain connection which will convey sewer flows from the BPS site to existing wastewater collection system in Toscana Isles. Research and a site visits were also conducted to identify the most suitable route for a fiber optic extension to the new BPS site.

The site visits helped identify the general alignment of proposed utilities that would result in the fewest number of potential conflicts with existing or future facilities; as well as minimize restoration and maintenance of traffic (MOT). In summary, the research yielded the following:

- Property uses are generally consistent with information obtained from GIS data provided by Sarasota County and City of Venice.
- As shown in Figure 2, roadways within the study area vary from private unpaved roadways to major thoroughfares carrying significant traffic volumes; namely Laurel Road and Knights Trail Road.
- The condition of existing asphalt pavement is generally good across the project area. The exception is Laurel Road which has recently been re-paved and is in very good condition.

Knights Trail Road is in good condition. Gene Green Road, which has a lot of heavy truck traffic from the Ajax facilities activities, is in fair condition.

 It is anticipated that few surface restoration costs, such as asphalt roadways, signs, driveways and landscaping will be incurred for construction of the proposed pipeline alignments.

3.1.1 Utility Coordination

The existing underground utilities within selected routes were identified to aid in determining the best possible route selection. From field inspections, reviewing of existing right-of-way maps, as-builts, previous construction plans, and GIS data, no major utility relocations are anticipated at this time on any of the proposed routes. Efforts will be made during survey and SUE investigations to further verify that the final design of proposed improvements will minimize impacts to existing utilities and avoid unnecessary utility relocations.

A design ticket was submitted on November 18th, 2019 to Sunshine State One Call requesting a list of all utilities along the considered routes. After receiving the design tickets each utility owner was contacted to obtain any available information of their respective underground utilities and/or proposed utility improvements. The following utility agencies were identified within the project limits:

- City of Venice Utilities
- Comcast Cable (Comcast)
- Florida Power & Light (FPL)
- Frontier Communications
- TECO Peoples Gas (TECO)
- Peace River Manasota Regional Water Supply Authority
- Sarasota County Traffic Signals
- Sarasota County Utilities

The Peace River Manasota Regional Water Supply Authority (PRMRWSA) was contacted and record drawings were reviewed to identify the location of the existing 48-inch diameter PRMRWSA Phase 3A transmission main which is routed along Laurel Road and Knight's Trail road. Sarasota County Utilities was contacted, and GIS information was reviewed to identify the approximate location of the existing 42-inch Sarasota County transmission main which is routed in the southern ROW of Laurel Road.

Sarasota County Public Works was also contacted to confirm that the future road widening of Laurel Road from two lanes to four lanes is planned, but this is not expected until at least 5 years or more in the future.

3.2 Potable Water Transmission Main Route Descriptions

The available roadways surrounding the City's owned parcel and the location of the City's existing PW mains were limiting factors in the availability of alternate routes for pipeline alignment for the proposed potable water mains which will serve the BPS. These factors result in two main potable water pipeline routes and two alternate routes as possible alignments for the future potable water pipelines for the BPS. The two alternate routes incorporate both Route 1 and Route 2 and are thus labeled as Alternatives because they do not incorporate any new territory.

3.2.1 Route 1

This PW pipeline route considers alignment of dual PW transmission mains to and from the BPS site along the same route. As shown in Figure 2, Route 1 begins from the northern portion of the City of Venice BPS parcel and travels west along the south ROW of Gene Green Road. At the intersection of Gene Green Road and Knights Trail Road the pipeline crosses Knights Trail and then the pipeline travels south along Knights Trail Road in the western ROW before ending at Triple Diamond Boulevard where it ties in to the existing City 12-inch potable water main stubout.

3.2.2 Route 2

This potable water pipeline route also considers alignment of dual potable water transmission mains to and from the BPS site along the same route. As shown in Figure 2, the Route 2 PW pipeline begins from the western property line of the City of Venice BPS parcel and travels south along the Perimeter Road unpaved roadway that jogs west and then south again before ending at Perimeter Road and Laurel Road intersection. At this intersection the City has two existing potable water pipelines, an existing 12-inch branch line that extends from the City's 16-inch potable water transmission main along the north right-of-way of Laurel Road and runs north approximately 1,800 linear feet along Perimeter Road and turns east into the Venetian Golf and Country Club near Padova Way.

3.2.3 Alternate Route 3

This route incorporates splitting the potable water transmission main that supplies the BPS from the potable water transmission main that discharges from the BPS facility such that these two transmission mains are routed along both Routes 1 and 2. As shown in Figure 2, Route 3 assumes that the transmission main that supplies the BPS begins from the northern portion of the City of Venice parcel and travels west along Gene Green Road. At the intersection of Gene Green Road and Knights Trail Road the pipeline crosses Knights Trail and then travels south along Knights Trail Road before ending at Triple Diamond Boulevard where it ties in to the existing City 12-inch potable water main stub-out. The route for the potable water transmission main discharge pipeline from the BPS begins from the western property line of the City of Venice BPS parcel and travels south along Perimeter Road unpaved roadway before ending at Perimeter Road and Laurel Road intersection where it ties in to the existing City of Venice 16-inch PW main along the north ROW of Laurel Road.

3.2.4 Alternate Route 4

This route alternative also incorporates splitting the potable water transmission main that supplies the BPS from the potable water transmission main that discharges from the BPS facility such that these two mains are routed along both Routes 1 and 2. This route alternative is the reverse of Alternate Route 3 discussed above.

3.3 Field Observations

To verify the information obtained from the desktop research, field observations were conducted. In developing pipeline route alternatives, special attention was paid to existing utilities, environmental considerations such as waterway crossings, and surrounding businesses and neighborhoods with respect to construction impacts. The site visit was also conducted to evaluate conditions within the project limits, such as traffic conditions, critical infrastructure, number of local businesses and other factors that could potentially present issues during construction or maintenance of the recommended utilities. A summary of the findings from the field observations is presented below.

3.3.1 Route 1 Findings

3.3.1.1 Gene Green Road

This roadway consists of mostly undeveloped areas with several industrial businesses located along the north ROW and one industrial business along the south ROW. There is also a new residential community, Toscana Isles, currently under construction to the south of Gene Green Road. Gene Green Road is a narrow two-lane road with heavy traffic conditions. Most of the vehicles observed traveling this roadway are heavy equipment (i.e. dump trucks). There is a Southwest Florida Water Management District monitoring station located on the north side of Gene Green ROW approximately 1,990-linear feet from the intersection of Gene Green and Knights Trail roads. A summary of all utilities along this route that were received from utility coordination and observed in the field are summarized in **Table 3.1** below.

UTILITY	ТҮРЕ	DESCRIPTION
Florida Power & Light	Overhead	Powerlines located on the South ROW
TECO Peoples Gas	Underground	Gas line located along the north ROW

Table 3.1 – Summary of Utilities Located along Gene Green Road

3.3.1.2 Knights Trail Road

This roadway has a few portions of undeveloped areas located south of the intersection of Gene Green Road along the west ROW. Most of this roadway consists of small commercial businesses located on the western ROW and multifamily residential communities on the eastern ROW. The traffic load along this roadway is heavy with a mixed usage of heavy equipment and standard

vehicles. There are two existing culverts along this route, one crosses Knights Trail approximately 300-feet south of Gene Green Road intersection and the additional culvert road crossing is located further south approximately 1,300 feet north of the Triple Diamond/Knights Trail intersection. There is an existing Sarasota County wastewater lift station located on the east ROW of Knights Trail between Technology Drive and Discovery Way. A summary of all utilities received from utility coordination and observed in the field are shown in **Table 3.2** below.

UTILITY	ТҮРЕ	DESCRIPTION
Frontier Communications	Overhead and Underground	Fiber Optic lines located on both sides of the roadway
Florida Power & Light	Overhead and Underground	Overhead electric lines are located on the East ROW with underground lateral lines suppling power to perpendicular roadways and businesses
City of Venice	Underground	8"- 12" PW Main in west ROW (up to Triple Diamond intersection) 8" Irrigation Main in east ROW 4"-6" Forcemain located along both ROW's Stormwater conveyance infrastructure along both ROW's
Sarasota County	Underground	4" Forcemain located in East ROW (south of the Sarasota County Lift Station facility)
TECO Peoples Gas	Underground	Gas Line running along the East ROW
Peace River Manasota Regional Water Supply Authority	Underground	48" Watermain in East ROW

3.3.2 Route 2 Findings

3.3.2.1 Perimeter Road

This route is a private unpaved roadway and extends from the Laurel Road north ROW and travels north through various existing easements and private property parcels where the route terminates at Gene Green Road. There are three private fences along this route which prevent drive-through traffic, two of which are cattle fences and the other is an 8-foot chain link fence. The first cattle fence is located at the intersection of Gene Green Road and Perimeter Road's

dirt road along the south ROW of Gene Green, and this fence was locked at the time of this study. The additional cattle and chain link fences border the Venetian Golf & River Clubs (private property) and are located near the southern portion of the Perimeter Road route near the intersection with Laurel Road. A summary of all utilities received from utility coordination and observed in the field are shown below in **Table 3.3**.

UTILITY	ТҮРЕ	DESCRIPTION
Electric	Underground	Along the southern portion of the route near Laurel Road there are two electrical vaults located along the eastern edge of this dirt road. There were also several transformers located at the entrance to VGR.
City of Venice	Underground	12-inch PW main There are two stormwater culverts that cross this unpaved roadway along this route.

Table 3.3 – Summary of Utilities Located along Perimeter Road

3.4 Municipal Jurisdiction and Utility Permitting Requirements

Two governmental agencies share jurisdiction over the project area. These include Sarasota County, who owns Laurel Road, and the City of Venice who owns Knights Trail and the western portion of Gene Green Road. There are also regulatory permitting agencies that have jurisdiction within the project limits. The utility permits that will be necessary for these City, County, and state regulatory agencies are as follows:

- Sarasota County (DOH) for Potable Water Permitting
- Sarasota County Utilities (for FDEP Wastewater Permitting)
- The City of Venice Utilities Permit
- South West Florida Water Management District (SWFWMD) (for waterway crossings, if applicable)

3.5 Access Easement for the BPS Site

The Gene Green Roadway is split between public and private ownerships. From the Gene Green and Knights Trail intersection heading east approximately 2,600 LF of the roadway is public Citymaintained roadway. The remaining portions of Gene Green Road are privately owned and maintained by both APAC-Georgia Inc. and Ajax Paving Industries. The City of Venice parcel is located through the private portion of the Gene Green roadway and requires a new access easement. Figure 3 in Appendix A provides a visual depiction of two access easement options. One of the two alternatives are required to be selected in order to obtain access to the BPS site. Proposed Alternative-A is a 50-foot wide access and utility easement traveling east along Gene Green Road abutting the City's parcel. Alternative-A provides a 101.3 LF length access easement onto the City's parcel and avoids crossing through other privately-owned parcels. Alternative-B is a 50-foot wide access and utility easement of approximately 750 LF additional length traveling along Gene Green Road and continues east to allow access to the BPS after passing the AJAX Paving Industries parcel (Miami Valley Ready Mix facility).

3.6 Utility Easements

The three available roadways, Gene Green, Knights Trail, and Perimeter Road will require easement acquisitions by the City for the proposed future offsite utility lines. There are several private stakeholders involved along each route and negotiating and executing new utility easements with each of these stakeholders will be required for the improvements. There is an existing 30-foot access and utility easement owned by the City of Venice along the southern portion of Perimeter Road near Laurel Road. There are no known utility easements along Gene Green Road. Figures 4 and 5 summarize the current stakeholders involved in both routes 1 and 2 and what easement acquisitions will be required for the future pipelines. Refer to Figure 4 and Figure 5 in Appendix A which depicts the extents of these required new utility easements.

3.7 Emergency Interconnect with Sarasota County

The emergency interconnect linking both the City and Sarasota County's water distribution systems will have to be sited such that it is in the vicinity of both utilities' existing potable water transmission mains. Sarasota County currently operates a 42-inch potable water main along the south ROW of Laurel Road. The proposed interconnect site can be one of several locations along Laurel Road, as shown in Figure 2. This proposed bi-directional emergency interconnect will allow the City to share water in an emergency with Sarasota County and vice-versa. In recent conversations with the City, it was determined that this new interconnect shall have the capacity of approximately 750 gpm. This results in an 8-inch nominal diameter interconnect with a bi-directional magmeter in an above-ground manifold system. The anticipated interconnect layout and footprint is proposed to be 20' W X 40' L which will require an additional utility easement to accommodate the proposed emergency interconnect station. The approximate dimensions of the proposed emergency interconnect easement are 30' W X 50' L to accommodate access and maintenance of this interconnect.

During a meeting, the City expressed two preferred sights for the emergency Interconnect location. Refer to Appendix B – Meeting Minutes for more details and decisions that wer made at this recent project meeting. One of the preferred sites is located along the western side of Perimeter Road approximately 250 LF north of Laurel Road and Perimeter Road intersection. The second preferred site location is in the vicinity of an existing City lift-station. The existing City lift-station is located along the north ROW of Laurel Road approximately 600 LF west of the Perimeter Road and Laurel Road intersection. Both preferred interconnect locations minimize the need for Sarasota County to extend the length of their pipeline and are feasible sites.

3.8 Current and Future Projects

As mentioned above, Sarasota County plans to widen Laurel Road in the future. Based on our preliminary research, it is also anticipated that the future widening of Laurel Road to four lanes will most likely require the County to acquire additional ROW along Laurel Road.

Section 4 - Preliminary Hydraulics Evaluation of Off-Site Utilities

4.1 Hydraulic Modeling Evaluation of the Proposed Off-Site PW Mains

The hydraulic model for the City that was developed by Black & Veatch as part of the master planning effort suggests utilizing the alternative pipeline routes 3 or 4, where the pipelines are proposed to be split and their respective tie-in points to the distribution system are far apart from each other. This provides the ability for the proposed BPS to pump to the distribution system simultaneously while filling the BPS storage tank. The proposed new suction and discharge pipelines from distribution were modeled and it was determined that a minimum diameter of 12-inches would be required for these PW transmission mains. As mentioned in Appendix B – Meeting Minutes, the City has requested that both pipelines be sized at 16-inch nominal diameter for added reliability and to account for future growth and development planned in this portion of the service area.

4.2 Potable Water Transmission Mains Sized for Peak Tank Filling and Peak Discharge Pumping

The BPS will require connection to the Cities current PW distribution infrastructure. The City has an existing 12-inch PW pipeline that extends along the western ROW of Knights Trail and which terminates at Triple Diamond Blvd. The City also has an existing 16-inch PW line running along the north ROW of Laurel Road. Both existing PW pipelines are potential connection points for the future BPS tie-in to the city. If utilizing the 12-inch PW main as the supply pipeline for filling the BPS tank from the distribution system, hydraulic modeling confirmed that the peak tank fill rates would be 800 gpm. If the 16-inch PW main is used as a tank fill pipeline from distribution, the peak tank fill rate might be slightly greater than 800 gpm, providing that the localized distribution system pressures during a tank fill event do not fall below the 40-psi level of service.

Typical BPS operation procedures are planned to be night-time remote tank filling or local manual tank filling during the off-peak night-time hours. The pumps will operate as-needed to supplement demands in this portion of the service area. The City has expressed the desire to incorporate future capability to perform automatic tank filling that would occur simultaneously with the booster pumps in service. From a hydraulic and practical perspective, to provide for automatic tank filling simultaneously with the booster pumps in service. From a hydraulic and practical perspective, it suggests that the best pipeline route options would involve one of the "split pipeline" alternatives (Alternative 3 or Alternative 4).

Per the City's Potable Water Master Plan, year 2045 is the anticipated buildout date for the system. At buildout, the hydraulic modeling results indicate that the estimated peak tank fill rate will require up to 1,300 gpm, maximum day condition. To satisfy this extreme peak flow requires using both the 16-inch tank fill pipeline as well as the 16-inch pump discharge pipeline simultaneously. For supporting this extreme tank fill event the, BPS yard piping design will have provisions for manually redirecting the pump discharge transmission line into the ground storage tank. The only limitation to this extreme tank fill rate event of 1,300 gpm is that the BPS pumps could not be in operation during this timeframe. Additionally, the BPS Peak Hour

Discharge flowrate at Year 2045 under the Max Day conditions will be approximately 2,250 gpm under an industrial fire flow scenario at buildout.

4.3 Forcemain

The BPS will require waste discharge from the proposed restrooms inside the building located on the BPS site. There is an existing sub-division, Toscana Isles located to the southwest of the City's parcel. An existing gravity main stub-out is located outside the eastern portion of the Toscana Isles parcel (Account # 0366130005). The BPS is anticipated to require a 4-inch wastewater forcemain that will discharge waste flows from the BPS lift station and will be routed to the Toscana Isles gravity collection system stub-out to tie into the City's existing wastewater collection system infrastructure using a new sanitary sewer manhole. See Figure 6 in Appendix A which shows the proposed offsite forcemain route.

4.4 Fiber Optic

Fiber Optic cable is needed at the BPS site and the Emergency Interconnect site for providing SCADA communications with the City's other utility facilities. There are several existing fiber optic lines owned by various entities that run along adjacent major roadways in the project location. Sarasota County and Verizon own and operate existing fiber optic lines along the north ROW of Laurel Road. Frontier Communications owns and operates the majority of the other fiber optic lines in the area. Frontier has existing fiber optic lines running along both ROW's of Laurel and Knights Trail Roadways. Frontier also has a fiber optic line running along the south ROW of Gene Green Road. The City of Venice owns and operates an existing fiber optic line in the South ROW of Laurel Road. Refer to Figure 6 which shows the recommended and shortest length fiber optic extension route from Laurel Road that will parallel the proposed PW pipeline along Perimeter Road to the BPS site.

Section 5 - Recommended Pipeline Design Criteria

The City of Venice Utilities Standards will be utilized to the maximum extent practical for the proposed off-site potable water and wastewater forcemain infrastructure in this project. The following is a summary of the off-site pipeline design criteria which will be used in this project:

5.1 Proposed 16-inch PW Transmission Mains

- Color blue comprised of either of these specified materials: AWWA C900 PVC / DR 18, Fusible C900 PVC / DR 18, or HDPE PPI PE 4710 / DR 11 (Ductile iron pipe size).
- Minimum cover of 36-inches from top of pipe to finished grade. If the utility crosses a ditch / swale it shall be 36-inches minimum below the actual design bottom of conveyance ditch / swale.
- The minimum horizontal separation distances from outside of pipeline to outside of pipeline for dual potable water mains is 3-feet. For forcemains the minimum outer pipeto-pipe horizontal separation is 6-feet, and for all other utilities the minimum horizontal outer pipe-to-pipe separation is 3-feet.
- The minimum vertical separation distances from outside of pipeline to outside of pipeline is 12-inches for forcemains and 6-inches for all other utilities.

- It is anticipated that the majority of the proposed 16-inch PW transmission will be constructed via open-cut, however, horizontal directional drill construction of HDPE WM segments will most likely be utilized and preferred for any waterway crossings. For road crossings such as Knights Trail or Laurel Road, PW mains will be designed and constructed via trenchless jack and bore or horizontal directional drill methods to minimize traffic concerns.
- Bacteriological testing shall be coordinated through the City of Venice Utilities Department and in conformance with State of Florida Department of Health.
- Disinfecting of water mains must follow AWWA standards and must be witnessed by City Utilities staff.

5.2 Proposed 4-inch Wastewater Forcemain

- Forcemain shall be a minimum of 4-inch in diameter.
- Color green comprised of either of these specified materials: AWWA C900 PVC / DR 18, Fusible C900 PVC / DR 18, or HDPE PPI PE 4710 / DR 11 (Ductile iron pipe size)
- The minimum horizontal separation distances from outside of pipeline to outside of pipeline from potable water is 6-feet and for all other utilities the minimum horizontal separation is 3-feet.
- The minimum vertical separation distances from outside of pipeline to outside of pipeline is 12-inches from potable water and 6-inches for all other utilities.
- Minimum cover of 36-inches from top of pipe to finished grade. If the utility crosses a ditch / swale it shall be 36-inches minimum below the actual design bottom of conveyance ditch / swale.
- It is anticipated that the proposed 4-inch forcemain will be constructed via open-cut construction.
- All Plug Valves shall be manufactured by DeZURIK and shall be gear operated with the seat of plug valve located on the upstream side of the body.

Section 6 - Summary Recommendations

The following is a list of recommendations for the City:

- It is recommended that the City select the site access easement Alternative A as well as the proposed new utility easement concepts presented herein and then start meeting and negotiating with the various stakeholders to pursue these required access and utility easements.
- 2. After the City's confirmation of these preferred utility routes and the site for the proposed Emergency Interconnect is endorsed by the City, it is recommended that the topographic survey be performed in order to create the base files for the detailed design of these utility improvements.

- 3. It is recommended that the City start meeting with Sarasota County Utilities to confirm the intended location of the Emergency Interconnect site and to pursue an emergency interconnect agreement contract(s).
- 4. When the timing is right, and as future development occurs within the project area, it is recommended that the City consider upsizing of the 12-inch WM along Knights Trail to a new 16-inch WM segment that will connect to the 16-inch WM infrastructure in this project. Furthermore, the City might consider upsizing of the 12-inch WM stubout segment along Perimeter Road to 16-inch diameter that would connect to the 16-inch WM that will serve the BPS facility.

Appendix A

Figures (1-6)

FIGURE 1 - PROJECT LOCATION



FIGURE 2 - ALTERNATIVE PIPELINE ROUTES AND EMERGENCY INTERCONNECT LOCATIONS



Legend

- Existing City of Venice WM
- Existing Sarasota County 42" WM

BPS Suction Pipeline Alternatives

- BPS Discharge Pipeline Alternatives
- Proposed 8" City of Venice Interconnect
- Proposed Sarasota County 8" Interconnect
 - Emergency Interconnect Site Alternative Locations

* Both Routes 1 and 2 are also portions of Alternative Routes 3 and 4

0 225 450 900 Feet





FIGURE 4 - RECOMMENDED GENE GREEN ROAD UTILITY EASEMENTS





<u>LEGEND</u>

Existing Easement

APAC Georgia INC Easement Request

FIGURE 5 - RECOMMENDED PERIMETER ROAD UTILITY EASEMENTS





N

<u>LEGEND</u>

Existing Easement



Myakka River Trust Easement Request

V.G.R. Club Easement Request



Appendix B

Meeting Minutes Dated January 17th, 2020



Project Name:		Project No:	File Number:
Venice New Water Booster PS			12.2204
Subject:			Meeting No:
Progress Meeting			2
Location:			Time:
Venice East WRF		01/17/2020	1:00pm – 3:00 PM
Recorded By:			
Stephen Nelson			
Participants:	Title:	Organization:	
Patience Anastasio	Utilities CIP Manager	City of Venice	
Jim Anderson	Operations Supervisor	City of Venice	
Thomas West	Assistant Utilities Director	City of Venice	
Javier Vargas	Public Utilities Director	City of Venice	1
Mike McGee	Project Manager	B&V	
Stephen Nelson (phone)	Design Engineer	B&V	
Olena Lytvyn (phone)	Design Engineer	B&V	
Amanda Schwerman (phone)	Planning & Asset Management Lead	B&V	
Melissa Velez (phone)	Engineering Manager	B&V	
Philip Rishel (phone)	Architect Lead	B&V	
Distribution:			
Internal			

Minutes:

Project Overview – Introductions, Project Overview

- The long-term goal for the Booster Pump Station (BPS) is to contain (2) 2-MG storage tanks. Through 2045 only (1) storage tank is necessary. The City liked the idea of utilizing a 16-inch suction/discharge line to and from the BPS rather than the modelled 12-inch design to coincide with future demands.
- The City desires to have the capability for simultaneous Tank Filling while BPS pumping, therefore the City agreed that both the Gene Green pipeline route as well as the Perimeter Road route will be pursued for "off-site" potable water transmission mains to connect the BPS to the distribution system. Splitting of the pipelines will offer greater operational capability.
- B&V Action Items
 - B&V to model the 16-inch pipelines and confirm if they are adequate.



Emergency Interconnect – Modelling, Pipeline routes

- Modeling suggest utilizing both lines (of split pipeline route) in order to meet the 1,300 gpm requirement to meet maximum fill rate at buildout. Maximum duration of approximate fill time would be 6-hours. Fill times are required to be overnight to avoid loss of pressure in the distribution system.
- In the short term, the suction line would be best at Laurel Road and Perimeter Road. The discharge line can be on either Knights Trail at Triple Diamond road or Laurel Road and Knights Trail Intersection. In the future, the City desires the flexibility to fill the tank and to discharge BPS flows through either of these pipeline routes. Therefore, the City desires BPS yard piping provisions which will allow for pulling water from either Laurel or Knight's Trail and for directing pump discharge flows in either direction, too.
- To meet 2,500 gpm industrial fire demand, both pumps at the BPS were simulated in the hydraulic model to be ran simultaneously. For residential fire demand only one simulated pump is necessary.
- Looping of the pipeline system is most desirable for the City, and several potential looping connections from the proposed Perimeter Road transmission main to the VGR community were identified by the City.
- There is an existing possible water main connection point located near Toscana Isles Lift Station.
- The City's current Interconnect Piping is sized at 10" below grade and reduces to 6" above grade.
- Right of Way (ROW) widths of Laurel were discussed for possible siting locations of the interconnect the current ROW of Laurel widens as you travel west closer to Knights Trail changing from approximately 80-feet at Perimeter Road to 200-feet at Knights Trail Road intersection.
- Approximate sizing of interconnect may be 20-feet by 40-feet. Discussed placing the interconnect adjacent to existing City's lift station on the north ROW of Laurel. The City also liked the potential interconnect siting location along Perimeter Road just north of the Laurel Road ROW.
- The City stressed concerns about flushing if chloramines are introduced into the system. The current distribution system infrastructure would struggle to accomplish this.
- The current City Emergency Interconnect has only been utilized once back in the 1990's.

The City confirmed that the intended capacity of the emergency interconnect and the future agreement with Sarasota County would be for a emergency-use only capacity of approximately 750 gpm. The City also confirmed that if they ever used this interconnect to take chloramines water from Sarasota County, that the City would accept this water directly into the City's distribution system. Therefore, there will be no requirement to provide the capability for breakpoint chlorination at the new BPS facility.

Utilities – Existing pipelines

- The City discussed potential upsizing both the existing 12-inch line along Knights Trail (from Laurel Road up to Triple Diamond) and the 12" stub out on Perimeter Road to 16-inch lines for future tie in locations.
- 12-inch stub out on Perimeter Road may be more beneficial if looped into the existing system. Would eliminate the dead-end.
- Toscana Isles is going to provide both Force Main (FM) stub out and Potable Water (PW) stub out for future connection to this project.



Easements – Access Easement to City Parcel, Utility Easements

- B&V requested additional information from the City to try and determine if portions of Gene Green Road are private specifically if A-Pac Georgia and Ajax are private stakeholders of portions of Gene Green. The public ROW portion of Gene Green Road stops about 1,320 linear feet short of the City's parcel for the BPS site. Based on the research so far, it is likely that the City will require a new access easement to access the site from Gene Green Road.
- The Ajax 30-feet Access easement to the north of the City's parcel might have been previously negotiated when the City's parcel was purchased.
- The City owns a current 30-feet utility access easement from the entrance at Laurel Road and Perimeter Road and travels north along Perimeter Road ending where the route jogs 90-degrees before turning west.
- Based on the research of the Gene Green Road and Perimeter Road pipeline routes, both pipeline routes will require new utility easements, and with multiple stakeholders along each route.

Architecture – Building Concepts 1 & 2

- Discussions of removing the split (male) and (female) separate locker room setup. Only a unisex locker room with locking capabilities will be sufficient to meet code. It was clarified by B&V that this is to provide flexibility during the emergency situations and this is commonly seen on other facilities. Pending space availability, B&V will look into adding locker storage inside single-occupant shower rooms for convenience of occupants.
- City's Decision
 - The Training Room shall have the capability to transition into sleeping quarters, and could be partitioned in the event of manning up this facility during an emergency operation scenario.
 - Reduce size of proposed Conference Room and add a smaller second Control Room for Wastewater. The Control Room overlooking the Pump Room will be designated for Water.
 - Server Room to be located in central location to Control Rooms, Conference Room, and Training Room.
 - The second architectural concept (tee-shaped) was more appealing to the City, more efficient use of space and better capabilities for future expansion of the building if necessary.
 - It was discussed that the "Chemical Room (future)" might be a good room to consider as being re-purposed to the emergency operations control room for the WWTP, but due to it's location opposite the Pump Room from the other Admin Spaces, B&V will revise floor plan to locate second Control Room adjacent to other Admin Spaces for convenience of heating/cooling/data.
 - A larger kitchen to accommodate more people (i.e. only sitting)

Additional Questions/Discussions -

- Next (5-10 years) Laurel Road is planned to be widened.
- City request a more preliminary site plan with building layout, generator, and storage tank.



Action Items:				
No.	Item	Assigned To	Due Date	Status
1	Data Request from Kick-off Meeting	City	1/31/20	ongoing
2	B&V requested additional information from the City to try and determine if portions of Gene Green Road are private specifically if A-Pac Georgia and Ajax are private stakeholders of portions of Gene Green.	City	1/31/20	Pending
3	City to review the updated Arhitectural concepts that will be provided by B&V and provide any additional comments.	City	1/31/20	Pending
4	City requested a more preliminary site plan with building layout, generator, and storage tank.	B&V	2/17/20	Pending and will be included as part of the Design Criteria submittal under Task 4.1