CITY COMMISSION REGULAR MEETING AGENDA

Thursday, January 09, 2025 at 5:30 PM

City Commission Chambers – 105 S. 2ND Street, Flagler Beach, FL 32136

ALL MEETING ITEMS WILL BE CONTINUED UNTIL MEETING IS COMPLETE.

1. **Call the meeting to order**
2. **Pledge of Allegiance followed by a moment of silence to honor our Veterans, members of the Armed Forces and First Responders**
3. **Proclamations and Awards**
   - **a.** Certificates of Appreciation: Beachfront Grille, Jamie Bourdeau and Dudley Shaw, in appreciation of their generous donation of prepared food for our less fortunate residents on Thanksgiving and Christmas, and Flagler Strong, Tracy Callahan-Hennessey, in appreciation for the donation of plates, cutlery, cups and napkins for the Christmas Pot-Luck Dinner.
   - **b.** Proclamation Recognizing the month of January 2025 as Human Trafficking Awareness Month.
   - **c.** Proclamation recognizing the month of January as National Stalking Awareness Month.
   - **d.** Election Proclamation
4. **Deletions and changes to the agenda**
5. **Public comments regarding items not on the agenda**

   Citizens are encouraged to speak. However, comments should be limited to three minutes. A thirty-minute allocation of time for public comment on items not on the agenda. Each speaker has up to three-minutes to address the Chair, and one opportunity to speak, no time can be allotted to another speaker.
6. **Consent Agenda**
   - **a.** Approve the regular meeting minutes of December 12, 2024.
7. **General Business**
   - **a.** Application OE-25-01-01 Request for an Annual Outdoor Entertainment Permit – The Cajun Beach – 1112 S. Ocean Shore Blvd. -Applicant – Patrick McKinney.
   - **b.** Resolution 2024-01. A Resolution by the City Commission of the City of Flagler Beach, to award Bid No. FB-24-1021 Project # 570 City of Flagler Beach South Central Water Main Replacement to All State Civil Construction, Inc. in the amount of $610,409.00, providing for conflict and an effective date.
   - **c.** Resolution 2025-03. A Resolution by the City of Flagler Beach, Florida approving a Professional Services Task Order from McKim & Creed in an amount not to exceed $99,060.00 for the design and other services summarized in Exhibit A of a 1.0-million-gallon (MG) storage tank at the Water Treatment Facility; providing for conflict and an effective date.
   - **d.** Resolution 2025-05. A Resolution by the City of Flagler Beach, Florida, designating Municipal Emergency Services (MES) as a Sole Source Vendor for the purchase of fire support equipment, in an amount not to exceed $145,428.26; providing for conflict and an effective date.
8. **Public Hearings**

a. Ordinance 2024-23, and Ordinance of the City of Flagler Beach, Florida, amending the City of Flagler Beach Code of Ordinances, Appendix "A" "Land Development Regulations, Article V, "Development Design Standards" relating to certain fees and charges related to water service; providing for severability; providing for codification, conflicts and effective date - final reading.

b. Consider Application PFS24-0001: Final Site Plan Approval - Legacy Pointe Cottages; Parcel ID No.: 11-12-31-0650-000D0-0050; Owner: ALT Homes LLC, T.J. McNitt; Applicant: ALT Homes LLC , Katie Crooke, Representative.

9. Staff Reports

a. City Attorney:

b. City Manager:

c. City Clerk:

10. Commission Comments

a. Commission comments, including reports from meetings attended.

b. Public comments regarding items not on the agenda. Citizens are encouraged to speak. However, comments should be limited to three minutes. *A thirty-minute allocation of time for public comment on items not on the agenda. Each speaker has up to three-minutes to address the Chair, and one opportunity to speak, no time can be allotted to another speaker.*

11. Adjournment

RECORD REQUIRED TO APPEAL: In accordance with Florida Statute 286.0105 if you should decide to appeal any decision the Commission makes about any matter at this meeting, you will need a record of the proceedings. You are responsible for providing this record. You may hire a court reporter to make a verbatim transcript. The City is not responsible for any mechanical failure of the recording equipment. In accordance with the Americans with Disabilities Act, persons needing assistance to participate in any of these proceedings should contact the City Clerk at (386) 517-2000 ext 233 at least 72 hours prior to the meeting. The City Commission reserves the right to request that all written material be on file with the City Clerk when the agenda item is submitted.

A PROCLAMATION OF THE
CITY OF FLAGLER BEACH COMMISSIONERS
RECOGNIZING THE MONTH OF JANUARY 2025 AS
HUMAN TRAFFICKING AWARENESS MONTH

WHEREAS, human trafficking is the recruitment, harboring, transportation, provision, or obtaining of a person for labor or services, through the use of force, fraud, or coercion for the purpose of forced labor or sexual servitude; and

WHEREAS, human trafficking is a 32-billion dollar a year global criminal enterprise and is a crime as well as a civil and human rights violation and an estimated 25 million people are currently victims of human trafficking for both sex and labor; and

WHEREAS, Human traffickers prey on their victims by promising a life of hope and greater opportunity, while delivering only enslavement. Instead of delivering people to better lives, traffickers unjustifiably profit from the labor and toil of their victims, who they force — through violence and intimidation — to work in brothels and factories, on farms and fishing vessels, in private homes, and in countless industries; and

WHEREAS, January is National Slavery and Human Trafficking Prevention Month, we commit ourselves to eradicating the evil of enslavement. Human trafficking is a modern form of the oldest and most barbaric type of exploitation and we proclaim it has no place in world, our Nation or our city; and

WHEREAS, this month we do not simply reflect on this appalling reality. We also pledge to do all in our power to end the horrific practice of human trafficking that plagues innocent victims not only around the world, but in our own neighborhoods; and

WHEREAS, more awareness and education is crucial to eradicating human trafficking in our communities, state and nation; and

WHEREAS, Flagler County Advocates Alliance is working together to increase public understanding of this problem and mobilize community efforts to end Human Trafficking; and

WHEREAS, Human Trafficking Awareness Day is observed on January 11 in municipalities across the country to educate the public and raise awareness about human trafficking.

NOW THEREFORE, BE IT PROCLAIMED BY THE CITY OF FLAGLER BEACH COMMISSIONERS that they hereby declare **January 2025** as **"Human Trafficking Awareness Month"** in Flagler County and urge all citizens of Flagler County to become a part of the community response to end Human Trafficking and to send the message that this crime will not be tolerated in our community.

Adopted this 9th day of January 2025.

_____
Patti King, Mayor

A PROCLAMATION OF THE
CITY OF FLAGLER BEACH COMMISSIONERS
RECOGNIZING THE MONTH OF JANUARY 2025 AS
NATIONAL STALKING AWARENESS MONTH

WHEREAS, under the laws of all fifty states, the U.S. Territories, the District of Columbia, and federal government, stalking is a crime; and

WHEREAS, up to 7.5 million people are stalked in a one-year period in the United States, and the majority of victims are stalked by someone they know; and

WHEREAS, 3 in 4 women killed by an intimate partner have been stalked by that intimate partner; and

WHEREAS, many stalking victims lose time from work and experience serious psychological distress and lost productivity at a much higher rate than the general population; and

WHEREAS, many stalking victims are forced to protect themselves by relocating, changing their identities, changing jobs, and obtaining protection orders; and

WHEREAS, many stalkers use technology—such as cell phones, global positioning systems (GPS), cameras, and spyware— to monitor and track their victims; and

WHEREAS, there is a need for great public awareness about the nature, criminality, and potential lethality of stalking; and

WHEREAS, criminal justice systems can enhance their responses to stalking by regular training and assertive investigation and prosecution of the crime; and

WHEREAS, laws and public policies must be continually adapted to keep pace with new tactics used by stalkers; and

WHEREAS, communities can better combat stalking by adopting multidisciplinary responses by teams of local agencies and organizations and by providing more and better victim services; and

WHEREAS, Family Life Center is joining forces with victim service providers, criminal justice officials, and concerned citizens throughout Bunnell and the United States to observe National Stalking Awareness Month; and

WHEREAS, Flagler County Advocate Alliance is working to increase public understanding of this problem and mobilize community efforts to end stalking.

NOW THEREFORE, BE IT PROCLAIMED BY THE CITY OF FLAGLER BEACH COMMISSIONERS that they hereby declare **January 2025** as **"National Stalking Awareness Month"** in Flagler County and applaud the efforts of the many victim service providers, police officers, prosecutors, national and community organizations, and private sector supporters for their efforts in promoting awareness about stalking.

Adopted this 9th day of January 2025.

_____
Patti King, Mayor

City of Flagler Beach

P.O. Box 70 • 105 South Second Street
Flagler Beach, Florida 32136
Phone (386) 517-2000

ELECTION PROCLAMATION

PROCLAMATION OF THE MAYOR OF THE CITY OF FLAGLER BEACH, FLORIDA CALLING A REGULAR MUNICIPAL ELECTION FOR THE CITY OF FLAGLER BEACH, FLORIDA, FOR THE YEAR TWO THOUSAND AND TWENTY-FIVE (2025).

I, Patti King, Mayor of the City of Flagler Beach, Florida, do hereby give notice that a Regular Municipal Election of the City of Flagler Beach will be held on March 04, 2025. At this time, two (2) Commissioners will be elected to serve. The two (2) Commission Candidate's receiving the highest number of qualified votes will serve for a period of (3) three years and/or until their successors are elected and qualified, in accordance and pursuant to the Charter of the City of Flagler Beach, Florida. Qualifying of Candidates will begin on January 10, 2025 at 9:00 a.m. Qualifying will end at 5:00 p.m. on January 16, 2025.

WITNESS by my hand and the Seal of the City of Flagler Beach, Florida on this 9th day of January 2025.

_____
Patti King, Mayor

Attest:

_____
Penny Overstreet, City Clerk

Filed in the Office of the City Clerk,
City Hall, Flagler Beach, Florida

CITY COMMISSION REGULAR MEETING MINUTES

Thursday, December 12, 2024 at 5:30 PM

City Commission Chambers – 105 S. 2ND Street, Flagler Beach, FL 32136

Present: Mayor Patti King, Chair Scott Spradley, Vice-Chair James Sherman, Commissioners Rick Belhumeur, Eric Cooley and Jane Mealy, City Attorney D. Andrew Smith, III< City Manager Dale L. Martin, and City Clerk Penny Overstreet.

ALL MEETING ITEMS WILL BE CONTINUED UNTIL MEETING IS COMPLETE.

1. **Call the meeting to order**: Chairman Spradley called to order at 5:30 p.m.
2. **Pledge of Allegiance followed by a moment of silence to honor our Veterans, members of the Armed Forces and First Responders:** Commissioner Sherman led the pledge to the flag.
3. **Proclamations and Awards:** None.
4. **Deletions and changes to the agenda:** Chairman Spradley asked to move Public Hearing Items C, D, and E to the top General Business. The items were regarding the annexation of Veranda Bay. The City received communication from a law firm yesterday challenging the annexation of Veranda Bay into the City limits. Given the timing of the communication, the City has not had time to research and study it to determine its merit. He suggested tabling the items and come back in a month in order for the developer to work on the matter.
5. **Public comments regarding items not on the agenda:** Chuck Malkis of 33 Andover Drive, Palm Coast suggested the Commission consider using a larger venue when they have an item on the agenda that will bring more than 100 people interested in the item. Public comment was closed. Chairman Spradley indicated the items that bring a large amount of interest are hard to determine until citizens attend the meeting. City Clerk Overstreet responded the City will not be able to stream the meeting at another location and therefore, prohibiting residents from viewing the meeting.
6. **Consent Agenda**
   - **a.** Approve the Minutes of the Regular and Workshop Meetings of November 14, 2024.
   - **b.** Approve an Interlocal Agreement between the Flagler County Supervisor of Elections and the City of Flagler Beach for the 2025 Municipal Election.
   - **c.** Approve the 2025 Commission Meeting Schedule.
   - **d.** Approve the 2025 City Holiday Schedule.

   Motion by Commissioner Sherman, seconded by Commissioner Belhumeur, to approve the Consent Agenda. The motion carried unanimously.

   Public comment was open. No comments were received. Public comment was closed.
7. **General Business**
   a. Ordinance 2024-17. An Ordinance of the City Commission of the City of Flagler Beach, Florida, to annex property to be included within the Corporate Area and City Limits of the City of Flagler Beach; providing for the annexation of approximately 899.09 acres of property described in Exhibit "A" to this Ordinance and lying in the areas proximate to the existing City Limits of the City of Flagler Beach, Flagler County, Florida; providing for annexation in accordance with the voluntary annexation provisions of Section

171.044, Florida Statutes; providing for annexation of real property/amendment of Corporate/City Limits; providing for rights and privileges resulting from annexation upon land uses; providing for effect on ad valorem taxes; providing for effect on businesses and occupations; providing for effect on businesses and occupations; providing for conflicts, severability and an effective date - final reading. Attorney Smith read the title into the record. Chairman Spradley explained the communication threatening a lawsuit was received yesterday and he felt it would be a disservice to the residents of Flagler Beach not to spend time studying the subject. Commissioner Belhumeur asked if the item was to be table that it would be tabled to a date certain. Motion by Commissioner Belhumeur, seconded by Commissioner Cooley, to table Ordinance 2024-17 to the date certain of January 23, 2024 at 5:30 p.m. or soon thereafter, here at City Hall. The motion carried unanimously, after a roll call vote.

b. Ordinance 2024-19. An Ordinance of the City Commission of the City of Flagler Beach, Florida, amending the Comprehensive Plan Future Land Use Map designation for approximately 899.09 acres of certain real property; providing for severability; providing for conflicts; and providing for an effective date - final reading. Attorney Smith read the title of the ordinance into the record. Motion by Commissioner Sherman, seconded by Commissioner Mealy, to table Ordinance 2024-19 for date certain of January 23, 2024 at 5:30 p.m. or soon thereafter, here at City Hall. The motion carried unanimously, after a roll call vote.

c. Ordinance 2024-18, an Ordinance of the City Commission of the City of Flagler Beach, Florida, amending the Official Zoning Map designation for approximately 899.09 acres of certain real property; providing for severability; providing for conflicts; and providing for an effective date - final reading. Attorney Smith read the title of the ordinance into the record. Motion by Commissioner Belhumeur to table Ordinance 2024-18 for date certain of January 23, 2024 at 5:30 p.m. or soon thereafter, here at City Hall. The motion carried unanimously, after a roll call vote.

Chairman Spradley recessed at 5:50 pm. The meeting reconvened at 6:05 p.m.

d. Consider appointments to the Planning and Architectural Review Board. The process was discussed. and the top voter will have the full term and the second will complete the term until February 22, 2025. Paul Mykytka was not present. Mr. Estberg and Ms. Johnston spoke of their interest in serving on the PARB. Chairman Spradley read the results: Seat 5 -William Boudie Estberg; Seat 2 -Suzie Johnston.

e. Consider an appointment to the Finance Committee: Motion by Commissioner Mealy, seconded by Commissioner Sherman, we appoint Andrea Gulliksen to the Finance Committee. The motion carried unanimously.

f. Consider appointments to the Personnel Advisory Review Board. Ms. Conrad, Mr. Crostarosa and Mr. Sepe spoke of their background and why they would like to serve on the board. Motion by Commissioner Mealy, seconded by Commissioner Cooley, to appoint Kathleen Conrad, Bob Crostarosa and Peter Sepe to fill the vacancies. The motion carried unanimously.

g. Resolution 2024-55. A Resolution by the City Commission of the City of Flagler Beach, to award Bid No. FB-24-1024 Refurbishment of City Parking Lot #3 S. Central Avenue & S. 8th Street to DDS Enterprises, LLC in an amount not to exceed $147,000, providing for conflict and an effective date. Attorney Smith read the title of the resolution into the record. Motion by Commissioner Sherman, seconded by Commissioner Mealy, to approve Resolution 2024-55. Public comment was opened. No comments were received. The motion carried unanimously, after a roll call vote.

h. Resolution 2024-69. A Resolution of the City Commission of the City of Flagler Beach, Florida, authorizing a loan from Regions Capital Advantage, Inc. in an aggregate principal amount of not to exceed $21,000,000 for the purpose of providing financing for the repair and replacement of damaged portions of the Flagler Beach Fishing Pier as described herein; approving the form of and authorizing the execution and delivery of a loan agreement; authorizing the execution and delivery of the City of Flagler Beach, Florida Capital Improvement Non-Ad Valorem Revenue Note, Series 2024 to evidence the City's obligations under the loan agreement, such note to be a limited obligation of the City, payable from

legally available non-ad valorem revenues budgeted, appropriated and deposited into the City's Debt Service Fund; providing for the rights and securities of the owner of the note; making certain other covenants and agreements in connection therewith; providing for severability; and providing for an effective date. Attorney Smith read the title of the resolution into the record. Mr. Martin reviewed the need for the loan. Once the pier is built, the City will ask to be reimbursed by the State and Federal Government and at that time, we will pay off the loan. Motion by Commissioner Belhumeur, seconded by Commissioner Sherman to approve Resolution 2024-69. Public comment was opened. No comments were received. Public comment was closed. The motion carried unanimously, after a roll call vote.

i. Direction to staff regarding the development of an ordinance that establishes regulations, inspections, enforcement and fees related to fats, oil and grease (FOG) in the City's wastewater system. Mr. Martin the proposed ordinance is to ensure the proper functionality of the City's wastewater system. Mr. Bill Freeman, City Engineer, presented information to the Commission which included: the effect of the pipes when there is too much fat oil and grease into the system; the timing of when a business will need to put in the grease trap; how to implement the program with older establishments; the administration necessary to monitor the program; how the program will be enforcement and program fees. Topic discussed how many business need to have grease traps or to upgrade the grease traps; the timing to comply; enforcement be arduous; the cost to the wastewater system by having grease in the pipes; needing a more phased approach; whether the program will effect places like the Woman's Club, churches, and the Fire Department; the burden on Code Enforcement; revisiting the fee structure; building in a delay in fees; can lift stations be connected to the area of most concern; A1A and behind the Publix tend to be the most effected. It was the consensus of the Commission to continue to develop the program and revisit the fee structure with administrative costs related to actual expenses.

j. Resolution 2024-70. A Resolution by the City Commission of the City of Flagler Beach, Florida, amending Resolution 2024-51, which adopted the FY 24/25 Budget, to reflect a Budget Amendment to Amend the Appropriated Fund Balances for 2024/25; providing for conflict, providing an effective date hereof. Attorney Smith read the title of the resolution into the record. Mr. Martin called Ms. Harlan, Finance Director to the podium. The budget was based on projection of revenue of the fees that were presented to the Commission in November. The result of those fees not being adopted is the budget is currently out of balance so this is a budget amendment to correct. Mrs. Harlan stated the fund that is critical is stormwater. The stormwater fund has no reserves. Mr. Martin asked for direction from the Commission as to whether to have rate increases considered or how staff should approach projects approved during the budget sessions. Discussion included costs tied to inflation and not the cost of operation; the need to separate the types of fees out into separate resolution; data collection; the need to adopt the fees together for the sake of the utility fund; enterprise funds do not go to the general fund at the end of the fiscal year and possibly using reserves. Mr. Martin again explained the budget was put together based on the rate increase. When the rate increase was not approved, the budget became out of balance and the resolution is to make the appropriate adjustments. Commissioner Cooley suggested the Commission approve the previously suggested rates. Mr. Martin asked Hollie Harlan, Finance Director, was brought back in January will it be necessary to approve Resolution 2024-70. Ms. Harlan indicated it would not be necessary if Resolution 2024-51 is presented at the January 9th meeting. It was the consensus the commission to bring back the previous resolution on the January 9 meeting. No action was taken on Resolution 2024-70

k. Resolution 2024-71. A Resolution by the City of Flagler Beach, Florida, accepting the proposal from Catalyst Design Group Inc., for Wickline Park consulting services; providing for conflict and an effective date. Attorney Smith read the title of the resolution onto the record. Motion by Commissioner Mealy, seconded by Commissioner Belhumeur to approve Resolution 2024-71. Public comment was opened. No comments were received. Public comment was closed. The motion carried unanimously, after a roll call vote.

l. Resolution 2024-72. A Resolution by the City of Flagler Beach, Florida approving a Flagler County Capital Project Funding Agreement between Flagler County and the City of Flagler Beach for the Flagler Beachwalk Project; providing for conflict and an effective date. Attorney Smith read the title of the resolution into the record. Mr. Martin outlined the reasoning for the resolution. Motion by Commissioner Belhumeur, seconded by Commissioner Mealy, to approve Resolution 2024-72. Public comment was opened. No comments were received. Chair Spradley closed public comment. The motion carried unanimously after a roll call vote.

8. Public Hearings

a. Consider Application PVAR24-0001 - requesting a Variance from the Land Development Regulations Article II, Section 2.05.08.1.(a) All single-family dwelling units shall have a minimum of nine-hundred (900) square feet of livable enclosed floor space, exclusive of open porches and garages. The application is for a 624 square feet of enclosed floor space. Subject property is identified as Parcel ID # 18-12-32-2750-00300-0220 also known as 2109 South Flagler Avenue. Mr. Martin reviewed the history of the item. Ms. Lupita McClenning spoke to the particulars of the application. Commissioner Mealy asked about parking and the number of feet from the alleyway the structure will be placed. Ms. McClenning reported it will be 10 feet from the alley which meets the standards of the code. Ms. Cathy Horrocks, the applicant, clarified that the parking pad is located within the property and not in the right-of-way. Discussion included the structure was in place for many years; the city permitting the kitchen; it being a non-compliant structure. Motion by Commissioner Belhumeur, seconded by Commissioner Mealy to approve Application PVAR24-0001 with the two conditions from the planning staff. The public hearing was opened. Pete Sepe asked if the Commission denied the request. Hugh Jones reported the concrete pad was a tight fit. He was concerned the Commission was making a precedent. The public hearing was closed. Attorney Smith reported if the Commission denies the request, the property will not be in compliance and the applicant would need to work with the Property Appraiser to get the two parcels put into one. The motion carried three to two, with Commissioners Cooley and Sherman voting no.

b. Consider application PSPE25-0001: for a special exception use to utilize the building at 2501 Moody Boulevard, Unit A as a church in the Highway Commercial Zoning District as provided for in the Land Development Regulations Section 2.04.02.8, Zoning Schedule One Land Use Controls. Applicant: Coastal Family Church Representative: Patrick Jordan Farrell. Ms. McClenning reported the church would like to move to Flagler Square in the building where Badcock Furniture was located. Because of the zoning, it is coming before the Commission for consideration. She reviewed the special exception criteria that apply to this application. Motion by Commissioner Mealy, seconded by Commissioner Sherman to approve application PSPE25-0001. The public hearing was opened. No comments were received. The public hearing was closed. The motion carried unanimously, after a roll call vote.

c. Ordinance 2024-23, and Ordinance of the City of Flagler Beach, Florida, amending the City of Flagler Beach Code of Ordinances, Appendix "A" "Land Development Regulations, Article V, "Development Design Standards" relating to certain fees and charges related to water service; providing for severability; providing for codification, conflicts and effective date - first reading. Attorney Smith read the title of the ordinance into the record. Attorney Smith reported the ordinance was reviewed by Finance Department and currently the City has the right to clear the meter but does not have an avenue to recoup the costs of clearing the meter. Sewer credits will be done one a year. Motion by Commissioner Belhumeur, seconded by Commissioner Sherman, to approve Ordinance 2024-23. The public hearing was opened. No comments were received. The public hearing was closed. The motion carried unanimously, after a roll call vote.

9. Staff Reports

a. City Attorney: Attorney Smith reported the Commission is still to fill out Form 1.

b. City Manager: Mr. Martin reported the City received one bid for the Pier Project. Mr. Perdomo is reviewing the proposal. He spoke about having a Christmas pot luck for those that are alone on Christmas Day. He asked for approval to use the Commission Room.

c. City Clerk: Reported she spoke to Luci Dance at the County regarding a joint meeting with the County and municipalities and the room is open on Feb 5 and 6. All members of the Commission were available on those dates. She reported there are three residents that have qualified as candidates: Commissioners Mealy and Sherman and John Cunningham.

10. Commission Comments

a. Commission comments, including reports from meetings attended.

Mayor King wished all a Merry Christmas. She reported on the Centennial logo that was received. She distributed three logos for the Commission to rank. Mr. Martin summarized a recent exchange with the Centennial Committee regarding the logo they provided. Commissioner Mealy was disappointed with the lack of inclusiveness the committee allowed. Mayor King recommended the City take over the Centennial Celebration. Commissioner Belhumeur spoke of the lack of communication between the committee and the City. Commissioner Cooley felt the logo presented does not represent or tie into the City's current logo. He felt the logos presented tonight were a better represented. Chairman Spradley did not see anything remotely tying into Flagler Beach and the email read like a take it or leave it letter. It was the consensus of the Commission to take over the Centennial Celebration. Logo A was the winning logo.

Commissioner Belhumeur would like the board application online to include how many Commission meetings attended. He spoke of the speed limit signs and would like to see them up in the area; parking incorrectly and the enforcement; alleys being worn out by contractors would like to hold the contractors accountable for the damage.

Commissioner Sherman attended the Florida League of Cities Conference in Orlando. He spoke that the legislature is tightening their belts. He spoke of a seminar he took regarding hurricane recovery efforts.

Commissioner Mealy attended a webinar. Citizens Academy announcement will be coming soon.

Commissioner Cooley asked if Code Enforcement would have a theme every month, similar to the Police Department. He suggested starting with "business signage."

Chairman Spradley spoke of the parade and the attendance. He was happy to see Chief Doughney back. Chairman Spradley is looking forward to New Years Eve and the Surf Board drop.

b. Public comments regarding items not on the agenda. Citizens are encouraged to speak. However, comments should be limited to three minutes. No comments were received. Public comment was closed.

11. Adjournment: Motion by Commissioner Belhumeur to adjourn the meeting at 9:00 p.m.

_____

Attest: Scott Spradley, Chairman

_____

Penny Overstreet, City Clerk

STAFF REPORT

Regular City Commission Meeting

January 09, 2025

To: Elected Officials

From: Penny Overstreet, City Clerk

Date: December 17, 2024

Item Name: Application OE-25-01-01 Request for an Annual Outdoor Entertainment Permit – The Cajun Beach – 1112 S. Ocean Shore Blvd. -Applicant – Patrick McKinney.

Background: Applicant: Cajun Beach/Flojun, LLC., 1112 S. Ocean Shore Blvd., Flagler Beach, Florida 32136. The Planning Board and City Commission denied the applicants request at their October 17, 2024 with the following motion. *Motion by Commissioner Mealy, seconded by Commissioner Belhumeur to deny the permit based upon criteria number five. The motion carried four to zero, with Commissioner Spradley recusing himself from the vote and filed a Form 8b.*

The subject property is zoned General Commercial G.C. The applicant is seeking approval of an Annual Outdoor Entertainment Permit to allow amplified and non-amplified events consisting of music, spoken word and/or other forms of entertainment. Section 4-167, Review of Permit Application states, the City Commission, after receiving recommendation from the Planning and Architectural Review Board (PARB), shall approve, approve with conditions, or deny a permit for outdoor entertainment activity based on any of the following grounds:

(1) The activity would present an adverse impact to the health, safety or welfare of the applicant, participants, public employees or members of the public and/or fails to protect the city's environment.

(2) The activity would unreasonably inconvenience the general public.

(3) The proposed activity is prohibited by or inconsistent with the Flagler Beach Code of Ordinances or the Flagler Beach Comprehensive Plan.

(4) The applicant cannot meet, or is unwilling to meet, all of the requirements of this article.

(5) The activity is proposed for a site that does not have adequate parking to accommodate the activity.

(6) The activity is proposed for a site that is inherently hazardous to the participants or the public.

(7) The event would have an adverse effect, and would unreasonably infringe upon, the rights of property owners within two hundred (200) feet of the property line of the subject property.

(8) The event would conflict with another proximate event or interfere with construction or maintenance work.

(9) The information furnished in the application is not materially complete and accurate.

(10) The applicant has violated a provision, restriction or condition of this article or an outdoor entertainment activity permit issued to the applicant within the past and has not presented competent substantial evidence that measures to prevent future violations will be implemented at the property.

(11)The requirements identified by the city staff to ensure public health, safety and welfare have not been met.

(12)The comments and/or recommendations of the planning and architectural review board have not been addressed.

(13)The proposed event or activity is prohibited by federal, state, or local regulations.

(14)Other issues in the public interest as identified by the city commission.

(a) In making a determination to approve a permit the city commission may limit the type and number of temporary structures and the duration of the activity including the hours and the number of days of the activity conducted to minimize any adverse impact caused by the activity.

The applicant questioned at the last review the Commission's decision to deny the request based on Criteria No. 5 "inadequate parking". It is staff's assumption that the applicants point of contention is there are other businesses with less parking that have permits. That is true. However, those businesses are in the Central Business District Exemption Area (see attached map, and section from the Land Development Regulations below)

Section 2.06.10.1 Central Business District Exemption Area.

(a) The following described area shall be known as the Central Business District Parking Exemption Area: A line commencing from the westerly right-of-way boundary of South Flagler Avenue at SR 100 going south to the centerline of South 5th Street then east on the centerline of South 5th Street, past South Central Avenue, then going south across the block to the point of the General Commercial Zoning, ending at the center line of South 10th Street, eastward to SR A1A and commencing from the middle of Flagler Avenue at SR 100 going north to the center line of North 3rd Street, then east to the point of the Commercial Zoning, then going north, ending at the centerline of North 10th Street, then east to SR A1A, according to the plat thereof recorded in Public Records of Flagler County, Florida.

I have attached the current list of Annual Outdoor Entertainment Permit holders, only one resides outside of the Central Business District, that is Oceanside Bar & Grill who have a total of 108 parking spaces on and off-site (aerial attached).

The applicant has 17 on-site parking spaces, and approximately 17 off-site for a total of 34.

I will provide an update with the PARB's recommendation after their January 7th meeting.

Staff Recommendation: After reviewing the application, testimony and recommendation from the Planning Board, motion to approve, approve with conditions, or deny the permit for outdoor entertainment activity based on the 14 criteria items from the Code of Ordinance.

Attachments:

- Application
- Map of surrounding property owners
- Complaints received since Applicant took over business.
- Central Business District Map
- Current list of Outdoor Entertainment Permit holders
- DBPR license print-out from Cajun Beach and Oceanside

OFFICE USE ONLY:	INSTRUCTIONS:	City of Flagler Beach
DATE REC'D _____	*Please print or type all information.* The application must be filled out accurately and completely. Answer all questions. Do not leave an item blank. If an item does not apply, write N/A (not applicable). Incomplete applications may delay your request. All statements made on the application are subject to verification.	APPLICATION FOR OUTDOOR ENTERTAINMENT
FEE REC'D $_____		
INITIALS: _____		
APPROVED ❑		
DISAPPROVED ❑		
SENT PARB ❑		
PERMIT ISSUED _____		

105 South 2nd Street,
Post Office Box 70
Flagler Beach, Florida 32136
Phone (386) 517-2000 Fax (386) 517-2008

Please type or print legibly
Required Information

Business Name: Cajun Beach / Flojan LLC

Contact Person: Patrick McKinney

Address: 1112 S Ocean Shore Blvd

City: Flagler Beach **State:** FL **Zip:** 32136

Work Phone: 386-338-3430 **Home Phone:** 386-344-2983

Fax: _____ **Mobile Phone:** 386-344-2983

E-Mail Address: Patrick@theCajunBeach.com

What type of permit are you applying for? (check one)

✓ **Annual Permit (permit fee = $150.00)**

_____ **Per event that occurs fewer than 12 times a year (permit fee = $75.00)**
(Please list dates and times for the events on the bottom of page 2)

_____ **One day event on Date_____ (permit fee = $50.00)**
Start time _____ am\pm End time _____am\pm

Will you utilize temporary structures at your event? ✓ **No** _____ **Yes**
(If yes, attach a sketch of the site showing the location of these structure and see note below)
(Indicate number of each)

_____**Stages** _____**Scaffolding** _____**Fences** _____ **Other**

_____**Tents** **Do any of the tents exceed 200 square feet ?** _____ **No** _____ **Yes**

Note: Special Permits are required for tents exceeding 200 square feet. Special Building permits are required for temporary structures 700 or more square feet in area and those that are four feet above grade.

PLEASE ATTACH A SITE PLAN REGARDING THE SET UP OF THE OUTDOOR ENTERTAINMENT. PLEASE ATTACH A CURRENT COPY OF YOUR LIABILITY INSURANCE TO THIS APPLICATION.

By signing below I understand:

- **This is an application only and does not obligate the City in any fashion to issuing a permit or approve an event.**
- **I have included my application fee and understand that my application will not be processed without the application fee.**
- **In no case shall the City's Noise Ordinance be violated.**
- **The City Manager may reasonably limit the type and number of temporary structures and the duration of the activity including the hours and the number of days of the activity conducted.**
- **The event(s) may not be held until a permit is received.**

Signature of Applicant _____ **Date** 12-2-24

Title of Applicant Managing Partner

Affiliation _____

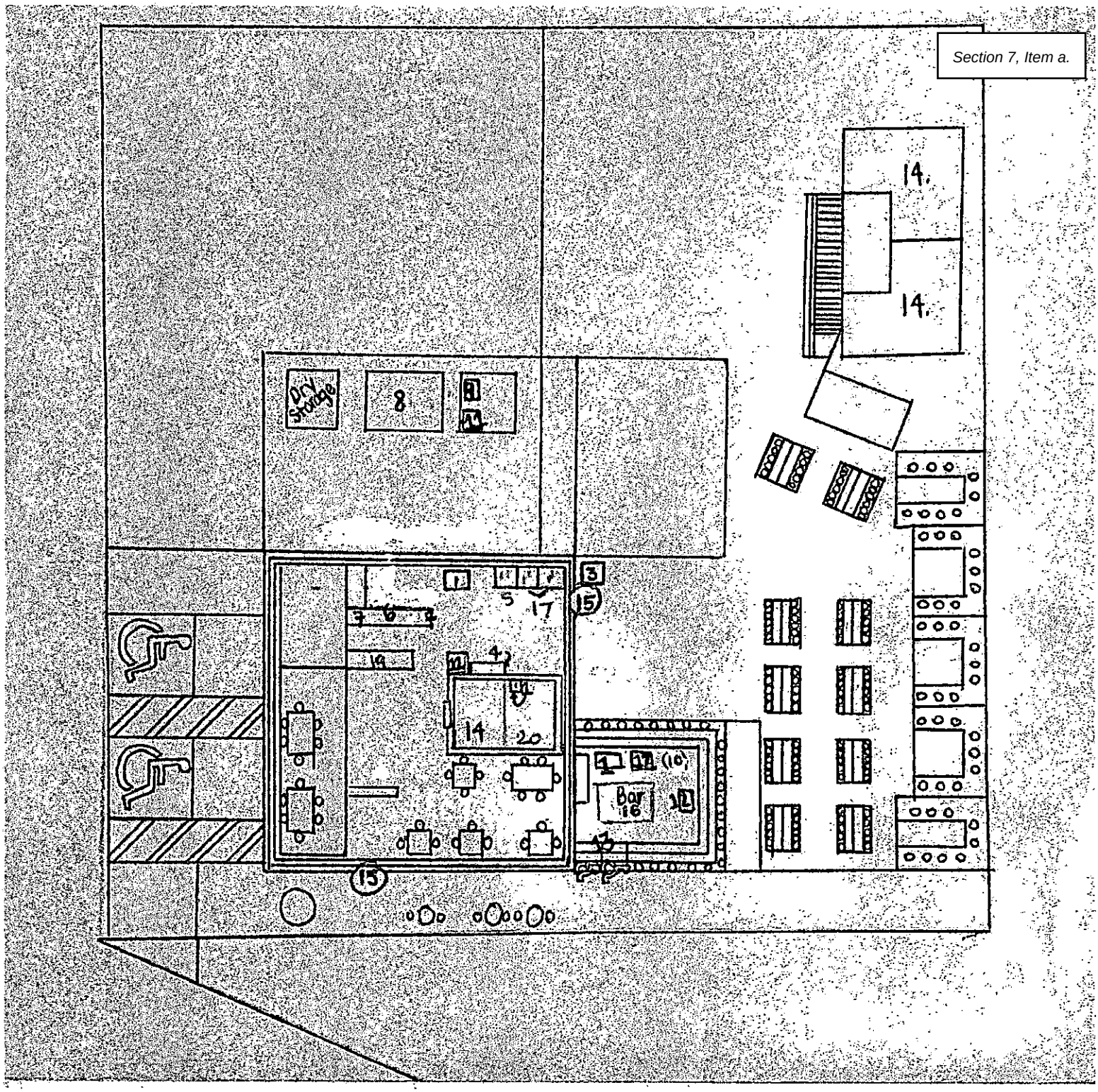
1. **Date**_____ **Start time** _____ **am\pm** **End time** _____**am\pm**
2. **Date**_____ **Start time** _____ **am\pm** **End time** _____**am\pm**
3. **Date**_____ **Start time** _____ **am\pm** **End time** _____**am\pm**
4. **Date**_____ **Start time** _____ **am\pm** **End time** _____**am\pm**
5. **Date**_____ **Start time** _____ **am\pm** **End time** _____**am\pm**
6. **Date**_____ **Start time** _____ **am\pm** **End time** _____**am\pm**
7. **Date**_____ **Start time** _____ **am\pm** **End time** _____**am\pm**
8. **Date**_____ **Start time** _____ **am\pm** **End time** _____**am\pm**
9. **Date**_____ **Start time** _____ **am\pm** **End time** _____**am\pm**
10. **Date**_____ **Start time** _____ **am\pm** **End time** _____**am\pm**
11. **Date**_____ **Start time** _____ **am\pm** **End time** _____**am\pm**
12. **Date**_____ **Start time** _____ **am\pm** **End time** _____**am\pm**

qPublic.net™ Flagler County, FL Property Appraisers Office

Parcel ID	12-12-31-4500-00180-0090	**Owner**	BCC PROPERTIES LLC PO BOX 418 FLAGLER BEACH, FL 32136	**Land Value**	$560,000	**Last 2 Sales**			
Prop ID	78663			**Ag Land Value**	$0	**Date**	**Price**	**Reason**	**Qual**
Class Code	RESTAURANT/CAFE					11/10/2014	$220000	I	U
Taxing District	21	**Physical Address**	1112 S OCEAN SHORE BLVD	**Building Value**	$45,386	4/20/2012	$255000	I	Q
GIS sqft	11,799.080			**Misc Value**	$5,402				
				Just Value	$610,788				
				Assessed Value	$505,755				
				Exempt Value	$0				
				Taxable Value	$505,755				

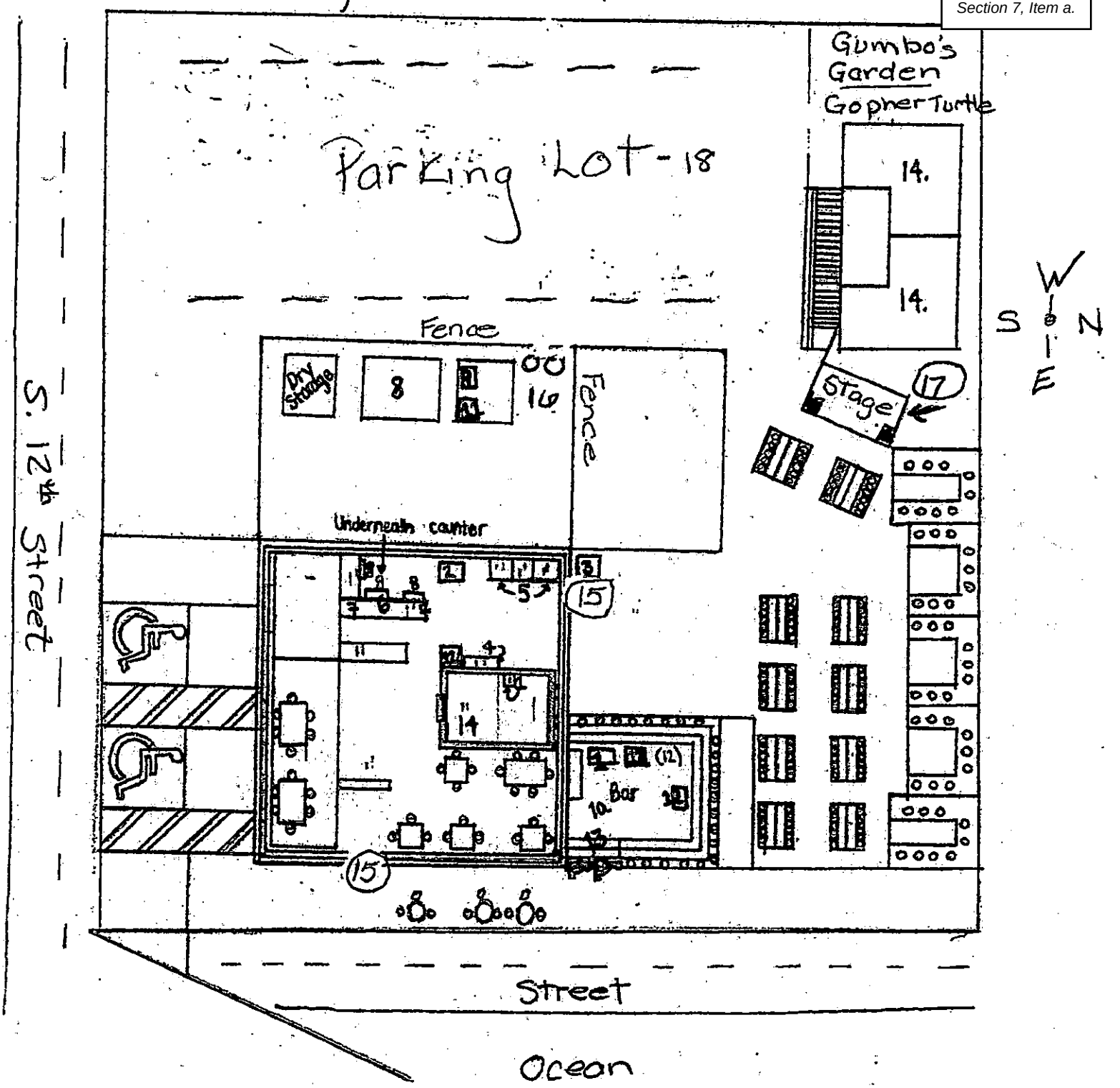
Date created: 2/15/2023
Last Data Uploaded: 2/15/2023 11:05:46 AM

Developed by Schneider GEOSPATIAL



1. Hand sinks
2. Food prepcration sinks
3. Mop sink
4. Warewashing sink
5. gas range oven
6. refrigeration
7. Preperation tables
8. Walk-in refrigerator
9. Freezers
10. Soda dispenser
11. Ice machine
12. Ice Bins
13. Wait service Station
14. Bathrooms
15. (Exits)
16. Locking Bar
17. Gas Freyers
18.
19.
20.

Cajun Beach Boil & Sushi



1. Hand sinks
2. Food preparation sinks
3. Mops sinks
4. Warewashing equipment
5. Cooking equipment
6. Food preparation equipment
7. Preparation tables
8. Refrigerators
9. Freezers
10. Bar equipment
11. Ice machines
12. Ice bins
13. Wait service stations
14. Bathrooms
15. Exits
16. Boil (2)
17. Stage - Speakers

FLAGLER COUNTY PROPERTY APPRAISER

Overview

Legend

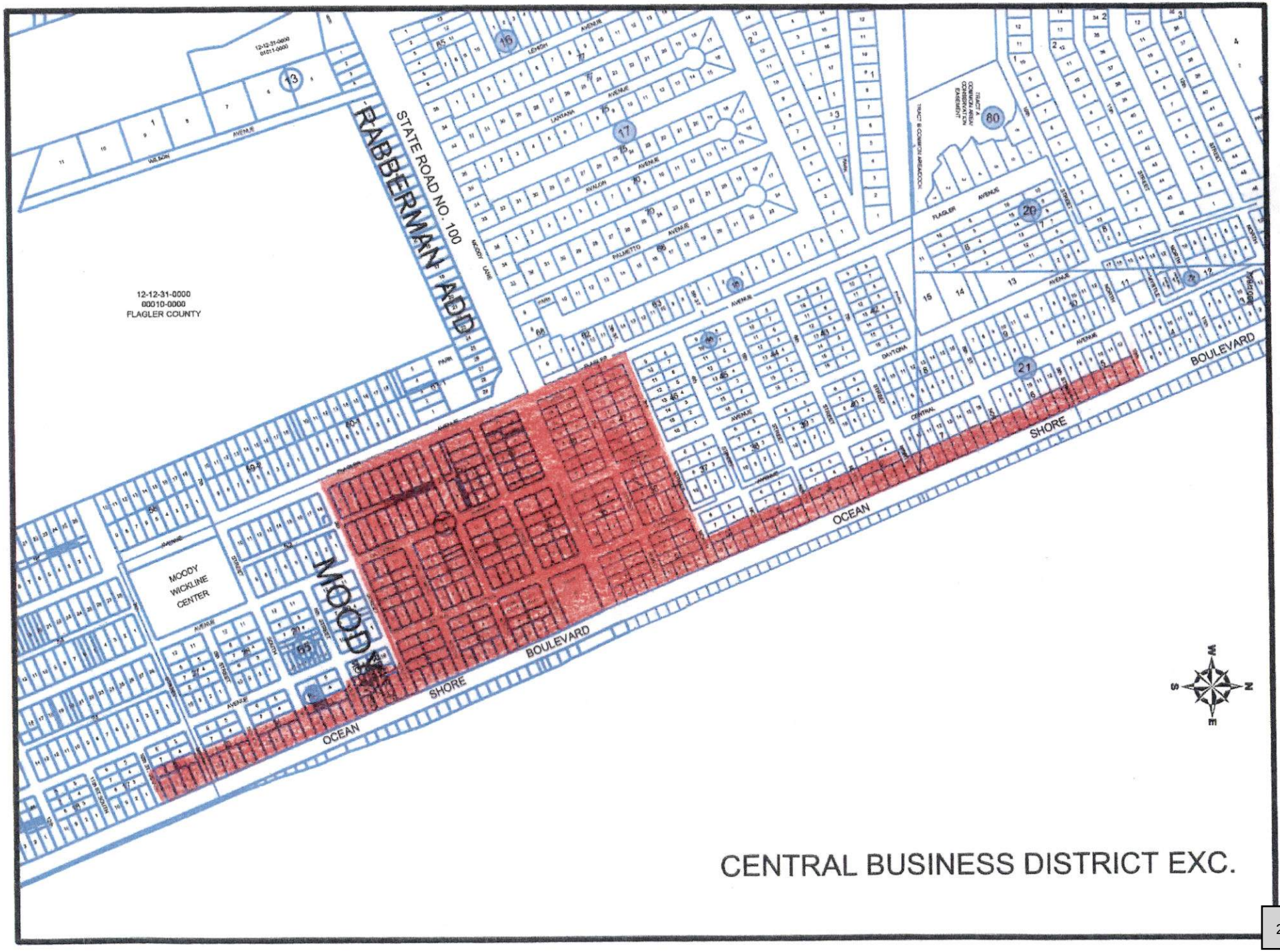
- Parcels
- Roads
- Streams and Rivers

Date created: 8/20/2024
Last Data Uploaded: 8/20/2024 8:28:25 AM

Developed by Schneider GEOSPATIAL

Outdoor Entertainment Permits Current 2024/2025

Establishments participating	Owner	Business Address	Owner Contact Number	Permit	Permit Issue Date & Type	Expires
Gallery of Local Art Complex	Barnhill Family Trust, Marge Barnhill	208 S. Central Ave	571-338-9480 m@valuecalc.com	Yes	Annual Permit No Temporary Structures	9/30/2025
Break Awayz @ the Beach	Tyler Ecker	819 North Ocean Shore Blvd.	386-503-1380 kyleecker@gmail.com	Yes	Annual Permit No Temporary Structures	9/30/2025
Finn's Beachside Pub	Darryl Mulvenna	101 N. A1A	386-503-9246 scottfox@live.com darmulv@yahoo.com	Yes	Annual Permit Temporary Structures included	9/30/2025
Flagler Beachfront Winery	Ken & Kelly Tarsitano	611 North Ocean Shore Blvd	e	Yes	Annual Permit No Temporary Structures	9/30/2025
Flagler Fish Co.	Carolyn Casper	180 S Daytona Ave	386-627-0696 flaglerfishandbeef@gmail.com	Yes	Annual Permit No Temporary Structures	9/30/2025
Golden Lion Café	Carolyn & Tony Marlow	500 N. Ocean Shore Blvd/ P.O. Box 2225	386-439-3004 accounting@goldenlioncafe.com	Yes	Annual Permit Temporary Structures included	9/30/2025
Oceanside Bar & Grill	Johnny or Tony Lulgjurai	1848 S. Ocean Shore Blvd	248-872-9814 oceansidebg@gmail.com	Yes	Annual Permit No Temporary Structures	9/30/2025
Tortugas	Jason Scott Fox	608 S. Ocean Shore Blvd	954-557-7386 scottfox369@live.com pdchestnut@gmail.com	Yes	Annual Permit No Temporary Structures	9/30/2025
SunBros Café	Travis Sundell	301 Moody Blvd	travis_sundell@yahoo.com	Yes	Annual Permit No Temporary Structures	9/30/2025
Flagler Sun & Seed	Truly Gil	105 N. Ocean Shore Blvd. Unit E	flaglersunandseed@gmail.com 386-371-8388	Yes	Annual Permit No Temporary Structures	9/30/2025


RABBERMAN ADD
STATE ROAD NO. 100
12-12-31-0000
00010-0000
FLAGLER COUNTY
MOODY WICKLINE CENTER
MOODY
OCEAN
SHORE
BOULEVARD
OCEAN
SHORE
BOULEVARD
CENTRAL BUSINESS DISTRICT EXC.

THE OFFICIAL SITE OF THE FLORIDA DEPARTMENT OF BUSINESS & PROFESSIONAL REGULATION

Florida dbpr Department of Business & Professional Regulation

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- Verify a Licensee
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- File a Complaint
- Continuing Education Course Search
- View Application Status
- Find Exam Information
- Unlicensed Activity Search
- AB&T Delinquent Invoice & Activity List Search

LICENSEE DETAILS

3:54:25 PM 12/16/2024

Licensee Information

Name:	**OCEANSIDE BOYS CORPORATION** (Primary Name)
	OCEANSIDE BEACH GRILL (DBA Name)
Main Address:	**1848 S OCEANSHORE BLVD FLAGLER BEACH Florida 32136**
County:	**FLAGLER**
License Mailing:	**PO BOX 1600 FLAGLER BEACH FL 32136**
County:	**FLAGLER**
License Location:	**1848 S OCEANSHORE BLVD FLAGLER BEACH FL 32136**
County:	**FLAGLER**

License Information

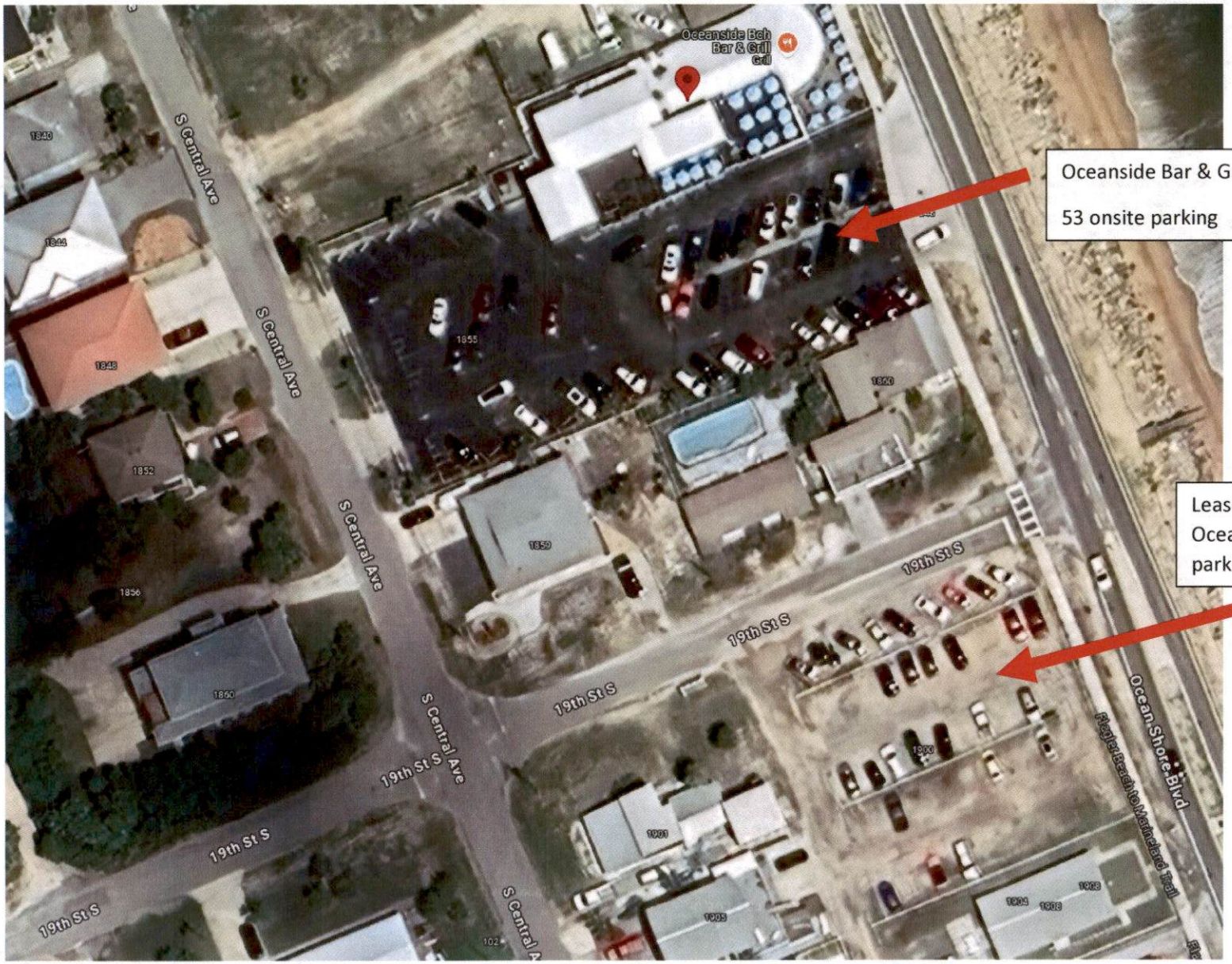
License Type:	**Permanent Food Service**
Rank:	**Seating**
License Number:	**SEA2800370**
Status:	**Current,Active**
Licensure Date:	**02/08/2016**
Expires:	**06/01/2025**

Special Qualifications	Qualification Effective
Plan Review	**12/08/2015**
Flagler JUN	
150-249 SEATS	
Risk Level 2	**07/26/2024**

Alternate Names

View Related License Information

View License Complaint


Oceanside Bch Bar & Grill Grill
S Central Ave
19th St S
Ocean Shore Blvd
Oceanside Bar & Grill
53 onsite parking
Leased lot for Oceanside off-site parking 55 spaces

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LICENSEE DETAILS

3:57:40 PM 12/16/2024

Licensee Information

Name:	FLOJUN LLC (Primary Name)
	THE CAJUN BEACH (DBA Name)
Main Address:	1112 S OCEAN SHORE BLVD FLAGLER BEACH Florida 32136
County:	FLAGLER
License Mailing:	5 RED TOP LN PALM COAST FL 32164
County:	FLAGLER
License Location:	1112 S OCEAN SHORE BLVD FLAGLER BEACH FL 32164
County:	FLAGLER

License Information

License Type:	Permanent Food Service
Rank:	Seating
License Number:	SEA2800877
Status:	Current,Active
Licensure Date:	07/24/2024
Expires:	06/01/2025

Special Qualifications	Qualification Effective
No Plan Review	07/22/2024
Flagler JUN	
1-49 SEATS	
Risk Level 2	12/05/2024

Alternate Names

View Related License Information
View License Complaint
View Recent Inspections

Incident Report

Print Date/Time: 12/16/2024 13:29
Login ID: sbuttner

Flagler Beach Police Department
ORI Number: FL0180200

Incident: 2024-00019224

Incident Date/Time:	10/17/2024 2:34:02 PM	**Incident Type:**	Noise Complaint
Location:	1112 S OCEAN SHORE BLVD Flagler Beach FL 32136	**Venue:**	Flagler Beach
Phone Number:		**Source:**	Phone
Report Required:	No	**Priority:**	Code 1
Prior Hazards:	No	**Status:**	Investigate
LE Case Number:		**Nature of Call:**	

Unit/Personnel

Unit	Personnel
BE10	7064-Yelvington
BE11	7069-Jones

Person(s)

No.	Role	Name	Address	Phone	Race	Sex	DOB

Vehicle(s)

Role	Type	Year	Make	Model	Color	License	State

Disposition(s)

Disposition	Count	Date/Time

Unit: BE10

Disposition	Count	Date/Time
AT1	1	10/17/2024 15:04

Unit: BE11

Disposition	Count	Date/Time
AT9	1	10/17/2024 15:01

Property

Date	Code	Type	Make	Model	Description	Tag No.	Item No.

CAD Narrative

10/17/2024 : 15:03:52 ayelvington Narrative: business had a speaker IFO the building playing 92.7. it was pointed towards the ocean and the music was only loud when you were on the east side of the building. owner was advised that he could not have the music playing & to address this at his hearing tonight. owner stated he had booked 92.7 to be here several months ago thinking he would already have his outdoor music permit. his hearing was canceled last week due to the storm. he was advised to turn off the music & he did so. axon uploaded.

Incident Report

Print Date/Time: 09/27/2024 10:06
Login ID: sbuttner

Flagler Beach Police Department
ORI Number: FL0180200

Incident: 2024-00017560

Incident Date/Time:	9/20/2024 9:26:05 PM	**Incident Type:**	Noise Complaint
Location:	1112 S OCEAN SHORE BLVD Flagler Beach FL 32136	**Venue:**	Flagler Beach
Phone Number:	(561)716-7397	**Source:**	Phone
Report Required:	No	**Priority:**	Code 1
Prior Hazards:	No	**Status:**	Investigate
LE Case Number:		**Nature of Call:**	

Unit/Personnel

Unit	Personnel
BE20	7058-Bingham
BE21	7085-Coffman

Person(s)

No.	Role	Name	Address	Phone	Race	Sex	DOB
1	Caller	WOTHERSPOON, BRENDA		(561)716-7397			

Vehicle(s)

Role	Type	Year	Make	Model	Color	License	State

Disposition(s)

Disposition	Count	Date/Time

Unit: BE20

Disposition	Count	Date/Time
AT1	1	09/20/2024 21:38

Property

Date	Code	Type	Make	Model	Description	Tag No.	Item No.

CAD Narrative

09/20/2024 : 21:38:17 JBingham Narrative: UPON ARRIVAL NO BAND PLAYING AND STAGE WAS DARK. CONTACT WAS MADED WITH STAFF AND THEY ADVISED THEY CNAT HAVE LIVE MUSIC UNTIL THEY GET A PERMIT. HOPING TO HAVE PERMIT BY 10-12-24. THEY DID HAVE A STEREO PLAYING AND SAID THEY WOULD TURN IT DOWN (STEREO WAS HARDLY AUDIBLE FROM ME SHOP OUTBACK. NO VIOLATION NOTED, NO POLICE ACTION NEEDED.
09/20/2024 : 21:28:03 wzuazua Narrative: RP SAID SHE DOES NOT NEED A CB BECAUSE SHE WILL BE PICKING UP THE REPORT OF THE WRITTEN CITATION WHEN IT BECOMES AVAILABLE
09/20/2024 : 21:27:06 wzuazua Narrative: RP IS REQUESTING A CITATION AND NO JUST A CALL
09/20/2024 : 21:26:37 wzuazua Narrative: DONT HAVE A MUSIC PERMIT BUT PLAYING MUSIC BEHIND THE BAR

Case Report

Summary

Print Date/Time: 09/27/2024 10:10
Login ID: sbuttner
Case Number: 2024-00014205

Flagler Beach Police Department
ORI Number: FL0180200

Case

Case Number: 2024-00014205
Location: 1112 S OCEAN SHORE BLVD
Flagler Beach, FL 32136
Reporting Officer ID: 7082 - Nobre

Incident Type: Information
Occurred From: 08/02/2024 12:30
Occurred Thru: 08/02/2024 12:30
Disposition: Non Criminal
Disposition Date: 08/02/2024
Reported Date: 08/02/2024 12:30 Friday

Offenses

No.	Group/ORI	Crime Code	Statute	Description	Counts

Subjects

Type	No.	Name	Address	Phone	Race	Sex	DOB/Age
Other	1	MCKINNEY, PATRICK	1 WINCHESTER PL Palm Coast, FL 32164	(386)344-2983	BLACK/AFRICAN AMERICAN	Male	07/07/1968 56
Other	2	REEVES, ATHENA JACQUELINE	820 BRIGHTVIEW DR LAKE MARY, FL 32746		WHITE	Female	04/19/1980 44

Arrests

Arrest No.	Name	Address	Date/Time	Type	Age

Property

Date	Code	Type	Make	Model	Description	Tag No.	Item No.

Vehicles

No.	Role	Vehicle Type	Year	Make	Model	Color	License Plate	State

OfficerID: SNobre, Case Narrative

Information Report

On August 2, 2024, at approximately 1230 hours, I, Sgt. Nobre, made contact with the co-owner of Cajun Boil and Sushi, Athena Reeves. I advised her that they currently do no have a Outdoor Entertainment Permit through the City of Flagler Beach, to have outside live music. I advised all outdoor entertainment must cease immediately. I informed her that the permit that they used to have does not transfer with the new owners, and they must apply for a new one. Reeves advised she understood and was cooperative.

Nothing further to report.

Case closed; information report.

STAFF REPORT

Regular City Commission Meeting

January 9, 2024

To: Elected Officials

From: Dale L. Martin, City Manager

Date: January 9, 2025

Item Name: Resolution 2024-XX. A Resolution by the City Commission of the City of Flagler Beach, to award Bid No. FB-24-1021 Project # 570 City of Flagler Beach South Central Water Main Replacement to All State Civil Construction, Inc. in the amount of $610,409.00, providing for conflict and an effective date.

Background: The City of Flagler Beach operates and maintains the potable water system. Much of which was originally installed many years ago. Over the course of years, the underground pipes deteriorate, reducing reliability and water quality. With technological advances in pipe material and construction, City staff recommends replacement of obsolete water mains with newer pipes, especially in conjunction with other projects.

The opportunity to replace a key water main is possible in conjunction with the construction of the Compass Hotel. A significant water main runs the length of S. Central Avenue, from Moody Boulevard south to S. 28th Street. The first phase of replacing the entire S. Central Avenue water main is being coordinated with other S. Central Avenue improvements planned by the hotel developer (street resurfacing, parking reconfiguration). With this coordination, City staff solicited Bid No. 24-1021 to replace a portion of the S. Central Avenue water main, from Moody Boulevard to S. 3rd Street. This proposed project will replace approximately 500 feet of obsolete pipe with a new pipe. A bid additive to include additional exploratory excavation, additional water main infrastructure, concrete and pavement restoration, and parking paver removal/replacement was also presented to interested contractors.

This project was advertised on November 14, 2024 and the bids were opened on November 14: seven bids were submitted, the base bids ranged from $6536,391.71 to $698,757. A bid alternate to include additional exploratory excavation, additional water main infrastructure, concrete and pavement restoration, and parking paver removal/replacement was also presented to interested contractors. Combined bids ranged from $610,409.00 to 786,567.00.

City staff has determined that the lowest responsive bidder is All State Civil Construction, Inc. of Daytona Beach, FL. Mead & Hunt staff (an engineering consultant for the City) has reviewed and checked the submitted references and advised City staff of their recommendations.

Fiscal Impact: The proposed project (designated Project # 570) is included in the City's Capital Funding Plan for the current fiscal year. The appropriate funds will be drawn from the Utility Infrastructure Reserve.

Staff Recommendation: Staff recommends approval of Resolution 2024-

Attachments: Resolution 2025-XX

RESOLUTION 2025-01

A RESOLUTION OF THE CITY OF FLAGLER BEACH, FLORIDA, TO AWARD BID NO. FB-24-1021 PROJECT # 570 CITY OF FLAGLER BEACH SOUTH CENTRAL WATER MAIN REPLACEMENT TO ALL STATE CIVIL CONSTRUCTION, INC. IN AN AMOUNT NOT TO EXCEED $610,409.00; PROVIDING FOR CONFLICT AND AN EFFECTIVE DATE.

WHEREAS, The City's infrastructure is aging and with the construction of the hotel opportunity availed to replace a key water main; and,

WHEREAS, the City solicited bids through FB-24-1021 to replace a portion of the S. Central Avenue water main, from Moody Boulevard to S. 3rd Street, receiving seven bids from qualified contractors; and,

WHEREAS, after review by staff and consultant it was determined the lowest most responsive bid and alternate was received from All State Civil Construction.

NOW THEREFORE BE IT RESOLVED BY THE CITY COMMISSION OF THE CITY OF FLAGLER BEACH, AS FOLLOWS:

SECTION 1. The City of Flagler Beach City Commission Award Bid No. FB-24-1021 in an amount not to exceed $610,409.00 for the base and alternate bid to All State Civil construction.

SECTION 2. The City Commission authorizes staff to issue a Notice to Proceed to the contractor.

SECTION 3. All resolutions or parts of resolutions in conflict herewith be and the same are hereby repealed.

SECTION 4. This Resolution shall become effective immediately upon passage as provided by law.

PASSED AND ADOPTED THIS 9th DAY OF JANUARY, 2025.

CITY OF FLAGLER BEACH, FLORIDA
CITY COMMISSION

ATTEST:

_____
Patti King, Mayor

_____
Penny Overstreet, City Clerk

Member Name
Bid Number
Bid Name

4 Document(s) found for this bid

28 Planholder(s) found

SupplierName	Bid	Alternate 1	Bid Bond or Cashiers Check	Email	City	State	PostalCode
4C'S TRUCKING & EXCAVATION, INC	536,391.71	84,594.67	Cashiers Ck. $30k	Chelsea@4csconstruction.com	BUNNELL	FL	32110
All States Civil Construction	541,409.00	71,700.00	5% of Bid Bond		Daytona Beach		
Accurate Drilling Systems, Inc.				Bids@accuratedrilling.com	Labelle	FL	33935
American Construction Services Inc.				Carla.Boyce@americancsi.com	Tampa	FL	33619
Atlantic Traffic Solutions				mmills@atlantictrafficsolutions.com	Deland	FL	32720
Black Sands Development Group, PLLC				blacksandsdg@outlook.com	Daytona Beach	FL	32117
Bob's Barricades				jbaldwin@bobsbarricades.com	Sunrise	FL	33326
ConstructConnect				content@constructconnect.com	Cincinnati	OH	45209
Core & Main				benjamin.strasser@coreandmain.co	Cocoa	FL	32926
Crossroads Site Development LLC				crossroadsdu@aol.com	Ormond Beach	FL	32176
Clear Water Solutions	848,928.90	103,315.18	5% of Bid Bond	ray.mccloskey@clearwatersol.com	Ocala	FL	34479
Daniel C. Kessler LLC				lkessler@dverusa.com	Bunnell	FL	32110
DB Civil Construction	644,300.00	96,850.00	5% of Bid Bond	estimating@DBcivilconstruction.com	St Augustine	FL	32086
Dodge Data				dodge.docs@construction.com	Arlington	TX	76018
Ferguson Enterprises, LLC dba. Ferguson Waterworks				Michael.Catalano@Ferguson.com	Orlando	FL	32904
General Underground				chrisbrown@generalunderground.co	Chiefland	FL	32744
Hayes Pipe Supply, Inc.				lorit@hayespipe.com	Nashville	TN	37210
Hazen Construction	737,237.00	88,649.00	5% of Bid Bond	marniehazen@hazenconstruction.ne	New Smyrna Beach	FL	32168
Kimley-Horn and Associates, Inc.				Florida.marketing@kimley-horn.com	Orlando	FL	32708
MASCI				masciestimate@mascigc.com	Port Orange	FL	32127
McMahan Construction Co., Inc.				dkellogg@mcmahanfl.com	Deland	FL	32724
Mead & Hunt, Inc.				lauren.engle@meadhunt.com	Arlington	TX	76017
Onvia, Inc. - Content Department				sourcingsupport@deltek.com	Seattle	WA	98101
Paveway Systems, Inc.				t.albright@pavewaysystems.com	Florahome	FL	32140
Prime Construction Group, Inc.				estimating@pcginc.org	Orlando	FL	32824
Southeastern Surveying and Mapping Corporation				marketing@ssmc.us	Orlando	FL	32810
Synergy Equipment				mmartinko@synergyequip.com	Saint Augustine	FL	32086
T B Landmark Construction	948,130.22	145,375.00	5% of Bid Bond	estimating@tblandmark.com	Jacksonville	FL	32226
ThadCon LLC.	698,757.00	87,810.00	5% of Bid Bond	thadcontreys@aol.com	Daytona Beach	FL	32114
A							

December 4, 2024

Chris Novak
City of Flagler Beach
105 S. 2nd Street
Flagler Beach, FL 32136

Email: cnovak@cityofflaglerbeach.com

RE: SOUTH CENTRAL WATER MAIN REPLACEMENT
BID NO. FB-24-1021

Dear Ms. Novak,

The City received seven (7) bids on the above referenced project on November 14, 2024. The bid consisted of a base bid (water main replacement from SR100 to S 3rd) and one additive alternate bid item (damaged valve removal/replacement at S 3rd). See attached bid tabulation. 4C's Trucking & Excavation of Bunnell (4Cs) submitted the lowest base bid of $536,391.71 and All State Civil Construction, Inc. of Daytona Beach (All State) submitted the lowest combined (base + alternate) of $610,409.00.

We have reviewed both 4C's and All State's submitted bid documents for completeness and accuracy and found both bids to be complete and accurate. Both contractors have active State contracting licenses which are in good standing with no active complaints.

Our firm has had positive experience with both contractors. 4C's has successfully completed projects for the City. We also attempted to obtain information from the three references provided by each contractor. Only one of the three 4C's references responded to our request; that response was positive. All three of All State's references responded; all responses were positive. Based on our direct experience and the references, we believe both contractors have the necessary experience and ability to successfully complete this project.

Therefore, we recommend the City award the project to 4C's Trucking and Excavation in the amount of $536,391.71 if the base bid only is to be awarded, or to All State Civil Construction, Inc. in the amount of $610,409.00 if the combined bid (base + alternate) is to be awarded.

Do not hesitate to contact the office if you have questions or need additional information.

Sincerely,

Cassandra Cissell

Cassandra 'Casey' Cissell
Project Manager

CC;bf
Attachment: Bid Tabulation

cc: Bill Freeman, City of Flagler Beach

CITY OF FLAGLER BEACH
SOUTH CENTRAL WATER MAIN REPLACEMENT
BID NO. FB-24-1021

				4C'S TRUCKING & EXCAVATION, INC. Bunnell, FL		ALL STATE CIVIL CONSTRUCTION, INC. Daytona Beach, FL		DB CIVIL CONSTRUCTION, LLC Saint Augustine FL		THADCON, LLC Daytona Beach, FL		HAZEN CONSTRUCTION New Smyrna Beach, FL		CLEARWATER SOLUTIONS, LLC Ocala, FL		TB LANDMARK CONSTRUCTION, INC. Jacksonville, FL	
BASE BID																	
ITEM NO.	**DESCRIPTION**	**QTY**	**UNIT**	**UNIT COST**	**TOTAL**	**UNIT COST**	**TOTAL**	**UNIT COST**	**TOTAL**	**UNIT COST**	**TOTAL**	**UNIT COST**	**TOTAL**	**UNIT COST**	**TOTAL**	**UNIT COST**	**TOTAL**
1	**Mobilization/Demobilization**	1	LS	$ 42,000.42	$ 42,000.42	$ 58,000.00	$ 58,000.00	$ 55,000.00	$ 55,000.00	$ 79,500.00	$ 79,500.00	$ 33,214.00	$ 33,214.00	$ 62,500.00	$ 62,500.00	$ 82,000.00	$ 82,000.00
2	**Pre-Construction Video**	1	LS	$ 2,587.50	$ 2,587.50	$ 2,800.00	$ 2,800.00	$ 900.00	$ 900.00	$ 1,500.00	$ 1,500.00	$ 2,250.00	$ 2,250.00	$ 1,741.60	$ 1,741.60	$ 550.00	$ 550.00
3	**Erosion Control and Pollution Abatement**	1	LS	$ 5,000.20	$ 5,000.20	$ 1,890.00	$ 1,890.00	$ 8,000.00	$ 8,000.00	$ 10,000.00	$ 10,000.00	$ 8,657.00	$ 8,657.00	$ 7,690.16	$ 7,690.16	$ 5,600.00	$ 5,600.00
4	**Maintenance of Traffic**	1	LS	$ 17,853.75	$ 17,853.75	$ 28,950.00	$ 28,950.00	$ 16,000.00	$ 16,000.00	$ 49,980.00	$ 49,980.00	$ 54,397.00	$ 54,397.00	$ 18,212.18	$ 18,212.18	$ 9,000.00	$ 9,000.00
5	**Survey Layout**	1	LS	$ 7,518.13	$ 7,518.13	$ 10,650.00	$ 10,650.00	$ 15,000.00	$ 15,000.00	$ 25,000.00	$ 25,000.00	$ 18,355.00	$ 18,355.00	$ 7,839.28	$ 7,839.28	$ 7,500.00	$ 7,500.00
6	**Furnish & Install C900 PVC Water Main**																
a	4"	70	LF	$ 83.47	$ 5,842.90	$ 40.00	$ 2,800.00	$ 200.00	$ 14,000.00	$ 88.00	$ 6,160.00	$ 186.00	$ 13,020.00	$ 108.17	$ 7,571.90	$ 230.00	$ 16,100.00
b	6"	25	LF	$ 78.57	$ 1,964.25	$ 60.00	$ 1,500.00	$ 300.00	$ 7,500.00	$ 175.00	$ 4,375.00	$ 197.00	$ 4,925.00	$ 153.58	$ 3,839.50	$ 224.00	$ 5,600.00
c	8"	560	LF	$ 118.68	$ 66,460.80	$ 70.00	$ 39,200.00	$ 125.00	$ 70,000.00	$ 102.00	$ 57,120.00	$ 122.00	$ 68,320.00	$ 124.77	$ 69,871.20	$ 204.00	$ 114,240.00
7	**Furnish & Install C900 PVC Reclaim Main**																
a	8"	700	LF	$ 99.85	$ 69,895.00	$ 70.00	$ 49,000.00	$ 122.00	$ 85,400.00	$ 88.00	$ 61,600.00	$ 97.00	$ 67,900.00	$ 107.36	$ 75,152.00	$ 242.00	$ 169,400.00
8	**Resilient Seat Gate Valve and Box**																
a	8"	7	EA	$ 3,574.95	$ 25,024.65	$ 6,850.00	$ 47,950.00	$ 3,800.00	$ 26,600.00	$ 4,990.00	$ 34,930.00	$ 3,266.00	$ 22,862.00	$ 3,279.25	$ 22,954.75	$ 6,286.00	$ 44,002.00
b	4"	2	EA	$ 2,353.72	$ 4,707.44	$ 2,200.00	$ 4,400.00	$ 2,200.00	$ 4,400.00	$ 3,950.00	$ 7,900.00	$ 2,112.00	$ 4,224.00	$ 2,215.53	$ 4,431.06	$ 3,000.00	$ 6,000.00
c	2"	2	EA	$ 1,838.63	$ 3,677.26	$ 1,800.00	$ 3,600.00	$ 1,500.00	$ 3,000.00	$ 2,250.00	$ 4,500.00	$ 1,968.00	$ 3,936.00	$ 1,791.28	$ 3,582.56	$ 2,250.00	$ 4,500.00
9	**Fire Hydrant Assembly (Remove and Replace)**	1	EA	$ 11,114.81	$ 11,114.81	$ 14,589.00	$ 14,589.00	$ 6,000.00	$ 6,000.00	$ 9,875.00	$ 9,875.00	$ 13,877.00	$ 13,877.00	$ 8,931.68	$ 8,931.68	$ 17,800.00	$ 17,800.00
10	**Tie-Ins (including Tapping Sleeve and Valve)**																
a	16"x 8"	1	EA	$ 9,295.22	$ 9,295.22	$ 13,030.00	$ 13,030.00	$ 13,000.00	$ 13,000.00	$ 9,997.00	$ 9,997.00	$ 19,741.00	$ 19,741.00	$ 15,472.09	$ 15,472.09	$ 15,000.00	$ 15,000.00
b	8" x 8"	1	EA	$ 8,745.19	$ 8,745.19	$ 10,360.00	$ 10,360.00	$ 10,000.00	$ 10,000.00	$ 9,500.00	$ 9,500.00	$ 18,934.00	$ 18,934.00	$ 12,117.35	$ 12,117.35	$ 14,500.00	$ 14,500.00
c	2"	2	EA	$ 4,702.78	$ 9,405.56	$ 1,850.00	$ 3,700.00	$ 4,000.00	$ 8,000.00	$ 3,500.00	$ 7,000.00	$ 16,028.00	$ 32,056.00	$ 1,007.49	$ 2,014.98	$ 3,750.00	$ 7,500.00
11	**Line Stop**																
a	8"	4	EA	$ 12,531.22	$ 50,124.88	$ 13,560.00	$ 54,240.00	$ 22,000.00	$ 88,000.00	$ 9,575.00	$ 38,300.00	$ 11,326.00	$ 45,304.00	$ 6,561.67	$ 26,246.68	$ 17,300.00	$ 69,200.00
12	**Ductile Iron Fittings - Add or Delete**	1	TN	$ 32,742.63	$ 32,742.63	$ 20,000.00	$ 20,000.00	$ 15,000.00	$ 15,000.00	$ 7,500.00	$ 7,500.00	$ 7,288.00	$ 7,288.00	$ 27,623.37	$ 27,623.37	$ 77,300.00	$ 77,300.00
13	**Blow-Off Assembly**	1	EA	$ 3,151.71	$ 3,151.71	$ 4,750.00	$ 4,750.00	$ 3,000.00	$ 3,000.00	$ 2,900.00	$ 2,900.00	$ 3,413.00	$ 3,413.00	$ 3,372.67	$ 3,372.67	$ 2,000.00	$ 2,000.00
14	**Potable Water Services**	5	EA	$ 2,990.55	$ 14,952.75	$ 2,300.00	$ 11,500.00	$ 1,900.00	$ 9,500.00	$ 3,950.00	$ 19,750.00	$ 5,835.00	$ 29,175.00	$ 3,015.47	$ 15,077.35	$ 2,500.00	$ 12,500.00
15	**Reclaim Water Services**	5	EA	$ 2,990.55	$ 14,952.75	$ 2,170.00	$ 10,850.00	$ 1,900.00	$ 9,500.00	$ 3,950.00	$ 19,750.00	$ 5,652.00	$ 28,260.00	$ 3,103.49	$ 15,517.45	$ 2,500.00	$ 12,500.00
16	**Mill and Resurface (1 1/2")**	1100	SY	$ 49.68	$ 54,648.00	$ 35.00	$ 38,500.00	$ 40.00	$ 44,000.00	$ 69.00	$ 75,900.00	$ 103.00	$ 113,300.00	$ 224.82	$ 247,302.00	$ 85.00	$ 93,500.00
17	**Open Cut/Replace Base/Seal**	320	SY	$ 52.52	$ 16,806.40	$ 45.00	$ 14,400.00	$ 90.00	$ 28,800.00	$ 95.00	$ 30,400.00	$ 83.00	$ 26,560.00	$ 77.83	$ 24,905.60	$ 236.00	$ 75,520.00
18	**Open Cut/Repair Asphalt**	610	SY	$ 45.71	$ 27,883.10	$ 60.00	$ 36,600.00	$ 100.00	$ 61,000.00	$ 98.00	$ 59,780.00	$ 115.00	$ 70,150.00	$ 196.63	$ 119,944.30	$ 86.00	$ 52,460.00

19	**Concrete Curb (Remove and Replace)**	35	LF	$ 41.25	$ 1,443.75	$ 80.00	$ 2,800.00	$ 120.00	$ 4,200.00	$ 69.00	$ 2,415.00	$ 45.00	$ 1,575.00	$ 162.13	$ 5,674.55	$ 100.00	$ 3,500.00
20	**Patterned Pavers (Remove and Replace)**	175	SY	$ 152.52	$ 26,691.00	$ 250.00	$ 43,750.00	$ 200.00	$ 35,000.00	$ 275.00	$ 48,125.00	$ 146.00	$ 25,550.00	$ 177.04	$ 30,982.00	$ 160.00	$ 28,000.00
21	**As-builts**	1	LS	$ 1,901.66	$ 1,901.66	$ 8,900.00	$ 8,900.00	$ 3,500.00	$ 3,500.00	$ 15,000.00	$ 15,000.00	$ 9,994.00	$ 9,994.00	$ 8,360.64	$ 8,360.64	$ 2,358.22	$ 2,358.22
			Total Base Bid	**$ 536,391.71**		**$ 538,709.00**		**$ 644,300.00**		**$ 698,757.00**		**$ 747,237.00**		**$ 848,928.90**		**$ 948,130.22**	
	BID ALTERNATE 1																
ITEM NO.	**DESCRIPTION**	**QTY**	**UNIT**	**UNIT COST**	**TOTAL**	**UNIT COST**	**TOTAL**	**UNIT COST**	**TOTAL**	**UNIT COST**	**TOTAL**	**UNIT COST**	**TOTAL**	**UNIT COST**	**TOTAL**	**UNIT COST**	**TOTAL**
1A	**Exploratory Excavation**	1	LS	$ 13,677.01	$ 13,677.01	$ 9,300.00	$ 9,300.00	$ 8,000.00	$ 8,000.00	$ 7,500.00	$ 7,500.00	$ 10,904.00	$ 10,904.00	$ 4,423.66	$ 4,423.66	$ 20,000.00	$ 20,000.00
2A	**Line Stop**																
a	12"	2	EA	$ 17,701.34	$ 35,402.68	$ 15,250.00	$ 30,500.00	$ 24,000.00	$ 48,000.00	$ 18,500.00	$ 37,000.00	$ 16,175.00	$ 32,350.00	$ 11,246.83	$ 22,493.66	$ 33,000.00	$ 66,000.00
3A	**Side Actuated Gate Valve and Box**																
a	12"	1	EA	$ 11,730.88	$ 11,730.88	$ 15,600.00	$ 15,600.00	$ 16,000.00	$ 16,000.00	$ 14,000.00	$ 14,000.00	$ 9,055.00	$ 9,055.00	$ 13,115.76	$ 13,115.76	$ 17,900.00	$ 17,900.00
4A	**Pervious Parking Grid Pavers (Remove and Replace)**	40	SY	$ 217.06	$ 8,682.40	$ 50.00	$ 2,000.00	$ 100.00	$ 4,000.00	$ 200.00	$ 8,000.00	$ 285.00	$ 11,400.00	$ 165.69	$ 6,627.60	$ 200.00	$ 8,000.00
5A	**Mill and Resurface (1 1/2")**	120	SY	$ 63.83	$ 7,659.60	$ 35.00	$ 4,200.00	$ 40.00	$ 4,800.00	$ 83.00	$ 9,960.00	$ 103.00	$ 12,360.00	$ 212.01	$ 25,441.20	$ 135.00	$ 16,200.00
6A	**Open Cut/Repair Asphalt**	55	SY	$ 58.23	$ 3,202.65	$ 60.00	$ 3,300.00	$ 90.00	$ 4,950.00	$ 95.00	$ 5,225.00	$ 148.00	$ 8,140.00	$ 225.90	$ 12,424.50	$ 130.00	$ 7,150.00
7A	**Concrete Curb (Remove and Replace)**	55	LF	$ 41.25	$ 2,268.75	$ 80.00	$ 4,400.00	$ 120.00	$ 6,600.00	$ 65.00	$ 3,575.00	$ 18.00	$ 990.00	$ 162.64	$ 8,945.20	$ 105.00	$ 5,775.00
8A	**Concrete Driveway/Sidewalks (Remove and Replace)**	30	SY	$ 65.69	$ 1,970.70	$ 80.00	$ 2,400.00	$ 150.00	$ 4,500.00	$ 85.00	$ 2,550.00	$ 115.00	$ 3,450.00	$ 328.12	$ 9,843.60	$ 145.00	$ 4,350.00
			Total Bid Alternate 1	**$ 84,594.67**		**$ 71,700.00**		**$ 96,850.00**		**$ 87,810.00**		**$ 88,649.00**		**$ 103,315.18**		**$ 145,375.00**	
			GRAND TOTAL BASE BID + ALTERNATE	**$ 620,986.38**		**$ 610,409.00**		**$ 741,150.00**		**$ 786,567.00**		**$ 835,886.00**		**$ 952,244.08**		**$ 1,093,505.22**	

	Total Bid Alternate 1			**$ 84,594.67**		**$ 71,700.00**		**$ 96,850.00**		**$ 87,810.00**		**$ 88,649.00**		**$ 103,315.18**		**$ 145,375.00**	
	GRAND TOTAL BASE BID + ALTERNATE			**$ 620,986.38**		**$ 610,409.00**		**$ 741,150.00**		**$ 786,567.00**		**$ 835,886.00**		**$ 952,244.08**		**$ 1,093,505.22**	

AIA® Document A310™ – 2010

Bid Bond

CONTRACTOR:
(Name, legal status and address)

All State Civil Construction, Inc.
1301 Beville Road, Suite 16
Daytona Beach, FL 32119

SURETY:
(Name, legal status and principal place of business)

The Gray Casualty & Surety Company
P.O. Box 6202
Metairie, LA 70009-6202

OWNER:
(Name, legal status and address)

City of Flagler Beach
105 S. 2nd Street
Flagler Beach, FL 32136

BOND AMOUNT: $ Five Percent of Attached Bid (5%)

PROJECT:
(Name, location or address, and Project number, if any)

Project #570 - Bid #24-1021 - South Central Water Main Replacement
City of Flagler Beach, FL

ADDITIONS AND DELETIONS:
The author of this document has added information needed for its completion. The author may also have revised the text of the original AIA standard form. An *Additions and Deletions Report* that notes added information as well as revisions to the standard form text is available from the author and should be reviewed. A vertical line in the left margin of this document indicates where the author has added necessary information and where the author has added to or deleted from the original AIA text.

This document has important legal consequences. Consultation with an attorney is encouraged with respect to its completion or modification.

Any singular reference to Contractor, Surety, Owner or other party shall be considered plural where applicable.

The Contractor and Surety are bound to the Owner in the amount set forth above, for the payment of which the Contractor and Surety bind themselves, their heirs, executors, administrators, successors and assigns, jointly and severally, as provided herein. The conditions of this Bond are such that if the Owner accepts the bid of the Contractor within the time specified in the bid documents, or within such time period as may be agreed to by the Owner and Contractor, and the Contractor either (1) enters into a contract with the Owner in accordance with the terms of such bid, and gives such bond or bonds as may be specified in the bidding or Contract Documents, with a surety admitted in the jurisdiction of the Project and otherwise acceptable to the Owner, for the faithful performance of such Contract and for the prompt payment of labor and material furnished in the prosecution thereof; or (2) pays to the Owner the difference, not to exceed the amount of this Bond, between the amount specified in said bid and such larger amount for which the Owner may in good faith contract with another party to perform the work covered by said bid, then this obligation shall be null and void, otherwise to remain in full force and effect. The Surety hereby waives any notice of an agreement between the Owner and Contractor to extend the time in which the Owner may accept the bid. Waiver of notice by the Surety shall not apply to any extension exceeding sixty (60) days in the aggregate beyond the time for acceptance of bids specified in the bid documents, and the Owner and Contractor shall obtain the Surety's consent for an extension beyond sixty (60) days.

If this Bond is issued in connection with a subcontractor's bid to a Contractor, the term Contractor in this Bond shall be deemed to be Subcontractor and the term Owner shall be deemed to be Contractor.

When this Bond has been furnished to comply with a statutory or other legal requirement in the location of the Project, any provision in this Bond conflicting with said statutory or legal requirement shall be deemed deleted herefrom and provisions conforming to such statutory or other legal requirement shall be deemed incorporated herein. When so furnished, the intent is that this Bond shall be construed as a statutory bond and not as a common law bond.

Init.
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User Notes:
(1177639241)

Signed and sealed this 14th day of November, 2024

(Witness)

(Witness) Ingrid Torres, Client Service Representative

All State Civil Construction, Inc.
(Contractor as Principal) (Seal)

(Title)

The Gray Casualty & Surety Company
(Surety) (Seal)

(Title) Greg Angel, Attorney-In-Fact

Init.
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User Notes:

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(1177639241)

Surety Bond Professionals, Inc.
11/13/2024 16:03 291351608940

THE GRAY INSURANCE COMPANY
THE GRAY CASUALTY & SURETY COMPANY

GENERAL POWER OF ATTORNEY

Bond Number: N/A **Principal:** All State Civil Construction, Inc.

Project: Project #570 - Bid #24-1021 - South Central Water Main Replacement City of Flagler Beach, FL

KNOW ALL BY THESE PRESENTS, THAT The Gray Insurance Company and The Gray Casualty & Surety Company, corporations duly organized and existing under the laws of Louisiana, and having their principal offices in Metairie, Louisiana, do hereby make, constitute, and appoint: **Mark D. Leskanic, Lauren Leskanic, Bette A. Botticello, Colin Warner, Matthew Leskanic, and Greg Angel of Natick, Massachusetts jointly and severally** on behalf of each of the Companies named above its true and lawful Attorney(s)-in-Fact, to make, execute, seal and deliver, for and on its behalf and as its deed, bonds, or other writings obligatory in the nature of a bond, as surety, contracts of suretyship as are or may be required or permitted by law, regulation, contract or otherwise, provided that no bond or undertaking or contract of suretyship executed under this authority shall exceed the amount of $25,000,000.00.

This Power of Attorney is granted and is signed by facsimile under and by the authority of the following Resolutions adopted by the Boards of Directors of both The Gray Insurance Company and The Gray Casualty & Surety Company at meetings duly called and held on the 26th day of June, 2003.

"RESOLVED, that the President, Executive Vice President, any Vice President, or the Secretary be and each or any of them hereby is authorized to execute a power of Attorney qualifying the attorney named in the given Power of Attorney to execute on behalf of the Company bonds, undertakings, and all contracts of surety, and that each or any of them is hereby authorized to attest to the execution of such Power of Attorney, and to attach the seal of the Company; and it is

FURTHER RESOLVED, that the signature of such officers and the seal of the Company may be affixed to any such Power of Attorney or to any certificate relating thereto by facsimile, and any such Power of Attorney or certificate bearing such facsimile signature or facsimile seal shall be binding upon the Company now and in the future when so affixed with regard to any bond, undertaking or contract of surety to which it is attached.

IN WITNESS WHEREOF, The Gray Insurance Company and The Gray Casualty & Surety Company have caused their official seals to be hereinto affixed, and these presents to be signed by their authorized officers this 4th day of November, 2022.

THE GRAY INSURANCE COMPANY SEAL

By: Michael T. Gray
President
The Gray Insurance Company

Cullen S. Piske
President
The Gray Casualty & Surety Company

THE GRAY CASUALTY & SURETY COMPANY SEAL

State of Louisiana
ss:
Parish of Jefferson

On this 4th day of November, 2022, before me, a Notary Public, personally appeared Michael T. Gray, President of The Gray Insurance Company, and Cullen S. Piske, President of The Gray Casualty & Surety Company, personally known to me, being duly sworn, acknowledged that they signed the above Power of Attorney and affixed the seals of the companies as officers of, and acknowledged said instrument to be the voluntary act and deed, of their companies.

Leigh Anne Henican
Notary Public
Notary ID No. 92653
Orleans Parish, Louisiana

Leigh Anne Henican
Notary Public, Parish of Orleans State of Louisiana
My Commission is for Life

I, Mark S. Manguno, Secretary of The Gray Insurance Company, do hereby certify that the above and forgoing is a true and correct copy of a Power of Attorney given by the companies, which is still in full force and effect. IN WITNESS WHEREOF, I have set my hand and affixed the seals of the Company this 14th day of November , 2024 .

I, Leigh Anne Henican, Secretary of The Gray Casualty & Surety Company , do hereby certify that the above and forgoing is a true and correct copy of a Power of Attorney given by the companies, which is still in full force and effect. IN WITNESS WHEREOF, I have set my hand and affixed the seals of the Company this 14th day of November , 2024 .

THE GRAY INSURANCE COMPANY SEAL

THE GRAY CASUALTY & SURETY COMPANY SEAL

SECTION 00 01 50
FLORIDA TRENCH SAFETY ACT

Bidder acknowledges that he is solely responsible for complying with the Florida Trench Safety Act (ACT) and Occupational Safety and Health Administrations excavation safety standard 29 CFR 1926.650.

Bidder further acknowledges that included in the various items of the proposal and in the Total Bid Price are costs for complying with the Florida Trench Safety Act (90-96, Laws of Florida) effective October 1, 1990, and the Occupational Safety and Health Administrations excavation safety standard.

Name: All State Civil Construction, Inc.

Authorized Signature: Michael Anderson

Date: 11/11/2024

Title: Treasurer

END OF SECTION

CITY OF FLAGLER BEACH

ADVERTISEMENT FOR BID NO. 24-1021
CITY OF FLAGLER BEACH
SOUTH CENTRAL WATERMAIN REPLACEMENT
City Project No. 570

NOTICE IS HEREBY GIVEN THAT THE CITY OF FLAGER BEACH IS ISSUING THIS INVITATION TO BID (ITB) TO SOLICIT COMPETITIVE SEALED BIDS FROM LICENSED AND INSURED CONTRACTORS FOR THE CITY OF FLAGLER BEACH SOUTH CENTRAL WATERMAIN REPLACEMENT PROJECT ACCORDING TO THE SCOPE OF WORK SPECIFICATIONS. BIDS WILL BE RECEIVED FOR A SINGLE PRIME CONTRACT. BIDS SHALL BE ON A LUMP SUM AS INDICATED IN THE BID FORM.

IT IS THE INTENT AND PURPOSE OF THE CITY OF FLAGER BEACH THAT THIS INVITATION TO BID (ITB) PROMOTES COMPETITIVE SELECTION. IT IS THE BIDDER'S RESPONSIBILITY TO ADVISE THE FINANCE DIRECTOR IF ANY LANGUAGE, REQUIREMENTS, ETC., OR ANY COMBINATION THEREOF, INADVERTENTLY RESTRICTS OR LIMITS THE REQUIREMENTS STATED IN THIS ITB.

All applicants must be properly licensed and show proof of insurance, licenses, and certificates as required by all local, State of Florida, and Federal agencies. Successful applicants will obtain all required permitting as previously stated.

Interested contractors may secure the, bid forms and other pertinent information by visiting the city website bid page: http://www.cityofflaglerbeach.com/Bids.aspx.or the website www.demandstar.com Bid packages also may be obtained by contacting the City Clerk, Penny Overstreet at 386-517-2000 ext. 233 or poverstreet@cityofflaglerbeach.com

For further information, contact: Penny Overstreet, City Clerk
Preferred method of contact email: poverstreet@cityofflaglerbeach.com (386) 517-2000, ext. 233

Sealed Bids must be addressed to the attention of **Penny Overstreet, City Clerk**. Sealed Bids must be received on or before **2:00 pm Thursday, November 14, 2024.**

No bids will be accepted after this deadline.

Sealed Bids must have the project title and bid number on outside of package. The City of Flagler Beach reserves the right to reject any and all Bids, to award all or segments of the project, and to waive any informality in Bids received, as may be in the best interest of the City.

MAILING ADDRESS:
105 S 2nd Street
Flagler Beach, FL 32136

WALK-IN DELIVERY ADDRESS:
105 S 2nd Street
Flagler Beach, FL 32136

Date of Distribution: **Monday October 21, 2024**
Non-Mandatory Pre-Bid Meeting: **Monday October 28, 2024 @ 10:00 am EST**
Last Date of Inquiries: **Tuesday November 5, 2024 @ 5:00 pm EST**
Last Date for Addenda if Needed: **Friday November 8, 2024**
BIDS DUE BY: **Thursday November 14, 2024 @ 2:00 pm EST,** after which time they will be publicly opened and read aloud.

END INVITATION TO BID

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SECTION 00 11 53
REQUEST FOR QUALIFICATION FORMS

Project Name: **CITY OF FLAGLER BEACH SOUTH CENTRAL WATERMAIN REPLACEMENT**

City Project No.: 570

Company Name: All State Civil Construction, Inc.

Contact Name: Chris Mehegan

E-mail Address: cmehegan@allstatecivilconstructionfl.com

Mailing Address: 1301 Beville Road, #16
Daytona Beach, FL 32119

Phone Number: 386-681-8105

Fax Number: _____

Contractor License Number: CGC1525137, CUC1225777

The CITY will post addenda information at Onvia DemandStar, Inc., at the following web address: www.demandstar.com. For technical assistance with this website, please contact Onvia Services at 1-800-711-1712. All Bidders should check the Onvia DemandStar website at least seven (7) calendar days before the date fixed to verify information regarding Addenda. Failure to do so could result in rejection of the submittal as unresponsive. Bidders shall sign, date, and return all addenda with their bid. It is the sole responsibility of the Bidder to ensure he/she obtains information related to Addenda. Oral and other interpretations or clarifications will be without legal effect.

The following Addenda were received:

Addendum No. 1 Date Received 11/8/2024

Addendum No. 2 Date Received 11/8/2024

Addendum No. _____ Date Received _____

Addendum No. _____ Date Received _____

Addendum No. _____ Date Received _____

Addendum No. _____ Date Received _____

The Bidder acknowledges the receipt, execution, and return of the following attachments:

- Attachment A: Certificate of Corporation
- Attachment B: Contractor Questionnaire
- Attachment C: Required Disclosure
- Attachment D: Bidder Information
- Attachment E: Experience of Bidder
- Attachment F: Sworn Statement Under section 287.133(3) (a), Florida Statutes, on Public Entity Crimes
- Attachment G: Affidavit of Non-Collusion
- Attachment H: Certification of Non-Segregated Facilities
- Attachment I: Drug-Free Workplace
- Attachment J: Conflict of Interest Statement
- Attachment K: Compliance with Public Records Law
- Attachment L: Americans with Disabilities Act Affidavit
- Attachment M: List of Licenses and Certifications
- Attachment N: List of Proposed Subcontractors/Suppliers
- Attachment O: List of Proposed Equipment

Name: Chris Mehegan

Authorized Signature: _____

Date: 11/13/2024

Title: President

ACKNOWLEDGEMENT

STATE OF FLORIDA

COUNTY OF Volusia

Sworn to (or affirmed) and subscribed before me by means of

online notarization ☐ *OR* physical presence ☒

this 13th day of November, 2024.

Personally Known ☐ *OR* Produced identification ☒

Type of Identification Produced: FL. D.L.

_____

Signature of Notary Public

Print, Type or Stamp Commissioned Name of Notary Public below:

Notary Public State of Florida
Ruth Symphony Daniell Johnson
My Commission HH 449967
Expires 10/2/2027

END OF SECTION

REQUEST FOR QUALIFICATION FORMS

ATTACHMENT A

CERTIFICATE OF CORPORATION

Please include a copy of your Certificate of Corporation from the State of Florida with this attachment.

STATE OF FLORIDA

COUNTY OF VOLUSIA

I HEREBY CERTIFY that a meeting of the Board of Directors of a corporation under the laws of the State of Florida, was held on November 1st, 2024. The following resolution was duly passed and adopted:

"RESOLVED, that Chris Mehegan as officer President of the corporation is hereby authorized to execute the Contract dated _____, 20____, between The City of Flagler Beach, a municipal corporation and this corporation, and that execution thereof, attested by the Secretary of the corporation and with corporate seal affixed, shall be the official act and deed of this corporation."

I further certify that said resolution is now in full force and effect.

IN WITNESS THEREOF, I have hereunto set my hand and affixed the official seal of the corporation

This 13th day of NOVEMBER, 2024.

Corporate Secretary

END OF ATTACHMENT A

SECTION 00 11 53
REQUEST FOR QUALIFICATION FORMS

ATTACHMENT B

CONTRACTOR QUESTIONNAIRE

DATE: 11/11/2024

NAME OF BIDDER: All State Civil Construction, Inc.

BUSINESS ADDRESS: 1301 Beville Road, #16, Daytona Beach, FL 32119

PHONE NUMBER: 386-681-8105

CONTRACTOR'S FL LICENSE #: CGC1525137, CUC1225777

EXPIRATION DATE: 8/31/2026

The undersigned warrants the truth and accuracy of all statements and answers herein contained. Include additional sheets as necessary.

1. How many years has your organization been in business as a General Contractor?

   4 years

2. How many years has your organization been in business as a Subcontractor?

   4 years

3. Name of Superintendent and length of time with your company?

   Chris Mehegan, 4 years

4. Describe in detail and give the date and owner, including phone numbers and contact person(s), of the last five (5) projects that you have completed similar in type, size, and nature as the project proposed?

Please see attached project experience list.

5. Have you ever failed, or been alleged to have failed, to complete work awarded to you? If so, please list the project and explain the reasons why?

No.

6. Have you ever failed, or been alleged to have failed, to complete work within the Contract Time? If so, please list the project and explain the reasons why?

No.

7. Have you ever been assessed liquidated damages, or had liquidated damages assessed against you? If so, please list the project and explain the reasons why?

No.

8. Have you ever had a bond or letter of credit called by the owner of a project? If so, when?

No.

9. Have you personally inspected the site of the proposed Work? Describe, in full, any anticipated problems with the site and your proposed solutions?

Yes.

Bidder Name: All State Civil Construction, Inc.

Signature:

Title: President

Attach the corporate information sheet from the Florida Department of State, Division of Corporation's, web site.

STATE OF FLORIDA

COUNTY OF VOLUSIA

Sworn to (or affirmed) and subscribed before me by means of

online notarization ☐ *OR* physical presence ☒

this 13th day of November, 2024.

Personally Known ☐ *OR* Produced identification ☒

Type of Identification Produced: FL. D.L.

Signature of Notary Public

Print, Type or Stamp Commissioned Name of Notary Public below:

Notary Public State of Florida
Ruth Symphony Daniell Johnson
My Commission HH 449967
Expires 10/2/2027

END OF ATTACHMENT B

Detail by Entity Name

Florida Profit Corporation
ALL STATE CIVIL CONSTRUCTION, INC.

Filing Information

Document Number	P20000011379
FEI/EIN Number	84-4099160
Date Filed	02/10/2020
State	FL
Status	ACTIVE
Last Event	AMENDMENT
Event Date Filed	05/10/2021
Event Effective Date	NONE

Principal Address

3602 SOCHA WAY
PORT ORANGE, FL 32129

Changed: 07/25/2022

Mailing Address

3602 SOCHA WAY
PORT ORANGE, FL 32129

Changed: 07/25/2022

Registered Agent Name & Address

Kevco, Inc.
214 Loomis Ave
Daytona Beach, FL 32114-4918

Name Changed: 04/26/2023

Address Changed: 04/26/2023

Officer/Director Detail

Name & Address

Title President

MEHEGAN, CHRISTOPHER
3602 Socha Way
Port Orange, FL 32129

Title Treasurer

Anderson, Michael Ryan
6172 Del Rio Drive
Port Orange, FL 32127

Annual Reports

Report Year	Filed Date
2022	04/28/2022
2023	04/26/2023
2024	04/30/2024

Document Images

04/30/2024 -- ANNUAL REPORT	View image in PDF format
04/26/2023 -- ANNUAL REPORT	View image in PDF format
04/28/2022 -- ANNUAL REPORT	View image in PDF format
09/09/2021 -- Off/Dir Resignation	View image in PDF format
05/10/2021 -- Amendment	View image in PDF format
04/19/2021 -- ANNUAL REPORT	View image in PDF format
02/10/2020 -- Domestic Profit	View image in PDF format

SECTION 00 11 53
REQUEST FOR QUALIFICATION FORMS

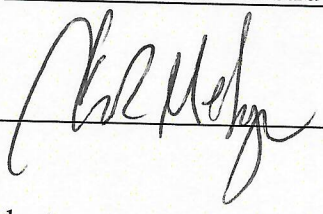
ATTACHMENT C

REQUIRED DISCLOSURE

The following disclosure is of all material facts pertaining to any felony conviction or any pending felony charges in the last three (3) years in this State or any other state of the United States against (1) the Bidder, (2) any business entity related to or affiliated with the Bidder or (3) any present or former owner of the Bidder or of any such related or affiliated entity. This disclosure shall not apply to any person or entity which is only a stockholder, which person or entity owns twenty percent (20%) or less of the outstanding shares of the Bidder whose stock is publicly owned and traded:

N/A

Bidder Name: All State Civil Construction, Inc.

Signature: 

Title: President

Date: 11/11/2024

END OF ATTACHMENT C

SECTION 00 11 53
REQUEST FOR QUALIFICATION FORMS

ATTACHMENT D BIDDER INFORMATION

List the full legal name of each officer of the Corporation.

President: Chris Mehegan

Signature: _____ Date: 11/11/2024

Vice-President: _____

Signature: _____ Date: _____

Secretary: _____

Signature: _____ Date: _____

Treasurer: Michael Anderson

Signature: _____ Date: 11/11/2024

List the Corporate Officer that will sign the contract: Chris Mehegan

END OF ATTACHMENT D

SECTION 00 11 53
REQUEST FOR QUALIFICATION FORMS

ATTACHMENT E
EXPERIENCE OF BIDDER

Bidder Name: All State Civil Construction, Inc.

Authorized Signature: _____ Date: 11/11/2024

Is your company currently involved in any active litigation? ____Yes __X__No

If Yes, explain: _____

Has your company ever been sued? ____Yes __X__No

If Yes, explain and/or submit court decision or judgment, as applicable: _____

The Bidder must demonstrate the successful completion of three (3) projects of similar complexity, nature, size, and dollar amount of lift stations rehabilitations or new installations. Any material misrepresentation, as determined by the City of Flagler Beach, shall result in disqualification.

On the following pages, provide the requested information regarding experience within the past five (5) years on three (3) projects as listed above. These projects must include replacement of potable water main via open cut installation method with corresponding abandonments of the existing water main.

Project #1:

Contract Date: 03/2024 - 10/2024

Contract Amount: $ 842,335.97

Project Name: Peel Avenue Sanitary Sewer Extension

Project Location: Orlando, FL

General Scope of Work: Construct new sanitary sewer main with manholes, water main and road reconstruction.

Client Name and Address: Harvey Newsome Construction - Harvey Newsome
15911 Johns Lake Rd.
Clermont, FL 34711

Client Contact Phone: 352-449-8269

Client Contact Email: hgnjr@hotmail.com

Was the project completed on schedule? X Yes ____ No

Total Amount of Change Orders: $ 0.00

Reasons for Change Orders: N/A

REMAINDER OF PAGE INTENTIONALLY LEFT BLANK

Project #2:

Contract Date: 3/2024 - 7/2024

Contract Amount: $ 253,838.50

Project Name: LPGA Weir #2 Replacement

Project Location: Daytona Beach, FL

General Scope of Work: Remove and replace existing major stormwater outfall for LPGA national golf course stromwater system.

Client Name and Address: City of Daytona Beach - Frank O'Keefe
950 Bellevue Ave.
Daytona Beach, FL 32115

Client Contact Phone: 386-671-8632

Client Contact Email: okeefefrank@codb.us

Was the project completed on schedule? X Yes ____ No

Total Amount of Change Orders: $ 21,068.50

Reasons for Change Orders: Site conditions changed from time of bid to construction. Additional fill material was required.

REMAINDER OF PAGE INTENTIONALLY LEFT BLANK

Project #3:

Contract Date: 7/2024 - 11/2024

Contract Amount: $ 182,594.65

Project Name: Volusia County Sheriff Family Resource Center Lift Station

Project Location: Daytona Beach, FL

General Scope of Work: Construct new sanitary sewer lift station, force main, and connection to existing public sewer. Remove and dispose of existing septic system and drainfield.

Client Name and Address: Volusia County - Kamron Gardner
3811 Tiger Bay Road
Daytona Beach, FL 32124

Client Contact Phone: 386-248-1760

Client Contact Email: kgardner@volusia.org

Was the project completed on schedule? X Yes ____ No

Total Amount of Change Orders: $ 0.00

Reasons for Change Orders: N/A

END OF ATTACHMENT E

SWORN STATEMENT UNDER SECTION 287.133(3) (a), FLORIDA STATUTES, ON PUBLIC ENTITY CRIMES

THIS FORM MUST BE SIGNED IN THE PRESENCE OF A NOTARY PUBLIC OR OTHER OFFICER AUTHORIZED TO ADMINISTER OATHS.

This sworn statement is submitted to: **The City of Flagler Beach** (Public entity)

By: Chris Mehegan
(Individual's name and title)

For: All State Civil Construction, Inc.
(Name of entity submitting sworn statement)

Whose business address is: 1301 Beville Road, #16
Daytona Beach, FL 32119

Federal Employer Identification Number (FEIN): 84-4099160

(If the entity has no FEIN, include the Social Security Number of the individual signing this sworn statement)

1. I understand that a "public entity crime" as defined in Section 287.133(1)(g), Florida Statutes, means a violation of any State or Federal law by a person with respect to and directly related to the transaction of business with any public entity or with an agency or political subdivision of any other state or with the United States, including, but not limited to, any bid or contract for goods or services to be provided to any public entity or an agency or political subdivision of any other state or of the United States and involving antitrust, fraud, theft, bribery, collusion, racketeering, conspiracy, or material misrepresentation.
2. I understand that "convicted" or "conviction" as defined in Paragraph 287.133(1) (b), Florida Statutes, means a finding of guilt or a conviction of a public entity crimes, with or without an adjudication of guilt, in any Federal or state trial court of record relating to charges brought by indictment or information after July 1, 1989, as a result of a jury verdict, non-jury trial, or entry of a plea of guilty or nolo contendere.

3. I understand that an "affiliate" as defined in Section 287.133(1)(a), Florida Statutes, means: A predecessor or successor of a person convicted of a public entity crime: or an entity under the control of any natural person who is active in the management of the entity and how has been convicted of a public entity crime. The term "affiliate" includes those officers, directors, executives, partners, shareholders, employees, members, and agents who are active in the management of an affiliate. The ownership by one (1) person of shares constituting a controlling interest in another person, or a pooling of equipment or income among persons when not for fair market value under an arm's length agreement, shall be a prima facie case that one person controls another person. A person who knowingly enters into a joint venture with a person who has been convicted of a public entity crime in Florida during the preceding thirty-six (36) months shall be considered an affiliate.
4. I understand that a "person" as defined in Section 287.133(1) (e), Florida Statutes, means any natural person or entity organized under the laws of any state or of the United States with the legal power to enter into a binding contract and which bids or applies to bid on contracts for the provision of goods or services let by a public entity, or which otherwise transacts or applies to transact business with a public entity. The term "person" includes those officers, directors, executives, partners, shareholders, employees, members, and agents who are active in management of an entity.

Based on information and belief, the statement which I have marked below is true in relation to the entity submitting this sworn statement. (Indicate which statement applies.)

X Neither the entity submitting this sworn statement, nor any officers, directors, executives, partners, shareholders, employees, members, or agent who is active in management of the entity, nor the affiliate of the entity, has been charged with and convicted of a public entity crime subsequent to July 1, 1989.

_____ The entity submitting this sworn statement, or one or more of the officers, directors, executives, partners, shareholders, employees, members, or agents who are active in management of the entity, or an affiliate of the entity, has been charged with and convicted of a public entity crime subsequent to July 1, 1989.

_____ The entity submitting this sworn statement, or one or more of the officers, directors, executives, partners, shareholders, employees, members, or agents who are active in management of the entity, or an affiliate of the entity, has been charged with and convicted of a public entity crime subsequent to July 1, 1989.

However, there has been a subsequent proceeding before an Administrative Law Jury of the State of Florida, Division of Administrative Hearings and the Final Order entered by the Administrative Law Jury

determined that it was not in the public interest to place the entity submitting this sworn statement on the convicted vendor list. (Attach a copy of the final order.)

I UNDERSTAND THAT THE SUBMISSION OF THIS FORM TO THE CITY OF FLAGLER IS FOR THE CITY ONLY AND, THAT THIS FORM IS VALID THROUGH DECEMBER 31, OF THE CALENDAR YEAR IN WHICH IT IS FILED. I ALSO UNDERSTAND THAT I AM REQUIRED TO INFORM THE CITY PRIOR TO ENTERING IN TO A CONTRACT IN EXCESS OF THE THRESHOLD AMOUNT PROVIDED IN SECTION 287.017, FLORIDA STATUES, FOR CATEGORY TWO OF ANY CHANGE IN THE INFORMATION CONTAINED IN THIS FORM.

Signature: _____

Date: 11/13/2024

State of: FLORIDA

County of: VOLUSIA

ACKNOWLEDGEMENT

STATE OF FLORIDA

COUNTY OF Volusia

Sworn to (or affirmed) and subscribed before me by means of

online notarization ☐ *OR* physical presence ☒

this 18th day of November, 20 24

Personally Known ☐ *OR* Produced identification ☒

Type of Identification Produced: FL. D.L.

_____

Signature of Notary Public

Print, Type or Stamp Commissioned Name of Notary Public below:

Notary Public State of Florida
Ruth Symphony Daniell Johnson
My Commission HH 449967
Expires 10/2/2027

END OF ATTACHMENT F

SECTION 00 11 53
REQUEST FOR QUALIFICATION FORMS

ATTACHMENT G AFFIDAVIT OF NON-COLLUSION

The undersigned bidder or agent, being duly sworn on oath, says that he/she has not, nor has any other member, representative, or agent of the firm, company, corporation or partnership represented by him, entered into any combination, collusion or agreement with any person relative to the price to be bid by anyone at such letting nor to prevent any person from bidding nor to include anyone to refrain from bidding, and that this bid is made without reference to any other bid and without any agreement, understanding or combination with any other person in reference to such bidding. He/She further says that no person or persons, firms, or corporation has, have, or will receive directly or indirectly, any rebate, free gift, commission, or thing of value on account of such sale.

OATH AND AFFIRMATION

I HEREBY AFFIRM UNDER THE PENALTIES FOR PERJURY THAT THE FACTS AND INFORMATION CONTAINED IN THE FOREGOING BID FOR PUBLIC WORKS ARE TRUE AND CORRECT.

Dated this 13th Wed day of November, 20 24.

All State Civil Construction, Inc. - Chris Mehegan
(Bidder Name)

President
(Title)

(Signature)

ACKNOWLEDGEMENT

STATE OF FLORIDA

COUNTY OF Volusia

Sworn to (or affirmed) and subscribed before me by means of

online notarization ☐ *OR* physical presence ☒

this 13th day of November, 2024.

Personally Known ☐ *OR* Produced identification ☒

Type of Identification Produced: FL. D.L.

Ruth Symphony D. Johnson
Signature of Notary Public
Print. Type or Stamp Commissioned Name of Notary Public below:

Notary Public State of Florida
Ruth Symphony Daniell Johnson
My Commission HH 449967
Expires 10/2/2027

END OF ATTACHMENT G

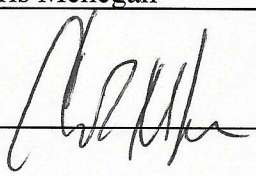
SECTION 00 11 53
REQUEST FOR QUALIFICATION FORMS

ATTACHMENT H
CERTIFICATION OF NON-SEGREGATED FACILITIES

The Bidder certifies that they do not maintain or provide for their employees any segregated facilities at any of his establishments, and that they do not permit their employees to perform their services at any location, under their control, where segregated facilities are maintained. The Bidder certifies further that they will not maintain or provide for their employees any segregated facilities at any location under their control where segregated facilities are maintained. The Bidder agrees that a breach of this certification will be a violation of the Equal Opportunity clause in any contract resulting from acceptance of this Bid. As used in this certification, the term "segregated facilities" means any waiting rooms, work areas, restrooms and washrooms, restaurants and other eating areas, time clocks, locker rooms and other storage and dressing areas, parking lots, drinking fountains, recreation or entertainment area, transportation and housing facilities provided for employees which are segregated by explicit directive, or are in fact segregated on the basis of race, color, religious disability or national origin, because of habit, local custom, or otherwise. The Bidder agrees that (except where they have obtained identical certifications from proposed subcontractors for specific time periods) they will obtain identical certifications from proposed subcontractors prior to the award of subcontracts exceeding $10,000 which are not exempt from the provisions of the Equal Opportunity clause, and that he will retain such certifications in his files.

The nondiscriminatory guidelines as promulgated in Section 202, Executive Order 11246, and as amended by Executive Order 11375 and as amended, relative to Equal Opportunity for all persons and implementations of rules and regulations prescribed by the United States Secretary of Labor are incorporated herein.

Name: Chris Mehegan

Signature: 

Date: 11/11/2024

Title: President

Official Address: 1301 Beville Road, #16

Daytona Beach, FL 32119

END OF ATTACHMENT H

SECTION 00 11 53
REQUEST FOR QUALIFICATION FORMS

ATTACHMENT I DRUG-FREE WORKPLACE

The undersigned vendor in accordance with Florida Statute 287.087 hereby certifies that

All State Civil Construction Inc. does hereby: (Name of Business)

1. Publish a statement notifying employees that the unlawful manufacture, distribution, dispensing, possession, or use of a controlled substance is prohibited in the workplace and specifying the actions that will be taken against employees for violations of such prohibition.

2. Inform employees about the dangers of drug abuse in the workplace, the business's policy of maintaining a drug-free workplace, any available drug counseling, rehabilitation, and employee assistance programs, and the penalties that may be imposed upon employees for drug abuse violations.

3. Give each employee engaged in providing the commodities or contractual services that are proposed a copy of the statement specified in subsection (1).

4. In the statement specified in subsection (1), notify the employees that, as a condition of working on the commodities or contractual services that are under proposal, the employee will propose by the terms of the statement and will notify the employer of any conviction of, or plea of guilty or nolo contender to, any violation of Chapter 893, Florida Statutes, or of any controlled substance law of the United States or any state, for a violation occurring in the workplace no later than five (5) days after such conviction.

5. Impose a sanction on or require the satisfactory participation in a drug abuse assistance or rehabilitation program if such is available in the employee's community, by any employee who is so convicted.

6. Make a good faith effort to continue to maintain a drug-free workplace through implementation of the matters set forth above.

As the person authorized to sign the statement, I certify that this firm complies fully with the above requirements.

Name: Chris Mehegan

Signature:

Date: 11/11/2024

Title: President

END OF ATTACHMENT I

SECTION 00 11 53
REQUEST FOR QUALIFICATION FORMS

ATTACHMENT J CONFLICT OF INTEREST STATEMENT

Before me, the undersigned authority, personally appeared Chris Mehegan, who was duly sworn, deposes, and states:

1. I am the President of All State Civil Construction, Inc. with a local office in Daytona Beach, FL and principal office in Daytona Beach, FL.
2. The above-named entity is submitting an Expression of Interest for the City of Flagler Beach project described as bid number FB-24-1021.
3. The Affiant has made diligent inquiry and provides the information contained in this Affidavit based upon his own knowledge.
4. The Affiant states that only one submittal for the above project is being submitted and that the above-named entity has no financial interest in other entities submitting proposals for the same project.
5. Neither the Affiant nor the above-named entity has directly or indirectly entered into any agreement, participated in any collusion, or otherwise taken any action in restraint of free competitive pricing in connection with the entity's submittal for the above project. This statement restricts the discussion of pricing data until the completion of negotiations and execution of the Agreement for this project.
6. Neither the entity nor its affiliates, nor anyone associated with them, is presently suspended or otherwise ineligible from participating in contract lettings by any local, state, or federal agency.
7. Neither the entity, nor its affiliates, nor anyone associated with them have any potential conflict of interest due to any other clients, contracts, or property interests for this project.
8. I certify that no member of the entity's ownership, management, or staff has a vested interest in any aspect of or Department of the City of Flagler Beach.
9. I certify that no member of the entity's ownership or management is presently applying for an employee position or actively seeking an elected position with City of Flagler Beach.
10. In the event that a conflict of interest is identified in the provision of services, I, on behalf of the above-named entity, will immediately notify the City of Flagler Beach in writing.

Signature of Affiant

Section continued on next page

ACKNOWLEDGEMENT

STATE OF FLORIDA
COUNTY OF Volusia

Sworn to (or affirmed) and subscribed before me by means of
online notarization ☐ *OR* physical presence ☒
this 13th day of November, 2024
Personally Known ☐ *OR* Produced identification ☒
Type of Identification Produced: FL. D.L.

Kathryn Lynn D. Johnson
Signature of Notary Public
Print, Type or Stamp Commissioned Name of Notary Public below:

END OF ATTACHMENT J

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SECTION 00 11 53
REQUEST FOR QUALIFICATION FORMS

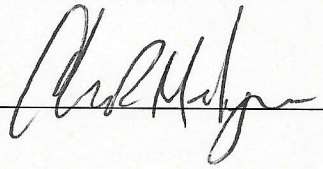
ATTACHMENT K
COMPLIANCE WITH THE PUBLIC RECORDS LAW

Upon award recommendation or thirty (30) days after receiving submittals, they become "public records" and shall be subject to public disclosure consistent with Chapter 119, Florida Statutes. Proposers must invoke the exemptions to disclosure provided by law in the response to the solicitation and must identify the data or other materials to be protected and must state the reasons why such exclusion from public disclosure is necessary.

If the company submits information exempt from public disclosure, the company must identify with specificity which pages/paragraphs of their bid/proposal package are exempt from the Public Records Act, identifying the specific exemption section that applies to each. The protected information must be submitted to the City of Flagler Beach in a separate envelope marked accordingly.

Company Name: All State Civil Construction, Inc.

Authorized representative Printed Name: Chris Mehegan

Authorized Representative Signature: 

Date: 11/11/2024

END OF ATTACHMENT K

SECTION 00 11 53
REQUEST FOR QUALIFICATION FORMS

ATTACHMENT L
AMERICANS WITH DISABILITIES ACT AFFIDAVIT

The undersigned CONTRACTOR swears that the information herein contained is true and correct and that none of the information supplied was for the purpose of defrauding the CITY.

The CONTRACTOR will not discriminate against any employee or applicant for employment because of physical or mental handicap in regard to any position for which the employee or applicant for employment is qualified. The CONTRACTOR agrees to comply with the rules, regulations and relevant orders issued pursuant to the Americans with Disabilities Act (ADA), 42 USC s. 12101 et seq. It is understood that in no event shall the CITY be held liable for the actions or omissions of the CONTRACTOR or any other party or parties to the Agreement for failure to comply with the ADA. The CONTRACTOR agrees to hold harmless and indemnify the CITY, its agents, officers, or employees from any and all claims, demands, debts, liabilities or causes of action of every kind or character, whether in law or equity, resulting from the CONTRACTOR's acts or omissions in connection with the ADA.

Name: Chris Mehegan - All State Civil Construction, Inc.

Authorized Signature: _____

Date: 11/13/2024

Title: President

Affix Corporate Seal:

ACKNOWLEDGEMENT

STATE OF FLORIDA

COUNTY OF Volusia

Sworn to (or affirmed) and subscribed before me by means of

online notarization ☐ *OR* physical presence ☒

this 13th day of November, 2024.

Personally Known ☐ *OR* Produced identification ☒

Type of Identification Produced: FL. D.L.

_____
Signature of Notary Public
Print, Type or Stamp Commissioned Name of Notary Public below:

Notary Public State of Florida
Ruth Symphony Daniell Johnson
My Commission HH 449967
Expires 10/2/2027

END OF ATTACHMENT L

REQUEST FOR QUALIFICATION FORMS

ATTACHMENT M
ADDITIONAL PROCUREMENT CLAUSES

TERMINATION FOR CAUSE AND CONVENIENCE

1. Contractor shall be considered in material default of the Agreement and such default shall be considered cause for the City to terminate the Agreement, in whole or in part, as further set forth in this Section 17, if Contractor: (i) fails to begin the Work under the Contract Documents within the time specified herein; (ii) fails to properly and timely perform the Work as directed by the City or as provided for in the approved Progress Schedule; (iii) performs the Work unsuitably or neglects or refuses to remove materials or to correct or replace such Work as may be rejected as unacceptable or unsuitable; (iv) discontinues the prosecution of the Work; (v) fails to resume Work which has been suspended within a reasonable time after being notified to resume Work; (vi) becomes insolvent or is declared bankrupt, or commits any act of bankruptcy; (vii) allows any final judgment to stand against it unsatisfied for more than ten (10) days; (viii) makes an assignment for the benefit of creditors; (ix) fails to obey any applicable codes, laws, ordinances, rules or regulations with respect to the Work; and/or (x) materially breaches any other provision of the Contract Documents.

2. City shall notify Contractor in writing of Contractor's default(s). If the City determines that Contractor has not remedied and cured the default(s) within seven (7) calendar days following receipt by Contractor of said written notice, then the City, at its option, without releasing or waiving its rights and remedies against the Contractor's sureties and without prejudice to any other right or remedy it may be entitled to hereunder or by law, may terminate all or any portion of the Work and any materials, tools, equipment, and appliances of Contractor, take assignments of any of Contractor's subcontracts and purchase orders, and complete all or any portion of Contractor's Work by whatever means, method or agency which the City, in its sole discretion, may choose.

3. If the City deems any of the foregoing remedies necessary, Contractor agrees that it shall not be entitled to receive any further payments hereunder until after the Project is completed. All monies expended and all of the costs, losses, damages, and extra expenses, including all management, administrative and other overhead and other direct and indirect expenses (including attorneys' fees) or damages incurred by the City incident to such completion, shall be deducted from the Contract Amount, and if such expenditures exceed the unpaid balance of the Contract Amount, Contractor agrees to pay promptly to City, on demand, the full amount of such excess, including costs of collection, attorneys' fee (including appeals) and interest thereon at the maximum legal rate of interest until paid. If the unpaid balance of the Contract Amount exceeds all such costs, expenditures and damages incurred by the City to complete the Work, such excess shall be paid to the Contractor. The amount to be paid to the Contractor or the City, as the case may be, and this obligation for payment shall survive termination of the Agreement.

4. The liability of Contractor hereunder shall extend to and include the full amount of any and all sums paid, expenses and losses incurred, damages sustained, and obligations assumed by the City in good faith under the belief that such payments or assumptions were necessary or required, in completing the Work and providing labor, materials, equipment, supplies, and other items therefore or re-letting the Work, in settlement, discharge or compromise of any claims, demands, suits and judgments pertaining to or arising out of the Work hereunder.

5. If, after notice of termination of Contractor's right to proceed pursuant to this Section 17, it is determined for any reason that Contractor was not in default, or that its default was excusable, or that the City is not entitled to the remedies against Contractor provided herein, then Contractor's remedies against the City shall be the same as and

limited to those afforded Contractor below under Subsection 18.1, below, regarding termination of the Agreement for convenience.

BUILD AMERICA BUY AMERICA ACT (BABAA)

The Office of Management and Budget (OMB) has revised its guidance in Title 2 of the Code of Federal Regulations (2 CFR) to add a new part 184 and revise 2 CFR § 200.322. The new part 184 provides guidance to federal agencies on how to apply the domestic content procurement preference as set forth in the Build America, Buy America Act (BABAA) to federal financial assistance for infrastructure projects.

The revised provision in 2 CFR § 200.322 specifies that federal agencies providing federal financial assistance for infrastructure projects must implement the BABAA requirements set forth in 2 CFR part 184. This link's URL is https://www.ecfr.gov/current/title-2/subtitle-A/chapter-I/part-184.

DEBARMENT AND SUSPENSION

1. The City shall have the right to terminate the Agreement without cause upon seven (7) calendar days written notice to Contractor. In the event of such termination for convenience, Contractor's recovery against City shall be limited to (i) that portion of the Contract Amount earned through the date of termination; (ii) any retainage withheld up to the date of termination, and (iii) actual out-of-pocket costs arising directly and solely from termination of this Agreement not to exceed under any circumstance five percent (5%) of that portion of the Contract Amount earned through the date of termination. Contractor shall not be entitled to any other or further recovery against the City, including, but not limited to, damages or any anticipated profit on portions of the Work not performed.

2. The City shall have the right to suspend all or any portions of the Work upon giving Contractor two (2) calendar days' prior written notice of such suspension. If all or any portion of the Work is so suspended, Contractor's sole and exclusive remedy shall be to seek an extension of time to its schedule in accordance with the procedures set forth in the Contract Documents. In no event shall the Contractor be entitled to any additional compensation or damages. Provided, however, if the ordered suspension exceeds three (3) months, the Contractor shall have the right to terminate the Agreement with respect to that portion of the Work which is subject to the ordered suspension.

BYRD ANTI-LOBBYING AMENDMENT

Contractors who apply or bid for an award of more than $100,000 shall file the required certification. Each tier certifies to the tier above that it will not and has not used federally appropriated funds to pay any person or organization for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, officer or employee of Congress, or an employee of a Member of Congress in connection with obtaining any federal contract, grant, or any other award covered by 31 U.S.C. § 1352. Each tier shall also disclose any lobbying with non-federal funds that takes place in connection with obtaining any federal award. Such disclosures are forwarded from tier to tier up to the recipient who in turn will forward the certification(s) to the federal awarding agency."

CERTIFICATION

The undersigned certifies, to the best of his or her knowledge and belief, that:
No federal appropriated funds have been paid or will be paid, by or on behalf of the undersigned, to any person for influencing or attempting to influence an officer or employee of an agency, a Member of Congress, an officer or

employee of Congress, or an employee of a Member of Congress in connection with the awarding of any federal contract, the making of any federal grant, the making of any federal loan, the entering into of any cooperative agreement, and the extension, continuation, renewal, amendment, or modification of any federal contract, grant, loan, or cooperative agreement.

If any funds other than federal appropriated funds have been paid or will be paid to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with this federal contract, grant, loan, or cooperative agreement, the undersigned shall complete and submit Standard Form-LLL, "Disclosure Form to Report Lobbying," in accordance with its instructions.

The undersigned shall require that the language of this certification be included in the award documents for all subawards at all tiers (including subcontracts, subgrants, and contracts under grants, loans, and cooperative agreements) and that all subrecipients shall certify and disclose accordingly.

This certification is a material representation of fact upon which reliance was placed when this transaction was made or entered into. Submission of this certification is a prerequisite for making or entering into this transaction imposed by section 1352, Title 31, U.S.C. Any person who fails to file the required certification shall be subject to a civil penalty of not less than $10,000 and not more than $100,000 for each such failure."

"The Contractor, CPH, LLC, certifies or affirms the truthfulness and accuracy of each statement of its certification and disclosure, if any. In addition, the Contractor understands and agrees that the provisions of 31 U.S.C. Chap. 38, Administrative Remedies for False Claims and Statements, apply to this certification and disclosure, if any.

Prohibition on Contracting for Covered Telecommunications Equipment or Services

(a) *Definitions.* As used in this clause, the terms backhaul; covered foreign country; covered telecommunications equipment or services; interconnection arrangements; roaming; substantial or essential component; and telecommunications equipment or services have the meaning as defined in FEMA Policy 405-143-1, Prohibitions on Expending FEMA Award Funds for Covered Telecommunications Equipment or Services (Interim), as used in this clause—

(b) *Prohibitions.*

(1) Section 889(b) of the John S. McCain National Defense Authorization Act for Fiscal Year 2019, Pub. L. No. 115-232, and 2 C.F.R. § 200.216 prohibit the head of an executive agency on or after Aug.13, 2020, from obligating or expending grant, cooperative agreement, loan, or loan guarantee funds on certain telecommunications products or from certain entities for national security reasons.

(2) Unless an exception in paragraph (c) of this clause applies, the contractor and its subcontractors may not use grant, cooperative agreement, loan, or loan guarantee funds from the Federal Emergency Management Agency to:

(i) Procure or obtain any equipment, system, or service that uses covered telecommunications equipment or services as a substantial or essential component of any system, or as critical technology of any system;

(ii) Enter into, extend, or renew a contract to procure or obtain any equipment, system, or service that uses covered telecommunications equipment or services as a substantial or essential component of any system, or as critical technology of any system;

(iii) Enter into, extend, or renew contracts with entities that use covered telecommunications equipment or services as a substantial or essential component of any system, or as critical technology as part of any system; or

(iv) Provide, as part of its performance of this contract, subcontract, or other contractual instrument, any equipment, system, or service that uses covered telecommunications equipment or services as a substantial or essential component of any system, or as critical technology as part of any system.

(c) *Exceptions.*

(1) This clause does not prohibit contractors from providing—

(i) A service that connects to the facilities of a third-party, such as backhaul, roaming, or interconnection arrangements; or

(ii) Telecommunications equipment that cannot route or redirect user data traffic or permit visibility into any user data or packets that such equipment transmits or otherwise handles.

(2) By necessary implication and regulation, the prohibitions also do not apply to:
(i) Covered telecommunications equipment or services that: i. Are *not used* as a substantial or essential component of any system; *and*

(ii). Are *not used* as critical technology of any system.

(Iii) Other telecommunications equipment or services that are not considered covered telecommunications equipment or services.

(d) *Reporting requirement.*

(1) In the event the contractor identifies covered telecommunications equipment or services used as a substantial or essential component of any system, or as critical technology as part of any system, during contract performance, or the contractor is notified of such by a subcontractor at any tier or by any other source, the contractor shall report the information in paragraph (d)(2) of this clause to the recipient or subrecipient, unless elsewhere in this contract are established procedures for reporting the information.

(2) The Contractor shall report the following information pursuant to paragraph (d)(1) of this clause: (i) Within one business day from the date of such identification or notification: The contract number; the order number(s), if applicable; supplier name; supplier unique entity identifier (if known); supplier Commercial and Government Entity (CAGE) code (if known); brand; model number (original equipment manufacturer number, manufacturer part number, or wholesaler number); item description; and any readily available information about mitigation actions undertaken or recommended.

(ii) Within 10 business days of submitting the information in paragraph (d)(2)(i) of this clause: Any further available information about mitigation actions undertaken or recommended. In addition, the contractor shall describe the efforts it undertook to prevent use or submission of covered telecommunications equipment or services, and any additional efforts that will be incorporated to prevent future use or submission of covered telecommunications equipment or services.

(e) *Subcontracts.*
The Contractor shall insert the substance of this clause, including this paragraph (e), in all subcontracts and other contractual instruments."

Domestic Preferences for Procurements

As appropriate, and to the extent consistent with law, the contractor should, to the greatest extent practicable, provide a preference for the purchase, acquisition, or use of goods, products, or materials produced in the United States. This includes, but is not limited to iron, aluminum, steel, cement, and other manufactured products.

For purposes of this clause:
Produced in the United States means, for iron and steel products, that all manufacturing processes, from the initial melting stage through the application of coatings, occurred in the United States.

Manufactured products mean items and construction materials composed in whole or in part of non-ferrous metals such as aluminum; plastics and polymer-based products such as polyvinyl chloride pipe; aggregates such as concrete; glass, including optical fiber; and lumber."
Copyright and Data Rights

The Contractor grants to the City of Flagler Beach, a paid-up, royalty-free, nonexclusive, irrevocable, worldwide license in data first produced in the performance of this contract to reproduce, publish, or otherwise use, including prepare derivative works, distribute copies to the public, and perform publicly and display publicly such data. For data required by the contract but not first produced in the performance of this contract, the Contractor will identify such data and grant to the City of Flagler Beach or acquires on its behalf a license of the same scope as for data first produced in the performance of this contract. Data, as used herein, shall include any work subject to copyright under 17 U.S.C. § 102, for example, any written reports or literary works, software and/or source code, music, choreography, pictures or images, graphics, sculptures, videos, motion pictures or other audiovisual works, sound and/or video recordings, and architectural works. Upon or before the completion of this contract, the Contractor will deliver to the City of Flagler Beach data first produced in the performance of this contract and data required by the contract but not first produced in the performance of this contract in formats acceptable by the City of Flagler Beach.

END OF ATTACHMENT M

REQUEST FOR QUALIFICATION FORMS

ATTACHMENT N
LIST OF PROPOSED SUBCONTRACTORS/SUPPLIERS

All subcontractors and major materials suppliers are subject to approval of Owner. In the table below, list all subcontractors and manufacturers of materials and/or equipment that are proposed to be utilized by the Contractor in the performance of this work. Use additional sheets as necessary.

Company Name	Description	Contact Name, Phone, and Email
Upham & Assoc.	Survey	Joe Edwards 386 672 9515 JAEdwards@UphamInc.com
Extreme Stripping	Pattern Painting	Rich Buckman 386 451 5658 RBBuckman@gmail.com
Action Tapping	Tapping & Line Stops	Lance 352 732 6841 Lance@wettaps.com
LP Vroom	Vroom	Lisa Pearl 407 896 9727 LPearl@LP-Vroom.com
Bouoreaux Pro Grade LLC	Asphalt/Base	Chris Nevels 908 581 2620 Dale@BouoreauxProGrade.com
Fortiline	Supplier	South Daytona, FL 386-256-5485

END OF ATTACHMENT N

SECTION 00 11 53
REQUEST FOR QUALIFICATION FORMS
ATTACHMENT O
LIST OF LICENSES and CERTIFICATIONS

License/Cert. Name	Number	Issuing Authority	Expiration Date
General Contractor	CGC1525137	FL DBPR	8/31/2026
Underground Utility	CUC1225777	FL DBPR	8/31/2026
Professional Engineer	66624	FBPE	2/31/2025

END OF ATTACHMENT O

Ron DeSantis, Governor

Melanie S. Griffin, Secretary

Florida dbpr

STATE OF FLORIDA
DEPARTMENT OF BUSINESS AND PROFESSIONAL REGULATION

CONSTRUCTION INDUSTRY LICENSING BOARD

THE UNDERGROUND UTILITY & EXCAVATION CO HEREIN IS CERTIFIED UNDER THE PROVISIONS OF CHAPTER 489, FLORIDA STATUTES

ANDERSON, MICHAEL RYAN

ALL STATE CIVIL CONSTRUCTION, INC.
1301 BEVILLE ROAD
#16
DAYTONA BEACH FL 32119

LICENSE NUMBER: CUC1225777

EXPIRATION DATE: AUGUST 31, 2026

Always verify licenses online at MyFloridaLicense.com

ISSUED: 08/27/2024

Do not alter this document in any form.

This is your license. It is unlawful for anyone other than the licensee to use this document.

Ron DeSantis, Governor

Melanie S. Griffin, Secretary

Florida dbpr

STATE OF FLORIDA
DEPARTMENT OF BUSINESS AND PROFESSIONAL REGULATION

CONSTRUCTION INDUSTRY LICENSING BOARD

THE GENERAL CONTRACTOR HEREIN IS CERTIFIED UNDER THE
PROVISIONS OF CHAPTER 489, FLORIDA STATUTES

ANDERSON, MICHAEL RYAN

ALL STATE CIVIL CONSTRUCTION, INC.
1301 BEVILLE ROAD
#16
DAYTONA BEACH FL 32119

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EXPIRATION DATE: AUGUST 31, 2026

Always verify licenses online at MyFloridaLicense.com

ISSUED: 08/27/2024

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START	END	PROJECT	DESCRIPTION	VALUE	OWNER	CONTACT	ADDRESS	PHONE	EMAIL
Mar-24	Oct-24	Peel Avenue Sanitary Sewer Extension	Construct new sewer main with manholes and water services for new residential construction. Road rebuild including grading, sub base, base, milling and paving, and concret sidewalk.	$ 842,335.97	Harvey Newsome Construction	Harvey Newsome	15911 Johns Lake Rd. Clermont, FL 3471	352-449-8269	hgnjr@hotmail.com
Jun-24	Oct-24	Bible Baptist Church	Construct new water, sewer, stormwater, and associated site components for a new church.	$ 539,755.86	Ewen Outdoor Services LLC	RJ Ewen	Deland, FL 32724	386-279-8975	service@ewensoutdoors.com
Jul-24	Oct-24	Volusia County Sheriff Family resource Center Lift Station	Construct new sanitary sewer lift station, force main, and connection to existing public sewer. Remove and dispose of existing septic system and drainfield.	$ 182,594.65	County of Volusia	Kamron Gardner	3811 Tiger Bay Road Daytona Beach, FL 32124	386-248-1760	KGardner@volusia.org
Mar-24	Jul-24	LPGA Weir #2 Replacement	Remove and replace existing major stormwater outfall for LPGA national golf course stromwater system.	$ 253,838.50	City of Daytona Beach	Frank O'Keefe	950 Bellevue Ave. Daytona Beach, FL 32115	386-671-8632	OKeefeFrank@CODB.US
	May-24	Astro Roofing	Construct water, sewer, and stormwater infrastructure for a new site.	$ 55,644.68	RG Framing	Tim Webb	21 Sunshine Blvd Ormond Beach, FL 32174	386-281-3053	tim@rgframing.com
	Dec-23	Sun and Surf Parking Lot	Construct underground exfitration stormwater system and water service for new beach parking lot.	$ 275,365.00	County of Volusia	Kent Kirton	1630 Tomoka Farms Rd, Port Orange, FL 32128	386-341-5180	kentkirton@kirtonenterprises.com
	Nov-23	Beach House Graphics	Construct water, sewer, and stormwater infrastructure for a new site.	$ 24,270.00	Boudreaux's Pro Grade LLC	Chris Nieves	705 Hope Street Ormond Beach, FL 32174	908-581-2620	dale@boudreauxsprograde.com
	Aug-23	Del Taco	Construct water, sewer, grease trap, and stormwater infrastructure for a new site.	$ 186,631.12	Drewry Site Development	Scott Drewry	400 Venture Dr. Suite F South Daytona, FL 32119	386-451-1133	scott@drewrysite.com
	Aug-23	20" Reuse Main - Emergency Repair	Repair leaking exisitng 14" PVC reuse main.	$ 74,000.00	City of Daytona Beach	Jeff Lane	950 Bellevue Ave. Daytona Beach, FL 32115	386-671-8513	
	Aug-23	720 Marathon Way - Emergency Sewer Repair	Repair damaged sanitary sewer main, including roadway reconstruction.	$ 32,210.60	City of South Daytona	Mike Smith	301 S. Ridgewood Ave Daytona Beach, FL 32114	386-322-3083	
	Jul-23	Louisiana Ave Office Complex	Construct water, sewer, and stormwater infrastructure for a new site.	$ 196,762.50	Z Properties	Chanel Magid	219 W Comstock Ave Winter Park, FL 32789	407-949-8639	chanel@zpropertiesinc.com
	Jul-23	Oak Hill Post Office Sewer	Construct new sanitary sewer service lateral and connection to existing sanitary manhole. Remove and dispose of existing septic system and drainfield.	$ 65,798.80	Oak Hill PO Venture LLC	Robert Wolaver	122 TILDEN AVE RICHMOND, VT 05477	305-304-1333	rwolaver@icloud.com
	Jul-23	Pope Avenue - Emergency Sewer Repair	Repair damaged sanitary sewer main, including roadway reconstruction.	$ 32,717.00	City of South Daytona	Mike Smith	301 S. Ridgewood Ave Daytona Beach, FL 32114	386-322-3083	
	May-23	St. Maarten Condominium - Stormwater Repairs	Reconstruct damaged, existing 48-inch stormwater exfiltration system on beachside.	$ 156,000.00	East Coast Marine Construction and Design	Mike Fletcher	150 S. Palmetto Ave, 201 Dyatona Beach, FL 32114	386-777-7400	eastcoastmarineconstruction@gmail.com
	May-23	Grandview Property - Daytona Beach Police Substation	Construct water and sewer service infrastructure for new site, including connect to existing sanitary sewer and water main taps.	$ 42,007.60	Drewry Site Development	Scott Drewry	400 Venture Dr. Suite F South Daytona, FL 32119	386-451-1133	scott@drewrysite.com

ARTICLE 5 – BASIS OF BID

5.01 Bidder will complete the Work in accordance with the Contract Documents for the following price(s):

BASE BID					
ITEM NO.	DESCRIPTION	QTY	UNIT	UNIT COST	TOTAL
1	**Mobilization/Demobilization**	1	LS	$58,000.00	$58,000.00
2	**Pre-Construction Video**	1	LS	$2,800.00	$2,800.00
3	**Erosion Control and Pollution Abatement**	1	LS	$1,890.00	$1,890.00
4	**Maintenance of Traffic**	1	LS	$28,950.00	$28,950.00
5	**Survey Layout**	1	LS	$10,650.00	$10,650.00
6	**Furnish & Install C900 PVC Water Main**				
a	4"	70	LF	$40.00	$2,800.00
b	6"	25	LF	$60.00	$1,500.00
c	8"	560	LF	$70.00	$39,200.00
7	**Furnish & Install C900 PVC Reclaim Main**				
a	8"	700	LF	$70.00	$49,000.00
8	**Resilient Seat Gate Valve and Box**				
a	8"	7	EA	$6,850.00	$47,950.00
b	4"	2	EA	$2,200.00	$4,400.00
c	2"	2	EA	$1,800.00	$3,600.00
9	**Fire Hydrant Assembly (Remove and Replace)**	1	EA	$14,589.00	$14,589.00
10	**Tie-Ins (including Tapping Sleeve and Valve)**				
a	16"x 8"	1	EA	$13,030.00	$13,030.00
b	8" x 8"	1	EA	$10,360.00	$10,360.00
c	2"	2	EA	$1,850.00	$3,700.00
11	**Line Stop**				
a	8"	4	EA	$13,560.00	$54,240.00
12	**Ductile Iron Fittings - Add or Delete**	1	TN	$20,000.00	$20,000.00
13	**Blow-Off Assembly**	1	EA	$4,750.00	$4,750.00
14	**Potable Water Services**	5	EA	$2,300.00	$11,500.00
15	**Reclaim Water Services**	5	EA	$2,170.00	$13,550.00
16	**Mill and Resurface (1 1/2")**	1100	SY	$35.00	$38,500.00
17	**Open Cut/Replace Base/Seal**	320	SY	$45.00	$14,400.00
18	**Open Cut/Repair Asphalt**	610	SY	$60.00	$36,600.00
19	**Concrete Curb (Remove and Replace)**	35	LF	$80.00	$2,800.00
20	**Patterned Pavers (Remove and Replace)**	175	SY	$250.00	$43,750.00
21	**As-builts**	1	LS	$8,900.00	$8,900.00
				Total Base Bid	$541,409.00

BID ALTERNATE 1					
ITEM NO.	DESCRIPTION	QTY	UNIT	UNIT COST	TOTAL
1A	**Exploratory Excavation**	1	LS	$9,300.00	$9,300.00
2A	**Line Stop**				
a	12"	2	EA	$15,250.00	$30,500.00
3A	**Side Actuated Gate Valve and Box**				
a	12"	1	EA	$15,600.00	$15,600.00
4A	**Pervious Parking Grid Pavers (Remove and Replace)**	40	SY	$50.00	$2,000.00
5A	**Mill and Resurface (1 1/2")**	120	SY	$35.00	$4,200.00
6A	**Open Cut/Repair Asphalt**	55	SY	$60.00	$3,300.00
7A	**Concrete Curb (Remove and Replace)**	55	LF	$80.00	$4,400.00
8A	**Concrete Driveway/Sidewalks (Remove and Replace)**	30	SY	$80.00	$2,400.00
				Total Bid Alternate 1	$71,700.00

Bidder acknowledges that (1) each Bid Unit Price includes an amount considered by Bidder to be adequate to cover Contractor's overhead and profit for each separately identified item, and (2) estimated quantities are not guaranteed, and are solely for the purpose of comparison of Bids, and final payment for all unit price Bid items will be based on actual quantities, determined as provided in the Contract Documents.

Total Base Bid Price: $541,409.00

Total Bid Alternate 1 Price: $71,700.00

CONTRACT DOCUMENTS FOR

CITY OF FLAGLER BEACH

SOUTH CENTRAL WATER MAIN REPLACEMENT

CITY PROJECT NO: 570

CITY INVITATION TO BID NO: 24-1021

OCTOBER 2024

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SECTION 00 01 01

CONTRACT DOCUMENTS FOR

CITY OF FLAGLER BEACH

SOUTH CENTRAL WATERMAIN REPLACEMENT

CITY PROJECT NO: 570

CITY INVITATION TO BID NO: 24-1021

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DIVISION 00

BIDDING REQUIREMENTS, CONTRACT DOCUMENTS, AND FORMS

CITY OF FLAGLER BEACH
SOUTH CENTRAL WATERMAIN REPLACEMENT
CITY PROJECT NO: 570
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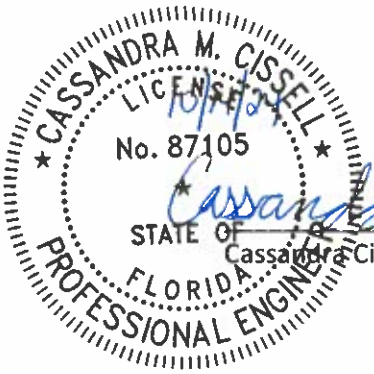
CITY OF FLAGLER BEACH
SOUTH CENTRAL WATERMAIN REPLACEMENT
CITY PROJECT NO: 2423044
CITY INVITATION TO BID NO: 24-1021

The Technical Specifications are certified as follows:

Civil Engineer
Divisions 1,2,31,32, and 33
Mead & Hunt
4401 Eastport Parkway
Port Orange, Florida 32127
Ph. 386-761-6810



Cassandra Cissell, P.E. No. 87105

The above certification(s) apply to the technical specifications referenced in the preceding technical specifications index only, as listed under each Division indicated above. Additional information provided within the Appendix may contain information prepared by other professionals. These items are not covered under the above registered professionals' signature and seal.

END OF SECTION

SECTION 00 31 32
GEOTECHNICAL DATA

PART 1 GENERAL

1.01 Description

The Contractor shall examine the project area and contact the City should it feel site soils and subsurface investigations are necessary to construct the proposed improvements as required by the contract documents.

PART 2 PRODUCTS – Not Used

PART 3 EXECUTION – Not Used

END OF SECTION

SECTION 00 01 50
FLORIDA TRENCH SAFETY ACT

Bidder acknowledges that he is solely responsible for complying with the Florida Trench Safety Act (ACT) and Occupational Safety and Health Administrations excavation safety standard 29 CFR 1926.650.

Bidder further acknowledges that included in the various items of the proposal and in the Total Bid Price are costs for complying with the Florida Trench Safety Act (90-96, Laws of Florida) effective October 1, 1990, and the Occupational Safety and Health Administrations excavation safety standard.

Name: _____

Authorized Signature: _____

Date: _____

Title: _____

END OF SECTION

CITY OF FLAGLER BEACH

ADVERTISEMENT FOR BID NO. 24-1021
CITY OF FLAGLER BEACH
SOUTH CENTRAL WATERMAIN REPLACEMENT
City Project No. 570

NOTICE IS HEREBY GIVEN THAT THE CITY OF FLAGER BEACH IS ISSUING THIS INVITATION TO BID (ITB) TO SOLICIT COMPETITIVE SEALED BIDS FROM LICENSED AND INSURED CONTRACTORS FOR THE CITY OF FLAGLER BEACH SOUTH CENTRAL WATERMAIN REPLACEMENT PROJECT ACCORDING TO THE SCOPE OF WORK SPECIFICATIONS. BIDS WILL BE RECEIVED FOR A SINGLE PRIME CONTRACT. BIDS SHALL BE ON A LUMP SUM AS INDICATED IN THE BID FORM.

IT IS THE INTENT AND PURPOSE OF THE CITY OF FLAGER BEACH THAT THIS INVITATION TO BID (ITB) PROMOTES COMPETITIVE SELECTION. IT IS THE BIDDER'S RESPONSIBILITY TO ADVISE THE FINANCE DIRECTOR IF ANY LANGUAGE, REQUIREMENTS, ETC., OR ANY COMBINATION THEREOF, INADVERTENTLY RESTRICTS OR LIMITS THE REQUIREMENTS STATED IN THIS ITB.

All applicants must be properly licensed and show proof of insurance, licenses, and certificates as required by all local, State of Florida, and Federal agencies. Successful applicants will obtain all required permitting as previously stated.

Interested contractors may secure the, bid forms and other pertinent information by visiting the city website bid page: http://www.cityofflaglerbeach.com/Bids.aspx.or the website www.demandstar.com Bid packages also may be obtained by contacting the City Clerk, Penny Overstreet at 386-517-2000 ext. 233 or poverstreet@cityofflaglerbeach.com

For further information, contact: Penny Overstreet, City Clerk
Preferred method of contact email: poverstreet@cityofflaglerbeach.com (386) 517-2000, ext. 233

Sealed Bids must be addressed to the attention of **Penny Overstreet, City Clerk**. Sealed Bids must be received on or before **2:00 pm Thursday, November 14, 2024.**

No bids will be accepted after this deadline.

Sealed Bids must have the project title and bid number on outside of package. The City of Flagler Beach reserves the right to reject any and all Bids, to award all or segments of the project, and to waive any informality in Bids received, as may be in the best interest of the City.

MAILING ADDRESS:
105 S 2nd Street
Flagler Beach, FL 32136

WALK-IN DELIVERY ADDRESS:
105 S 2nd Street
Flagler Beach, FL 32136

Date of Distribution: Monday October 21, 2024
Non-Mandatory Pre-Bid Meeting: Monday October 28, 2024 @ 10:00 am EST
Last Date of Inquiries: Tuesday November 5, 2024 @ 5:00 pm EST
Last Date for Addenda if Needed: Friday November 8, 2024
BIDS DUE BY: Thursday November 14, 2024 **@ 2:00 pm EST,** after which time they will be publicly opened and read aloud.

END INVITATION TO BID

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SECTION 00 11 53
REQUEST FOR QUALIFICATION FORMS

Project Name: **CITY OF FLAGLER BEACH SOUTH CENTRAL WATERMAIN REPLACEMENT**

City Project No.: 570

Company Name: _____

Contact Name: _____

E-mail Address: _____

Mailing Address: _____

_____

Phone Number: _____

Fax Number: _____

Contractor License Number: _____

The CITY will post addenda information at Onvia DemandStar, Inc., at the following web address: www.demandstar.com. For technical assistance with this website, please contact Onvia Services at 1-800-711-1712. All Bidders should check the Onvia DemandStar website at least seven (7) calendar days before the date fixed to verify information regarding Addenda. Failure to do so could result in rejection of the submittal as unresponsive. Bidders shall sign, date, and return all addenda with their bid. It is the sole responsibility of the Bidder to ensure he/she obtains information related to Addenda. Oral and other interpretations or clarifications will be without legal effect.

The following Addenda were received:

Addendum No._____ Date Received_____

Addendum No._____ Date Received_____

Addendum No._____ Date Received_____

Addendum No._____ Date Received_____

Addendum No._____ Date Received_____

Addendum No._____ Date Received_____

The Bidder acknowledges the receipt, execution, and return of the following attachments:

- Attachment A: Certificate of Corporation
- Attachment B: Contractor Questionnaire
- Attachment C: Required Disclosure
- Attachment D: Bidder Information
- Attachment E: Experience of Bidder
- Attachment F: Sworn Statement Under section 287.133(3) (a), Florida Statutes, on Public Entity Crimes
- Attachment G: Affidavit of Non-Collusion
- Attachment H: Certification of Non-Segregated Facilities
- Attachment I: Drug-Free Workplace
- Attachment J: Conflict of Interest Statement
- Attachment K: Compliance with Public Records Law
- Attachment L: Americans with Disabilities Act Affidavit
- Attachment M: List of Licenses and Certifications
- Attachment N: List of Proposed Subcontractors/Suppliers
- Attachment O: List of Proposed Equipment

Name: _____

Authorized Signature: _____

Date: _____

Title: _____

ACKNOWLEDGEMENT

STATE OF FLORIDA

COUNTY OF _____

_____
Signature of Notary Public
Print, Type or Stamp Commissioned Name of Notary Public below:

Sworn to (or affirmed) and subscribed before me by means of

online notarization ☐ *OR* physical presence ☐

this _____ day of _____, 20____.

Personally Known ☐ *OR* Produced identification ☐

Type of Identification Produced:_____

END OF SECTION

REQUEST FOR QUALIFICATION FORMS

ATTACHMENT A

CERTIFICATE OF CORPORATION

Please include a copy of your Certificate of Corporation from the State of Florida with this attachment.

STATE OF FLORIDA

COUNTY OF_____

I HEREBY CERTIFY that a meeting of the Board of Directors of a corporation under the laws of the State of _____ , was held on _____ , 20_____. The following resolution was duly passed and adopted:

"RESOLVED, that _____as _____President of the corporation is hereby authorized to execute the Contract dated _____ , 20 _____, between The City of Flagler Beach, a municipal corporation and this corporation, and that execution thereof, attested by the Secretary of the corporation and with corporate seal affixed, shall be the official act and deed of this corporation."

I further certify that said resolution is now in full force and effect.

IN WITNESS THEREOF, I have hereunto set my hand and affixed the official seal of the corporation

This _____ day of _____, 20____ .

_____

Corporate Secretary

END OF ATTACHMENT A

SECTION 00 11 53
REQUEST FOR QUALIFICATION FORMS

ATTACHMENT B

CONTRACTOR QUESTIONNAIRE

DATE: _____

NAME OF BIDDER: _____

BUSINESS ADDRESS: _____

PHONE NUMBER: _____

CONTRACTOR'S FL LICENSE #: _____

EXPIRATION DATE: _____

The undersigned warrants the truth and accuracy of all statements and answers herein contained. Include additional sheets as necessary.

1. How many years has your organization been in business as a General Contractor?

_____

_____

_____

2. How many years has your organization been in business as a Subcontractor?

_____

_____

_____

3. Name of Superintendent and length of time with your company?

_____

_____

4. Describe in detail and give the date and owner, including phone numbers and contact person(s), of the last five (5) projects that you have completed similar in type, size, and nature as the project proposed?

5. Have you ever failed, or been alleged to have failed, to complete work awarded to you? If so, please list the project and explain the reasons why?

6. Have you ever failed, or been alleged to have failed, to complete work within the Contract Time? If so, please list the project and explain the reasons why?

7. Have you ever been assessed liquidated damages, or had liquidated damages assessed against you? If so, please list the project and explain the reasons why?

8. Have you ever had a bond or letter of credit called by the owner of a project? If so, when?

9. Have you personally inspected the site of the proposed Work? Describe, in full, any anticipated problems with the site and your proposed solutions?

_____

_____

_____

Bidder Name: _____

Signature: _____

Title: _____

Attach the corporate information sheet from the Florida Department of State, Division of Corporation's, web site.

STATE OF FLORIDA

COUNTY OF _____

_____

Signature of Notary Public

Print, Type or Stamp Commissioned Name of Notary Public below:

Sworn to (or affirmed) and subscribed before me by means of

online notarization ☐ *OR* physical presence ☐

this _____ day of _____, 20____.

Personally Known ☐ *OR* Produced identification ☐

Type of Identification Produced:_____

END OF ATTACHMENT B

SECTION 00 11 53
REQUEST FOR QUALIFICATION FORMS

ATTACHMENT C

REQUIRED DISCLOSURE

The following disclosure is of all material facts pertaining to any felony conviction or any pending felony charges in the last three (3) years in this State or any other state of the United States against (1) the Bidder, (2) any business entity related to or affiliated with the Bidder or (3) any present or former owner of the Bidder or of any such related or affiliated entity. This disclosure shall not apply to any person or entity which is only a stockholder, which person or entity owns twenty percent (20%) or less of the outstanding shares of the Bidder whose stock is publicly owned and traded:

Bidder Name: _____

Signature: _____

Title: _____

Date: _____

END OF ATTACHMENT C

SECTION 00 11 53
REQUEST FOR QUALIFICATION FORMS

ATTACHMENT D BIDDER INFORMATION

List the full legal name of each officer of the Corporation.

President: _____

Signature: _____ Date: _____

Vice-President: _____

Signature: _____ Date: _____

Secretary: _____

Signature: _____ Date: _____

Treasurer: _____

Signature: _____ Date: _____

List the Corporate Officer that will sign the contract: _____

END OF ATTACHMENT D

SECTION 00 11 53
REQUEST FOR QUALIFICATION FORMS

ATTACHMENT E
EXPERIENCE OF BIDDER

Bidder Name: _____

Authorized Signature: _____Date: _____

Is your company currently involved in any active litigation? _____Yes _____No

If Yes, explain: _____

_____

_____

_____

Has your company ever been sued? _____Yes _____No

If Yes, explain and/or submit court decision or judgment, as applicable: _____

_____

_____

_____

The Bidder must demonstrate the successful completion of three (3) projects of similar complexity, nature, size, and dollar amount of lift stations rehabilitations or new installations. Any material misrepresentation, as determined by the City of Flagler Beach, shall result in disqualification.

On the following pages, provide the requested information regarding experience within the past five (5) years on three (3) projects as listed above. These projects must include replacement of potable water main via open cut installation method with corresponding abandonments of the existing water main.

Project #1:

Contract Date: _____

Contract Amount: $ _____

Project Name: _____

Project Location: _____

General Scope of Work: _____

_____

Client Name and Address: _____

_____

_____

Client Contact Phone: _____

Client Contact Email: _____

Was the project completed on schedule? _____Yes _____No

Total Amount of Change Orders: $_____

Reasons for Change Orders: _____

_____

_____

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Project #2:

Contract Date: _____

Contract Amount: $ _____

Project Name: _____

Project Location: _____

General Scope of Work: _____

_____

Client Name and Address: _____

_____

_____

Client Contact Phone: _____

Client Contact Email: _____

Was the project completed on schedule? _____Yes _____No

Total Amount of Change Orders: $_____

Reasons for Change Orders: _____

_____

_____

REMAINDER OF PAGE INTENTIONALLY LEFT BLANK

Project #3:

Contract Date: _____

Contract Amount: $ _____

Project Name: _____

Project Location: _____

General Scope of Work: _____

_____

Client Name and Address: _____

_____

_____

Client Contact Phone: _____

Client Contact Email: _____

Was the project completed on schedule? _____Yes _____No

Total Amount of Change Orders: $_____

Reasons for Change Orders: _____

END OF ATTACHMENT E

SWORN STATEMENT UNDER SECTION 287.133(3) (a), FLORIDA STATUTES, ON PUBLIC ENTITY CRIMES

THIS FORM MUST BE SIGNED IN THE PRESENCE OF A NOTARY PUBLIC OR OTHER OFFICER AUTHORIZED TO ADMINISTER OATHS.

This sworn statement is submitted to: **The City of Flagler Beach** (Public entity)

By: _____
(Individual's name and title)

For: _____
(Name of entity submitting sworn statement)

Whose business address is: _____

_____

Federal Employer Identification Number (FEIN): _____

(If the entity has no FEIN, include the Social Security Number of the individual signing this sworn statement)

1. I understand that a "public entity crime" as defined in Section 287.133(1)(g), Florida Statutes, means a violation of any State or Federal law by a person with respect to and directly related to the transaction of business with any public entity or with an agency or political subdivision of any other state or with the United States, including, but not limited to, any bid or contract for goods or services to be provided to any public entity or an agency or political subdivision of any other state or of the United States and involving antitrust, fraud, theft, bribery, collusion, racketeering, conspiracy, or material misrepresentation.
2. I understand that "convicted" or "conviction" as defined in Paragraph 287.133(1) (b), Florida Statutes, means a finding of guilt or a conviction of a public entity crimes, with or without an adjudication of guilt, in any Federal or state trial court of record relating to charges brought by indictment or information after July 1, 1989, as a result of a jury verdict, non-jury trial, or entry of a plea of guilty or nolo contendere.

3. I understand that an "affiliate" as defined in Section 287.133(1)(a), Florida Statutes, means: A predecessor or successor of a person convicted of a public entity crime: or an entity under the control of any natural person who is active in the management of the entity and how has been convicted of a public entity crime. The term "affiliate" includes those officers, directors, executives, partners, shareholders, employees, members, and agents who are active in the management of an affiliate. The ownership by one (1) person of shares constituting a controlling interest in another person, or a pooling of equipment or income among persons when not for fair market value under an arm's length agreement, shall be a prima facie case that one person controls another person. A person who knowingly enters into a joint venture with a person who has been convicted of a public entity crime in Florida during the preceding thirty-six (36) months shall be considered an affiliate.
4. I understand that a "person" as defined in Section 287.133(1) (e), Florida Statutes, means any natural person or entity organized under the laws of any state or of the United States with the legal power to enter into a binding contract and which bids or applies to bid on contracts for the provision of goods or services let by a public entity, or which otherwise transacts or applies to transact business with a public entity. The term "person" includes those officers, directors, executives, partners, shareholders, employees, members, and agents who are active in management of an entity.

Based on information and belief, the statement which I have marked below is true in relation to the entity submitting this sworn statement. (Indicate which statement applies.)

_____Neither the entity submitting this sworn statement, nor any officers, directors, executives, partners, shareholders, employees, members, or agent who is active in management of the entity, nor the affiliate of the entity, has been charged with and convicted of a public entity crime subsequent to July 1, 1989.

_____The entity submitting this sworn statement, or one or more of the officers, directors, executives, partners, shareholders, employees, members, or agents who are active in management of the entity, or an affiliate of the entity, has been charged with and convicted of a public entity crime subsequent to July 1, 1989.

_____The entity submitting this sworn statement, or one or more of the officers, directors, executives, partners, shareholders, employees, members, or agents who are active in management of the entity, or an affiliate of the entity, has been charged with and convicted of a public entity crime subsequent to July 1, 1989.

However, there has been a subsequent proceeding before an Administrative Law Jury of the State of Florida, Division of Administrative Hearings and the Final Order entered by the Administrative Law Jury

determined that it was not in the public interest to place the entity submitting this sworn statement on the convicted vendor list. (Attach a copy of the final order.)

I UNDERSTAND THAT THE SUBMISSION OF THIS FORM TO THE CITY OF FLAGLER IS FOR THE CITY ONLY AND, THAT THIS FORM IS VALID THROUGH DECEMBER 31, OF THE CALENDAR YEAR IN WHICH IT IS FILED. I ALSO UNDERSTAND THAT I AM REQUIRED TO INFORM THE CITY PRIOR TO ENTERING IN TO A CONTRACT IN EXCESS OF THE THRESHOLD AMOUNT PROVIDED IN SECTION 287.017, FLORIDA STATUES, FOR CATEGORY TWO OF ANY CHANGE IN THE INFORMATION CONTAINED IN THIS FORM.

Signature: _____

Date: _____

State of: _____

County of: _____

ACKNOWLEDGEMENT

STATE OF FLORIDA

COUNTY OF _____

_____

Signature of Notary Public

Print, Type or Stamp Commissioned Name of Notary Public below:

Sworn to (or affirmed) and subscribed before me by means of

online notarization ☐ *OR* physical presence ☐

this _____ day of _____, 20____.

Personally Known ☐ *OR* Produced identification ☐

Type of Identification Produced:_____

END OF ATTACHMENT F

SECTION 00 11 53
REQUEST FOR QUALIFICATION FORMS

ATTACHMENT G AFFIDAVIT OF NON-COLLUSION

The undersigned bidder or agent, being duly sworn on oath, says that he/she has not, nor has any other member, representative, or agent of the firm, company, corporation or partnership represented by him, entered into any combination, collusion or agreement with any person relative to the price to be bid by anyone at such letting nor to prevent any person from bidding nor to include anyone to refrain from bidding, and that this bid is made without reference to any other bid and without any agreement, understanding or combination with any other person in reference to such bidding. He/She further says that no person or persons, firms, or corporation has, have, or will receive directly or indirectly, any rebate, free gift, commission, or thing of value on account of such sale.

OATH AND AFFIRMATION

I HEREBY AFFIRM UNDER THE PENALTIES FOR PERJURY THAT THE FACTS AND INFORMATION CONTAINED IN THE FOREGOING BID FOR PUBLIC WORKS ARE TRUE AND CORRECT.

Dated this _____day of _____, 20 ____.

_____

(Bidder Name)

_____

(Title)

_____

(Signature)

ACKNOWLEDGEMENT

STATE OF FLORIDA

COUNTY OF _____

_____

Signature of Notary Public

Print, Type or Stamp Commissioned Name of Notary Public below:

Sworn to (or affirmed) and subscribed before me by means of

online notarization ☐ *OR* physical presence ☐

this _____ day of _____, 20____.

Personally Known ☐ *OR* Produced identification ☐

Type of Identification Produced:_____

END OF ATTACHMENT G

SECTION 00 11 53
REQUEST FOR QUALIFICATION FORMS

ATTACHMENT H
CERTIFICATION OF NON-SEGREGATED FACILITIES

The Bidder certifies that they do not maintain or provide for their employees any segregated facilities at any of his establishments, and that they do not permit their employees to perform their services at any location, under their control, where segregated facilities are maintained. The Bidder certifies further that they will not maintain or provide for their employees any segregated facilities at any location under their control where segregated facilities are maintained. The Bidder agrees that a breach of this certification will be a violation of the Equal Opportunity clause in any contract resulting from acceptance of this Bid. As used in this certification, the term "segregated facilities" means any waiting rooms, work areas, restrooms and washrooms, restaurants and other eating areas, time clocks, locker rooms and other storage and dressing areas, parking lots, drinking fountains, recreation or entertainment area, transportation and housing facilities provided for employees which are segregated by explicit directive, or are in fact segregated on the basis of race, color, religious disability or national origin, because of habit, local custom, or otherwise. The Bidder agrees that (except where they have obtained identical certifications from proposed subcontractors for specific time periods) they will obtain identical certifications from proposed subcontractors prior to the award of subcontracts exceeding $10,000 which are not exempt from the provisions of the Equal Opportunity clause, and that he will retain such certifications in his files.

The nondiscriminatory guidelines as promulgated in Section 202, Executive Order 11246, and as amended by Executive Order 11375 and as amended, relative to Equal Opportunity for all persons and implementations of rules and regulations prescribed by the United States Secretary of Labor are incorporated herein.

Name: _____

Signature: _____

Date: _____

Title: _____

Official Address: _____

_____

END OF ATTACHMENT H

SECTION 00 11 53
REQUEST FOR QUALIFICATION FORMS

ATTACHMENT I DRUG-FREE WORKPLACE

The undersigned vendor in accordance with Florida Statute 287.087 hereby certifies that

_____ does hereby: (Name of Business)

1. Publish a statement notifying employees that the unlawful manufacture, distribution, dispensing, possession, or use of a controlled substance is prohibited in the workplace and specifying the actions that will be taken against employees for violations of such prohibition.
2. Inform employees about the dangers of drug abuse in the workplace, the business's policy of maintaining a drug-free workplace, any available drug counseling, rehabilitation, and employee assistance programs, and the penalties that may be imposed upon employees for drug abuse violations.
3. Give each employee engaged in providing the commodities or contractual services that are proposed a copy of the statement specified in subsection (1).
4. In the statement specified in subsection (1), notify the employees that, as a condition of working on the commodities or contractual services that are under proposal, the employee will propose by the terms of the statement and will notify the employer of any conviction of, or plea of guilty or nolo contender to, any violation of Chapter 893, Florida Statutes, or of any controlled substance law of the United States or any state, for a violation occurring in the workplace no later than five (5) days after such conviction.
5. Impose a sanction on or require the satisfactory participation in a drug abuse assistance or rehabilitation program if such is available in the employee's community, by any employee who is so convicted.
6. Make a good faith effort to continue to maintain a drug-free workplace through implementation of the matters set forth above.

As the person authorized to sign the statement, I certify that this firm complies fully with the above requirements.

Name: _____

Signature: _____

Date: _____

Title: _____

END OF ATTACHMENT I

SECTION 00 11 53
REQUEST FOR QUALIFICATION FORMS

ATTACHMENT J CONFLICT OF INTEREST STATEMENT

Before me, the undersigned authority, personally appeared _____, who was duly sworn, deposes, and states:

1. I am the _____of _____with a local office in _____and principal office in _____.
2. The above-named entity is submitting an Expression of Interest for the City of Flagler Beach project described as bid number _____.
3. The Affiant has made diligent inquiry and provides the information contained in this Affidavit based upon his own knowledge.
4. The Affiant states that only one submittal for the above project is being submitted and that the above-named entity has no financial interest in other entities submitting proposals for the same project.
5. Neither the Affiant nor the above-named entity has directly or indirectly entered into any agreement, participated in any collusion, or otherwise taken any action in restraint of free competitive pricing in connection with the entity's submittal for the above project. This statement restricts the discussion of pricing data until the completion of negotiations and execution of the Agreement for this project.
6. Neither the entity nor its affiliates, nor anyone associated with them, is presently suspended or otherwise ineligible from participating in contract lettings by any local, state, or federal agency.
7. Neither the entity, nor its affiliates, nor anyone associated with them have any potential conflict of interest due to any other clients, contracts, or property interests for this project.
8. I certify that no member of the entity's ownership, management, or staff has a vested interest in any aspect of or Department of the City of Flagler Beach.
9. I certify that no member of the entity's ownership or management is presently applying for an employee position or actively seeking an elected position with City of Flagler Beach.
10. In the event that a conflict of interest is identified in the provision of services, I, on behalf of the above-named entity, will immediately notify the City of Flagler Beach in writing.

_____

Signature of Affiant

Section continued on next page

ACKNOWLEDGEMENT

STATE OF FLORIDA

COUNTY OF _____

_____
Signature of Notary Public
Print, Type or Stamp Commissioned Name of Notary Public below:

Sworn to (or affirmed) and subscribed before me by means of

online notarization ☐ *OR* physical presence ☐

this _____ day of _____, 20____.

Personally Known ☐ *OR* Produced identification ☐

Type of Identification Produced:_____

END OF ATTACHMENT J

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SECTION 00 11 53
REQUEST FOR QUALIFICATION FORMS

ATTACHMENT K
COMPLIANCE WITH THE PUBLIC RECORDS LAW

Upon award recommendation or thirty (30) days after receiving submittals, they become "public records" and shall be subject to public disclosure consistent with Chapter 119, Florida Statutes. Proposers must invoke the exemptions to disclosure provided by law in the response to the solicitation and must identify the data or other materials to be protected and must state the reasons why such exclusion from public disclosure is necessary.

If the company submits information exempt from public disclosure, the company must identify with specificity which pages/paragraphs of their bid/proposal package are exempt from the Public Records Act, identifying the specific exemption section that applies to each. The protected information must be submitted to the City of Flagler Beach in a separate envelope marked accordingly.

Company Name: _____

Authorized representative Printed Name: _____

Authorized Representative Signature: _____

Date: _____

END OF ATTACHMENT K

SECTION 00 11 53
REQUEST FOR QUALIFICATION FORMS

ATTACHMENT L
AMERICANS WITH DISABILITIES ACT AFFIDAVIT

The undersigned CONTRACTOR swears that the information herein contained is true and correct and that none of the information supplied was for the purpose of defrauding the CITY.

The CONTRACTOR will not discriminate against any employee or applicant for employment because of physical or mental handicap in regard to any position for which the employee or applicant for employment is qualified. The CONTRACTOR agrees to comply with the rules, regulations and relevant orders issued pursuant to the Americans with Disabilities Act (ADA), 42 USC s. 12101 et seq. It is understood that in no event shall the CITY be held liable for the actions or omissions of the CONTRACTOR or any other party or parties to the Agreement for failure to comply with the ADA. The CONTRACTOR agrees to hold harmless and indemnify the CITY, its agents, officers, or employees from any and all claims, demands, debts, liabilities or causes of action of every kind or character, whether in law or equity, resulting from the CONTRACTOR's acts or omissions in connection with the ADA.

Name: _____

Authorized Signature: _____

Date: _____

Title: _____

Affix Corporate Seal:

ACKNOWLEDGEMENT

STATE OF FLORIDA

COUNTY OF _____

_____
Signature of Notary Public
Print, Type or Stamp Commissioned Name of Notary Public below:

Sworn to (or affirmed) and subscribed before me by means of

online notarization ☐ *OR* physical presence ☐

this _____ day of _____, 20____.

Personally Known ☐ *OR* Produced identification ☐

Type of Identification Produced:_____

END OF ATTACHMENT L

REQUEST FOR QUALIFICATION FORMS

ATTACHMENT M
ADDITIONAL PROCUREMENT CLAUSES

TERMINATION FOR CAUSE AND CONVENIENCE

1. Contractor shall be considered in material default of the Agreement and such default shall be considered cause for the City to terminate the Agreement, in whole or in part, as further set forth in this Section 17, if Contractor: (i) fails to begin the Work under the Contract Documents within the time specified herein; (ii) fails to properly and timely perform the Work as directed by the City or as provided for in the approved Progress Schedule; (iii) performs the Work unsuitably or neglects or refuses to remove materials or to correct or replace such Work as may be rejected as unacceptable or unsuitable; (iv) discontinues the prosecution of the Work; (v) fails to resume Work which has been suspended within a reasonable time after being notified to resume Work; (vi) becomes insolvent or is declared bankrupt, or commits any act of bankruptcy; (vii) allows any final judgment to stand against it unsatisfied for more than ten (10) days; (viii) makes an assignment for the benefit of creditors; (ix) fails to obey any applicable codes, laws, ordinances, rules or regulations with respect to the Work; and/or (x) materially breaches any other provision of the Contract Documents.

2. City shall notify Contractor in writing of Contractor's default(s). If the City determines that Contractor has not remedied and cured the default(s) within seven (7) calendar days following receipt by Contractor of said written notice, then the City, at its option, without releasing or waiving its rights and remedies against the Contractor's sureties and without prejudice to any other right or remedy it may be entitled to hereunder or by law, may terminate all or any portion of the Work and any materials, tools, equipment, and appliances of Contractor, take assignments of any of Contractor's subcontracts and purchase orders, and complete all or any portion of Contractor's Work by whatever means, method or agency which the City, in its sole discretion, may choose.

3. If the City deems any of the foregoing remedies necessary, Contractor agrees that it shall not be entitled to receive any further payments hereunder until after the Project is completed. All monies expended and all of the costs, losses, damages, and extra expenses, including all management, administrative and other overhead and other direct and indirect expenses (including attorneys' fees) or damages incurred by the City incident to such completion, shall be deducted from the Contract Amount, and if such expenditures exceed the unpaid balance of the Contract Amount, Contractor agrees to pay promptly to City, on demand, the full amount of such excess, including costs of collection, attorneys' fee (including appeals) and interest thereon at the maximum legal rate of interest until paid. If the unpaid balance of the Contract Amount exceeds all such costs, expenditures and damages incurred by the City to complete the Work, such excess shall be paid to the Contractor. The amount to be paid to the Contractor or the City, as the case may be, and this obligation for payment shall survive termination of the Agreement.

4. The liability of Contractor hereunder shall extend to and include the full amount of any and all sums paid, expenses and losses incurred, damages sustained, and obligations assumed by the City in good faith under the belief that such payments or assumptions were necessary or required, in completing the Work and providing labor, materials, equipment, supplies, and other items therefore or re-letting the Work, in settlement, discharge or compromise of any claims, demands, suits and judgments pertaining to or arising out of the Work hereunder.

5. If, after notice of termination of Contractor's right to proceed pursuant to this Section 17, it is determined for any reason that Contractor was not in default, or that its default was excusable, or that the City is not entitled to the remedies against Contractor provided herein, then Contractor's remedies against the City shall be the same as and

limited to those afforded Contractor below under Subsection 18.1, below, regarding termination of the Agreement for convenience.

BUILD AMERICA BUY AMERICA ACT (BABAA)

The Office of Management and Budget (OMB) has revised its guidance in Title 2 of the Code of Federal Regulations (2 CFR) to add a new part 184 and revise 2 CFR § 200.322. The new part 184 provides guidance to federal agencies on how to apply the domestic content procurement preference as set forth in the Build America, Buy America Act (BABAA) to federal financial assistance for infrastructure projects.

The revised provision in 2 CFR § 200.322 specifies that federal agencies providing federal financial assistance for infrastructure projects must implement the BABAA requirements set forth in 2 CFR part 184. This link's URL is https://www.ecfr.gov/current/title-2/subtitle-A/chapter-I/part-184.

DEBARMENT AND SUSPENSION

1. The City shall have the right to terminate the Agreement without cause upon seven (7) calendar days written notice to Contractor. In the event of such termination for convenience, Contractor's recovery against City shall be limited to (i) that portion of the Contract Amount earned through the date of termination; (ii) any retainage withheld up to the date of termination, and (iii) actual out-of-pocket costs arising directly and solely from termination of this Agreement not to exceed under any circumstance five percent (5%) of that portion of the Contract Amount earned through the date of termination. Contractor shall not be entitled to any other or further recovery against the City, including, but not limited to, damages or any anticipated profit on portions of the Work not performed.

2. The City shall have the right to suspend all or any portions of the Work upon giving Contractor two (2) calendar days' prior written notice of such suspension. If all or any portion of the Work is so suspended, Contractor's sole and exclusive remedy shall be to seek an extension of time to its schedule in accordance with the procedures set forth in the Contract Documents. In no event shall the Contractor be entitled to any additional compensation or damages. Provided, however, if the ordered suspension exceeds three (3) months, the Contractor shall have the right to terminate the Agreement with respect to that portion of the Work which is subject to the ordered suspension.

BYRD ANTI-LOBBYING AMENDMENT

Contractors who apply or bid for an award of more than $100,000 shall file the required certification. Each tier certifies to the tier above that it will not and has not used federally appropriated funds to pay any person or organization for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, officer or employee of Congress, or an employee of a Member of Congress in connection with obtaining any federal contract, grant, or any other award covered by 31 U.S.C. § 1352. Each tier shall also disclose any lobbying with non-federal funds that takes place in connection with obtaining any federal award. Such disclosures are forwarded from tier to tier up to the recipient who in turn will forward the certification(s) to the federal awarding agency."

CERTIFICATION

The undersigned certifies, to the best of his or her knowledge and belief, that:
No federal appropriated funds have been paid or will be paid, by or on behalf of the undersigned, to any person for influencing or attempting to influence an officer or employee of an agency, a Member of Congress, an officer or

employee of Congress, or an employee of a Member of Congress in connection with the awarding of any federal contract, the making of any federal grant, the making of any federal loan, the entering into of any cooperative agreement, and the extension, continuation, renewal, amendment, or modification of any federal contract, grant, loan, or cooperative agreement.

If any funds other than federal appropriated funds have been paid or will be paid to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with this federal contract, grant, loan, or cooperative agreement, the undersigned shall complete and submit Standard Form-LLL, "Disclosure Form to Report Lobbying," in accordance with its instructions.

The undersigned shall require that the language of this certification be included in the award documents for all subawards at all tiers (including subcontracts, subgrants, and contracts under grants, loans, and cooperative agreements) and that all subrecipients shall certify and disclose accordingly.

This certification is a material representation of fact upon which reliance was placed when this transaction was made or entered into. Submission of this certification is a prerequisite for making or entering into this transaction imposed by section 1352, Title 31, U.S.C. Any person who fails to file the required certification shall be subject to a civil penalty of not less than $10,000 and not more than $100,000 for each such failure."

"The Contractor, CPH, LLC, certifies or affirms the truthfulness and accuracy of each statement of its certification and disclosure, if any. In addition, the Contractor understands and agrees that the provisions of 31 U.S.C. Chap. 38, Administrative Remedies for False Claims and Statements, apply to this certification and disclosure, if any.

Prohibition on Contracting for Covered Telecommunications Equipment or Services

(a) *Definitions.* As used in this clause, the terms backhaul; covered foreign country; covered telecommunications equipment or services; interconnection arrangements; roaming; substantial or essential component; and telecommunications equipment or services have the meaning as defined in FEMA Policy 405-143-1, Prohibitions on Expending FEMA Award Funds for Covered Telecommunications Equipment or Services (Interim), as used in this clause—

(b) *Prohibitions.*

(1) Section 889(b) of the John S. McCain National Defense Authorization Act for Fiscal Year 2019, Pub. L. No. 115-232, and 2 C.F.R. § 200.216 prohibit the head of an executive agency on or after Aug.13, 2020, from obligating or expending grant, cooperative agreement, loan, or loan guarantee funds on certain telecommunications products or from certain entities for national security reasons.

(2) Unless an exception in paragraph (c) of this clause applies, the contractor and its subcontractors may not use grant, cooperative agreement, loan, or loan guarantee funds from the Federal Emergency Management Agency to:

(i) Procure or obtain any equipment, system, or service that uses covered telecommunications equipment or services as a substantial or essential component of any system, or as critical technology of any system;

(ii) Enter into, extend, or renew a contract to procure or obtain any equipment, system, or service that uses covered telecommunications equipment or services as a substantial or essential component of any system, or as critical technology of any system;

(iii) Enter into, extend, or renew contracts with entities that use covered telecommunications equipment or services as a substantial or essential component of any system, or as critical technology as part of any system; or

(iv) Provide, as part of its performance of this contract, subcontract, or other contractual instrument, any equipment, system, or service that uses covered telecommunications equipment or services as a substantial or essential component of any system, or as critical technology as part of any system.

(c) *Exceptions.*

(1) This clause does not prohibit contractors from providing—

(i) A service that connects to the facilities of a third-party, such as backhaul, roaming, or interconnection arrangements; or

(ii) Telecommunications equipment that cannot route or redirect user data traffic or permit visibility into any user data or packets that such equipment transmits or otherwise handles.

(2) By necessary implication and regulation, the prohibitions also do not apply to:
(i) Covered telecommunications equipment or services that: i. Are *not used* as a substantial or essential component of any system; *and*

(ii). Are *not used* as critical technology of any system.

(Iii) Other telecommunications equipment or services that are not considered covered telecommunications equipment or services.

(d) *Reporting requirement.*

(1) In the event the contractor identifies covered telecommunications equipment or services used as a substantial or essential component of any system, or as critical technology as part of any system, during contract performance, or the contractor is notified of such by a subcontractor at any tier or by any other source, the contractor shall report the information in paragraph (d)(2) of this clause to the recipient or subrecipient, unless elsewhere in this contract are established procedures for reporting the information.

(2) The Contractor shall report the following information pursuant to paragraph (d)(1) of this clause: (i) Within one business day from the date of such identification or notification: The contract number; the order number(s), if applicable; supplier name; supplier unique entity identifier (if known); supplier Commercial and Government Entity (CAGE) code (if known); brand; model number (original equipment manufacturer number, manufacturer part number, or wholesaler number); item description; and any readily available information about mitigation actions undertaken or recommended.

(ii) Within 10 business days of submitting the information in paragraph (d)(2)(i) of this clause: Any further available information about mitigation actions undertaken or recommended. In addition, the contractor shall describe the efforts it undertook to prevent use or submission of covered telecommunications equipment or services, and any additional efforts that will be incorporated to prevent future use or submission of covered telecommunications equipment or services.

(e) *Subcontracts.*
The Contractor shall insert the substance of this clause, including this paragraph (e), in all subcontracts and other contractual instruments."

Domestic Preferences for Procurements

As appropriate, and to the extent consistent with law, the contractor should, to the greatest extent practicable, provide a preference for the purchase, acquisition, or use of goods, products, or materials produced in the United States. This includes, but is not limited to iron, aluminum, steel, cement, and other manufactured products.

For purposes of this clause:
Produced in the United States means, for iron and steel products, that all manufacturing processes, from the initial melting stage through the application of coatings, occurred in the United States.

Manufactured products mean items and construction materials composed in whole or in part of non-ferrous metals such as aluminum; plastics and polymer-based products such as polyvinyl chloride pipe; aggregates such as concrete; glass, including optical fiber; and lumber."
Copyright and Data Rights

The Contractor grants to the City of Flagler Beach, a paid-up, royalty-free, nonexclusive, irrevocable, worldwide license in data first produced in the performance of this contract to reproduce, publish, or otherwise use, including prepare derivative works, distribute copies to the public, and perform publicly and display publicly such data. For data required by the contract but not first produced in the performance of this contract, the Contractor will identify such data and grant to the City of Flagler Beach or acquires on its behalf a license of the same scope as for data first produced in the performance of this contract. Data, as used herein, shall include any work subject to copyright under 17 U.S.C. § 102, for example, any written reports or literary works, software and/or source code, music, choreography, pictures or images, graphics, sculptures, videos, motion pictures or other audiovisual works, sound and/or video recordings, and architectural works. Upon or before the completion of this contract, the Contractor will deliver to the City of Flagler Beach data first produced in the performance of this contract and data required by the contract but not first produced in the performance of this contract in formats acceptable by the City of Flagler Beach.

END OF ATTACHMENT M

REQUEST FOR QUALIFICATION FORMS

ATTACHMENT N
LIST OF PROPOSED SUBCONTRACTORS/SUPPLIERS

All subcontractors and major materials suppliers are subject to approval of Owner. In the table below, list all subcontractors and manufacturers of materials and/or equipment that are proposed to be utilized by the Contractor in the performance of this work. Use additional sheets as necessary.

Company Name	Description	Contact Name, Phone, and Email

END OF ATTACHMENT N

SECTION 00 11 53
REQUEST FOR QUALIFICATION FORMS
ATTACHMENT O
LIST OF LICENSES and CERTIFICATIONS

License/Cert. Name	Number	Issuing Authority	Expiration Date

END OF ATTACHMENT O

SECTION 00 21 13 I
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ARTICLE 1 – DEFINED TERMS

1.01 Terms used in these Instructions to Bidders have the meanings indicated in the General Conditions and Supplementary Conditions. Additional terms used in these Instructions to Bidders have the meanings indicated below:

A. *Issuing Office* – The office from which the Bidding Documents are to be issued.

NOTE(S) TO USER:

1. *In addition to terms specifically defined, terms with initial capital letters in the Bidding Requirements include references to identified articles and paragraphs, and the titles of other documents or forms.*
2. *Additional defined terms applicable to the Bidding Requirements should be included here and should be used uniformly throughout the Bidding Requirements with initial capitals. Additional defined terms applicable to the Contract Documents should be included in the Supplementary Conditions. Note the difference in the meanings of the terms "Bidding Requirements" and "Bidding Documents," as defined in the General Conditions, Paragraph 1.01.A.*
3. *It is strongly recommended that the Issuing Office be identified in the invitation to bid or advertisement. See EJCDC® C-111, Suggested Advertisement for Bids for Construction Contracts. If not, it should be identified in these Instructions.*

ARTICLE 2 – COPIES OF BIDDING DOCUMENTS

2.01 Complete sets of the Bidding Documents may be obtained from the Issuing Office as stated in the advertisement or invitation to bid.

2.02 Complete sets of Bidding Documents shall be used in preparing Bids; neither Owner nor Engineer assumes any responsibility for errors or misinterpretations resulting from the use of incomplete sets of Bidding Documents.

2.03 Owner and Engineer, in making copies of Bidding Documents available on the above terms, do so only for the purpose of obtaining Bids for the Work and do not authorize or confer a license for any other use.

ARTICLE 3 – QUALIFICATIONS OF BIDDERS

3.01 To demonstrate Bidder's qualifications to perform the Work, Bidder shall submit all qualification forms listed below which are included in the bid documents:

A. Attachment A - Certificate of Corporation

B. Attachment B – Contractor Questionnaire

C. Attachment C - Required Disclosure

D. Attachment D - Bidder Information

E. Attachment E - Experience of Bidder

F. Attachment F – Sworn Statement Under Section 287.133(3) (A), Florida Statutes, on Public Entity Crimes

G. Attachment G - Affidavit of Non-Collusion

H. Attachment H - Certification of Non-Segregated Facilities

I. Attachment I - Drug-Free Workplace

J. Attachment J - Conflict of Interest Statement

K. Attachment K - Compliance with Public Records Law

L. Attachment L - Americans with Disabilities Act Affidavit

M. Attachment M - List of Licenses and Certifications

N. Attachment N - List of Proposed Subcontractors/Suppliers

O. Attachment O - List of Proposed Equipment

3.02 A Bidder's failure to submit required qualification information shall disqualify Bidder from receiving an award of the Contract.

3.03 No requirement in this Article 3 to submit information will prejudice the right of Owner to seek additional pertinent information regarding Bidder's qualifications.

3.04 Bidder is advised to carefully review those portions of the Bid Form requiring Bidder's representations and certifications.

ARTICLE 4 – SITE AND OTHER AREAS; EXISTING SITE CONDITIONS; EXAMINATION OF SITE; OWNER'S SAFETY PROGRAM; OTHER WORK AT THE SITE

4.01 *Site and Other Areas*

A. The Site is identified in the Bidding Documents. By definition, the Site includes rights-of-way, easements, and other lands furnished by Owner for the use of the Contractor. Any additional lands required for temporary construction facilities, construction equipment, or storage of materials and equipment, and any access needed for such additional lands, are to be obtained and paid for by Contractor.

4.02 *Existing Site Conditions*

A. Subsurface and Physical Conditions; Hazardous Environmental Conditions

1. The Supplementary Conditions identify:

a. those reports known to Owner of explorations and tests of subsurface conditions at or adjacent to the Site.

b. those drawings known to Owner of physical conditions relating to existing surface or subsurface structures at the Site (except Underground Facilities).

c. reports and drawings known to Owner relating to Hazardous Environmental

Conditions that have been identified at or adjacent to the Site.

d. Technical Data contained in such reports and drawings.

2. The Technical Data contained therein upon whose accuracy Bidder is entitled to rely, as provided in the General Conditions, has been identified and established in the Supplementary Conditions. Bidder is responsible for any interpretation or conclusion Bidder draws from any Technical Data or any other data, interpretations, opinions, or information contained in such reports or shown or indicated in such drawings. If the Supplementary Conditions do not identify Technical Data, the default definition Technical Data set forth in Article 1 of the General Conditions will apply.

3. Geotechnical Baseline Report: The Bidding Documents contain a Geotechnical Baseline Report (GBR). The GBR describes certain select subsurface conditions that are anticipated to be encountered by Contractor during construction in specified locations ("Baseline Conditions"). The GBR is a Contract Document.

   The Baseline Conditions in the GBR are intended to reduce uncertainty and the degree of contingency in submitted Bids. However, Bidders cannot rely solely on the Baseline Conditions. Bids should be based on a comprehensive approach that includes an independent review and analysis of the GBR, all other Contract Documents, Technical Data, other available information, and observable surface conditions. Not all potential subsurface conditions are baselined.

   Nothing in the GBR is intended to relieve Bidders of the responsibility to make their own determinations regarding construction costs, bidding strategies, and Bid prices, nor of the responsibility to select and be responsible for the means, methods, techniques, sequences, and procedures of construction, and for safety precautions and programs incident thereto.

B. Underground Facilities: Information and data shown or indicated in the Bidding Documents with respect to existing Underground Facilities at or adjacent to the Site are set forth in the Contract Documents and are based upon information and data furnished to Owner and Engineer by owners of such Underground Facilities, including Owner, or others.

C. Adequacy of Data: Provisions concerning responsibilities for the adequacy of data furnished to prospective Bidders with respect to subsurface conditions, other physical conditions, and Underground Facilities, and possible changes in the Bidding Documents due to differing or unanticipated subsurface or physical conditions appear in Paragraphs 5.03, 5.04, and 5.05 of the General Conditions. Provisions concerning responsibilities for the adequacy of data furnished to prospective Bidders with respect to a Hazardous Environmental Condition at the Site, if any, and possible changes in the Contract Documents due to any Hazardous Environmental Condition uncovered or revealed at the Site which was not shown or indicated in the Drawings or Specifications or identified in the Contract Documents to be within the scope of the Work, appear in Paragraph 5.06 of the General Conditions.

4.03 *Site Visit and Testing by Bidders*

A. Bidder shall conduct the required Site visit during normal working hours and shall not disturb any ongoing operations at the Site.

B. Bidder is not required to conduct any subsurface testing, or exhaustive investigations of Site conditions.

C. On request, and to the extent Owner has control over the Site, and schedule permitting, the Owner will provide Bidder access to the Site to conduct such additional examinations, investigations, explorations, tests, and studies as Bidder deems necessary for preparing and submitting a successful Bid. Owner will not have any obligation to grant such access if doing so is not practical because of existing operations, security or safety concerns, or restraints on Owner's authority regarding the Site.

D. Bidder shall comply with all applicable Laws and Regulations regarding excavation and location of utilities, obtain all permits, and comply with all terms and conditions established by Owner or by property owners or other entities controlling the Site with respect to schedule, access, existing operations, security, liability insurance, and applicable safety programs.

E. Bidder shall fill all holes, clean up, and restore the Site to its former condition upon completion of such explorations, investigations, tests, and studies.

4.04 *Owner's Safety Program*

A. Site visits and work at the Site may be governed by an Owner safety program. As the General Conditions indicate, if an Owner safety program exists, it will be noted in the Supplementary Conditions.

4.05 *Other Work at the Site*

A. Reference is made to Article 8 of the Supplementary Conditions for the identification of the general nature of other work of which Owner is aware (if any) that is to be performed at the Site by Owner or others (such as utilities and other prime contractors) and relates to the Work contemplated by these Bidding Documents. If Owner is party to a written contract for such other work, then on request, Owner will provide to each Bidder access to examine such contracts (other than portions thereof related to price and other confidential matters), if any.

ARTICLE 5 – BIDDER'S REPRESENTATIONS

5.01 It is the responsibility of each Bidder before submitting a Bid to:

A. examine and carefully study the Bidding Documents, and any data and reference items identified in the Bidding Documents;

B. visit the Site, conduct a thorough, alert visual examination of the Site and adjacent areas, and become familiar with and satisfy itself as to the general, local, and Site conditions that may affect cost, progress, and performance of the Work;

C. become familiar with and satisfy itself as to all Laws and Regulations that may affect cost, progress, and performance of the Work;

D. carefully study all: (1) reports of explorations and tests of subsurface conditions at or adjacent to the Site and all drawings of physical conditions relating to existing surface or subsurface structures at the Site that have been identified in the Supplementary Conditions, especially with respect to Technical Data in such reports and drawings, and (2) reports and drawings

relating to Hazardous Environmental Conditions, if any, at or adjacent to the Site that have been identified in the Supplementary Conditions, especially with respect to Technical Data in such reports and drawings;

E. consider the information known to Bidder itself; information commonly known to contractors doing business in the locality of the Site; information and observations obtained from visits to the Site; the Bidding Documents; and the Site-related reports and drawings identified in the Bidding Documents, with respect to the effect of such information, observations, and documents on (1) the cost, progress, and performance of the Work; (2) the means, methods, techniques, sequences, and procedures of construction to be employed by Bidder; and (3) Bidder's safety precautions and programs;

agree, based on the information and observations referred to in the preceding paragraph, that at the time of submitting its Bid no further examinations, investigations, explorations, tests, studies, or data are necessary for the determination of its Bid for performance of the Work at the price bid and within the times required, and in accordance with the other terms and conditions of the Bidding Documents;

F. become aware of the general nature of the work to be performed by Owner and others at the Site that relates to the Work as indicated in the Bidding Documents;

G. promptly give Engineer written notice of all conflicts, errors, ambiguities, or discrepancies that Bidder discovers in the Bidding Documents and confirm that the written resolution thereof by Engineer is acceptable to Bidder;

H. determine that the Bidding Documents are generally sufficient to indicate and convey understanding of all terms and conditions for the performance and furnishing of the Work; and

I. agree that the submission of a Bid will constitute an incontrovertible representation by Bidder that Bidder has complied with every requirement of this Article, that without exception the Bid and all prices in the Bid are premised upon performing and furnishing the Work required by the Bidding Documents.

ARTICLE 6 – PRE-BID CONFERENCE

6.01 There will be a Non-Mandatory Pre-Bid Meeting on Monday October 28, 2024 at 10:00 am eastern standard time. Meeting to be held at City Hall Commission Chambers

105 S. Second Street
Flagler Beach, FL 32136

ARTICLE 7 – INTERPRETATIONS AND ADDENDA

7.01 All questions about the meaning or intent of the Bidding Documents are to be submitted to the City Clerk's office in writing (via email):

Penny Overstreet
Email: poverstreet@cityofflaglerbeach.com

Interpretations or clarifications considered necessary in response to such questions will be issued by

Addenda delivered to all parties recorded as having received the Bidding Documents. The last day to submit questions is **Tuesday November 5, 2024 by 5:00 pm EST**. Questions received after that date and time may not be answered. Only questions answered by Addenda will be binding. Oral, emailed, and other interpretations or clarifications will be without legal effect.

7.02 Addenda may be issued to clarify, correct, supplement, or change the Bidding Documents.

ARTICLE 8 – BID SECURITY

8.01 A Bid must be accompanied by Bid security made payable to Owner in an amount of five (5) percent of Bidder's maximum Bid price (determined by adding the base bid and all alternates) and in the form of a certified check, bank money order, or a Bid bond (on the form included in the Bidding Documents) issued by a surety meeting the requirements of Paragraphs 6.01 and 6.02 of the General Conditions.

8.02 The Bid security of the apparent Successful Bidder will be retained until Owner awards the contract to such Bidder, and such Bidder has executed the Contract Documents, furnished the required contract security and met the other conditions of the Notice of Award, whereupon the Bid security will be released. If the Successful Bidder fails to execute and deliver the Contract Documents and furnish the required contract security within 15 days after the Notice of Award, Owner may consider Bidder to be in default, annul the Notice of Award, and the Bid security of that Bidder will be forfeited. Such forfeiture shall be Owner's exclusive remedy if Bidder defaults.

8.03 The Bid security of other Bidders that Owner believes to have a reasonable chance of receiving the award may be retained by Owner until the earlier of seven days after the Effective Date of the Contract or 61 days after the Bid opening, whereupon Bid security furnished by such Bidders will be released.

8.04 Bid security of other Bidders that Owner believes do not have a reasonable chance of receiving the award will be released within seven days after the Bid opening.

ARTICLE 9 – CONTRACT TIMES

9.01 The number of days within which, or the dates by which the Work is to be substantially completed, and completed and ready for final payment, are set forth in the Agreement.

ARTICLE 10 – LIQUIDATED DAMAGES

10.01 Provisions for liquidated damages, if any, for failure to timely attain a Milestone, Substantial Completion, or completion of the Work in readiness for final payment, are set forth in the Agreement.

ARTICLE 11 – SUBSTITUTE AND "OR-EQUAL" ITEMS

11.01 The Contract for the Work, as awarded, will be on the basis of materials and equipment specified or described in the Bidding Documents without consideration during the bidding and Contract award process of possible substitute or "or-equal" items. In cases in which the Contract allows the Contractor to request that Engineer authorize the use of a substitute or "or-equal" item of material or equipment, application for such acceptance may not be made to and will not be considered by

Engineer until after the Effective Date of the Contract.

11.02 All prices that Bidder sets forth in its Bid shall be based on the presumption that the Contractor will furnish the materials and equipment specified or described in the Bidding Documents, as supplemented by Addenda. Any assumptions regarding the possibility of post-Bid approvals of "or-equal" or substitution requests are made at Bidder's sole risk.

ARTICLE 12 – SUBCONTRACTORS, SUPPLIERS, AND OTHERS

12.01 A Bidder shall be prepared to retain specific Subcontractors, Suppliers, or other individuals or entities for the performance of the Work if required by the Bidding Documents (most commonly in the Specifications) to do so. If a prospective Bidder objects to retaining any such Subcontractor, Supplier, or other individual or entity, and the concern is not relieved by an Addendum, then the prospective Bidder should refrain from submitting a Bid.

12.02 Subsequent to the submittal of the Bid, Owner may not require the Successful Bidder or Contractor to retain any Subcontractor, Supplier, or other individual or entity against which Contractor has reasonable objection.

12.03 The apparent Successful Bidder, and any other Bidder so requested, shall within five days after Bid opening, submit to Owner a list of the Subcontractors or Suppliers proposed. If requested by Owner, such list shall be accompanied by an experience statement with pertinent information regarding similar projects and other evidence of qualification for each such Subcontractor, Supplier, or other individual or entity. If Owner or Engineer, after due investigation, has reasonable objection to any proposed Subcontractor, Supplier, individual, or entity, Owner may, before the Notice of Award is given, request apparent Successful Bidder to submit an acceptable substitute, in which case apparent Successful Bidder shall submit a substitute, Bidder's Bid price will be increased (or decreased) by the difference in cost occasioned by such substitution, and Owner may consider such price adjustment in evaluating Bids and making the Contract award.

12.04 If apparent Successful Bidder declines to make any such substitution, Owner may award the Contract to the next lowest Bidder that proposes to use acceptable Subcontractors, Suppliers, or other individuals or entities. Declining to make requested substitutions will constitute grounds for forfeiture of the Bid security of any Bidder. Any Subcontractor, Supplier, individual, or entity so listed and against which Owner or Engineer makes no written objection prior to the giving of the Notice of Award will be deemed acceptable to Owner and Engineer subject to subsequent revocation of such acceptance as provided in Paragraph 7.06 of the General Conditions.

ARTICLE 13 – PREPARATION OF BID

13.01 The Bid Form is included with the Bidding Documents.

A. All blanks on the Bid Form shall be completed in ink and the Bid Form signed in ink. Erasures or alterations shall be initialed in ink by the person signing the Bid Form. A Bid price shall be indicated for each section, Bid item, alternate, adjustment unit price item, and unit price item listed therein.

B. If the Bid Form expressly indicates that submitting pricing on a specific alternate item is optional, and Bidder elects to not furnish pricing for such optional alternate item, then Bidder may enter the words "No Bid" or "Not Applicable."

13.02 A Bid by a corporation shall be executed in the corporate name by a corporate officer (whose title must appear under the signature), accompanied by evidence of authority to sign. The corporate address and state of incorporation shall be shown.

13.03 A Bid by a partnership shall be executed in the partnership name and signed by a partner (whose title must appear under the signature), accompanied by evidence of authority to sign. The partnership's address for receiving notices shall be shown.

13.04 A Bid by a limited liability company shall be executed in the name of the firm by a member or other authorized person and accompanied by evidence of authority to sign. The state of formation of the firm and the firm's address for receiving notices shall be shown.

13.05 A Bid by an individual shall show the Bidder's name and address for receiving notices.

13.06 A Bid by a joint venture shall be executed by an authorized representative of each joint venture in the manner indicated on the Bid Form. The joint venture's address for receiving notices shall be shown.

13.07 All names shall be printed in ink below the signatures.

13.08 The Bid shall contain an acknowledgment of receipt of all Addenda, the numbers of which shall be filled in on the Bid Form.

13.09 Postal and e-mail addresses and telephone number for communications regarding the Bid shall be shown.

13.10 The Bid shall contain evidence of Bidder's authority and qualification to do business in the state where the Project is located, or Bidder shall covenant in writing to obtain such authority and qualification prior to award of the Contract and attach such covenant to the Bid. Bidder's state contractor license number, if any, shall also be shown on the Bid Form.

ARTICLE 14 – BASIS OF BID

14.01 *Lump Sum*

A. Bidders shall submit a Bid on a lump sum for portions not specifically listed in the unit price section of the Bid Form.

14.02 *Unit Price*

A. Bidders shall submit a Bid on a unit price basis for each item of Work listed in the unit price section of the Bid Form.

B. The "Bid Price" (sometimes referred to as the extended price) for each unit price Bid item will be the product of the "Estimated Quantity" (which Owner or its representative has set forth in the Bid Form) for the item and the corresponding "Bid Unit Price" offered by the Bidder. The total of all unit price Bid items will be the sum of these "Bid Prices;" such total will be used by Owner for Bid comparison purposes. The final quantities and Contract Price will be determined in accordance with Paragraph 13.03 of the General Conditions.

C. Discrepancies between the multiplication of units of Work and unit prices will be resolved in favor of the unit prices. Discrepancies between the indicated sum of any column of figures and the correct sum thereof will be resolved in favor of the correct sum.

ARTICLE 15 – SUBMITTAL OF BID

15.01 A Bid shall be received no later than the date and time prescribed and at the place indicated in the advertisement or invitation to bid and shall be enclosed in a plainly marked package with the Project title (and, if applicable, the designated portion of the Project for which the Bid is submitted), the name and address of Bidder, and shall be accompanied by the Bid security and other required documents. If a Bid is sent by mail or other delivery system, the sealed envelope containing the Bid shall be enclosed in a separate package plainly marked on the outside with the notation "BID ENCLOSED."

15.02 Bids received after the date and time prescribed for the opening of bids, or not submitted at the correct location or in the designated manner, will not be accepted and will be returned to the Bidder unopened.

15.03 A Bid shall be received no later than the date and time prescribed and at the place indicated in the advertisement or invitation to bid and shall be enclosed in a plainly marked package with the Project title (and, if applicable, the designated portion of the Project for which the Bid is submitted), the name and address of Bidder, and shall be accompanied by the Bid security and other required documents. If a Bid is sent by mail or other delivery system, the sealed envelope containing the Bid shall be enclosed in a separate package plainly marked on the outside with the notation "BID ENCLOSED."

15.04 Bids received after the date and time prescribed for the opening of bids, or not submitted at the correct location or in the designated manner, will not be accepted and will be returned to the Bidder unopened.

ARTICLE 16 – MODIFICATION AND WITHDRAWAL OF BID

16.01 A Bid may be withdrawn by an appropriate document duly executed in the same manner that a Bid must be executed and delivered to the place where Bids are to be submitted prior to the date and time for the opening of Bids. Upon receipt of such notice, the unopened Bid will be returned to the Bidder

16.02 If a Bidder wishes to modify its Bid prior to Bid opening, Bidder must withdraw its initial Bid in the manner specified in Paragraph 16.01 and submit a new Bid prior to the date and time for the opening of Bids.

16.03 If within 24 hours after Bids are opened any Bidder files a duly signed written notice with Owner and promptly thereafter demonstrates to the reasonable satisfaction of Owner that there was a material and substantial mistake in the preparation of its Bid, that Bidder may withdraw its Bid, and the Bid security will be returned. Thereafter, if the Work is rebid, that Bidder will be disqualified from further bidding on the Work.

ARTICLE 17 – OPENING OF BIDS

17.01 Bids will be opened at the time and place indicated in the advertisement or invitation to bid and, unless obviously non-responsive, read aloud publicly. An abstract of the amounts of the base Bids and major alternates, if any, will be made available to Bidders after the opening of Bids.

ARTICLE 18 – BIDS TO REMAIN SUBJECT TO ACCEPTANCE

18.01 All Bids will remain subject to acceptance for the period of time stated in the Bid Form, but Owner may, in its sole discretion, release any Bid and return the Bid security prior to the end of this period.

ARTICLE 19 – EVALUATION OF BIDS AND AWARD OF CONTRACT

19.01 Owner reserves the right to reject any or all Bids, including without limitation, nonconforming, nonresponsive, unbalanced, or conditional Bids. Owner will reject the Bid of any Bidder that Owner finds, after reasonable inquiry and evaluation, to not be responsible. If Bidder purports to add terms or conditions to its Bid, takes exception to any provision of the Bidding Documents, or attempts to alter the contents of the Contract Documents for purposes of the Bid, then the Owner will reject the Bid as nonresponsive; provided that Owner also reserves the right to waive all minor informalities not involving price, time, or changes in the Work.

19.02 If Owner awards the contract for the Work, such award shall be to the responsible Bidder submitting the lowest responsive Bid.

19.03 Evaluation of Bids

A. In evaluating Bids, Owner will consider whether or not the Bids comply with the prescribed requirements, and such alternates, unit prices, and other data, as may be requested in the Bid Form or prior to the Notice of Award.

B. For the determination of the apparent low Bidder when unit price bids are submitted, Bids will be compared on the basis of the total of the products of the estimated quantity of each item and unit price Bid for that item, together with any lump sum items.

19.04 In evaluating whether a Bidder is responsible, Owner will consider the qualifications of the Bidder and may consider the qualifications and experience of Subcontractors and Suppliers proposed for those portions of the Work for which the identity of Subcontractors and Suppliers must be submitted as provided in the Bidding Documents.

19.05 Owner may conduct such investigations as Owner deems necessary to establish the responsibility, qualifications, and financial ability of Bidders and any proposed Subcontractors or Suppliers.

ARTICLE 20 – BONDS AND INSURANCE

20.01 Article 6 of the General Conditions, as may be modified by the Supplementary Conditions, sets forth Owner's requirements as to performance and payment bonds and insurance. When the Successful Bidder delivers the Agreement (executed by Successful Bidder) to Owner, it shall be accompanied by required bonds and insurance documentation.

ARTICLE 21 – SIGNING OF AGREEMENT

21.01 When Owner issues a Notice of Award to the Successful Bidder, it shall be accompanied by the unexecuted counterparts of the Agreement along with the other Contract Documents as identified in the Agreement. Within 15 days thereafter, Successful Bidder shall execute and deliver the

required number of counterparts of the Agreement (and any bonds and insurance documentation required to be delivered by the Contract Documents) to Owner. Within ten days thereafter, Owner shall deliver one fully executed counterpart of the Agreement to Successful Bidder, together with printed and electronic copies of the Contract Documents as stated in Paragraph 2.02 of the General Conditions.

ARTICLE 22 – ALIEN WORKERS

22.01 The City of Flagler Beach does not award publicly funded Contracts to those who knowingly employ unauthorized alien workers in violation of section 274A of the Immigration and Naturalization Act. 8 United States Code §132a. Such employment deprives legal workers of job opportunities. Violation of section 274A shall be grounds for unilateral cancellation of the Contract, Agreement, Bid or Quote for purchase of services and goods by the City of Flagler Beach.

ARTICLE 23 – E-VERIFY

23.01 The Contractor shall utilize the U.S. Department of Homeland Security's E-Verify system, in accordance with the terms governing use of the system, to confirm the employment eligibility of all persons employed by the Contractor during the term of the Contract to perform employment duties within Florida and all persons, including subcontractors, assigned by the Contractor to perform work pursuant to the Contract with the Department.

END OF SECTION

SECTION 00 22 13
STANDARD GENERAL CONDITIONS OF THE CONSTRUCTION CONTRACT

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ARTICLE 1 – DEFINITIONS AND TERMINOLOGY

1.01 *Defined Terms*

A. Wherever used in the Bidding Requirements or Contract Documents, a term printed with initial capital letters, including the term's singular and plural forms, will have the meaning indicated in the definitions below. In addition to terms specifically defined, terms with initial capital letters in the Contract Documents include references to identified articles and paragraphs, and the titles of other documents or forms.

1. *Addenda*—Written or graphic instruments issued prior to the opening of Bids which clarify, correct, or change the Bidding Requirements or the proposed Contract Documents.

2. *Agreement*—The written instrument, executed by Owner and Contractor, that sets forth the Contract Price and Contract Times, identifies the parties and the Engineer, and designates the specific items that are Contract Documents.

3. *Application for Payment*—The form acceptable to Engineer which is to be used by Contractor during the course of the Work in requesting progress or final payments and which is to be accompanied by such supporting documentation as is required by the Contract Documents.

4. *Bid*—The offer of a Bidder submitted on the prescribed form setting forth the prices for the Work to be performed.

5. *Bidder*—An individual or entity that submits a Bid to Owner.

6. *Bidding Documents*—The Bidding Requirements, the proposed Contract Documents, and all Addenda.

7. *Bidding Requirements*—The advertisement or invitation to bid, Instructions to Bidders, Bid Bond, or other Bid security, if any, the Bid Form, and the Bid with any attachments.

8. *Change Order*—A document which is signed by Contractor and Owner and authorizes an addition, deletion, or revision in the Work or an adjustment in the Contract Price or the Contract Times, or other revision to the Contract, issued on or after the Effective Date of the Contract.

9. *Change Proposal*—A written request by Contractor, duly submitted in compliance with the procedural requirements set forth herein, seeking an adjustment in Contract Price or Contract Times, or both; contesting an initial decision by Engineer concerning the requirements of the Contract Documents or the acceptability of Work under the Contract Documents; challenging a set-off against payments due; or seeking other relief with respect to the terms of the Contract.

10. *Claim*—(a) A demand or assertion by Owner directly to Contractor, duly submitted in compliance with the procedural requirements set forth herein: seeking an adjustment of Contract Price or Contract Times, or both; contesting an initial decision by Engineer concerning the requirements of the Contract Documents or the acceptability of Work under the Contract Documents; contesting Engineer's decision regarding a Change Proposal; seeking resolution of a contractual issue that Engineer has declined to

11. address; or seeking other relief with respect to the terms of the Contract; or (b) a demand or assertion by Contractor directly to Owner, duly submitted in compliance with the procedural requirements set forth herein, contesting Engineer's decision regarding a Change Proposal; or seeking resolution of a contractual issue that Engineer has declined to address. A demand for money or services by a third party is not a Claim.

12. *Constituent of Concern*—Asbestos, petroleum, radioactive materials, polychlorinated biphenyls (PCBs), hazardous waste, and any substance, product, waste, or other material of any nature whatsoever that is or becomes listed, regulated, or addressed pursuant to (a) the Comprehensive Environmental Response, Compensation and Liability Act, 42 U.S.C. §§9601 et seq. ("CERCLA"); (b) the Hazardous Materials Transportation Act, 49 U.S.C. §§5101 et seq.; (c) the Resource Conservation and Recovery Act, 42 U.S.C. §§6901 et seq. ("RCRA"); (d) the Toxic Substances Control Act, 15 U.S.C. §§2601 et seq.; (e) the Clean Water Act, 33 U.S.C. §§1251 et seq.; (f) the Clean Air Act, 42 U.S.C. §§7401 et seq.; or (g) any other federal, state, or local statute, law, rule, regulation, ordinance, resolution, code, order, or decree regulating, relating to, or imposing liability or standards of conduct concerning, any hazardous, toxic, or dangerous waste, substance, or material.

13. *Contract*—The entire and integrated written contract between the Owner and Contractor concerning the Work.

14. *Contract Documents*—Those items so designated in the Agreement, and which together comprise the Contract.

15. *Contract Price*—The money that Owner has agreed to pay Contractor for completion of the Work in accordance with the Contract Documents.

16. *Contract Times*—The number of days or the dates by which Contractor shall: (a) achieve Milestones, if any; (b) achieve Substantial Completion; and (c) complete the Work.

17. *Contractor*—The individual or entity with which Owner has contracted for performance of the Work.

18. *Cost of the Work*—See Paragraph 13.01 for definition.

19. *Drawings*—The part of the Contract that graphically shows the scope, extent, and character of the Work to be performed by Contractor.

20. *Effective Date of the Contract*—The date, indicated in the Agreement, on which the Contract becomes effective.

21. *Engineer*—The individual or entity named as such in the Agreement.

22. *Field Order*—A written order issued by Engineer which requires minor changes in the Work but does not change the Contract Price or the Contract Times.

23. *Hazardous Environmental Condition*—The presence at the Site of Constituents of Concern in such quantities or circumstances that may present a danger to persons or property exposed thereto. The presence at the Site of materials that are necessary for the execution of the Work, or that are to be incorporated in the Work, and that are controlled and contained pursuant to industry practices, Laws and Regulations, and the requirements of the Contract, does not establish a Hazardous Environmental Condition.

24. *Laws and Regulations; Laws or Regulations*—Any and all applicable laws, statutes, rules, regulations, ordinances, codes, and orders of any and all governmental bodies, agencies, authorities, and courts having jurisdiction.

25. *Liens*—Charges, security interests, or encumbrances upon Contract-related funds, real property, or personal property.

26. *Milestone*—A principal event in the performance of the Work that the Contract requires Contractor to achieve by an intermediate completion date or by a time prior to Substantial Completion of all the Work.

27. *Notice of Award*—The written notice by Owner to a Bidder of Owner's acceptance of the Bid.

28. *Notice to Proceed*—A written notice by Owner to Contractor fixing the date on which the Contract Times will commence to run and on which Contractor shall start to perform the Work.

29. *Owner*—The individual or entity with which Contractor has contracted regarding the Work, and which has agreed to pay Contractor for the performance of the Work, pursuant to the terms of the Contract.

30. *Progress Schedule*—A schedule, prepared and maintained by Contractor, describing the sequence and duration of the activities comprising the Contractor's plan to accomplish the Work within the Contract Times.

31. *Project*—The total undertaking to be accomplished for Owner by engineers, contractors, and others, including planning, study, design, construction, testing, commissioning, and start-up, and of which the Work to be performed under the Contract Documents is a part.

32. *Project Manual*—The written documents prepared for, or made available for, procuring and constructing the Work, including but not limited to the Bidding Documents or other construction procurement documents, geotechnical and existing conditions information, the Agreement, bond forms, General Conditions, Supplementary Conditions, and Specifications. The contents of the Project Manual may be bound in one or more volumes.

33. *Resident Project Representative*—The authorized representative of Engineer assigned to assist Engineer at the Site. As used herein, the term Resident Project Representative or "RPR" includes any assistants or field staff of Resident Project Representative.

34. *Samples*—Physical examples of materials, equipment, or workmanship that are representative of some portion of the Work and that establish the standards by which such portion of the Work will be judged.

35. *Schedule of Submittals*—A schedule, prepared and maintained by Contractor, of required submittals and the time requirements for Engineer's review of the submittals and the performance of related construction activities.

36. *Schedule of Values*—A schedule, prepared and maintained by Contractor, allocating portions of the Contract Price to various portions of the Work, and used as the basis for reviewing Contractor's Applications for Payment.

37. *Shop Drawings*—All drawings, diagrams, illustrations, schedules, and other data or information that are specifically prepared or assembled by or for Contractor and submitted by Contractor to illustrate some portion of the Work. Shop Drawings, whether approved or not, are not Drawings and are not Contract Documents.

38. *Site*—Lands or areas indicated in the Contract Documents as being furnished by Owner upon which the Work is to be performed, including rights-of-way and easements, and such other lands furnished by Owner which are designated for the use of Contractor.

39. *Specifications*—The part of the Contract that consists of written requirements for materials, equipment, systems, standards, and workmanship as applied to the Work, and certain administrative requirements and procedural matters applicable to the Work.

40. *Subcontractor*—An individual or entity having a direct contract with Contractor or with any other Subcontractor for the performance of a part of the Work.

41. *Substantial Completion*—The time at which the Work (or a specified part thereof) has progressed to the point where, in the opinion of Engineer, the Work (or a specified part thereof) is sufficiently complete, in accordance with the Contract Documents, so that the Work (or a specified part thereof) can be utilized for the purposes for which it is intended. The terms "substantially complete" and "substantially completed" as applied to all or part of the Work refer to Substantial Completion thereof.

42. *Successful Bidder*—The Bidder whose Bid the Owner accepts, and to which the Owner makes an award of contract, subject to stated conditions.

43. *Supplementary Conditions*—The part of the Contract that amends or supplements these General Conditions.

44. *Supplier*—A manufacturer, fabricator, supplier, distributor, materialman, or vendor having a direct contract with Contractor or with any Subcontractor to furnish materials or equipment to be incorporated in the Work by Contractor or a Subcontractor.

45. *Technical Data*—Those items expressly identified as Technical Data in the Supplementary Conditions, with respect to either (a) subsurface conditions at the Site, or physical conditions relating to existing surface or subsurface structures at the Site (except Underground Facilities) or (b) Hazardous Environmental Conditions at the Site. If no such express identifications of Technical Data have been made with respect to conditions at the Site, then the data contained in boring logs, recorded measurements of subsurface water levels, laboratory test results, and other factual, objective information regarding conditions at the Site that are set forth in any geotechnical or environmental report prepared for the Project and made available to Contractor are hereby defined as Technical Data with respect to conditions at the Site under Paragraphs 5.03, 5.04, and 5.06.

46. *Underground Facilities*—All underground pipelines, conduits, ducts, cables, wires, manholes, vaults, tanks, tunnels, or other such facilities or attachments, and any encasements containing such facilities, including but not limited to those that convey electricity, gases, steam, liquid petroleum products, telephone or other communications, fiber optic transmissions, cable television, water, wastewater, storm

47. water, other liquids or chemicals, or traffic or other control systems.

48. *Unit Price Work*—Work to be paid for on the basis of unit prices.

49. *Work*—The entire construction or the various separately identifiable parts thereof required to be provided under the Contract Documents. Work includes and is the result of performing or providing all labor, services, and documentation necessary to produce such construction; furnishing, installing, and incorporating all materials and equipment into such construction; and may include related services such as testing, start-up, and commissioning, all as required by the Contract Documents.

50. *Work Change Directive*—A written directive to Contractor issued on or after the Effective Date of the Contract, signed by Owner and recommended by Engineer, ordering an addition, deletion, or revision in the Work.

1.02 *Terminology*

A. The words and terms discussed in the following paragraphs are not defined but, when used in the Bidding Requirements or Contract Documents, have the indicated meaning.

B. *Intent of Certain Terms or Adjectives*:

1. The Contract Documents include the terms “as allowed,” “as approved,” “as ordered,” “as directed” or terms of like effect or import to authorize an exercise of professional judgment by Engineer. In addition, the adjectives “reasonable,” “suitable,” “acceptable,” “proper,” “satisfactory,” or adjectives of like effect or import are used to describe an action or determination of Engineer as to the Work. It is intended that such exercise of professional judgment, action, or determination will be solely to evaluate, in general, the Work for compliance with the information in the Contract Documents and with the design concept of the Project as a functioning whole as shown or indicated in the Contract Documents (unless there is a specific statement indicating otherwise). The use of any such term or adjective is not intended to and shall not be effective to assign to Engineer any duty or authority to supervise or direct the performance of the Work, or any duty or authority to undertake responsibility contrary to the provisions of Article 10 or any other provision of the Contract Documents.

C. *Day*:

1. The word “day” means a calendar day of 24 hours measured from midnight to the next midnight.

D. *Defective*:

1. The word “defective,” when modifying the word “Work,” refers to Work that is unsatisfactory, faulty, or deficient in that it:

a. does not conform to the Contract Documents; or

b. does not meet the requirements of any applicable inspection, reference standard, test, or approval referred to in the Contract Documents; or

c. has been damaged prior to Engineer’s recommendation of final payment (unless responsibility for the protection thereof has been assumed by Owner at Substantial Completion in accordance with Paragraph 15.03 or 15.04).

E. *Furnish, Install, Perform, Provide*:

1. The word "furnish," when used in connection with services, materials, or equipment, shall mean to supply and deliver said services, materials, or equipment to the Site (or some other specified location) ready for use or installation and in usable or operable condition.

2. The word "install," when used in connection with services, materials, or equipment, shall mean to put into use or place in final position said services, materials, or equipment complete and ready for intended use.

3. The words "perform" or "provide," when used in connection with services, materials, or equipment, shall mean to furnish and install said services, materials, or equipment complete and ready for intended use.

4. If the Contract Documents establish an obligation of Contractor with respect to specific services, materials, or equipment, but do not expressly use any of the four words "furnish," "install," "perform," or "provide," then Contractor shall furnish and install said services, materials, or equipment complete and ready for intended use.

F. Unless stated otherwise in the Contract Documents, words or phrases that have a well-known technical or construction industry or trade meaning are used in the Contract Documents in accordance with such recognized meaning.

ARTICLE 2 – PRELIMINARY MATTERS

2.01 *Delivery of Bonds and Evidence of Insurance*

A. *Bonds*: When Contractor delivers the executed counterparts of the Agreement to Owner, Contractor shall also deliver to Owner such bonds as Contractor may be required to furnish.

B. *Evidence of Contractor's Insurance*: When Contractor delivers the executed counterparts of the Agreement to Owner, Contractor shall also deliver to Owner, with copies to each named insured and additional insured (as identified in the Supplementary Conditions or elsewhere in the Contract), the certificates and other evidence of insurance required to be provided by Contractor in accordance with Article 6.

C. *Evidence of Owner's Insurance*: After receipt of the executed counterparts of the Agreement and all required bonds and insurance documentation, Owner shall promptly deliver to Contractor, with copies to each named insured and additional insured (as identified in the Supplementary Conditions or otherwise), the certificates and other evidence of insurance required to be provided by Owner under Article 6.

2.02 *Copies of Documents*

A. Owner shall furnish to Contractor four printed copies of the Contract (including one fully executed counterpart of the Agreement), and one copy in electronic portable document format (PDF). Additional printed copies will be furnished upon request at the cost of reproduction.

B. Owner shall maintain and safeguard at least one original printed record version of the

C. Contract, including Drawings and Specifications signed and sealed by Engineer and other design professionals. Owner shall make such original printed record version of the Contract available to Contractor for review. Owner may delegate the responsibilities under this provision to Engineer.

2.03 *Before Starting Construction*

A. *Preliminary Schedules*: Within 10 days after the Effective Date of the Contract (or as otherwise specifically required by the Contract Documents), Contractor shall submit to Engineer for timely review:

1. a preliminary Progress Schedule indicating the times (numbers of days or dates) for starting and completing the various stages of the Work, including any Milestones specified in the Contract;

2. a preliminary Schedule of Submittals; and

3. a preliminary Schedule of Values for all of the Work which includes quantities and prices of items which when added together equal the Contract Price and subdivides the Work into component parts in sufficient detail to serve as the basis for progress payments during performance of the Work. Such prices will include an appropriate amount of overhead and profit applicable to each item of Work.

2.04 *Preconstruction Conference; Designation of Authorized Representatives*

A. Before any Work at the Site is started, a conference attended by Owner, Contractor, Engineer, and others as appropriate will be held to establish a working understanding among the parties as to the Work and to discuss the schedules referred to in Paragraph 2.03.A, procedures for handling Shop Drawings, Samples, and other submittals, processing Applications for Payment, electronic or digital transmittals, and maintaining required records.

B. At this conference Owner and Contractor each shall designate, in writing, a specific individual to act as its authorized representative with respect to the services and responsibilities under the Contract. Such individuals shall have the authority to transmit and receive information, render decisions relative to the Contract, and otherwise act on behalf of each respective party.

2.05 *Initial Acceptance of Schedules*

A. At least 10 days before submission of the first Application for Payment a conference, attended by Contractor, Engineer, and others as appropriate, will be held to review for acceptability to Engineer as provided below the schedules submitted in accordance with Paragraph 2.03.A. Contractor shall have an additional 10 days to make corrections and adjustments and to complete and resubmit the schedules. No progress payment shall be made to Contractor until acceptable schedules are submitted to Engineer.

1. The Progress Schedule will be acceptable to Engineer if it provides an orderly progression of the Work to completion within the Contract Times. Such acceptance will not impose on Engineer responsibility for the Progress Schedule, for sequencing,

scheduling, or progress of the Work, nor interfere with or relieve Contractor from Contractor's full responsibility therefor.

2. Contractor's Schedule of Submittals will be acceptable to Engineer if it provides a workable arrangement for reviewing and processing the required submittals.

3. Contractor's Schedule of Values will be acceptable to Engineer as to form and substance if it provides a reasonable allocation of the Contract Price to the component parts of the Work.

2.06 *Electronic Transmittals*

A. Except as otherwise stated elsewhere in the Contract, the Owner, Engineer, and Contractor may transmit, and shall accept, Project-related correspondence, text, data, documents, drawings, information, and graphics, including but not limited to Shop Drawings and other submittals, in electronic media or digital format, either directly, or through access to a secure Project website.

B. If the Contract does not establish protocols for electronic or digital transmittals, then Owner, Engineer, and Contractor shall jointly develop such protocols.

C. When transmitting items in electronic media or digital format, the transmitting party makes no representations as to long term compatibility, usability, or readability of the items resulting from the recipient's use of software application packages, operating systems, or computer hardware differing from those used in the drafting or transmittal of the items, or from those established in applicable transmittal protocols.

ARTICLE 3 – DOCUMENTS: INTENT, REQUIREMENTS, REUSE

3.01 *Intent*

A. The Contract Documents are complementary; what is required by one is as binding as if required by all.

B. It is the intent of the Contract Documents to describe a functionally complete project (or part thereof) to be constructed in accordance with the Contract Documents.

C. Unless otherwise stated in the Contract Documents, if there is a discrepancy between the electronic or digital versions of the Contract Documents (including any printed copies derived from such electronic or digital versions) and the printed record version, the printed record version shall govern.

D. The Contract supersedes prior negotiations, representations, and agreements, whether written or oral.

E. Engineer will issue clarifications and interpretations of the Contract Documents as provided herein.

3.02 *Reference Standards*

A. Standards Specifications, Codes, Laws and Regulations

1. Reference in the Contract Documents to standard specifications, manuals, reference standards, or codes of any technical society, organization, or association, or to Laws or

Regulations, whether such reference be specific or by implication, shall mean the standard specification, manual, reference standard, code, or Laws or Regulations in effect at the time of opening of Bids (or on the Effective Date of the Contract if there

2. were no Bids), except as may be otherwise specifically stated in the Contract Documents.

3. No provision of any such standard specification, manual, reference standard, or code, or any instruction of a Supplier, shall be effective to change the duties or responsibilities of Owner, Contractor, or Engineer, or any of their subcontractors, consultants, agents, or employees, from those set forth in the part of the Contract Documents prepared by or for Engineer. No such provision or instruction shall be

effective to assign to Owner, Engineer, or any of their officers, directors, members, partners, employees, agents, consultants, or subcontractors, any duty or authority to supervise or direct the performance of the Work or any duty or authority to undertake responsibility inconsistent with the provisions of the part of the Contract Documents prepared by or for Engineer.

3.03 *Reporting and Resolving Discrepancies*

A. *Reporting Discrepancies*:

1. *Contractor's Verification of Figures and Field Measurements*: Before undertaking each part of the Work, Contractor shall carefully study the Contract Documents, and check and verify pertinent figures and dimensions therein, particularly with respect to applicable field measurements. Contractor shall promptly report in writing to Engineer any conflict, error, ambiguity, or discrepancy that Contractor discovers, or has actual knowledge of, and shall not proceed with any Work affected thereby until the conflict, error, ambiguity, or discrepancy is resolved, by a clarification or interpretation by Engineer, or by an amendment or supplement to the Contract Documents issued pursuant to Paragraph 11.01.

2. *Contractor's Review of Contract Documents*: If, before or during the performance of the Work, Contractor discovers any conflict, error, ambiguity, or discrepancy within the Contract Documents, or between the Contract Documents and (a) any applicable Law or Regulation, (b) actual field conditions, (c) any standard specification, manual, reference standard, or code, or (d) any instruction of any Supplier, then Contractor shall promptly report it to Engineer in writing. Contractor shall not proceed with the Work affected thereby (except in an emergency as required by Paragraph 7.15) until the conflict, error, ambiguity, or discrepancy is resolved, by a clarification or interpretation by Engineer, or by an amendment or supplement to the Contract Documents issued pursuant to Paragraph 11.01.

3. Contractor shall not be liable to Owner or Engineer for failure to report any conflict, error, ambiguity, or discrepancy in the Contract Documents unless Contractor had actual knowledge thereof.

B. *Resolving Discrepancies*:

1. Except as may be otherwise specifically stated in the Contract Documents, the provisions of the part of the Contract Documents prepared by or for Engineer shall take

precedence in resolving any conflict, error, ambiguity, or discrepancy between such provisions of the Contract Documents and:

a. the provisions of any standard specification, manual, reference standard, or code,

b. or the instruction of any Supplier (whether or not specifically incorporated by reference as a Contract Document); or

c. the provisions of any Laws or Regulations applicable to the performance of the Work (unless such an interpretation of the provisions of the Contract Documents would result in violation of such Law or Regulation).

3.04 *Requirements of the Contract Documents*

A. During the performance of the Work and until final payment, Contractor and Owner shall submit to the Engineer all matters in question concerning the requirements of the Contract Documents (sometimes referred to as requests for information or interpretation—RFIs) or relating to the acceptability of the Work under the Contract Documents, as soon as possible after such matters arise. Engineer will be the initial interpreter of the requirements of the Contract Documents, and judge of the acceptability of the Work thereunder.

B. Engineer will, with reasonable promptness, render a written clarification, interpretation, or decision on the issue submitted, or initiate an amendment or supplement to the Contract Documents. Engineer's written clarification, interpretation, or decision will be final and binding on Contractor, unless it appeals by submitting a Change Proposal, and on Owner, unless it appeals by filing a Claim.

C. If a submitted matter in question concerns terms and conditions of the Contract Documents that do not involve (1) the performance or acceptability of the Work under the Contract Documents, (2) the design (as set forth in the Drawings, Specifications, or otherwise), or (3) other engineering or technical matters, then Engineer will promptly give written notice to Owner and Contractor that Engineer is unable to provide a decision or interpretation. If Owner and Contractor are unable to agree on resolution of such a matter in question, either party may pursue resolution as provided in Article 12.

3.05 *Reuse of Documents*

A. Contractor and its Subcontractors and Suppliers shall not:

1. have or acquire any title to or ownership rights in any of the Drawings, Specifications, or other documents (or copies of any thereof) prepared by or bearing the seal of Engineer or its consultants, including electronic media editions, or reuse any such Drawings, Specifications, other documents, or copies thereof on extensions of the Project or any other project without written consent of Owner and Engineer and specific written verification or adaptation by Engineer; or

2. have or acquire any title or ownership rights in any other Contract Documents, reuse any such Contract Documents for any purpose without Owner's express written consent, or violate any copyrights pertaining to such Contract Documents.

B. The prohibitions of this Paragraph 3.05 will survive final payment, or termination of the Contract. Nothing herein shall preclude Contractor from retaining copies of the Contract Documents for record purposes.

ARTICLE 4 – COMMENCEMENT AND PROGRESS OF THE WORK

4.01 *Commencement of Contract Times; Notice to Proceed*

A. The Contract Times will commence to run on the day indicated in the Notice to Proceed. A Notice to Proceed may be given at any time within 30 days after the Effective Date of the Contract. In no event will the Contract Times commence to run later than the sixtieth day after the day of Bid opening or the thirtieth day after the Effective Date of the Contract, whichever date is earlier.

4.02 *Starting the Work*

A. Contractor shall start to perform the Work on the date when the Contract Times commence to run. No Work shall be done at the Site prior to such date.

4.03 *Reference Points*

A. Owner shall provide engineering surveys to establish reference points for construction which in Engineer's judgment are necessary to enable Contractor to proceed with the Work. Contractor shall be responsible for laying out the Work, shall protect and preserve the established reference points and property monuments, and shall make no changes or relocations without the prior written approval of Owner. Contractor shall report to Engineer whenever any reference point or property monument is lost or destroyed or requires relocation because of necessary changes in grades or locations and shall be responsible for the accurate replacement or relocation of such reference points or property monuments by professionally qualified personnel.

4.04 *Progress Schedule*

A. Contractor shall adhere to the Progress Schedule established in accordance with Paragraph 2.05 as it may be adjusted from time to time as provided below.

1. Contractor shall submit to Engineer for acceptance (to the extent indicated in Paragraph 2.05) proposed adjustments in the Progress Schedule that will not result in changing the Contract Times.

2. Proposed adjustments in the Progress Schedule that will change the Contract Times shall be submitted in accordance with the requirements of Article 11.

B. Contractor shall carry on the Work and adhere to the Progress Schedule during all disputes or disagreements with Owner. No Work shall be delayed or postponed pending resolution of any disputes or disagreements, or during any appeal process, except as permitted by Paragraph 16.04, or as Owner and Contractor may otherwise agree in writing.

4.05 *Delays in Contractor's Progress*

A. If Owner, Engineer, or anyone for whom Owner is responsible, delays, disrupts, or interferes with the performance or progress of the Work, then Contractor shall be entitled to an equitable adjustment in the Contract Times and Contract Price. Contractor's entitlement to an adjustment of the Contract Times is conditioned on such adjustment being essential to Contractor's ability to complete the Work within the Contract Times.

B. Contractor shall not be entitled to an adjustment in Contract Price or Contract Times for

delay, disruption, or interference caused by or within the control of Contractor. Delay, disruption, and interference attributable to and within the control of a Subcontractor or Supplier shall be deemed to be within the control of Contractor.

C. If Contractor's performance or progress is delayed, disrupted, or interfered with by unanticipated causes not the fault of and beyond the control of Owner, Contractor, and those for which they are responsible, then Contractor shall be entitled to an equitable adjustment in Contract Times. Contractor's entitlement to an adjustment of the Contract Times is conditioned on such adjustment being essential to Contractor's ability to complete the Work within the Contract Times. Such an adjustment shall be Contractor's sole and exclusive remedy for the delays, disruption, and interference described in this paragraph. Causes of delay, disruption, or interference that may give rise to an adjustment in Contract Times under this paragraph include but are not limited to the following:

1. severe and unavoidable natural catastrophes such as fires, floods, epidemics, and earthquakes;
2. abnormal weather conditions;
3. acts or failures to act of utility owners (other than those performing other work at or adjacent to the Site by arrangement with the Owner, as contemplated in Article 8); and
4. acts of war or terrorism.

D. Delays, disruption, and interference to the performance or progress of the Work resulting from the existence of a differing subsurface or physical condition, an Underground Facility that was not shown or indicated by the Contract Documents, or not shown or indicated with reasonable accuracy, and those resulting from Hazardous Environmental Conditions, are governed by Article 5.

E. Paragraph 8.03 governs delays, disruption, and interference to the performance or progress of the Work resulting from the performance of certain other work at or adjacent to the Site.

F. Contractor shall not be entitled to an adjustment in Contract Price or Contract Times for any delay, disruption, or interference if such delay is concurrent with a delay, disruption, or interference caused by or within the control of Contractor.

G. Contractor must submit any Change Proposal seeking an adjustment in Contract Price or Contract Times under this paragraph within 30 days of the commencement of the delaying, disrupting, or interfering event.

ARTICLE 5 – AVAILABILITY OF LANDS; SUBSURFACE AND PHYSICAL CONDITIONS; HAZARDOUS ENVIRONMENTAL CONDITIONS

5.01 *Availability of Lands*

A. Owner shall furnish the Site. Owner shall notify Contractor of any encumbrances or restrictions not of general application but specifically related to use of the Site with which Contractor must comply in performing the Work.

B. Upon reasonable written request, Owner shall furnish Contractor with a current statement of record legal title and legal description of the lands upon which permanent improvements

are to be made and Owner's interest therein as necessary for giving notice of or filing a mechanic's or construction lien against such lands in accordance with applicable Laws and Regulations.

C. Contractor shall provide for all additional lands and access thereto that may be required for temporary construction facilities or storage of materials and equipment.

5.02 *Use of Site and Other Areas*

A. *Limitation on Use of Site and Other Areas*:

1. Contractor shall confine construction equipment, temporary construction facilities, the storage of materials and equipment, and the operations of workers to the Site, adjacent areas that Contractor has arranged to use through construction easements or otherwise, and other adjacent areas permitted by Laws and Regulations, and shall not unreasonably encumber the Site and such other adjacent areas with construction equipment or other materials or equipment. Contractor shall assume full responsibility for (a) damage to the Site; (b) damage to any such other adjacent areas used for Contractor's operations; (c) damage to any other adjacent land or areas; and (d) for injuries and losses sustained by the owners or occupants of any such land or areas; provided that such damage or injuries result from the performance of the Work or from other actions or conduct of the Contractor or those for which Contractor is responsible.

2. If a damage or injury claim is made by the owner or occupant of any such land or area because of the performance of the Work, or because of other actions or conduct of the Contractor or those for which Contractor is responsible, Contractor shall (a) take immediate corrective or remedial action as required by Paragraph 7.12, or otherwise; (b) promptly attempt to settle the claim as to all parties through negotiations with such owner or occupant, or otherwise resolve the claim by arbitration or other dispute resolution proceeding, or at law; and (c) to the fullest extent permitted by Laws and Regulations, indemnify and hold harmless Owner and Engineer, and the officers, directors, members, partners, employees, agents, consultants and subcontractors of each and any of them from and against any such claim, and against all costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to any claim or action, legal or equitable, brought by any such owner or occupant against Owner, Engineer, or any other party indemnified hereunder to the extent caused directly or indirectly, in whole or in part by, or based upon, Contractor's performance of the Work, or because of other actions or conduct of the Contractor or those for which Contractor is responsible.

B. *Removal of Debris During Performance of the Work*: During the progress of the Work the Contractor shall keep the Site and other adjacent areas free from accumulations of waste materials, rubbish, and other debris. Removal and disposal of such waste materials, rubbish, and other debris shall conform to applicable Laws and Regulations.

C. *Cleaning*: Prior to Substantial Completion of the Work Contractor shall clean the Site and the Work and make it ready for utilization by Owner. At the completion of the Work Contractor shall remove from the Site and adjacent areas all tools, appliances, construction equipment and machinery, and surplus materials and shall restore to original condition all property not

designated for alteration by the Contract Documents.

D. *Loading of Structures*: Contractor shall not load nor permit any part of any structure to be loaded in any manner that will endanger the structure, nor shall Contractor subject any part of the Work or adjacent structures or land to stresses or pressures that will endanger them.

5.03 *Subsurface and Physical Conditions*

A. *Reports and Drawings*: The Supplementary Conditions identify:

1. those reports known to Owner of explorations and tests of subsurface conditions at or adjacent to the Site;

2. those drawings known to Owner of physical conditions relating to existing surface or subsurface structures at the Site (except Underground Facilities); and

3. Technical Data contained in such reports and drawings.

B. *Reliance by Contractor on Technical Data Authorized*: Contractor may rely upon the accuracy of the Technical Data expressly identified in the Supplementary Conditions with respect to such reports and drawings, but such reports and drawings are not Contract Documents. If no such express identification has been made, then Contractor may rely upon the accuracy of the Technical Data (as defined in Article 1) contained in any geotechnical or environmental report prepared for the Project and made available to Contractor. Except for such reliance on Technical Data, Contractor may not rely upon or make any claim against Owner or Engineer, or any of their officers, directors, members, partners, employees, agents, consultants, or subcontractors, with respect to:

1. the completeness of such reports and drawings for Contractor's purposes, including, but not limited to, any aspects of the means, methods, techniques, sequences, and procedures of construction to be employed by Contractor, and safety precautions and programs incident thereto; or

2. other data, interpretations, opinions, and information contained in such reports or shown or indicated in such drawings; or

3. any Contractor interpretation of or conclusion drawn from any Technical Data or any such other data, interpretations, opinions, or information.

5.04 *Differing Subsurface or Physical Conditions*

A. *Notice by Contractor*: If Contractor believes that any subsurface or physical condition that is uncovered or revealed at the Site either:

1. is of such a nature as to establish that any Technical Data on which Contractor is entitled to rely as provided in Paragraph 5.03 is materially inaccurate; or

2. is of such a nature as to require a change in the Drawings or Specifications; or

3. differs materially from that shown or indicated in the Contract Documents; or

4. is of an unusual nature, and differs materially from conditions ordinarily encountered and generally recognized as inherent in work of the character provided for in the Contract Documents;

then Contractor shall, promptly after becoming aware thereof and before further disturbing

the subsurface or physical conditions or performing any Work in connection therewith (except in an emergency as required by Paragraph 7.15), notify Owner and Engineer in writing about such condition. Contractor shall not further disturb such condition or perform any Work in connection therewith (except with respect to an emergency) until receipt of a written statement permitting Contractor to do so.

B. *Engineer's Review*: After receipt of written notice as required by the preceding paragraph, Engineer will promptly review the subsurface or physical condition in question; determine the necessity of Owner's obtaining additional exploration or tests with respect to the condition; conclude whether the condition falls within any one or more of the differing site condition categories in Paragraph 5.04.A above; obtain any pertinent cost or schedule information from Contractor; prepare recommendations to Owner regarding the Contractor's resumption of Work in connection with the subsurface or physical condition in question and the need for any change in the Drawings or Specifications; and advise Owner in writing of Engineer's findings, conclusions, and recommendations.

C. *Owner's Statement to Contractor Regarding Site Condition*: After receipt of Engineer's written findings, conclusions, and recommendations, Owner shall issue a written statement to Contractor (with a copy to Engineer) regarding the subsurface or physical condition in question, addressing the resumption of Work in connection with such condition, indicating whether any change in the Drawings or Specifications will be made, and adopting or rejecting Engineer's written findings, conclusions, and recommendations, in whole or in part.

D. *Possible Price and Times Adjustments*:

1. Contractor shall be entitled to an equitable adjustment in Contract Price or Contract Times, or both, to the extent that the existence of a differing subsurface or physical condition, or any related delay, disruption, or interference, causes an increase or decrease in Contractor's cost of, or time required for, performance of the Work; subject, however, to the following:

    a. such condition must fall within any one or more of the categories described in Paragraph 5.04.A;

    b. with respect to Work that is paid for on a unit price basis, any adjustment in Contract Price will be subject to the provisions of Paragraph 13.03; and,

    c. Contractor's entitlement to an adjustment of the Contract Times is conditioned on such adjustment being essential to Contractor's ability to complete the Work within the Contract Times.

2. Contractor shall not be entitled to any adjustment in the Contract Price or Contract Times with respect to a subsurface or physical condition if:

    a. Contractor knew of the existence of such condition at the time Contractor made a commitment to Owner with respect to Contract Price and Contract Times by the submission of a Bid or becoming bound under a negotiated contract, or otherwise; or

    b. the existence of such condition reasonably could have been discovered or revealed as a result of any examination, investigation, exploration, test, or study of the Site and contiguous areas expressly required by the Bidding Requirements or Contract

Documents to be conducted by or for Contractor prior to Contractor's making such commitment; or

c. Contractor failed to give the written notice as required by Paragraph 5.04.A.

3. If Owner and Contractor agree regarding Contractor's entitlement to and the amount or extent of any adjustment in the Contract Price or Contract Times, or both, then any such adjustment shall be set forth in a Change Order.

4. Contractor may submit a Change Proposal regarding its entitlement to or the amount or extent of any adjustment in the Contract Price or Contract Times, or both, no later than 30 days after Owner's issuance of the Owner's written statement to Contractor regarding the subsurface or physical condition in question.

5.05 *Underground Facilities*

A. *Contractor's Responsibilities*: The information and data shown or indicated in the Contract Documents with respect to existing Underground Facilities at or adjacent to the Site is based on information and data furnished to Owner or Engineer by the owners of such Underground Facilities, including Owner, or by others. Unless it is otherwise expressly provided in the Supplementary Conditions:

1. Owner and Engineer do not warrant or guarantee the accuracy or completeness of any such information or data provided by others; and

2. the cost of all of the following will be included in the Contract Price, and Contractor shall have full responsibility for:

a. reviewing and checking all information and data regarding existing Underground Facilities at the Site;

b. locating all Underground Facilities shown or indicated in the Contract Documents as being at the Site;

c. coordination of the Work with the owners (including Owner) of such Underground Facilities, during construction; and

d. the safety and protection of all existing Underground Facilities at the Site and repairing any damage thereto resulting from the Work.

B. *Notice by Contractor*: If Contractor believes that an Underground Facility that is uncovered or revealed at the Site was not shown or indicated in the Contract Documents, or was not shown or indicated with reasonable accuracy, then Contractor shall, promptly after becoming aware thereof and before further disturbing conditions affected thereby or performing any Work in connection therewith (except in an emergency as required by Paragraph 7.15), identify the owner of such Underground Facility and give written notice to that owner and to Owner and Engineer.

C. *Engineer's Review*: Engineer will promptly review the Underground Facility and conclude whether such Underground Facility was not shown or indicated in the Contract Documents, or was not shown or indicated with reasonable accuracy; obtain any pertinent cost or schedule information from Contractor; prepare recommendations to Owner regarding the Contractor's resumption of Work in connection with the Underground Facility in question; determine the extent, if any, to which a change is required in the Drawings or Specifications

to reflect and document the consequences of the existence or location of the Underground Facility; and advise Owner in writing of Engineer's findings, conclusions, and recommendations. During such time, Contractor shall be responsible for the safety and protection of such Underground Facility.

D. *Owner's Statement to Contractor Regarding Underground Facility*: After receipt of Engineer's written findings, conclusions, and recommendations, Owner shall issue a written statement to Contractor (with a copy to Engineer) regarding the Underground Facility in question, addressing the resumption of Work in connection with such Underground Facility, indicating whether any change in the Drawings or Specifications will be made, and adopting or rejecting Engineer's written findings, conclusions, and recommendations in whole or in part.

E. *Possible Price and Times Adjustments*:

1. Contractor shall be entitled to an equitable adjustment in the Contract Price or Contract Times, or both, to the extent that any existing Underground Facility at the Site that was not shown or indicated in the Contract Documents, or was not shown or indicated with reasonable accuracy, or any related delay, disruption, or interference, causes an increase or decrease in Contractor's cost of, or time required for, performance of the Work; subject, however, to the following:
   a. Contractor did not know of and could not reasonably have been expected to be aware of or to have anticipated the existence or actual location of the Underground Facility in question;
   b. With respect to Work that is paid for on a unit price basis, any adjustment in Contract Price will be subject to the provisions of Paragraph 13.03;
   c. Contractor's entitlement to an adjustment of the Contract Times is conditioned on such adjustment being essential to Contractor's ability to complete the Work within the Contract Times; and
   d. Contractor gave the notice required in Paragraph 5.05.B.
2. If Owner and Contractor agree regarding Contractor's entitlement to and the amount or extent of any adjustment in the Contract Price or Contract Times, or both, then any such adjustment shall be set forth in a Change Order.
3. Contractor may submit a Change Proposal regarding its entitlement to or the amount or extent of any adjustment in the Contract Price or Contract Times, or both, no later than 30 days after Owner's issuance of the Owner's written statement to Contractor regarding the Underground Facility in question.

5.06 *Hazardous Environmental Conditions at Site*

A. *Reports and Drawings*: The Supplementary Conditions identify:

1. those reports and drawings known to Owner relating to Hazardous Environmental Conditions that have been identified at or adjacent to the Site; and
2. Technical Data contained in such reports and drawings.

B. *Reliance by Contractor on Technical Data Authorized*: Contractor may rely upon the accuracy of the Technical Data expressly identified in the Supplementary Conditions with respect to

such reports and drawings, but such reports and drawings are not Contract Documents. If no such express identification has been made, then Contractor may rely on the accuracy of the Technical Data (as defined in Article 1) contained in any geotechnical or environmental report prepared for the Project and made available to Contractor. Except for such reliance on Technical Data, Contractor may not rely upon or make any claim against Owner or Engineer, or any of their officers, directors, members, partners, employees, agents, consultants, or subcontractors with respect to:

1. the completeness of such reports and drawings for Contractor's purposes, including, but not limited to, any aspects of the means, methods, techniques, sequences, and procedures of construction to be employed by Contractor and safety precautions and programs incident thereto; or
2. other data, interpretations, opinions, and information contained in such reports or shown or indicated in such drawings; or
3. any Contractor interpretation of or conclusion drawn from any Technical Data or any such other data, interpretations, opinions, or information.

C. Contractor shall not be responsible for removing or remediating any Hazardous Environmental Condition encountered, uncovered, or revealed at the Site unless such removal or remediation is expressly identified in the Contract Documents to be within the scope of the Work. Contractor shall be responsible for controlling, containing, and duly removing all Constituents of Concern brought to the Site by Contractor, Subcontractors, Suppliers, or anyone else for whom Contractor is responsible, and for any associated costs; and for the costs of removing and remediating any Hazardous Environmental Condition created by the presence of any such Constituents of Concern.

D. If Contractor encounters, uncovers, or reveals a Hazardous Environmental Condition whose removal or remediation is not expressly identified in the Contract Documents as being within the scope of the Work, or if Contractor or anyone for whom Contractor is responsible creates a Hazardous Environmental Condition, then Contractor shall immediately: (1) secure or otherwise isolate such condition; (2) stop all Work in connection with such condition and in any area affected thereby (except in an emergency as required by Paragraph 7.15); and (3) notify Owner and Engineer (and promptly thereafter confirm such notice in writing). Owner shall promptly consult with Engineer concerning the necessity for Owner to retain a qualified expert to evaluate such condition or take corrective action, if any. Promptly after consulting with Engineer, Owner shall take such actions as are necessary to permit Owner to timely obtain required permits and provide Contractor the written notice required by Paragraph 5.06.F. If Contractor or anyone for whom Contractor is responsible created the Hazardous Environmental Condition in question, then Owner may remove and remediate the Hazardous Environmental Condition and impose a set-off against payments to account for the associated costs.

E. Contractor shall not resume Work in connection with such Hazardous Environmental Condition or in any affected area until after Owner has obtained any required permits related thereto, and delivered written notice to Contractor either (1) specifying that such condition and any affected area is or has been rendered safe for the resumption of Work, or (2) specifying any special conditions under which such Work may be resumed safely.

F. If Owner and Contractor cannot agree as to entitlement to or on the amount or extent, if

any, of any adjustment in Contract Price or Contract Times, or both, as a result of such Work stoppage or such special conditions under which Work is agreed to be resumed by Contractor, then within 30 days of Owner's written notice regarding the resumption of Work, Contractor may submit a Change Proposal, or Owner may impose a set-off.

G. If after receipt of such written notice Contractor does not agree to resume such Work based on a reasonable belief it is unsafe or does not agree to resume such Work under such special conditions, then Owner may order the portion of the Work that is in the area affected by such condition to be deleted from the Work, following the contractual change procedures in Article 11. Owner may have such deleted portion of the Work performed by Owner's own forces or others in accordance with Article 8.

H. To the fullest extent permitted by Laws and Regulations, Owner shall indemnify and hold harmless Contractor, Subcontractors, and Engineer, and the officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to a Hazardous Environmental Condition, provided that such Hazardous Environmental Condition (1) was not shown or indicated in the Drawings, Specifications, or other Contract Documents, identified as Technical Data entitled to limited reliance pursuant to Paragraph 5.06.B, or identified in the Contract Documents to be included within the scope of the Work, and (2)

was not created by Contractor or by anyone for whom Contractor is responsible. Nothing in this Paragraph 5.06.I shall obligate Owner to indemnify any individual or entity from and against the consequences of that individual's or entity's own negligence.

I. To the fullest extent permitted by Laws and Regulations, Contractor shall indemnify and hold harmless Owner and Engineer, and the officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to the failure to control, contain, or remove a Constituent of Concern brought to the Site by Contractor or by anyone for whom Contractor is responsible, or to a Hazardous Environmental Condition created by Contractor or by anyone for whom Contractor is responsible. Nothing in this Paragraph 5.06.J shall obligate Contractor to indemnify any individual or entity from and against the consequences of that individual's or entity's own negligence.

J. The provisions of Paragraphs 5.03, 5.04, and 5.05 do not apply to the presence of Constituents of Concern or to a Hazardous Environmental Condition uncovered or revealed at the Site.

ARTICLE 6 – BONDS AND INSURANCE

6.01 *Performance, Payment, and Other Bonds*

A. Contractor shall furnish a performance bond and a payment bond, each in an amount at least equal to the Contract Price, as security for the faithful performance and payment of all of Contractor's obligations under the Contract. These bonds shall remain in effect until one year

after the date when final payment becomes due or until completion of the correction period specified in Paragraph 15.08, whichever is later, except as provided otherwise by Laws or Regulations, the Supplementary Conditions, or other specific provisions of the Contract. Contractor shall also furnish such other bonds as are required by the Supplementary Conditions or other specific provisions of the Contract.

B. All bonds shall be in the form prescribed by the Contract except as provided otherwise by Laws or Regulations, and shall be executed by such sureties as are named in "Companies Holding Certificates of Authority as Acceptable Sureties on Federal Bonds and as Acceptable Reinsuring Companies" as published in Circular 570 (as amended and supplemented) by the Financial Management Service, Surety Bond Branch, U.S. Department of the Treasury. A bond signed by an agent or attorney-in-fact must be accompanied by a certified copy of that individual's authority to bind the surety. The evidence of authority shall show that it is effective on the date the agent or attorney-in-fact signed the accompanying bond.

C. Contractor shall obtain the required bonds from surety companies that are duly licensed or authorized in the jurisdiction in which the Project is located to issue bonds in the required amounts.

D. If the surety on a bond furnished by Contractor is declared bankrupt or becomes insolvent, or its right to do business is terminated in any state or jurisdiction where any part of the Project is located, or the surety ceases to meet the requirements above, then Contractor shall promptly notify Owner and Engineer and shall, within 20 days after the event giving rise to such notification, provide another bond and surety, both of which shall comply with the bond and surety requirements above.

E. If Contractor has failed to obtain a required bond, Owner may exclude the Contractor from the Site and exercise Owner's termination rights under Article 16.

F. Upon request, Owner shall provide a copy of the payment bond to any Subcontractor, Supplier, or other person or entity claiming to have furnished labor or materials used in the performance of the Work.

6.02 *Insurance—General Provisions*

A. Owner and Contractor shall obtain and maintain insurance as required in this Article and in the Supplementary Conditions.

B. All insurance required by the Contract to be purchased and maintained by Owner or Contractor shall be obtained from insurance companies that are duly licensed or authorized, in the state or jurisdiction in which the Project is located, to issue insurance policies for the required limits and coverages. Unless a different standard is indicated in the Supplementary Conditions, all companies that provide insurance policies required under this Contract shall have an A.M. Best rating of A-VII or better.

C. Contractor shall deliver to Owner, with copies to each named insured and additional insured (as identified in this Article, in the Supplementary Conditions, or elsewhere in the Contract), certificates of insurance establishing that Contractor has obtained and is maintaining the policies, coverages, and endorsements required by the Contract. Upon request by Owner or any other insured, Contractor shall also furnish other evidence of such required insurance, including but not limited to copies of policies and endorsements, and documentation of applicable self-insured retentions and deductibles. Contractor may block out (redact) any

confidential premium or pricing information contained in any policy or endorsement furnished under this provision.

D. Owner shall deliver to Contractor, with copies to each named insured and additional insured (as identified in this Article, the Supplementary Conditions, or elsewhere in the Contract), certificates of insurance establishing that Owner has obtained and is maintaining the policies, coverages, and endorsements required of Owner by the Contract (if any). Upon request by Contractor or any other insured, Owner shall also provide other evidence of such required insurance (if any), including but not limited to copies of policies and endorsements, and documentation of applicable self-insured retentions and deductibles. Owner may block out (redact) any confidential premium or pricing information contained in any policy or endorsement furnished under this provision.

E. Failure of Owner or Contractor to demand such certificates or other evidence of the other party's full compliance with these insurance requirements, or failure of Owner or Contractor to identify a deficiency in compliance from the evidence provided, shall not be construed as a waiver of the other party's obligation to obtain and maintain such insurance.

F. If either party does not purchase or maintain all of the insurance required of such party by the Contract, such party shall notify the other party in writing of such failure to purchase prior to the start of the Work, or of such failure to maintain prior to any change in the required coverage.

G. If Contractor has failed to obtain and maintain required insurance, Owner may exclude the Contractor from the Site, impose an appropriate set-off against payment, and exercise Owner's termination rights under Article 16.

H. Without prejudice to any other right or remedy, if a party has failed to obtain required insurance, the other party may elect to obtain equivalent insurance to protect such other party's interests at the expense of the party who was required to provide such coverage, and the Contract Price shall be adjusted accordingly.

I. Owner does not represent that insurance coverage and limits established in this Contract necessarily will be adequate to protect Contractor or Contractor's interests.

J. The insurance and insurance limits required herein shall not be deemed as a limitation on Contractor's liability under the indemnities granted to Owner and other individuals and entities in the Contract.

6.03 *Contractor's Insurance*

A. *Workers' Compensation*: Contractor shall purchase and maintain workers' compensation and employer's liability insurance for:

1. claims under workers' compensation, disability benefits, and other similar employee benefit acts.

2. United States Longshoreman and Harbor Workers' Compensation Act and Jones Act coverage (if applicable).

3. claims for damages because of bodily injury, occupational sickness or disease, or death of Contractor's employees (by stop-gap endorsement in monopolist worker's compensation states).

4. Foreign voluntary worker compensation (if applicable).

B. *Commercial General Liability—Claims Covered*: Contractor shall purchase and maintain commercial general liability insurance, covering all operations by or on behalf of Contractor, on an occurrence basis, against:

1. claims for damages because of bodily injury, sickness or disease, or death of any person other than Contractor's employees.
2. claims for damages insured by reasonably available personal injury liability coverage.
3. claims for damages, other than to the Work itself, because of injury to or destruction of tangible property wherever located, including loss of use resulting therefrom.

C. *Commercial General Liability—Form and Content*: Contractor's commercial liability policy shall be written on a 1996 (or later) ISO commercial general liability form (occurrence form) and include the following coverages and endorsements:

1. Products and completed operations coverage:
   a. Such insurance shall be maintained for three years after final payment.
   b. Contractor shall furnish Owner and each other additional insured (as identified in the Supplementary Conditions or elsewhere in the Contract) evidence of continuation of such insurance at final payment and three years thereafter.
2. Blanket contractual liability coverage, to the extent permitted by law, including but not limited to coverage of Contractor's contractual indemnity obligations in Paragraph 7.18.
3. Broad form property damage coverage.
4. Severability of interest.
5. Underground, explosion, and collapse coverage.
6. Personal injury coverage.
7. Additional insured endorsements that include both ongoing operations and products and completed operations coverage through ISO Endorsements CG 20 10 10 01 and CG 20 37 10 01 (together); or CG 20 10 07 04 and CG 20 37 07 04 (together); or their equivalent.
8. For design professional additional insureds, ISO Endorsement CG 20 32 07 04, "Additional Insured—Engineers, Architects or Surveyors Not Engaged by the Named Insured" or its equivalent.

D. *Automobile liability*: Contractor shall purchase and maintain automobile liability insurance against claims for damages because of bodily injury or death of any person or property damage arising out of the ownership, maintenance, or use of any motor vehicle. The automobile liability policy shall be written on an occurrence basis.

E. *Umbrella or excess liability*: Contractor shall purchase and maintain umbrella or excess liability insurance written over the underlying employer's liability, commercial general liability, and automobile liability insurance described in the paragraphs above. Subject to industry-standard exclusions, the coverage afforded shall follow form as to each and every one of the underlying policies.

F. *Contractor's pollution liability insurance*: Contractor shall purchase and maintain a policy covering third-party injury and property damage claims, including clean-up costs, as a result of pollution conditions arising from Contractor's operations and completed operations. This insurance shall be maintained for no less than three years after final completion.

G. *Additional insureds*: The Contractor's commercial general liability, automobile liability, umbrella or excess, and pollution liability policies shall include and list as additional insureds Owner and Engineer, and any individuals or entities identified in the Supplementary Conditions; include coverage for the respective officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of all such additional insureds; and the insurance afforded to these additional insureds shall provide primary coverage for all claims covered thereby (including as applicable those arising from both ongoing and completed operations) on a non-contributory basis. Contractor shall obtain all necessary endorsements to support these requirements.

H. *Contractor's professional liability insurance*: If Contractor will provide or furnish professional services under this Contract, through a delegation of professional design services or otherwise, then Contractor shall be responsible for purchasing and maintaining applicable professional liability insurance. This insurance shall provide protection against claims arising out of performance of professional design or related services, and caused by a negligent error, omission, or act for which the insured party is legally liable. It shall be maintained throughout the duration of the Contract and for a minimum of two years after

Substantial Completion. If such professional design services are performed by a Subcontractor, and not by Contractor itself, then the requirements of this paragraph may be satisfied through the purchasing and maintenance of such insurance by such Subcontractor.

I. *General provisions*: The policies of insurance required by this Paragraph 6.03 shall:

1. include at least the specific coverages provided in this Article.
2. be written for not less than the limits of liability provided in this Article and in the Supplementary Conditions, or required by Laws or Regulations, whichever is greater.
3. contain a provision or endorsement that the coverage afforded will not be canceled, materially changed, or renewal refused until at least 10 days prior written notice has been given to Contractor. Within three days of receipt of any such written notice, Contractor shall provide a copy of the notice to Owner, Engineer, and each other insured under the policy.
4. remain in effect at least until final payment (and longer if expressly required in this Article) and at all times thereafter when Contractor may be correcting, removing, or replacing defective Work as a warranty or correction obligation, or otherwise, or returning to the Site to conduct other tasks arising from the Contract Documents.
5. be appropriate for the Work being performed and provide protection from claims that may arise out of or result from Contractor's performance of the Work and Contractor's other obligations under the Contract Documents, whether it is to be performed by Contractor, any Subcontractor or Supplier, or by anyone directly or indirectly employed by any of them to perform any of the Work, or by anyone for whose acts any of them may be liable.

J. The coverage requirements for specific policies of insurance must be met by such policies, and not by reference to excess or umbrella insurance provided in other policies.

6.04 *Owner's Liability Insurance*

A. In addition to the insurance required to be provided by Contractor under Paragraph 6.03, Owner, at Owner's option, may purchase and maintain at Owner's expense Owner's own liability insurance as will protect Owner against claims which may arise from operations under the Contract Documents.

B. Owner's liability policies, if any, operate separately and independently from policies required to be provided by Contractor, and Contractor cannot rely upon Owner's liability policies for any of Contractor's obligations to the Owner, Engineer, or third parties.

6.05 *Property Insurance*

A. *Builder's Risk*: Unless otherwise provided in the Supplementary Conditions, Contractor shall purchase and maintain builder's risk insurance upon the Work on a completed value basis, in the amount of the full insurable replacement cost thereof (subject to such deductible amounts as may be provided in the Supplementary Conditions or required by Laws and Regulations). This insurance shall:

1. include the Owner and Contractor as named insureds, and all Subcontractors, and any individuals or entities required by the Supplementary Conditions to be insured under such builder's risk policy, as insureds or named insureds. For purposes of the remainder of this Paragraph 6.05, Paragraphs 6.06 and 6.07, and any corresponding Supplementary Conditions, the parties required to be insured shall collectively be referred to as "insureds."

2. be written on a builder's risk "all risk" policy form that shall at least include insurance for physical loss or damage to the Work, temporary buildings, falsework, and materials and equipment in transit, and shall insure against at least the following perils or causes of loss: fire; lightning; windstorm; riot; civil commotion; terrorism; vehicle impact; aircraft; smoke; theft; vandalism and malicious mischief; mechanical breakdown, boiler explosion, and artificially generated electric current; earthquake; volcanic activity, and other earth movement; flood; collapse; explosion; debris removal; demolition occasioned by enforcement of Laws and Regulations; water damage (other than that caused by flood); and such other perils or causes of loss as may be specifically required by the Supplementary Conditions. If insurance against mechanical breakdown, boiler explosion, and artificially generated electric current; earthquake; volcanic activity, and other earth movement; or flood, are not commercially available under builder's risk policies, by endorsement or otherwise, such insurance may be provided through other insurance policies acceptable to Owner and Contractor.

3. cover, as insured property, at least the following: (a) the Work and all materials, supplies, machinery, apparatus, equipment, fixtures, and other property of a similar nature that are to be incorporated into or used in the preparation, fabrication, construction, erection, or completion of the Work, including Owner-furnished or assigned property; (b) spare parts inventory required within the scope of the Contract; and (c) temporary works which are not intended to form part of the permanent constructed Work but which are intended to provide working access to the Site, or to

the Work under construction, or which are intended to provide temporary support for the Work under construction, including scaffolding, form work, fences, shoring, falsework, and temporary structures.

4. cover expenses incurred in the repair or replacement of any insured property (including but not limited to fees and charges of engineers and architects).
5. extend to cover damage or loss to insured property while in temporary storage at the Site or in a storage location outside the Site (but not including property stored at the premises of a manufacturer or Supplier).
6. extend to cover damage or loss to insured property while in transit.
7. allow for partial occupation or use of the Work by Owner, such that those portions of the Work that are not yet occupied or used by Owner shall remain covered by the builder's risk insurance.
8. allow for the waiver of the insurer's subrogation rights, as set forth below.
9. provide primary coverage for all losses and damages caused by the perils or causes of loss covered.
10. not include a co-insurance clause.
11. include an exception for ensuing losses from physical damage or loss with respect to any defective workmanship, design, or materials exclusions.
12. include performance/hot testing and start-up.
13. be maintained in effect, subject to the provisions herein regarding Substantial Completion and partial occupancy or use of the Work by Owner, until the Work is complete.

B. *Notice of Cancellation or Change*: All the policies of insurance (and the certificates or other evidence thereof) required to be purchased and maintained in accordance with this Paragraph 6.05 will contain a provision or endorsement that the coverage afforded will not be canceled or materially changed or renewal refused until at least 10 days prior written notice has been given to the purchasing policyholder. Within three days of receipt of any such written notice, the purchasing policyholder shall provide a copy of the notice to each other insured.

C. *Deductibles*: The purchaser of any required builder's risk or property insurance shall pay for costs not covered because of the application of a policy deductible.

D. *Partial Occupancy or Use by Owner*: If Owner will occupy or use a portion or portions of the Work prior to Substantial Completion of all the Work as provided in Paragraph 15.04, then Owner (directly, if it is the purchaser of the builder's risk policy, or through Contractor) will provide notice of such occupancy or use to the builder's risk insurer. The builder's risk insurance shall not be canceled or permitted to lapse on account of any such partial use or occupancy; rather, those portions of the Work that are occupied or used by Owner may come off the builder's risk policy, while those portions of the Work not yet occupied or used by Owner shall remain covered by the builder's risk insurance.

E. *Additional Insurance*: If Contractor elects to obtain other special insurance to be included in

or supplement the builder's risk or property insurance policies provided under this Paragraph 6.05, it may do so at Contractor's expense.

F. *Insurance of Other Property*: If the express insurance provisions of the Contract do not require or address the insurance of a property item or interest, such as tools, construction equipment, or other personal property owned by Contractor, a Subcontractor, or an employee of Contractor or a Subcontractor, then the entity or individual owning such property item will be responsible for deciding whether to insure it, and if so in what amount.

6.06 *Waiver of Rights*

A. All policies purchased in accordance with Paragraph 6.05, expressly including the builder's risk policy, shall contain provisions to the effect that in the event of payment of any loss or damage the insurers will have no rights of recovery against any insureds thereunder, or against Engineer or its consultants, or their officers, directors, members, partners, employees, agents, consultants, or subcontractors. Owner and Contractor waive all rights against each other and the respective officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them, for all losses and damages caused by, arising out of, or resulting from any of the perils or causes of loss covered by such policies and any other property insurance applicable to the Work; and, in addition, waive all such rights against Engineer, its consultants, all Subcontractors, all individuals or entities identified in the Supplementary Conditions as insureds, and the officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them, under such policies for losses and damages so caused. None of the above waivers shall extend to the rights that any party making such waiver may have to

the proceeds of insurance held by Owner or Contractor as trustee or fiduciary, or otherwise payable under any policy so issued.

B. Owner waives all rights against Contractor, Subcontractors, and Engineer, and the officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them, for:

1. loss due to business interruption, loss of use, or other consequential loss extending beyond direct physical loss or damage to Owner's property or the Work caused by, arising out of, or resulting from fire or other perils whether or not insured by Owner; and

2. loss or damage to the completed Project or part thereof caused by, arising out of, or resulting from fire or other insured peril or cause of loss covered by any property insurance maintained on the completed Project or part thereof by Owner during partial occupancy or use pursuant to Paragraph 15.04, after Substantial Completion pursuant to Paragraph 15.03, or after final payment pursuant to Paragraph 15.06.

C. Any insurance policy maintained by Owner covering any loss, damage or consequential loss referred to in Paragraph 6.06.B shall contain provisions to the effect that in the event of payment of any such loss, damage, or consequential loss, the insurers will have no rights of recovery against Contractor, Subcontractors, or Engineer, or the officers, directors, members, partners, employees, agents, consultants, or subcontractors of each and any of them.

D. Contractor shall be responsible for assuring that the agreement under which a Subcontractor

performs a portion of the Work contains provisions whereby the Subcontractor waives all rights against Owner, Contractor, all individuals or entities identified in the Supplementary Conditions as insureds, the Engineer and its consultants, and the officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them, for all losses and damages caused by, arising out of, relating to, or resulting from any of the perils or causes of loss covered by builder's risk insurance and any other property insurance applicable to the Work.

6.07 *Receipt and Application of Property Insurance Proceeds*

A. Any insured loss under the builder's risk and other policies of insurance required by Paragraph 6.05 will be adjusted and settled with the named insured that purchased the policy. Such named insured shall act as fiduciary for the other insureds and give notice to such other insureds that adjustment and settlement of a claim is in progress. Any other insured may state its position regarding a claim for insured loss in writing within 15 days after notice of such claim.

B. Proceeds for such insured losses may be made payable by the insurer either jointly to multiple insureds, or to the named insured that purchased the policy in its own right and as fiduciary for other insureds, subject to the requirements of any applicable mortgage clause. A named insured receiving insurance proceeds under the builder's risk and other policies of insurance required by Paragraph 6.05 shall distribute such proceeds in accordance with such agreement as the parties in interest may reach, or as otherwise required under the dispute resolution provisions of this Contract or applicable Laws and Regulations.

C. If no other special agreement is reached, the damaged Work shall be repaired or replaced, the money so received applied on account thereof, and the Work and the cost thereof covered by Change Order, if needed.

ARTICLE 7 – CONTRACTOR'S RESPONSIBILITIES

7.01 *Supervision and Superintendence*

A. Contractor shall supervise, inspect, and direct the Work competently and efficiently, devoting such attention thereto and applying such skills and expertise as may be necessary to perform the Work in accordance with the Contract Documents. Contractor shall be solely responsible for the means, methods, techniques, sequences, and procedures of construction.

B. At all times during the progress of the Work, Contractor shall assign a competent resident superintendent who shall not be replaced without written notice to Owner and Engineer except under extraordinary circumstances.

7.02 *Labor; Working Hours*

A. Contractor shall provide competent, suitably qualified personnel to survey and lay out the Work and perform construction as required by the Contract Documents. Contractor shall at all times maintain good discipline and order at the Site.

B. Except as otherwise required for the safety or protection of persons or the Work or property at the Site or adjacent thereto, and except as otherwise stated in the Contract Documents, all Work at the Site shall be performed during regular working hours, Monday through Friday. Contractor will not perform Work on a Saturday, Sunday, or any legal holiday. Contractor

may perform Work outside regular working hours or on Saturdays, Sundays, or legal holidays only with Owner's written consent, which will not be unreasonably withheld.

7.03 *Services, Materials, and Equipment*

A. Unless otherwise specified in the Contract Documents, Contractor shall provide and assume full responsibility for all services, materials, equipment, labor, transportation, construction equipment and machinery, tools, appliances, fuel, power, light, heat, telephone, water, sanitary facilities, temporary facilities, and all other facilities and incidentals necessary for the performance, testing, start up, and completion of the Work, whether or not such items are specifically called for in the Contract Documents.

B. All materials and equipment incorporated into the Work shall be of good quality and new, except as otherwise provided in the Contract Documents. All special warranties and guarantees required by the Specifications shall expressly run to the benefit of Owner. If required by Engineer, Contractor shall furnish satisfactory evidence (including reports of required tests) as to the source, kind, and quality of materials and equipment.

C. All materials and equipment shall be stored, applied, installed, connected, erected, protected, used, cleaned, and conditioned in accordance with instructions of the applicable Supplier, except as otherwise may be provided in the Contract Documents.

7.04 *"Or Equals"*

A. Whenever an item of material or equipment is specified or described in the Contract Documents by using the name of a proprietary item or the name of a particular Supplier, the Contract Price has been based upon Contractor furnishing such item as specified. The specification or description of such an item is intended to establish the type, function, appearance, and quality required. Unless the specification or description contains or is followed by words reading that no like, equivalent, or "or equal" item is permitted, Contractor may request that Engineer authorize the use of other items of material or equipment, or items from other proposed suppliers under the circumstances described below.

1. If Engineer in its sole discretion determines that an item of material or equipment proposed by Contractor is functionally equal to that named and sufficiently similar so that no change in related Work will be required, Engineer shall deem it an "or equal" item. For the purposes of this paragraph, a proposed item of material or equipment will be considered functionally equal to an item so named if:

a. in the exercise of reasonable judgment Engineer determines that:

1) it is at least equal in materials of construction, quality, durability, appearance, strength, and design characteristics;

2) it will reliably perform at least equally well the function and achieve the results imposed by the design concept of the completed Project as a functioning whole;

3) it has a proven record of performance and availability of responsive service; and

4) it is not objectionable to Owner.

b. Contractor certifies that, if approved and incorporated into the Work:

1) there will be no increase in cost to the Owner or increase in Contract Times; and

2) it will conform substantially to the detailed requirements of the item named in the Contract Documents.

B. *Contractor's Expense*: Contractor shall provide all data in support of any proposed "or equal" item at Contractor's expense.

C. *Engineer's Evaluation and Determination*: Engineer will be allowed a reasonable time to evaluate each "or-equal" request. Engineer may require Contractor to furnish additional data about the proposed "or-equal" item. Engineer will be the sole judge of acceptability. No "or-equal" item will be ordered, furnished, installed, or utilized until Engineer's review is complete and Engineer determines that the proposed item is an "or-equal," which will be evidenced by an approved Shop Drawing or other written communication. Engineer will advise Contractor in writing of any negative determination.

D. *Effect of Engineer's Determination*: Neither approval nor denial of an "or-equal" request shall result in any change in Contract Price. The Engineer's denial of an "or-equal" request shall be final and binding and may not be reversed through an appeal under any provision of the Contract Documents.

E. *Treatment as a Substitution Request*: If Engineer determines that an item of material or equipment proposed by Contractor does not qualify as an "or-equal" item, Contractor may request that Engineer considered the proposed item as a substitute pursuant to Paragraph 7.05.

7.05 *Substitutes*

A. Unless the specification or description of an item of material or equipment required to be furnished under the Contract Documents contains or is followed by words reading that no substitution is permitted, Contractor may request that Engineer authorize the use of other items of material or equipment under the circumstances described below. To the extent possible such requests shall be made before commencement of related construction at the Site.

1. Contractor shall submit sufficient information as provided below to allow Engineer to determine if the item of material or equipment proposed is functionally equivalent to that named and an acceptable substitute therefor. Engineer will not accept requests for review of proposed substitute items of material or equipment from anyone other than Contractor.

2. The requirements for review by Engineer will be as set forth in Paragraph 7.05.B, as supplemented by the Specifications, and as Engineer may decide is appropriate under the circumstances.

3. Contractor shall make written application to Engineer for review of a proposed substitute item of material or equipment that Contractor seeks to furnish or use. The application:

a. shall certify that the proposed substitute item will:

1) perform adequately the functions and achieve the results called for by the general design,

2) be similar in substance to that specified, and

3) be suited to the same use as that specified.

b. will state:

1) the extent, if any, to which the use of the proposed substitute item will necessitate a change in Contract Times,

2) whether use of the proposed substitute item in the Work will require a change in any of the Contract Documents (or in the provisions of any other direct contract with Owner for other work on the Project) to adapt the design to the proposed substitute item, and

3) whether incorporation or use of the proposed substitute item in connection with the Work is subject to payment of any license fee or royalty.

c. will identify:

1) all variations of the proposed substitute item from that specified, and

2) available engineering, sales, maintenance, repair, and replacement services.

d. shall contain an itemized estimate of all costs or credits that will result directly or indirectly from use of such substitute item, including but not limited to changes in Contract Price, shared savings, costs of redesign, and claims of other contractors affected by any resulting change.

B. *Engineer's Evaluation and Determination*: Engineer will be allowed a reasonable time to evaluate each substitute request, and to obtain comments and direction from Owner. Engineer may require Contractor to furnish additional data about the proposed substitute item. Engineer will be the sole judge of acceptability. No substitute will be ordered, furnished, installed, or utilized until Engineer's review is complete and Engineer determines that the proposed item is an acceptable substitute. Engineer's determination will be evidenced by a Field Order or a proposed Change Order accounting for the substitution itself and all related impacts, including changes in Contract Price or Contract Times. Engineer will advise Contractor in writing of any negative determination.

C. *Special Guarantee*: Owner may require Contractor to furnish at Contractor's expense a special performance guarantee or other surety with respect to any substitute.

D. *Reimbursement of Engineer's Cost*: Engineer will record Engineer's costs in evaluating a substitute proposed or submitted by Contractor. Whether or not Engineer approves a substitute so proposed or submitted by Contractor, Contractor shall reimburse Owner for the reasonable charges of Engineer for evaluating each such proposed substitute. Contractor shall also reimburse Owner for the reasonable charges of Engineer for making changes in the Contract Documents (or in the provisions of any other direct contract with Owner) resulting from the acceptance of each proposed substitute.

E. *Contractor's Expense*: Contractor shall provide all data in support of any proposed substitute at Contractor's expense.

F. *Effect of Engineer's Determination*: If Engineer approves the substitution request, Contractor shall execute the proposed Change Order and proceed with the substitution. The Engineer's denial of a substitution request shall be final and binding and may not be reversed through an appeal under any provision of the Contract Documents. Contractor may challenge the scope of reimbursement costs imposed under Paragraph 7.05.D, by timely submittal of a Change Proposal.

7.06 *Concerning Subcontractors, Suppliers, and Others*

A. Contractor may retain Subcontractors and Suppliers for the performance of parts of the Work. Such Subcontractors and Suppliers must be acceptable to Owner.

B. Contractor shall retain specific Subcontractors, Suppliers, or other individuals or entities for the performance of designated parts of the Work if required by the Contract to do so.

C. Subsequent to the submittal of Contractor's Bid or final negotiation of the terms of the Contract, Owner may not require Contractor to retain any Subcontractor, Supplier, or other individual or entity to furnish or perform any of the Work against which Contractor has reasonable objection.

D. Prior to entry into any binding subcontract or purchase order, Contractor shall submit to Owner the identity of the proposed Subcontractor or Supplier (unless Owner has already deemed such proposed Subcontractor or Supplier acceptable, during the bidding process or otherwise). Such proposed Subcontractor or Supplier shall be deemed acceptable to Owner unless Owner raises a substantive, reasonable objection within five days.

E. Owner may require the replacement of any Subcontractor, Supplier, or other individual or entity retained by Contractor to perform any part of the Work. Owner also may require Contractor to retain specific replacements; provided, however, that Owner may not require a replacement to which Contractor has a reasonable objection. If Contractor has submitted the identity of certain Subcontractors, Suppliers, or other individuals or entities for acceptance by Owner, and Owner has accepted it (either in writing or by failing to make written objection thereto), then Owner may subsequently revoke the acceptance of any such Subcontractor, Supplier, or other individual or entity so identified solely on the basis of substantive, reasonable objection after due investigation. Contractor shall submit an acceptable replacement for the rejected Subcontractor, Supplier, or other individual or entity.

F. If Owner requires the replacement of any Subcontractor, Supplier, or other individual or entity retained by Contractor to perform any part of the Work, then Contractor shall be entitled to an adjustment in Contract Price or Contract Times, or both, with respect to the replacement; and Contractor shall initiate a Change Proposal for such adjustment within 30 days of Owner's requirement of replacement.

G. No acceptance by Owner of any such Subcontractor, Supplier, or other individual or entity, whether initially or as a replacement, shall constitute a waiver of the right of Owner to the completion of the Work in accordance with the Contract Documents.

H. On a monthly basis Contractor shall submit to Engineer a complete list of all Subcontractors and Suppliers having a direct contract with Contractor, and of all other Subcontractors and Suppliers known to Contractor at the time of submittal.

I. Contractor shall be fully responsible to Owner and Engineer for all acts and omissions of the Subcontractors, Suppliers, and other individuals or entities performing or furnishing any of the Work just as Contractor is responsible for Contractor's own acts and omissions.

J. Contractor shall be solely responsible for scheduling and coordinating the work of Subcontractors, Suppliers, and all other individuals or entities performing or furnishing any of the Work.

K. Contractor shall restrict all Subcontractors, Suppliers, and such other individuals or entities performing or furnishing any of the Work from communicating with Engineer or Owner, except through Contractor or in case of an emergency, or as otherwise expressly allowed herein.

L. The divisions and sections of the Specifications and the identifications of any Drawings shall not control Contractor in dividing the Work among Subcontractors or Suppliers or delineating the Work to be performed by any specific trade.

M. All Work performed for Contractor by a Subcontractor or Supplier shall be pursuant to an appropriate contractual agreement that specifically binds the Subcontractor or Supplier to the applicable terms and conditions of the Contract Documents for the benefit of Owner and Engineer.

N. Owner may furnish to any Subcontractor or Supplier, to the extent practicable, information about amounts paid to Contractor on account of Work performed for Contractor by the particular Subcontractor or Supplier.

O. Nothing in the Contract Documents:

1. shall create for the benefit of any such Subcontractor, Supplier, or other individual or entity any contractual relationship between Owner or Engineer and any such Subcontractor, Supplier, or other individual or entity; nor
2. shall create any obligation on the part of Owner or Engineer to pay or to see to the payment of any money due any such Subcontractor, Supplier, or other individual or entity except as may otherwise be required by Laws and Regulations.

7.07 *Patent Fees and Royalties*

A. Contractor shall pay all license fees and royalties and assume all costs incident to the use in the performance of the Work or the incorporation in the Work of any invention, design, process, product, or device which is the subject of patent rights or copyrights held by others. If a particular invention, design, process, product, or device is specified in the Contract Documents for use in the performance of the Work and if, to the actual knowledge of Owner or Engineer, its use is subject to patent rights or copyrights calling for the payment of any license fee or royalty to others, the existence of such rights shall be disclosed by Owner in the Contract Documents.

B. To the fullest extent permitted by Laws and Regulations, Owner shall indemnify and hold harmless Contractor, and its officers, directors, members, partners, employees, agents, consultants, and subcontractors from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals, and all court or arbitration or other dispute resolution costs) arising out of or relating to any infringement of patent rights or copyrights incident to the use in the

performance of the Work or resulting from the incorporation in the Work of any invention, design, process, product, or device specified in the Contract Documents, but not identified as being subject to payment of any license fee or royalty to others required by patent rights or copyrights.

C. To the fullest extent permitted by Laws and Regulations, Contractor shall indemnify and hold harmless Owner and Engineer, and the officers, directors, members, partners, employees, agents, consultants and subcontractors of each and any of them from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to any infringement of patent rights or copyrights incident to the use in the performance of the Work or resulting from the incorporation in the Work of any invention, design, process, product, or device not specified in the Contract Documents.

7.08 *Permits*

A. Unless otherwise provided in the Contract Documents, Contractor shall obtain and pay for all construction permits and licenses. Owner shall assist Contractor, when necessary, in obtaining such permits and licenses. Contractor shall pay all governmental charges and inspection fees necessary for the prosecution of the Work which are applicable at the time of the submission of Contractor's Bid (or when Contractor became bound under a negotiated contract). Owner shall pay all charges of utility owners for connections for providing permanent service to the Work

7.09 *Taxes*

A. Contractor shall pay all sales, consumer, use, and other similar taxes required to be paid by Contractor in accordance with the Laws and Regulations of the place of the Project which are applicable during the performance of the Work.

7.10 *Laws and Regulations*

A. Contractor shall give all notices required by and shall comply with all Laws and Regulations applicable to the performance of the Work. Except where otherwise expressly required by applicable Laws and Regulations, neither Owner nor Engineer shall be responsible for monitoring Contractor's compliance with any Laws or Regulations.

B. If Contractor performs any Work or takes any other action knowing or having reason to know that it is contrary to Laws or Regulations, Contractor shall bear all resulting costs and losses, and shall indemnify and hold harmless Owner and Engineer, and the officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to such Work or other action. It shall not be Contractor's responsibility to make certain that the Work described in the Contract Documents is in accordance with Laws and Regulations, but this shall not relieve Contractor of Contractor's obligations under Paragraph 3.03.

C. Owner or Contractor may give notice to the other party of any changes after the submission of Contractor's Bid (or after the date when Contractor became bound under a negotiated contract) in Laws or Regulations having an effect on the cost or time of performance of the

Work, including but not limited to changes in Laws or Regulations having an effect on procuring permits and on sales, use, value-added, consumption, and other similar taxes. If Owner and Contractor are unable to agree on entitlement to or on the amount or extent, if any, of any adjustment in Contract Price or Contract Times resulting from such changes, then within 30 days of such notice Contractor may submit a Change Proposal, or Owner may initiate a Claim.

7.11 *Record Documents*

A. Contractor shall maintain in a safe place at the Site one printed record copy of all Drawings, Specifications, Addenda, Change Orders, Work Change Directives, Field Orders, written interpretations and clarifications, and approved Shop Drawings. Contractor shall keep such record documents in good order and annotate them to show changes made during construction. These record documents, together with all approved Samples, will be available to Engineer for reference. Upon completion of the Work, Contractor shall deliver these record documents to Engineer.

7.12 *Safety and Protection*

A. Contractor shall be solely responsible for initiating, maintaining, and supervising all safety precautions and programs in connection with the Work. Such responsibility does not relieve Subcontractors of their responsibility for the safety of persons or property in the performance of their work, nor for compliance with applicable safety Laws and Regulations. Contractor shall take all necessary precautions for the safety of, and shall provide the necessary protection to prevent damage, injury, or loss to:

1. all persons on the Site or who may be affected by the Work;
2. all the Work and materials and equipment to be incorporated therein, whether in storage on or off the Site; and
3. other property at the Site or adjacent thereto, including trees, shrubs, lawns, walks, pavements, roadways, structures, other work in progress, utilities, and Underground Facilities not designated for removal, relocation, or replacement in the course of construction.

B. Contractor shall comply with all applicable Laws and Regulations relating to the safety of persons or property, or to the protection of persons or property from damage, injury, or loss; and shall erect and maintain all necessary safeguards for such safety and protection. Contractor shall notify Owner; the owners of adjacent property, Underground Facilities, and other utilities; and other contractors and utility owners performing work at or adjacent to the Site, when prosecution of the Work may affect them, and shall cooperate with them in the protection, removal, relocation, and replacement of their property or work in progress.

C. Contractor shall comply with the applicable requirements of Owner's safety programs, if any. The Supplementary Conditions identify any Owner's safety programs that are applicable to the Work.

D. Contractor shall inform Owner and Engineer of the specific requirements of Contractor's safety program with which Owner's and Engineer's employees and representatives must comply while at the Site.

E. All damage, injury, or loss to any property referred to in Paragraph 7.12.A.2 or 7.12.A.3 caused, directly or indirectly, in whole or in part, by Contractor, any Subcontractor, Supplier, or any other individual or entity directly or indirectly employed by any of them to perform any of the Work, or anyone for whose acts any of them may be liable, shall be remedied by Contractor at its expense (except damage or loss attributable to the fault of Drawings or Specifications or to the acts or omissions of Owner or Engineer or anyone employed by any of them, or anyone for whose acts any of them may be liable, and not attributable, directly or indirectly, in whole or in part, to the fault or negligence of Contractor or any Subcontractor, Supplier, or other individual or entity directly or indirectly employed by any of them).

F. Contractor's duties and responsibilities for safety and protection shall continue until such time as all the Work is completed and Engineer has issued a notice to Owner and Contractor in accordance with Paragraph 15.06.B that the Work is acceptable (except as otherwise expressly provided in connection with Substantial Completion).

G. Contractor's duties and responsibilities for safety and protection shall resume whenever Contractor or any Subcontractor or Supplier returns to the Site to fulfill warranty or correction obligations, or to conduct other tasks arising from the Contract Documents.

7.13 *Safety Representative*

A. Contractor shall designate a qualified and experienced safety representative at the Site whose duties and responsibilities shall be the prevention of accidents and the maintaining and supervising of safety precautions and programs.

7.14 *Hazard Communication Programs*

A. Contractor shall be responsible for coordinating any exchange of material safety data sheets or other hazard communication information required to be made available to or exchanged between or among employers at the Site in accordance with Laws or Regulations.

7.15 *Emergencies*

A. In emergencies affecting the safety or protection of persons or the Work or property at the Site or adjacent thereto, Contractor is obligated to act to prevent threatened damage, injury, or loss. Contractor shall give Engineer prompt written notice if Contractor believes that any significant changes in the Work or variations from the Contract Documents have been caused thereby or are required as a result thereof. If Engineer determines that a change in the Contract Documents is required because of the action taken by Contractor in response to such an emergency, a Work Change Directive or Change Order will be issued.

7.16 *Shop Drawings, Samples, and Other Submittals*

A. *Shop Drawing and Sample Submittal Requirements*:

1. Before submitting a Shop Drawing or Sample, Contractor shall have:

a. reviewed and coordinated the Shop Drawing or Sample with other Shop Drawings and Samples and with the requirements of the Work and the Contract Documents;

b. determined and verified all field measurements, quantities, dimensions, specified performance and design criteria, installation requirements, materials, catalog numbers, and similar information with respect thereto;

c. determined and verified the suitability of all materials and equipment offered with respect to the indicated application, fabrication, shipping, handling, storage, assembly, and installation pertaining to the performance of the Work; and

d. determined and verified all information relative to Contractor's responsibilities for means, methods, techniques, sequences, and procedures of construction, and safety precautions and programs incident thereto.

2. Each submittal shall bear a stamp or specific written certification that Contractor has satisfied Contractor's obligations under the Contract Documents with respect to Contractor's review of that submittal, and that Contractor approves the submittal.

3. With each submittal, Contractor shall give Engineer specific written notice of any variations that the Shop Drawing or Sample may have from the requirements of the Contract Documents. This notice shall be set forth in a written communication separate from the Shop Drawings or Sample submittal; and, in addition, in the case of Shop Drawings by a specific notation made on each Shop Drawing submitted to Engineer for review and approval of each such variation.

B. *Submittal Procedures for Shop Drawings and Samples*: Contractor shall submit Shop Drawings and Samples to Engineer for review and approval in accordance with the accepted Schedule of Submittals. Each submittal will be identified as Engineer may require.

1. *Shop Drawings*:

a. Contractor shall submit the number of copies required in the Specifications.

b. Data shown on the Shop Drawings will be complete with respect to quantities, dimensions, specified performance and design criteria, materials, and similar data to show Engineer the services, materials, and equipment Contractor proposes to provide and to enable Engineer to review the information for the limited purposes required by Paragraph 7.16.D.

2. *Samples*:

a. Contractor shall submit the number of Samples required in the Specifications.

b. Contractor shall clearly identify each Sample as to material, Supplier, pertinent data such as catalog numbers, the use for which intended and other data as Engineer may require to enable Engineer to review the submittal for the limited purposes required by Paragraph 7.16.D.

3. Where a Shop Drawing or Sample is required by the Contract Documents or the Schedule of Submittals, any related Work performed prior to Engineer's review and approval of the pertinent submittal will be at the sole expense and responsibility of Contractor.

C. *Other Submittals*: Contractor shall submit other submittals to Engineer in accordance with the accepted Schedule of Submittals, and pursuant to the applicable terms of the Specifications.

D. *Engineer's Review*:

1. Engineer will provide timely review of Shop Drawings and Samples in accordance with

the Schedule of Submittals acceptable to Engineer. Engineer's review and approval will be only to determine if the items covered by the submittals will, after installation or incorporation in the Work, conform to the information given in the Contract Documents and be compatible with the design concept of the completed Project as a functioning whole as indicated by the Contract Documents.

2. Engineer's review and approval will not extend to means, methods, techniques, sequences, or procedures of construction or to safety precautions or programs incident thereto.

3. Engineer's review and approval of a separate item as such will not indicate approval of the assembly in which the item functions.

4. Engineer's review and approval of a Shop Drawing or Sample shall not relieve Contractor from responsibility for any variation from the requirements of the Contract Documents unless Contractor has complied with the requirements of Paragraph 7.16.A.3 and Engineer has given written approval of each such variation by specific written notation thereof incorporated in or accompanying the Shop Drawing or Sample. Engineer will document any such approved variation from the requirements of the Contract Documents in a Field Order.

5. Engineer's review and approval of a Shop Drawing or Sample shall not relieve Contractor from responsibility for complying with the requirements of Paragraph 7.16.A and B.

6. Engineer's review and approval of a Shop Drawing or Sample, or of a variation from the requirements of the Contract Documents, shall not, under any circumstances, change the Contract Times or Contract Price, unless such changes are included in a Change Order.

7. Neither Engineer's receipt, review, acceptance or approval of a Shop Drawing, Sample, or other submittal shall result in such item becoming a Contract Document.

8. Contractor shall perform the Work in compliance with the requirements and commitments set forth in approved Shop Drawings and Samples, subject to the provisions of Paragraph 7.16.D.4.

E. *Resubmittal Procedures*:

1. Contractor shall make corrections required by Engineer and shall return the required number of corrected copies of Shop Drawings and submit, as required, new Samples for review and approval. Contractor shall direct specific attention in writing to revisions other than the corrections called for by Engineer on previous submittals.

2. Contractor shall furnish required submittals with sufficient information and accuracy to obtain required approval of an item with no more than three submittals. Engineer will record Engineer's time for reviewing a fourth or subsequent submittal of a Shop Drawings, sample, or other item requiring approval, and Contractor shall be responsible for Engineer's charges to Owner for such time. Owner may impose a set- off against payments due to Contractor to secure reimbursement for such charges.

3. If Contractor requests a change of a previously approved submittal item, Contractor shall be responsible for Engineer's charges to Owner for its review time, and Owner may

impose a set-off against payments due to Contractor to secure reimbursement for such charges, unless the need for such change is beyond the control of Contractor.

7.17 *Contractor's General Warranty and Guarantee*

A. Contractor warrants and guarantees to Owner that all Work will be in accordance with the Contract Documents and will not be defective for a period of one year. The pump supplier shall provide a two-year warranty on the Pumps, Electrical Control Panel and any supplied appurtenances with the pump package that shall be transferred to the City. Engineer and its officers, directors, members, partners, employees, agents, consultants, and subcontractors shall be entitled to rely on Contractor's warranty and guarantee.

B. Contractor's warranty and guarantee hereunder excludes defects or damage caused by:

1. abuse, modification, or improper maintenance or operation by persons other than Contractor, Subcontractors, Suppliers, or any other individual or entity for whom Contractor is responsible; or
2. normal wear and tear under normal usage.

C. Contractor's obligation to perform and complete the Work in accordance with the Contract Documents shall be absolute. None of the following will constitute an acceptance of Work that is not in accordance with the Contract Documents or a release of Contractor's obligation to perform the Work in accordance with the Contract Documents:

1. observations by Engineer;
2. recommendation by Engineer or payment by Owner of any progress or final payment;
3. the issuance of a certificate of Substantial Completion by Engineer or any payment related thereto by Owner;
4. use or occupancy of the Work or any part thereof by Owner;
5. any review and approval of a Shop Drawing or Sample submittal;
6. the issuance of a notice of acceptability by Engineer;
7. any inspection, test, or approval by others; or
8. any correction of defective Work by Owner.

D. If the Contract requires the Contractor to accept the assignment of a contract entered into by Owner, then the specific warranties, guarantees, and correction obligations contained in the assigned contract shall govern with respect to Contractor's performance obligations to Owner for the Work described in the assigned contract.

7.18 *Indemnification*

A. To the fullest extent permitted by Laws and Regulations, and in addition to any other obligations of Contractor under the Contract or otherwise, Contractor shall indemnify and hold harmless Owner and Engineer, and the officers, directors, members, partners, employees, agents, consultants and subcontractors of each and any of them from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to the performance of the Work, provided

that any such claim, cost, loss, or damage is attributable to bodily injury, sickness, disease, or death, or to injury to or destruction of tangible property (other than the Work itself), including the loss of use resulting therefrom but only to the extent caused by any negligent act or omission of Contractor, any Subcontractor, any Supplier, or any individual or entity directly or indirectly employed by any of them to perform any of the Work or anyone for whose acts any of them may be liable.

B. In any and all claims against Owner or Engineer or any of their officers, directors, members, partners, employees, agents, consultants, or subcontractors by any employee (or the survivor or personal representative of such employee) of Contractor, any Subcontractor, any Supplier, or any individual or entity directly or indirectly employed by any of them to perform any of the Work, or anyone for whose acts any of them may be liable, the indemnification obligation under Paragraph 7.18.A shall not be limited in any way by any limitation on the amount or type of damages, compensation, or benefits payable by or for Contractor or any such Subcontractor, Supplier, or other individual or entity under workers' compensation acts, disability benefit acts, or other employee benefit acts.

C. The indemnification obligations of Contractor under Paragraph 7.18.A shall not extend to the liability of Engineer and Engineer's officers, directors, members, partners, employees, agents, consultants, and subcontractors arising out of:

1. the preparation or approval of, or the failure to prepare or approve maps, Drawings, opinions, reports, surveys, Change Orders, designs, or Specifications; or

2. giving directions or instructions, or failing to give them, if that is the primary cause of the injury or damage.

7.19 *Delegation of Professional Design Services*

A. Contractor will not be required to provide professional design services unless such services are specifically required by the Contract Documents for a portion of the Work or unless such services are required to carry out Contractor's responsibilities for construction means, methods, techniques, sequences and procedures. Contractor shall not be required to provide professional services in violation of applicable Laws and Regulations.

B. If professional design services or certifications by a design professional related to systems, materials, or equipment are specifically required of Contractor by the Contract Documents, Owner and Engineer will specify all performance and design criteria that such services must satisfy. Contractor shall cause such services or certifications to be provided by a properly licensed professional, whose signature and seal shall appear on all drawings, calculations, specifications, certifications, and other submittals prepared by such professional. Shop Drawings and other submittals related to the Work designed or certified by such professional, if prepared by others, shall bear such professional's written approval when submitted to Engineer.

C. Owner and Engineer shall be entitled to rely upon the adequacy, accuracy, and completeness of the services, certifications, or approvals performed by such design professionals, provided Owner and Engineer have specified to Contractor all performance and design criteria that such services must satisfy.

D. Pursuant to this paragraph, Engineer's review and approval of design calculations and design drawings will be only for the limited purpose of checking for conformance with performance

and design criteria given and the design concept expressed in the Contract Documents. Engineer's review and approval of Shop Drawings and other submittals (except design calculations and design drawings) will be only for the purpose stated in Paragraph 7.16.D.1.

E. Contractor shall not be responsible for the adequacy of the performance or design criteria specified by Owner or Engineer.

ARTICLE 8 – OTHER WORK AT THE SITE

8.01 *Other Work*

A. In addition to and apart from the Work under the Contract Documents, the Owner may perform other work at or adjacent to the Site. Such other work may be performed by Owner's employees, or through contracts between the Owner and third parties. Owner may also arrange to have third-party utility owners perform work on their utilities and facilities at or adjacent to the Site.

B. If Owner performs other work at or adjacent to the Site with Owner's employees, or through contracts for such other work, then Owner shall give Contractor written notice thereof prior to starting any such other work. If Owner has advance information regarding the start of any utility work at or adjacent to the Site, Owner shall provide such information to Contractor.

C. Contractor shall afford each other contractor that performs such other work, each utility owner performing other work, and Owner, if Owner is performing other work with Owner's employees, proper and safe access to the Site, and provide a reasonable opportunity for the introduction and storage of materials and equipment and the execution of such other work. Contractor shall do all cutting, fitting, and patching of the Work that may be required to properly connect or otherwise make its several parts come together and properly integrate with such other work. Contractor shall not endanger any work of others by cutting, excavating, or otherwise altering such work; provided, however, that Contractor may cut or alter others' work with the written consent of Engineer and the others whose work will be affected.

D. If the proper execution or results of any part of Contractor's Work depends upon work performed by others under this Article 8, Contractor shall inspect such other work and promptly report to Engineer in writing any delays, defects, or deficiencies in such other work that render it unavailable or unsuitable for the proper execution and results of Contractor's Work. Contractor's failure to so report will constitute an acceptance of such other work as fit and proper for integration with Contractor's Work except for latent defects and deficiencies in such other work.

8.02 *Coordination*

A. If Owner intends to contract with others for the performance of other work at or adjacent to the Site, to perform other work at or adjacent to the Site with Owner's employees, or to arrange to have utility owners perform work at or adjacent to the Site, the following will be set forth in the Supplementary Conditions or provided to Contractor prior to the start of any such other work:

1. the identity of the individual or entity that will have authority and responsibility for coordination of the activities among the various contractors;

2. an itemization of the specific matters to be covered by such authority and responsibility; and

3. the extent of such authority and responsibilities.

B. Unless otherwise provided in the Supplementary Conditions, Owner shall have sole authority and responsibility for such coordination.

8.03 *Legal Relationships*

A. If, in the course of performing other work at or adjacent to the Site for Owner, the Owner's employees, any other contractor working for Owner, or any utility owner for whom the Owner is responsible causes damage to the Work or to the property of Contractor or its Subcontractors, or delays, disrupts, interferes with, or increases the scope or cost of the performance of the Work, through actions or inaction, then Contractor shall be entitled to an equitable adjustment in the Contract Price or the Contract Times, or both. Contractor must submit any Change Proposal seeking an equitable adjustment in the Contract Price or the Contract Times under this paragraph within 30 days of the damaging, delaying, disrupting, or interfering event. The entitlement to, and extent of, any such equitable adjustment shall take into account information (if any) regarding such other work that was provided to Contractor in the Contract Documents prior to the submittal of the Bid or the final negotiation of the terms of the Contract. When applicable, any such equitable adjustment in Contract Price shall be conditioned on Contractor assigning to Owner all Contractor's rights against such other contractor or utility owner with respect to the damage, delay, disruption, or interference that is the subject of the adjustment. Contractor's entitlement to an adjustment of the Contract Times is conditioned on such adjustment being essential to Contractor's ability to complete the Work within the Contract Times.

B. Contractor shall take reasonable and customary measures to avoid damaging, delaying, disrupting, or interfering with the work of Owner, any other contractor, or any utility owner performing other work at or adjacent to the Site. If Contractor fails to take such measures and as a result damages, delays, disrupts, or interferes with the work of any such other contractor or utility owner, then Owner may impose a set-off against payments due to Contractor, and assign to such other contractor or utility owner the Owner's contractual rights against Contractor with respect to the breach of the obligations set forth in this paragraph.

C. When Owner is performing other work at or adjacent to the Site with Owner's employees, Contractor shall be liable to Owner for damage to such other work, and for the reasonable direct delay, disruption, and interference costs incurred by Owner as a result of Contractor's failure to take reasonable and customary measures with respect to Owner's other work. In response to such damage, delay, disruption, or interference, Owner may impose a set-off against payments due to Contractor.

D. If Contractor damages, delays, disrupts, or interferes with the work of any other contractor, or any utility owner performing other work at or adjacent to the Site, through Contractor's failure to take reasonable and customary measures to avoid such impacts, or if any claim arising out of Contractor's actions, inactions, or negligence in performance of the Work at or adjacent to the Site is made by any such other contractor or utility owner against Contractor, Owner, or Engineer, then Contractor shall (1) promptly attempt to settle the claim as to all

parties through negotiations with such other contractor or utility owner, or otherwise resolve the claim by arbitration or other dispute resolution proceeding or at law, and (2) indemnify and hold harmless Owner and Engineer, and the officers, directors, members, partners, employees, agents, consultants and subcontractors of each and any of them from and against any such claims, and against all costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to such damage, delay, disruption, or interference.

ARTICLE 9 – OWNER'S RESPONSIBILITIES

9.01 *Communications to Contractor*

A. Except as otherwise provided in these General Conditions, Owner shall issue all communications to Contractor through Engineer.

9.02 *Replacement of Engineer*

A. Owner may at its discretion appoint an engineer to replace Engineer, provided Contractor makes no reasonable objection to the replacement engineer. The replacement engineer's status under the Contract Documents shall be that of the former Engineer.

9.03 *Furnish Data*

A. Owner shall promptly furnish the data required of Owner under the Contract Documents.

9.04 *Pay When Due*

A. Owner shall make payments to Contractor when they are due as provided in the Agreement.

9.05 *Lands and Easements; Reports, Tests, and Drawings*

A. Owner's duties with respect to providing lands and easements are set forth in Paragraph 5.01.

B. Owner's duties with respect to providing engineering surveys to establish reference points are set forth in Paragraph 4.03.

C. Article 5 refers to Owner's identifying and making available to Contractor copies of reports of explorations and tests of conditions at the Site, and drawings of physical conditions relating to existing surface or subsurface structures at the Site.

9.06 *Insurance*

A. Owner's responsibilities, if any, with respect to purchasing and maintaining liability and property insurance as set forth in Article 6.

9.07 *Change Orders*

A. Owner's responsibilities with respect to Change Orders are set forth in Article 11.

9.08 *Inspections, Tests, and Approvals*

A. Owner's responsibility with respect to certain inspections, tests, and approvals is set forth in Paragraph 14.02.B.

9.09 *Limitations on Owner's Responsibilities*

A. The Owner shall not supervise, direct, or have control or authority over, nor be responsible for, Contractor's means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto, or for any failure of Contractor to comply with Laws and Regulations applicable to the performance of the Work. Owner will not be responsible for Contractor's failure to perform the Work in accordance with the Contract Documents.

9.10 *Undisclosed Hazardous Environmental Condition*

A. Owner's responsibility in respect to an undisclosed Hazardous Environmental Condition is set forth in Paragraph 5.06.

9.11 *Evidence of Financial Arrangements*

A. Upon request of Contractor, Owner shall furnish Contractor reasonable evidence that financial arrangements have been made to satisfy Owner's obligations under the Contract Documents (including obligations under proposed changes in the Work).

9.12 *Safety Programs*

A. While at the Site, Owner's employees and representatives shall comply with the specific applicable requirements of Contractor's safety programs of which Owner has been informed.

B. Owner shall furnish copies of any applicable Owner safety programs to Contractor.

ARTICLE 10 – ENGINEER'S STATUS DURING CONSTRUCTION

10.01 *Owner's Representative*

A. Engineer will be Owner's representative during the construction period. The duties and responsibilities and the limitations of authority of Engineer as Owner's representative during construction are set forth in the Contract.

10.02 *Visits to Site*

A. Engineer will make visits to the Site at intervals appropriate to the various stages of construction as Engineer deems necessary in order to observe as an experienced and qualified design professional the progress that has been made and the quality of the various aspects of Contractor's executed Work. Based on information obtained during such visits and observations, Engineer, for the benefit of Owner, will determine, in general, if the Work is proceeding in accordance with the Contract Documents. Engineer will not be required to make exhaustive or continuous inspections on the Site to check the quality or quantity of the Work. Engineer's efforts will be directed toward providing for Owner a greater degree of confidence that the completed Work will conform generally to the Contract Documents. On the basis of such visits and observations, Engineer will keep Owner informed of the progress of the Work and will endeavor to guard Owner against defective Work.

B. Engineer's visits and observations are subject to all the limitations on Engineer's authority and responsibility set forth in Paragraph 10.08. Particularly, but without limitation, during or as a result of Engineer's visits or observations of Contractor's Work, Engineer will not supervise, direct, control, or have authority over or be responsible for Contractor's means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto, or for any failure of Contractor to comply with Laws and

Regulations applicable to the performance of the Work.

10.03 *Project Representative*

A. If Owner and Engineer have agreed that Engineer will furnish a Resident Project Representative to represent Engineer at the Site and assist Engineer in observing the progress and quality of the Work, then the authority and responsibilities of any such Resident Project Representative will be as provided in the Supplementary Conditions, and limitations on the responsibilities thereof will be as provided in Paragraph 10.08. If Owner designates another representative or agent to represent Owner at the Site who is not Engineer's consultant, agent, or employee, the responsibilities and authority and limitations thereon of such other individual or entity will be as provided in the Supplementary Conditions.

10.04 *Rejecting Defective Work*

A. Engineer has the authority to reject Work in accordance with Article 14.

10.05 *Shop Drawings, Change Orders and Payments*

A. Engineer's authority, and limitations thereof, as to Shop Drawings and Samples, are set forth in Paragraph 7.16.

B. Engineer's authority, and limitations thereof, as to design calculations and design drawings submitted in response to a delegation of professional design services, if any, are set forth in Paragraph 7.19.

C. Engineer's authority as to Change Orders is set forth in Article 11.

D. Engineer's authority as to Applications for Payment is set forth in Article 15.

10.06 *Determinations for Unit Price Work*

A. Engineer will determine the actual quantities and classifications of Unit Price Work performed by Contractor as set forth in Paragraph 13.03.

10.07 *Decisions on Requirements of Contract Documents and Acceptability of Work*

A. Engineer will render decisions regarding the requirements of the Contract Documents, and judge the acceptability of the Work, pursuant to the specific procedures set forth herein for initial interpretations, Change Proposals, and acceptance of the Work. In rendering such decisions and judgments, Engineer will not show partiality to Owner or Contractor, and will not be liable to Owner, Contractor, or others in connection with any proceedings, interpretations, decisions, or judgments conducted or rendered in good faith.

10.08 *Limitations on Engineer's Authority and Responsibilities*

A. Neither Engineer's authority or responsibility under this Article 10 or under any other provision of the Contract, nor any decision made by Engineer in good faith either to exercise or not exercise such authority or responsibility or the undertaking, exercise, or performance of any authority or responsibility by Engineer, shall create, impose, or give rise to any duty in contract, tort, or otherwise owed by Engineer to Contractor, any Subcontractor, any Supplier, any other individual or entity, or to any surety for or employee or agent of any of them.

B. Engineer will not supervise, direct, control, or have authority over or be responsible for Contractor's means, methods, techniques, sequences, or procedures of construction, or the

safety precautions and programs incident thereto, or for any failure of Contractor to comply with Laws and Regulations applicable to the performance of the Work. Engineer will not be responsible for Contractor's failure to perform the Work in accordance with the Contract Documents.

C. Engineer will not be responsible for the acts or omissions of Contractor or of any Subcontractor, any Supplier, or of any other individual or entity performing any of the Work.

D. Engineer's review of the final Application for Payment and accompanying documentation and all maintenance and operating instructions, schedules, guarantees, bonds, certificates of inspection, tests and approvals, and other documentation required to be delivered by Paragraph 15.06.A will only be to determine generally that their content complies with the requirements of, and in the case of certificates of inspections, tests, and approvals, that the results certified indicate compliance with the Contract Documents.

E. The limitations upon authority and responsibility set forth in this Paragraph 10.08 shall also apply to the Resident Project Representative, if any.

10.09 *Compliance with Safety Program*

A. While at the Site, Engineer's employees and representatives will comply with the specific applicable requirements of Owner's and Contractor's safety programs (if any) of which Engineer has been informed.

ARTICLE 11 – AMENDING THE CONTRACT DOCUMENTS; CHANGES IN THE WORK

11.01 *Amending and Supplementing Contract Documents*

A. The Contract Documents may be amended or supplemented by a Change Order, a Work Change Directive, or a Field Order.

1. *Change Orders*:

a. If an amendment or supplement to the Contract Documents includes a change in the Contract Price or the Contract Times, such amendment or supplement must be set forth in a Change Order. A Change Order also may be used to establish amendments and supplements of the Contract Documents that do not affect the Contract Price or Contract Times.

b. Owner and Contractor may amend those terms and conditions of the Contract Documents that do not involve (1) the performance or acceptability of the Work, (2) the design (as set forth in the Drawings, Specifications, or otherwise), or (3) other engineering or technical matters, without the recommendation of the Engineer. Such an amendment shall be set forth in a Change Order.

2. *Work Change Directives*: A Work Change Directive will not change the Contract Price or the Contract Times but is evidence that the parties expect that the modification ordered or documented by a Work Change Directive will be incorporated in a subsequently issued Change Order, following negotiations by the parties as to the Work Change Directive's effect, if any, on the Contract Price and Contract Times; or, if negotiations are unsuccessful, by a determination under the terms of the Contract Documents governing adjustments, expressly including Paragraph 11.04 regarding change of

Contract Price. Contractor must submit any Change Proposal seeking an adjustment of the Contract Price or the Contract Times, or both, no later than 30 days after the completion of the Work set out in the Work Change Directive. Owner must submit any Claim seeking an adjustment of the Contract Price or the Contract Times, or both, no later than 60 days after issuance of the Work Change Directive.

3. *Field Orders*: Engineer may authorize minor changes in the Work if the changes do not involve an adjustment in the Contract Price or the Contract Times and are compatible with the design concept of the completed Project as a functioning whole as indicated by the Contract Documents. Such changes will be accomplished by a Field Order and will be binding on Owner and also on Contractor, which shall perform the Work involved promptly. If Contractor believes that a Field Order justifies an adjustment in the Contract Price or Contract Times, or both, then before proceeding with the Work at issue, Contractor shall submit a Change Proposal as provided herein.

11.02 *Owner-Authorized Changes in the Work*

A. Without invalidating the Contract and without notice to any surety, Owner may, at any time or from time to time, order additions, deletions, or revisions in the Work. Such changes shall be supported by Engineer's recommendation, to the extent the change involves the design (as set forth in the Drawings, Specifications, or otherwise), or other engineering or technical matters. Such changes may be accomplished by a Change Order, if Owner and Contractor have agreed as to the effect, if any, of the changes on Contract Times or Contract Price; or by a Work Change Directive. Upon receipt of any such document, Contractor shall promptly proceed with the Work involved; or, in the case of a deletion in the Work, promptly cease construction activities with respect to such deleted Work. Added or revised Work shall be performed under the applicable conditions of the Contract Documents. Nothing in this paragraph shall obligate Contractor to undertake work that Contractor reasonably concludes cannot be performed in a manner consistent with Contractor's safety obligations under the Contract Documents or Laws and Regulations.

11.03 *Unauthorized Changes in the Work*

A. Contractor shall not be entitled to an increase in the Contract Price or an extension of the Contract Times with respect to any work performed that is not required by the Contract Documents, as amended, modified, or supplemented, except in the case of an emergency as provided in Paragraph 7.15 or in the case of uncovering Work as provided in Paragraph 14.05.

11.04 *Change of Contract Price*

A. The Contract Price may only be changed by a Change Order. Any Change Proposal for an adjustment in the Contract Price shall comply with the provisions of Paragraph 11.06. Any Claim for an adjustment of Contract Price shall comply with the provisions of Article 12.

B. An adjustment in the Contract Price will be determined as follows:

1. where the Work involved is covered by unit prices contained in the Contract Documents, then by application of such unit prices to the quantities of the items involved (subject to the provisions of Paragraph 13.03); or

2. where the Work involved is not covered by unit prices contained in the Contract Documents, then by a mutually agreed lump sum (which may include an allowance for

overhead and profit not necessarily in accordance with Paragraph 11.04.C.2); or

3. where the Work involved is not covered by unit prices contained in the Contract Documents and the parties do not reach mutual agreement to a lump sum, then on the basis of the Cost of the Work (determined as provided in Paragraph 13.01) plus a Contractor's fee for overhead and profit (determined as provided in Paragraph 11.04.C).

C. *Contractor's Fee*: When applicable, the Contractor's fee for overhead and profit shall be determined as follows:

1. a mutually acceptable fixed fee; or

2. if a fixed fee is not agreed upon, then a fee based on the following percentages of the various portions of the Cost of the Work:

a. for costs incurred under Paragraphs 13.01.B.1 and 13.01.B.2, the Contractor's fee shall be 15 percent;

b. for costs incurred under Paragraph 13.01.B.3, the Contractor's fee shall be five percent;

c. where one or more tiers of subcontracts are on the basis of Cost of the Work plus a fee and no fixed fee is agreed upon, the intent of Paragraphs 11.04.C.2.a and 11.04.C.2.b is that the Contractor's fee shall be based on: (1) a fee of 15 percent of the costs incurred under Paragraphs 13.01.A.1 and 13.01.A.2 by the Subcontractor that actually performs the Work, at whatever tier, and (2) with respect to Contractor itself and to any Subcontractors of a tier higher than that of the Subcontractor that actually performs the Work, a fee of five percent of the amount (fee plus underlying costs incurred) attributable to the next lower tier Subcontractor; provided, however, that for any such subcontracted work the maximum total fee to be paid by Owner shall be no greater than 27 percent of the costs incurred by the Subcontractor that actually performs the work;

d. no fee shall be payable on the basis of costs itemized under Paragraphs 13.01.B.4, 13.01.B.5, and 13.01.C;

e. the amount of credit to be allowed by Contractor to Owner for any change which results in a net decrease in cost will be the amount of the actual net decrease in cost plus a deduction in Contractor's fee by an amount equal to five percent of such net decrease; and

f. when both additions and credits are involved in any one change, the adjustment in Contractor's fee shall be computed on the basis of the net change in accordance with Paragraphs 11.04.C.2.a through 11.04.C.2.e, inclusive.

11.05 *Change of Contract Times*

A. The Contract Times may only be changed by a Change Order. Any Change Proposal for an adjustment in the Contract Times shall comply with the provisions of Paragraph 11.06. Any Claim for an adjustment in the Contract Times shall comply with the provisions of Article 12.

B. An adjustment of the Contract Times shall be subject to the limitations set forth in Paragraph 4.05, concerning delays in Contractor's progress.

11.06 *Change Proposals*

A. Contractor shall submit a Change Proposal to Engineer to request an adjustment in the Contract Times or Contract Price; appeal an initial decision by Engineer concerning the requirements of the Contract Documents or relating to the acceptability of the Work under the Contract Documents; contest a set-off against payment due; or seek other relief under the Contract. The Change Proposal shall specify any proposed change in Contract Times or Contract Price, or both, or other proposed relief, and explain the reason for the proposed change, with citations to any governing or applicable provisions of the Contract Documents.

1. *Procedures*: Contractor shall submit each Change Proposal to Engineer promptly (but in no event later than 30 days) after the start of the event giving rise thereto, or after such initial decision. The Contractor shall submit supporting data, including the proposed change in Contract Price or Contract Time (if any), to the Engineer and Owner within 15 days after the submittal of the Change Proposal. The supporting data shall be accompanied by a written statement that the supporting data are accurate and complete, and that any requested time or price adjustment is the entire adjustment to which Contractor believes it is entitled as a result of said event. Engineer will advise Owner regarding the Change Proposal and consider any comments or response from Owner regarding the Change Proposal.

2. *Engineer's Action*: Engineer will review each Change Proposal and, within 30 days after receipt of the Contractor's supporting data, either deny the Change Proposal in whole, approve it in whole, or deny it in part and approve it in part. Such actions shall be in writing, with a copy provided to Owner and Contractor. If Engineer does not take action on the Change Proposal within 30 days, then either Owner or Contractor may at any time thereafter submit a letter to the other party indicating that as a result of Engineer's inaction the Change Proposal is deemed denied, thereby commencing the time for appeal of the denial under Article 12.

3. *Binding Decision*: Engineer's decision will be final and binding upon Owner and Contractor, unless Owner or Contractor appeals the decision by filing a Claim under Article 12.

B. *Resolution of Certain Change Proposals*: If the Change Proposal does not involve the design (as set forth in the Drawings, Specifications, or otherwise), the acceptability of the Work, or other engineering or technical matters, then Engineer will notify the parties that the Engineer is unable to resolve the Change Proposal. For purposes of further resolution of such a Change Proposal, such notice shall be deemed a denial, and Contractor may choose to seek resolution under the terms of Article 12.

11.07 *Execution of Change Orders*

A. Owner and Contractor shall execute appropriate Change Orders covering:

1. changes in the Contract Price or Contract Times which are agreed to by the parties, including any undisputed sum or amount of time for Work actually performed in accordance with a Work Change Directive;

2. changes in Contract Price resulting from an Owner set-off, unless Contractor has duly contested such set-off;

3. changes in the Work which are: (a) ordered by Owner pursuant to Paragraph 11.02, (b) required because of Owner's acceptance of defective Work under Paragraph 14.04 or Owner's correction of defective Work under Paragraph 14.07, or (c) agreed to by the parties, subject to the need for Engineer's recommendation if the change in the Work involves the design (as set forth in the Drawings, Specifications, or otherwise), or other engineering or technical matters; and

4. changes in the Contract Price or Contract Times, or other changes, which embody the substance of any final and binding results under Paragraph 11.06, or Article 12.

B. If Owner or Contractor refuses to execute a Change Order that is required to be executed under the terms of this Paragraph 11.07, it shall be deemed to be of full force and effect, as if fully executed.

11.08 *Notification to Surety*

A. If the provisions of any bond require notice to be given to a surety of any change affecting the general scope of the Work or the provisions of the Contract Documents (including, but not limited to, Contract Price or Contract Times), the giving of any such notice will be Contractor's responsibility. The amount of each applicable bond will be adjusted to reflect the effect of any such change.

ARTICLE 12 – CLAIMS

12.01 *Claims*

A. *Claims Process*: The following disputes between Owner and Contractor shall be submitted to the Claims process set forth in this Article:

1. Appeals by Owner or Contractor of Engineer's decisions regarding Change Proposals;

2. Owner demands for adjustments in the Contract Price or Contract Times, or other relief under the Contract Documents; and

3. Disputes that Engineer has been unable to address because they do not involve the design (as set forth in the Drawings, Specifications, or otherwise), the acceptability of the Work, or other engineering or technical matters.

B. *Submittal of Claim*: The party submitting a Claim shall deliver it directly to the other party to the Contract promptly (but in no event later than 30 days) after the start of the event giving rise thereto; in the case of appeals regarding Change Proposals within 30 days of the decision under appeal. The party submitting the Claim shall also furnish a copy to the Engineer, for its information only. The responsibility to substantiate a Claim shall rest with the party making the Claim. In the case of a Claim by Contractor seeking an increase in the Contract Times or Contract Price, or both, Contractor shall certify that the Claim is made in good faith, that the supporting data are accurate and complete, and that to the best of Contractor's knowledge and belief the amount of time or money requested accurately reflects the full amount to which Contractor is entitled.

C. *Review and Resolution*: The party receiving a Claim shall review it thoroughly, giving full consideration to its merits. The two parties shall seek to resolve the Claim through the exchange of information and direct negotiations. The parties may extend the time for

resolving the Claim by mutual agreement. All actions taken on a Claim shall be stated in writing and submitted to the other party, with a copy to Engineer.

D. *Mediation*:

1. At any time after initiation of a Claim, Owner and Contractor may mutually agree to mediation of the underlying dispute. The agreement to mediate shall stay the Claim submittal and response process.

2. If Owner and Contractor agree to mediation, then after 60 days from such agreement, either Owner or Contractor may unilaterally terminate the mediation process, and the Claim submittal and decision process shall resume as of the date of the termination. If the mediation proceeds but is unsuccessful in resolving the dispute, the Claim submittal and decision process shall resume as of the date of the conclusion of the mediation, as determined by the mediator.

3. Owner and Contractor shall each pay one-half of the mediator's fees and costs.

E. *Partial Approval*: If the party receiving a Claim approves the Claim in part and denies it in part, such action shall be final and binding unless within 30 days of such action the other party invokes the procedure set forth in Article 17 for final resolution of disputes.

F. *Denial of Claim*: If efforts to resolve a Claim are not successful, the party receiving the Claim may deny it by giving written notice of denial to the other party. If the receiving party does not take action on the Claim within 90 days, then either Owner or Contractor may at any time thereafter submit a letter to the other party indicating that as a result of the inaction, the Claim is deemed denied, thereby commencing the time for appeal of the denial. A denial of the Claim shall be final and binding unless within 30 days of the denial the other party invokes the procedure set forth in Article 17 for the final resolution of disputes.

G. *Final and Binding Results*: If the parties reach a mutual agreement regarding a Claim, whether through approval of the Claim, direct negotiations, mediation, or otherwise; or if a Claim is approved in part and denied in part, or denied in full, and such actions become final and binding; then the results of the agreement or action on the Claim shall be incorporated in a Change Order to the extent they affect the Contract, including the Work, the Contract Times, or the Contract Price.

ARTICLE 13 – COST OF THE WORK; ALLOWANCES; UNIT PRICE WORK

13.01 *Cost of the Work*

A. *Purposes for Determination of Cost of the Work*: The term Cost of the Work means the sum of all costs necessary for the proper performance of the Work at issue, as further defined below. The provisions of this Paragraph 13.01 are used for two distinct purposes:

1. To determine Cost of the Work when Cost of the Work is a component of the Contract Price, under cost-plus-fee, time-and-materials, or other cost-based terms; or

2. To determine the value of a Change Order, Change Proposal, Claim, set-off, or other adjustment in Contract Price. When the value of any such adjustment is determined on the basis of Cost of the Work, Contractor is entitled only to those additional or incremental costs required because of the change in the Work or because of the event

giving rise to the adjustment.

B. *Costs Included*: Except as otherwise may be agreed to in writing by Owner, costs included in the Cost of the Work shall be in amounts no higher than those prevailing in the locality of the Project, shall not include any of the costs itemized in Paragraph 13.01.C, and shall include only the following items:

1. Payroll costs for employees in the direct employ of Contractor in the performance of the Work under schedules of job classifications agreed upon by Owner and Contractor. Such employees shall include, without limitation, superintendents, foremen, and other personnel employed full time on the Work. Payroll costs for employees not employed full time on the Work shall be apportioned on the basis of their time spent on the Work. Payroll costs shall include, but not be limited to, salaries and wages plus the cost of fringe benefits, which shall include social security contributions, unemployment, excise, and payroll taxes, workers' compensation, health and retirement benefits, bonuses, sick leave, and vacation and holiday pay applicable thereto. The expenses of performing Work outside of regular working hours, on Saturday, Sunday, or legal holidays, shall be included in the above to the extent authorized by Owner.

2. Cost of all materials and equipment furnished and incorporated in the Work, including costs of transportation and storage thereof, and Suppliers' field services required in connection therewith. All cash discounts shall accrue to Contractor unless Owner deposits funds with Contractor with which to make payments, in which case the cash discounts shall accrue to Owner. All trade discounts, rebates, and refunds and returns from sale of surplus materials and equipment shall accrue to Owner, and Contractor shall make provisions so that they may be obtained.

3. Payments made by Contractor to Subcontractors for Work performed by Subcontractors. If required by Owner, Contractor shall obtain competitive bids from subcontractors acceptable to Owner and Contractor and shall deliver such bids to Owner, who will then determine, with the advice of Engineer, which bids, if any, will be acceptable. If any subcontract provides that the Subcontractor is to be paid on the basis of Cost of the Work plus a fee, the Subcontractor's Cost of the Work and fee shall be determined in the same manner as Contractor's Cost of the Work and fee as provided in this Paragraph 13.01.

4. Costs of special consultants (including but not limited to engineers, architects, testing laboratories, surveyors, attorneys, and accountants) employed for services specifically related to the Work.

5. Supplemental costs including the following:
   a. The proportion of necessary transportation, travel, and subsistence expenses of Contractor's employees incurred in discharge of duties connected with the Work.
   b. Cost, including transportation and maintenance, of all materials, supplies, equipment, machinery, appliances, office, and temporary facilities at the Site, and hand tools not owned by the workers, which are consumed in the performance of the Work, and cost, less market value, of such items used but not consumed which remain the property of Contractor.
   c. Rentals of all construction equipment and machinery, and the parts thereof,

whether rented from Contractor or others in accordance with rental agreements approved by Owner with the advice of Engineer, and the costs of transportation, loading, unloading, assembly, dismantling, and removal thereof. All such costs shall be in accordance with the terms of said rental agreements. The rental of any such equipment, machinery, or parts shall cease when the use thereof is no longer necessary for the Work.

d. Sales, consumer, use, and other similar taxes related to the Work, and for which Contractor is liable, as imposed by Laws and Regulations.

e. Deposits lost for causes other than negligence of Contractor, any Subcontractor, or anyone directly or indirectly employed by any of them or for whose acts any of them may be liable, and royalty payments and fees for permits and licenses.

f. Losses and damages (and related expenses) caused by damage to the Work, not compensated by insurance or otherwise, sustained by Contractor in connection with the performance of the Work (except losses and damages within the deductible amounts of property insurance established in accordance with Paragraph 6.05), provided such losses and damages have resulted from causes other than the negligence of Contractor, any Subcontractor, or anyone directly or indirectly employed by any of them or for whose acts any of them may be liable. Such losses shall include settlements made with the written consent and approval of Owner. No such losses, damages, and expenses shall be included in the Cost of the Work for the purpose of determining Contractor's fee.

g. The cost of utilities, fuel, and sanitary facilities at the Site.

h. Minor expenses such as communication service at the Site, express and courier services, and similar petty cash items in connection with the Work.

i. The costs of premiums for all bonds and insurance that Contractor is required by the Contract Documents to purchase and maintain.

C. *Costs Excluded*: The term Cost of the Work shall not include any of the following items:

1. Payroll costs and other compensation of Contractor's officers, executives, principals (of partnerships and sole proprietorships), general managers, safety managers, engineers, architects, estimators, attorneys, auditors, accountants, purchasing and contracting agents, expediters, timekeepers, clerks, and other personnel employed by Contractor, whether at the Site or in Contractor's principal or branch office for general administration of the Work and not specifically included in the agreed upon schedule of job classifications referred to in Paragraph 13.01.B.1 or specifically covered by Paragraph 13.01.B.4. The payroll costs and other compensation excluded here are to be considered administrative costs covered by the Contractor's fee.

2. Expenses of Contractor's principal and branch offices other than Contractor's office at the Site.

3. Any part of Contractor's capital expenses, including interest on Contractor's capital employed for the Work and charges against Contractor for delinquent payments.

4. Costs due to the negligence of Contractor, any Subcontractor, or anyone directly or indirectly employed by any of them or for whose acts any of them may be liable,

including but not limited to, the correction of defective Work, disposal of materials or equipment wrongly supplied, and making good any damage to property.

5. Other overhead or general expense costs of any kind and the costs of any item not specifically and expressly included in Paragraph 13.01.B.

D. *Contractor's Fee*: When the Work as a whole is performed on the basis of cost-plus, Contractor's fee shall be determined as set forth in the Agreement. When the value of any Work covered by a Change Order, Change Proposal, Claim, set-off, or other adjustment in Contract Price is determined on the basis of Cost of the Work, Contractor's fee shall be determined as set forth in Paragraph 11.04.C.

E. *Documentation*: Whenever the Cost of the Work for any purpose is to be determined pursuant to this Article 13, Contractor will establish and maintain records thereof in accordance with generally accepted accounting practices and submit in a form acceptable to Engineer an itemized cost breakdown together with supporting data.

13.02 *Allowances*

A. It is understood that Contractor has included in the Contract Price all allowances so named in the Contract Documents and shall cause the Work so covered to be performed for such sums and by such persons or entities as may be acceptable to Owner and Engineer.

B. *Cash Allowances*: Contractor agrees that:

1. the cash allowances include the cost to Contractor (less any applicable trade discounts) of materials and equipment required by the allowances to be delivered at the Site, and all applicable taxes; and

2. Contractor's costs for unloading and handling on the Site, labor, installation, overhead, profit, and other expenses contemplated for the cash allowances have been included in the Contract Price and not in the allowances, and no demand for additional payment on account of any of the foregoing will be valid.

C. *Contingency Allowance*: Contractor agrees that a contingency allowance, if any, is for the sole use of Owner to cover unanticipated costs.

D. Prior to final payment, an appropriate Change Order will be issued as recommended by Engineer to reflect actual amounts due Contractor on account of Work covered by allowances, and the Contract Price shall be correspondingly adjusted.

13.03 *Unit Price Work*

A. Where the Contract Documents provide that all or part of the Work is to be Unit Price Work, initially the Contract Price will be deemed to include for all Unit Price Work an amount equal to the sum of the unit price for each separately identified item of Unit Price Work times the estimated quantity of each item as indicated in the Agreement.

B. The estimated quantities of items of Unit Price Work are not guaranteed and are solely for the purpose of comparison of Bids and determining an initial Contract Price. Payments to Contractor for Unit Price Work will be based on actual quantities.

C. Each unit price will be deemed to include an amount considered by Contractor to be adequate to cover Contractor's overhead and profit for each separately identified item.

D. Engineer will determine the actual quantities and classifications of Unit Price Work performed by Contractor. Engineer will review with Contractor the Engineer's preliminary determinations on such matters before rendering a written decision thereon (by recommendation of an Application for Payment or otherwise). Engineer's written decision thereon will be final and binding (except as modified by Engineer to reflect changed factual conditions or more accurate data) upon Owner and Contractor, subject to the provisions of the following paragraph.

E. Within 30 days of Engineer's written decision under the preceding paragraph, Contractor may submit a Change Proposal, or Owner may file a Claim, seeking an adjustment in the Contract Price if:

1. the quantity of any item of Unit Price Work performed by Contractor differs materially and significantly from the estimated quantity of such item indicated in the Agreement;
2. there is no corresponding adjustment with respect to any other item of Work; and
3. Contractor believes that it is entitled to an increase in Contract Price as a result of having incurred additional expense or Owner believes that Owner is entitled to a decrease in Contract Price, and the parties are unable to agree as to the amount of any such increase or decrease.

ARTICLE 14 – TESTS AND INSPECTIONS; CORRECTION, REMOVAL OR ACCEPTANCE OF DEFECTIVE WORK

14.01 *Access to Work*

A. Owner, Engineer, their consultants and other representatives and personnel of Owner, independent testing laboratories, and authorities having jurisdiction will have access to the Site and the Work at reasonable times for their observation, inspection, and testing. Contractor shall provide them proper and safe conditions for such access and advise them of Contractor's safety procedures and programs so that they may comply therewith as applicable.

14.02 *Tests, Inspections, and Approvals*

A. Contractor shall give Engineer timely notice of readiness of the Work (or specific parts thereof) for all required inspections and tests and shall cooperate with inspection and testing personnel to facilitate required inspections and tests.

B. Owner shall retain and pay for the services of an independent inspector, testing laboratory, or other qualified individual or entity to perform all inspections and tests expressly required by the Contract Documents to be furnished and paid for by Owner, except that costs incurred in connection with tests or inspections of covered Work shall be governed by the provisions of Paragraph 14.05.

C. If Laws or Regulations of any public body having jurisdiction require any Work (or part thereof) specifically to be inspected, tested, or approved by an employee or other representative of such public body, Contractor shall assume full responsibility for arranging and obtaining such inspections, tests, or approvals, pay all costs in connection therewith, and furnish Engineer the required certificates of inspection or approval.

D. Contractor shall be responsible for arranging, obtaining, and paying for all inspections and tests required:

1. by the Contract Documents, unless the Contract Documents expressly allocate responsibility for a specific inspection or test to Owner;
2. to attain Owner's and Engineer's acceptance of materials or equipment to be incorporated in the Work;
3. by manufacturers of equipment furnished under the Contract Documents;
4. for testing, adjusting, and balancing of mechanical, electrical, and other equipment to be incorporated into the Work; and
5. for acceptance of materials, mix designs, or equipment submitted for approval prior to Contractor's purchase thereof for incorporation in the Work.

Such inspections and tests shall be performed by independent inspectors, testing laboratories, or other qualified individuals or entities acceptable to Owner and Engineer.

E. If the Contract Documents require the Work (or part thereof) to be approved by Owner, Engineer, or another designated individual or entity, then Contractor shall assume full responsibility for arranging and obtaining such approvals.

F. If any Work (or the work of others) that is to be inspected, tested, or approved is covered by Contractor without written concurrence of Engineer, Contractor shall, if requested by Engineer, uncover such Work for observation. Such uncovering shall be at Contractor's expense unless Contractor had given Engineer timely notice of Contractor's intention to cover the same and Engineer had not acted with reasonable promptness in response to such notice.

14.03 *Defective Work*

A. *Contractor's Obligation*: It is Contractor's obligation to assure that the Work is not defective for a period of one year. The pump supplier shall provide a two-year warranty on the Pumps, Electrical Control Panel and any supplied appurtenances with the pump package that shall be transferred to the City.

B. *Engineer's Authority*: Engineer has the authority to determine whether Work is defective, and to reject defective Work.

C. *Notice of Defects*: Prompt notice of all defective Work of which Owner or Engineer has actual knowledge will be given to Contractor.

D. *Correction, or Removal and Replacement*: Promptly after receipt of written notice of defective Work, Contractor shall correct all such defective Work, whether or not fabricated, installed, or completed, or, if Engineer has rejected the defective Work, remove it from the Project and replace it with Work that is not defective.

E. *Preservation of Warranties*: When correcting defective Work, Contractor shall take no action that would void or otherwise impair Owner's special warranty and guarantee, if any, on said Work.

F. *Costs and Damages*: In addition to its correction, removal, and replacement obligations with respect to defective Work, Contractor shall pay all claims, costs, losses, and damages arising

out of or relating to defective Work, including but not limited to the cost of the inspection, testing, correction, removal, replacement, or reconstruction of such defective Work, fines levied against Owner by governmental authorities because the Work is defective, and the costs of repair or replacement of work of others resulting from defective Work. Prior to final payment, if Owner and Contractor are unable to agree as to the measure of such claims, costs, losses, and damages resulting from defective Work, then Owner may impose a reasonable set-off against payments due under Article 15.

14.04 *Acceptance of Defective Work*

A. If, instead of requiring correction or removal and replacement of defective Work, Owner prefers to accept it, Owner may do so (subject, if such acceptance occurs prior to final payment, to Engineer's confirmation that such acceptance is in general accord with the design intent and applicable engineering principles and will not endanger public safety). Contractor shall pay all claims, costs, losses, and damages attributable to Owner's evaluation of and determination to accept such defective Work (such costs to be approved by Engineer as to reasonableness), and for the diminished value of the Work to the extent not otherwise paid by Contractor. If any such acceptance occurs prior to final payment, the necessary revisions in the Contract Documents with respect to the Work shall be incorporated in a Change Order. If the parties are unable to agree as to the decrease in the Contract Price, reflecting the diminished value of Work so accepted, then Owner may impose a reasonable set-off against payments due under Article 15. If the acceptance of defective Work occurs after final payment, Contractor shall pay an appropriate amount to Owner.

14.05 *Uncovering Work*

A. Engineer has the authority to require additional inspection or testing of the Work, whether or not the Work is fabricated, installed, or completed.

B. If any Work is covered contrary to the written request of Engineer, then Contractor shall, if requested by Engineer, uncover such Work for Engineer's observation, and then replace the covering, all at Contractor's expense.

C. If Engineer considers it necessary or advisable that covered Work be observed by Engineer or inspected or tested by others, then Contractor, at Engineer's request, shall uncover, expose, or otherwise make available for observation, inspection, or testing as Engineer may require, that portion of the Work in question, and provide all necessary labor, material, and equipment.

1. If it is found that the uncovered Work is defective, Contractor shall be responsible for all claims, costs, losses, and damages arising out of or relating to such uncovering, exposure, observation, inspection, and testing, and of satisfactory replacement or reconstruction (including but not limited to all costs of repair or replacement of work of others); and pending Contractor's full discharge of this responsibility the Owner shall be entitled to impose a reasonable set-off against payments due under Article 15.

2. If the uncovered Work is not found to be defective, Contractor shall be allowed an increase in the Contract Price or an extension of the Contract Times, or both, directly attributable to such uncovering, exposure, observation, inspection, testing, replacement, and reconstruction. If the parties are unable to agree as to the amount or extent thereof, then Contractor may submit a Change Proposal within 30 days of the

determination that the Work is not defective.

14.06 *Owner May Stop the Work*

A. If the Work is defective, or Contractor fails to supply sufficient skilled workers or suitable materials or equipment, or fails to perform the Work in such a way that the completed Work will conform to the Contract Documents, then Owner may order Contractor to stop the Work, or any portion thereof, until the cause for such order has been eliminated; however, this right of Owner to stop the Work shall not give rise to any duty on the part of Owner to exercise this right for the benefit of Contractor, any Subcontractor, any Supplier, any other individual or entity, or any surety for, or employee or agent of any of them.

14.07 *Owner May Correct Defective Work*

A. If Contractor fails within a reasonable time after written notice from Engineer to correct defective Work, or to remove and replace rejected Work as required by Engineer, or if Contractor fails to perform the Work in accordance with the Contract Documents, or if Contractor fails to comply with any other provision of the Contract Documents, then Owner may, after seven days written notice to Contractor, correct or remedy any such deficiency.

B. In exercising the rights and remedies under this Paragraph 14.07, Owner shall proceed expeditiously. In connection with such corrective or remedial action, Owner may exclude Contractor from all or part of the Site, take possession of all or part of the Work and suspend Contractor's services related thereto, and incorporate in the Work all materials and equipment stored at the Site or for which Owner has paid Contractor but which are stored elsewhere. Contractor shall allow Owner, Owner's representatives, agents and employees, Owner's other contractors, and Engineer and Engineer's consultants access to the Site to enable Owner to exercise the rights and remedies under this paragraph.

C. All claims, costs, losses, and damages incurred or sustained by Owner in exercising the rights and remedies under this Paragraph 14.07 will be charged against Contractor as set- offs against payments due under Article 15. Such claims, costs, losses and damages will include but not be limited to all costs of repair, or replacement of work of others destroyed or damaged by correction, removal, or replacement of Contractor's defective Work.

D. Contractor shall not be allowed an extension of the Contract Times because of any delay in the performance of the Work attributable to the exercise by Owner of Owner's rights and remedies under this Paragraph 14.07.

ARTICLE 15 – PAYMENTS TO CONTRACTOR; SET-OFFS; COMPLETION; CORRECTION PERIOD

15.01 *Progress Payments*

A. *Basis for Progress Payments*: The Schedule of Values established as provided in Article 2 will serve as the basis for progress payments and will be incorporated into a form of Application for Payment acceptable to Engineer. Progress payments on account of Unit Price Work will be based on the number of units completed during the pay period, as determined under the provisions of Paragraph 13.03. Progress payments for cost-based Work will be based on Cost of the Work completed by Contractor during the pay period.

B. *Applications for Payments*:

1. At least 20 days before the date established in the Agreement for each progress payment (but not more often than once a month), Contractor shall submit to Engineer for review an Application for Payment filled out and signed by Contractor covering the Work completed as of the date of the Application and accompanied by such supporting documentation as is required by the Contract Documents. If payment is requested on the basis of materials and equipment not incorporated in the Work but delivered and suitably stored at the Site or at another location agreed to in writing, the Application for Payment shall also be accompanied by a bill of sale, invoice, or other documentation warranting that Owner has received the materials and equipment free and clear of all Liens, and evidence that the materials and equipment are covered by appropriate property insurance, a warehouse bond, or other arrangements to protect Owner's interest therein, all of which must be satisfactory to Owner.
2. Beginning with the second Application for Payment, each Application shall include an affidavit of Contractor stating that all previous progress payments received on account of the Work have been applied on account to discharge Contractor's legitimate obligations associated with prior Applications for Payment.
3. The amount of retainage with respect to progress payments will be as stipulated in the Agreement.

C. *Review of Applications*:

1. Engineer will, within 10 business days after receipt of each Application for Payment, including each resubmittal, either indicate in writing a recommendation of payment and present the Application to Owner, or return the Application to Contractor indicating in writing Engineer's reasons for refusing to recommend payment. In the latter case, Contractor may make the necessary corrections and resubmit the Application.
2. Engineer's recommendation of any payment requested in an Application for Payment will constitute a representation by Engineer to Owner, based on Engineer's observations of the executed Work as an experienced and qualified design professional, and on Engineer's review of the Application for Payment and the accompanying data and schedules, that to the best of Engineer's knowledge, information and belief:
   a. the Work has progressed to the point indicated;
   b. the quality of the Work is generally in accordance with the Contract Documents (subject to an evaluation of the Work as a functioning whole prior to or upon Substantial Completion, the results of any subsequent tests called for in the Contract Documents, a final determination of quantities and classifications for Unit Price Work under Paragraph 13.03, and any other qualifications stated in the recommendation); and
   c. the conditions precedent to Contractor's being entitled to such payment appear to have been fulfilled in so far as it is Engineer's responsibility to observe the Work.
3. By recommending any such payment Engineer will not thereby be deemed to have represented that:
   a. inspections made to check the quality or the quantity of the Work as it has been performed have been exhaustive, extended to every aspect of the Work in

progress, or involved detailed inspections of the Work beyond the responsibilities specifically assigned to Engineer in the Contract; or

b. there may not be other matters or issues between the parties that might entitle Contractor to be paid additionally by Owner or entitle Owner to withhold payment to Contractor.

4. Neither Engineer's review of Contractor's Work for the purposes of recommending payments nor Engineer's recommendation of any payment, including final payment, will impose responsibility on Engineer:

   a. to supervise, direct, or control the Work, or

   b. for the means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto, or

   c. for Contractor's failure to comply with Laws and Regulations applicable to Contractor's performance of the Work, or

   d. to make any examination to ascertain how or for what purposes Contractor has used the money paid on account of the Contract Price, or

   e. to determine that title to any of the Work, materials, or equipment has passed to Owner free and clear of any Liens.

5. Engineer may refuse to recommend the whole or any part of any payment if, in Engineer's opinion, it would be incorrect to make the representations to Owner stated in Paragraph 15.01.C.2.

6. Engineer will recommend reductions in payment (setoffs) necessary in Engineer's opinion to protect Owner from loss because:

   a. the Work is defective, requiring correction or replacement;

   b. the Contract Price has been reduced by Change Orders;

   c. Owner has been required to correct defective Work in accordance with Paragraph 14.07, or has accepted defective Work pursuant to Paragraph 14.04;

   d. Owner has been required to remove or remediate a Hazardous Environmental Condition for which Contractor is responsible; or

   e. Engineer has actual knowledge of the occurrence of any of the events that would constitute a default by Contractor and therefore justify termination for cause under the Contract Documents.

D. *Payment Becomes Due*:

1. Thirty (30) days after presentation of the Application for Payment to Owner with Engineer's recommendation, the amount recommended (subject to any Owner set-offs) will become due, and when due will be paid by Owner to Contractor.

E. *Reductions in Payment by Owner*:

1. In addition to any reductions in payment (setoffs) recommended by Engineer, Owner is entitled to impose a set-off against payment based on any of the following:

a. claims have been made against Owner on account of Contractor's conduct in the performance or furnishing of the Work, or Owner has incurred costs, losses, or damages on account of Contractor's conduct in the performance or furnishing of the Work, including but not limited to claims, costs, losses, or damages from workplace injuries, adjacent property damage, non-compliance with Laws and Regulations, and patent infringement;

b. Contractor has failed to take reasonable and customary measures to avoid damage, delay, disruption, and interference with other work at or adjacent to the Site;

c. Contractor has failed to provide and maintain required bonds or insurance;

d. Owner has been required to remove or remediate a Hazardous Environmental Condition for which Contractor is responsible;

e. Owner has incurred extra charges or engineering costs related to submittal reviews, evaluations of proposed substitutes, tests and inspections, or return visits to manufacturing or assembly facilities;

f. the Work is defective, requiring correction or replacement;

g. Owner has been required to correct defective Work in accordance with Paragraph 14.07, or has accepted defective Work pursuant to Paragraph 14.04;

h. the Contract Price has been reduced by Change Orders;

i. an event that would constitute a default by Contractor and therefore justify a termination for cause has occurred;

j. liquidated damages have accrued as a result of Contractor's failure to achieve Milestones, Substantial Completion, or final completion of the Work;

k. Liens have been filed in connection with the Work, except where Contractor has delivered a specific bond satisfactory to Owner to secure the satisfaction and discharge of such Liens;

l. there are other items entitling Owner to a set off against the amount recommended.

2. If Owner imposes any set-off against payment, whether based on its own knowledge or on the written recommendations of Engineer, Owner will give Contractor immediate written notice (with a copy to Engineer) stating the reasons for such action

and the specific amount of the reduction, and promptly pay Contractor any amount remaining after deduction of the amount so withheld. Owner shall promptly pay Contractor the amount so withheld, or any adjustment thereto agreed to by Owner and Contractor, if Contractor remedies the reasons for such action. The reduction imposed shall be binding on Contractor unless it duly submits a Change Proposal contesting the reduction.

3. Upon a subsequent determination that Owner's refusal of payment was not justified, the amount wrongfully withheld shall be treated as an amount due as determined by Paragraph 15.01.C.1 and subject to interest as provided in the Agreement.

15.02 *Contractor's Warranty of Title*

A. Contractor warrants and guarantees that title to all Work, materials, and equipment furnished under the Contract will pass to Owner free and clear of (1) all Liens and other title defects, and (2) all patent, licensing, copyright, or royalty obligations, no later than seven days after the time of payment by Owner.

15.03 *Substantial Completion*

A. When Contractor considers the entire Work ready for its intended use Contractor shall notify Owner and Engineer in writing that the entire Work is substantially complete and request that Engineer issue a certificate of Substantial Completion. Contractor shall at the same time submit to Owner and Engineer an initial draft of punch list items to be completed or corrected before final payment.

B. Promptly after Contractor's notification, Owner, Contractor, and Engineer shall make an inspection of the Work to determine the status of completion. If Engineer does not consider the Work substantially complete, Engineer will notify Contractor in writing giving the reasons therefor.

C. If Engineer considers the Work substantially complete, Engineer will deliver to Owner a preliminary certificate of Substantial Completion which shall fix the date of Substantial Completion. Engineer shall attach to the certificate a punch list of items to be completed or corrected before final payment. Owner shall have seven days after receipt of the preliminary certificate during which to make written objection to Engineer as to any provisions of the certificate or attached punch list. If, after considering the objections to the provisions of the preliminary certificate, Engineer concludes that the Work is not substantially complete, Engineer will, within 14 days after submission of the preliminary certificate to Owner, notify Contractor in writing that the Work is not substantially complete, stating the reasons therefor. If Owner does not object to the provisions of the certificate, or if despite consideration of Owner's objections Engineer concludes that the Work is substantially complete, then Engineer will, within said 14 days, execute and deliver to Owner and Contractor a final certificate of Substantial Completion (with a revised punch list of items to be completed or corrected) reflecting such changes from the preliminary certificate as Engineer believes justified after consideration of any objections from Owner.

D. At the time of receipt of the preliminary certificate of Substantial Completion, Owner and Contractor will confer regarding Owner's use or occupancy of the Work following Substantial Completion, review the builder's risk insurance policy with respect to the end of the builder's risk coverage, and confirm the transition to coverage of the Work under a permanent property insurance policy held by Owner. Unless Owner and Contractor agree otherwise in writing, Owner shall bear responsibility for security, operation, protection of the Work, property insurance, maintenance, heat, and utilities upon Owner's use or occupancy of the Work.

E. After Substantial Completion, the Contractor shall promptly begin work on the punch list of items to be completed or corrected prior to final payment. In appropriate cases Contractor may submit monthly Applications for Payment for completed punch list items, following the progress payment procedures set forth above.

F. Owner shall have the right to exclude Contractor from the Site after the date of Substantial Completion subject to allowing Contractor reasonable access to remove its property and

complete or correct items on the punch list.

15.04 *Partial Use or Occupancy*

A. Prior to Substantial Completion of all the Work, Owner may use or occupy any substantially completed part of the Work which has specifically been identified in the Contract Documents, or which Owner, Engineer, and Contractor agree constitutes a separately functioning and usable part of the Work that can be used by Owner for its intended purpose without significant interference with Contractor's performance of the remainder of the Work, subject to the following conditions:

1. At any time, Owner may request in writing that Contractor permit Owner to use or occupy any such part of the Work that Owner believes to be substantially complete. If and when Contractor agrees that such part of the Work is substantially complete, Contractor, Owner, and Engineer will follow the procedures of Paragraph 15.03.A through E for that part of the Work.

2. At any time, Contractor may notify Owner and Engineer in writing that Contractor considers any such part of the Work substantially complete and request Engineer to issue a certificate of Substantial Completion for that part of the Work.

3. Within a reasonable time after either such request, Owner, Contractor, and Engineer shall make an inspection of that part of the Work to determine its status of completion. If Engineer does not consider that part of the Work to be substantially complete, Engineer will notify Owner and Contractor in writing giving the reasons therefor. If Engineer considers that part of the Work to be substantially complete, the provisions of Paragraph 15.03 will apply with respect to certification of Substantial Completion of that part of the Work and the division of responsibility in respect thereof and access thereto.

4. No use or occupancy or separate operation of part of the Work may occur prior to compliance with the requirements of Paragraph 6.05 regarding builder's risk or other property insurance.

15.05 *Final Inspection*

A. Upon written notice from Contractor that the entire Work or an agreed portion thereof is complete, Engineer will promptly make a final inspection with Owner and Contractor and will notify Contractor in writing of all particulars in which this inspection reveals that the Work, or agreed portion thereof, is incomplete or defective. Contractor shall immediately take such measures as are necessary to complete such Work or remedy such deficiencies.

15.06 *Final Payment*

A. *Application for Payment*:

1. After Contractor has, in the opinion of Engineer, satisfactorily completed all corrections identified during the final inspection and has delivered, in accordance with the Contract Documents, all maintenance and operating instructions, schedules, guarantees, bonds, certificates or other evidence of insurance, certificates of inspection, annotated record documents (as provided in Paragraph 7.11), and other documents, Contractor may make application for final payment.

2. The final Application for Payment shall be accompanied (except as previously delivered) by:

   a. all documentation called for in the Contract Documents;

   b. consent of the surety, if any, to final payment;

   c. satisfactory evidence that all title issues have been resolved such that title to all Work, materials, and equipment has passed to Owner free and clear of any Liens or other title defects or will so pass upon final payment.

   d. a list of all disputes that Contractor believes are unsettled; and

   e. complete and legally effective releases or waivers (satisfactory to Owner) of all Lien rights arising out of the Work, and of Liens filed in connection with the Work.

3. In lieu of the releases or waivers of Liens specified in Paragraph 15.06.A.2 and as approved by Owner, Contractor may furnish receipts or releases in full and an affidavit of Contractor that: (a) the releases and receipts include all labor, services, material, and equipment for which a Lien could be filed; and (b) all payrolls, material and equipment bills, and other indebtedness connected with the Work for which Owner might in any way be responsible, or which might in any way result in liens or other burdens on Owner's property, have been paid or otherwise satisfied. If any Subcontractor or Supplier fails to furnish such a release or receipt in full, Contractor may furnish a bond or other collateral satisfactory to Owner to indemnify Owner against any Lien, or Owner at its option may issue joint checks payable to Contractor and specified Subcontractors and Suppliers.

B. *Engineer's Review of Application and Acceptance*:

1. If, on the basis of Engineer's observation of the Work during construction and final inspection, and Engineer's review of the final Application for Payment and accompanying documentation as required by the Contract Documents, Engineer is satisfied that the Work has been completed and Contractor's other obligations under the Contract have been fulfilled, Engineer will, within ten days after receipt of the final Application for Payment, indicate in writing Engineer's recommendation of final payment and present the Application for Payment to Owner for payment. Such recommendation shall account for any setoffs against payment that are necessary in Engineer's opinion to protect Owner from loss for the reasons stated above with respect to progress payments. At the same time Engineer will also give written notice to Owner and Contractor that the Work is acceptable, subject to the provisions of Paragraph 15.07. Otherwise, Engineer will return the Application for Payment to Contractor, indicating in writing the reasons for refusing to recommend final payment, in which case Contractor shall make the necessary corrections and resubmit the Application for Payment.

C. *Completion of Work*: The Work is complete (subject to surviving obligations) when it is ready for final payment as established by the Engineer's written recommendation of final payment.

D. *Payment Becomes Due*: Thirty days after the presentation to Owner of the final Application for Payment and accompanying documentation, the amount recommended by Engineer (less any further sum Owner is entitled to set off against Engineer's recommendation, including

but not limited to set-offs for liquidated damages and set-offs allowed under the provisions above with respect to progress payments) will become due and shall be paid by Owner to Contractor.

15.07 *Waiver of Claims*

A. The making of final payment will not constitute a waiver by Owner of claims or rights against Contractor. Owner expressly reserves claims and rights arising from unsettled Liens, from defective Work appearing after final inspection pursuant to Paragraph 15.05, from Contractor's failure to comply with the Contract Documents or the terms of any special guarantees specified therein, from outstanding Claims by Owner, or from Contractor's continuing obligations under the Contract Documents.

B. The acceptance of final payment by Contractor will constitute a waiver by Contractor of all claims and rights against Owner other than those pending matters that have been duly submitted or appealed under the provisions of Article 17.

15.08 *Correction Period*

A. If within one year after the date of Substantial Completion (or such longer period of time as may be prescribed by the terms of any applicable special guarantee required by the Contract Documents, or by any specific provision of the Contract Documents), any Work is found to be defective, or if the repair of any damages to the Site, adjacent areas that Contractor has arranged to use through construction easements or otherwise, and other adjacent areas used by Contractor as permitted by Laws and Regulations, is found to be defective, then Contractor shall promptly, without cost to Owner and in accordance with Owner's written instructions:

1. correct the defective repairs to the Site or such other adjacent areas;
2. correct such defective Work;
3. if the defective Work has been rejected by Owner, remove it from the Project and replace it with Work that is not defective, and
4. satisfactorily correct or repair or remove and replace any damage to other Work, to the work of others, or to other land or areas resulting therefrom.

B. If Contractor does not promptly comply with the terms of Owner's written instructions, or in an emergency where delay would cause serious risk of loss or damage, Owner may have the defective Work corrected or repaired or may have the rejected Work removed and replaced. Contractor shall pay all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to such correction or repair or such removal and replacement (including but not limited to all costs of repair or replacement of work of others).

C. In special circumstances where a particular item of equipment is placed in continuous service before Substantial Completion of all the Work, the correction period for that item may start to run from an earlier date if so provided in the Specifications.

D. Where defective Work (and damage to other Work resulting therefrom) has been corrected

or removed and replaced under this paragraph, the correction period hereunder with respect to such Work will be extended for an additional period of one year after such correction or removal and replacement has been satisfactorily completed.

E. Contractor's obligations under this paragraph are in addition to all other obligations and warranties. The provisions of this paragraph shall not be construed as a substitute for, or a waiver of, the provisions of any applicable statute of limitation or repose.

ARTICLE 16 – SUSPENSION OF WORK AND TERMINATION

16.01 *Owner May Suspend Work*

A. At any time and without cause, Owner may suspend the Work or any portion thereof for a period of not more than 90 consecutive days by written notice to Contractor and Engineer. Such notice will fix the date on which Work will be resumed. Contractor shall resume the Work on the date so fixed. Contractor shall be entitled to an adjustment in the Contract Price or an extension of the Contract Times, or both, directly attributable to any such suspension. Any Change Proposal seeking such adjustments shall be submitted no later than 30 days after the date fixed for resumption of Work.

16.02 *Owner May Terminate for Cause*

A. The occurrence of any one or more of the following events will constitute a default by Contractor and justify termination for cause:

1. Contractor's persistent failure to perform the Work in accordance with the Contract Documents (including, but not limited to, failure to supply sufficient skilled workers or suitable materials or equipment or failure to adhere to the Progress Schedule);
2. Failure of Contractor to perform or otherwise to comply with a material term of the Contract Documents;
3. Contractor's disregard of Laws or Regulations of any public body having jurisdiction; or
4. Contractor's repeated disregard of the authority of Owner or Engineer.

B. If one or more of the events identified in Paragraph 16.02.A occurs, then after giving Contractor (and any surety) ten days written notice that Owner is considering a declaration that Contractor is in default and termination of the contract, Owner may proceed to:

1. declare Contractor to be in default, and give Contractor (and any surety) notice that the Contract is terminated; and
2. enforce the rights available to Owner under any applicable performance bond.

C. Subject to the terms and operation of any applicable performance bond, if Owner has terminated the Contract for cause, Owner may exclude Contractor from the Site, take possession of the Work, incorporate in the Work all materials and equipment stored at the Site or for which Owner has paid Contractor but which are stored elsewhere, and complete the Work as Owner may deem expedient.

D. Owner may not proceed with termination of the Contract under Paragraph 16.02.B if Contractor within seven days of receipt of notice of intent to terminate begins to correct its failure to perform and proceeds diligently to cure such failure.

E. If Owner proceeds as provided in Paragraph 16.02.B, Contractor shall not be entitled to receive any further payment until the Work is completed. If the unpaid balance of the Contract Price exceeds the cost to complete the Work, including all related claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals) sustained by Owner, such excess will be paid to Contractor. If the cost to complete the Work including such related claims, costs, losses, and damages exceeds such unpaid balance, Contractor shall pay the difference to Owner. Such claims, costs, losses, and damages incurred by Owner will be reviewed by Engineer as to their reasonableness and, when so approved by Engineer, incorporated in a Change Order. When exercising any rights or remedies under this paragraph, Owner shall not be required to obtain the lowest price for the Work performed.

F. Where Contractor's services have been so terminated by Owner, the termination will not affect any rights or remedies of Owner against Contractor then existing or which may thereafter accrue, or any rights or remedies of Owner against Contractor or any surety under any payment bond or performance bond. Any retention or payment of money due Contractor by Owner will not release Contractor from liability.

G. If and to the extent that Contractor has provided a performance bond under the provisions of Paragraph 6.01.A, the provisions of that bond shall govern over any inconsistent provisions of Paragraphs 16.02.B and 16.02.D.

16.03 *Owner May Terminate For Convenience*

A. Upon seven days written notice to Contractor and Engineer, Owner may, without cause and without prejudice to any other right or remedy of Owner, terminate the Contract. In such case, Contractor shall be paid for (without duplication of any items):

1. completed and acceptable Work executed in accordance with the Contract Documents prior to the effective date of termination, including fair and reasonable sums for overhead and profit on such Work;

2. expenses sustained prior to the effective date of termination in performing services and furnishing labor, materials, or equipment as required by the Contract Documents in connection with uncompleted Work, plus fair and reasonable sums for overhead and profit on such expenses; and

3. other reasonable expenses directly attributable to termination, including costs incurred to prepare a termination for convenience cost proposal.

B. Contractor shall not be paid on account of loss of anticipated overhead, profits, or revenue, or other economic loss arising out of or resulting from such termination.

16.04 *Contractor May Stop Work or Terminate*

A. If, through no act or fault of Contractor, (1) the Work is suspended for more than 90 consecutive days by Owner or under an order of court or other public authority, or (2) Engineer fails to act on any Application for Payment within 30 days after it is submitted, or (3) Owner fails for 30 days to pay Contractor any sum finally determined to be due, then Contractor may, upon seven days written notice to Owner and Engineer, and provided Owner or Engineer do not remedy such suspension or failure within that time, terminate the contract and recover from Owner payment on the same terms as provided in Paragraph

16.03.

B. In lieu of terminating the Contract and without prejudice to any other right or remedy, if Engineer has failed to act on an Application for Payment within 30 days after it is submitted, or Owner has failed for 30 days to pay Contractor any sum finally determined to be due, Contractor may, seven days after written notice to Owner and Engineer, stop the Work until payment is made of all such amounts due Contractor, including interest thereon. The provisions of this paragraph are not intended to preclude Contractor from submitting a Change Proposal for an adjustment in Contract Price or Contract Times or otherwise for expenses or damage directly attributable to Contractor's stopping the Work as permitted by this paragraph.

ARTICLE 17 – FINAL RESOLUTION OF DISPUTES

17.01 *Methods and Procedures*

A. *Disputes Subject to Final Resolution*: The following disputed matters are subject to final resolution under the provisions of this Article:

1. A timely appeal of an approval in part and denial in part of a Claim, or of a denial in full; and

2. Disputes between Owner and Contractor concerning the Work or obligations under the Contract Documents and arising after final payment has been made.

B. *Final Resolution of Disputes*: For any dispute subject to resolution under this Article, Owner or Contractor may:

1. elect in writing to invoke the dispute resolution process provided for in the Supplementary Conditions; or

2. agree with the other party to submit the dispute to another dispute resolution process; or

3. if no dispute resolution process is provided for in the Supplementary Conditions or mutually agreed to, give written notice to the other party of the intent to submit the dispute to a court of competent jurisdiction.

ARTICLE 18 – MISCELLANEOUS

18.01 *Giving Notice*

A. Whenever any provision of the Contract Documents requires the giving of written notice, it will be deemed to have been validly given if delivered in person, by a commercial courier service or otherwise, to the individual or to a member of the firm or to an officer of the corporation for which it is intended; or

1. delivered at or sent by registered or certified mail, postage prepaid, to the last business address known to the sender of the notice.

B. When any period of time is referred to in the Contract by days, it will be computed to exclude the first and include the last day of such period. If the last day of any such period falls on a Saturday or Sunday or on a day made a legal holiday by the law of the applicable jurisdiction,

such day will be omitted from the computation.

18.02 *Cumulative Remedies*

A. The duties and obligations imposed by these General Conditions and the rights and remedies available hereunder to the parties hereto are in addition to, and are not to be construed in any way as a limitation of, any rights and remedies available to any or all of them which are otherwise imposed or available by Laws or Regulations, by special warranty or guarantee, or by other provisions of the Contract. The provisions of this paragraph will be as effective as if repeated specifically in the Contract Documents in connection with each particular duty, obligation, right, and remedy to which they apply.

18.03 *Limitation of Damages*

A. With respect to any and all Change Proposals, Claims, disputes subject to final resolution, and other matters at issue, neither Owner nor Engineer, nor any of their officers, directors, members, partners, employees, agents, consultants, or subcontractors, shall be liable to Contractor for any claims, costs, losses, or damages sustained by Contractor on or in connection with any other project or anticipated project.

18.04 *No Waiver*

A. A party's non-enforcement of any provision shall not constitute a waiver of that provision, nor shall it affect the enforceability of that provision or of the remainder of this Contract.

18.05 *Survival of Obligations*

A. All representations, indemnifications, warranties, and guarantees made in, required by, or given in accordance with the Contract, as well as all continuing obligations indicated in the Contract, will survive final payment, completion, and acceptance of the Work or termination or completion of the Contract or termination of the services of Contractor.

18.06 *Controlling Law*

A. This Contract is to be governed by the law of the state in which the Project is located.

18.07 *Headings*

A. Article and paragraph headings are inserted for convenience only and do not constitute parts of these General Conditions.

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SECTION 00 22 15

SUPPLEMENTAL CONDITIONS

These Supplementary Conditions amend or supplement the Standard General Conditions of the Construction Contract, EJCDC® C-700 (2013 Edition). All provisions that are not so amended or supplemented remain in full force and effect.

The terms used in these Supplementary Conditions have the meanings stated in the General Conditions. Additional terms used in these Supplementary Conditions have the meanings stated below, which are applicable to both the singular and plural thereof.

The address system used in these Supplementary Conditions is the same as the address system used in the General Conditions, with the prefix "SC" added thereto.

ARTICLE 5 – AVAILABILITY OF LANDS; SUBSURFACE AND PHYSICAL CONDITIONS; HAZARDOUS ENVIRONMENTAL CONDITIONS

SC-5.06 Hazardous Environmental Conditions

SC 5.06 Delete Paragraphs 5.06.A and 5.06.B in their entirety and insert the following:

A. No reports or drawings related to Hazardous Environmental Conditions at the Site are known to Owner.

ARTICLE 6 – BONDS AND INSURANCE

SC-6.02 Insurance—General Provisions

SC-6.02 Add the following paragraph immediately after Paragraph 6.02.B:

1. Contractor may obtain worker's compensation insurance from an insurance company that has not been rated by A.M. Best, provided that such company (a) is domiciled in the state in which the project is located, (b) is certified or authorized as a worker's compensation insurance provider by the appropriate state agency, and (c) has been accepted to provide worker's compensation insurance for similar projects by the state within the last 12 months.

SC-6.03 Contractor's Liability Insurance

SC 6.03 Add the following new paragraph immediately after Paragraph 6.03.J:

K. The limits of liability for the insurance required by Paragraph 6.03 of the General Conditions shall provide coverage for not less than the following amounts or greater where required by Laws and Regulations:

1. Workers' Compensation, and related coverages under Paragraphs 6.03.A.1 and A.2 of the General Conditions:

State:	Statutory
Federal, if applicable (e.g., Longshoreman's):	Statutory
Jones Act coverage, if applicable:	
Bodily injury by accident, each accident	$ NA
Bodily injury by disease, aggregate	$ NA
Employer's Liability:	
Bodily injury, each accident	$ 500,000.00
Bodily injury by disease, each employee	$ 500,000.00
Bodily injury/disease aggregate	$ 1,000,000.00
Foreign voluntary worker compensation	Statutory

2. Contractor's Commercial General Liability under Paragraphs 6.03.B and 6.03.C of the General Conditions:

General Aggregate	$ 2,000,000.00
Products - Completed Operations Aggregate	$ 1,000,000.00
Personal and Advertising Injury	$ 1,000,000.00
Each Occurrence (Bodily Injury and Property Damage)	$ 1,000,000.00

3. Automobile Liability under Paragraph 6.03.D. of the General Conditions:

Bodily Injury:	
Each person	$ 500,000.00
Each accident	$ 1,000,000.00
Property Damage:	
Combined Single Limit of	$ 1,000,000.00

4. Excess or Umbrella Liability:

General Aggregate	**$**	**1,000,000.00**

5. Contractor's Professional Liability:

Each Claim	**$**	**1,000,000.00**
Annual Aggregate	**$**	**2,000,000.00**

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ARTICLE 7 – CONTRACTOR'S RESPONSIBILITIES

SC-7.02 Labor; Working Hours

SC-7.02.B. Amend the first and second sentences of Paragraph 7.02.B to state "…all Work at the Site shall be performed during regular working hours, 7:00 AM through 10:00 PM, Sunday through Saturday.

A. If the Owner has no objections to the Contractor working multiple shifts, weekends, and legal holidays, use the following:

SC-7.02.B. Delete Paragraph 7.02 B. in its entirety, and insert the following:

B. In the absence of any Laws or Regulations to the contrary, Contractor may perform the Work on holidays, during any or all hours of the day, and on any or all days of the week, at Contractor's sole discretion.

SC-7.02.C. Add the following new paragraph immediately after Paragraph 7.02.B:

Contractor shall be responsible for the cost of any overtime pay or other expense incurred by the Owner for Engineer's services (including those of the Resident Project Representative, if any), Owner's representative, and construction observation services, occasioned by the performance of Work on Saturday or as overtime on any regular workday. If Contractor is responsible but does not pay, or if the parties are unable to agree as to the amount owed, then Owner may impose a reasonable set-off against payments due under Article 15.

ARTICLE 10 – ENGINEER'S STATUS DURING CONSTRUCTION

SC-10.03 Project Representative

SC-10.03 Add the following new paragraphs immediately after Paragraph 10.03.A:

B. The Resident Project Representative (RPR) will be Engineer's representative at the Site, will act as directed by and under the supervision of Engineer, and will confer with Engineer regarding RPR's actions.

1. General: RPR's dealings in matters pertaining to the Work in general shall be with Engineer and Contractor. RPR's dealings with Subcontractors shall only be through or with the full knowledge and approval of Contractor. RPR shall generally communicate with Owner only with the knowledge of and under the direction of Engineer.

2. Schedules: Review the progress schedule, schedule of Shop Drawing and Sample submittals, and Schedule of Values prepared by Contractor and consult with Engineer concerning acceptability.

3. Conferences and Meetings: Attend meetings with Contractor, such as preconstruction conferences, progress meetings, job conferences, and other Project-related meetings, and prepare and circulate copies of minutes thereof.

4. **Liaison:**

   a. **Serve as Engineer's liaison with Contractor. Working principally through Contractor's authorized representative or designee, assist in providing information regarding the provisions and intent of the Contract Documents.**

   b. **Assist Engineer in serving as Owner's liaison with Contractor when Contractor's operations affect Owner's on-Site operations.**

   c. **Assist in obtaining from Owner additional details or information, when required for proper execution of the Work.**

5. **Interpretation of Contract Documents: Report to Engineer when clarifications and interpretations of the Contract Documents are needed and transmit to Contractor clarifications and interpretations as issued by Engineer.**

6. **Shop Drawings and Samples:**

   a. **Record date of receipt of Samples and Contractor-approved Shop Drawings.**

   b. **Receive Samples which are furnished at the Site by Contractor and notify Engineer of availability of Samples for examination.**

   c. **Advise Engineer and Contractor of the commencement of any portion of the Work requiring a Shop Drawing or Sample submittal for which RPR believes that the submittal has not been approved by Engineer.**

7. **Modifications: Consider and evaluate Contractor's suggestions for modifications in Drawings or Specifications and report such suggestions, together with RPR's recommendations, if any, to Engineer. Transmit to Contractor in writing decisions as issued by Engineer.**

8. **Review of Work and Rejection of Defective Work:**

   a. **Conduct on-Site observations of Contractor's work in progress to assist Engineer in determining if the Work is in general proceeding in accordance with the Contract Documents.**

   b. **Report to Engineer whenever RPR believes that any part of Contractor's work in progress is defective, will not produce a completed Project that conforms generally to the Contract Documents, or will imperil the integrity of the design concept of the completed Project as a functioning whole as indicated in the Contract Documents, or has been damaged, or does not meet the requirements of any inspection, test or approval required to be made; and advise Engineer of that part of work in progress that RPR believes should be corrected or rejected or should be uncovered for observation, or requires special testing, inspection or approval.**

9. **Inspections, Tests, and System Start-ups:**

   a. **Verify that tests, equipment, and systems start-ups and operating and maintenance training are conducted in the presence of appropriate Owner's personnel, and that Contractor maintains adequate records thereof.**

   b. **Observe, record, and report to Engineer appropriate details relative to the test procedures and systems start-ups.**

10. **Records:**

   a. **Prepare a daily report or keep a diary or log book, recording Contractor's hours on the Site, Subcontractors present at the Site, weather conditions, data relative to questions of Change Orders, Field Orders, Work Change Directives, or changed conditions, Site visitors, deliveries of equipment or materials, daily activities, decisions, observations in general, and specific observations in more detail as in the case of observing test procedures; and send copies to Engineer.**

   b. **Record names, addresses, fax numbers, e-mail addresses, web site locations, and telephone numbers of all Contractors, Subcontractors, and major Suppliers of materials and equipment.**

   c. **Maintain records for use in preparing Project documentation.**

11. **Reports:**

   a. **Furnish to Engineer periodic reports as required of progress of the Work and of Contractor's compliance with the Progress Schedule and schedule of Shop Drawing and Sample submittals.**

   b. **Draft and recommend to Engineer proposed Change Orders, Work Change Directives, and Field Orders. Obtain backup material from Contractor.**

   c. **Immediately notify Engineer of the occurrence of any Site accidents, emergencies, acts of God endangering the Work, force majeure or delay events, damage to property by fire or other causes, or the discovery of any Constituent of Concern or Hazardous Environmental Condition.**

12. **Payment Requests: Review applications for payment with Contractor for compliance with the established procedure for their submission and forward with recommendations to Engineer, noting particularly the relationship of the payment requested to the Schedule of Values, Work completed, and materials and equipment delivered at the Site but not incorporated in the Work.**

13. **Certificates, Operation and Maintenance Manuals: During the course of the Work, verify that materials and equipment certificates, operation and maintenance manuals and other data required by the Contract Documents to be assembled and furnished by Contractor are applicable to the items actually installed and in accordance with the Contract Documents, and have**

these documents delivered to Engineer for review and forwarding to Owner prior to payment for that part of the Work.

14. Completion:

    a. Participate in Engineer's visits to the Site to determine Substantial Completion, assist in the determination of Substantial Completion and the preparation of a punch list of items to be completed or corrected.

    b. Participate in Engineer's final visit to the Site to determine completion of the Work, in the company of Owner and Contractor, and prepare a final punch list of items to be completed and deficiencies to be remedied.

    c. Observe whether all items on the final list have been completed or corrected and make recommendations to Engineer concerning acceptance and issuance of the notice of acceptability of the work.

C. The RPR shall not:

1. Authorize any deviation from the Contract Documents or substitution of materials or equipment (including "or-equal" items).
2. Exceed limitations of Engineer's authority as set forth in the Contract Documents.
3. Undertake any of the responsibilities of Contractor, Subcontractors, or Suppliers.
4. Advise on, issue directions relative to, or assume control over any aspect of the means, methods, techniques, sequences, or procedures of Contractor's work.
5. Advise on, issue directions regarding, or assume control over security or safety practices, precautions, and programs in connection with the activities or operations of Owner or Contractor.
6. Participate in specialized field or laboratory tests or inspections conducted off-site by others except as specifically authorized by Engineer.
7. Accept Shop Drawing or Sample submittals from anyone other than Contractor.
8. Authorize Owner to occupy the Project in whole or in part.

ARTICLE 13 – COST OF THE WORK; ALLOWANCES; UNIT PRICE WORK

SC-13.03 Unit Price Work

A. The following Supplementary Condition is typically called a "variation in estimated quantities (VEQ) clause" and facilitates administrative resolution of situations where actual quantities of unit price items differ materially from estimated quantities. Typically, the clause applies where the extended price (unit price times estimated quantity) of an item of the Unit Price Work is more than 5 percent of the Contract Price (based on estimated quantities), and the actual quantity of the units of work performed or furnished varies by more than a specified percent (typically 15 to 25 percent).

SC 13.03.E Delete Paragraph 13.03.E in its entirety and insert the following in its place:

E. The unit price of an item of Unit Price Work shall be subject to reevaluation and adjustment under the following conditions:

1. if the extended price of a particular item of Unit Price Work amounts to 5 percent or more of the Contract Price (based on estimated quantities at the time of Contract formation) and the variation in the quantity of that particular item of Unit Price Work actually furnished or performed by Contractor differs by more than 20 percent from the estimated quantity of such item indicated in the Agreement; and

2. if there is no corresponding adjustment with respect to any other item of Work; and

3. if Contractor believes that Contractor has incurred additional expense as a result thereof, Contractor may submit a Change Proposal, or if Owner believes that the quantity variation entitles Owner to an adjustment in the unit price, Owner may make a Claim, seeking an adjustment in the Contract Price.

ARTICLE 15 – PAYMENTS TO CONTRACTOR; SET-OFFS; COMPLETION; CORRECTION PERIOD

SC-15.03 Substantial Completion

SC 15.03.B Add the following new subparagraph to Paragraph 15.03.B:

1. If some or all of the Work has been determined not to be at a point of Substantial Completion and will require re-inspection or re-testing by Engineer, the cost of such re-inspection or re-testing, including the cost of time, travel and living expenses, shall be paid by Contractor to Owner. If Contractor does not pay, or the parties are unable to agree as to the amount owed, then Owner may impose a reasonable set-off against payments due under Article 15.

ARTICLE 17 – FINAL RESOLUTION OF DISPUTES

SC-17.02 Add the following new paragraph immediately after Paragraph 17.01.

SC-17.02 Arbitration

A. All matters subject to final resolution under this Article will be decided by arbitration in accordance with the Florida Rules of Civil Procedure, subject to the conditions and limitations of this paragraph. This agreement to arbitrate and any other agreement or consent to arbitrate entered into will be specifically enforceable under the prevailing law of any court having jurisdiction.

B. The demand for arbitration will be filed in writing with the other party to the Contract and with the selected arbitrator or arbitration provider, and a copy will be sent to Engineer for information. The demand for arbitration will be made within the specific time required in this Article, or if no specified time is applicable within a reasonable time after the matter in question has arisen, and in no event shall any such demand be made after the date when institution of legal or

equitable proceedings based on such matter in question would be barred by the applicable statute of limitations. The demand for arbitration should include specific reference to Paragraph SC-17.02.D below.

C. No arbitration arising out of or relating to the Contract shall include by consolidation, joinder, or in any other manner any other individual or entity (including Engineer, and Engineer's consultants and the officers, directors, partners, agents, employees, or consultants of any of them) who is not a party to this Contract unless:

1. the inclusion of such other individual or entity is necessary if complete relief is to be afforded among those who are already parties to the arbitration; and

2. such other individual or entity is substantially involved in a question of law or fact which is common to those who are already parties to the arbitration and which will arise in such proceedings.

D. The award rendered by the arbitrator(s) shall be consistent with the agreement of the parties, in writing, and include a concise breakdown of the award, and a written explanation of the award specifically citing the Contract provisions deemed applicable and relied on in making the award.

E. The award will be final. Judgment may be entered upon it in any court having jurisdiction thereof, and it will not be subject to modification or appeal, subject to provisions of the Laws and Regulations relating to vacating or modifying an arbitral award.

F. The fees and expenses of the arbitrators and any arbitration service shall be shared equally by Owner and Contractor.

END OF SECTION

SECTION 00 26 00 AGREEMENT BETWEEN OWNER AND CONTRACTOR FOR CONSTRUCTION CONTRACT

THIS AGREEMENT is by and between **The City of Flagler Beach** ("Owner") and _____ ("Contractor").

Owner and Contractor hereby agree as follows:

ARTICLE 1 – WORK

1.01 Contractor shall complete all Work as specified or indicated in the Contract Documents. The Work is generally described as follows: *Installation of approximately 500 Linear Feet of 8" water main. Existing main to be placed out of service. Project also includes installation of 500 Linear Feet of 8" reclaim main.*

ARTICLE 2 – THE PROJECT

2.01 The Project, of which the Work under the Contract Documents is a part, is generally described as follows: South Central Avenue Water Main Replacement.

ARTICLE 3 – ENGINEER

3.01 The part of the Project that pertains to the Work has been designed by Mead & Hunt

3.02 The Owner has retained Mead & Hunt ("Engineer") to act as Owner's representative, assume all duties and responsibilities, and have the rights and authority assigned to Engineer in the Contract Documents in connection with the completion of the Work in accordance with the Contract Documents.

ARTICLE 4 – CONTRACT TIMES

4.01 *Time of the Essence*

A. All time limits for Substantial Completion, and Final Completion and readiness for final payment as stated in the Contract Documents are of the essence of the Contract.

4.02 *Contract Times: Days*

A. The Work will be substantially completed within sixty (60) calendar days after the date when the Contract Times commence to run as provided in Paragraph 4.01 of the General Conditions, and completed and ready for final payment in accordance with Paragraph 15.06 of the General Conditions within ninety (90) calendar days after the date when the Contract Times commence to run.

4.03 *Liquidated Damages*

A. Contractor and Owner recognize that time is of the essence as stated in Paragraph 4.01 above and that Owner will suffer financial and other losses if the Work is not completed and Milestones not achieved within the times specified in Paragraph 4.02 above, plus any extensions thereof allowed in accordance with the Contract. The parties also recognize

the delays, expense, and difficulties involved in proving in a legal or arbitration proceeding the actual loss suffered by Owner if the Work is not completed on time. Accordingly, instead of requiring any such proof, Owner and Contractor agree that as liquidated damages for delay (but not as a penalty):

1. Substantial Completion: Contractor shall pay Owner $500.00 for each day that expires after the time (as duly adjusted pursuant to the Contract) specified in Paragraph 4.02.A above for Substantial Completion until the Work is substantially complete.
2. Completion of Remaining Work: After Substantial Completion, if Contractor shall neglect, refuse, or fail to complete the remaining Work within the Contract Times (as duly adjusted pursuant to the Contract) for completion and readiness for final payment, Contractor shall pay Owner $1,000.00 for each day that expires after such time until the Work is completed and ready for final payment.
3. Liquidated damages for failing to timely attain Substantial Completion and final completion are not additive and will not be imposed concurrently.

ARTICLE 5 – CONTRACT PRICE

5.01 Owner shall pay Contractor for completion of the Work in accordance with the Contract Documents the amounts that follow, subject to adjustment under the Contract:

A. For all Unit Price Work not included in the lump sum price, an amount equal to the sum of the extended prices (established for each separately identified item of Unit Price Work by multiplying the unit price times the actual quantity of that item): See chart in Section 00 41 13, Page 4 of 6 to be used in the bid package submittal.

ARTICLE 6 – PAYMENT PROCEDURES

6.01 *Submittal and Processing of Payments*

A. Contractor shall submit Applications for Payment in accordance with Article 15 of the General Conditions. Applications for Payment will be processed by Engineer as provided in the General Conditions.

6.02 *Progress Payments; Retainage*

A. Owner shall make progress payments on account of the Contract Price on the basis of Contractor's Applications for Payment on or about the 15th day of each month during performance of the Work as provided in Paragraph 6.02.A.1 below, provided that such Applications for Payment have been submitted in a timely manner and otherwise meet the requirements of the Contract. All such payments will be measured by the Schedule of Values established as provided in the General Conditions (and in the case of Unit Price Work based on the number of units completed) or, in the event there is no Schedule of Values, as provided elsewhere in the Contract.

1. Prior to Substantial Completion, progress payments will be made in an amount equal to the percentage indicated below but, in each case, less the aggregate of payments previously made and less such amounts as Owner may withhold, including but not limited to liquidated damages, in accordance with the Contract:

a. 95 percent of Work completed (with the balance being retainage). If the Work has been 50 percent completed as determined by Engineer, and if the character and progress of the Work have been satisfactory to Owner and Engineer, then as long as the character and progress of the Work remain satisfactory to Owner and Engineer, there will be no additional retainage.

B. Upon Substantial Completion, Owner shall pay an amount sufficient to increase total payments to Contractor to 100 percent of the Work completed, less such amounts set off by Owner pursuant to Paragraph 15.01.E of the General Conditions, and less 200 percent of Engineer's estimate of the value of Work to be completed or corrected as shown on the punch list of items to be completed or corrected prior to final payment.

6.03 *Final Payment*

A. Upon final completion and acceptance of the Work in accordance with Paragraph 15.06 of the General Conditions, Owner shall pay the remainder of the Contract Price as recommended by Engineer as provided in said Paragraph 15.06.

ARTICLE 7 – INTEREST

7.01 All amounts not paid when due shall bear interest at the rate of 3 percent per annum.

ARTICLE 8 – CONTRACTOR'S REPRESENTATIONS

8.01 In order to induce Owner to enter into this Contract, Contractor makes the following representations:

A. Contractor has examined and carefully studied the Contract Documents, and any data and reference items identified in the Contract Documents.

B. Contractor has visited the Site, conducted a thorough, alert visual examination of the Site and adjacent areas, and become familiar with and is satisfied as to the general, local, and Site conditions that may affect cost, progress, and performance of the Work.

C. Contractor is familiar with and is satisfied as to all Laws and Regulations that may affect cost, progress, and performance of the Work.

D. Contractor has carefully studied all reports of explorations and tests of subsurface conditions at or adjacent to the Site and all drawings of physical conditions relating to existing surface or subsurface structures at the Site that have been identified in the Supplementary Conditions, especially with respect to Technical Data in such reports and drawings.

E. Contractor has considered the information known to Contractor itself; information commonly known to contractors doing business in the locality of the Site; information and observations obtained from visits to the Site; the Contract Documents; and the Site-related reports and drawings identified in the Contract Documents, with respect to the effect of such information, observations, and documents on (1) the cost, progress, and performance of the Work; (2) the means, methods, techniques, sequences, and procedures of construction to be employed by Contractor; and (3) Contractor's safety precautions and programs.

F. Based on the information and observations referred to in the preceding paragraph, Contractor agrees that no further examinations, investigations, explorations, tests, studies, or data are necessary for the performance of the Work at the Contract Price, within the Contract Times,

and in accordance with the other terms and conditions of the Contract.

G. Contractor is aware of the general nature of work to be performed by Owner and others at the Site that relates to the Work as indicated in the Contract Documents.

H. Contractor has given Engineer written notice of all conflicts, errors, ambiguities, or discrepancies that Contractor has discovered in the Contract Documents, and the written resolution thereof by Engineer is acceptable to Contractor.

I. The Contract Documents are generally sufficient to indicate and convey understanding of all terms and conditions for performance and furnishing of the Work.

J. Contractor's entry into this Contract constitutes an incontrovertible representation by Contractor that without exception all prices in the Agreement are premised upon performing and furnishing the Work required by the Contract Documents.

ARTICLE 9 – CONTRACT DOCUMENTS

9.01 *Contents*

A. The Contract Documents consist of the following:

1. This Agreement (pages 1 to 6, inclusive).
2. Bid Bond (pages 1 to 2, inclusive).
3. Performance bond (pages 1 to 3, inclusive).
4. Payment bond (pages 1 to 3, inclusive).
5. General Conditions (pages *i* to *v* and pages 1 to 67, inclusive).
6. Supplementary Conditions (pages 1 to 8, inclusive).
7. Specifications as listed in the table of contents of the Project Manual.
8. Issued Addenda
9. Exhibits to this Agreement (enumerated as follows):
   a. Contractor's Bid Form (pages *i* to *ii* and pages 1 to 6, inclusive).
10. The following which may be delivered or issued on or after the Effective Date of the Contract and are not attached hereto:
    a. Notice to Proceed.
    b. Work Change Directives.
    c. Change Orders.
    d. Field Orders.

B. The documents listed in Paragraph 9.01.A are attached to this Agreement (except as expressly noted otherwise above).

C. There are no Contract Documents other than those listed above in this Article 9.

D. The Contract Documents may only be amended, modified, or supplemented as provided in the General Conditions.

ARTICLE 10 – MISCELLANEOUS

10.01 *Terms*

A. Terms used in this Agreement will have the meanings stated in the General Conditions and the Supplementary Conditions.

10.02 *Assignment of Contract*

A. Unless expressly agreed to elsewhere in the Contract, no assignment by a party hereto of any rights under or interests in the Contract will be binding on another party hereto without the written consent of the party sought to be bound; and, specifically but without limitation, money that may become due and money that is due may not be assigned without such consent (except to the extent that the effect of this restriction may be limited by law), and unless specifically stated to the contrary in any written consent to an assignment, no assignment will release or discharge the assignor from any duty or responsibility under the Contract Documents.

10.03 *Successors and Assigns*

A. Owner and Contractor each binds itself, its successors, assigns, and legal representatives to the other party hereto, its successors, assigns, and legal representatives in respect to all covenants, agreements, and obligations contained in the Contract Documents.

10.04 *Severability*

A. Any provision or part of the Contract Documents held to be void or unenforceable under any Law or Regulation shall be deemed stricken, and all remaining provisions shall continue to be valid and binding upon Owner and Contractor, who agree that the Contract Documents shall be reformed to replace such stricken provision or part thereof with a valid and enforceable provision that comes as close as possible to expressing the intention of the stricken provision.

10.05 *Contractor's Certifications*

A. Contractor certifies that it has not engaged in corrupt, fraudulent, collusive, or coercive practices in competing for or in executing the Contract. For the purposes of this Paragraph 10.05:

1. "corrupt practice" means the offering, giving, receiving, or soliciting of anything of value likely to influence the action of a public official in the bidding process or in the Contract execution;

2. "fraudulent practice" means an intentional misrepresentation of facts made (a) to influence the bidding process or the execution of the Contract to the detriment of Owner, (b) to establish Bid or Contract prices at artificial non-competitive levels, or (c) to deprive Owner of the benefits of free and open competition;

3. "collusive practice" means a scheme or arrangement between two or more Bidders, with or without the knowledge of Owner, a purpose of which is to establish Bid prices at artificial, non-competitive levels; and

4. "coercive practice" means harming or threatening to harm, directly or indirectly, persons or their property to influence their participation in the bidding process or affect the execution of the Contract.

OWNER:	CONTRACTOR:
_____	_____
By: _____	By: _____
Title: _____	Title: _____
	(If Contractor is a corporation, a partnership, or a joint venture, attach evidence of authority to sign.)
Attest: _____	Attest: _____
Title: _____	Title: _____
Address for giving notices:	Address for giving notices:
_____	_____
_____	_____
_____	_____
	License No.: _____

(If Owner is a corporation, attach evidence of authority to sign. If Owner is a public body, attach evidence of authority to sign and resolution or other documents authorizing execution of this Agreement.)

END OF SECTION

SECTION 00 41 13 BID FORM

CITY OF FLAGLER BEACH

SOUTH CENTRAL WATERMAIN REPLACEMENT CITY PROJECT NO.: 570

CITY INVITATION TO BID NO: 24-1021

INVITATION TO BID
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ARTICLE 1 – BID RECIPIENT

1.01 This Bid is submitted to:

City of Flagler Beach
105 S 2nd Street
Flagler Beach, FL 32136

1.02 The undersigned Bidder proposes and agrees, if this Bid is accepted, to enter into an Agreement with Owner in the form included in the Bidding Documents to perform all Work as specified or indicated in the Bidding Documents for the prices and within the times indicated in this Bid and in accordance with the other terms and conditions of the Bidding Documents.

ARTICLE 2 – BIDDER'S ACKNOWLEDGEMENTS

2.01 Bidder accepts all of the terms and conditions of the Instructions to Bidders, including without limitation those dealing with the disposition of Bid security. This Bid will remain subject to acceptance for 60 days after the Bid opening, or for such longer period of time that Bidder may agree to in writing upon request of Owner.

ARTICLE 3 – BIDDER'S REPRESENTATIONS

3.01 In submitting this Bid, Bidder represents that:

A. Bidder has examined and carefully studied the Bidding Documents, and any data and reference items identified in the Bidding Documents, and hereby acknowledges receipt of the following Addenda:

Addendum No.	Addendum, Date

B. Bidder has visited the Site, conducted a thorough, alert visual examination of the Site and adjacent areas, and become familiar with and satisfied itself as to the general, local, and Site conditions that may affect cost, progress, and performance of the Work.

C. Bidder is familiar with and has satisfied itself as to all Laws and Regulations that may affect cost, progress, and performance of the Work.

D. Bidder has carefully studied all: (1) reports of explorations and tests of subsurface conditions at or adjacent to the Site and all drawings of physical conditions relating to existing surface or subsurface structures at the Site that have been identified in the Supplementary Conditions, especially with respect to Technical Data in such reports and drawings.

E. Bidder has considered the information known to Bidder itself; information commonly known to contractors doing business in the locality of the Site; information and observations obtained from visits to the Site; the Bidding Documents; and any Site-related reports and drawings identified in the Bidding Documents, with respect to the effect of such information, observations, and documents on (1) the cost, progress, and performance

of the Work; (2) the means, methods, techniques, sequences, and procedures of construction to be employed by Bidder; and (3) Bidder's safety precautions and programs.

F. Bidder agrees, based on the information and observations referred to in the preceding paragraph, that no further examinations, investigations, explorations, tests, studies, or data are necessary for the determination of this Bid for performance of the Work at the price bid and within the times required, and in accordance with the other terms and conditions of the Bidding Documents.

G. Bidder is aware of the general nature of work to be performed by Owner and others at the Site that relates to the Work as indicated in the Bidding Documents.

H. Bidder has given Engineer written notice of all conflicts, errors, ambiguities, or discrepancies that Bidder has discovered in the Bidding Documents and confirms that the written resolution thereof by Engineer is acceptable to Bidder.

I. The Bidding Documents are generally sufficient to indicate and convey understanding of all terms and conditions for the performance and furnishing of the Work.

J. The submission of this Bid constitutes an incontrovertible representation by Bidder that Bidder has complied with every requirement of this Article, and that without exception the Bid and all prices in the Bid are premised upon performing and furnishing the Work required by the Bidding Documents.

ARTICLE 4 – BIDDER'S CERTIFICATION

4.01 Bidder certifies that:

A. This Bid is genuine and not made in the interest of or on behalf of any undisclosed individual or entity and is not submitted in conformity with any collusive agreement or rules of any group, association, organization, or corporation;

B. Bidder has not directly or indirectly induced or solicited any other Bidder to submit a false or sham Bid;

C. Bidder has not solicited or induced any individual or entity to refrain from bidding; and

D. Bidder has not engaged in corrupt, fraudulent, collusive, or coercive practices in competing for the Contract. For the purposes of this Paragraph 4.01.D:

1. "corrupt practice" means the offering, giving, receiving, or soliciting of anything of value likely to influence the action of a public official in the bidding process;

2. "fraudulent practice" means an intentional misrepresentation of facts made (a) to influence the bidding process to the detriment of Owner, (b) to establish bid prices at artificial non-competitive levels, or (c) to deprive Owner of the benefits of free and open competition;

3. "collusive practice" means a scheme or arrangement between two or more Bidders, with or without the knowledge of Owner, a purpose of which is to establish bid prices at artificial, non-competitive levels; and

4. "coercive practice" means harming or threatening to harm, directly or indirectly, persons or their property to influence their participation in the bidding process or affect the e execution of the Contract.

ARTICLE 5 – BASIS OF BID

5.01 Bidder will complete the Work in accordance with the Contract Documents for the following price(s):

BASE BID					
ITEM NO.	**DESCRIPTION**	**QTY**	**UNIT**	**UNIT COST**	**TOTAL**
1	**Mobilization/Demobilization**	1	LS		
2	**Pre-Construction Video**	1	LS		
3	**Erosion Control and Pollution Abatement**	1	LS		
4	**Maintenance of Traffic**	1	LS		
5	**Survey Layout**	1	LS		
6	**Furnish & Install C900 PVC Water Main**				
a	4"	70	LF		
b	6"	25	LF		
c	8"	560	LF		
7	**Furnish & Install C900 PVC Reclaim Main**				
a	8"	700	LF		
8	**Resilient Seat Gate Valve and Box**				
a	8"	7	EA		
b	4"	2	EA		
c	2"	2	EA		
9	**Fire Hydrant Assembly (Remove and Replace)**	1	EA		
10	**Tie-Ins (including Tapping Sleeve and Valve)**				
a	16"x 8"	1	EA		
b	8" x 8"	1	EA		
c	2"	2	EA		
11	**Line Stop**				
a	8"	4	EA		
12	**Ductile Iron Fittings - Add or Delete**	1	TN		
13	**Blow-Off Assembly**	1	EA		
14	**Potable Water Services**	5	EA		
15	**Reclaim Water Services**	5	EA		
16	**Mill and Resurface (1 1/2")**	1100	SY		
17	**Open Cut/Replace Base/Seal**	320	SY		
18	**Open Cut/Repair Asphalt**	610	SY		
19	**Concrete Curb (Remove and Replace)**	35	LF		
20	**Patterned Pavers (Remove and Replace)**	175	SY		
21	**As-builts**	1	LS		
				Total Base Bid	

BID ALTERNATE 1					
ITEM NO.	**DESCRIPTION**	**QTY**	**UNIT**	**UNIT COST**	**TOTAL**
1A	**Exploratory Excavation**	1	LS		
2A	**Line Stop**				
a	12"	2	EA		
3A	**Side Actuated Gate Valve and Box**				
a	12"	1	EA		
4A	**Pervious Parking Grid Pavers (Remove and Replace)**	40	SY		
5A	**Mill and Resurface (1 1/2")**	120	SY		
6A	**Open Cut/Repair Asphalt**	55	SY		
7A	**Concrete Curb (Remove and Replace)**	55	LF		
8A	**Concrete Driveway/Sidewalks (Remove and Replace)**	30	SY		
				Total Bid Alternate 1	

Bidder acknowledges that (1) each Bid Unit Price includes an amount considered by Bidder to be adequate to cover Contractor's overhead and profit for each separately identified item, and (2) estimated quantities are not guaranteed, and are solely for the purpose of comparison of Bids, and final payment for all unit price Bid items will be based on actual quantities, determined as provided in the Contract Documents.

Total Base Bid Price: _____

Total Bid Alternate 1 Price: _____

ARTICLE 6 – TIME OF COMPLETION

6.01 Bidder agrees that the Work will be substantially complete and will be completed and ready for final payment in accordance with Paragraph 15.06 of the General Conditions on or before the dates or within the number of calendar days indicated in the Agreement.

6.02 Bidder accepts the provisions of the Agreement as to liquidated damages.

ARTICLE 7 – ATTACHMENTS TO THIS BID

7.01 The following documents are submitted with and made a condition of this Bid:

A. Required Bid security;

B. List of Proposed Subcontractors;

C. List of Proposed Suppliers;

D. List of Project References;

E. Evidence of authority to do business in the state of the Project; or a written covenant to obtain such license within the time for acceptance of Bids;

F. Required Bidder Qualification Statement with supporting Attachments A through O

G. Submit sealed bids including one original copy, four (4) identical paper copies, and one (1) electronic copy in pdf format on USB or CD.

ARTICLE 8 – DEFINED TERMS

8.01 The terms used in this Bid with initial capital letters have the meanings stated in the Instructions to Bidders, the General Conditions, and the Supplementary Conditions.

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ARTICLE 9 – BID SUBMITTAL

BIDDER: *[Indicate correct name of bidding entity]*

_____

By:
[Signature] _____

[Printed name] _____
(If Bidder is a corporation, a limited liability company, a partnership, or a joint venture, attach evidence of authority to sign.)

Attest:
[Signature] _____

[Printed name] _____

Title: _____

Submittal Date: _____

Address for giving notices:

_____

_____

_____

Telephone Number: _____

Fax Number: _____

Contact Name: _____

Contact e-mail address: _____

Bidder's License No.: _____

END OF SECTION

SECTION 00 43 25
PERFORMANCE BOND

CONTRACTOR *(name and address)*: SURETY *(name and address of principal place of business)*:

OWNER
City of Flagler Beach 105 S 2nd Street
Flagler Beach, FL 32137

CONSTRUCTION CONTRACT
Effective Date of the Agreement:
Amount:
Description: City of Flagler Beach Bid Number XX South Central Watermain Replacement

BOND
Bond Number:
Date *(not earlier than the Effective Date of the Agreement of the Construction Contract)*:
Amount:
Modifications to this Bond Form: ☐ None ☐ See Paragraph 16

Surety and Contractor, intending to be legally bound hereby, subject to the terms set forth below, do each cause this Performance Bond to be duly executed by an authorized officer, agent, or representative.

CONTRACTOR AS PRINCIPAL	**SURETY**
_____ *(seal)*	_____ *(seal)*
Contractor's Name and Corporate Seal	Surety's Name and Corporate Seal
By: _____	**By:** _____
Signature	Signature *(attach power of attorney)*
_____	_____
Print Name	Print Name
_____	_____
Title	Title
Attest: _____	**Attest:** _____
Signature	Signature
_____	_____
Title	Title

Notes: (1) Provide supplemental execution by any additional parties, such as joint venturers. (2) Any singular reference to Contractor, Surety, Owner, or other party shall be considered plural where applicable.

1. The Contractor and Surety, jointly and severally, bind themselves, their heirs, executors, administrators, successors, and assigns to the Owner for the performance of the Construction Contract, which is incorporated herein by reference.

2. If the Contractor performs the Construction Contract, the Surety and the Contractor shall have no obligation under this Bond, except when applicable to participate in a conference as provided in Paragraph 3.

3. If there is no Owner Default under the Construction Contract, the Surety's obligation under this Bond shall arise after:

3.1 The Owner first provides notice to the Contractor and the Surety that the Owner is considering declaring a Contractor Default. Such notice shall indicate whether the Owner is requesting a conference among the Owner, Contractor, and Surety to discuss the Contractor's performance. If the Owner does not request a conference, the Surety may, within five (5) business days after receipt of the Owner's notice, request such a conference. If the Surety timely requests a conference, the Owner shall attend. Unless the Owner agrees otherwise, any conference requested under this Paragraph 3.1 shall be held within ten (10) business days of the Surety's receipt of the Owner's notice. If the Owner, the Contractor, and the Surety agree, the Contractor shall be allowed a reasonable time to perform the Construction Contract, but such an agreement shall not waive the Owner's right, if any, subsequently to declare a Contractor Default;

3.2 The Owner declares a Contractor Default, terminates the Construction Contract, and notifies the Surety; and

3.3 The Owner has agreed to pay the Balance of the Contract Price in accordance with the terms of the Construction Contract to the Surety or to a contractor selected to perform the Construction Contract.

4. Failure on the part of the Owner to comply with the notice requirement in Paragraph 3.1 shall not constitute a failure to comply with a condition precedent to the Surety's obligations, or release the Surety from its obligations, except to the extent the Surety demonstrates actual prejudice.

5. When the Owner has satisfied the conditions of Paragraph 3, the Surety shall promptly and at the Surety's expense take one of the following actions:

5.1 Arrange for the Contractor, with the consent of the Owner, to perform and complete the Construction Contract;

5.2 Undertake to perform and complete the Construction Contract itself, through its agents or independent contractors;

5.3 Obtain bids or negotiated proposals from qualified contractors acceptable to the Owner for a contract for performance and completion of the Construction Contract, arrange for a contract to be prepared for execution by the Owner and a contractor selected with the Owners concurrence, to be secured with performance and payment bonds executed by a qualified surety equivalent to the bonds issued on the Construction Contract, and pay to the Owner the amount of damages as described in Paragraph 7 in excess of the Balance of the Contract Price incurred by the Owner as a result of the Contractor Default; or

5.4 Waive its right to perform and complete, arrange for completion, or obtain a new contractor, and with reasonable promptness under the circumstances:

5.4.1 After investigation, determine the amount for which it may be liable to the Owner and, as soon as practicable after the amount is determined, make payment to the Owner; or

5.4.2 Deny liability in whole or in part and notify the Owner, citing the reasons for denial.

6. If the Surety does not proceed as provided in Paragraph 5 with reasonable promptness, the Surety shall be deemed to be in default on this Bond seven days after receipt of an additional written notice from the Owner to the Surety demanding that the Surety perform its obligations under this Bond, and the Owner shall be entitled to enforce any remedy available to the Owner. If the Surety proceeds as provided in Paragraph 5.4, and the Owner refuses the payment or the Surety has denied liability, in whole or in part, without further notice the Owner shall be entitled to enforce any remedy available to the Owner.

7. If the Surety elects to act under Paragraph 5.1, 5.2, or 5.3, then the responsibilities of the Surety to the Owner shall not be greater than those of the Contractor under the Construction Contract, and the responsibilities of the Owner to the Surety shall not be greater than those of the Owner under the Construction Contract. Subject to the commitment by the Owner to pay the Balance of the Contract Price, the Surety is obligated, without duplication for:

7.1 the responsibilities of the Contractor for correction of defective work and completion of the Construction Contract;

7.2 additional legal, design professional, and delay costs resulting from the Contractor's Default, and resulting from the actions or failure to act of the Surety under Paragraph 5; and

7.3 liquidated damages, or if no liquidated damages are specified in the Construction Contract, actual damages caused by delayed performance or non-performance of the Contractor.

8. If the Surety elects to act under Paragraph 5.1, 5.3, or 5.4, the Surety's liability is limited to the amount of this Bond.

9. The Surety shall not be liable to the Owner or others for obligations of the Contractor that are unrelated to the Construction Contract, and the Balance of the Contract Price shall not be reduced

10.

or set off on account of any such unrelated obligations. No right of action shall accrue on this Bond to any person or entity other than the Owner or its heirs, executors, administrators, successors, and assigns.

11. The Surety hereby waives notice of any change, including changes of time, to the Construction Contract or to related subcontracts, purchase orders, and other obligations.

12. Any proceeding, legal or equitable, under this Bond may be instituted in any court of competent jurisdiction in the location in which the work or part of the work is located and shall be instituted within two years after a declaration of Contractor Default or within two years after the Contractor ceased working or within two years after the Surety refuses or fails to perform its obligations under this Bond, whichever occurs first. If the provisions of this paragraph are void or prohibited by law, the minimum periods of limitations available to sureties as a defense in the jurisdiction of the suit shall be applicable.

13. Notice to the Surety, the Owner, or the Contractor shall be mailed or delivered to the address shown on the page on which their signature appears.

14. When this Bond has been furnished to comply with a statutory or other legal requirement in the location where the construction was to be performed, any provision in this Bond conflicting with said statutory or legal requirement shall be deemed deleted here from and provisions conforming to such statutory or other legal requirement shall be deemed incorporated herein. When so furnished, the intent is that this Bond shall be construed as a statutory bond and not as a common law bond.

15. Definitions

15.1 Balance of the Contract Price: The total amount payable by the Owner to the Contractor under the Construction Contract after all proper adjustments have been made including allowance for the Contractor for any amounts received or to be received by the Owner in settlement of insurance or other claims for damages to which the Contractor is entitled, reduced by all valid and proper payments made to or on behalf of the Contractor under the Construction Contract.

15.2 Construction Contract: The agreement between the Owner and Contractor identified on the cover page, including all Contract Documents and changes made to the agreement and the Contract Documents.

15.3 Contractor Default: Failure of the Contractor, which has not been remedied or waived, to perform or otherwise to comply with a material term of the Construction Contract.

15.4 Owner Default: Failure of the Owner, which has not been remedied or waived, to pay the Contractor as required under the Construction Contract or to perform and complete or comply with the other material terms of the Construction Contract.

15.5 Contract Documents: All the documents that comprise the agreement between the Owner and Contractor.

16. If this Bond is issued for an agreement between a contractor and subcontractor, the term Contractor in this Bond shall be deemed to be Subcontractor and the term Owner shall be deemed to be Contractor.

END OF SECTION

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SECTION 00 51 00
NOTICE OF AWARD

Date of Issuance: _____ ___, 20__

Owner: City of Flagler Beach Owner's Project No.: 570

Engineer: Mead & Hunt Engineer's Project No.: R1000709-231849.01

Project: City of Flagler Beach

South Central WM Replacement

TO BIDDER:

You are notified that Owner has accepted your Bid dated _____ _, 20__ for the above Contract, and that you are the Successful Bidder and are awarded a Contract for: **CITY OF FLAGLER BEACH, SOUTH CENTRAL WATER MAIN REPLACEMENT**

The Contract Price of the awarded Contract is: **$**_____

One (1) unexecuted counterparts of the Agreement accompany this Notice of Award and one copy of the Contract Documents has been made available to Bidder electronically.

☐ a set of the Drawings will be delivered separately from the other Contract Documents.

You must comply with the following conditions precedent within ten (10) days of the date of this Notice of Award:

1. Deliver to Owner Three (3) counterparts of the Agreement, fully executed by Bidder.
2. Deliver with the executed Agreement(s) the Contract security *[e.g., performance bond]* and insurance documentation as specified in the Instructions to Bidders and General Conditions, Articles 2 and 6.
3. Other conditions precedent (if any): *None*

Failure to comply with these conditions within the time specified will entitle Owner to consider you in default, annul this Notice of Award, and declare your Bid security forfeited.

Within ten days after you comply with the above conditions, Owner will return to you one fully executed counterpart of the Agreement, together with any additional copies of the Contract Documents as indicated in Paragraph 2.02 of the General Conditions.

Owner: City of Flagler Beach

_____
Authorized Signature

By:

Title:

Copy: Engineer

END OF SECTION

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SECTION 00 51 20

NOTICE TO PROCEED

Owner:	City of Flagler Beach	Owner's Contract No.:	570
Contractor:		Contractor's Project No.:	
Engineer:	Mead & Hunt	Engineer's Project No.:	R1000709-231849.01
Project:	CITY OF FLAGLER SOUTH CENTRAL WATERMAIN REPLACEMENT		
		Effective Date of Contract:	

TO CONTRACTOR:

Owner hereby notifies Contractor that the Contract Times under the above Contract will commence to run on _____, 20__.

On that date, Contractor shall start performing its obligations under the Contract Documents. No Work shall be done at the Site prior to such date. **In accordance with the Agreement, the number of calendar days to achieve Substantial Completion is sixty (60) and the number of days to achieve readiness for final payment is ninety (90).**

Before starting any Work at the Site, Contractor must comply with the following: NONE

Owner**:**

Authorized Signature

By:

Title:

Date Issued:

Copy: Engineer

END OF SECTION

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SECTION 00 61 10

Work Change Directive No.

Date of Issuance: Effective Date:

Owner: City of Flagler Beach Owner's Contract No.: 570

Contractor: Contractor's Project No.:

Engineer: Mead & Hunt Engineer's Project No.: R1000709-231849.01

Project: CITY OF FLAGLER BEACH SOUTH CENTRAL WATER MAIN REPLACEMENT

Contractor is directed to proceed promptly with the following change(s):

Description:

Attachments: *[List documents supporting change]*

Purpose for Work Change Directive:

Directive to proceed promptly with the Work described herein, prior to agreeing to changes on Contract Price and Contract Time, is issued due to: *[check one or both of the following]*

Non-agreement on pricing of proposed change.

Necessity to proceed for schedule or other Project reasons.

Estimated Change in Contract Price and Contract Times (non-binding, preliminary):

Contract Price $ [increase] [decrease].

Contract Time days [increase] [decrease].

Basis of estimated change in Contract Price:

Lump Sum Unit Price

Cost of the Work Other

RECOMMENDED:	AUTHORIZED BY:	RECEIVED:
By:	By:	By:
Engineer (Authorized Signature)	Owner (Authorized Signature)	Contractor (Authorized Signature)
Title:	Title:	Title:
Date:	Date:	Date:

Approved by Funding Agency (if applicable)

By: Date:

Title:

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SECTION 00 62 50
NOTICE OF ACCEPTABILITY OF WORK

PROJECT: CITY OF FLAGLER BEACH SOUTH CENTRAL WATERMAIN REPLACEMENT

OWNER: City of Flagler Beach

CONTRACTOR:

OWNER'S CONSTRUCTION CONTRACT IDENTIFICATION:

EFFECTIVE DATE OF THE CONSTRUCTION CONTRACT: _____, 20__

ENGINEER: Mead & Hunt

NOTICE DATE:

To: **City of Flagler Beach**
Owner

And To: _____
Contractor

From: **Mead & Hunt**
Engineer

The Engineer hereby gives notice to the above Owner and Contractor that Engineer has recommended final payment of Contractor, and that the Work furnished and performed by Contractor under the above Construction Contract is acceptable, expressly subject to the provisions of the related Contract Documents, the Agreement between Owner and Engineer for Professional Services dated _____, 20__, and the following terms and conditions of this Notice:

CONDITIONS OF NOTICE OF ACCEPTABILITY OF WORK

The Notice of Acceptability of Work ("Notice") is expressly made subject to the following terms and conditions to which all those who receive said Notice and rely thereon agree:

1. This Notice is given with the skill and care ordinarily used by members of the engineering profession practicing under similar conditions at the same time and in the same locality.

2. This Notice reflects and is an expression of the Engineer's professional opinion.

3. This Notice is given as to the best of Engineer's knowledge, information, and belief as of the Notice Date.

4. This Notice is based entirely on and expressly limited by the scope of services Engineer has been employed by Owner to perform or furnish during construction of the Project (including observation of the Contractor's work) under Engineer's Agreement with Owner, and applies only to facts that are within Engineer's knowledge or could reasonably have been ascertained by Engineer as a result of carrying out the responsibilities specifically assigned to Engineer under such Agreement.

5. This Notice is not a guarantee or warranty of Contractor's performance under the Construction Contract, an acceptance of Work that is not in accordance with the related Contract Documents, including but not limited to defective Work discovered after final inspection, nor an assumption of responsibility for any failure of Contractor to furnish and perform the Work thereunder in accordance with the Construction Contract Documents, or to otherwise comply with the Construction Contract Documents or the terms of any special guarantees specified therein.

6. This Notice does not relieve Contractor of any surviving obligations under the Construction Contract and is subject to Owner's reservations of rights with respect to completion and final payment.

by: _____

Title: _____

Dated: _____

END OF SECTION

SECTION 00 64 25
CERTIFICATE OF SUBSTANTIAL COMPLETION

Owner:	City of Flagler Beach	Owner's Contract No.:	570
Contractor:		Contractor's Project No.:	
Engineer:	Mead & Hunt	Engineer's Project No.:	R1000709-231849.01
	South Central Watermain Replacement		

This [preliminary] [final] Certificate of Substantial Completion applies to:

☒ All Work ☐ The following specified portions of the Work:

_____, 20____
Date of Substantial Completion

The Work to which this Certificate applies has been inspected by authorized representatives of Owner, Contractor, and Engineer, and found to be substantially complete. The Date of Substantial Completion of the Work or portion thereof designated above is hereby established, subject to the provisions of the Contract pertaining to Substantial Completion. The date of Substantial Completion in the final Certificate of Substantial Completion marks the commencement of the contractual correction period and applicable warranties required by the Contract.

A punch list of items to be completed or corrected is attached to this Certificate. This list may not be all-inclusive, and the failure to include any items on such list does not alter the responsibility of the Contractor to complete all Work in accordance with the Contract.

The responsibilities between Owner and Contractor for security, operation, safety, maintenance, heat, utilities, insurance, and warranties upon Owner's use or occupancy of the Work shall be as provided in the Contract, except as amended as follows: *None.*

Amendments to Owner's responsibilities:
☒ None
☐ As follows

Amendments to Contractor's responsibilities:
☒ None
☐ As follows:

The following documents are attached to and made a part of this Certificate: No Documents Attached.

This Certificate does not constitute an acceptance of Work not in accordance with the Contract Documents, nor is it a release of Contractor's obligation to complete the Work in accordance with the Contract.

EXECUTED BY ENGINEER:	RECEIVED:	RECEIVED:
By: _____ (Authorized signature)	By: _____ Owner (Authorized Signature)	By: _____ Contractor (Authorized Signature)
Title: _____	Title: _____	Title: _____
Date: _____, 20____	Date: _____	Date: _____

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TECHNICAL SPECIFICATIONS INDEX

Flagler Beach – South Central Watermain Replacement

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END OF SECTION

SECTION 01 00 00 – GENERAL REQUIREMENTS

PART 1 - GENERAL

1.1 DESCRIPTION

A. Scope of Work: The Work to be done consists of the furnishing of all labor, materials and equipment, and the performance of all Work included in this Contract.

B. Work Included:

1. The Contractor shall furnish all labor, superintendence, materials, plant power, light, heat, fuel, water, tools, appliances, equipment, supplies, and means of construction necessary for proper performance and completion of the Work. The Contractor shall obtain and pay for all necessary local building permits. The Contractor shall perform and complete the work in the manner best calculated to promote rapid construction consistent with safety of life and property and to the satisfaction of the Engineer, and in strict accordance with the Contract Documents. The Contractor shall clean up the Work and maintain it during and after construction, until accepted, and shall do all Work and pay all costs incidental thereto. The Contractor shall repair or restore all structures and property that may be damaged or disturbed during performance of the Work.

2. The cost of incidental work described in these project requirements, for which there are no specific Contract Items, shall be considered as part of the general cost of doing the Work and shall be included in the prices for the various Contract Items. No additional payment will be made therefore.

3. The Contractor shall provide and maintain such modern plant, tools, and equipment as may be necessary, in the opinion of the Engineer, to perform in a satisfactory and acceptable manner all the Work required by this Contract. Only equipment of established reputation and proven efficiency shall be used. The Contractor shall be solely responsible for the adequacy of their workmanship, materials, and equipment, prior approval of the Engineer notwithstanding.

C. Public Utility Installations and Structures

1. Public utility installations and structures shall be understood to include all poles, tracks, pipes, wires, conduits, vaults, manholes, and all other appurtenances and facilities pertaining thereto whether owned or controlled by the Owner, other governmental bodies, or privately owned by individuals, firms, or corporations, used to serve the public with transportation, traffic control, gas, electricity, telephone, sewerage, drainage, water, or other public or private property which may be affected by the Work shall be deemed included hereunder.

2. The Contract Documents contain data relative to existing public utility installations and structures above and below the ground surface. These data are not guaranteed as to their completeness or accuracy, and it is the responsibility of the Contractor to make their own investigations to inform themselves fully of the character, condition, and extent of all such

installations and structures as may be encountered and as may affect the construction operations.

3. The Contractor shall protect all public utility installations and structures from damage during the Work. Access across any buried public utility installation or structure shall be made to avoid any damage to these facilities. All required protective devices and construction shall be provided by the Contractor at their expense. All existing public utilities damaged by the Contractor shall be repaired by the Contractor, at their expense. No separate payment shall be made for such protection or repairs to public utility installations or structures.

4. Public utility installations or structures owned or controlled by the Owner or other governmental body which are shown on the Drawings to be removed, relocated, replaced, or rebuilt by the Contractor shall be considered as a part of the general cost of doing the Work and shall be included in the prices bid for the various Contract Items; therefore, no separate payment shall be made.

5. Where public utility installations of structures owned or controlled by the Owner or other governmental body are encountered during the course of the Work, and are not indicated on the Drawings or in the Specifications, and when, in the opinion of the Engineer, removal, relocation, replacement, or rebuilding is necessary to complete the Work under this Contract, such Work shall be accomplished by the utility having jurisdiction, or such Work may be ordered, in writing by the Engineer, for the Contractor to accomplish. If such work is accomplished by the utility having jurisdiction it will be carried out expeditiously, and the Contractor shall give full cooperation to permit the utility to complete the removal, relocation, replacement, or rebuilding as required. If such work is accomplished by the Contractor, it will be paid for as extra work as provided in the Agreement.

6. The Contractor shall, at all times in performance of the Work, employ acceptable methods and exercise reasonable care and skill so as to avoid unnecessary delay, injury, damage, or destruction of public utility installations and structures; and shall, at all times in the performance of the Work, avoid unnecessary interference with, or interruption of, public utility services, and shall cooperate fully with the utility owners.

7. The Contractor shall give written notice to the Owner and other governmental utility departments and other owners of public utilities of the location of their proposed construction operations, at least forty-eight (48) hours in advance of breaking ground in any area or on any unit of the Work.

8. The maintenance, repair, removal, relocation, or rebuilding of public utility installations and structures, when accomplished by the Contractor as herein provided, shall be done by methods approved by the owners of such utilities.

1.2 DRAWINGS AND PROJECT MANUAL

A. Drawings: When obtaining data and information from the Drawings, figures shall be used in preference to scaled dimensions, and large-scale drawings in preference to small-scale drawings.

B. Supplementary Drawings:

1. When, in the opinion of the Engineer, it becomes necessary to explain more fully the Work to be done or to illustrate the Work further or to show any changes which may be required, drawings known as Supplementary Drawings, with Specifications pertaining thereto, will be prepared by the Engineer, and the Contractor will be furnished an electronic copy of the plans and project manual.

2. The Supplementary Drawings shall be binding upon the Contractor with the same force as the Contract Drawings. Where such Supplementary Drawings require either less or more than the estimated quantities of Work, credit to the Owner or compensation therefore to the Contractor shall be subject to the terms of the Agreement.

C. Contractor to Check Drawings and Data:

1. The Contractor shall verify all dimensions, quantities, and details shown on the Drawings, Supplementary Drawings, schedules, Specifications, or other data received from the Engineer, and shall notify them of all errors, omissions, conflicts, and discrepancies found therein. Failure to discover or correct errors, omissions, conflicts, or discrepancies shall not relieve the Contractor of full responsibility for unsatisfactory work, faulty construction, or improper operation resulting there from, nor from rectifying such conditions at their own expense. The Contractor will not be allowed to take advantage of any errors or omissions, as full instructions will be furnished by the Engineer, should such errors or omissions be discovered.

2. All schedules are given for the convenience of the Engineer and the Contractor and are not guaranteed to be complete. The Contractor shall assume all responsibility for the making of estimates of the size, kind, and quality of materials and equipment included in work to be done under the Contract.

D. Specifications: The Technical Specifications consist of three (3) parts: General, Products, and Execution. The General part of a Specification contains General Requirements which govern the Work. The Products and Execution parts modify and supplement the General Requirements by detailed requirements for the Work and shall always govern whenever there appears to be a conflict.

E. Intent:

1. All Work called for in the Specifications applicable to this Contract, but not shown on the Drawings in their present form, or vice versa, shall be of like effect as if shown or mentioned in both. Work not specified in either the Drawings or in the Specifications but involved in carrying out their intent or in the complete and proper execution of the Work, is required and shall be performed by the Contractor as though it were specifically delineated or described.

2. The apparent silence of the Specifications as to any detail, or the apparent omission from them of a detailed description concerning any work to be done and materials to be furnished, shall be regarded as meaning that only the best general practice is to prevail and that only material and workmanship of the best quality is to be used, the interpretation of these Specifications shall be made upon that basis.

1.3 MATERIALS AND EQUIPMENT

A. Manufacturer:

1. All transactions with the manufacturers or subcontractors shall be through the Contractor, unless the Contractor shall request and at the Engineer's option, that the manufacturer or subcontractor deal directly with the Engineer. Any such transactions shall not in any way release the Contractor from their full responsibility under this Contract.

2. Any two (2) or more pieces of material or equipment of the same kind, type, or classification, and being used for identical types of service, shall be made by the same manufacturer.

B. Delivery:

1. The Contractor shall deliver materials in ample quantities to ensure the most speedy and uninterrupted progress of the Work so as to complete the Work within the allotted time.

2. The Contractor shall also coordinate deliveries in order to avoid delay in, or impediment of, the progress of the work of any related Contractor.

C. Tools and Accessories:

1. The Contractor shall, unless otherwise stated in the Contract Documents, furnish with each type, kind, or size of equipment, one (1) complete set of suitably marked high grade special tools and appliances which may be needed to adjust, operate, maintain, or repair the equipment. Such tools and appliances shall be furnished in approved painted steel cases, properly labeled and equipped with good grade cylinder locks and duplicate keys.

2. Spare parts shall be furnished as specified herein and as recommended by the manufacturer necessary for the operation of the equipment, not including materials required for routine maintenance.

3. Each piece of equipment shall be provided with a substantial nameplate, securely fastened in place and clearly inscribed with the manufacturer's name, year of manufacture, serial number, weight, and principal rate data.

D. Service of Manufacturer's Engineer:

1. The Contract Prices for equipment shall include the cost of furnishing a competent and experienced Engineer or superintendent who shall represent the manufacturer and shall assist the Contractor, when required, to install, adjust, test, and place in operation, the equipment in conformity with the Contract Documents.

2. After the equipment is placed in permanent operation by the Owner, such Engineer or superintendent shall make all adjustments and tests required by the Engineer to prove that such equipment is in proper and satisfactory operating condition, and shall instruct such personnel as may be designated by the Owner in the proper operation and maintenance of such equipment.

1.4 INSPECTION AND TESTING

A. General:

1. For tests specified to be made by the Contractor, the testing personnel shall make the necessary inspections and tests, and the reports thereof shall be in such form as will facilitate checking to determine compliance with the Contract Documents. One (1) original and one (1) electronic copy of the reports shall be submitted, and authoritative certification thereof must be furnished to the Engineer as a prerequisite for the acceptance of any material or equipment.

2. If, in the making of any test of any material or equipment, it is ascertained by the Engineer that the material or equipment does not comply with the Contract Documents, the Contractor will be notified thereof, and they will be directed to refrain from delivering said material or equipment, or to remove it promptly from the site or from the Work and replace it with acceptable material, without cost to the Owner.

3. Tests of electrical and mechanical equipment and appliances shall be conducted in accordance with the recognized test codes of the ANSI, ASME, or the IEEE, except as may otherwise be stated herein.

4. The Contractor shall be fully responsible for the proper operation of equipment during testing and instruction periods and shall neither have nor make any claim for damage which may occur to equipment prior to the time when the Owner formally takes over the operation thereof.

B. Costs:

1. All inspection and testing of materials furnished under this Contract will be provided by the Contractor, unless otherwise expressly specified.

2. The cost of shop and field tests of equipment and of certain other tests specifically called for in the Contract Documents shall be borne by the Contractor, and such costs shall be deemed to be included in the Contract Price.

3. Materials and equipment submitted by the Contractor as the equivalent to those specifically named in the Contract may be tested by the Owner for compliance. The Contractor shall reimburse the Owner for the expenditures incurred in making such tests of materials and equipment which are rejected for non-compliance.

C. Certificate of Manufacture:

1. Contractor shall furnish to Engineer authoritative evidence in the form of a certificate of manufacture that the materials to be used in the Work have been manufactured and tested in conformity with the Contract Documents.

2. These certificates shall be notarized and shall include copies of the results of physical tests and chemical analyses, where necessary, that have been made directly on the product or on similar products of the manufacturer.

D. Shop Tests:

1. Each piece of equipment for which pressure, duty, capacity, rating, efficiency, performance, function, or special requirements are specified shall be tested in the shop of the maker in a manner which shall conclusively prove that its characteristics comply fully with the requirements of the Contract Documents.

2. Five (5) copies of the manufacturer's actual test data and interpreted results thereof, accompanied by a certificate of authenticity sworn to by a responsible official of the manufacturing company and/or independent laboratory, shall be submitted to the Engineer for approval.

3. The cost of shop tests and of furnishing manufacturer's preliminary and shop test data of operating equipment shall be borne by the Contractor.

E. Start-up Tests:

1. As soon as conditions permit, the Contractor shall furnish all labor, materials, and instruments and shall make start-up tests of equipment.

2. If the start-up tests disclose any equipment furnished under this Contract which does not comply with the requirements of the Contract Documents, the Contractor shall, prior to demonstration tests, make all changes, adjustments, and replacements required. The furnishing Contractor shall assist in the start-up tests as applicable.

F. Demonstration Tests:

1. Prior to Contractor's request for a Substantial Completion inspection, all equipment and piping installed under this Contract shall be subjected to demonstration tests as specified or required to prove compliance with the Contract Documents.

2. The Contractor shall furnish labor, fuel, energy, water, and all other materials, equipment, and instruments necessary for all demonstration tests, at no additional cost to the Owner. Contractor shall assist in the demonstration tests as applicable.

1.5 LINES AND GRADES

A. Grade:

1. All work under this Contract shall be constructed in accordance with the lines and grades shown on the Drawings, or as given by the Engineer. The full responsibility for keeping alignment and grade shall rest upon the Contractor.

B. Surveys:

1. The Contractor shall furnish and maintain, at their own expense, stakes and other such materials.

2. The Contractor shall check such reference marks by such means as they may deem necessary and, before using them, shall call the Engineer's attention to any inaccuracies.

3. The Contractor shall, at their own expense, establish all working or construction lines and grades as required from the reference marks set by the Engineer, and shall be solely responsible for the accuracy thereof. They shall, however, be subject to the check and review by the Engineer.

C. Safeguarding Marks:

1. The Contractor shall safeguard all points, stakes, grade marks, monuments, and bench marks made or established on the Work, bear the cost of re-establishing them if disturbed, and bear the entire expense of rectifying work improperly installed due to not maintaining or protecting or to removing without authorization such established points, stakes, and marks.

2. The Contractor shall safeguard all existing and known property corners, monuments, and marks adjacent to but not related to the Work and shall bear the cost of re-establishing them if disturbed or destroyed.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION (NOT USED)

END OF SECTION 01 00 00

SECTION 01 11 00 – SUMMARY OF WORK

PART 1 - GENERAL

1.1 WORK COVERED BY CONTRACT DOCUMENTS

A. This Contract is for the construction of the **South Central Avenue Water Main Replacement.** The work consists of furnishing all labor, equipment, and materials for the construction of the facilities consisting of, but not limited to, the following:

Installation of approximately 500 Linear Feet of 8" water main. Existing main to be placed out of service. Project also includes installation of 500 Linear Feet of 8" reclaim main.

B. The Contractor shall furnish all labor, equipment, tools, services and incidentals to complete all Work required by these Specifications and as shown on the Drawings.

C. The Contractor shall perform the Work complete, in place, and ready for continuous service, and shall include repairs, testing, permits, cleanup, replacements and restoration required as a result of damages caused during this construction.

D. All materials, equipment, skills, tools and labor which is reasonably and properly inferable and necessary for the proper completion of the Work in a substantial manner and in compliance with the requirements stated or implied by these Specification or Drawings shall be furnished and installed by the Contractor without additional compensation, whether specifically indicated in the Contract Documents or not.

E. The Contractor shall comply with all City, County, State, Federal, and other codes which are applicable to this Project.

1.2 CONTRACTOR'S USE OF PREMISES

A. The Contractor shall assume full responsibility for the protection and safekeeping of products and materials at the job site. If additional storage or work areas are required, they shall be obtained by the Contractor at no additional cost to the Owner.

1.3 PROJECT SEQUENCE

The Contractor shall establish their work sequence based on the use of crews to facilitate completion of construction and testing within the specified Contract Time.

PART 2 - PRODUCTS (NOT USED

PART 3 - EXECUTION (NOT USED)

END OF SECTION 01 11 00

SECTION 01 20 00 – PRICE AND PAYMENT PROCEDURES

PART 1 - GENERAL

1.1 SCOPE

A. Separate payment will be made only for the items of work described herein and listed on the Bid Form. Any related work not specifically listed, but required for satisfactory completion of the work, shall be considered to be included in the scope of the appropriate listed work items.

B. The Contractor's attention is called to the fact that cleanup is considered a part of the work of construction. No payment will be made until cleanup is essentially complete.

C. No separate payment will be made for the following items and the cost of such work shall be included in the applicable pay items of work if not shown as a separate pay item.

1. Clearing and grubbing
2. Excavation, including necessary pavement base removal.
3. Shoring and sheeting.
4. Dewatering and disposal of surplus water.
5. Structural fill.
6. Backfill.
7. Grading.
8. Replacement of unpaved roadways, grass, and shrubbery plots.
9. Cleanup.
10. Testing and placing system in operation.
11. Any material and equipment required to be installed and utilized for the test.
12. Pipe, structures, pavement replacement and/or appurtenances included within the limits of lump sum work

D. No payment shall be made for work constructed outside the authorized limits of work.

PART 2 - PRODUCTS

2.1 Mobilization/Demobilization BID ITEM 1

The lump sum to complete this item shall be full compensation for the preparatory work and operations in mobilizing for beginning work on the Project including, but not limited to, those operations necessary for the movement of personnel, equipment, supplies and incidentals to the project site, and for the establishment of field office, building, safety equipment and first aid supplies, sanitary and other facilities, as required by these Specifications, and state and local laws and regulations; and any other pre-construction expense necessary for Work; the cost of field engineering including disposal of cleared and grubbed material and debris, permits and fees, construction schedules, project signs, shop drawings, temporary facilities, laydown storage area, construction aids, erosion control, work associated with Contractor support during Owner/Engineer reviews and inspection, re-inspections, and any other re-work resulting from same, cleaning, operation and maintenance data, and for all other work required for demobilization. The Contractor shall submit invoices substantiating the cost of mobilization and demobilization with each pay request. Five percent (5%) for the cost of mobilization and demobilization will be withheld until acceptance and final payment.

2.2 Pre-Construction Video BID ITEM 2

The contract lump sum price shall be full compensation for all materials and work necessary to complete the professional videotaping in accordance with the project specifications. Construction work shall not start until DVD's are delivered and approved by the project representative.

The full lump sum payment will be made based on delivery to the City of two copies with documentation of the video for the entire project route.

2.3 Erosion Control and Pollution Abatement BID ITEM 3

Payment will be made at the contract lump sum price for implementation and maintenance of erosion and turbidity control measures as shown on the plans, described in the specifications and/or directed in the field. This price includes all silt fencing, staked & floating turbidity barriers, sediment traps, inlet protection devices, synthetic bales, temporary sodding, equipment, labor and all other incidental items.

Payment shall be based on the percentage of the lump sum price (stated in the Schedule of Unit Prices) equal to the percentage complete of the overall project work.

2.4 Maintenance of Traffic BID ITEM 4

Payment will be made at the contract lump sum price for maintenance and control of traffic within the project area and adjacent roadways throughout the duration of the project construction work. This price includes the preparation, submittal and costs involved in obtaining approvals/permits for all site-specific traffic control plans as required by FDOT, Flagler County and City of Flagler Beach. The price also includes the full cost of implementing the traffic control plans including all traffic control devices, signage, barricades, variable message boards, flagmen, temporary striping/removal, equipment, labor and all other incidental items. This price also includes the installation and removal of a temporary pedestrian access sidewalk as shown in the plans.

Payment shall be based on the percentage of the lump sum price (stated in the Schedule of Unit Prices) equal to the percentage complete of the overall project work.

2.5 Survey Layout BID ITEM 5

Payment shall be made at the lump sum amount or portion thereof for the layout of all proposed improvements by a licensed surveyor registered in the State of Florida. Work shall include the staking of right-of-way and easement lines adjacent to proposed improvements. Surveyor shall verify existing grades and other tie-in locations and notify Engineer of any discrepancies.

2.6 Furnish and Install C900 PVC Watermain BID ITEM 6

Payment will be made at the contract unit price for providing and installing AWWA C900 PVC water main as shown on the plans and described in the specifications. The unit price shall be full compensation for all excavation, abandonment of existing pipe, sheeting & shoring, fittings, restraining devices, couplings, sleeves, identification tape, tracer wire, dewatering, bedding, backfill, compaction, density testing, pigging, hydrostatic testing, bacteriological testing, surface restoration including dirt, shell, rock, and sod, equipment, labor and all other incidental items necessary to complete the installation as shown on the plans. Open cut PVC will be paid by the linear foot as measured horizontally from station to station. Vertical deflection is not considered as the basis for renumeration.

2.7 Furnish and Install C900 PVC Reclaim main BID ITEM 7

Payment will be made at the contract unit price for providing and installing AWWA C900 PVC reclaim main as shown on the plans and described in the specifications. The unit price shall be full compensation for all excavation, abandonment of existing pipe, sheeting & shoring, fittings, re-straining devices, couplings, sleeves, identification tape, tracer wire, dewatering, bedding, backfill, compaction, density testing, pigging, hydrostatic testing, bacteriological testing, surface restoration including dirt, shell, rock, and sod, equipment, labor and all other incidental items necessary to complete the installation as shown on the plans. Open cut PVC will be paid by the linear foot as measured horizontally from station to station. Vertical deflection is not considered as the basis for renumeration.

2.8 Resilient Seat Gate Valve Box BID ITEM 8

Payment will be made at the contract unit price for furnishing and installing each gate valve as shown on the plans and described in the specifications. The unit price shall be full compensation for all excavation, sheeting & shoring, valves, valve boxes, stems, concrete collars, restraining devices, adjustment of valve boxes to finished grade, surface restoration, equipment, labor and all other incidental items necessary to complete the installation as shown on the plans.

Payment shall be based on the number of gate valves installed, tested, cleared and accepted at the unit prices stated in the Schedule of Unit Prices

2.9 Fire Hydrant Assembly (Remove and Replace) BID ITEM 9

Lump sum payment shall be made for the removal of existing hydrants an installation of new fire hydrants per City of Flagler Beach Standard Construction Details. New installation shall include the installation of fittings, piping (including up to 8 feet of additional pipe if City desires fire hydrant road offset to be increased), hydrant valve, and hydrant along with painting of hydrant top per City requirements. Bagging of fire hydrant if installation is not completed in the same day will be required. Post-work activities include adjustment of isolation valve box to grade, painting of valve box, marking curb/edge of pavement of valve location, and replacement of blue reflective pavement marker.

2.10 Tie-ins (including Tapping Sleeve and Valve) BID ITEM 10

Payment shall be made at the contract price for each tie in, tapping sleeve and tapping valve with valve box. The contract price shall be full compensation for all materials, equipment and labor required to complete the installation in accordance with the drawings and specifications. This item includes all fittings and appurtenances required in addition to the adjustment of valve box to final grade and concrete collar in unpaved areas.

2.11 Line Stop BID ITEM 11& 2A

Payment will be made at the contract unit price for furnishing and installing each temporary line stop as required or as directed in the field to stop flow in existing water mains. The unit price shall be full compensation for all excavation, sheeting & shoring, line stops, restraining devices, equipment, labor and all other incidental items necessary to complete the installation as shown on the plans.

2.12 Ductile Iron Fittings – Add or Delete BID ITEM 12

Payment will be made at the contract unit price for the installation of ductile iron fittings over and above the fittings shown in the plans or described in the specifications. This item is included to cover costs for additional fittings that may be required to perform horizontal or vertical adjustments/modifications to the proposed pipeline routing shown on the plans due to field conditions. The unit price shall be full compensation for fittings, adaptors, restraining devices (at both ends of fitting), equipment, labor and all other incidental items necessary to complete the installations.

Payment shall be based on the number of tons (or fraction thereof) of ductile iron fittings installed at the unit price stated in the Schedule of Unit Prices. The contract unit price will also apply as a credit to the City for fittings which are shown on the plans but not installed in the field.

2.13 Blow-Off Assembly BID ITEM 13

Payment will be made at the contract unit price for furnishing and installing each blow-off valve assembly as shown on the plans and described in the specifications. The unit price shall be full compensation for all excavation, sheeting & shoring, tubing, taps, fittings, boxes, restoration, equipment, labor and all other incidental items necessary to complete the installation as shown on the plans.

Payment shall be based on the number of blow-off assemblies installed, tested, cleared and accepted at the unit price stated in the Schedule of Unit Prices.

2.14 Potable Water Services BID ITEM 14

Payment will be made at the contract unit price for all materials, equipment and labor required to provide and install the water services per City detail. The connections shall be installed at the sizes and locations directed in the field. The Contractor shall provide and install service saddle, tap, corp stop, poly tubing, lockable curb stop and City standard meter box in accordance with City requirements as shown on the plans. All services to be installed via trenchless methods.

Payment shall be based on the number of potable water services installed, tested, cleared and accepted at the unit prices stated in the Schedule of Unit Prices.

2.15 Reclaim Water Services BID ITEM 15

Payment will be made at the contract unit price for all materials, equipment and labor required to provide and install the reclaim water services per City detail. The connections shall be installed at the sizes and locations directed in the field. The Contractor shall provide and install service saddle, tap, corp stop, poly tubing, lockable curb stop and City standard meter box in accordance with City requirements as shown on the plans. The unit prices for the services shall remain the same regardless of the right-of-way width the service is installed in, the length of the service or the method of the installation. All services to be installed via trenchless methods.

Payment shall be based on the number of reclaim water services installed, tested, cleared and accepted at the unit prices stated in the Schedule of Unit Prices.

2.16 Mill and Resurface (1 ½") BID ITEM 16 & 5A

Payment will be made at the contract unit price for milling and overlay of roadways as shown on the plans and described in the specifications. Work shall meet the requirements of FDOT, Brevard County and City of Satellite Beach, as required. The unit price shall be full compensation for removal & disposal of existing roadway, installation of new asphalt & base, compaction, tack coats, testing, equipment, labor and all other incidental items necessary to complete the repair as shown on the plans. Unit prices also include the restoration of pavement striping/markings and reflective pavement markers (RPM's). This pay item includes as "incidental", the temporary installation of RAP (recycled asphalt product) in disturbed areas if directed by the Owner. Payment shall be based on the number of square yards of asphalt constructed and accepted at the unit price stated in the Schedule of Unit Pricing.

2.17 Open Cut/Repair Base/Seal BID ITEM 17

Payment will be made at the contract unit price for removal and replacement of roadways as shown on the plans and described in the specifications. Work shall meet the requirements of FDOT, Flagler County and City of Flagler Beach as required. The unit price shall be full compensation for saw-cutting, removal & disposal of existing, base, installation of new base, compaction, sealant, testing, equipment, labor and all other incidental items necessary to complete the repair as shown on the plans. Unit prices also include the restoration of pavement striping/markings and reflective pavement markers (RPM's).

Payment shall be based on the number of square yards of road repair constructed and accepted at the unit

price stated in the Schedule of Unit Prices.

2.18 Open Cut/Repair Asphalt BID ITEM 18 & 6A

Payment will be made at the contract unit price for removal and replacement of asphaltic concrete roadways as shown on the plans and described in the specifications. Work shall meet the requirements of FDOT, Flagler County and City of Flagler Beach as required. The unit price shall be full compensation for saw-cutting, removal & disposal of existing asphalt & base, installation of new asphalt & base, compaction, tack coats, testing, equipment, labor and all other incidental items necessary to complete the repair as shown on the plans. Unit prices also include the restoration of pavement striping/markings and reflective pavement markers (RPM's). This pay item includes as "incidental", the temporary installation of RAP (recycled asphalt product) in disturbed areas if directed by City.

Payment shall be based on the number of square yards of asphalt repair constructed and accepted at the unit price stated in the Schedule of Unit Prices.

2.19 Concrete Curb (Remove and Replace) BID ITEM 19 & 7A

Payment will be made at the contract unit price for removal and replacement of concrete curbing (all types) as shown on the plans and described in the specifications. The unit price shall be full compensation for saw-cutting, removal and disposal of existing concrete curb, grading, formwork, compaction, cement, water, reinforcement, jointing, finishing, testing, equipment, labor and all other incidental items necessary to complete the construction as shown on the plans.

Payment shall be based on the linear feet of concrete curb constructed and accepted at the unit price stated in the Schedule of Unit Prices.

2.20 Patterned Pavers (Remove and Replace) BID ITEM 20

Payment will be made at the contract unit prices for removal and replacement (in-kind) of "specialty" (pavers, stamped concrete, asphalt, etc.) as shown on the plans and described in the specifications. The unit price shall be full compensation for removal & disposal of existing material, grading, formwork, compaction, concrete, pavers, brick, stamped concrete (patterned), asphalt, base, curbing, water, reinforcement, jointing, scoring, finishing, testing, equipment, labor and all other incidental items necessary to complete the construction as shown on the plans.

2.21 As-Builts ITEM 21

Payment will be made at the contract lump sum price for professional survey layout of the proposed improvements and "as-built" drawings. As-built drawing requirements are set forth in specification Section 017839. Two (2) copies of preliminary as-builts signed & sealed by the Contractor's surveyor shall be submitted with each monthly progress pay request. These preliminary as-built drawings shall be up to date and include all work for which the contractor is asking to be paid for in the respective pay period. Pay requests submitted without updated as-builts shall be a basis for rejection of the pay request until such time as the as-builts are brought up to date. Final as-built requirements and deliverables are outlined in specification Section 017839. No final payment will be made without acceptable completion of final as-

built drawings meeting the specifications.

2.22 Exploratory Excavation BID ITEM 1A

Payment will be made at the contract unit price for excavation and exposure of area surrounding exposed valve as noted on the plans. Excavation to confirm configuration of existing utilities. The unit price shall be full compensation for all excavation, sheeting/shoring, equipment, labor and all other incidental items necessary to complete the work.

2.23 Side Actuated Gate Valve BID ITEM 3A

Payment will be made at the contract unit price for furnishing and installing each side actuated gate valve as shown on the plans and described in the specifications. The unit price shall be full compensation for all excavation, sheeting & shoring, valves, valve boxes, stems, concrete collars, restraining devices, adjustment of valve boxes to finished grade, surface restoration, equipment, labor and all other incidental items necessary to complete the installation as shown on the plans.

Payment shall be based on the number of side actuated gate valves installed, tested, cleared and accepted at the unit prices stated in the Schedule of Unit Prices.

2.24 Pervious Parking Grid Pavers (Remove and Replace) BID ITEM 4A

Payment will be made at the contract unit price for removal and replacement of Pervious Parking Grid Pavers. The unit price shall be full compensation for equipment, labor and all other incidental items necessary to complete the construction as shown on the plans.

Payment shall be based on the Lump Sum of Previous Parking Grid Pavers placed and accepted at the unit price stated in the Schedule of Unit Prices.

2.25 Concrete Driveway/Sidewalks (Remove and Replace) BID ITEM 8A

Payment will be made at the contract unit prices for removal and replacement of concrete driveways and sidewalks as shown on the plans and described in the specifications. The unit price shall be full compensation for removal & disposal of existing concrete, grading, formwork, compaction, concrete, water, reinforcement, jointing, scoring, finishing, testing, equipment, labor and all other incidental items necessary to complete the construction as shown on the plans.

Payment shall be based on the number of square yards of driveway and sidewalk (of required thickness) constructed and accepted at the unit prices stated in the Schedule of Unit Prices.

PART 3 - EXECUTION (NOT USED)

END OF SECTION 01 20 00

SECTION 01 29 76 – PROGRESS PAYMENT PROCEDURES

PART 1 - GENERAL

1.1 DESCRIPTION

A. Scope of Work: Submit Application for Payment to the Engineer in accordance with schedule established by conditions of the Contract and Agreement between Owner and Contractor. Contractor shall use the Application and Certificate for Payment Form included in Section 008440 as the official pay request form.

1.2 FORMAT REQUIRED

A. Submit applications on the form provided.

B. Provide itemized data on continuation sheets of format, schedules, line items, and values specified on the Application and Certificate for Payment Form. The Contractor shall use the item descriptions and contract values included in the Schedule of Values, approved and accepted by the Engineer as a basis for preparation of the Application for Payment Form.

1.3 PREPARATION OF APPLICATION FOR EACH PROGRESS PAYMENT

A. Application Form:

1. Fill in required information, including that for Change Orders executed prior to date of submittal of application.

2. Fill in percent complete for each activity and dollar values to agree with respective percents.

3. Execute certification with signature of a responsible officer of the Contractor.

B. Continuous Sheets:

1. Fill in total of all scheduled component items of the Work, with item number and schedule dollar value for each item.

2. Fill in dollar value in each column for each scheduled line item when Work has been performed or products stored. Round off values to nearest dollar, or as specified for Schedule of Values.

3. List each Change Order executed prior to date of submission, at the end of the continuation sheets. List by Change Order Number, and description, as for an original component item Work.

4. To receive approval for payment on component material stored on site, submit copies of the original invoices with Application and Certificate for Payment.

5. As provided for in the Application and Certificate for Payment Form, the Contractor shall certify, for each current pay request, that all previous progress payments received from the Owner, under this Contract, have been applied by the Contractor to discharge in full, all obligations of the Contractor in connection with Work covered by prior Applications for Payment, and all materials and equipment incorporated into the Work are free and clear of all liens, claims, security interest, and encumbrances. Contractor shall attach to each Application and Certificate for Payment like affidavits by all subcontractors.

1.4 SUBSTANTIATING DATA FOR PROGRESS PAYMENTS

A. Contractor shall submit suitable information, with a cover letter identifying:

1. Project.

2. Application number and date.

3. Detailed list of enclosures.

4. For stored products:
   a. Item number and identification as shown on application.
   b. Description of specific material.

B. Submit one (1) copy of data and cover letter for each copy of application.

C. The Contractor is to maintain an updated set of drawings to be used as record drawings. As a prerequisite for monthly progress payments, the Contractor is to exhibit the updated record drawings for review by the Owner and the Engineer.

D. Each monthly Application for Payment shall incorporate the corresponding "monthly progress status report" and updated construction schedule, prepared in accordance the applicable Specification section.

E. As a prerequisite for payment, Contractor shall submit a duly executed letter from surety consenting to payment due and progress to date.

F. Provide construction photographs in accordance with applicable Specification sections.

1.5 PREPARATION OF APPLICATION FOR FINAL PAYMENT

A. Fill in application form as specified for progress payments.

B. Furnish evidence of completed operations and insurance in accordance with the General Conditions.

C. Provide Contractor's final release of lien and other close-out submittals as required by the General Conditions.

1.6 SUBMITTAL PROCEDURE

A. Submit Application for Payment to the Engineer at the time stipulated in the Agreement, or as agreed to at the pre-construction meeting. Review the percentage complete with the Engineer and resolve any conflict or discrepancies.

B. Application for Payment to be submitted electronically in color for processing and payment.

C. When the Engineer finds the Application and Certificate for Payment Form is properly completed and correct, they will execute the Certificate for Payment and transmit the forms to the Owner, with a copy to the Contractor.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION (NOT USED)

END OF SECTION 01 29 76

SECTION 01 30 00 – ADMINISTRATIVE REQUIREMENTS

PART 1 - GENERAL

1.1 The Contractor shall not have any right in property in any materials taken from any excavation and they shall not remove any earth, sand or other material from the lines of the work before the excavation is refilled except upon direction of the Engineer. The provisions of this paragraph shall not be construed as relieving the Contractor of any kind of their obligations to remove and dispose of any of the material excavated, with or without rehandling, at their cost and expense as provided in these Specifications.

1.2 From investigations, including surveys made at the site, it is assumed that physical conditions are approximately as indicated on the Drawings, but the nature of the materials below the surface, the depth to satisfactory foundations, or the stability of beds or banks or quantity of groundwater are not guaranteed.

1.3 Where reference is made within these documents to government specifications, or those of well-known organizations such as ASTM, ASA, ASME, etc., the latest editions shall be used, any or all references in these documents to earlier stated editions notwithstanding.

1.4 The Contractor shall take all necessary precautions to prevent damage to existing utilities which are to remain in service during any of the construction operations. Should such utilities be damaged by the Contractor, they shall be required to replace, or repair same, to the satisfaction of the Engineer, at no additional cost to the Owner.

1.5 Certain information regarding the reputed presence, size, character, and location of existing underground structure, pipes and conduits has been shown on the Drawings. The location of underground structures shown may be inaccurate and other obstructions than those shown may be encountered. The Contractor distinctly agrees that the Engineer and the Owner are not responsible for the correctness or sufficiency of the information given; that in no event is this information to be considered as a part of the Contract; that they shall have no claim for delay or extra compensation on account of incorrectness of information given; or on account of insufficiency or absence of information regarding obstructions either revealed or not revealed by the Drawings; and that they shall have no claim for relief from any obligation or responsibility under this Contract, in case the location, size or character of any pipe or other underground structure is encountered that is not shown on the Drawings.

1.6 The Owner shall provide reference points as shown on the plans. Contractor shall be responsible for having a land surveyor registered in the State of Florida and approved by the Engineer lay out the work, shall protect and preserve the established reference points and shall make no changes or relocations without the prior written approval of the Engineer. Contractor shall report to Engineer whenever such reference point is lost or destroyed or required location because of necessary changes in grades or locations, and the Contractor shall be responsible for replacement

or relocation of such reference points by professionally qualified personnel, registered in the State of Florida and approved by the Engineer.

1.7 All dewatering and pumping necessary to accomplish the work of this Contract shall be performed by the Contractor at no extra or additional cost to the Owner. Any permits required shall be the responsibility of the Contractor.

1.8 Before submitting a Bid each Contractor must:

1. Examine the Contract Documents thoroughly.

2. Visit the site to familiarize themself with local conditions that may in any manner affect cost, progress or performance of the work.

3. Familiarize themself with federal, state and local laws, ordinance, rules and regulations that may in any manner affect cost, progress or performance of the work.

4. Study and carefully correlate Bidder's observations with the Contract Documents.

1.9 Attention is directed to the requirements of the following agencies with regard to permits and construction of utilities within their rights of way or jurisdiction.

1. City of Flagler Beach.

2. HRS/DEP Potable Water Distribution System Extension Permit.

3. FDOT Utility Permit.

4. The Owner will make necessary application for permits to construct such utilities. It shall be, however, the responsibility of the Contractor to construct the utilities in strict accordance with the requirements of the above-mentioned agencies, and no extra or additional payments will be made by the Owner for this work.

1.10 Construction shall be limited to weekday day light working hours. No weekend, night time, or holiday work shall be performed without obtaining permission in advance from the Engineer. Certain non-essential items such as clean up, seeding and mulching, sodding, some well pointing operations, saw cutting of pavement, etc. may be performed by the Contractor during the above times by giving the Engineer advance notice of such operations.

1.11 The Contractor shall provide an English speaking full time superintendent to supervise sub-contractors and provide direction to field crews. The Engineer’s representative shall not be responsible for providing direction to sub-contractor or field crews. The Contractor’s superintendent shall not be verbally or physically abusive to citizens or other project personnel.

Use of foul language in the presence of or belligerence towards citizens or project representatives shall be grounds for immediate replacement of the superintendent at no cost to the Owner.

1.12 The Contractor acknowledges that they are responsible for complying with all aspects of the Florida Trench Safety Act (90-96, Laws of Fla.) effective October 1, 1990. The Contractor assumes all responsibility and costs entailed.

1.13 The proposed pipe alignments indicated on the project plans may require adjustment in the field due to conflicts or field conditions. Field changes shall be paid for at the contact unit price.

1.14 The Contractor shall provide suitable, accurate pressure gauges for conducting hydrostatic pressure tests at all pipe branch/blow-off locations or as a minimum at each end of each section of the line tested between valves. No separate payment will be made for this work.

1.15 No thrust blocking shall be used unless specifically authorized by the Engineer. Restrained joint pipe fittings and joint shall be utilized.

1.16 All water main installed under this contract shall be buried with the appropriate marking tape to indicate the service designation. The tape shall be laid directly over the pipe at a depth of 24 inches below proposed finished ground elevation.

1.17 Limitations on the Engineer's Responsibilities

1. Neither the Engineer's authority to act under this Paragraph nor any decision made by the Engineer in good faith either to exercise or not exercise such authority shall give rise to any duty or responsibility of the Engineer to the Contractor, any subcontractor, any of their agents or employees or any other person performing any of the work.

2. The Engineer will not be responsible for the construction means, methods, techniques, sequences or procedures, or the safety precautions and programs incident thereto, and will not be responsible for the Contractor's failure to perform the work in accordance with the Contract Documents.

3. The Engineer will not be responsible for the acts or omissions of the Contractor, any subcontractors, or any of their agents or employees, or any other persons performing any of the work.

1.18 All PVC potable water pipe installed under this contract shall be extruded blue in color to differentiate this pipe from other service designations. Pipe shall be NSF approved AWWA C-900 Class 150.

1.19 Reasonable care shall be taken during construction to avoid damage to vegetation. Ornamental shrubbery and tree branches shall be temporarily tied back, where appropriate, to minimize damage. Trees which receive damage to branches shall be trimmed of those branches to improve

the appearance of the tree. Tree trunks receiving damage from equipment shall be treated with a tree dressing.

1.20 Project completion is defined as pipe materials in place tested and certified for use, and paving and right-of-way restoration as well as fencing complete.

1.21 All existing improved areas disturbed by construction shall be sodded with the same type sod as the existing variety of sod encountered. Separate unit price payment or lump sum payment will be made for this work.

1.22 The Contractor shall utilize restrained joint for bends and required fittings for all pressure pipe shown on the project plans. The restrained PVC pipe lengths shall be in accordance with DIPRA Thrust Resistant Design for Ductile Iron Pipe utilizing laying condition 2 with polyethylene wrap with the type soils and soil depth encountered. Restrained joint pipe Specifications shall be strictly adhered to. Piping drawings indicating restraining lengths and calculations shall be submitted to the Engineer for record purposes prior to construction. Responsibility for the adequacy for the restrained joint calculations shall remain with the Contractor and the supplier.

1.23 The Contractor shall make their own provisions for materials security. Any Owner provided work areas shall be returned to its original or better condition upon the completion of the project. Sodding of any disturbed areas utilized by the Contractor for work area will be accomplished by the Contractor at no additional cost to the Owner. Separate payment for this work will not be made and shall be included in the appropriate contract work items by the Contractor in the bid proposal.

1.24 Burning or burying of land clearing debris shall not be permitted. All organic matter and other debris shall be disposed of by the Contractor at an approved landfill.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION (NOT USED)

END OF SECTION 01 30 00

SECTION 01 31 19 – PROJECT MEETINGS

PART 1 - GENERAL

1.1 DESCRIPTION

A. Scope of Work:

1. The Contractor shall coordinate with the Engineer to schedule and administer the preconstruction meeting, resident meeting, utility coordination, periodic progress meetings, and specifically called meetings throughout the progress of the Work.

2. The Engineer shall:
   a. Prepare agenda for meetings.
   b. Make physical arrangements for meetings.
   c. Preside at meetings.
   d. Take and distribute meeting minutes.

3. The Contractor shall:
   a. Attend all meetings along with pertinent subcontractors and suppliers.
   b. Appoint attendees who are qualified and authorized to act on behalf of the entity each represents.
   c. Provide requested information at meetings.
   d. Provide revised CPM schedule and a three-week look-ahead schedule.

4. The Owner shall:
   a. Attend meetings to ascertain that the Work is expedited consistent with Contract Documents and construction schedules.

1.2 PRECONSTRUCTION MEETING

A. Purpose: To initiate coordination of contractual requirements prior to start of work.

B. Scheduling: Engineer will schedule a preconstruction meeting after execution of the Contract. Invites shall be sent via electronic mail.

C. Location: A local site, convenient for all parties, designated by the Engineer/Owner.

D. Attendance:

1. Owner's representative.

2. Engineer

3. Resident project representative.

4. Contractor and their superintendent.

5. Major subcontractors.

6. Representatives of major suppliers and manufacturers, as appropriate.

7. Governmental and franchised utility representatives, as appropriate.

8. Permit agency representatives, as appropriate.

9. Funding agency representatives, as appropriate.

10. Others as requested by the Contractor, Owner, and Engineer.

E. Suggested Agenda:

1. Introductions and Roles

2. Contract Execution and Dates
   a. Contracts
   b. Contract Time/Dates
   c. Copies of Conformed Documents

3. Communications
   a. Lines of Communication
   b. Coordination Meetings
   c. Contact List
   d. Requests for Information (RFIs)

4. Preconstruction Matters
   a. Submittals
   b. Material Acquisition
   c. Mobilization
   d. Permitting

5. Construction/Coordination
   a. Working Days/Hours
   b. Change Orders
   c. Locating Existing Facilities
   d. Demolition
   e. Testing
   f. Updated Schedules

6. Pay Requests
   a. Process
   b. Schedule of Values
   c. Stored Materials
   d. Preliminary As-Builts

7. Contract Closeout
   a. Substantial Completion
   b. Punch-list
   c. Final Acceptance

d. Warranty
e. Final Payment

1.3 RESIDENT MEETING(S)

A. Purpose: To present construction approach to affected residents and to allow residents to ask questions concerning such.

B. Scheduling: Engineer/Owner will schedule resident meeting(s) after preconstruction meeting is held, but before construction begins. Invites shall be distributed via electronic mail and hard copy flyers. Contractor shall assist in the distribution of flyers.

C. Location: A local site, convenient for all parties, designated by the Engineer/Owner.

D. Attendance:

1. Owner's representative.

2. Engineer.

3. Resident project representative.

4. Contractor and their superintendent.

5. Major subcontractors, as appropriate.

6. Residents.

E. Suggested Agenda: To be determined by Engineer/Owner

1.4 UTILITY COORDINATION MEETING(S)

A. Purpose: To discuss the coordination of the construction with existing and proposed utilities.

B. Scheduling: Engineer will schedule utility coordination meeting(s) as needed. These meetings may be held in conjunction with Progress Meetings. Invites shall be distributed via electronic mail.

C. Location: A local site, convenient for all parties, designated by the Engineer/Owner.

D. Attendance:

1. Owner's representative.

2. Engineer.

3. Resident project representative.

4. Contractor and their superintendent.

5. Major subcontractors, as appropriate.

6. Utility representatives.

E. Suggested Agenda: To be determined by Engineer.

1.5 PROGRESS MEETINGS

A. Purpose: To discuss the progress of the construction and projected work activities.

B. Scheduling: Engineer will schedule progress meetings on a regular basis at a maximum frequency of once per week or less frequently, i.e. once per month, depending on the level of communication required for the project. Invites shall be distributed via electronic mail.

C. Location: A local site, convenient for all parties, designated by the Engineer/Owner.

D. Attendance:

1. Owner's representative.

2. Engineer and sub-consultants, as appropriate.

3. Resident project representative.

4. Contractor and their superintendent.

5. Major subcontractors, as appropriate.

6. Utility representatives, as appropriate.

7. Permit agency representatives, as appropriate.

8. Funding agency representatives, as appropriate.

E. Suggested Agenda:

1. Work progress since last meeting

2. Work scheduled this period

3. Field observations, problems and conflicts.

4. Construction schedule
   a. Status of current schedule
   b. Issues impacting schedule
   c. Fabrication and delivery schedules
   d. Corrective measures to regain projected schedule

5. Submittals

6. RFIs

7. Pending Changes and Substitutions
8. Quality Control
9. Pay Requests
10. Other Business

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION (NOT USED)

END OF SECTION 01 31 19

SECTION 01 32 16 – CONSTRUCTION PROGRESS SCHEDULES

PART 1 - GENERAL

1.1 DESCRIPTION

A. Scope of Work:

1. Promptly after award of the Contract, prepare and submit to the Engineer estimated construction progress schedules demonstrating complete fulfillment of all Contract requirements utilizing a Critical Path Method (hereinafter referred to as CPM) in planning, coordinating, and performing the Work under this Contract (including all activities of subcontractors, equipment vendors, and suppliers). The principles and definition of CPM terms used herein shall be as set forth in the Associated General Contractors of America (AGC) publication, The Use of CPM in Construction, A Manual for General Contractors and the Construction Industry, latest edition, but the provisions of this Specification shall govern the planning, coordinating, and performance of the Work.

2. Submit revised progress schedules on a monthly basis. No partial payments shall be approved until there is an approved construction progress schedule on hand.

1.2 QUALIFICATIONS

A. A statement of computerized CPM capability shall be submitted in writing prior to the award of the Contract and shall verify that either Contractor's organization has in-house capability to use the CPM technique or that Contractor will employ a CPM consultant who is so qualified.

B. In-house capability shall be verified by description of construction projects to which Contractor or Contractor's consultant has successfully applied computerized CPM and shall include at least two (2) projects valued at least half the expected value of this project.

1.3 FORM OF SCHEDULES

A. Prepare schedules in the form of a horizontal bar chart.

1. Provide a separate horizontal bar for each trade or operation within each structure or item.

2. Horizontal time scale:
   a. Show starting and completion dates for each activity in terms of the number of days after Notice to Proceed. All completion dates shown shall be within the period specified for contract completion.

   b. Identify the first workday of each month.

3. Scale and Spacing: Sufficient to allow space for notations and future revisions.

4. Maximum Sheet Size: 22 inches by 34 inches.

B. Format of Listings: The chronological order of the start of each item of work for each structure.

C. Identification of Listings: By major Specification section numbers as applicable and by utility.

D. Construction Progress Schedules shall be computer generated using software offered by Primavera or approved equal.

1.4 CONTENT OF SCHEDULES

A. Construction Progress Schedule:

1. Show the complete sequence of construction by activity and by structure.

2. Show the dates for the beginning and completion of each major element of construction in no more than a two (2) week increment scale. Specifically, list, but do not limit to:
   a. Shop Drawing Schedule.
   b. Installation of temporary facilities.
   c. Clearing.
   d. Demolition
   e. Subcontractor work
   f. Utility Installations
   g. Paving
   h. Start-Up
   i. Project closeout

3. Show projected percentage of completion for each item, as of the first day of each month.

4. Show projected dollar cash flow requirements for each month of construction and for each activity as indicated by the approved Schedule of Values.

B. Submittals.

1. Indicate on the schedule the following:
   a. The dates for Contractor's submittals.
   b. The date submittals will be required for Owner-furnished products, if applicable.
   c. The date approved submittals will be required from the Engineer.

C. A typewritten list of all long lead items (equipment, materials, etc.).

D. To the extent that the progress schedule or any revised progress schedule shows anything not jointly agreed upon or fails to show anything jointly agreed upon, it shall not be deemed to have been approved by the Engineer. Failure to include any element of work required for the performance of this Contract shall not excuse the Contractor from completing all work required within any applicable completion date, notwithstanding the Engineer's approval of the progress schedule.

E. Scheduling Constraints: The work within Owner's property must be completed within the maximum number of days start to finish, as indicated in the Contract. Additionally, work must

proceed on a continuous basis, without stoppages, except for nights and weekends. There shall be no lapses between phases of construction.

1.5 PROGRESS REVISIONS

A. Indicate progress of each activity to date of submission.

B. Show changes occurring since previous submission of schedule:

1. Major changes in scope.

2. Activities modified since previous submission.

3. Revised projections of progress and completion.

4. Other identifiable changes.

C. Provide a narrative report as needed to define:

1. Problem areas, anticipated delays, and the impact on the schedule.

2. Corrective action recommended, and its effect.

3. The effect of changes on schedules of other prime contractors.

D. If the Work falls behind the critical path schedule by two (2) weeks or more, the Contractor shall prepare a recovery schedule.

1.6 SUBMISSIONS

A. Submittal Requirements.

1. Logic network and/or time-phased bar chart, computer generated.

2. Computerized network analysis:
   a. Sort by early start
   b. Sort by float
   c. Sort by predecessor/successor

3. Narrative description of the logic and reasoning of the schedule.

B. Time of Submittals.

1. Within 10 working days after Notice to Proceed, Contractor shall submit a network diagram describing the activities to be accomplished in the project and their dependency relationships, (predecessor/successor) as well as a tabulated schedule as herein defined. The total length of time indicated on the initial CPM schedule shall equal the exact number of days in the Contract Time as defined in Agreement. The schedule produced and submitted shall also indicate calendar dates, including project starting and completion dates, based on the contract commencement and completion dates indicated in the Notice

to Proceed. The Engineer will complete the review of the complete schedule within 15 working days after receipt. During the review process, the Engineer may meet with a representative of Contractor to review the proposed plan and schedule to discuss any clarifications that may be necessary.

2. Within 10 working days after the conclusion of the Engineer's review period, Contractor shall revise the network diagram as required and resubmit the network diagram and a tabulated schedule produced therefrom. The revised network diagram and tabulated schedule shall be reviewed and accepted or rejected by the Engineer within 15 working days after receipt. The network diagram and tabulated schedule, when accepted by the Engineer, shall constitute the project work schedule unless a revised schedule is required due to substantial changes in the Work, a change in Contract Time or a recovery schedule is required and requested.

C. Acceptance. The finalized schedule will be acceptable to the Engineer when, in the opinion of the Engineer, it demonstrates an orderly progression of the Work to completion in accordance with the Contract Documents. Such acceptance will neither impose on the Engineer responsibility for the progress or scheduling of the Work nor relieve Contractor from full responsibility, therefore. The finalized schedule of shop drawing submittals will be acceptable to the Engineer when, in the opinion of the Engineer, it demonstrates a workable arrangement for processing the submittals in accordance with the requirements. The finalized Schedule of Values (lump sum price breakdown), as applicable, will be acceptable to the Engineer as to form and content when, in the opinion of the Engineer, it demonstrates a substantial basis for equitably distributing the Contract Price. When the network diagram and tabulated schedule have been accepted, the Contractor shall submit to the Engineer six (6) copies of the time-scaled network diagram, six (6) copies of a computerized tabulated schedule in which the activities have been sequenced by numbers, six (6) copies of a computerized tabulated schedule in which the activities have been sequenced by early starting date, and six (6) copies of a computerized, tabulated schedule in which activities have been sequenced by total float, and six (6) copies sorted by predecessor/successor.

D. Revised Work Schedules. Contractor, if requested by the Engineer, shall provide a revised work schedule if, at any time, the Engineer considers the completion date to be in jeopardy because of "activities behind schedule." The revised work schedule shall include a new diagram and tabulated schedule conforming to the requirements of Paragraph 1.9 herein, designed to show how Contractor intends to accomplish the Work to meet the completion date. The form and method employed by Contractor shall be the same as for the original work schedule. No payment will be made if activities fall more than two (2) weeks behind schedule and a revised work schedule is not furnished.

E. Schedule Revisions. The Engineer may require Contractor to modify any portions of the work schedule that become infeasible because of "activities behind schedule" or for any other valid reason. An activity that cannot be completed by its original latest completion date shall be deemed to be behind schedule. No change may be made to the sequence, duration, or relationships of any activity without approval of the Engineer.

1.7 DISTRIBUTION

A. Distribute copies of the reviewed schedules to:

1. Engineer.

2. Jobsite file.

3. Subcontractors.

4. Other concerned parties.

5. Owner (two copies).

B. Instruct recipients to report promptly to the Contractor, in writing, any problems anticipated by the projections shown in the schedules.

1.8 CHANGE ORDERS

A. Upon approval of a Change Order, the approved changes shall be reflected in the next scheduled revision or update submittal of the construction progress schedule by the Contractor.

1.9 CPM STANDARDS

A. CPM, as required by this Section, shall be interpreted to be generally as outlined in the Associated General Contractors (AGC) publication, The Use of CPM in Construction, A Manual for General Contractors and the Construction Industry, Copyright 1976.

B. Work schedules shall include a graphic network and computerized, tabulated schedules as described below. To be acceptable the schedule must demonstrate the following:

1. A logical succession of work from start to finish.

2. Definition of each activity. Activities shall be identified by major Specification section numbers, as applicable, and by major utility.

3. A logical flow of work crews/equipment (crews are to be defined by manpower category and man-hours; equipment by type and hours).

4. Show all work activities and interfaces including submittals as well as major material and equipment deliveries.

C. Networks.

1. The CPM network, or diagram, shall be in the form of a time-scaled diagram of the customary activity-on-type and may be divided into a number of separate pages with suitable notation relating the interface points among the pages. Notation on each activity line shall include a brief work description and duration, as described in Paragraph 1.9, D. herein.

2. All construction activities and procurement shall be indicted in a time-scaled format, and a calendar shall be shown on all sheets along the entire sheet length. Each activity arrow shall be plotted so the beginning and completion dates of said activity can be determined graphically by comparison with the calendar scale. All activities shall be shown using the symbols that clearly distinguish between critical path activities, non-critical path activities,

and float for each non-critical activity. All non-critical path activities shall show estimated performances time and float time in scaled form.

D. The duration indicated for each activity shall be in calendar days and shall represent the single best time considering the scope of the work and resources planned for the activity including time for inclement weather. Except for certain non-labor activities, such as curing concrete or delivering materials, activity durations shall not exceed 14 days nor be less than one (1) day unless otherwise accepted by the Engineer.

E. Tabulated Schedules. The initial schedule shall include the following minimum data for each activity:

1. Activity Beginning and Ending Numbers (i-j numbers) (single activity numbers may be used).
2. Duration.
3. Activity Description.
4. Early Start Date (Calendar Dated).
5. Late Start Date (Calendar Dated).
6. Early Finish Date (Calendar Dated).
7. Late Finish Date (Calendar Dated).
8. Identified Critical Path.
9. Total Float (Note: No activity may show more than 20 days float).
10. Cost of Activity.
11. Equipment Hours, by type; Man-Power Hours, by crew or trade.

F. Project Information. Each tabulation shall be prefaced with the following summary data:

1. Project Name.
2. Contractor.
3. Type of Tabulation (Initial or Updated).
4. Project Duration.
5. Project Scheduled Completion Date.
6. Effective or Starting Date of the Schedule.
7. New Project Completion Date and Project Status (if an updated or revised schedule).
8. Actual Start Date and Actual Finish Date (for all updated schedules.)

1.10 SCHEDULE MONITORING

A. At not less than monthly intervals or when specifically requested by Engineer, Contractor shall submit to the Engineer a computer printout of an updated schedule for those activities that remain to be completed. Typically, the updated schedule will be submitted with the Application for Payment as specified below.

B. The updated schedule shall be submitted in the form, sequence, and number of copies requested for the initial schedule.

1.11 PROGRESS MEETINGS

A. For the monthly progress meeting, Contractor shall submit a revised CPM schedule and a three-week look-ahead schedule, showing all activities completed, in progress, uncompleted, or scheduled to be worked during the weeks. The three weeks include the current week plus the next two weeks. All activities shall be from the approved CPM and must be as shown on the CPM unless behind or ahead of schedule. One copy of the revised CPM schedule shall be submitted with each copy of that month's Application for Payment, electronically in color.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION (NOT USED)

END OF SECTION 01 32 16

SECTION 01 32 33 – PHOTOGRAPHIC DOCUMENTATION

PART 1 - GENERAL

1.1 SCOPE OF WORK

A. Scope of Work: The Contractor shall employ a competent photographer to take construction record photographs and video recording prior to start of the Work, periodically during the course of the Work, and following the completion of the Work.

B. Summary: This section includes administrative and procedural requirements for the following:

1. Preconstruction photographs.
2. Preconstruction video recordings.
3. Periodic Construction ground and aerial photographs.
4. Periodic Construction video recordings.
5. Construction completion photographs.
6. Web-based construction photographic documentation.

C. Photographs and videos shall be taken in conformance with this Section and shall be furnished to the Engineer with each pay request. Failure to comply will result in rejection of pay request.

1.2 INFORMATIONAL SUBMITTALS

A. Digital Photographs: Submit image files within three (3) days of taking photographs

1. Digital Camera: Minimum sensor resolution of 8 megapixels.
2. Format: Minimum 3200 by 2400 pixels, in unaltered original files, with same aspect ratio as the sensor, uncropped, date and time stamped, in folder named by date of photograph.
3. Identification: Provide the following information with each image description in file metadata tag:
   a. Name of Project.
   b. Name and contact information for photographer.
   c. Name of Engineer.
   d. Name of Contractor.
   e. Date photograph was taken.
   f. Description of vantage point, indicating location, direction (by compass point), and elevation or story of construction.

B. Construction Photographs: Submit two (2) prints of each photographic view within seven (7) days of taking photographs.

1. Format: Electronic submittal to Engineer.

2. Identification: With each submittal, provide the following information:
   a. Name of Project.
   b. Name and contact information for photographer.
   c. Name of Engineer and Construction Manager.
   d. Name of Contractor.
   e. Date photograph was taken if not date stamped by camera.
   f. Description of vantage point, indicating location, direction (by compass point), and elevation or story of construction.

C. Video Recordings: Submit video recordings within seven (7) days of recording.

1. Submit video recordings in digital video disc format acceptable to Engineer

2. Identification: With each submittal, provide the following information:
   a. Name of Project.
   b. Name and address of photographer.
   c. Name of Engineer and Construction Manager.
   d. Name of Contractor.
   e. Date video recording was recorded.
   f. Description of vantage point, indicating location, direction (by compass point), and elevation or story of construction.
   g. Weather conditions at time of recording.

1.3 COST OF PHOTOGRAPHY

A. The Contractor shall pay costs for specified ground and aerial photography and videography.

1.4 QUALITY ASSURANCE

A. Photographer Qualifications: An individual who has been regularly engaged as a professional photographer of construction projects for not less than three (3) years.

B. Digital photographs may be taken by the Contractor's personnel but must be of professional quality as herein specified. Photographs which are deemed unsatisfactory will be rejected and retakes will be required.

1.5 USAGE RIGHTS

A. Obtain and transfer copyright usage rights from the Photographer to the Owner for unlimited reproduction of photographic documentation.

PART 2 - PRODUCTS

2.1 PHOTOGRAPHIC MEDIA

A. Digital Images: Provide images in JPG format, produced by a digital camera with minimum sensor size of 8 megapixels, and at an image resolution of not less than 3200 by 2400 pixels.

B. Digital Video Recordings: Provide high-resolution digital video disc in format acceptable to Engineer.

C. Digital Images: Submit digital images exactly as originally recorded in the digital camera, without alteration, manipulation, editing, or modifications using image-editing software.

1. Date and Time: Include date and time in file name for each image.

2. Field Office Images: Maintain one (1) set of images accessible in the field office at the Project site, available always for reference. Identify images in the same manner as those submitted to Engineer and Construction Manager.

D. Preconstruction Photographs: Before starting construction, take photographs of the Project site and surrounding properties, including existing items to remain during construction, from different vantage points, as directed by Engineer and Construction Manager.

1. Flag excavation areas and construction limits before taking construction photographs.

2. Take 20 photographs to show existing conditions adjacent to property before starting the Work.

3. Take 20 photographs of existing buildings either on or adjoining property to accurately record physical conditions at start of construction.

4. Take additional photographs as required to record settlement or cracking of adjacent structures, pavements, and improvements.

E. Periodic Construction Photographs: Take 20 photographs weekly, with timing each month adjusted to coincide with the cutoff date associated with each Application for Payment. Select vantage points to show status of construction and progress since last photographs were taken.

F. Engineer and Construction Manager Directed Construction Photographs: From time to time, Engineer and Construction Manager will instruct photographer about number and frequency of photographs and general directions on vantage points. Select actual vantage points and take photographs to show the status of construction and progress since last photographs were taken.

G. Time-Lapse Sequence Construction Photographs: Take 20 photographs as indicated, to show status of construction and progress since last photographs were taken.

1. Frequency: Take photographs weekly, with timing each month adjusted to coincide with the cutoff date associated with each Application for Payment.

2. Vantage Points: Following suggestions by Engineer and Construction Manager and Contractor, photographer to select vantage points. During each of the following construction phases, take not less than two of the required shots from same vantage point each time to create a time-lapse sequence as follows:
   a. Commencement of the Work, through completion of subgrade construction.
   b. Above-grade structural framing.
   c. Exterior building enclosure.
   d. Interior Work, through date of Substantial Completion.

H. Final Completion Construction Photographs: Take 20 color photographs after date of Substantial Completion for submission as project record documents. Engineer and Construction Manager will inform photographer of desired vantage points.

1. Do not include date stamp.

I. Additional Photographs: Engineer or Construction Manager may request photographs in addition to periodic photographs specified.

1. Three (3) days' notice will be given, where feasible.

2. In emergency situations, take additional photographs within 24 hours of request.

3. Circumstances that could require additional photographs include, but are not limited to, the following:
   a. Special events planned at the Project site.
   b. Immediate follow-up when on-site events result in construction damage or losses.
   c. Photographs to be taken at fabrication locations away from the Project site. These photographs are not subject to unit prices or unit-cost allowances.
   d. Substantial Completion of a major phase or component of the Work.
   e. Extra record photographs at time of final acceptance.
   f. Owner's request for special publicity photographs.

2.2 CONSTRUCTION VIDEO RECORDINGS

A. Video Recording Photographer: Engage a qualified videographer to record construction video recordings. Time must be accurate and continuously generated.

B. Recording: Mount camera on tripod before starting recording unless otherwise necessary to show area of construction. Display continuous running time and date. At start of each video recording, record weather conditions from local newspaper or television and the actual temperature reading at the Project site.

C. Narration: Describe scenes on video recording by dubbing audio narration off-site after video recording is recorded. Include description of items being viewed, recent events, and planned activities. At each change in location, describe vantage point, location, direction (by compass point), and elevation or story of construction.

1. Confirm date and time at beginning and end of recording.

2. Begin each video recording with name of the Project, Contractor's name, videographer's name, and Project location.

D. Transcript: Provide a typewritten transcript of the narration. Display images and running time captured from video recording opposite the corresponding narration segment.

E. Preconstruction Video Recording: Before starting construction, record video recording of the Project site and surrounding properties from different vantage points, as directed by Engineer and Construction Manager.

1. Flag excavation areas and construction limits before recording construction video recordings.

2. Show existing conditions adjacent to the Project site before starting the Work.

3. Show existing buildings either on or adjoining the Project site to accurately record physical conditions at the start of construction.

4. Show protection efforts by Contractor.

2.3 DELIVERY OF PHOTOGRAPHS AND VIDEOS

A. Photographs and videos will be delivered electronically following Specifications above with a coordinating log, to the Engineer as attachment to Application for Payment.

B. Distribution of construction photographs, as soon as processed, is anticipated to be as follows:

1. Engineer one (1) set.

2. Project record file one (1) set to be stored by Contractor until the end of the project which shall then be delivered with Project Record Documents.

3. Contractor one (1) set.

END OF SECTION 01 32 33

SECTION 01 33 23 – SHOP DRAWINGS, PRODUCT DATA AND SAMPLES

PART 1 - GENERAL

1.1 REQUIREMENTS INCLUDED

A. The Contractor shall submit to the Engineer for review and approval, such working drawings, shop drawings, test reports and data on materials and equipment, and material samples materials list, certificates and affidavits as are required for the proper control of work, including but not limited to those working drawings, shop drawings, data and samples for materials and equipment specified elsewhere in the Specifications and in the Contract Drawings.

B. Within 20 calendar days after the Effective Date of the Agreement, the Contractor shall submit to the Engineer a complete materials list of preliminary data on items for which Shop Drawings are to be submitted. Included in this materials list shall be the names of all proposed manufacturers furnishing specified items. Review of this list by the Engineer shall in no way be expressed or implied relief to the Contractor from submitting complete Shop Drawings and providing material, equipment, etc., fully in accordance with the Specifications. This procedure is required in order to expedite final review of Shop Drawings.

C. The Contractor shall maintain an accurate updated submittal log and will bring this log to each scheduled progress meeting with the Owner and the Engineer. This log shall include the following items:

1. Submittal Description and Number assigned.
2. Date submitted to Engineer
3. Date returned to Contractor (from Engineer).
4. Status of Submittal (Approved, Approved as Noted, Not Approved/Resubmit).
5. Date of Resubmittal and Return (as applicable).
6. Date of material release (for fabrication).
7. Projected date of fabrication.
8. Projected date of delivery to site.
9. Status of O&M manuals submitted.
10. Specification Section.
11. Drawings Sheet Number.

1.2 CONTRACTOR'S RESPONSIBILITY

A. It is the duty of the Contractor to check all drawings, data and samples prepared by or for them before submitting them to the Engineer for review. Each and every copy of the drawings and data shall bear Contractor's stamp and signature showing that they have been so checked. Shop drawings submitted to the Engineer without the Contractor's stamp and signature will be returned to the Contractor for conformance with this requirement. Shop drawings shall indicate any deviations in the submittal from requirements of the Contract Documents. If the Contractor takes exception to the Specifications, the Contractor shall note the exception in the letter of transmittal to the Engineer. Shop drawings submittals shall not be used as a vehicle for requesting approval of substitute or alternative equipment and materials. Substitution requests will be considered only when submitted in accordance with the applicable provisions.

B. Determine and Verify:

1. Field measurements.

2. Field construction criteria.

3. Catalog numbers and similar data.

4. Conformance with Specifications.

C. The Contractor shall furnish the Engineer a schedule of Shop Drawings submittals fixing the respective dates for the submission of shop and working drawings, the beginning of manufacture, testing and installation of materials, supplies and equipment. This schedule shall indicate those that are critical to the progress schedule.

D. The Contractor shall not begin any of the work covered by a drawing, data, or a sample returned for correction until a revision or correction thereof has been reviewed and returned to the Contractor, by the Engineer, with approval.

E. The Contractor shall submit to the Engineer all drawings and schedules sufficiently in advance of construction requirements to provide no less than 30 calendar days for checking and appropriate action from the time the Engineer receives them.

F. All submittals shall be accompanied by a transmittal letter prepared in duplicate containing the following information:

1. Date.

2. Project Title and Number.

3. Contractor's name and address.

4. Notification of deviations from Contract Documents.

5. Submittal Log Number conforming to Specification Section Numbers.

G. The Contractor shall submit descriptive or product data submittals/drawings electronically to the Engineer. The Engineer will review the submittals/drawings and return marked-up submittals/drawings with appropriate review comments electronically to the Contractor.

H. Once submittals/drawings are approved, they are to be distributed electronically to the Owner, Engineer and Contractor.

I. The Contractor shall be responsible for and bear all costs of damages which may result from the ordering of any material or from proceeding with any part of work prior to the completion of the review by Engineer of the necessary shop drawings.

J. The Contractor shall be fully responsible for observing the need for and making any changes in the arrangement of piping, connections, wiring, manner of installation, etc., which may be required by the materials/equipment they proposed to supply both as pertaining to their own work and any work affected under other parts, headings, or divisions of Drawings and Specifications.

1.3 ENGINEER'S REVIEW OF SHOP DRAWINGS

A. The Engineer's review of drawings, data and samples submitted by the Contractor will cover only general conformity to the Specifications, external connections, and dimensions which affect the installation. The Engineer's review and exceptions, if any, will not constitute an approval of dimensions, quantities, and details of the material, equipment, device, or item shown.

B. The review of drawings and schedules will be general, and shall not be construed:

1. As permitting any departure from the Contract requirements;

2. As relieving the Contractor of responsibility of any errors, including details, dimensions, and materials;

3. As approving departures from details furnished by the Engineer, except as otherwise provided herein.

C. If the drawings or schedules as submitted describe variations and show a departure from the Contract requirements which the Engineer finds to be in the interest of the Owner and to be so minor as not to involve a change in Contract Price or time for performance, the Engineer may return the reviewed drawings, without noting an exception.

D. When reviewed by the Engineer, each of the Shop Drawings will be identified as having received such review, being so stamped and dated. Shop Drawings stamped "NOT APPROVED/RESUBMIT" and with required corrections shown will be returned to the Contractor for correction and re-submittal.

E. Resubmittals will be handled in the same manner as first submittals. On Resubmittals the Contractor shall direct specific attention, in writing or on resubmitted Shop Drawings, to revisions other than the corrections requested by the Engineer on previous submissions. The Contractor shall make any corrections required by the Engineer.

F. If the Contractor considers any correction indicated on the drawings to constitute a change to the Contract Drawings or Specifications, the Contractor shall give written notice thereof to the Engineer.

G. Shop Drawings and submittal data shall be reviewed by the Engineer for each original submittal and first Resubmittal; thereafter review time for subsequent Resubmittals shall be charged to the Contractor in accordance with the terms of the Engineer's Agreement with the Owner.

H. When the Shop Drawings have been completed to the satisfaction of the Engineer, the Contractor shall carry out the construction in accordance therewith and shall make no further changes therein except upon written instructions from the Engineer.

I. No partial submittals will be reviewed. Submittals not complete will be returned to the Contractor for Resubmittal. Unless otherwise specifically permitted by the Engineer, make all submittals in groups containing all associated items for:

1. Systems

2. Processes

3. As indicated in Specifications, all drawings, schematics, manufacturer's product data, certifications and other shop drawing submittals required by a system specification shall be submitted at one time as a package to facilitate interface checking.

1.4 SHOP DRAWINGS

A. When used in the Contract Documents, the term "Shop Drawings" shall be considered to mean Contractor's plans for materials and equipment which become an integral part of the Project. These drawings shall be completed and detailed. Shop Drawings shall consist of fabrication, erection and setting drawings and schedule drawings, manufacturer's scale drawing, and wiring and control diagrams. Cuts, catalogs, pamphlets, descriptive literature, and performance and test data shall be considered only as supportive to required shop drawings as defined above. As used herein, the term "manufactured" applied to standard units usually mass-produced; and "fabricate" means items specifically assembled or made out of selected materials to meet individual design requirements.

B. Manufacturer's catalog sheets, brochures, diagrams, illustrations and other standard descriptive data shall be clearly marked to identify pertinent materials, product or models. Delete information which is not applicable to the Work by striking or cross-hatching.

C. Drawings and schedules shall be checked and coordinated with the work of all trades involved, before they are submitted for review by the Engineer and shall bear the Contractor's stamp of approval as evidence of such checking and coordination. Drawings or schedules submitted without this stamp of approval shall be returned to the Contractor for resubmission.

D. Each Shop Drawing shall have a transmittal sheet. The transmittal sheet shall display the following:

1. Project title and number.

2. Name of project building or structure.

3. Number and title of the shop drawing.

4. Date of shop drawing or revision.

5. Name of Contractor and subcontractor submitting drawing.

6. Supplier/manufacturer.

7. Separate detailer when pertinent.

8. Specification number.

9. Drawing number.

A Letter of Transmittal Excel document shall be provided to the Contractor per request.

E. If drawings show variations from Contract requirements because of standard shop practice or for other reasons, the Contractor shall describe such variations in their letter of transmittal. If acceptable, proper adjustment in the Contract shall be implemented where appropriate. If the Contractor fails to describe such variations, they shall not be relieved of the responsibility for executing the work in accordance with the Contract, even though such drawings have been reviewed.

F. Data on materials and equipment include, without limitation, materials and equipment lists, catalog data sheets, cuts, performance curves, diagrams, materials of construction and similar descriptive material. Materials and equipment lists shall give, for each item thereon, the name and location of the supplier or manufacturer, trade name, catalog reference, size, finish and all other pertinent data.

G. For all mechanical and electrical equipment furnished, the Contractor shall provide a list including the equipment name, address and telephone number of the manufacturer's representative and service company so that service and/or spare parts can be readily obtained.

H. All manufacturers or equipment suppliers who are proposed to furnish equipment or products shall submit an installation list to the Engineer along with the required shop drawings. The installation list shall include at least five (5) installations where identical equipment has been installed and has been in operation for a period of at least one (1) year.

I. Only the Engineer will utilize the color "red" in marking shop drawing submittals.

1.5 WORKING DRAWINGS

A. When used in the Contract Documents, the term "working drawings" shall be considered to mean the Contractor's plan for temporary structures such as temporary bulkheads, support of open cut excavation, support of utilities, ground water control systems, forming and false work; for underpinning; and for such other work as may be required for construction but does not become an integral part of the project.

B. Copies of working drawings as noted in paragraph 1.5A. above, shall be submitted to the Engineer where required by the Contract Documents or requested by the Engineer, and shall be submitted at least 30 calendar days (unless otherwise specified by the Engineer) in advance of their being required for work.

C. Working drawings shall be signed by a registered Professional Engineer, currently licensed to practice in the State of Florida and shall convey, or be accompanied by, calculations or other sufficient information to completely explain the structure, machine, or system described and its intended manner of use. Review of working drawings by the Engineer will not relieve the Contractor in any way from their responsibility with regard to the fulfillment of the terms of the Contract. All risks of error are assumed by the Contractor; the Owner and Engineer shall have no responsibility therefore.

1.6 SAMPLES

A. The Contractor shall furnish, for the approval of the Engineer, samples required by the Contract Documents or requested by the Engineer. Samples shall be delivered to the Engineer as specified or directed. The Contractor shall prepay all shipping charges on samples. Materials or equipment for which samples are required shall not be used in work until approved by the Engineer.

B. Samples shall be of sufficient size and quantity to clearly illustrate:

1. Functional characteristics of the product, with integrally related parts and attachment devices.

2. Full range of color, texture and pattern.

3. A minimum of two (2) samples of each item shall be submitted.

C. Each sample shall have a label indicating:

1. Name of project.

2. Name of Contractor and subcontractor.

3. Material or equipment represented.

4. Place of origin.

5. Name of producer and brand (if any).

6. Location in project.

7. Submittal Number.

8. (Samples of finished materials shall have additional marking that will identify them under the finish schedules).

D. The Contractor shall prepare a transmittal letter in triplicate for each shipment of samples containing the information required in paragraph 1.6B above. The Contractor shall enclose a copy of this letter with the shipment and send a copy of this letter to the Engineer. Approval of a sample shall be only for the characteristics or use names in such approval and shall not be construed to change or modify any Contract requirements.

E. Approved samples not destroyed in testing shall be sent to the Engineer or stored at the site of work. Approved samples of the hardware in good condition will be marked for identification and

may be used in the work. Materials and equipment incorporated in work shall match the approved samples. Samples which failed testing or were not approved will be returned to the Contractor at their expense, if so, requested at time of submission.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION (NOT USED)

END OF SECTION 01 33 23

SECTION 01 35 13 – SPECIAL PROJECT PROCEDURES

PART 1 - GENERAL

1.1 PUBLIC NUISANCE

A. The Contractor shall not create a public nuisance including, but not limited to, encroachment on adjacent lands, flooding of adjacent lands, or excessive noise.

B. Sound levels measured by the Engineer shall not exceed 50 dBA from 7 P.M. to 7 A.M. or 60 dBA 7 A.M. to 7 P.M. This sound level shall be measured at the exterior of the nearest exterior wall of the nearest residence. Levels at the equipment shall not exceed 85 dBA at any time. Sound levels in excess of these values are sufficient cause to have the Work halted until equipment can be quieted to these levels. Work stoppage by the Engineer or Owner for excessive noise shall not relieve the Contractor of the other portions of this Specification including, but not limited to, completion dates and bid amounts.

C. No extra charge may be made for time lost due to work stoppage resulting from the creation of a public nuisance.

1.2 JURISDICTIONAL DISPUTES

A. It shall be the responsibility of the Contractor to pay all costs that may be required to perform any of the Work shown on the Drawings or specified herein in order to avoid any work stoppages due to jurisdictional disputes. The basis for subletting Work in question, if any, shall conform to precedent agreements and decisions on record with the Building and Construction Trades Department, AFL-CIO, dated June, 1973, including any amendments thereto.

1.3 EXCAVATION AROUND AND CONNECTION TO EXISTING UTILITIES

A. It is essential that the Contractor understand that the existing Owner’s facilities must be kept in operation with minimal impact and shut-downs. To this end, the Contractor shall coordinate and consult with the Owner's operating personnel before excavating around or cutting into existing utilities on the site. Existing utilities of major concern are water, sanitary sewer, electrical power conduits, phone and television cables, instrumentation conduits, and cables.

B. Some areas within the construction site may require hand excavation due to the congestion of underground piping systems and/or due to the criticality of piping systems that may be damaged unavoidably during machine excavation.

C. Cover for underground piping shall not be less than that indicated on the Drawings, up to a minimum of 36 inches of cover where obtainable. In areas where other piping conflicts preclude the minimum cover desired, the piping shall be laid to provide the maximum cover obtainable.

D. All connections to existing piping systems shall be made as shown or indicated on the Drawings after consultation, cooperation, and coordination with the Owner’s management personnel. Some such connections may have to be made during off-peak hours (late night or early morning hours).

The Contractor shall give a minimum of three (3) working days' notice to the Owner when tie-ins with the existing plant utilities are required.

E. For major utility pipeline tie-ins and relocations, the Contractor shall submit a detailed Plan of Action for review and approval by the Owner and the Engineer. No major utility relocation or tie-ins shall proceed until the Plan of Action for that Work is approved.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION (NOT USED)

END OF SECTION 01 35 13

SECTION 01 45 29 – TESTING LABORATORY SERVICES

PART 1 - GENERAL

1.1 DESCRIPTION

A. Scope of Work:

1. Contractor will employ and pay for services of an independent testing laboratory to perform testing specifically indicated on the Contract Documents or specified in the Specifications herein and may at any other time elect to have materials and equipment tested for conformity with the Contract Documents.

2. Contractor shall cooperate with the laboratory to facilitate the execution of its required services.

3. Contractor shall provide Engineer with all test results as indicated herein within five (5) days of receipt.

B. The following schedule defines the responsibility for various tests.

Test	Notes	Paid for By
Soil Compaction	Pipe Work: every 300 ft. at each lift of compaction minimum. Beneath Structures: each 500 sq. ft. lift of compaction minimum and each lift around structures.	Contractor
Pressure	As specified	Contractor
Bacteriological	As required by local and state agencies.	Contractor
LBR	Each 1500 SF of pavement (minimum).	Contractor
Concrete	Slump test each delivery and compression test five cylinders every 50 C.Y. (minimum).	Contractor

C. Additional Tests: The Contractor shall pay for first tests as specified herein. In the event that first test samples do not meet the applicable material Specification, the Contractor shall take measures to conform the material and equipment to the Specifications. All subsequent tests shall be paid for by the Contractor at no additional cost to the Owner.

1.2 LABORATORY TESTS

A. The materials listed below shall require advance and periodic laboratory tests as indicated, and shall be sampled in accordance with the methods of the A.S.T.M. and as directed by the Engineer. With the exception of concrete test cylinders and mixing water, duplicate advance samples of all materials requiring laboratory tests shall be submitted to the Engineer, one of which will be

certified by the Engineer for submission to the testing laboratory and the other retained on the job site in suitable storage provided by the Contractor. Except as noted below, preliminary samples of materials for advance laboratory tests shall be submitted at least two (2) weeks prior to starting delivery of such materials to the site of the project. The testing laboratory shall furnish both the Engineer and the Contractor with two (2) copies of the reports showing the results of such tests, and the reports shall be considered as sufficient evidence of the acceptance or rejection of the quality of the materials tested. The Specifications for, and the method of testing, will be found under the detailed Specifications for the particular material involved. All samples shall be properly packed and clearly marked as to source and intended use.

MATERIALS	TEST FREQUENCY	SAMPLE SIZE	SHIPPING CONTAINER
Fine Aggregate	Advance, first shipment then each 100 tons	100 lbs.	Canvas Sack
Coarse Aggregate	Advance, first shipment then each 200 tons	Stone or Gravel 200 lbs.	Strong Sack
Concrete	Advance test using approved materials	4 cylinders per mix, 2 broken at 7 days, 2 at 28 days	
Concrete (b) Air Entrainment	Advance test on trial mix air entraining agent is used. Test as specified under Article 405 (e)		

1.3 TESTS

A. The materials listed below shall be tested at the shop or plant of, and by, the producer. Each manufacturer of such materials shall be fully equipped to carry out the tests herein designated. Upon demand of the Engineer, the manufacturer shall perform such additional number of tests as the Engineer may deem necessary to establish the quality of the material offered for use. The Engineer shall be furnished with the certified records of reports of the results of all tests, such reports of records to contain a sworn statement that the tests have been made as specified.

MATERIAL	TEST METHOD
Cement	ASTM C114
Ductile Iron Pipe (Centrifugally Cast)	As required under ANSI A21.51-1176
Brick	ASTM C-32
Reinforcement	ASTM A-15 & A-305

1.4 FIELD TESTS

A. All sewers, water lines, piping and equipment shall be tested in the field in the presence of the Engineer or their authorized representative, in the manner prescribed in the sections of these Specifications pertaining to such installations. The Engineer may also perform or have performed any other field tests necessary to determine compliance with the Contract requirements. The

Contractor shall furnish all necessary labor, equipment, and materials for such tests and, with the exception of the Engineer's expenses, shall bear all the cost thereof.

1.5 PAVING TESTS

A. The following tests will be made, unless otherwise stipulated by the Engineer, by a testing laboratory approved by the Engineer:

Material	Test or Test Method	Frequency
Subbase	1) AASHO T-180 (Modified Proctor Minimum 98% Density)	Every 300 LF
	2) Lime rock Bearing Ratio 40	Every 300 LF
Base	(Soil Cement) (1) Mix Design 350 psi @ 28 days. Mix design required 7 days in advance.	Prior to Mixing Base
	(2) Optimum Moisture content and Maximum Density (AASHTO T-134)	Every 300 LF
	(3) LBR 100	Every 1500 sf
	(4) Depth (6-inch minimum)	Every 300 feet
Paving	(1) Job Mix Formula. Required 7 days in advance and submit to Engineer	Each Job
	(2) Bitumen Content of Mix	Every 2500 SY or fraction thereof
	(3) In Place Density	Every 300' (left, right & center)
	(4) Marshall Field Stability Index	Every 1500 SY or fraction thereof
	(5) Thickness Cores	Every 300' (left, right, & center)

1.6 Basis of Payment

A. All shop tests and mill inspection shall be included in the price of the manufactured article, and no separate or extra payment will be made for such tests and inspection.

B. All laboratory and field tests will be paid for by the Contractor. Contractor shall furnish all necessary labor, equipment and materials for such tests and, with the exception of the Engineer's expenses, shall bear all the costs thereof.

1.7 LABORATORY DUTIES: LIMITATIONS OF AUTHORITY

A. Cooperate with Engineer and Contractor; provide qualified personnel promptly on notice.

B. Perform specified inspections, sampling and testing of materials and methods of construction:

1. Comply with specific standards; ASTM, other recognized authorities, and as specified.

2. Determine and report on compliance with requirements of Contract Documents.

C. Promptly notify the Engineer and Contractor of material or operations which do not meet the Specifications.

D. Promptly submit one (1) original and (1) electronic copy of reports of inspections and tests to the Engineer including:

1. Date issued.

2. Project title and Engineer’s job number.

3. Testing Laboratory name and address.

4. Name and signature of inspector.

5. Date of inspection of inspector.

6. Date of inspection or sampling.

7. Date of test.

8. Identification of product and Specification section.

9. Location in project.

10. Type of inspection or test.

11. Compliance with Contract Documents or not.

E. Laboratory is not authorized to:

1. Release, revoke, alter, or enlarge on requirements of Contract Documents.

2. Approve or reject any portion of work.

3. Perform any duties of the Contractor.

1.8 CONTRACTOR'S RESPONSIBILITIES

A. Cooperate with laboratory personnel; provide access to Work and manufacture's operations.

B. Secure and deliver to the laboratory adequate representational samples of materials purposed to be used and which require testing.

C. Provide to the laboratory the preliminary design mix proposed to be for concrete, and other materials mixes which require control by the testing laboratory.

D. Materials and equipment used in the performance of work under this Contract are subject to inspection and testing at the point of manufacturer of fabrication. Standard Specifications for quality and workmanship are indicated in the Contract Documents. The Engineer may require the Contractor to provide statements or certificates from the manufacturers and fabricators that in full accordance with the standard Specifications for quality and workmanship indicated in the Contract Documents. All costs of this testing and providing statements and certificates shall be a subsidiary obligation of the Contractor, and no extra charge to the Owner shall be allowed on account of such testing and certification.

E. Furnish incidental labor and facilities:

1. To provide access to Work to be tested.

2. To obtain and handle samples at the Project site or at the source of the product to be tested.

3. To facilitate inspections and tests.

4. For storage and curing of test samples.

5. Notify laboratory sufficiently in advance of operations to allow for laboratory assignment of personnel and scheduling of tests.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION (NOT USED)

END OF SECTION 01 45 29

SECTION 01 50 00– TEMPORARY FACILITIES AND CONTROLS

PART 1 - GENERAL

1.1 REFERENCES

A. The following is a list of standards which may be referenced in this Section:

1. American Association of Nurserymen: American Standards of Nursery Stock.

2. U.S. Weather Bureau, "Rainfall-Frequency Atlas of the U.S. for Durations from 30 Minutes to 24 Hours and Return Periods from 1 to 100 years."

3. U.S. Department of Agriculture, "Urban Hydrology for Small Watersheds."

4. Federal Emergency Management Agency

5. NFPA, National Fire Prevention Standard for Safeguarding Building Construction Operations.

1.2 SUBMITTALS

A. Administrative Submittals: Copies of permits and approvals for construction as required by Laws and Regulations and governing agencies.

B. Shop Drawings:

1. Temporary Utility Submittals: Electric power supply and distribution plans, if applicable.

2. Temporary Construction Submittals:
   a. Parking area plans
   b. Contractor's field office, storage yard, and storage building plans
   c. Engineer's field office plans
   d. Staging area location plan

1.3 MOBILIZATION

A. Mobilization shall Include, Not be Limited to, these Principal Items:

1. Obtaining required permits

2. Moving Contractor's field office and equipment required for first month operations onto site.

3. Installing temporary construction power, wiring, and lighting facilities

4. Providing onsite communication facilities

5. Providing onsite sanitary facilities and potable water facilities as specified and as required by Laws and Regulations, and governing agencies.

6. Arranging for, and erection of, Contractor's work and storage yard.

7. Posting OSHA required notices and establishing safety programs and procedures.

8. Having Contractor's superintendent at site full time

1.4 PROTECTION OF WORK AND PROPERTY

A. Comply with Owner's safety rules while on Owner's property.

B. Keep Owner informed of serious accidents on the site and related claims.

C. Use of Explosives: No blasting or use of explosives will be allowed on the Site

PART 2 - PRODUCTS

2.1 ENGINEER'S FILED OFFICES

A. Furnish equipment specified for exclusive use of Engineer and its representatives.

B. Ownership of equipment furnished under this article will remain, unless otherwise specified, that of Contractor.

C. Equipment furnished shall be new in appearance and function. Determination of acceptable condition will be made by the Engineer.

D. Contractor may elect to rent/lease available commercial developed property within/adjacent to the project area for these requirements. Contractor is to abide by all applicable zoning regulations and pay all applicable fees.

E. Minimum Features:

1. 110-volt lighting and wall plugs.

2. Fluorescent ceiling lights and exterior lighting at each entrance.

3. Electric heating and self-contained air conditioning unit properly sized for Project locale and conditions. Provide ample electric power to operate installed systems.

4. Railed stairways and landings at entrances.

5. Exterior Door(s):
   a. Number: Two
   b. Type: Solid Core

c. Lock (s): Cylindrical; keyed alike

6. Number of Window: Four minimum

7. Minimum Interior Height: 8 feet

8. Vinyl Flooring

9. Trailer Type Mobile Structure: One (New)

10. Floor Space: Minimum 300 square feet

11. All-metal frame; all metal exterior, sides, and roof; and insulated double walls, floor and roof.

12. Security guard screens on all windows.

13. Number of Private Offices: One, 10 feet by 10 feet (minimum)

14. Blinds or drapes on all windows

15. Office Equipment-General:
    a. Bottled Water Service: One, with cooler capable of producing hot water and cold water.
    b. Paper cup dispenser with cups: one each
    c. Pipe towel dispenser with towels: two each
    d. Desk: one each, steel. 30 inches by 60 inches
    e. Swivel chair: one each
    f. Folding table: one each, 36 inches by 72 inches
    g. Steel folding chairs: six each
    h. Four drawer steel file cabinet with lock: one each, legal width
    i. Handicap accessible restroom
    j. Bookcase
    k. Wastepaper Basket: 2 each
    l. Carbon Dioxide (10 pound) fire extinguisher: two each
    m. Telephone: one each with conference speaker, and 12-foot coiled handset cord
    n. Answering Machine: AT&T voice mail service
    o. Drafting Table: One
    p. Drafting Stool: One
    q. One incoming/outgoing telephone line with Caller ID, one fax line
    r. New “White Boards”: one each, wall mount, 36 inches by 48 inches

2.2 PROJECT SIGN

A. Provide and maintain one, 8-foot-wide by 4-foot-high sign constructed of ¾ inch exterior high-density overlaid plywood. Sign shall bear name of Project, Owner, Owner Logo, Contractor, Engineer, and other participating agencies. Lettering shall be blue applied on a white background by an experienced sign painter. Paint shall be exterior type enamel. Information to be included will be provided by Owner. To be installed within 30 days of start of work.

PART 3 - EXECUTION

3.1 ENGINEER'S FIELD OFFICE

A. Make available for Engineer's use prior to the start of Work at site, to remain on the site for a minimum of 30 days after final acceptance of the Work.

B. Locate where directed by Engineer; level, block, tie down, skirt, provide stairways, and relocate when necessary and approved. Construct on proper foundations, provide surface drainage and connections for utility services.

C. Raise grade under field office, as necessary, to an elevation adequate to avoid flooding.

D. Provide sanitary facilities in compliance with state and local health authorities

E. Exterior Door Keys: Furnish three sets of keys.

F. Telephone Services:

1. Provide number of incoming lines equal to that specified for telephone type.

2. Provide appropriate jacks; locate as directed by Engineer.

3. Provide all wiring necessary for a completed telephone system.

4. Provide separate fax line.

G. Maintain in good repair and appearance and provide weekly cleaning service. Replenish as required: paper towels, paper cups, hand soap, toilet paper, bottled water, cleaning supplies - Windex, cleaning spray, dishwashing liquid, mop head, broom.

3.2 TEMPORARY UTILITIES

A. Power:

1. Electric power will be available at or near the site. Determine the type and amount available and make arrangements for obtaining temporary electric power service, metering equipment, and pay all costs for the electric power used during the contract period except for portions of the Work designated in writing by Engineer as substantially complete.

2. Cost of electric power used in performance and acceptance testing will be borne by Contractor.

B. Lighting: Provide temporary lighting at least to meet all applicable safety requirements to allow erection, application or installation of materials and equipment, and observation or inspection of the work.

C. Heating, Cooling and Ventilating:

1. Provide as required to maintain adequate environmental conditions to facilitate progress of the work, to meet specified minimum conditions for the installation of material, and to protect materials, equipment, and finished from damage due to temperature or humidity.

2. Provide adequate forced air ventilation of enclosed areas to cure installed materials, to dispense humidity, and to prevent hazardous accumulations of dust, fumes, vapors or gases.

3. Pay all costs of installation, maintenance, operation, removal, and fuel consumed.

4. Provide portable unit heaters, complete with controls, oil or gas fired and suitable vented to outside as required for protection of health and property.

5. If permanent natural gas piping is used for temporary heating units, do not modify or reroute gas piping without approval of utility company. Provide separate gas metering as required by utility.

D. Water:

1. Contractor to provide electric water cooler with cold and hot water

2. Provide a means to prevent water used for testing from flowing back into the source pipeline.

E. Sanitary and Personnel Facilities: Provide and maintain facilities for Contractor's employed, Subcontractors, and all other onsite employer's employees. Service, clean and maintain facilities and enclosures.

F. Telephone Service:

1. Arrange and provide onsite telephone service for Contractor's use during construction. Pay costs of installation and monthly bills.

2. Arrange and provide Engineer's telephone system. Pay for all installation and monthly billing charges.

G. Fire Protection: Furnish and maintain on site adequate firefighting equipment capable of extinguishing incipient fires. Comply with applicable parts of the National Fire Prevention Standards for Safeguarding Building Construction Operations (NFPA No. 241).

3.3 PROTECTION OF WORK AND PROPERTY

A. General:

1. Where completion of Work requires temporary or permanent removal and/or relocation of an existing utility, coordinate all activities with Owner of said utility and perform all work to their satisfaction.

2. Protect, shore, brace, support, and maintain underground pipes, conduits, drains, and other underground utility construction uncovered or otherwise affected by construction operations.

3. Keep fire hydrants and water control valves free from obstruction and available for use at all times.

4. Do not impair operation of existing sewer systems. Prevent construction material, pavement, concrete, earth, volatile and corrosive wastes, and other debris from entering sewers, pump stations and other sewer structures.

5. Maintain original site drainage wherever possible

B. Site Security: Provide and maintain additional temporary security fences as necessary to protect the Work and Contractor-furnished products not yet installed.

C. Finished Construction: Protection finished floors and concrete floors exposed as well as those covered with composition tile or other applied surfacing.

D. Waterways: Keep ditches, culverts, and natural drainages continuously free of construction materials and debris.

3.4 TEMPORARY CONTROLS

A. Air Pollution Control:

1. Minimize air pollution form construction operations

2. Burning: Of waste materials, rubbish, or other debris will not be permitted on or adjacent to site.

B. Noise Control: Provide acoustical barriers or other measures as required so noise emanating from tools or equipment will not exceed legal noise levels.

C. Water Pollution Control:

1. Comply with procedures outlined in U.S. Environmental Protection Agency manuals entitled, “guidelines for Erosion and Sedimentation Control Planning” and “implementation, Processes, Procedures, and Methods to Control Pollution Resulting from All Construction Activity”, and “erosion and Sediment Control-Surface Mining in Eastern United States.”

2. Do not dispose of volatile wastes such as mineral spirits, oil, chemicals, or paint thinner in storm or on the ground drains. Disposal of wastes into streams or waterways is prohibited. Provide acceptable containers for collection and disposal of waste materials, debris, and rubbish.

3. Comply with all requirements for the NPDES Stormwater Construction Permit.

D. Erosion, Sediment, and Flood Control: Provide, maintain, and operate temporary facilities to control erosion and sediment releases, and to protect Work and existing facilities from flooding during construction period.

3.5 STORAGE YARDS AND BUILDINGS

A. Temporary Storage Yards: Construct temporary storage yards for storage of products that are not subject to damage by weather conditions.

B. Temporary Storage Buildings:

1. Provide environmental control systems that meet recommendations of manufacturers of equipment and materials stored.

2. Arrange or partition to provide security of contents and ready access for inspection and inventory.

3. Store combustible materials (paints, solvents, fuels, etc.) in a well ventilated and remote building meeting safety standards.

3.6 PARKING AREAS

A. Control vehicular parking to preclude interference with public traffic or parking, access by emergency vehicles, Owner's operations, or construction operations.

B. Provide parking facilities for personnel working on the Project. No employee or equipment parking will be permitted on Owner's existing paved areas.

3.7 CLEANING DURING CONSTRUCTION

A. In accordance with General Conditions, as may be specified in Specification sections, and as required herein.

B. Provide approved containers for collection of disposals of waste materials, debris, and rubbish. At least at weekly intervals, dispose of such waste materials, debris, and rubbish offsite.

C. At least weekly, brush sweep the entry drive and roadways, and all other streets and walkways affected by Work and where adjacent to Work.

END OF SECTION 01 50 00

SECTION 01 57 13 – TEMPORARY EROSION AND SEDIMENTATION CONTROLS

PART 1 - GENERAL

1.1 DESCRIPTION

A. Scope of Work:

1. The Work specified in this section consists of designing, providing, maintaining and removing temporary erosion and sedimentation controls for construction activities impacting **less** than one acre, as required by Rules and Regulations and permit conditions.
   a. If activity impact should **exceed** one acre:
      1) The Contractor must apply for a NPDES permit with the Florida Department of Environmental Protection (FDEP), accessible through the provided link below.
         a) https://floridadep.gov/sites/default/files/CGP%20NOI%2062-621.300_4b_0.pdf
      2) The Contractor must create a Stormwater Pollution Prevention Plan (SWPPP) and provide its location in the NPDES permit, requirements and guidelines are accessible through the provided links below.
         a) http://www.swppps.org/requirements
         b) https://floridadep.gov/sites/default/files/ConstructionSWPPP_0.pdf
      3) The Contractor must create a weekly inspection schedule.
         a) Additional inspections are required after rainfall exceeding 0.5 inches.
      4) The Contractor must provide a Certified Person for contact.
         a) Certified Person(s) must have Erosion and Sedimentation Control training.
   b. All aforementioned requirements shall be provided to the Engineer.
      1) NPDES permit receipt given upon approval by the FDEP must be provided.

2. Temporary erosion controls include, but are not limited to, grassing, mulching, setting, watering and re-seeding on-site surfaces, soil and borrow area surfaces, providing interceptor ditches at ends of berms and at those locations which will ensure that erosion during construction will be either eliminated or maintained within acceptable limits as established by the Owner.

3. Temporary sedimentation controls include, but are not limited to silt dams, traps, barriers, and appurtenances at the foot of sloped surfaces which will ensure that sedimentation pollution will be either eliminated or maintained within acceptable limits as established by the Owner.

4. Temporary dust controls include, but are not limited to mulching, establishing temporary vegetation, water spraying, surface roughening through tilling, barriers, and spray on adhesives which will ensure minimal dust deposition into water bodies and reduce airborne dust that may cause low visibility or respiratory hazards.

5. Contractor is responsible for designing, providing, maintaining and removing effective temporary erosion, sediment and dust control measures during construction or until final controls become effective.

B. Reference Standards:

1. Florida Department of Agriculture and Consumer Services (FDACS).

2. Florida Department of Environmental Protection (FDEP).
   a. FDEP Florida Stormwater, Erosion and Sedimentation Control Inspector's Manual (SESCIM).

3. Florida Department of Transportation (FDOT):
   a. FDOT Design Standards for Design, Construction, Maintenance and Utility Operations on the State Highway System.
      1) FDOT Index No. 102 -- Temporary Erosion and Sediment Control.
   b. FDOT Standard Specifications for Road and Bridge Construction.
      1) FDOT Section 104 -- Prevention, Control, and Abatement of Erosion and Water Pollution.
      2) FDOT Section 570 -- Performance Turf.
      3) FDOT Section 901 -- Coarse Aggregate.
      4) FDOT Section 981 -- Turf Materials.
      5) FDOT Section 985 -- Geotextile Fabrics.
      6) FDOT Section 987 -- Prepared Soil Layer Materials.

4. U.S. Environmental Protection Agency (EPA):
   a. EPA (NPDES) -- National Pollutant Discharge Elimination System.

PART 2 - PRODUCTS

2.1 EROSION CONTROL

A. Sodding, mulching, grassing and seeding are detailed in Specification.

B. Backfill as are detailed in Specification.

C. Netting shall be fabricated of material acceptable to the Owner.

2.2 SEDIMENTATION CONTROL

A. Netting shall be fabricated of material acceptable to the Owner.

B. Filter stone shall be crushed stone which conforms to Florida Department of Transportation (FDOT) specifications.

C. Concrete block shall be hollow, non-load bearing type.

D. Concrete shall be exterior grade not less than one-inch thick.

E. Sediment Fence.

2.3 DUST CONTROL

A. Contractor shall control dust with sodding, mulching, grassing, seeding, and tilling.

2.4 BEST MANAGEMENT PRACTICES FOR EROSION AND SEDIMENT CONTROL

NAME	APPLICATION	MAX DRAINAGE AREA	USEFUL LIFE	COMMENT
Block & Gravel	Inlet protection	<1 acre	3-6 Months	Routine Maintenance Required
Brush Barrier	Perimeter Control	Unspecified	3-6 Months	Routine Maintenance Required
Check Dam / Hay Bale	Control Water Velocity	10 Acres	< 3 Months	Replace as Needed
Check Dam / Rock (Gravel)	Control Water Velocity	10 Acres	18 Months	Max Height 2 feet
Check Dam / Silt Fence	Control Water Velocity	10 Acres	6 Months	Replace as Needed
Construction Road Stabilization	Road Stabilization	Unspecified	Project Life	Routine Maintenance Required
Curb and Gutter Sediment Barrier	Inlet Protection	< 1 Acre	> 6 Months	Routine Maintenance Required
Drain field Pipe Inlet Protection	Inlet Protection	< 1 Acre	> 6 Months	Routine Maintenance Required
Floating Turbidity Barrier	Silt/Sediment Containment	Unspecified	> 18 Months	Use in Low Flow Water Body
GeoHay Curb Inlet Protection	Inlet Protection	< 1 Acre	> 6 Months	Routine Maintenance Required
Gravel and Wire Mesh	Inlet Protection	<1 Acre	3-6 Months	Routine Maintenance Required
Silt Fence	Perimeter Control	< ¼ Acre per 100 ft of length	3 Months	Trench In & Compact
Silt Fence (Filter Fabric)	Inlet Protection	< 1 Acre	3 Months	Routine Maintenance Required
Sod	Inlet Protection	< 1 Acre	> 6 Months	Routine Maintenance Required
Temporary Diversion Dike	Slope Protection	5 Acres	> 18 Months	Compact / Stabilize Slopes
Temporary Fill Diversion	Slope Protection	5 Acres	1 Day – 1 Week	Rebuild as Needed
Temporary Gravel Construction	Entrance	Unspecified	Project Life	Routine Maintenance

Entrance				Required
Temporary Sediment Basin	Sediment Removal	> 5 Acres	18 Months	Engineer Must Design
Temporary Sediment Trap	Sediment Removal	5 Acres	18 Months	Stabilize Interior/Exterior Slopes
Temporary Slope Drain	Slope Protection	5 Acres	3-6 Months	Stabilize Outfall
Temporary Right-Of-Way Diversion	Shorten Flow Length	< 5 Acres	3-6 Months	Inspect Weekly or After Rain

PART 3 - EXECUTION

3.1 PREPARATION AND INSTALLATION

A. No clearing or rough cutting shall be permitted until temporary erosion, sediment and dust control systems are in place, unless permitted directly by the Engineer.

B. Installation of erosion and sediment control materials shall be per manufacturer recommendations and in accordance with FDOT standards.

C. Any damage caused by construction traffic to temporary erosion, sediment and dust controls systems shall be repaired immediately by the Contractor.

D. The Contractor shall be responsible for collecting, storing, hauling and disposing of soil, silt, and waste materials as specified in this or other Specifications and in compliance with relevant federal, state, and local rules and regulations.

E. Contractor shall make a visual inspection of all sedimentation and erosion control devices (including turbidity barriers) on a daily basis and promptly after every rainstorm. If such inspection reveals that additional measures are needed to prevent movement of sediment beyond the barrier limits, the Contractor shall promptly install additional devices as needed. Sediment controls shall be promptly repaired and maintained, as needed. The Contractor shall keep a log of all inspections indicating the following:

1. Date and time of inspection.
2. Inspector.
3. Amount of rainfall.
4. Erosion and sediment control devices inspected.
5. Condition of sediment and erosion control devices.
6. Repairs or maintenance needed.
7. Date repair or maintenance is completed.

3.2 EROSION CONTROL

A. Minimum procedures for grassing are:

1. Scarify slopes to a depth of not less than six inches and remove large clods, rock, stumps, roots larger than 1/2-inch in diameter and debris.

2. Sow seed within twenty-four (24) hours after the ground is scarified with either mechanical seed drills or rotary hand seeders.

3. Apply mulch loosely and to a thickness of between 3/4 inch and 1-1/2 inches.

4. Apply netting over mulched areas on sloped surfaces.

5. Roll and water seeded areas in a manner which will encourage sprouting of seeds and growing of grass. Reseed areas which exhibit unsatisfactory growth. Backfill and seed eroded areas.

3.3 SEDIMENTATION CONTROL

A. Install and maintain silt dams, traps, barriers, and appurtenances as shown on the approved descriptions and working drawings. Hay bales which deteriorate and filter stone which is dislodged shall be replaced.

3.4 DUST CONTROL

A. The dust control product chosen shall be appropriate for to the site conditions (topography and soils).

B. Grade and/or smooth the surfaces to be treated as needed and prescribed by the product guidance before the dust control product is applied.

3.5 PERFORMANCE

A. Should any of the temporary erosion and sediment control measures employed by the Contractor fail to produce results which comply with the requirements of the State of Florida, the Owner or Engineer, the Contractor shall immediately take whatever steps are necessary to correct the deficiency at their own expense.

END OF SECTION 01 57 13

SECTION 017113 – MOBILIZATION

PART 1 - GENERAL

1.1 DEFINITION AND SCOPE

A. Mobilization shall include the obtaining of all permits, insurance, and bonds; moving onto the site of all plant and equipment; furnishing and erecting plants, temporary buildings, and other construction facilities; all as required for the proper performance and completion of the Work. Mobilization shall include, but not be limited to, the following principal items.

1. Move onto the site all Contractors' material and equipment required for first month operations.
2. Install temporary construction power, wiring, and lighting facilities.
3. Establish fire protection plan and safety program.
4. Secure construction water supply.
5. Provide field office trailers for Contractor and as may be specified for Owner and Engineer.
6. Provide on-site sanitary facilities and potable water facilities as specified.
7. Arrange for and erect Contractor's work and storage yard and employee's parking facilities.
8. Submit all required insurance certificates and bonds.
9. Obtain all required permits.
10. Post all OSHA, EPA, Department of Labor, and all other required notices.
11. Have Contractor's superintendent at the job site full time.
12. Submit a detailed construction CPM schedule acceptable to the Engineer as specified.
13. Submit a schedule of values of the Work.
14. Submit a schedule of submittals.

1.2 DEMOBILIZATION

A. Demobilization is the timely and proper removal of all Contractor-owned material, equipment or plant, from the job site and the proper restoration or completion of work necessary to bring the site into full compliance with the contract documents.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION (NOT USED)

END OF SECTION 01 71 13

SECTION 01 77 00 – CLOSEOUT PROCEDURES

PART 1 - GENERAL

1.1 DESCRIPTION

A. Scope of Work: Comply with requirement stated in Conditions of the Contract and in Specifications for administrative procedures in closing out the Work.

1.2 SUBSTANTIAL COMPLETION

A. The Work will not be substantially complete, and Contractor may not request Substantial Completion inspection unless the following submittals and work is completed:

1. All Operation and Maintenance manuals have been submitted and approved according to the applicable Specification.

2. All equipment has been checked-out by the equipment manufacturer and Certificates of Manufacturer's Check-Out has been submitted as required by the Specifications.

3. All start-up and demonstration testing completed, and Certificates of Completed Demonstration submitted to the requirements of the Specifications.

4. Project Record Documents are complete and have been submitted and reviewed according to the applicable Specification.

5. All training of Owner's personnel completed.

6. All areas to be used and occupied are safe, operable in automatic and complete.

7. All building occupancy certificates have been issued by the appropriate building permitting agency.

8. All painting, finishes, fencing, cleanup, final grading, grassing, planting, sidewalk construction, and paving shall have been completed and ready for inspection.

9. All deficiencies noted on inspection reports or nonconformances are corrected or the correction plan approved.

B. When the conditions of paragraph 1.2A. are met the Contractor shall submit to the Engineer:

1. A written notice that the Contractor considers the Work, or portion thereof, is substantially complete, and requests an inspection.

2. A punch list of items to be corrected. (Uncompleted work which is not related to the safe, effective, efficient use of the Project may be allowed on the punch list with the Engineer's approval.)

C. Within 10 working days after receipt of such notice, the Engineer will make an inspection to determine the status of completion.

D. Should the Engineer determine that the Work is not substantially complete:

1. The Engineer will promptly notify the Contractor in writing, giving the reasons therefore.

2. Contractor shall remedy the deficiencies in the Work and send another written notice of Substantial Completion to the Engineer.

3. The Engineer will, within 10 working days, reinspect the Work. The Contractor will be liable for reinspection fees as described in paragraph 1.4, herein.

E. When the Engineer finds that the Work is substantially complete, they will:

1. Schedule a walk-through of the facility to include the Owner. Engineer shall determine the completeness of the punch list and readiness of the facility for occupancy by the Owner.

2. Prepare and deliver to Owner a tentative Certificate of Substantial Completion with the tentative punch list of items to be completed or corrected before final inspection.

3. After consideration of any objections made by the Owner as provided in conditions of the Contract, and when the Engineer considers the Work substantially complete, they will execute and deliver to the Owner and the Contractor a definite Certificate of Substantial Completion with a revised tentative list of items to be completed or corrected. Any incomplete work allowed on a punch list must be reinspected upon completion and any deficiencies found will be added to the punch list.

1.3 FINAL INSPECTION

A. Prior to Contractor's request for a final inspection the following submittals and work must be complete:

1. Project Record Documents must be approved.

2. All spare parts and maintenance materials must be suitably delivered to the Owner per the requirements of the Specifications.

3. Contractor to submit evidence of compliance with requirements of governing authorities.

B. After satisfying the requirements of paragraph 1.3A. and when Contractor considers the Work complete, they shall submit written certification that:

1. Contract Document requirements have been met.

2. Work has been inspected for compliance with Contract Documents.

3. Work has been completed in accordance with Contract Documents.

4. Equipment and systems have been tested in the presence of the Owner's representative and are operational.

5. All punch list items have been corrected or completed and the Work is ready for final inspection.

C. The Engineer will, within 10 working days, make an inspection to verify the status of completion after receipt of such certification.

D. Should the Engineer consider that the Work is incomplete or defective:

1. The Engineer will promptly notify the Contractor in writing, listing the incomplete or defective work.

2. Contractor shall take immediate steps to remedy the stated deficiencies and send another written certification to the Engineer that the Work is complete.

3. The Engineer will, within 10 working days, reinspect the Work and the Contractor shall be liable for reinspection fees as described in paragraph 1.4, herein.

E. When the Engineer finds that the Work is acceptable under the Contract Documents, the Contractor may make closeout submittals.

1.4 REINSPECTION FEES

A. Should the Engineer perform reinspection's due to failure of the Work to comply with the claims of status of completion made by the Contractor:

1. Contractor will compensate the Owner for such additional services.

2. Owner will deduct the amount of such compensation from the final payment to the Contractor.

1.5 CONTRACTOR'S CLOSEOUT SUBMITTALS

A. Warranties and Bonds: To requirements of the Specifications

B. Evidence of Payment and Release of Liens: To requirements of the Specifications

C. Certificate of Insurance for Products and Completed Operations.

1.6 FINAL ADJUSTMENT OF ACCOUNTS

A. Submit a final statement of accounting to the Engineer.

B. Statement shall reflect all adjustments to the Contract Sum:

1. The original Contract Sum.

2. Additions and deductions resulting from:
   a. Previous Change Orders or written amendment.
   b. Allowances.
   c. Unit prices.
   d. Deductions for uncorrected work.
   e. Penalties and bonuses.
   f. Deductions for liquidated damages.
   g. Deductions for reinspection payments

h. Other adjustments.

3. Total Contract Sum, as adjusted.

4. Previous payments.

5. Sum remaining due.

C. Engineer will prepare a final Change Order, reflecting approved adjustments to the Contract Sum which were not previously made by Change Orders.

1.7 FINAL APPLICATION FOR PAYMENT

A. Contractor shall submit the final Application for Payment in accordance with procedures and requirements stated in the Conditions of the Contract.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION (NOT USED)

END OF SECTION 01 77 00

SECTION 01 78 33 – BONDS

PART 1 - GENERAL

1.1 DESCRIPTION

A. Scope of Work:

1. Compile specified bonds as specified in these Specifications.
2. Co-execute submittals when so specified.
3. Review submittals to verify compliance with Contract Documents.
4. Submit to Engineer for review and transmittal to Owner.

1.2 SUBMITTAL REQUIREMENTS

A. Assemble bonds and service and maintenance contracts, executed by each of the respective manufacturers, suppliers, and subcontractors.

B. Number of original signed copies required: Two (2) each.

C. Table of Contents: Neatly typed, in orderly sequence. Provide complete information for each item.

1. Product of work item.
2. Firm, with name of principal, address and telephone number.
3. Scope.
4. Date of beginning of bond or service and maintenance contract.
5. Duration of bond or service maintenance contract.
6. Provide information for Owner's personnel:
   a. Proper procedure in case of failure.
   b. Instances which might affect the validity of warranty or bond.
7. Contractor, name of responsible principal, address and telephone numbers.

D. Bonds are required to be recorded with the applicable County Clerk of Court.

1.3 FORM OF SUBMITTALS

A. Prepare in duplicate packets.

B. Format:

1. Size 8 1/2 -inches x 11 inches, punch sheets for standard three-post binder.
   a. Fold larger sheets to fit into binders.

2. Cover: Identify each packet with typed or printed title "BONDS". List:
   a. Title of Project.
   b. Name of Contractor.

C. Binders: Commercial quality, three-post binder, with durable and cleanable plastic covers and maximum post width of two inches.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION (NOT USED)

END OF SECTION 01 78 33

SECTION 01 78 36 – WARRANTIES

PART 1 - GENERAL

1.1 DESCRIPTION

A. Scope of Work:

1. Compile specified warranties as specified in these Specifications.
2. Co-execute submittals when so specified.
3. Review submittals to verify compliance with Contract Documents.
4. Submit to Engineer for review and transmittal to Owner.
5. Resubmittals to Engineer for review and transmittal to Owner when required.

1.2 SUBMITTAL REQUIREMENTS

A. Assembly warranties and service and maintenance contracts, executed and certified by each of the respective manufacturers, suppliers, and subcontractors. Organize by Specification section number and the name of the product, work item, or subcontractor.

B. Table of Contents: Neatly typed, in orderly sequence. Provide complete information for each item.

1. Product of work item.
2. Supplier and manufacturer firm, point of contact, address and telephone number.
3. Scope.
4. Date of beginning of warranty or service and maintenance contract.
5. Duration of warranty or service maintenance contract.
6. Provide information for Owner's personnel:
   a. Proper procedure in case of failure.
   b. Instances which might affect the validity of warranty.
7. Contractor, name of responsible principal, email address, mailing address and telephone numbers.

1.3 FORM OF SUBMITTALS

A. Electronic copy in PDF format.

B. Final warranty shall be provided as required by the Specifications.

1.4 WARRANTY SUBMITTALS REQUIREMENTS

A. For all major pieces of equipment, submit a warranty issued from the equipment manufacturer. Manufacturer's warranty period shall be concurrent with Contractor's for one (1) year, unless otherwise specified, commencing at the time of final acceptance by Owner.

B. Contractor shall be responsible for obtaining certificates for equipment warranty for all major equipment which has at least a 1 hp motor or which lists for more than $2,500. Engineer reserves the right to request warranties for equipment not classified as major. Contractor shall still warrant equipment not considered to be "major" in the Contractor's warranty period even though certificates of warranty may not be required.

C. In the event that the equipment manufacturer or supplier is unwilling to provide a one-year warranty commencing at the time of Owner final acceptance, the Contractor shall obtain from the manufacturer a two (2) year warranty commencing at the time of equipment delivery to the job site. This two (2) year warranty from the manufacturer shall not relieve the Contractor of the one-year warranty starting at the time of Owner acceptance of the equipment.

D. Owner shall incur no labor or equipment cost during the guarantee period.

E. Guarantee shall cover all necessary labor, equipment and replacement parts resulting from faulty or inadequate design, improper assembly or erection, defective workmanship and materials, leakage, breakage or other failure of all equipment and components furnished by manufacturer.

F. Warranties specified for materials and equipment shall be in addition to, and run concurrent with, both Contractor's general warranty and the correction period requirements.

G. Disclaimers and limitations in specific materials and equipment warranties do not limit Contractor's general warranty, nor does such affect or limit Contractor's performance obligations under the correction period.

1.5 WARRANTY WORK

A. Reinstatement of warranty

1. When work covered by a warranty has failed and has been corrected by replacement or rebuilding, the Contractor shall reinstate the warranty by written endorsement.
   a. The reinstated warranty shall be equal to the original warranty with an equitable adjustment for depreciation.

1.6 IMPLIED WARRANTIES

A. Warranty of title and intellectual rights:

1. Except as may be otherwise indicated in the Contract Documents, implied warranty of title required by Laws and Regulations is applicable to the Work and to materials and equipment incorporated therein.

2. Provisions on intellectual rights, including patent fees and royalties, are in the General Conditions, as may be modified by the Supplementary Conditions.

B. Implied warranties: Duration in accordance with Laws and Regulations.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION (NOT USED)

END OF SECTION 01 78 36

SECTION 01 78 39 – PROJECT RECORD DOCUMENTS

PART 1 - GENERAL

1.1 REQUIREMENTS INCLUDED

A. Maintain at the site for the Owner one record copy of:

1. Drawings.
2. Specifications.
3. Addenda.
4. Change Orders and other modifications of the contract.
5. Engineer's Field Orders or written instructions.
6. Approved Shop Drawings.
7. Field Test records.
8. Construction photographs, preconstruction videos, and pipeline videos.
9. Preliminary as-built drawings.

1.2 MAINTENANCE OF DOCUMENTS AND SAMPLES

A. Store documents and samples in Contractor's field office apart from documents used for construction.

1. Provide files and racks for storage of documents.
2. Provide locked cabinet or secure storage space for storage of samples.

B. File documents and samples in accordance with CSI format with section numbers as provided herein.

C. Maintain documents in a clean, dry, legible, condition and in good order. Do not use record documents for construction purposes.

D. Make documents and samples available at all times for inspection by the Engineer.

E. As a prerequisite for monthly progress payments, the Contractor shall provide the currently updated "Record Documents" for review by the Engineer and Owner.

1.3 MARKING DEVICES

A. Provide felt tip marking pens for recording information in the color code designated by the Engineer.

1.4 RECORDING

A. Label each document. "PROJECT RECORD" in neat large printed letters.

B. Record information concurrently with construction progress. Do not conceal any work until required information is recorded.

C. Drawings: Legibly mark to record actual construction:

1. Depths of various elements of foundation in relation to finish first floor datum.

2. All underground piping with elevations and dimensions. Change to piping location. Horizontal and vertical locations of underground utilities and appurtenances referenced to permanent surface improvements. Actual installed pipe materials, class, etc.

3. Location of internal utilities and appurtenances concealed in the construction, referenced to visible and accessible features of the structure.

4. Field changes of dimensional and detail.

5. Changes made by Field Order or by Change Order.

6. Details not on original contract drawings.

7. Equipment and piping relocations.

8. Major architectural and structural changes including relocation of doors, windows, etc.

9. Architectural schedule changes according to Contractor's records or shop drawings.
   a. Contractor shall provide copies of all such recordings to the Contractor’s surveyor for incorporation into the preliminary and final as-builts drawings.

D. Specifications and Addenda: Legibly mark each section to record:

1. Manufacturer, trade name, catalog number and supplier of each product and item of equipment actually installed.

2. Changes made by Field Order or by Change Order.

E. Shop Drawings (after final review and approval): Provide four (4) sets of record drawings for each process equipment, piping, electrical system and instrumentation system.

1.5 SUBMITTAL

A. Accompany <u>each</u> submittal with transmittal letter in duplicate, containing:

1. Date.

2. Project title and number.

3. Contractor's name and address.

4. Title and number of each Record Document.

5. Signature of Contractor of their authorized representative.

B. Preliminary As-built Drawings: The Contractor shall submit to the Engineer two (2) paper copies of preliminary as-built drawings prepared and signed/sealed by the Contractor's surveyor with each monthly progress payment request. Preliminary as-built drawings shall conform to the requirements of final as-built drawings and shall represent the completed work to date. Preliminary as-built drawings shall include all work which the Contractor is requesting to be paid for.

C. Final As-built Drawings: Upon project closeout and as a prerequisite to the final pay request, the Contractor shall submit to the Engineer final as-built drawings Administrative Code, pursuant to Section 472.027 of the Florida Statutes. The Engineer shall supply the Contractor copies of AutoCAD files for the Contractor's use in the as-built drawing preparation. Final as-built drawings shall include all work which the Contractor is requesting to be paid for. The final as-built drawing submittal shall include:

1. Two (2) sets of paper plans signed and sealed by a professional land surveyor licensed in the State of Florida and CD(s) or other media containing AutoCAD, version 2015 or higher, drawing files.

2. AutoCAD drawing files shall include as-built information on layers separate from the original drawing layers and shall be named descriptively to represent the as-built features. (i.e. - Layer "wat ab" and "wat ab txt" for water as-built line work and text, respectively.) Drawing entities are to be shown on the correct layer. All as-built entities shall have color and line type set "by-layer". Text sizes shall be relative to the plotted scale. Additional details or exploded views shall be include to accurately and fully represent the as-built conditions.

3. Certification by surveyor that the as-built information shown is accurate and that all improvements shown were constructed within or on public rights-of-way, easements or property specifically owned by the Owner. Certification shall be to the Owner, Engineer and applicable Water Management District (if applicable.)

4. No line work and text shall be erased from the original design (construction) drawings during the as-built drawing preparation. Original line work or text shall be circled if accurate or stricken (not erased) if not with the accurate information noted/shown. New line work and text shall be provided to accurately show the as-built information for the constructed improvements. Revisions to design dimensions alone will not be permitted.

5. Pressure Pipeline and Utility Conduit Improvements: For utility improvement projects, horizontal locations of the constructed pipelines with respect to the right-of-way lines or other readily visible, permanent features at 100-foot minimum intervals and at critical locations such as road intersections shall be shown. For treatment plant and pump station improvements, horizontal locations shall be provided at 20-foot intervals. Vertical locations of the constructed pipelines by elevation of centerline of pipe for above ground/exposed pipe or with respect to finished grade over buried pipe shall be shown at 100 feet minimum intervals. (i.e. final cover) For underground piping, all valves, blow-

offs, stub-outs, pigging stations, fire hydrants, backflow preventers and services shall be located horizontally in relation to readily visible, permanent features with three-way horizontal dimensions less than 100 feet, each. Three-way dimensions to all buried fittings on treatment plant and pump station improvement projects shall be provided. If adequate features are not available, a station and offset dimensioning system can be used if prior approval is obtained from the Engineer. For above ground/exposed pipe, as-built dimensions between fittings or flanges shall be provided. Separations between "sanitary hazards" to potable water and reclaimed water mains per FDEP shall be shown.

6. Gravity Pipeline Improvements: Show elevations for all inverts, manhole tops, inlet throats/weirs, grate tops, etc. Show size and type of each structure. As-built length, size and type of pipes between the structures shall be shown. All service laterals and cleanouts shall be located horizontally to readily visible, permanent features with three-way horizontal dimensions less than 100 feet, each. If adequate features are not available, a station and offset dimensioning system can be used if prior approval is obtained from the Engineer. A labeling and dimension table scheme is recommended for the three way or station/offset dimensioning. (i.e. - constructed feature labeled as "A", permanent feature labeled as "B", "A"- "B" dimension shown in table for distance measured between the two. Use continuous labeling and complete single table per plan sheet.) Separations between gravity "sanitary hazards" to potable water and reclaimed water mains per FDEP shall be shown.

7. Roadway Improvements: Elevation, size and location of swales, ditches, gutter flowlines, edge of pavement, and road crown on both sides of the road if applicable shall be provided at 100-foot minimum intervals and at critical areas such as intersections and inlets/flumes. As-built points of curvature, tangent and vertical intersection, along with radii of road alignment, intersecting streets and driveways and other alignment information shall be provided.

8. Stormwater Improvements: The limits, slopes and bottom depths of stormwater ponds, swales and other retention areas shall be provided. All stormwater piping information shall conform to the Gravity Pipeline Improvement requirements. Size, type, material, and elevations of all stormwater structures, including appurtenances such as weirs, orifices, skimmer plates, etc. shall be shown. As-built information shall conform to applicable Water Management District requirements.

9. Treatment Facility Improvements: Location, size, number, and type of treatment equipment and structures shall be shown. Applicable requirements of as-built information listed herein for similar improvements shall be required.

10. Building Improvements: Finished floor elevations, ceiling heights, building locations, wall opening dimensions, equipment (electrical, mechanical, plumbing) locations, etc. shall be provided. Change of material shall be specifically noted as such.

11. Landscaping Improvements: Number, type, size, and general location of installed plant material shall be provided. Change of material shall be specifically noted as such. Location of irrigation meters, services, manual valves, automatic valves, controllers, rain shut off switches, etc. shall be shown. Changes to the designed irrigation system shall be shown.

12. Other Improvements: Changes from the original design of other improvements such as electrical, mechanical and structural improvements shall be noted as such on the as-built

drawings with the size, number, type and location of the constructed/installed improvements noted.

13. Contractor may be required to reimburse the Owner for services rendered by the Engineer for review of multiple resubmittals.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION (NOT USED)

END OF SECTION 01 78 39

SECTION 02 41 13.23 - UTILITY LINE REMOVAL

PART 1 - GENERAL

1.1 DESCRIPTION

A. Work addressed under this Section includes pipe removal and grouting (in filling) sections of existing potable water, reclaimed water, sanitary force main, and gravity sewer pipe for placing out of service. The limits of pipe to be removed or grouted shall be as shown on the Drawings or as directed in the field by the Owner.

1.2 SCOPE OF WORK

A. The Contractor shall furnish all labor, equipment and materials necessary to perform all the work associated with the complete removal and disposal, or placement out of service by injection of cementitious grout, of existing water and wastewater piping, within the limits shown on the Drawings or as directed in the field by the Owner.

B. Unless specifically shown to be salvaged, or at the request of the Owner, all pipe, valves, fittings, and appurtenances associated with the portions of the existing water and wastewater utilities which are to be removed shall be disposed of off-site by the Contractor. Disposal shall be in accordance with all applicable local, State and Federal regulations. The cost of disposal shall be borne by the Contractor.

C. This project contains pipe that is to be abandoned and grouted in place by the Contractor. The Contractor shall perform pipe removal as required by governing agencies.

D. The Contractor shall be responsible for removing and disposing of all water and wastewater from utilities to be removed or abandoned under this Contract in accordance with all regulatory agency requirements and federal, state and local laws.

1.3 ASBESTOS PIPE REMOVAL AND DISPOSAL PROCEDURES

A. General - The Contractor will be responsible for permitting, removal and disposal of asbestos-cement (A-C) pipe. The following paragraphs briefly summarize permitting, field procedures and disposal activities related to the A-C pipe. In these discussions, certain local, state and federal laws have been referenced. The Contractor must comply with all applicable local, state and federal laws/regulations whether or not such laws/regulations are referenced in these specifications.

B. The Contractor shall provide evidence of experience of proper procedures in removal, handling and disposal of asbestos-cement pipe materials within the past five (5) years. References from at least three completed projects shall be provided at the Preconstruction Conference. If the Contractor proposes to utilize the services of a duly qualified subcontractor for this portion of the work, these same requirements shall be met.

C. Permitting - The Contractor shall apply for and obtain all permits related to removal of the A-C pipe. In accordance with Rule 17-257.30 I of the Florida Department of Environmental Protection

(FDEP), the Contractor must submit a "Notice of Asbestos Removal Project" form with a copy to the Engineer. The Contractor will submit the form to FDEP in a timely manner in accordance with the schedule contained in Rule 17-257. The agencies that may require permits for this project are not necessarily limited to the FDEP.

D. Field Procedures - The Contractor is responsible for all procedures, including safety and health procedures, which will be used when handling A-C pipe. The Contractor's handling of A-C pipe shall be in conformance with 29 CFR 1926.58 (OSHA Safety and Health Standards).

E. Cutting of A-C pipe shall be done in conformance with the recommended practices contained in the American Water Works Association's (AWWA) Manual No. M-16. Cutting methods should be used which minimize the production of airborne dust.

F. Preparation of Transport of Materials - The Contractor will remove the pipe from the ground in whole pieces without fracturing, breaking or otherwise damaging pipe. The A-C pipe shall be carefully loaded onto the transport vehicle without damaging the pipe. The transport vehicle shall totally enclose the A-C pipe so that wind and rain cannot disperse dust from the pipe material. Transport of the A-C pipe shall also meet the requirements of the waste disposal agency.

G. Waste Disposal - As stated in Rule 17-701.520(4), the FDEP indicates that asbestos containing waste materials can be accepted at a permitted Class I, II or III landfill. The regulations also indicate that the waste generator (the Contractor) shall make arrangements with the landfill operator before disposal of the asbestos containing waste materials and inform the operator of the quantity of the waste and the scheduled date the shipment will arrive at the landfill. The Contractor shall provide the Engineer and the City a manifest immediately following disposal.

1.4 SUBMITALLS

A. The Contractor shall submit grout mixture data and the results from grout mixture tests to the Owner for approval prior to performing grouting operations.

PART 2 - PRODUCTS

2.1 MATERIALS

A. The following is a suggested trial grout mixture for a one (1) cubic yard yield, however, the actual grout mixture to be used shall meet all of the requirements specified below:

Cement:	500 pounds
Fly Ash:	500 pounds
Water:	350 pounds (42 gallons)
Sand:	2,248 pounds
Darex (W.R. Grace):	3 ounces (Air Entrainment Additive or equivalent)
Bentonite:	6 pounds (to be mixed with sufficient water in colloidal mixture and added at the job site)

B. The mixture used for grouting shall be of a creamy consistency. Samples of the grout mixture when set aside in a standard concrete test mold shall show less than one percent of the mixture height of free water on the surface after standing not less than twelve (12) hours.

C. One set of three (3) 3" X 6" sample test cylinders shall be made for each mix preparation. The minimum 28-day strength shall be no less than 1000 psi. The required slump is 5 inches. The maximum allowable slump is 9 inches. Slump should be as low as practical to maintain viscosity, proper "flow", and still retain ability to pump

PART 3 - EXECUTION

3.1 PIPE REMOVAL

A. Where existing utilities pipes are designated for removal on the Drawings, the Contractor shall remove and dispose of such utilities and all related pipe, valves, fittings, manholes, and appurtenances with the limits shown. After removal of the facilities all trenches shall be backfilled in accordance with Section 31 23 00. The cost of disposal of the removed materials shall be borne by the Contractor.

B. Utilities shown to be salvaged and/or if salvaging is requested by the Owner, shall be carefully disassembled, removed and delivered to the Owner on-site. The Owner may direct the pipes to be reinstalled elsewhere on this project or they may be removed and stockpiled at a location to be determined.

C. The Contractor shall exercise care not to damage utilities to be removed and salvaged.

3.2 IN-PLACE GROUTING OF EXISTING PIPE

A. Where water and wastewater utility pipes are to be abandoned in place they shall be filled with a sand/cement grout as specified herein.

B. Grout shall be injected within the pipe sections indicated on the Drawings. The ends of these sections shall be capped and/or plugged. The grouting program shall consist of pumping sand-cement grout with suitable chemical additives at pressures necessary to fill the pipe sections shown on the Drawings to prevent the potential for future collapse.

C. The pump used for grouting should be a continuous flow, positive displacement model with a pugmill type mixing vat having a minimum shaft speed of 60 rpm and incorporated as an integral part of the equipment. Alternate equipment may be used subject to the approval of the Owner. The rate of pumping shall not exceed six (6) cubic feet per minute. The pumping pressures shall be in the range of 100 to 150 psi.

D. The Contractor shall provide standpipes and/or additional means of visual inspections as required by the Owner to determine if adequate grout material has filled the entire pipe section(s). The Contractor shall make necessary provisions for the Owner's representative to monitor all grouting operations.

E. All pipe to be abandoned shall be capped or plugged with a fitting or material that will prevent soil or other material from entering the pipe. All caps and plugs shall be subject to approval by the Owner.

3.3 MONITORING

A. The Owner's representative may stop the removal and/or grouting operations at any time, if in his judgment, the operation does not comply with these Specifications or if the work is not to his satisfaction.

B. The Owner's representative shall make all measurements of pipe length removed and grout quantity pumped and maintain records of each day's operations. The quantities recorded by the Owner's representative shall be considered final.

END OF SECTION 02 41 13.23

SECTION 03 33 00 - CAST IN PLACE CONCRETE

PART 1 - GENERAL

1.1 WORK INCLUDED

A. The work included under this section consists of furnishing all materials, forms, transportation, and equipment, and performing all necessary labor to do all the plain and reinforced concrete work shown on the Drawings, or incidental to the proper execution of the work, or as herein specified.

B. Composition: Concrete shall be composed of cement, fine aggregate, coarse aggregate, and water so proportioned and mixed as to produce a plastic workable mixture in accordance with all requirements under this section suitable to the specific conditions of placement.

1.2 SUBMITTALS

A. All materials specified shall be certified by the producer or manufacturer that the furnished material meets the specific requirements of the specifications. Concrete mix designs shall be submitted for approval prior to placement.

1.3 CODES AND STANDARDS

A. ACI 301 "Specifications for Structural Concrete for Buildings", ACI 318" Building Code Requirements for Structural Concrete", ACI 347 "Recommended Practice for Concrete Formwork"; ACI 304 "Recommended Practice for Measuring, Mixing, Transporting, and Placing Concrete"; comply with applicable provisions except as otherwise indicated.

1.4 TESTING

A. Air content shall be in accordance with American Society for Testing Materials Standard Methods C 173, one for each set of compressive strength specimens.

B. Sampling of freshly mixed concrete shall be in accordance with ASTM C172.

C. Slump: ASTM C-143

D. Test results will be reported in writing to Engineer, Contractor, Owner and Concrete producer on same day tests are made.

E. Laboratory Reports: Submit two (2) copies of laboratory test or evaluation reports for concrete materials and mix designs.

PART 2 - PRODUCTS

2.1 PORTLAND CEMENT

A. Shall comply with the standard specifications for Portland Cement, A.S.T.M. designation C-150, Type II, or Type III (high-early), where indicated on drawings.

2.2 CONCRETE AGGREGATE

A. Shall conform to standard specifications for concrete aggregate, A.S.T.M. Designation C-33 or to ASTM C-330. Maximum size of aggregate shall not exceed one-fifth of the narrowest dimension between reinforcing bars.

B. Fine Aggregate - Fine aggregate shall be clean, hard, strong, durable, uncoated particles of natural sand known as Lake Wales, Interlachen, or approved equal. The source, composition, quality and gradation of the fine aggregate shall be subject aid the approval of the Engineer. Samples of the sand shall be furnished, together with certified copies of the gradation and analysis from the recognized testing laboratory.

1. The weight of extraneous or deleterious substances shall not exceed the following percentages:

Loss by Decantation	3%
Shale	1%
Clay Lumps	1%
Coal and Lignite	1%

2. The fine aggregate shall be reasonable well graded from coarse to fine and when tested by means of laboratory sieves shall meet the following requirements in percent of total weight:

Total Retained On	Percent Retained
No. 4 Sieve	0 - 5
No. 10 Sieve	3 - 30
No. 30 Sieve	30 - 70
No. 50 Sieve	65 - 95
No. 100 Sieve	95 - 100

C. Deficiencies in the percentages of the fine aggregates passing the No. 50 and No. 100 Sieves may be remedied by the addition of pozzolanic or cementitious materials excepting Portland cement. Such materials must meet the approval of the Engineer.

D. Coarse Aggregate

1. Coarse aggregate shall consist of hard, tough, durable components free from adherent coatings and vegetable matter, and shall not contain soft, friable, thin or elongated particles in quantities considered deleterious by the Engineer. Coarse aggregate shall be properly graded from fine to coarse to produce concrete of desired strength, density, and workability. The source, composition, quality and gradation of the coarse aggregate shall

be subject to the approval of the Engineers. Samples of the coarse aggregate shall be furnished together with certified copies of the gradation and analysis from a recognized testing laboratory.

2. All coarse aggregate shall be washed and shall be free from disintegrated pieces, salt, alkali, vegetable matter and adherent coatings. The total percentage of all deleterious substances shall not exceed five percent (5%) by weight. The substances designated shall not be present in excess of the following amounts.

Loss by Decantation	1%
Clay Lumps or Other Soluble Materials	3%
Soft Fragments	5%

3. Where the cover over reinforcing is 2 inches or more, the maximum size of aggregate shall be 12 inches. Where the cover over reinforcing is less than 2 inches, the maximum size of aggregate shall be 3/4 inch. The maximum size of aggregate shall not exceed one-fifth of the narrowest dimension between forms nor three-fourths of the minimum clear spacing between reinforcing bars. The grading of the coarse aggregate in the concrete shall be within the following limits.

Percent Passing:

Maximum Size Square Mesh Screen	97 - 100%
2 Maximum Size Square Mesh Screen	40 - 70%
No. 4 Sieve	0 - 6%

2.3 WATER

A. Water shall be clean and free from oil, acids, alkalis, organic materials or other injurious substances

2.4 REINFORCEMENT

A. Reinforcing Bars: ASTM A615, Grade 60, deformed bars of USA manufacture.

B. Welded Wire Fabric: ASTM A185, gauges, spacing and dimensions as indicated.

C. Metal Bar Supports: CRSI MSP-1, Chapter 3, Class 2, Type B, Stainless Steel Protected Bar Supports, or otherwise approved by the Engineer. Use concrete supports for reinforcement in concrete placed on grade.

D. Tie Wire: 16 gauge minimum, black, soft annealed.

E. Coupler Splice Devices: Cadweld tensions couplers, capable of developing the ultimate strength of the bar as manufactured by Erico Products, Incorporated, Solon, Ohio, or equal.

F. Epoxy coated or FRP rebar shall be used for all marine applications.

2.5 FORM WORK

A. Lumber: Douglas Fir or Larch, No. 2 grade, seasoned and surfaced on four sides.

B. Plywood: Plyform, Class 1, BB-Exterior type, mill oiled, and edge sealed, with thickness not less than 3/4 inch.

C. Medium Density Overlay (MDO) Plywood Forms: PS-1, B-B High Density Concrete Form Overlay, Class I, unoiled.

1. Butt form panels, make contact surface fully flush and seal butting holes with sponge form tape. Chamfer edges of beams and ceilings.

2. Where MDO plywood is used to form beams, do not use MDO plywood that has been patched or damaged.

D. Drip Forms: Varnished ponderosa pine or equally rigid non-staining plastic, 2-inch-wide on each leg.

E. Steel Forms. Uncoated steel, 3/16-inch minimum thickness, fabricated to close tolerances, protected only by the specified release agent, braced so as not to bend, dent, or dimple under wet concrete load, vibrator impact, and tool impact. Maintain steel form in rust-free condition by use of steel wood and light grinding, followed by coats of specified release agent. Use forms that can be adjusted into true alignment without stops or ridges.

F. Glass Fiber Reinforced Plastic (FRP) Forms: Smooth coated forms, braced so as not to bend, dent or dimple under wet concrete loads, vibrator impact and tool impact, and at least 0.11 inch thick. Design forms for external bracing at piers and columns, without use of form ties.

G. Plugged Cone Form Ties: Rod type, with ends or end fasteners which can be removed without spalling the concrete and which leave a hole equal in depth to the required reinforcement clearance. Form ties shall be of a design in which the hole left by the removed end or end fastener is easily filled to match the surface of the hardened concrete. Provide removable cones 13 inches in diameter by 12 inches deep. Provide preformed mortar plugs to match the color of the concrete, recessed 3 inches, adhered with an approved two-part epoxy.

H. Weep Hole Forms: PVC polyethylene, or ABS pipe, matching color of the concrete, 4 inch inside diameter, with outlet projecting 12 inches form wall and cutoff in a plane parallel to it.

I. Circular and Elliptical Column Forms: Fabricate of two (2) pieces, clamped watertight using gaskets and without horizontal joints. Install horizontal construction joints only where indicated or as directed by the Engineer.

J. Beam Forms: Provide in one length without form joints and suitable for cambering up to 1/160 of span without distortion of profile or opening of seams.

K. Forms of Hammerhead Pier Caps: Provide in one length with adjustable soffits, bulkheads and screens as necessary to accommodate different hammerhead beam configurations. Provide no construction joints in hammerhead pier caps. Where three or fewer identical hammerhead pier caps occur within a line section, steel braced HDO plywood forms may be substituted for steel forms if:

1. Working drawings of formwork are submitted.

2. Internal form ties are regularly spaced no less than 48 inches each way and are made watertight.

3. Form ties have removable cones, which are filled to match concrete.

4. Joints in panels are fully watertight.

5. The resulting surface matches the appearance of steel formed hammerhead caps, with no visible discoloration due to form leakage.

L. Styrofoam Board: Expanded polystyrene extruded into board form, closed cell, moisture resistant, capable of maintaining indicated clear space between concrete structures.

M. Control Joint Filler: Use epoxy joint filler equal to BurkEpoxy Joint Filler to fill voids left by saw cuts and to resist against spalling caused by vehicle traffic in concrete slabs.

N. Inserts: Galvanized cast steel or galvanized welded steel, complete with anchors to concrete and fittings such as bolts, wedges and straps. Provide hanger inserts spaced to match grid of suspended ceilings.

O. Shoring: As designed and executed by Contractor to support all loads.

P. Chamfer Strips: Polyvinyl strips designed to be nailed in the forms to provide a 3/4-inch chamfer at exposed edges of concrete members.

Q. Form Release Agent: A blend of natural and synthetic chemicals that employs a chemical reaction to provide quick, easy and clean release of concrete from forms, and equal to Eucoslip, by the Euclid Chemical Company, or Release #1, by The Burke Company. Use a non-staining release agent that leaves the concrete with a paintable surface.

2.6 ADMIXTURES

A. Air Entraining Admixture: ASTM C260.

B. Water Reducing and Retarding Admixture:

1. Concrete Without Superplasticizer:
   a. Water Reducing Admixtures: ASTM C494, Type A, equal to Eucon WR-75 by the Euclid Company, Pozzolith 200N by Master Builders, Plastocrete 161 by Sika Chemical Corporation, and containing no calcium chloride.
   b. Water Reducing and Retarding Admixtures: ASTM C494, Type D, equal to Eucon Retarder-75 by the Euclid Company, Pozzolith 100 XR by Master Builders, Plastiment by Sika Chemical Corporation, and containing no calcium chloride.
   c. Accelerating Admixtures: ASTM C494, Type C or E, equal to Accelguard 80 by the Euclid Company, Darex Set Accelerator by W.R. Grace, and containing no calcium chloride.

2. Concrete with Superplasticizer:

a. Water Reducing, High Range Admixtures: ASTM C494, Type F or G, equal to Eucon 37 by the Euclid Company, Rheobild 716 by Master Builders, Daracem 100 by W.R. Grace, Sikament by Sika Chemical Corporation, and consisting of a second generation admixture, free of chlorides and alkalis (except for those attributable to water) composed of a synthesized sulfonated complex polymer, enabling the concrete to maintain its rheoplastic state in excess of two (2) hours if necessary.

b. Manufacturer's Job Site Representation: Provide the services of a competent field service representative from the manufacturer of each of the admixtures selected for use to provide at the job site advice and consultation on the use of the admixture materials, including the effect on the concrete in place, including recommending maximum discharge time for superplasticizer method and procedure to induce superplasticizer into mixer, quantities of admixtures to be used if variations are required because of temperature/humidity, wind or other environmental considerations, and to be available on short call at any time requested by the Owner, Contractor, or concrete producer.

3. Concrete used in Marine Applications:

a. Micro Silica admixtures shall be used for concrete installed in marine and coastal applications. Concrete designs shall meet the appropriate requirements of EN206-1, BS 8500 and BS 5075. Contractor shall provide plant certification for all mix designs used in marine and coastal applications.

2.7 GROUT

A. Nonshrink, Nonmetallic Grout: The Burke Company's Non-Ferrous, Non-Shrink Grout, Sauereisen F-100 Level Fill, Master Builders Masterflow 713, Euclid NS Grout, or equal pre-mixed type.

B. Nonshrink Metallic Grout: The Burke Company's Metallic Spec Grout, Master Builders Embeco 636 Grout pre-mixed type, or equal.

C. Epoxy Grout: Sikadur 42 Grout-Pak, or equal, for grouting sleeves for anchor bolts, etc.

D. Clarifier Basin Grout: Class B concrete of coarse aggregate shall pass the 3/4 inch sieve.

2.8 MEMBRANE CURING COMPOUND

A. A.Membrane curing compound shall be wax-free, pigmented, 100 percent resin base compound such as A.C. Horn's "Horncure 30 C", Hunt Process Corporation; Southern's "All-Resin", or equal.

2.9 BONDING AGENT

A. A.Bonding agent shall be Colma Fix, as manufactured by Sika Chemical Corporation, of Passaic, New Jersey or equal. To be considered equal, the material must be a two-component epoxy-polysulphide resin system, and it must have a demonstrated record of strong adhesion to both wet and dry concrete in either the hardened or the plastic state. It must also be of equal strength.

2.10 ACCESSORIES

A. Precast Concrete Block Supports for Reinforcing Bars: Comply with ACI 315. Provide blocks with No. 4 dowels bent 90° to support top bars.

B. Membrane: 6 mil polyethylene film.

C. Water Stops: Polyvinyl chloride meeting all requirements of U.S. Army Corps of Engineer's Specification CRD-C-572 and equal to Burke Water Stops as manufactured by The Burke Company. Provide flat dumbbell type and center bulb type, 9 inches x 3/8 inch at wall thickness of 12 inches or greater, and 6 inches x 3/8 inches at wall thickness less than 12 inches. Provide 6-inch split-ribbed with center bulb type at connections of new concrete structures with existing concrete. Provide water stops as indicated on the Drawings.

D. Preformed Expansion Joint Filler:

1. Bituminous type conforming to the requirements of ASTM D994.

2. Nonextruding type, self-expanding cork, ¾-inch thick or as otherwise shown on the Drawings, conforming to the requirements of ASTM D1752, Type III, and compatible with the specified joint sealant compound.

E. Joint Sealant: A multipart gray polyurethane sealant, meeting U.S. Federal Specification TT-S-00227E (3) Type 1, Class A self-leveling for horizontal joints, and Type II, Class A, non-sag for vertical joints, and recommended by the manufacturer for continuous immersion in water. Provide sealants as manufactured by Products Research and Chemical Corporation, Mameco International, The Burke Company, W.R. Meadows, or equal.

F. Tongue and Groove Joint Forms: 24-gauge steel forms complete with steel stakes and splice plates, designed for joints not to receive a poured seal, and equal to Burke Keyed Kold Joint as manufactured by The Burke Company.

G. Inserts: Galvanized steel to fit the proposed hanger or support.

H. Mortar for Repair of Concrete: Same materials as used for concrete, except omit coarse aggregate and use not more than one-part cement to two and one-half parts sand by damp loose volume. Use no more mixing water than is necessary for handling and placing.

I. Burlap Mats: Conform to AASHTO Specification M182.

J. Epoxy Bonding Agent: Euco #452, BurkEpoxy MV, Sikadur Hi Mod, Concresive 1001-LPL, or equal.

K. Powered Epoxy Coating for Anchor Bolts: Powdered epoxy resin as manufactured by the 3M Company, Scotchkote No. 213, Armstrong No. R349.

2.11 CONDUITS AND PIPES EMBEDDED IN CONCRETE

D. Conduits, pipes and sleeves of any material not harmful to concrete shall be permitted to be

embedded in concrete with approval of the Engineer, provided they are not considered to replace structurally the displaced concrete.

E. Conduits and pipes of aluminum shall not be embedded in structural concrete unless effectively coated or covered to prevent electrolytic action between aluminum and steel.

F. Conduits and pipes, with their fittings, embedded within a column shall not displace more than four percent (4%) of the area of cross section on which strength is calculated or which is required for fire protections.

G. Conduits, pipes, sleeves passing through a slab, wall or beam shall not impair significantly the strength of the construction.

H. Except when plans for conduits and pipes are approved by the Engineer, conduits and pipes embedded within a slab, wall, or beam shall satisfy the following:

1. They shall not be larger in outside dimension than one-third overall thickness of slab, wall, or beam in which they are embedded.

2. They shall not be spaced closer than three diameters or widths on center.

2.12 PIPES CONTAINING LIQUID, GAS OR VAPOR

D. Pipes that will contain liquid, gas or vapor may be embedded in structural concrete under the following conditions:

1. Pipes and fittings shall be designed to resist effects of the material, pressure, and temperature to which they will be subjected.

2. No liquid, gas, or vapor, except water not exceeding 90°F (32C) nor 50 psi (345 kPa) pressure, shall be placed in the pipes until the concrete has attained its design strength.

3. Concrete cover for pipes, conduits and fittings shall be not less than 12 inches (38 mm) for concrete exposed to earth or weather or in contact with ground.

4. Reinforcement with an area of not less than 0.002 times area of concrete section shall be provided normal to piping.

5. Piping and conduit shall be so fabricated and installed that cutting, bending or displacement of reinforced from its proper location will not be required.

PART 3 - EXECUTION

3.1 PROPORTIONING

A. The proportions of aggregate to cement shall be such as to produce a thoroughly plastic mixture which will work readily into the corners and angles of the forms and around the reinforcement but without permitting the materials to segregate or excess free water to collect on the surface.

B. The percentage of sand shall not be less than thirty percent (30%) nor more than fifty percent (50%) of the total weight of the aggregate. The total content, including the surface water contained in the aggregate, shall not exceed 5.7 gallons per sack of cement. The slump shall not exceed 4 inches. Air entraining admixture shall be Darex AEA as manufactured by the Dewey and Almy Chemical Company.

C. The amount of air entrained in the freshly mixed concrete shall not be less than three percent (3%) nor more than six percent (6%). The minimum cement content in sacks per cubic yard of concrete shall not be less than 6 sacks per cubic yard for Class "A" concrete.

D. Concrete materials shall be accurately measured by weight. Measurement of materials for ready mixed concrete shall conform to the "Standard Specifications for Ready Mixed Concrete", (A.S.T.M. designation C 94).

1. Class "A" concrete for all structures shall have minimum compressive strength of 4000 psi at 28 days.

2. Class "B" concrete for sidewalks shall have minimum compressive strength of 3000 psi at 28 days.

3. All concrete shall be Class "A" unless otherwise shown on the drawings.

3.2 MIXING AND PLACING

A. Concrete shall be mixed, conveyed and deposited in accordance with the "A.C.I. Building Code" (A.C.I. 318).

B. Prior to placing any concrete, the Contractor shall submit for the Engineer's approval a design mix, calculated by a recognized testing laboratory, and using the approved aggregates to produce a workable mix of the desired strength, together with certified copies of 7 days and 28 day tests of cylinders taken from concrete made according to the design mix. The mixes shall be designed to secure concrete having a minimum compressive strength at age 28 days.

C. Ready mixed concrete delivered shall be accompanied by delivery tickets showing the following:

1. Date and time leaving plant Additives (if any)

2. Type of cement and weight Site arrival time

3. Quantity of water and time added Site leaving time

D. Concrete

1. Ready mixed concrete shall be used. All mixing requirements specified herein shall be enforced, and the Owner's laboratory representative and the Engineer shall have free access to the mixing plant at all times.

2. Except for materials and/or procedures otherwise specified herein, ready mixed concrete shall be mixed and delivered in accordance with the requirements of ASTM C 94.

3. No water shall be added to the concrete after it leaves the plant except where part of the design water was purposely omitted at the plant, and then only as approved by the Engineer.

E. Mixer Speed

1. Neither the speed of any mixer nor the quantity of material loaded into any mixer shall exceed the recommendations of the manufacturer.

2. Excessive over mixing, required additions of water to preserve the required consistency, shall be cause for rejection of the batch.

3. Concrete shall not remain in a transit mixer or agitator truck more than ninety (90) minutes after the water has been introduced, and not for more than forty-five (45) minutes if any approved retarding agent is not used.

4. Minimum mixing time shall be fifty (50) revolutions of drum at rated speed.

F. Measurement

1. Equipment necessary to determine and control the actual amounts of all materials entering the concrete shall be provided by the concrete manufacturer.

2. All materials shall be measured by weight, except that water may be measured by volume calculated at 8 1/3 pounds per gallon. One bag of cement will be considered as 94 pounds in weight.

G. Mixes

1. Mix Design: Conform to ACI 318, Section 4.3. Submit data on consecutive tests and standard deviation.

2. Maximum Water-Cement Ratio:

.37 (lbs/lb) – Concrete with superplasticizer

.38 (lbs/lb) – Concrete in Marine Environments

.45 (lbs/lb) – Class A concrete without superplasticizer

.55 (lbs/lb) – Class B concrete without superplasticizer

.65 (lbs/lb) – Class C concrete without superplasticizer

3. Air Content: 5 percent plus or minus 1.5 percent (Class A and B).

4. Slump: 4 inches plus or minus 1 inch for Class A and B without superplasticizer.

Seven (7) inches plus or minus 1 inch for Class A and B with superplasticizer.

Seven (7) inches plus or minus 1 inch for tremie concrete or as specified by details.

H. Placing Concrete.

1. All concrete shall be placed in clean, damp forms that are not hot to the touch.

2. To prevent segregation, concrete shall be deposited as nearly as practicable in final position and not allowed to drop freely more than necessary and in no case more than five feet, except in an approved funnel or tremie. All concrete shall be placed during daylight unless otherwise authorized at least four (4) hours in advance. Where the reinforcing steel above the top of the concrete being placed becomes coated with laitance or partially set up concrete, all such concrete shall be removed from the reinforcing steel prior to placing concrete around the bars.

3. Concrete shall be packed carefully and tightly around pipe and other items to secure maximum adhesion.

4. Concrete shall be placed in layers not over 12 inches deep before compacting. Concrete shall be compacted by internal vibrating equipment supplemented by spading and hand rodding between reinforcing steel and form to eliminate air bubbles and honeycomb. Vibrators shall not be used to move the concrete laterally inside the forms. Duration of vibration shall be limited to the time necessary to provide satisfactory consolidation without causing segregation, not less than five and not more than 15 seconds per square foot of exposed top surface. The vibrator shall be constantly relocated and shall be placed in each specific spot only once for each layer. The Contractor shall take steps to assure that sufficient personnel are available to devote full time to operating vibrator, spading and rodding.

5. Wall concrete shall be placed in layers as indicated above, with the first lift preceded by a 1 inch minimum layer of 1:2 1/2 cement sand grout, with a 6 inch to 8 inch slump, placed on existing concrete not more than twenty (20) minutes before concrete placement. The surface of previously placed hardened concrete shall be clean and wet before grouting or shall be treated with a bonding agent as required. Puddles of water in horizontal recessed keys shall be avoided by the use of drain recesses to outside edge of concrete. Concrete in walls and deep beams shall be placed in lifts not to exceed three layers at 12 inches each for the full length of the pour before proceeding higher. The placing of concrete shall not be delayed more than twenty (20) minutes between layers or lifts.

6. Slab forms shall be thoroughly cleaned after placing wall concrete below. Concrete in beams or walls shall be placed to bottom of floor slab. After concrete in walls below floor slab has been in place for approximately thirty (30) minutes, the concrete for the floor slab and upper portion of the beam shall be placed and vibrated.

7. When concrete is conveyed by chutes, the equipment shall be of proper size and design to ensure a continuous flow in the chute. The chutes shall be metal or metal lined, and the different portions shall have approximately the same slope. The slope shall not be less than one vertical to three horizontal or more than one vertical to two horizontals, and there shall be provision for a baffle at the discharge end of the chute to prevent segregation. If the vertical distance between the discharge end of the chute and the surface of the concrete is more than five feet, a spout shall be used. The lower end of the spout shall be kept as near the surface of the deposit as is practicable. All chutes and spouts shall be thoroughly cleaned before and after each run. All debris and water shall be discharged outside the forms.

3.3 CURING AND PROTECTION

A. Curing:

1. Immediately after surface defects have been repaired, apply a spray coat of curing compound to all exposed surfaces, including slabs, walls, beams and columns in accordance with the manufacturer's recommendations. Protect exposed steel keyways and other embedded items from the curing compound. Water cure, as specified in paragraph B hereunder, all concrete surfaces that are to be exposed to wastewater, surfaces that are to be coated with a coal tar epoxy system, and concrete floors requiring a bond for special finishes.

2. Do not apply compound during periods of rainfall. Should the film become damaged from any cause within the required curing period, immediately repair the damaged portions with additional compound. Upon removal of forms, immediately coat the newly exposed surfaces to provide a curing treatment equal to that provided for the surface.

3. Curing and Sealing Compound: Use clear compound conforming to Federal Specification TT-C-800A, thirty percent (30%) solids content minimum, having test data from an independent laboratory indicating a maximum moisture loss of 0.030 grams per sq. cm. when applied at a coverage rate of 300 sq. ft per gallon, and equal to Super Floor Coat or Super Pliocure by The Euclid Chemical Company or Masterseal 66 by Master Builders. Furnish manufacturer's certification as required.

4. Apply specified clear curing and sealing compound to all horizontal areas so noted on the Drawings or in the Specifications. Apply immediately after final finishing. Apply this compound to non-structural construction joints of slabs on grade to act as a bond breaker prior to placement of adjacent concrete.

B. Water Curing Method: Cure all concrete that is to be water cured by either the wet burlap method, by continuous fogging or by covering with waterproof sheet.

1. Wet Burlap Method: Cover concrete surface with a double thickness of burlap, cotton mats, or other approved material, kept thoroughly saturated with water. Keep the forms wet until removed and upon removal, start the curing specified herein immediately. Cure the concrete for a period of seven (7) days for normal Portland cement or four (4) days for high early strength cement. Do not submerge concrete poured in the dry until it has attained sufficient strength to adequately sustain the stress involved and do not subject it to flowing water across its surface until it has cured four (4) days.

2. Continuous Fogging: Perform continuous fogging by fogging with a nozzle which so atomizes the flow of water that a mist, and not a spray, is formed. Fog the concrete surface regularly without allowing any part of the surface to become dry. Take all necessary precautions to prevent erosion of the concrete surface by the water.

3. Covering with Waterproof Sheets: Keep the entire area to be cured continuously wet by fogging, as specified in the fogging paragraph above, for at least eighteen (18) hours and then immediately cover with waterproof curing sheet conforming to ASTM C171, waterproof paper and polyethylene film, free of holes or tears. Keep sheet fully flat,

without wrinkles or air bubbles, held down tautly at all edges. Do not use this method on slabs which will be exposed to view.

3.4 PLACING REINFORCEMENT

A. All reinforcement shall be detailed, fabricated and erected in accordance with the A.C.I. "Manual of Standard Practice for Detailing Reinforced Concrete Structure", (A.C.I. 315), including bar supports and spacers. At splices all reinforcing bars shall be lapped a minimum of 24 bar diameters but not less than 12 inches.

B. The reinforcing shall be fabricated to the shapes and dimensions shown and shall be placed where indicated on the drawing. Before placing, all reinforced steel shall be thoroughly cleaned of rust, mill scale or coatings, which would reduce or destroy the bond. Reinforcing bars shall conform to the requirements of the latest editions of the A.C.I. Code and the CRSI Manuals.

C. Wire mesh, unless otherwise shown on the drawings or specified, shall be 6" x 6" No. 10 woven or electrically welded wire fabric conforming to the requirements of ASTM Designation A185, latest revision.

D. Space chairs and bolsters in accordance with ACI 315 and 318 using height to furnish cover over reinforcing required. Chairs with plastic feet or stainless steel shall be used in all beams and elevated slabs. Chairs for other concrete adjacent to or on the ground may be pieces of concrete block or concrete brick compressed into subgrade with the rebars bearing directly on the pointed edge of the masonry supports, or chairs set on precast concrete pads compressed into the subgrade.

E. When placed in the forms, reinforcement shall be clean and free of all loose rust, scale, dust, dirt, paint, oil or other foreign material, and shall be accurately and securely positioned both laterally and vertically before placing concrete. Minimum clearances between the steel and face of concrete shall be maintained as shown.

F. The rebars shall be fastened together at every intersection or at intervals not greater than 24 bar diameters by wire ties or by some alternate method acceptable to the Engineer. In areas where large bars are closer together, the wire ties may be spaced not more than 30 bar diameters apart, rather than as specified above.

3.5 FORMS

A. Installation and erection shall be in accordance with ACI 347 and as specified hereinafter.

B. Forms shall conform to shape, lines and dimensions of numbers indicated, and shall be sufficiently tight to prevent leakage of mortar. They shall not deflect under dead load weight of construction as a liquid or of construction load. Forms shall be properly braced or tied together so as to maintain position and shape within specified tolerances. Construct forms so that they can be removed steadily without hammering or prying against the concrete. Forms for exposed concrete shall be carefully made and accurately placed to obtain correct shape and line.

C. Forms shall be of wood, metal, or other approved materials. Metal forms shall be of a type and manufacture acceptable to the Engineer. Plywood, fiberboard, or absorptive type form linings may be used where appropriate. Sectional forms shall produce a uniform surface and shall be assembled in a modular pattern. Pours will not be scheduled until all erection and bracing is

complete. Walers, ties and braces shall be required for all forms.

D. Chamfer strips made from nominal dimensional 1" x 1" lumber cut on the diagonal shall be installed at the top of the forms on all exposed edges of walls, slabs, beams and other structures above grade.

E. Drip edge shall be made from wood quarter round and installed where shown. Extruded plastic fillets shall be used where detailed. Circular structures shall be formed with special care, and attention to the appearance of the finished structure. Random location of fillers, non modular sections, and excessive deviations from true circular segments shall be cause for rejection of the forms.

F. The Contractor shall be fully responsible for the adequacy of formwork in its entirety. Forms shall support required loads and shall maintain their dimensional and surface correctness to produce members required by drawings.

G. Slots, chases, recesses, or other openings as shown on the drawings or as needed for the work of any other trades shall be boxed out.

H. Box out for all temporary openings and build forms to seal them up when and as required.

I. After sealing and immediately before the placing of reinforcing, faces of all forms in contact with the concrete shall receive a thorough coating of the liquid form releasing agent, applied in compliance with the manufacturer's instructions.

J. Reused forms shall be thoroughly cleaned out of dirt, debris, concrete and foreign matter. Forms shall not be reused if they have developed defects which would affect their tightness and strength or desired surface finish. Used forms shall not be used for architectural concrete.

K. Forms shall be removed in a manner that will prevent injury to concrete. Supporting forms or shoring shall not be removed until the members have acquired sufficient strength to support their weight and any load thereon.

L. Removal shall be in sequence as approved by the Engineer. Unless test cylinders warrant another procedure, the forms shall not be removed from members prior to the time listed in the schedule hereinafter unless otherwise directed.

M. Bonding to Existing Surfaces: Clean existing concrete surfaces that are to have new concrete bonded thereto of all grease, oil, dust, dirt and loose particles and coat with an epoxy bonding agent just prior to placing of the new concrete. Apply the bonding agent as recommended by the manufacturer and allow the agent to become tacky before the new concrete is placed. Do not allow the bonding agent to overlap or be spilled on the surfaces to be exposed after the work is completed

3.6 FORM REMOVAL

A. Maintain formwork in place for the following structural conditions until the concrete has attained the minimum percentage of indicated design compressive strength or for the period of time specified in the following table.

Note: Time periods in the table include all days except those in which the temperature falls below 40°F.

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Structural Member or Condition	Normal Strength Concrete	Normal High-Early Strength Concrete	Minimum Compressive Strength for Form Removal (% Design Strength)
Cantilevers	12 days	7 days	90
Over 20 feet between supports	12 days	7 days	90
Stairway	10 days	5 days	80
Floor Slabs	5 days	3 days	70
Free standing walls, columns, and piers	5 days	3 days	70
Walls, piers columns, sides of beams, footings slabs on grade, and vertical surfaces	24-48 hours	12-24 hours	70
Front face form of curbs	6-24 hours	6 hours	70

3.7 CONCERTE FINISHINGS

A. Repair of surface Defects:

1. General: Repair surface defects, including tie holes immediately after form removal. Dampen the area to be patched and an area at least six inches wide surrounding it to prevent absorption of water from the patching mortar. Notify the Engineer prior to commencing operations.
2. Removal of Defective Concrete: Remove all honeycombed and other defective concrete down to sound concrete. Cut edges perpendicular to the surface or slightly under cut. Sand blast surfaces to receive repair.
3. Bonding Grout: Thoroughly dampen surfaces to be patched and apply a coat of bonding grout consisting of one-part cement to one part fine sand passing a No. 30 sieve and having the consistency of thick cream.
4. Placing Patching Mortar: After the bonding grout begins to lose its water sheen, apply a premixed patching mortar, thoroughly consolidating it into place and striking it off so as to leave the patch slightly higher than the surrounding surface. Leave mortar undisturbed for one hour to permit initial shrinkage and then finally finish.
5. Tie Holes: After being cleaned and thoroughly dampened, fill the tie holes solid with patching mortar.

B. Concrete Finishes:

1. Formed Surfaces: After removal of forms, chip off all irregular projections, grind flush with adjacent surfaces and finish concrete surfaces in accordance with the following schedule:

Finish Designation	Area Applied
F-1	Exterior walls below grade not exposed to water: Repair defective concrete, fill depressions deeper than two inches, and fill tie holes.
F-2	Exterior and interior walls exposed to water: Repair defective concrete, remove fins, fill depressions 3 inches or deeper, and fill tie holes.
F-3	Walls of structures of buildings exposed to view and underside of formed floors or slabs: In addition to Finish F-2, fill depressions and airholes in mortar. Dampen surfaces and then spread a slurry consisting of one-part cement and one and one-half parts sand by damp loose volume on the surface with clean burlap pads or sponge rubber floats. Remove any surplus by scraping and then rubbing with clean burlap.
F-4	Tops of walls, beams and similar unformed surfaces occurring adjacent to formed surfaces: Strike smooth after concrete is placed and float to a texture reasonably consistent with that of formed surfaces.

2. Slab Surfaces:

a. General: After concrete has been consolidated, finish all concrete slabs with a floated finish. After floating, trowel finish all concrete slabs, except for areas to receive roofing, insulation, tile or topping, and immediately light broom finish. Where a finish is not indicated, provide a troweled finish.

Finish Designation	Area Applied
S-1	Slabs and floors not water bearing: Smooth steel trowel finish.
S-2	Slabs and floors which are water bearing and slab surfaces on which mechanical equipment moves: Steel trowel finish free from trowel marks and all irregularities.
S-3	Slabs, floors and stair treads of structures or buildings exposed to view: Steel trowel finish without local depressions or high points and apply a light hair-broom finish. Do not use stiff bristle brooms or brushes. Leave hair-broom lines parallel to the direction of slab drainage.
S-4	Slabs and floors at slopes greater than ten percent (10%): Steel trowel finish without local depressions or high points. Apply a stiff bristle broom finish. Leave broom lines parallel to the direction of slope drainage.
S-5	Exposed edges of slabs, floors and tops of walls: Finish with a 3-inch radius edge if a chamfer is not indicated.

C. Floated Finish: After concrete has been placed, consolidated, struck off and leveled, do not work the surface further until water sheen has disappeared and the surface has hardened sufficiently to permit floating. During the first floating, check the planeness of the slab with a 10-foot straightedge applied at no less than two angles. Cut down all high spots and fill all low spots to produce a surface having the required tolerance. Then refloat the slab to a uniform sandy texture.

D. Light Broomed Finish: After floating, power trowel slabs to receive a light broomed finish to produce a smooth surface, relatively free of defects. Before the surface sets, pass a soft broom drag over the surface to produce a surface uniform in texture and appearance.

E. Troweled Finish: After floating, power trowel slabs to receive a troweled finish to produce a smooth surface, relatively free of defects. Hand trowel after the surface has hardened sufficiently. When a ringing sound is produced as the trowel is moved over the surfaces, perform final troweling by hand to produce a surface which is thoroughly consolidated, free from trowel marks, uniform in texture and appearance and plane to a tolerance of 1/8 inch in 10 feet as determined by a 10-foot straightedge placed anywhere on the slab in any direction.

F. Hardener Finish: Where indicated to receive a troweled hardener finish, water cure slabs without application of curing and sealing agent. When slab is at least twenty (20) days old and thoroughly dry, apply the hardener in accordance with the manufacturer's recommendations. Where dry-shake hardener or slip resistant finish is required, apply the hardener or slip-resistant product prior to complete curing and finishing, in accordance with the requirements and recommendations of the product manufacturer.

G. Saw Cut Joints: Cut joints that are to be saw cut not sooner than two (2) hours after the concrete is poured and not later than eight (8) hours after the pour.

3.8 TESTS

A. Compressive strength tests shall be made by breaking standard 6 inch diameter by 12 inch high test specimens prepared, cured and broken in accordance with the American Society for Testing Materials Standard Methods C 31 and C 39, latest revision. Four (4) specimen test cylinders shall be taken from each pour of five cubic yards or more. One additional test shall be taken from each 30 cubic yards or fraction thereof in each pour in excess of 30 cubic yards.

B. Test specimens shall be taken from manhole bottom pours of less than five cubic yards as directed by the Engineer. Test specimens shall be taken in the presence of the Engineer. One cylinder from each pour shall be broken at seven (7) days, the remainder at twenty-eight (28) days. Additional test cylinders may be ordered for determining the characteristics of a new design mix or changes in equipment or methods, and under adverse weather or curing conditions.

C. Slump test shall be made in accordance with ASTM C143, latest revision, and shall be made with each load and at time of cylinders.

D. The Contractor shall supply all cylinder molds, slump cones, tools and labor for preparing specimen, and shall provide clean, moist sand or burlap for curing. Cylinder shall not be shipped to the testing laboratory until the third day following preparation and shall be protected from accidental damage at all times.

E. The test cylinders shall be tested in a recognized commercial testing laboratory at the expense of the Contractor.

3.9 EXPANSION JOINTS, CONSTRUCTION JOINTS AND WATER STOPS

A. Expansion Joints shall be places as indicated on the drawings. Joint materials for surfaces exposed to water and sewage shall conform to ASTM D175, Preformed Joint Filler, non extruding and resilient (bituminous type), thickness as shown on the drawings. Joint materials for isolation joints, slab on grade joints and wall joints not exposed to water and sewage shall conform to ASTM D994, preformed expansion joint filler for concrete (bituminous type), thickness as shown on the drawings

B. Construction Joints shall be located in accordance with a schedule of pours which shall be prepared and submitted by the Contractor. Vertical construction joints shall be held to the minimum number consistent with good standard practice.

C. Water Stops. Material for water stops shall be 9 inch PVC multi rib center bulb type for expansion joints, and 1/4" x 4" and 1/8" x 4" structural steel sheets for construction joints. PVC joint material shall be as manufactured by The Burke Company, or approved equal.

END OF SECTION 03 30 00

SECTION 31 23 19 – DEWATERING

PART 1 - GENERAL

1.1 DESCRIPTION OF WORK

A. Scope: In general, the work specified in this section of the specifications shall consist of supplying labor, materials, and plant, and performing all work necessary to lower and control the groundwater levels and hydrostatic pressures to permit all excavations and construction specified under this Contract to be performed in the dry.

B. Examination of Site: The Contractor shall take all steps that they consider necessary to familiarize themself with the site conditions, the ground conditions, and the groundwater conditions. It is expressly understood that neither the Owner nor the Engineer will be held responsible for any interpretations or conclusions drawn by the Contractor.

PART 2 - PRODUCTS

2.1 METHOD AND EQUIPMENT

A. The Contractor may use any dewatering method they deem feasible so long as it results in working in the dry and in stable soil conditions. It is the intent of these specifications that an adequate dewatering system be installed to lower and control the groundwater in order to permit excavation, construction of the structures, construction of pipelines, and the placement of the fill materials, all to be performed under dry conditions. The dewatering system shall be adequate to pre-drain the water-bearing strata above and below the bottom of the foundations, the drains, the sewers, and all other excavations. An adequate weight of fill material shall be in place prior to discontinuing operation of dewatering to prevent buoyancy of the structure.

PART 3 - EXECUTION

3.1 GENERAL

A. The Contractor shall be solely responsible for the arrangement, location, and depths of the dewatering system necessary to accomplish the work described under this section of the specifications. The dewatering shall be accomplished in a manner that will reduce the hydrostatic head below any excavation to the extent that the water level and piezometric water levels in the construction area are below the prevailing excavation surface; will prevent the loss of fines, seepage, boils, quick conditions, or softening of the foundation strata; will maintain stability of the sides and bottom of the excavation; and will result in all construction operations being performed in the dry.

B. Disposal of Water: The Contractor shall promptly dispose of all water removed from the excavations in such a manner as will not endanger public health, damage public or private

property, or affect adversely any portion of the work under construction or completed by them or any other Contractor. Contractor shall obtain written permission from the Owner of any property involved before digging ditches or constructing water courses for the removal of water.

C. Siltation and Erosion:

1. The Contractor shall take steps and make suitable provisions to minimize siltation and erosion which may result from, or as a result of, their operations during the course of construction of this project.

2. The methods and provisions utilized by the Contractor to minimize siltation and erosion shall be approved by the Engineer and shall be in conformance with current Florida Department of Environmental Protection and the applicable Water Management District practices and regulations.

D. Inadequate System: If the dewatering requirements are not satisfied due to inadequacy or failure of the dewatering system, then loosening of the foundation strata, or instability of the slopes, or damage to the foundations or structures may occur. The supply of all labor, materials, equipment, and the performance of all work necessary to carry out additional work for reinstatement of the structures of foundation soil resulting from such inadequacy or failure shall be undertaken by the Contractor to the approval of the Engineer, and at no additional expense to the Owner.

END OF SECTION 31 23 19

SECTION 31 23 33 – TRENCHING, BACKFILLING, AND COMPACTING

PART 1 - GENERAL

1.1 DESCRIPTION OF WORK

A. The extent of trenching, backfilling, and compacting is shown on the drawings.

B. This section includes furnishing equipment, labor, and materials, and performing all operations necessary and incidental to perform the required work.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION

3.1 CLEARING OF THE SITE

A. The site of the work shall be cleared of all trees, shrubs, paving and objectionable material, which interfere with the prosecution of the proposed work. Trees and shrubs which will not interfere with construction shall be protected from damage. Clearing shall be considered as an incidental item of excavation.

3.2 EXCAVATION

A. General:

1. Perform excavation described of whatever substance encountered to the dimensions and depths specified or shown on the drawings. Undercutting will not be permitted, except when ordered by the Engineer. Material suitable for backfill shall be stockpiled near the site. Rock or other material undesirable for backfill shall be spoiled outside the area in a neat manner, as directed by the Engineer. Where it is necessary to cut roots projecting into an excavation or where it is necessary to trim branches for equipment clearance, all severed root ends, or cuts to branches over a half inch (1/2") diameter shall be treated with an asphalt base pruning paint. Backfill over exposed roots as soon as possible.

B. Rock:

1. Where encountered in the trench bed, rock shall be excavated to a depth of one-quarter (1/4) of the pipe diameter below the bottom of the pipe but in no case less than four inches. All undercut trench excavation shall be backfilled and tamped with materials as specified in the following paragraphs under Unstable Subgrade.

C. Unstable Subgrade:

1. In the event that unsuitable material is encountered at or below the excavation depth specified or shown on the drawings, the Engineer shall be notified. Such material shall be removed and replaced with suitable material. Methods and materials used for replacement shall be one of the following as directed by the Engineer in writing.
   a. Suitable earth or sand compacted in the trench. Materials shall be furnished as a part of the Bid Proposal item covering excavation and backfill.
   b. Gravel or crushed limerock, compacted in the trench and paid for under the appropriate item.
   c. Existing materials stabilized after removal and then replaced and compacted in the trench at no additional cost to the Owner.

2. The Engineer shall determine the methods and materials to be used, based upon the condition of the excavation, the pipe structure to be supported, and the availability and character of stabilizing materials.

D. Trenches:

1. Trenches shall be backfilled immediately after the pipe is laid unless other protection for the pipe line is provided. Clean earth, sand, crushed limerock, or other material approved by the Engineer shall be used for backfill. Backfill material shall be selected, deposited and compacted (simultaneously on both sides of the pipe) so as to eliminate the possibility of lateral displacement of the pipe. Backfill material shall be solidly tamped around the pipes in layers to a level at least one foot above the top of the pipe. Each layer shall be compacted to a maximum thickness of six inches.

2. In unpaved areas, the remainder of the backfill shall be deposited and then compacted by puddling, water flooding or mechanical tampers. Mechanical tamping of layers in unpaved areas shall be to a maximum thickness of 12 inches. In areas to be paved or repaved, the entire depth of backfill shall be deposited in layers and compacted by hand or mechanical tampers to a maximum thickness of six inches. Compaction shall be carried out to achieve a density of at least 98 percent (98%) of the maximum density as determined by AASHTO, Method T-180. Under areas to be paved, puddling may be used for backfill consolidation after tamping to one foot over the pipe, as specified, provided the method is first approved by the Engineer and the density requirements are met.

3. In areas to be paved, density tests for determination of the specified compaction shall be made by a testing laboratory and spaced one in every 300 feet of trench cut. It is the intent of this specification to secure a condition where no further settlement of trenches will occur. When backfilling is completed, the roadway base for pavement replacement may be placed immediately. It will be the responsibility of the Contractor to restore the surface to the original grade wherever settlement occurs.

E. Structural (For inlets, manholes, and similar structures):

1. Remove sufficient material to allow proper space for erecting and removing forms. The elevations of the bottoms of footings, if shown on the drawings, shall be considered as approximate only, and the Engineer may order, in writing, such changes in dimensions or elevations of footings as may be deemed necessary to secure a satisfactory foundation. Excavation for structures shall be sufficient to leave at least 12 inches in the clear between their outer surfaces and the embankment or timber that may be used to protect them.

Backfill of earth under structures will not be permitted. Excess excavation for structures shall be filled with thoroughly compacted sand, gravel, or concrete at the expense of the Contractor.

2. After excavation for a structure is completed, the Contractor shall notify the Engineer to that effect. No concrete or reinforcing steel shall be placed until the Engineer has approved the depth of the excavation and the character of the foundation material.

F. Sheeting and Shoring:

1. The Contractor shall provide all trench and structural bracing, sheeting or shoring necessary to construct and protect the excavation, existing utilities, structures, and private property of all types and as required for the safety of the employees. Sheeting shall be removed or cut off by the Contractor during backfilling operations as directed by the Engineer. Removal of shoring for structures shall be done in such a manner as not to disturb or mar finished masonry or concrete surfaces.

3.3 DRAINAGE

A. Grading shall be controlled in the vicinity of excavations so that the surface of the ground will be properly sloped to prevent water from running into trenches or other excavated areas. Any water which accumulates in the excavations shall be removed promptly by well point or by other means satisfactory to the Engineer in such a manner as to not create a nuisance to adjacent property or public thoroughfare. Trenches shall be kept dry while pipe is being laid. Bridging of dewatering pipe shall be provided where necessary. Pumps and engines for well point systems shall be operated with mufflers, and at a minimum noise level suitable to a residential area. The Contractor will not be allowed to discharge water into the Owner's storm drainage system without the written approval of the Engineer. Approval will be subject to the condition that the storm sewer be returned to its original condition.

B. The Contractor is responsible for carrying the water to the nearest ditch or body of water and for obtaining the necessary permission to use same. The Contractor shall be financially responsible for any nuisance created due to carrying off water from his drainage system.

3.4 BACKFILL

A. Trenches:

1. Trenches shall be backfilled immediately after the pipe is laid unless other protection for the pipe line is provided. Clean earth, sand, crushed limerock, or other material approved by the Engineer shall be used for backfill. Backfill material shall be selected, deposited and compacted (simultaneously on both sides of the pipe) so as to eliminate the possibility of lateral displacement of the pipe. Backfill material shall be solidly tamped around the pipes in layers to a level at least one foot above the top of the pipe. Each layer shall be compacted to a maximum thickness of six inches.

2. In unpaved areas, the remainder of the backfill shall be deposited and then compacted by puddling, water flooding or mechanical tampers. Mechanical tamping of layers in unpaved

areas shall be to a maximum thickness of 12 inches. In areas to be paved or repaved, the entire depth of backfill shall be deposited in layers and compacted by hand or mechanical tampers to a maximum thickness of six inches. Compaction shall be carried out to achieve a density of at least 98 percent (98%) of the maximum density as determined by AASHTO, Method T-180. Under areas to be paved, puddling may be used for backfill consolidation after tamping to one foot over the pipe, as specified, provided the method is first approved by the Engineer and the density requirements are met.

3. In areas to be paved, density tests for determination of the specified compaction shall be made by a testing laboratory and spaced one in every 300 feet of trench cut. It is the intent of this specification to secure a condition where no further settlement of trenches will occur. When backfilling is completed, the roadway base for pavement replacement may be placed immediately. It will be the responsibility of the Contractor to restore the surface to the original grade wherever settlement occurs.

B. Structural:

1. After completion of foundation footings and walls and other construction below the elevation of the final grades, and prior to backfilling, forms shall be removed and the excavation shall be cleared of all trash and debris. Material for backfilling shall consist of the excavation, borrow sand or other approved materials, and shall be free of trash, lumber, or other debris. Backfill shall be placed in horizontal layers not in excess of nine inches in thickness, and have moisture content such that a density may be obtained to prevent excessive settlement or shrinkage. Each layer shall be compacted by hand or approved machine tampers with extreme care being exerted not to damage pipe or structures. Backfill shall be placed and compacted evenly against the exposed surfaces to prevent undue stress on any surface.

3.5 RESTORATION OF SURFACE IMPROVEMENTS

A. Roadways, including shoulders, alleys, and driveways of shell, limerock, stabilized soil or gravel, grass plots, sod, shrubbery, ornamental trees, signs, fences, or other surface improvements on public or private property which have been damaged or removed in excavating, shall be restored to conditions equal to or better than conditions existing prior to beginning work. Restoration of shoulders shall consist of sodding, seeding and mulching, or stabilizing with limerock as selected by the Engineer. The cost of doing this work shall be included in the cost of the various applicable items.

B. Materials for unpaved roadways, road shoulders, alleys, or drive-ways, shall be compacted to a minimum of 98 percent (98%) of the maximum density as determined by AASHTO, Method T-180. The cost of this work and furnishing new materials shall be included in the cost of the applicable items of work as no separate payment will be made, unless a separate bid item is provided.

3.6 FINE GRADING

A. Finished areas around structures shall be graded smooth and hand raked and shall meet the elevations and contours shown on the drawings. Lumber, earth clods, rocks, and other undesirable materials shall be removed from the site.

3.7 DISPOSAL OF MATERIAL

A. Such portions of the excavated materials as needed and as suitable shall be used for backfilling and grading about the completed work to the elevations as shown on the drawings or as directed. Excavated material in excess of the quantity required for this purpose shall be disposed of by the Contractor. The Contractor shall leave the earth over the trenches or other excavations in a neat and uniform condition acceptable to the Owner.

3.8 TESTS

A. The Contractor shall furnish facilities for making all density tests and make such restorations as may be necessary due to test operations. All density tests on backfill or base replacement will be made by a commercial testing laboratory employed by the Owner and at such locations as may be recommended by the Engineer. The Contractor shall pay for all tests where the densities, as determined by the specified tests, fall below the required minimums (failed tests).

END OF SECTION 31 23 33

SECTION 32 10 00 – BASES, BALLASTS AND PAVING

PART 1 - GENERAL

1.1 WORK INCLUDED

A. The work covered and described in this section includes the furnishing and construction of paved surfaces, including roadways, driveways, bicycle paths, shoulders, and other paved surfaces, or paving work as shown or indicated on the Drawings, specified herein, and as listed in this Contract.

B. All work shall conform to the applicable Technical Specifications of Florida Department of Transportation "Standard Specifications for Road Bridge Construction" latest Edition (Divisions II and III) and Design Standards", latest Edition, including any amendments thereto. The Contractor shall acquire their own copies of the Department of Transportation Standards. In the event of conflict between the Department of Transportation Standards and the Specifications listed in these documents, the Owner/Engineer shall determine which shall govern. Reference to the Department of Transportation Standards, to the Department or its representatives shall be interpreted for this Contract to be the Owner/Engineer or their authorized representative.

PART 2 - PRODUCTS

2.1 SUBBASE

A. The materials used should be high bearing value soil, sand-clay, ground limestone, crushed lime rock, coquina, or any other material suitable for stabilization. Muck shall not be used.

2.2 BASE COURSE

A. The base course material used shall be that specified in the Drawings or Contract Documents. If no base material is specified, limerock shall be used, unless otherwise indicated. All base material shall be approved by the Owner/Engineer and supplied by the Contractor.

B. The lime rock base material shall have a minimum of seventy percent (70%) carbonates, calcium and magnesium and no more than three percent (3%) water sensitive clay. The liquid limit shall not exceed 35 and the plastic index shall not exceed 10. The average LBR value of the material shall be no less than 100, nor be large amounts of extremely hard pieces of clay pockets.

C. Soil-cement base shall be composed of a combination of soil and Portland cement uniformly mixed, moistened, compacted, finished, and cured. The soil shall be either existing in-place material or that brought from borrow locations. All soil must meet the requirements set forth in FDOT Standards and Specifications for Road and Bridge Construction Latest Edition. The cement used shall be Portland cement Type I or I-P and water shall be free from any substances deleterious to hardening of the soils-cement mixture.

1. The soil-cement mixture shall be proportioned in accordance with a design mix prepared by a testing laboratory and approved by the Owner/Engineer. The design mix shall be submitted for approval at least thirty (30) calendar days prior to beginning of soil-cement construction. The cement content shall be expressed in percentage of dry weight of the soil. Rate of application shall be based on the maximum density of the soil, determined in accordance with AASHTO T 99 and a thickness one (1) inch greater than the base course thickness shown on the plans.

D. Asphalt base courses shall have a bituminous material content of asphalt cement, viscosity Grade AC-20 or AC-30, meeting the requirements of FDOT Standards and Specifications for Road and Bridge Construction, Latest Edition. The bituminous mixture shall be composed of a combination of aggregate, bituminous material. The job mix formula, as established by the Contractor, must be approved by the Owner/Engineer. The asphalt base mix shall be within the design ranges specified for mix Type ABC-3 or S-II, (Use of any other mix is subject to the approval of the Owner/Engineer.). The constituents of the mixture shall be combined to produce a mixture having Marshal properties within the limits of Appropriate Table of the FDOT Standards and Specifications for Road and Bridge Construction, latest Edition.

E. Coquina shell used in the base course shall have an organic material of not greater than one-half percent (0.5%) or contain significant quantities of sand or other impurities which would prevent bonding. At least ninety-seven percent (97%) of the coquina used shall pass through a three and one-half (3.5) inch ring.

F. Recycled concrete aggregate used in the base course shall conform to Appropriate Section, graded aggregate base, of the latest revision of the Florida Department of Transportation Standard Specifications for Road and Bridge Construction.

2.3 PRIME AND TACK COATS

A. Bituminous prime coats shall be applied to previously prepared bases. Bituminous tack coats shall be placed on existing paved surfaces and between successive lifts of asphalt material.

B. The prime coat shall be Cut-back asphalt Grade RC-70 or RC-250;Emulsified Asphalt Grades SS-I , CSS-I, SS-1H or CSS-1H diluted in equal proportion with water or other types and grades of bituminous material specified or approved by the Owner/Engineer.

C. The tack coat shall be RA-500 heated to a temperature of 250°F to 300°F. For undiluted Emulsified Asphalt, Grades RS-1 or RS-2 heated to a temperature of 140°F to 180°F.

D. A cover material must be placed on the prime coat to ensure that the prime coat remains intact until the surface course is placed.

2.4 ASPHALT WEARING SURFACE

A. The bituminous wearing surface applied shall be that specified in the Drawings or Contract Documents. If no asphalt mix is specified, Type SP-9.5 Super Pave asphaltic concrete shall be used as the paving material, unless otherwise indicated.

B. The asphaltic mixture shall be transported to the site at a temperature of 300°F to 350°F. Mixtures that have cooled below 270°F will be rejected. The mix temperature will be taken on the first five loads each day and on an average of once every five (5) loads thereafter.

C. The Contractor is entirely responsible for producing a homogenous mixture, free from moisture and with no segregated materials, and meeting all requirements of the Specifications for the mixture. Prior to the production of any asphalt paving mixture, the Contractor shall submit, in writing, a proposed job mix formula, at least two (2) weeks prior to the beginning of any paving activities. All requests for design mix adjustments, redesigns and new design mixes will be submitted, in writing, to the Owner/Engineer.

PART 3 - EXECUTION

3.1 SUBBASE

A. Prior to installation of base material, the area shall be graded to within two tenth (0.2) feet, and soft, spongy or mucky material removed. Sufficient stabilizing material shall be cut in to achieve a Florida Bearing Value (FBV) in excess of 75 psi or lime rock bearing ratio (LBR) greater than 40 pounds at a minimum density of ninety-eight percent (98%) of a maximum density as defined and measured in AASHTO T 180 (Modified Proctor), to a six-inch minimum depth.

B. Density test for subbase materials shall be taken at 300-foot intervals and around structures as required. If compaction procedures allow testing requirements may be reduced at the Owner/Engineer's discretion.

3.2 BASE COURSE

A. The base course shall be constructed on the prepared subgrade, in accordance with the Specifications and Drawings. All base material shall be placed in accordance with the lines, grades, notes, and typical cross sections shown on the plans. Any deviation from the Drawings is subject to the approval of the Owner/Engineer. Any deviations not approved by the Owner/Engineer shall be repaired to the satisfaction of the Owner/Engineer at no expense to the Owner.

B. Lime Rock Base

1. Lime rock base shall be spread by mechanical spreaders, equipped to produce an even distribution with a uniform thickness. When the specified compacted thickness of the base is greater than six inches, the base shall be constructed in two (2) courses. The thickness of the first course shall be one-half the total thickness of the finished base. After spreading is completed, the entire surface shall be scarified and shaped so as to produce the required grade and cross section after compaction. If two (2) courses are required, each lift shall be prepared as previously described. Prior to spreading of the upper course, density tests will have been taken for the lower and determined to be satisfactory.

2. All materials shall be compacted to a density of not less than ninety-eight percent (98%) of maximum density as determined by AASHTO T 180. Density tests shall be taken in at

least three locations on each day's final compaction of each course. Density determinations shall be made at more frequent intervals, at no extra cost, if deemed necessary by the Owner/Engineer.

3. The finished surface of the base course shall be checked with a template cut to the required crown and a 15-foot straight edge laid parallel to the center line of the road. All irregularities greater than one-quarter (1/4) inch shall be corrected to the satisfaction of the Owner/Engineer.

4. The base material shall extend at least 12 inches outside the edge of the finished paved surface, unless otherwise indicated. Thickness of the base shall be measured at 200-foot intervals at various points in the cross section. Where the compacted thickness is deficient by one-half (1/2) inch or more, the Contractor shall correct the deficiency by scarifying and adding rock for a distance of 100 feet in each direction from the edge of the deficient area. The required thickness, compaction and cross section will then be achieved.

5. Prime coat shall be applied only when the base meets the specified density and the moisture content in the top half of the base does not exceed ninety percent (90%) of the optimum moisture of the base material.

C. Soil Cement Base

1. Soil-cement mixing shall be either mixed-in-place or a central plant mix.

2. If mixed-in-place, the entire width of the base shall be processed in a single operation, where possible. The specified quantity of cement shall be applied at the required rate by means of an approved method. Mixing will begin within sixty (60) minutes after the cement has been applied. Processing may be to full depth in one (1) course, provided that the satisfactory distribution of cement, water, soil and the specified density can be obtained. If not, construction shall be in courses of such thickness to obtain satisfactory results. Adequate bonding between courses must be achieved. After mixing soil and cement, additional water shall be added, if necessary. After all mixing water has been applied, mixing shall continue until a uniform mixture has been obtained. Excessive concentrations of water shall be avoided.

3. Central plant mixtures shall have been mixed for at least thirty (30) seconds. The mixture shall be placed on the moistened subgrade in a uniform layer by an approved spreader. The layer of soil-cement shall be of uniform thickness and surface contour. The completed base will conform to the required grade and cross section.

4. Compaction of the soil-cement mixture shall begin immediately after mixing is complete. The optimum moisture content and maximum density shall be determined in the field by the methods described in AASHTO T 143. The base shall be compacted to not less than ninety-five percent (95%) of the maximum density. The soil-cement mix design shall be 350 psi at 28 days, unless otherwise indicated, and moisture content and density tests shall be taken every 300 lineal feet to a minimum depth of six inches.

5. After compaction, the surface shall be shaped to the required lines, grades and cross section. The moisture content of the surface material shall not be more than two percent (2%) less than the specified optimum moisture content during finishing operations. The

finished surface shall be smooth, dense, and free of compaction planes, cracks, ridges and loose material.

6. Construction joints shall be formed by cutting back in the completed work to form a true vertical face. The vertical face shall be a straight transverse line perpendicular to the centerline of the roadway.

7. The finished surface of the base shall be tested with a template and a 15-foot straight edge. All irregularities greater than one-quarter (1/4) inch shall be corrected to the satisfaction of the Owner/Engineer.

8. The finished surface shall be kept continuously moist until the surface is treated with either cut-back asphalt, Grade RC-70 applied at 0.15 to 0.20 gallons per square yard; or a mixture of emulsified asphalt and water applied at a rate of 0.20 of 0.25 gallons per square yard. If the Owner/Engineer deems it necessary, the surface shall be sanded using 10 pounds of clean sand per yard.

D. Asphalt Base Course

1. Asphalt base courses shall be applied in accordance with FDOT Standards and Specifications for Road and Bridge Construction, Appropriate Section. The job mix formula approved for the project shall be used. Any deviation from the approved mix must be submitted to the Owner/Engineer and approved before being implemented.

2. The base course material shall be placed with an approved paving machine. A motor grader may be required if a leveling course is needed. The base mix may be placed when the air temperature is at least 40°F and rising, provided that the sub-grade is not frozen or affected by frost.

3. A paver, equipped with automatic screed control, shall be used for all machine-laid courses. The automatic joint matcher shall be used on the top course of the base after the first pass with a paving machine. All mixtures shall be laid by the string line method, with the exception of areas adjacent to curb and gutter or other true edges. The temperature of the mix shall be between 300°F and 350°F. Any mixture caught by rain in transit may be laid at the Contractor's own risk; if removal and replacement is required, it shall be at the expense of the Contractor. In no case shall the mixture be spread when rain is falling or when there is water on the surface to be covered. The layer thickness for asphalt concrete structure courses shall match those listed in the table below.

E. Recycled Concrete Base Course

1. Recycled concrete base course shall be transported, spread compacted and finished per Appropriate Section, of the latest revision of the Florida Department of Transportation Standard Specifications for Road and Bridge Construction.

2. The depth of all layers shall be checked every 50 feet. A tack coat, as specified, will be required on existing pavements to be overlaid with an asphalt mix and between successive layers of all asphalt mixes.

F. Compaction

1. After the asphalt mixture has been spread to the proper lines, grades, and cross sections, compaction operations may begin. The Contractor shall establish rolling procedures and submit their sequence of compaction operations to the Owner/Engineer for approval. The equipment used may include, but is not committed to steel-wheeled rollers, pneumatic tired rollers, and vibratory rollers. Areas which are inaccessible to a roller shall be compacted by the use of hand tamps or other satisfactory means. An entire sequence of compaction operations shall be performed for each layer of applied material, density determinations shall also be made.

2. The in-place density of each course shall be determined through core samples and the nuclear backscatter method. A core sample of a representative paving section shall be taken for each day's production of paved surface; backscatters shall be taken every 30 feet at various locations in the cross section. Additional testing around manholes or other structures may be required.

3. Testing and density requirements shall not apply to the following construction activities: Asphalt patching courses, leveling and intermediate course less than one (1) inch thick, overbuild courses less than one (1) inch thick and open graded friction courses.

G. Shell Base Material

1. Shell base material shall be constructed on the prepared subgrade in accordance with these Specifications and in conformity with the lines, grades and cross sections shown on the plans. The shell base shall be spread uniformly and evenly; during spreading operations the shell shall be thoroughly saturated with water.

2. After spreading the shell shall be compacted, with water being added as required, until the required density is obtained. Compaction and density shall be as required for lime rock base, except that the testing methods shall be modified in the laboratory and in the field. At least three (3) density determinations shall be made on each day's final compaction operations.

3. Upon completion of initial compaction, the entire surface shall be scarified and shaped to exact crown and cross section. The base shall then be re-watered and compacted to the required density. The finished surface shall be tested with a template and 15-foot straight edge. All irregularities greater than one-quarter (1/4) inch shall be corrected to the satisfaction of the Owner/Engineer. The prime coat shall be applied after the base meets all density and finish requirements.

3.3 ASPHALT WEARING SURFACE

A. The asphalt wearing surface shall be constructed on the prepared base in accordance with the Drawings and Specifications and in conformity with the indicated lines, grades, and cross sections. If no asphalt mixture is indicated, the specified mixture shall be Type SP-9.5 Super Pave Asphaltic Concrete. A job mix formula shall be submitted to the Owner/Engineer for approval at least two (2) weeks prior to the application of paved surfaces.

B. The mixture shall be spread only when the base is clean, dry, properly cured, and approved by the Owner/Engineer. The temperature shall be at least 40°F and rising. No paving operations will be permitted if it is raining or rain is imminent. The mix shall be between 270°F and 350°F.

C. The asphalt mixture shall be spread with an approved paving machine to the required width and depth. All mixes, except those adjacent to curb and gutter, shall be laid according to the string line method. The depth of each layer shall be checked every 50 feet.

D. The mixture shall be compacted to its final depth, no less than one and one-quarter (1-1/4) inch and thicker if so indicated. Compaction and layering procedures specified for asphalt base courses shall apply to surface courses. All testing and density requirements will also apply.

E. When laying operations are interrupted, a transverse joint shall be constructed by cutting back on the previous run to expose the full depth of material. Longitudinal joints are to be sloped or rolled over and sealed. When the adjacent strip is constructed, the edge shall be trimmed back to expose the unsealed face. All longitudinal construction joints shall be offset six (6) inches to 12 inches laterally between layers.

F. When fresh mixture is laid against transverse or longitudinal joints, it shall be placed in contact to produce an even, well compacted joint after rolling.

G. The finished surface shall be tested with a template and 15-foot rolling straight edge. Any irregularities shall be repaired to the satisfaction of the Owner/Engineer. The surface shall be of uniform texture and compaction. No sand spots, ripples, or loosened portions shall be evident. No traffic shall be allowed onto the finished surface until it is deemed acceptable by the Owner/Engineer.

3.4 CURING COAT

A. During the period when finishing and surface corrosion of the soil-cement base are being accomplished, the surface of the base shall be kept continuously moist by sprinkling as necessary. As soon as deemed practicable, the curing seal shall be applied to the soil-cement base. The curing seal shall consist of Emulsified Asphalt Grade SS-I or SS-1H, diluted in equal proportion with water, and be applied at the rate of 0.15 to 0.30 gallons per square yard.

B. The actual rate of application shall be as directed and shall provide complete coverage without excessive runoff. At the time the bituminous material is applied, the soil-cement surface shall be dense and free of all loose and extraneous material and shall contain sufficient moisture to prevent excessive penetration to the bituminous materials.

C. Should it be necessary to allow construction equipment or other traffic to use the completed base before the bituminous material has cured sufficiently to prevent pickup or displacement; the bituminous material shall be sanded, using approximately 10 pounds of clean sand per yard.

END OF SECTION 32 10 00

SECTION 33 01 00 – OPERATION AND MAINTENANCE OF UTILITIES

PART 1 - GENERAL

1.1 DESCRIPTION

A. Scope of Work: The work included in this Section consists of furnishing all labor, equipment, and materials and in performing all operations necessary for the construction or installation of all process and utility piping, valves, valve boxes and all castings and appurtenances within, complete and ready for operation as shown on the Drawings and specified herein.

1.2 QUALITY ASSURANCE

A. Construction Requirements:

1. All underground lines shall be installed with at least 36 inches of cover or as detailed on the Drawings.

2. For underground utilities changes in pipe alignment and use of fittings may be allowed, subject to approval of the Engineer as to layout. Deflection shall not exceed eighty percent (80%) of the maximum allowable deflection as stated in the pipe manufacturer's installation instructions.

B. Pipe Inspection:

1. The Contractor shall obtain from the pipe manufacturers a certificate of inspection to the effect that the pipe and fittings supplied for this Contract have been inspected at the plant and that they meet the requirements of these Specifications. Certification shall be stamped with corporate seal.

2. All pipe and fitting shall be subject to visual inspection at time of delivery by rail or truck and also just before they are lowered into the trench to be laid. Joints or fittings that do not conform to these Specifications will be rejected and must be removed immediately by the Contractor.

3. The entire product of any plant may be rejected when, in the opinion of the Engineer, the methods of manufacture fail to secure uniform results, or where the materials used are such as to produce inferior pipe or fittings.

1.3 SUBMITTALS

A. Shop Drawings:

1. In general, electronic copies of the following, but not limited to, shop drawings shall be submitted to the Engineer for approval prior to construction. Shop drawings to be

numbered sequentially. Cover transmittal sheets to include project name, shop drawing number, shop drawing description, and Specification section(s).

a. Mill test certificates or certified test reports on pipe and fittings.
b. Details of restrained and flexible joints.
c. Valve vaults.
d. Valve boxes.
e. All gate, plug, ball, solenoid, check valves, and automatic air release valves.
f. Couplings.
g. Service saddles, curb, & corp stops.
h. Flexible expansion joints.
i. Pressure gauges.
j. Identification tape.
k. Joint lubricant.
l. Detailed piping layout drawings and pipe laying schedule.
m. Temporary plug and anchorage system for hydrostatic pressure test.
n. Tie rods.
o. Reduced pressure backflow preventers.

2. A separate shop drawing submittal will be required for each major item listed above and for each different type of an item within a major item. For example, separate submittals will be required for gate, plug, ball, solenoid, check and automatic air release valves. All submittals shall be in accordance with the General Conditions and the Supplementary Conditions.

B. Acceptance of Material:

1. The Contractor shall furnish an Affidavit of Compliance certified by the pipe manufacturer that items furnished under this Contract comply with all applicable provisions of current AWWA and ASTM Standards and these Specifications. No pipe or fittings will be accepted for use in the work on this project until the Affidavit has been submitted and approved by the Engineer.

2. The Owner reserves the right to sample and test any pipe or fitting after delivery and to reject all pipe and fittings represented by any sample which fails to comply with the specified requirements.

C. Operation and Maintenance Manuals:

1. Submit copies of operation and maintenance manuals for all the items requiring routine maintenance.

1.4 DELIVERY, STORAGE AND HANDLING

A. During shipping, delivering, and installing pipe, fittings, valves, backflow preventers, and accessories, they shall be handled in such manner as to ensure a sound undamaged condition.

B. Particular care shall be taken not to damage coatings.

C. Insides of valves and backflow preventers shall be kept free of dirt and debris.

1.5 JOB CONDITIONS

A. Water in Excavation:

1. Water shall not be allowed in the trenches while underground pipes are being laid and/or tested. The Contractor shall not open more than 100 feet of trench than the available pumping facilities are able to dewater to the satisfaction of the Engineer. The Contractor shall assume responsibility for disposing of all water so as not to interfere with the normal drainage of the territory in which they are working.

2. In no case shall the pipelines being installed be used as drains for such water, and the ends of the pipe shall be kept properly and adequately plugged during construction by the use of approved stoppers and not by improvised equipment. All necessary precautions shall be taken to prevent the entrance of mud, sand, or other obstructing matter into the pipelines. If on completion of the work any such materials have entered the pipelines, it must be cleaned as directed by the Engineer so that the entire system will be left clean and unobstructed.

PART 2 - PRODUCTS

2.1 DUCTILE IRON PIPE AND FITTINGS

A. Ductile Iron Pipe: Ductile iron pipe shall conform to the requirements of ANSI/AWWA C150/A21.50, latest revision. The minimum thickness class for all pipe greater than 12-inch diameter shall be pressure Class 250, and all pipe 12-inch or less in diameter shall be pressure Class 350.

Pipe shall have a minimum rated water working pressure of 250 psi and shall be furnished in laying lengths of 20 feet or less, unless specifically shown otherwise on the Drawings. The pipe shall be lined and coated as specified below.

1. Interior Lining for Raw Activated Sludge (RAS), Sludge Lines, and Force Mains: Ductile iron fittings and specials shall be coated with 40 mils nominal dry film thickness of Protecto 401 or approved equal in accordance with the manufacturers recommended actions.

2. Interior Lining for Potable and Reclaimed Water Piping: Ductile iron pipe, fittings and specials shall be cement lined in accordance with ASNI/AWWA C104, current revision, "Cement-Mortar Lining for Ductile Iron and Gray Iron Pipe and Fittings for Water". The cement lining shall have a standard thickness and after curing the lining shall have a seal coat of bituminous material in accordance with ANSI/AWWA C104, current revision.

3. Exterior Coatings: The exterior of ductile iron pipe fittings and specials to be installed underground shall be coated at the factory with standard bitumastic coating.

4. Polyethylene Encasement: Where indicated, the Contractor shall utilize polyethylene encasement in accordance with ANSI/AWWA C105-T1. The polyethylene shall conform with ASTMD-1248-68 and be color coded to the service application.

5. Ductile iron pipe, fittings, and specials to be installed aboveground shall be furnished with a shop applied primer on the exterior. The shop primer shall be as specified in accordance with manufacturers recommendations.

B. Fittings: Fittings for ductile iron pipe shall be either mechanical joint, restrained joint, or flanged joint as indicated on the Drawings and shall have a minimum working pressure of 250 psi. Fittings shall be ductile iron and shall conform to ANSI/AWWA C110, ANSI/AWWA C111 and ANSI/AWWA C153, latest revisions for flanged and mechanical joint pipe. Fittings shall be coated and lined as specified above for ductile iron pipe. The rubber gaskets for flanged, mechanical, and push on joints shall be as described below.

C. Push-On Joints: Pipe using push-on joints shall be in strict accordance with ANSI/AWWA C111, latest revision and shall be as manufactured by American Cast Iron Pipe Company (Fastite Joint), United States Pipe Company (Tyton Joint), or Clow Corporation (Super Bell Tite Joint). Jointing materials shall be provided by the pipe manufacturer and installation shall be in strict accordance with the manufacturer's recommended practice.

D. Mechanical Joints: Jointing materials for mechanical joints shall be provided by the pipe and fitting manufacturer. Materials assembly and bolting shall be in strict accordance with ANSI/AWWA C111 and ANSI/AWWA C153, latest revisions. Tee head bolts and nuts for mechanical joints shall be manufactured of CORTEN, high strength, low alloy, corrosion resistant steel as manufactured by NSS Industries, Plymouth, Michigan or an equal approved by the Engineer.

E. Flanged Joints: Flanges shall be American Standard for 125-pound steam pressure with any special drilling and tapping as required to ensure correct alignment and bolting. Gaskets shall be rubber full face type, minimum thickness of 1/8-inch. Flanged joints shall be made with bolts and nuts, studs with a nut on each end, or studs with nuts where the flange is tapped.

F. The number and size of bolts shall conform to the same American National Standard as the flanges. Unless noted otherwise, bolts and nuts shall be Grade B conforming to the ASTM Specifications for Steel Machine Bolts and Nuts and Tap Bolts, Designation A 307. Bolts and studs shall be of the same quality as machine bolts. Bolts and nuts shall have hexagonal heads. Where noted on the Drawings or where flanges are underground, stainless-steel nuts and bolts shall be used for flanges. Stainless steel shall be Type 316 in accordance with ASTM A320, Class 2.

1. Machined Surfaces: Machined surfaces shall be cleaned and coated with a suitable rust preventative coating at the shop immediately after being machined.

G. Restrained Joints: Restrained joints shall be provided for all buried piping systems at the location required to restrain the system thrust. Pipe joints and fitting shall be restrained as specified below.

1. Manufactured Restrained Joints: Manufactured restrained joints shall be Flex-Ring, Lok-Ring or Lok-Fast manufactured by the American Cast Iron Pipe Company, Lok-Tyte or Tr-Flex Type manufactured by the United States Pipe Company, and TR-Flex as manufactured by McWane, or an equal approved by the Engineer. Joints shall be manufacturer's standard specifically modified push-on type joints with joint restraint provided by ductile iron retainer rings joined together by corrosion resistant, high strength

steel tee head bolts and nuts or with joint restraint provided by a welded on retainer ring and a split flexible ring assembled behind the retainer ring.

Restrained joint pipe and fittings shall be ductile iron only and shall comply with applicable portions of this Specification. Manufactured restrained joints shall be capable of deflection during assembly. Deflection shall not exceed that shown in ANSI/AWWA C500 and shall not exceed 80 percent (80%) of the manufacturer's recommendations.

Tee head bolts and nuts for restrained joints shall be manufactured of CORTEN, high strength, low alloy, corrosion resistant steel as manufactured by NSS Industries, Plymouth, Michigan, or an equal approved by the Engineer.

2. Alternate Restrained Joints:
   a. When prior approval is obtained from the Engineer, ductile iron pipe and fittings with mechanical joints may be restrained using a follower gland which includes a restraining mechanism. When actuated during installation, the restraining device shall impart multiple wedging action against the pipe wall which increases resistance as internal pressure in the pipeline increases. The pipe must be suitable for use with the proposed device.

      The joint shall maintain flexibility after installation. Glands shall be manufactured of ductile iron conforming to ASTM A536 and restraining devices shall be of heat treated ductile iron with a minimum hardness of 370 BHN. The gland shall have standard dimension and bolting patterns for mechanical joints conforming to ASNI/AWWA C111 and C153, latest revisions.

      Tee head bolts and nuts shall be manufactured of corrosion resistant, high strength, low alloy CORTEN steel in accordance with ASTM A242.

      The restraining wedges shall have twist off nuts to ensure proper torquing. The mechanical joint restraint device shall have a minimum working pressure rating of 250 psi with a minimum safety factor of 2 to 1 and shall be MEGALUG^{R} as manufactured by EBBA Iron, Inc. No other retainer gland type device will be acceptable. After installation prior to backfilling, all parts of the joint restraint system shall be coated with coal tar epoxy equal to Kop-Coat Bitumastic No. 300-M.
   b. When prior approval is obtained from the Engineer, ductile iron pipe and fittings with push on joints may be restrained using a restraining gasket similar to the "Field Lok" gasket manufactured by U.S. Pipe & Foundry. The device must be suitable for the pipe and pressure rating intended and is subject to approval by the Engineer. The required length of restrained joint pipe shall be provided on either side of all valves and fittings employing restraining devices. Restrained lengths shall be calculated per DIPRA standards based on Type II laying conditions and an operating pressure of 150 psi, unless otherwise indicated.

2.2 POLYVINYL CHLORIDE (PVC) PIPE AND FITTINGS

A. Gravity Drainage Piping: PVC pipe used for gravity drainage piping installed underground shall be SDR 26 pipe.

B. Small PVC Pressure Piping: Unless otherwise specified, all PVC pressure pipe smaller than 4 inches nominal diameter shall be Schedule 80 PVC or Endot Endpure HDPE, (as shown). Schedule 80 pipe shall have either solvent welded or threaded joints. PVC pressure pipe shall bear the approved seal of the National Sanitation Foundation (NSF). PVC pipe that is exposed to sunlight shall be manufactured with additives to provide resistance to ultraviolet deterioration. No glued joint pipe shall be installed below ground, unless other specified. All water pipe to be Class 200 (DR 21) gasketed bell and spigot pipe blue in color.

C. Fittings: Socket type, solvent welded fittings for Schedule 80 PVC pipe shall be in conformance with ASTM D2467. Threaded type fittings for Schedule 80 PVC pipe shall be in conformance with ASTM D2464. All solvent welded or threaded joints shall be watertight.

D. Flanges: Flanges for Schedule 80 PVC pipe shall be rated for a 150 psi working pressure with ANSI B16.1 dimensions and bolting pattern. Flanges shall be connected to PVC piping with either solvent welded or threaded joints in accordance with ASTM D2467 or ASTM 2464, respectively. Gaskets shall be neoprene, full faced type with a minimum thickness of 1/8 inch. Nuts and bolts shall be hexagonal with machine threads, manufactured of Type 316 stainless steel in accordance with ASTM A320, Class 2. Type 316 stainless steel flat washers with lock washers shall be used against PVC flanges.

E. Solvent Cement: PVC solvent cement shall be in compliance with ASTM D2564 and in accordance with the pipe manufacturer's recommendations.

F. Thread Lubricant: Lubricant for Schedule 80 threaded joints shall be Teflon tape only.

G. Polyvinyl Chloride Pipe 4 Inches and Larger in Size for Pressure Service: Polyvinyl chloride pipe for nominal diameters 4 inches to 12 inches in size shall conform to the requirements of AWWA C900 with a dimension ratio of DR 18, pressure class 150, and gasketed integral bell ends. For PVC pipe larger than 12 inches for pressure service, the pipe shall conform to the requirements of AWWA C900 with a minimum DR of 18, pressure rating of 235 psi, with gasketed integral bell ends. Pipe shall be designed for maximum working pressure of not less than 235 psi and with not less than a 4 to 1 sustained hydrostatic pressure safety factor. Fittings for C-900 PVC pipe shall be ductile iron fittings with restrained joint ends for potable water or reclaimed water lines, and restrained PVC fittings for sanitary force mains.

H. All PVC pipe installed shall be color coded for the service intended. Potable water piping shall be extruded blue, reclaimed water shall be lavender, force main green, and gravity sewer green. Care shall be taken to avoid exposure to sunlight. Pipe should be marked for its use in three places on the pipe barrel.

I. Joints (4 Inches and Larger PVC Pipe):

1. Bell and Spigot:

Pipe joints shall be made with integral bell and spigot pipe ends. The bell shall consist of an integral thickened wall section designed to be at least as strong as the pipe wall. The bell shall be supplied with factory glued rubber ring gasket with conforms to the manufacturer's standard dimensions and tolerances. The gasket shall meet the requirements of ASTM F477 "Elastomeric Seals (Gaskets) for Joining Plastic Pipe". PVC joints shall be "Ring-Tite" as manufactured by J-M Manufacturing Company, Inc. or an equal approved by the Engineer.

2. Restrained Joints:

Where indicated on Drawings, to prevent pipe joints and fittings from separating under pressure, pipe joints and fittings shall be restrained as follows:

a. PVC pipe bell and spigot joints shall be restrained with EBBA Iron MEGALUG^{R} Series 1500 Restrainer or an equal approved by the Engineer. The restraining device and Tee head bolts shall be manufactured of high strength ductile iron meeting ASTM A536, Grade 65-42-10. Clamping bolts and nuts shall be manufactured of corrosion resistant high strength, low alloy CORTEN steel meeting the requirements of ASTM A242.

b. Cast iron mechanical joint fittings used with PVC pipe shall be restrained with the EBBA Iron MEGALUG^{R} Series 2000 PV Restrainer or an equal approved by the Engineer. The restraining device and Tee head bolts shall be manufactured of high strength ductile iron meeting ASTM A536, Grade 65-42-10. Clamping bolts and nuts shall be manufactured of corrosion resistant high strength, low alloy CORTEN steel meeting the requirements of ASTM A242.

c. Thrust Blocking. Provided concrete reaction or thrust backing on all pressure pipe lines four inches in diameter or larger (except those having flanged joints or restrained joints) at all tees, plugs, caps, and at bends defecting 222° or more, or movement shall be prevented by attaching suitable metal rods or straps as directed by the Engineer. Concrete used for this purpose shall be Class "C". Reference reaction blocking table shown on construction plan details.

d. Joint restraint. Push on joints on either side of valves and fittings restrained by mechanical restraining devices shall be restrained with "Uni-Flange" mechanisms. The number of restrained joints shall be determined by DIPRA methods and a laying schedule shall be provided for approval by the Engineer prior to installation of joint restraint.

2.3 PVC FITTINGS (4 INCHES AND LARGER PVC PIPE)

A. Fittings shall be PVC and manufactured of the same design as the PVC pipe. PVC fittings 4 inches through 36 inches shall be PVC injection molded made of materials meeting or exceeding the requirements of cell class 12454-B material as defined in ASTM D1784. Fittings shall be manufactured with pipe that meets or exceeds AWWA C-905 standard. All PVC fittings must comply with or exceed ANSI/AWWA C907, Uni-B-12, Uni-B-14 standards. All PVC fittings must be certified by CSA to the CSA B137.3 standard as third party certification. The fittings must be of the same design as the PVC pipe with an HDB of 4000 psi and minimum SDR 25 wall thickness design. All fittings must have UL-FM approval, and shall comply with or exceed all ASTM Standards for fittings. Fittings must have NSF-61 certification for contact with potable water. PVC fittings shall be pressure rated to 165 psi or greater.

B. All restrained joint systems shall be pressure rated the same as the PVC pipe and fittings. All components of the restraint system shall meet or exceed all requirements of ANSI/AWWA C-111/A21.11 latest revision. Restraints shall provide a full 360 degree contact on the pipe with sufficient gripping action to secure the clamp to the pipe and be designed so that the restraint action is increased as a result of increases in the line pressure. Restraint devices for PVC pipe and fittings shall consist of split restraint ring installed on the spigot, connected to a split ring which seats behind the gasket race of the fitting. The split restraint ring shall incorporate a series of machined serrations (not "as cast") on the inside diameter to provide positive restraint, exact fit and 360 degree contact and support of the pipe wall. The two halves of the split backup ring shall interlock without the need for additional bolts and shall form a beveled leading edge to assure exact fit behind the fitting gasket race. Restraint devices shall be of ductile iron, ASTM A536, Grade 65-45-12 and connecting bolts shall be of high strength, low alloy material in accordance with ASNI/AWWA C111/A21.11. Restraint devices shall be Uni-Flange 1300 series or other approved restrained joint devices.

2.4 WALL SLEEVES, SEALS, PIPES AND NON-STANDARD CASTINGS

A. Wall Sleeves: Wall sleeves shall be of cast iron, ductile iron, or carbon steel. The sleeve shall be hot dipped galvanized after fabrication and shall have a waterstop located in the center of the wall. Sleeves shall be provided with seals and shall be sized as required for the installation of seals. Sleeves shall terminate flush with finished surfaces of walls and ceilings, and shall extend 2 inches above the finished floor unless otherwise shown on the Drawings.

1. Wall sleeves shall be installed for all piping passing through building walls and floors, except where noted on the Drawings. Sleeves shall be of sufficient size to pass the pipe without binding. Escutcheons shall be provided at walls and floor to completely conceal the sleeves smaller than 3 inches. Escutcheons shall be 304 SS split-type.

B. Wall Sleeve Seals: Wall sleeve seals shall be modular mechanical type consisting of interlocking synthetic rubber links shaped to continuously fill the annular space between the pipe and wall sleeve. Links shall be loosely assembled with bolts to form a continuous rubber belt around the pipe with a pressure plate under each bolt head and nut. After the seal assembly is positioned in the sleeve, tightening of the bolts shall cease the rubber sealing elements to expand and provide an absolutely water-tight seal between the pipe and wall sleeve. The synthetic rubber shall be suitable for exposure to sludge and groundwater. Bolts, nuts and hardware shall be 18-8 stainless steel. The seals shall be Link Seal as manufactured by Thunderline Corporation or equal, and the wall sleeve and seal shall be sized as recommended by the seal manufacturer.

C. Wall Pipes: Wall pipes shall be of the size and types indicated on the Drawings. All wall pipes shall be of ductile iron and shall have a central fin not less than two inch thick and the same diameter as the bolting flange cast midway of the length to form a waterstop. Each wall pipe shall be of the same grade, thickness and interior coating as the piping to which it is joined. Those portions of the wall pipes that are buried shall have a coal tar epoxy outside coating.

D. Non-Standard Fittings and Castings: Fittings having non-standard dimensions and cast especially for this project shall be of an approved design. Fittings shall be manufactured to meet the requirements of the same Specifications and shall have the same diameter and thickness as standard fittings but laying lengths and types of ends shall be determined by positions in the pipelines and by the particular piping to which it is connected. Flange facing and drilling shall

conform to the 125 pound American National Standards Institute. Where require, flanges shall be drilled and tapped for studs. Other dimensions shall be substantially equal to corresponding parts of standard bell and spigot fittings.

2.5 PIPE COUPLINGS

A. Couplings:

1. Pipe couplings used to joint two pieces of plain end pipe shall be sized to suit the outside diameter of the pipe ends to be jointed. Transition couplings shall be used to join pipes of different outside diameters. Pipe couplings shall be bolted type with steel middle ring and end followers. The couplings shall be restrained for the test pressure of line using approved retaining system.

2. All carbon steel parts of the coupling shall be coated on the interior and exterior with a fusion bonded thermosetting epoxy coating with a 12 mil nominal coating thickness. The coating shall be equal to AL-CLAD as manufactured by Dresser Industries, Inc.

3. Gaskets for the coupling shall be wedge type manufactured of Buna-N resilient rubber.

4. Bolts shall be manufactured of high strength Type 304 stainless steel with Type 316 stainless steel hexagonal nuts. Bolts and nuts shall conform dimensionally to ANSI/AWWA C111, latest revision.

5. Couplings shall be Style 38 as manufactured by Dresser Industries, Inc. or an equal approved by the Engineer.

2.6 PVC BALL AND BALL CHECK VALVES

A. PVC Ball Valves: All PVC ball valves 2 inch through 4 inch in size shall be of a one piece capsule type manufactured of Type 1, Grade 1 PVC. Ball valves shall be true union design with two-way blocking capability and shall have solvent welded socket or NPT threaded ends. Ball valves shall have Teflon seats with Viton backing cushions and Viton O-ring seals, and shall be designed for a 150 psi water working pressure at 120° F. Valves shall be supplied with ABS lever operating handles. PVC ball valves shall be manufactured by Asahi/America, or equal approved by the Engineer.

B. PVC Ball Check Valves: All PVC ball check valves 1 inch through 2-1/2 inch in size shall be of a solid thermoplastic construction manufactured of Type 1, Grade 1 PVC. Ball check valves shall be true union design with solvent welded socket or NPT threaded ends. Ball check valves shall be furnished with a solid thermoplastic ball. Ball seat shall be Teflon coated Viton. The same seal shall function as both the ball seat and the union seal. PVC ball check valves shall be designed for a 150 psi water working pressure at 120° F. Valves shall be manufactured by Asahi/America, or an equal approved by the Engineer.

2.7 GATE VALVES

A. Bronze Gate Valves: Gate valves installed aboveground, less than 2 inches in size and smaller, shall be Class 150 all bronze valves conforming to Fed. Spec. WW-V-54d, Type I, Class B designed for a non-shock water pressure of 300 psi. Bronze for valve body and internals shall be in accordance with ASTM B16.18. Valves shall be furnished with screwed ends, handwheel operator, non-rising stem, one-piece solid wedge disc and screwed bonnet. Valves shall be as manufactured by Crane, Powell or an approved equal.

B. Ductile Iron Gate Valves:

1. Ductile iron gate valves shall open by turning to the left (counter-clockwise), when viewed from the stem. When fully open, gate valves shall have a clear waterway equal to the nominal diameter of the pipe. Operating nut or hand wheel shall have an arrow cast in the metal indicating the direction of opening. Each valve shall have the manufacturer's distinctive marking, pressure rating, and year of manufacture cast in the body. Prior to shipment from the factory, each valve shall be tested by applying to it a hydrostatic pressure equal to twice the specified working pressure. Hydrostatic and leakage tests shall be conducted in strict accordance with ANSI/AWWA C509, latest revisions.

2. Gate valves with nominal sizes from 2 to 24 inches shall conform to ASNI/AWWA C509, latest revision, and shall be designed for a minimum working pressure of 250 psi. Valves shall be ductile iron body resilient seat type with O-ring stem seals. The valve stem, stem nut, glands, and bushings shall be manufactured of zinc free bronze. Valve disc shall be constructed to assure uniform seating pressure between disc seat ring and body seating surface. Resilient seat of valve shall be formed by a special corrosion and chloramine resistant, synthetic elastomer which is permanently bonded to and completely encapsulates a ductile iron valve disc.

   Interior of valve body shall be coated with a fusion bonded, thermosetting epoxy coating in accordance with AWWA C550, latest revision. Coating shall be holiday free with a minimum thickness of 12 mils. Surfaces shall be clean, dry, and free from rust and grease before coating. Exterior surfaces shall be coated as specified hereinafter. Resilient seated type gate valves shall be as manufactured by U.S. Pipe or equal.

3. Valve Joints: All gate valves shall have either mechanical joint, restrained joint, or flanged ends to fit the pipe run in which they are to be used. Gate valves installed on push on joint pipe shall have mechanical joint ends unless otherwise specified.

4. Valve Operators: Gate valves shall open left (counter-clockwise) when viewed from the stem. Unless otherwise shown on the Drawings or specified herein, gate valves shall have non-rising stems. Buried gate valves shall be furnished with a 2 inch square AWWA standard nut operator with a valve box and cover. Gate valves located aboveground or inside structures shall be furnished with a handwheel operator which shall have an arrow cast in the metal indicating the direction of opening. Gate valves used as isolation valves for reduced pressure backflow preventers shall be of the open screw and yoke (OS&Y) design with a handwheel operator.

5. Exterior Valve Coatings: All exterior surfaces of iron body gate valves shall be clean, dry, and free from rust and grease before coating. For buried service, the exterior ferrous parts

of all valves shall be coated at the factory with coal tar epoxy with a minimum total finish dry film thickness of 20 mils. Prior to backfilling, all uncoated units, bolts, glands, rods, and other parts of joints shall be coated in the field with coal tar epoxy equal to Kop-Coat Bitumastic No. 300-M. For valves installed aboveground, the exterior ferrous parts of all valves shall be shop primed at the factory with one coat, minimum dry film thickness 1.5 mils, of a primer with rust-inhibitive pigments and synthetic resins. Following installation, aboveground valves shall be finish painted in accordance with manufacturer's recommendations.

2.8 PINCH CHECK VALVES

A. Valves are to be of the flow operated check type with flanged joint ends on both check sleeve and metal body. Port areas shall be one hundred percent (100%) of the mating pipe port area. The port area shall contour down to a duckbill which shall allow passage of flow in one direction and prevent reverse flow in the other direction. The flexible duckbill sleeve shall be one piece rubber construction with fabric reinforcement. The flange shall be drilled to ASNI B16.1, Class 125/ANSI B16.5 Class 150 standard. Valve body shall be drilled and tapped for flushing connection on top and bottom of the housing. Valve body shall be two piece split body construction. The two halves shall be sealed by diamond shaped cross section rubber gaskets permanently locked by a groove cast in the valve body. Company name and location shall be cast onto the valve body. The valve shall be designed for a maximum back pressure of 100 psi. The valve shall be red valve series 33 or equal.

B. Interior Valve Coating: Prior to shipment from the factory, the interior ferrous surfaces of the valve, except for finished, non-ferrous, or bearing surfaces, shall be coated with a fusion bonded, thermosetting epoxy coating in accordance with AWWA C550, latest revision. Coating shall be holiday free with a minimum thickness of 12 mils. Surfaces shall be clean, dry, and free from rust and grease before coating.

C. C. Exterior Valve Coating: All exterior surface of swing check valves shall be clean, dry and free from rust and grease before coating. For valves installed in below ground valve vaults, the exterior ferrous parts of all valves shall be coated at the factory with coal tar epoxy with a minimum total finish dry film thickness of 20 mils. Following installation, all uncoated nuts, bolts, glands, rods and other parts of joints shall be coated in the field with coal tar epoxy equal to Kop-Coat Bitumastic No. 300-M. For valves installed aboveground, the exterior ferrous parts of all valves shall be shop primed at the factory with one coat, minimum dry film thickness 1.5 mils, of a primer with rust-inhibitive pigments and synthetic resins. Following installation aboveground valves shall be finish painted in accordance with manufacturer's recommendations.

2.9 PLUG VALVES

A. General: Plug valves shall be non-lubricated eccentric type with flanged or mechanical joint ends as specified below. Valves shall open by turning to the left (counter-clockwise), when viewed from the stem. Port area of valves shall be a minimum of 80 percent of full pipe area. Valve pressure ratings, body flanges, and wall thicknesses shall be in full conformance with ASNI B16.1, latest revision. Valves shall seal leak-tight against full rated pressure in both directions. Prior to shipment from the factory, each valve shall be hydrostatically tested as follows: Valve seats shall be tested to provide leak tight shut off to 175 psi for valves through 12 inch and 150

psi for valves 14 inches and larger, with pressure in either direction. In addition, a hydrostatic shell test shall be performed with a plug open to a pressure twice that of rating specified above to demonstrate overall pressure integrity of the valve body. Plug valves shall be eccentric plug valves as manufactured by DeZurik, Milliken, or approved equal.

B. Eccentric Plug Valves: Eccentric plug valves shall be Series 100 as manufactured by DeZurick or equal. Valve bodies shall be constructed of high strength cast iron conforming to ASTM A126, Class B and AWWA C504, latest revisions. Valve bodies shall be cast with raised eccentric seats which have a corrosion resistant welded in overlay of not less than 90 percent pure nickel on all surfaces contacting the plug face. Valve seats shall be in accordance with AWWA C504 and AWWA C507, latest revisions. Valves shall be furnished with resilient faced plugs with Neoprene facing, suitable for use with sludge. Valves shall be furnished with replaceable, permanently lubricated, stainless steel, sleeve-type bearings in the upper and lower plug stem journals. Plug stem bearings shall comply with AWWA C504 and C507, latest revisions. Valves shall be bolted bonnet design. Valves shaft seals shall be designed so that they can be repacked without removing the bonnet and the packing shall be adjustable. Packing material shall be Buna-Vee type packing. Valve shaft seals shall be in accordance with AWWA C504 and AWWA C507, latest revisions. All exposed valve nuts, bolts, springs, washers, and the like shall be Type 304 stainless steel.

C. Interior Valve Lining: All interior ferrous surfaces of the valve that will have contact with the leachate except the valve seating surfaces shall be coated with a factory applied, fusion bonded, thermosetting epoxy coating in accordance with AWWA C550, latest revisions. Coating shall be holiday free with a minimum thickness of 12 mils. Surfaces shall be clean, dry and free from rust, oil and grease before coating.

D. Exterior Valve Coating: All exterior surfaces of plug valves shall be clean, dry, and free from rust and grease before coating. For buried service, the exterior ferrous parts of all valves shall be coated at the factory with coal tar epoxy with a minimum total finish dry film thickness of 20 mils. Prior to backfilling, all uncoated nuts, bolts, glands, rods and other parts of joints shall be coated in the field with coal tar epoxy equal to Kop-Coat Bitumastic No. 300-M. For valves installed above ground, the exterior ferrous parts of all valves shall be shop primed at the factory with one coat, minimum dry film thickness 1.5 mils, of a primer with rust inhibitive pigments and synthetic resins. Following installation aboveground valves shall be finish painted in accordance with manufacturer's recommendations.

E. Valve Joints: All plug valves installed aboveground, in valve vaults or on flanged piping shall have flanged ends. Flanges shall comply with facing, drilling and thickness of ANSI Standards for Class 125 dimension. Nuts and bolts for flanged connections in valve vaults or corrosive atmospheres shall be Type 316 stainless steel in accordance with ASTM A320, Class 2. Nuts and bolts for aboveground installations or non-corrosive atmospheres shall be carbon steel in accordance with ASTM A307, Grade B. All buried plug valves shall have mechanical joint ends with dimensions, bolting patterns and assembly in strict accordance with ANSI/AWWA C111, latest revision. Tee head bolts and nuts for mechanical joints shall be manufactured of CORTEN-A, high strength, low alloy, corrosion resistant steel as manufactured by NSS Industries, Plymouth, Michigan or an equal approved by the Engineer.

F. Mechanical Valve Actuators:

1. All plug valves installed in valve vaults or buried underground shall have actuators designed for buried and submerged service. Valves shall have seals on all shafts and gaskets on valve and actuator covers to prevent entry of water and dirt. Actuator mounting brackets for buried and submerged service shall be totally enclosed and shall have gasket seals. All exposed valve nuts, bolts, springs, washers, and the like shall be Type 304 stainless steel.

2. All plug valves 6-inch in size and larger shall be furnished with mechanical gear actuators. Gear actuators shall be furnished with AWWA Standard 2-inch square operating nuts for buried valves, or handwheel, chainwheel or 2-inch square nut operators for aboveground or valve vault installation, as shown on the Drawings. Gear actuator shall be sized for the maximum pressure differential across the valve, equal to the pressure rating of the valve. All gearing shall be enclosed in a high strength cast iron housing, suitable for running in a lubricant. Housing shall be provided with seals on all shafts to prevent the entry of dirt and water into the actuator. Actuator shaft and quadrant shall be supported on permanently lubricated bronze bearings. Actuator shall clearly indicate valve position for aboveground and valve vault installations and an adjustable stop shall be provided to set closing torque. Actuator shall be capable of withstanding an over-torque without damage up to 450 foot pounds for 2-inch square nut operators and to 300 foot pounds for handwheel or chainwheel operators.

3. Four inch and smaller aboveground valves shall be furnished with manual actuators, one-quarter turn to open. Actuator shall be supplied with an AWWA Standard 2-inch operating nut with a standard valve operating lever.

2.10 BUTTERFLY VALVES

A. General: All butterfly valves shall be of the tight closing, rubber seat type with rubber seats that are securely fastened to the valve body or disc. No metal to metal seating surfaces will be permitted. Valves shall be bubble tight at rated pressures with flow in either direction, and shall be satisfactory for applications involving throttling service and/or frequent operation and for applications involving valve operation after long periods of inactivity and for buried installation. Valve discs shall rotate 90 degrees from the full open position to the tight shut position. Valves shall meet the full requirements of AWWA Standard C 504 for Class 150B, short body, flanged or mechanical joint as required. Wafer design valves are not acceptable, except when indicated on the Drawings. The manufacturer shall have manufactured tight closing, rubber seat butterfly valves for a period of at least five years. All valves shall be Henry Pratt Company, DeZurik, Mueller, or equal.

B. Valve Body: Valve bodies shall be constructed of cast iron ASTM A126 Class B or ASTM A48 Class 40. Ends shall be mechanical joint for buried service and flanged for aboveground use. Flange drilling shall be 125 pound in accordance with ANSI B16.1. Two trunnions for shaft bearings shall be integral with each valve body. When disc has the rubber seat, the valve body shall have a 18-8 Type 304 stainless steel body seat. The port diameter shall be no smaller than one inch less than the nominal valve size.

C. Valve Shaft: The valve shaft may consist of a one piece unit extending completely through the valve unit or may be the "stub shaft" type. Materials to be stainless steel 18-8 Type 304.

D. Valve Discs: Valve discs shall be constructed either of cast iron ASTM A126 Class B, ductile iron ASTM A536 or cast iron ASTM A48 each with Type 316 stainless steel seating edge or the entire disc may be constructed of cast 316 stainless steel. The stainless steel seating edge is not applicable to rubber seat disc type valves.

E. Valve Seats: Valve seats shall be of a synthetic or natural rubber compound and any be mounted on the valve body.

F. Valve Bearings: Valves shall be fitted with sleeve type bearings. Bearings shall be corrosion resistant and self-lubricating.

G. Valve Packings: Packing shall be self-adjusting Chevron type or of the O-ring type.

H. Interior and Exterior Valve Coatings: The valve shall be coated similarly as described in Section 2.07 B(2) and B(5).

2.11 SWING CHECK VALVES

A. Swing check valves 2-inch through 12-inch in size shall conform to AWWA C-508, latest revision, and shall be designed for a minimum water working pressure of 150 psi. Check valves shall have cast iron body, swing type and ends shall be flanged, Class 125 in accordance with ANSI B16.1 When open, the valve shall have a straight way passage with a minimum flow area equal to the full pipe area. Swing check valves shall be completely bronze fitted with renewable bronze seat ring and a rubber faced disc; valve hinge pin shall be stainless steel. Check valves shall be supplied with an outside lever and weight.

B. Swing check valves shall absolutely prevent the return of water back through the valve when the inlet pressure decreases below the downstream pressure. The check valve shall be constructed such that the disc and body seat ring may be easily removed and replaced without removing the valve from the line. Each valve shall by hydrostatically tested at the factory, at a test pressure of 300 psi.

C. Interior Valve Coating: Prior to shipment from the factory, the interior ferrous surfaces of the valve, except for finished, non-ferrous, or bearing surfaces, shall be coated with a fusion bonded, thermosetting epoxy coating in accordance with AWWA C-550, latest revision. Coating shall be holiday-free with a minimum thickness of 12 mils. Surfaces shall be clean, dry, and free from rust and grease before coating.

D. Exterior Valve Coating: All exterior surface of swing check valves shall be clean, dry, and free from rust and grease before coating. For valves installed in below ground valve vaults, the exterior ferrous parts of all valves shall be coated at the factory with coal tar epoxy with a minimum total finish dry film thickness of 20 mils. Following installation, all uncoated nuts, bolts, glands, rods and other parts of joints shall be coated in the field with coal tar epoxy equal to Kop-Coat Bitumastic No. 300-M. For valves installed aboveground, the exterior ferrous parts of all valves shall be shop primed at the factory with one coat, minimum dry film thickness 1.5 mils, of a primer with rust-inhibitive pigments and synthetic resins. Following installation aboveground valves shall be finish painted in accordance with manufacturer's recommendations.

E. All swing check valves shall be provided with a limit switch to indicate valve close position to pump starter, VFD, or control panel.

2.12 SERVICE SADDLES AND CORPORATION STOPS

A. Service Saddles: Service saddles shall have ductile iron bodies in accordance with ASTM A536, latest revision, with double stainless steel straps. Bodies shall be brass or ductile iron, body shall have a fusion bonded nylon coating with a minimum thickness of 12 mils. Straps shall be Type 304 stainless steel with premium grade Type 304 L stainless steel bolts and Type 304 stainless steel washers and nuts. The nuts shall be Teflon coated.

The gasket material shall be an elastomeric compound resistant to degradation by oil, natural gas, acids, alkalies, most aliphatic fluids and leachate. The outlet of the saddle shall have NPT threads. Service saddles shall be Rockwell No. 317, Ford or an equal approved by the Engineer.

B. Corporation Stops: Corporation stops shall be all bronze construction in accordance with AWWA C80, latest revision. Inlet threads shall be NPT iron pipe threads and the outlet connections shall be of the packed joint type suitable for use with Schedule 80 PVC pipe. Corporation stops shall be Ford Ball Corp Type FB 1102, McDonald or an equal approved by the Engineer.

C. Polyethylene Tubing. Service tubing shall be nominal wall polyethylene tubing conforming to the requirements of ASTM D-2737 and AWWA C-901. Tubing shall be manufactured from prime virgin PE-3408 high density polyethylene (HDPE) resin. Each coil of tubing shall be spiral wrapped with four (4) inch wide black .004 polyethylene film with minimum two percent (2%) carbon black content to shield the tubing from ultraviolet and violet light. Reclaimed water service tubing shall be lavender in color.

D. Tubing shall be DR 9.0 CTS OD and supplied in 100 foot rolls. Tubing shall conform to all requirements set forth in AWWA C901. Tubing shall be marked with the following information at not more than 5 foot intervals: nominal size, material code designation, dimension ration and diameter base, AWWA pressure class, AWWA designation and manufacturer's name or trademark and product record code.

E. Fittings for use with polyethylene (PE) tubing shall be brass containing a pressure sealing O-ring and undirectional grip ring and shall be designed for "press-on" or "stab-on" installation, and manufactured by Ford Meter Box Company.

2.13 SOLENOID VALVES

A. Solenoid valves shall be 2 way type for normally closed operation designed for not less than a 150 psi water working pressure. The valves shall have forged stainless steel Series 300 bodies for 3/4-inch and smaller and brass bodies for 1-inch and larger with NPT threaded ends, Buna N seals/disks and NEMA 4X Red hat II solenoid enclosures. The valves shall operate on 120 VAC power, shall have threaded conduit hubs, standby manual operators and shall not require a minimum operating pressure differential for standby operation. The valves shall be provided with a manual override. The valves shall be Series 8210G for 3/4-inch and smaller and Series 8221G for one inch and larger as manufactured by Automatic Switch Company or approved equal.

2.14 FLEXIBLE EXPANSION JOINTS

A. Flexible expansion joints shall be of the molded wide arch design manufactured of chloroprene (neoprene) rubber with polyester reinforcement. Chloroprene (neoprene) body shall be supplied with a hypalon coating. Joints shall be flanged suitable for 150 psi water working pressure and in accordance with ANSI B16.1 dimensions and bolting patterns. Flanged ends shall be furnished and galvanized, split ductile iron retaining rings.

B. Provide limit restraint bolts on all pump suction and discharge lines. Expansion joints six inches and larger in size shall have a minimum of four limit restraint bolts. Restraint bolts and nuts shall be Type 304 stainless steel.

C. Minimum performance for flexible expansion joints shall be as follows:

Axial Size (in.)	Axial Compression (inches)	Lateral Elongation (inches)	Angular Deflection (inches)	Deflection (degrees)
2	1 3/4	3/4	3/4	30
3	d.o.	d.o.	d.o.	30
4	d.o.	d.o.	d.o.	25
5	d.o.	d.o.	3/4	25
6	d.o.	d.o.	1	20
8	d.o.	d.o.	d.o.	20

D. Flexible expansion joints shall be Style 1015 Maxi-Joint as manufactured by General Rubber Corporation, Style 100 Metrasphere as manufactured by the Metraflex Company or an equal approved by the Engineer. Flexible joints for pump suction and discharge piping shall be designed for leachate service at 250°F.

2.15 PRESSURE GAUGE ASSEMBLIES

A. Pressure gauges shall have the following design features: glycerin filled, 2-inch dial, aluminum dial with black numerals on white background, Type 316 stainless steel bourdon tube and movement, 300 series stainless steel case and ring, safety glass lens, threaded lens retaining ring, adjustable pointer with over-pressure stop and zero pointer stop, blowout protection, 2-inch Type 316 stainless steel stem mounting and 1.0 percent accuracy based on full scale. Provide Type 316 stainless steel pressure snubbers on all gauges not protected by seals. Pressure gauges shall be as manufactured by U.S. Gauge, Ashcroft, Marshalltown, Marsh, or approved equal.

B. Pressure Gauge Service and Ranges: Pressure gauges shall be furnished for the following services with the indicated ranges. Diaphragm seals shall be furnished for gauges as indicated.

2.16 VALVE BOXES

A. Furnish, assemble, and place a valve box over the operating nut for each buried valve. The valve box shall be designed so as to prevent the transmission of surface loads directly to the valve or piping.

B. Valve boxes shall be of the adjustable slide type of suitable length with an interior diameter of not less than five inches. The valve boxes shall be manufactured of cast iron and shall be of the two piece design including a bottom section and top section with cover. The cast iron cover shall be shaped and labeled for the appropriate service designation. The top section shall be adjustable for elevation and shall be set to allow equal movement above and below finished grade.

C. The castings shall be manufactured of clean, even grain, gray cast iron conforming to ASTM A48, Class 30B for Gray Iron Castings; and shall be smooth, true to pattern, free from blow holes, sand holes, projections and other harmful defects. The seating surfaces of both the cover and the top section shall be machined so that the cover will not rock after it has been seated.

D. The valve boxes shall be coated inside and outside with an asphaltic coating prior to machining, so that the machined seating surfaces will be free of any coating. Cast iron valve box assemblies shall be Clow Corp. No F2452, Tyler Corp. Series 6855 or 6865 or an approved equal.

E. Valve extension stems shall be provided for all buried valves when operating nut is deeper than three feet below final grade.

2.17 PIPE AND VALVE IDENTIFICATION SYSTEMS

A. Not Included

2.18 GLOBE VALVES AND ANGLE VALVES

A. Globe valves and angle valves shall be suitable for throttling flows of liquid, oil, gas, and air lines. Valves shall have end connections as indicated on the Drawings and shall be suitable for a working pressure of not less than 150 psi.

B. Each valve shall have self-lubricating TFE-impregnated asbestos packing to provide a tight stem steel. Valves shall have a removable bonnet in order to facilitate dismantling and reassembly of the valves.

C. Globe valves shall be Crane Model No. 1, Stockham Valves Figures B-16, or equal. Angle valves shall be Crane Model No. 2, Stockham Valves Figure B-216, or equal.

2.19 PRESSURE REGULATING VALVE

A. Pressure regulating valves shall be of bronze body construction, seat shall be of stainless steel, diaphragm shall be Buna N.

B. Regulator shall have a maximum pressure limit of 100 psi and the pressure reduction range shall be to 5 psi for all the services except for belt washwater. The maximum and minimum pressure variation range for the belt washwater shall be per gravity belt supplier's recommendations. The regulator shall be a direct acting, spring loaded, diaphragm type for hydraulic operation, and shall be capable of delivering a constant pressure. An adjusting screw shall be easily accessible for changing the outlet pressure.

C. Valves shall be installed in strict accordance with the manufacturer's recommendations. The manufacturer shall be Watts, or equal.

2.20 TIE RODS

A. When prior approval is obtained from the Engineer, ductile iron pipe, fittings, and valves may be restrained using tie bolt joint restraint. Joint restraint materials for this method of restraint shall be the Super-Star SST Series Joint Restraint Joint System as manufactured by Star National Products, a Division of Star Industries, Inc., Columbus, Ohio, or an equal approved by the Engineer.

B. All bolts, nuts, washers, tie rods, and other fasteners for the joint restraint system shall be manufactured of CORTEN high strength, low alloy, corrosion resistant steel in conformance with ASTM A242. Tie bolts shall be manufactured of heat treated CORTEN steel. Tie rods and all fasteners for the system shall be galvanized in conformance with the requirements of ASTM A123. Tie rods shall have a minimum diameter of 3/4-inch. The number of tie rods required per joint shall be as recommended by the manufacturer.

C. Prior to backfilling after installation, all parts of the joint restraint system shall be coated with coal tar epoxy equal to Kop-Coat Bitumastic No. 300-M, for a minimum dry film thickness of 20 mils.

2.21 REDUCED PRESSURE BACKFLOW PREVENTERS

A. Standards of Construction: Backflow prevention devices shall be manufactured in accordance with AWWA C506, latest revision, American Society of Sanitary Engineering Standards, and the University of Southern California Foundation for Cross Connection Control and Hydraulic Research "Manual of Cross Connection Control", latest edition.

B. Product Handling: Exercise care in transporting and handling backflow preventers to avoid damage. Inside of backflow preventers shall be kept free of dirt and debris.

C. Reduced pressure principle backflow preventers shall include an integral sensing system that will automatically open a relief valve whenever the differential pressure between the inlet supply and the reduced pressure zone drops to 2 psi. The relief valve shall remain open until a positive pressure differential of 2 psi is re-established. If pressure upstream of the first check valve drops to atmospheric or below, the relief valve shall remain fully open providing an internal air gap between the first check valve and the water level in the reduced pressure zone. The unit shall also be constructed such that any minor leakage of the second check valve will result in visible flow from the relief valve, event if the first check valve is totally disabled.

D. Reduced pressure principle backflow preventers shall have all bronze bodies for sizes 22 inches and smaller and all ductile iron bodies for sizes 3 inches and larger. Ductile iron bodies shall be coated with a fusion bonded thermosetting epoxy coating in accordance with AWWA C550 with a minimum, holiday free, coating thickness of 12 mils. The reduced pressure backflow preventer shall consist of two independently operated, spring loaded, wye pattern, poppet type check valves designed for installation in a normal horizontal flow attitude. An independent spring loaded relief valve shall be located between the two check valves. Check valve assemblies, springs, and seats and all other internal parts shall be constructed of Type 316 stainless steel. Relief valve body and trim shall be constructed of bronze. Check valve and relief valve seats shall be field replaceable without removing the device from the service line. Backflow preventers shall be designed for a working pressure of 200 psi and a temperature range of 32°F to 140°F. The backflow preventer shall be manufactured as a complete unit including test cocks, and upstream and downstream isolation valves. The test cocks shall be manufactured of bronze and shall be arranged such that the unit can be tested without removing the unit from the line.

E. Isolation Valves: Reduced pressure backflow preventers shall be furnished complete with isolation valves, For sizes 2 inches and smaller, the isolation valves shall be all bronze ball valves with Buna N O-rings and valve seats, and a lever operating handle. Ball valves shall be in accordance with AWWA C80, latest revision. For sizes 3 inches and larger, the isolation valves shall be resilient seated gate valves with flanged ends and OS&Y handwheel operators. Gate valves shall be as specified and described hereinbefore.

F. Exterior Coating: The exterior ferrous surfaces of the reduced pressure backflow preventer and the isolation valves shall be shop primed at the factory with one coat, minimum dry film thickness 1.5 mils, of a primer with rust inhibitive pigments and synthetic resins compatible with the finish coats. Following installation, the backflow preventer unit and aboveground piping shall be finish painted in accordance with manufacturer's recommendations. All surfaces to be coated shall be clean, dry, and free of rust, oil and grease.

G. Acceptable Manufacturers: Reduced pressure principle backflow preventers shall Model 825 as manufactured by Febco, or an equal approved by the Engineer.

2.22 TAPPING SLEEVES AND VALVES

A. Tapping sleeves shall be designed for a water working pressure of 150 psi and shall be mechanical joint end type. Tap shall be done under pressure and without interruptions of service. Taps shall be tested at factory to 175 psi.

B. Tapping valves shall be as specified herein under Gate Valves.

C. The manufacturer shall furnish the services of a supervisor who will direct all operations for the installation of material, attachment of tapping machine, and operation of the machine in making the connection. The Contractors shall bear all such rental and supervision costs, and all other related costs.

D. Tapping sleeves and valves shall be the product of one of the following manufacturers, or equal: Mueller, Clow, M&H.

2.23 FLANGED ADAPTERS (WHEN APPLICABLE)

A. For joining plain end or grooved end pipe to flanged pipes and fittings.

B. Adapters shall conform in size and bolt hole placement to ANSI standards for steel and/or cast iron flanges 125 or 150 pound standard unless otherwise required for connections.

C. Exposed Sleeve Type:

1. Constructed from steel.

2. Coating: In accordance with manufacturer's recommendations.

3. Bolts: Carbon steel.

4. Acceptable Manufacturers: Dresser Manufacturing Company - Style 128 for cast iron ductile iron and steel pipes with diameters of two (2) inches through 96 inches or equal.

2.24 FIRE HYDRANTS

A. Hydrants shall comply with AWWA Standard C402 "Fire Hydrants for Ordinary Water Works Service", and shall be equipped with a minimum of one (1) pump outlet nozzle 4 inches in diameter and two (2) hose nozzles 2 inches in diameter. Threads, nozzle caps, operating nuts and color shall conform to Owner standards. Units shall be traffic types with breakable safety clips, or flange, and stem, with safety coupling located below barrel break line to preclude valve opening. Hydrants shall be dry top. Outlet nozzles shall be on the same place, with minimum distance of 18 inches from center of nozzles to ground line. Valve shall be compressive type with 52 inches minimum opening and hose inlet connection to be 6 inches minimum. Hydrants shall open left by Mueller A-423 or Clow Medallion Hydrant (AWWA C-502). Hydrants must drain.

2.25 INSERT VALVE

A. General: The Ductile Iron Insert Valve shall be a rated for 250 psig and shall be a Resilient Wedge Gate Valve as specified in this section. The valve shall be able to be installed into an existing pressurized pipeline while maintaining constant pressure and service as usual. After closing the wedge and adequately restraining the valve body the downstream pipe can be completely removed and replaced (allowing for upsizing of the pipe if necessary). The host pipe shall not be a permanent component of the Insert Valve. The Insert Valve shall be UL listed and approved to NSF / ANSI Standard 61- Drinking Water System Components. The insert valve must be installed by a qualified installer per the manufacturer's requirements.

B. Construction: Sizes 12-inch and smaller must be capable of working on Cast/Grey Iron or Ductile Iron Class A, B, C and D, IPS PVC, C900 and C909 PVC, Steel, AC pipe diameters without changing either top or bottom portion of split valve body. The 250 psig maximum working rating

markings must be cast into the body of the valve. After the installation of the Insert valve body on to the existing pipe a pressure test of 1.1 times that of the contents shall sustained for 15 minutes. Once the pressure test is affectively achieved the Insert valve body must not be moved in accordance with AWWA Standards. If the Insert valve is moved the pressure test must be completed again. The Insert valve must not be moved or repositioned once the pressure test is achieved.

C. Resilient Wedge Gate Assembly: The construction of the Resilient Wedge shall comply with AWWA C509 requirements. The ductile iron wedge shall be fully encapsulated with EPDM rubber by a high pressure and high temperature compression or injection mold process. This will assure the ductile gate is fully coated with molded rubber – no exposed iron. The resilient wedge shall seat on the valve body and not the pipe to obtain the optimum seating and flow control results. The resilient wedge shall be totally independent of the carrier pipe. The resilient wedge shall not come into contact with the carrier pipe or depend on the carrier pipe to create a seal. Abrasion results thus shorting the life and quality of the shut down if the wedge contacts the pipe. Pressure equalization on the down or upstream side of the closed wedge shall not be necessary to open the valve. The wedge shall be symmetrical and seal equally well with flow in either direction. The Resilient wedge must ride inside the body channels to maintain wedge alignment throughout its travel to achieve maximum fluid control regardless of high or low flow pressure or velocity. An oversized flow way shall be unobstructed to provide optimum flow. The valve shall be fully epoxy coated on the interior and the exterior a minimum of 10 mils epoxy in compliance with AWWA C550 and certified to ANSI/NSF-61. The fusion-bonded coating shall be applied prior to assembly so that even the bolt holes and body-to-bonnet flange surfaces are fully epoxy coated.

D. The valve shall have triple O-Ring stem seals, two O-Rings above, and one below the thrust collar. The lower two O-Rings provide a permanently sealed lubrication chamber that will make the valve easier to operate over a longer period of time. The upper O-Ring ensures that sand, dirt or grit cannot enter the valve to cause damage to the lower O-Rings. This is especially important for buried and sewage service applications. Side flange seals shall be of the O-Ring type of either round, oval, or rectangular cross-sectional shape.

E. American Made Quality: All primary parts and components to be exclusively and completely assembled, manufactured, machined and coated in the USA. The purchaser shall, with reasonable notice, have the right to plant visitation at their expense. Bolting materials shall develop the physical strength requirements of ASTM A307 with dimensions conforming to ANSI B18.2.1.

F. Split Restraint Devices: Shall consist of multiple gripping wedges incorporated into a follower gland meeting the applicable requirements of ANSI/AWWA C110/A21.10. The devices shall have a working pressure rating of 350 psi for 4-12 inch. Ratings are for water pressure and must include a minimum safety factor of 2 to 1 in all sizes. Chemical and modularity tests shall be performed as recommended by the Ductile iron Society, on a per ladle basis. Three test bars shall be incrementally poured per production shift as per U.L. specifications and ASTM A536. Testing for tensile, yield and elongation shall be done in accordance with ASTM E8.Gland body wedges and wedge actuating components shall be cast from grade 65-45-12 ductile iron material in accordance with ASTM A536. Mechanical joint restraint shall require conventional tools and installation procedures per AWWA C600, while retaining full mechanical joint deflection during assembly as well as allowing joint deflection after assembly. Proper actuation of the gripping

wedges shall be ensured with torque limiting twist off nuts. Set screw pressure point type hardware shall not be used.

G. The Insert valve shall be as manufactured by Team Industrial Services 13131 Dairy Ashford Rd Sugar land, TX 77478 1-800-662-8326 281-331-6154, Team InsertValve Patent number 6,776,187 and 7,225,827 or approved equal.

PART 3 - EXECUTION

3.1 INSPECTION

A. All pipe, fittings, valves and other material shall be subject to inspection and approval by the Engineer after delivery, and no broken, cracked, imperfectly coated, or otherwise damaged or unsatisfactory material shall be used. When a defect or crack is discovered, the injured portion shall not be installed. Cracked pipe shall have the defect cut off at least 12 inches from the break in the sound section of the barrel.

3.2 GENERAL INSTALLATION REQUIREMENTS

A. Excavation, backfill, and compaction shall conform to the provisions the applicable Specification.

1. Pipe Cradle: Upon satisfactory installation of the pipe bedding material as specified, a continuous trough for the pipe barrel and recesses for the pipe bells or couplings shall be excavated by hand digging. When the pipe is laid in the prepared trench, true to line and grade, the pipe barrel shall receive continuous, uniform support and no pressure will be exerted on the pipe joints from the trench bottom.

B. Cover for underground piping shall not be less than that indicated on the Drawings. The minimum cover for pipe shall be 36 inches. In areas where other piping conflicts preclude the maximum cover desired, the piping shall be laid to provide the maximum cover obtainable.

C. Pipe, fittings, valves, and accessories shall be installed as shown or indicated on the Drawings.

D. All connections to existing piping systems shall be made as shown or indicated on the Drawings after consultation and cooperation with authorities of the Owner.

E. Pipe Joint Deflection: Whenever it is desirable, and approved by the Engineer, to deflect pipe joints to avoid obstructions or to maintain required alignment, the amount of the joint deflection shall not exceed eighty percent (80%) of the maximum limits allowed by the pipe manufacturer.

F. In preparation for pipe installation, placement (stringing) of pipe should be as close to the trench as practical on the opposite side of the trench from the excavated material. The bell ends of the pipe should point in the direction of the work progress.

G. Pipe and fittings shall be laid accurately to the lines and grades indicated on Drawings or required. Where grades for the pipeline are not indicated on the Drawings, maintain a uniform depth of cover with respect to finish grade. Care shall be taken to ensure a good alignment both

horizontally and vertically and to give the pipe a firm bearing along its entire length. Any pipe which has its grade or joint disturbed after laying shall be taken up and re-laid.

H. All pipe and fittings shall be cleared of sand, dirt, and debris before laying. All precautions shall be taken to prevent sand, dirt or other foreign material from entering the pipe during installation. If necessary, a heavy, tightly woven canvas bag of suitable size shall be placed over each end of the pipe before lowering into the trench and left there until the connection is made to the adjacent pipe. Any sand, dirt, or other foreign material that enters the pipe shall be removed from the pipe immediately. Interior of all pipe and fittings shall be kept clean after installation until acceptable in the complete work.

I. Any time that pipe installation is not in progress, the open ends of pipe shall be closed by a watertight plug or other method approved by the Engineer. Plugs shall remain in pipe ends until all water is removed from the trench. No pipe shall be installed when trench conditions are unsuitable for such work, including standing water, excess mud, or rain.

J. After pipe has been laid, inspected, and found satisfactory, sufficient backfill shall be placed along the pipe barrel to hold the pipe securely in place while conducting the preliminary hydrostatic test. No backfill shall be placed over the joints until the preliminary test is satisfactorily completed, leaving them exposed to view for the detection of visible leaks.

K. Upon satisfactory completion of the hydrostatic test, backfilling of the trench shall be completed.

L. Aboveground and Exposed Piping: Piping shall be cut accurately to measurements established at the job site and shall be worked into place without springing or forcing, properly clearing all equipment access areas and openings. Changes in sizes shall be made with appropriate reducing fittings. Pipe connections shall be made in accordance with the details shown and manufacturer's recommendations. Open ends of pipe lines shall be properly capped or plugged during installation to keep dirt and other foreign material out of the system. Pipe supports and hangers shall be provided where indicated or as required to ensure adequate support of the piping.

3.3 INSTALLATION OF DUCTILE IRON PIPE

A. Handling and Cutting Pipe:

1. Care shall be taken in handling, cutting, and laying ductile iron pipe and fittings to avoid damaging the pipe and interior coal tar epoxy or cement mortar lining, scratching or marring machined surfaces, and abrasion of the pipe coating. All cracked pipe and fittings shall be removed at once from the work at no additional cost to the Owner.

2. Pipe cutting shall be done in a neat workmanlike manner without creating damage to the pipe and interior coal tar epoxy or cement mortar lining. Ductile iron pipe may be cut using an abrasive pipe saw, rotary wheel cutter, guillotine pipe saw, milling wheel saw or oxyacetylene torch. Cut ends and rough edges of ductile iron pipe shall be ground smooth. For push-on joint connections, the cut end shall be beveled to prevent gasket damage during joint assembly. Interior lining shall be repaired at cut ends per the manufacturer's instructions prior to joint assembly.

B. Laying Pipe and Fittings:

1. Bedding for Ductile Iron Pipe: Minimum bedding requirements shall be Type 2 as defined in ANSI/AWWA C600, latest revision. Provide proper bedding required, in accordance with thickness class of pipe being laid and depth of cover. Proper pipe laying conditions shall be in accordance with ANSI/AWWA C150 and C151, latest revision, and ANSI/AWWA C600, latest revision.

2. All ductile iron pipe and fittings shall be laid in accordance with American Water Works Association Standard ANSI/AWWA C600, latest revision, entitled "Standard for Installation of Ductile Iron Water Mains and Their Appurtenances", with the following sections specifically applying:
   a. Section 3.3 - Pipe Installation
   b. Section 3.4 - Joint Assembly

C. Ductile Iron Pipe Joints:

1. Type: The joints of all pipelines shall be made absolutely tight. The particular joint used shall be approved by the Engineer prior to installation. Where shown on the Drawings or where, in the opinion of the Engineer, settlement or vibration is likely to occur, all pipe joints shall be bolted mechanical type or restrained type as specified above, or as indicated on the Drawings.

2. Push-on Joints: Push-on joints shall be made in strict accordance with the the manufacturer's recommendations. Lubricant, if required, shall be an inert, non-toxic, water soluble compound incapable of harboring, supporting, or culturing bacterial life. Manufacturer's installation recommendations shall be submitted to the Engineer for review and approval before commencing work. The bell of the pipe shall be cleaned of excess tar or other obstructions and wiped out before the cleaned and prepared spigot of the next pipe is inserted. The new pipe shall be shoved firmly into place until properly seated and held securely until the joint has been completed.

3. Mechanical Joint: All types of mechanical joint pipes shall be laid and jointed in full conformance with manufacturer's recommendations, which shall be submitted to the Engineer for review and approval before work is begun. Only skilled workmen shall be permitted to makeup mechanical joints. Torque wrenches, set as specified ion AWWA Standard C111, shall be used; or spanner type wrenches not longer than specified therein may be used without the permission of the Engineer.

4. Flanged Joints: Flanged joints shall be made up by inserting the gasket between the flanges. The threads of the bolts and the faces of the gaskets shall be coated with suitable lubricant immediately before installation.

5. Restrained Joints: Restrained joints shall be provided where indicated on the Drawings and specified. Joint assembly shall be made in strict accordance with the manufacturer's instructions, which shall be submitted to the Engineer for review and approval before commencing work.

3.4 INSTALLATION OF PVC PIPE

A. Storage and Handling:

1. PVC pipe shall be delivered to the site in unbroken bundles packaged in such manner as to provide protection against damage. When possible, pipe should be stored at the job site in the unit packages until ready for use. Packaged units shall be handled using a forklift or a spreader bar with fabric straps. Packaged units shall not be stacked at the job site higher than two units high.

2. When it is necessary to store PVC pipe for long periods of time, exposure to direct sunlight shall be prevented by covering the pipe with an opaque material. Adequate air circulation above and around the pipe shall be provided as required to prevent excessive heat accumulation. PVC pipe shall not be stored close to heat sources of hot objects such as heaters, fires, boiler, or engine exhaust. Pipe gaskets shall be protected from excessive exposure to heat, direct sunlight, ozone, oil and grease. The interior and all sealing surfaces of pipe, fittings, and other appurtenances shall be kept clean and free of dirt and foreign matter.

3. Care shall be taken in handling and laying pipe and fittings to avoid severe impact blows, crushing, abrasion damage, gouging, or cutting. Pipe shall be lowered, not dropped, from trucks or into trenches. All cracked, damaged, or defective pipe and fittings, or any length of PVC pipe having a gouge, scratch or other permanent indentation of more than ten percent (10%) of the wall thickness in depth, shall be rejected and removed at once from the work and replaced with new acceptable pipe at no additional cost to the Owner.

B. Field Cutting PVC Pipe: Field cutting of pipe shall be done in a neat workmanlike manner without creating damage to the pipe. The pipe shall be cut square with a fine-toothed hand or power saw or other cutter or knife designed for use with plastic pipe. Prior to cutting, the pipe shall be marked around its entire circumference or a square in vise shall be used to ensure the pipe end is cut square. Remove burrs by smoothing edges with a knife, file, or sandpaper.

1. Field Cutting Bell and Spigot PVC Pipe: Bevel the cut end of the pipe using a pipe beveling tool, wood rasp, or portable sander to prevent damage to the gasket during joint assembly. A factory finished beveled end should be used as a guide to ensure proper beveling angle and correct depth of bevel. Round off any sharp edges on the leading edge of the bevel with a knife or file.

C. Laying PVC Pipe:

1. Pipe Bedding: Bedding for PVC pipe shall be as specified using granular pipe bedding material.

2. All PVC pipe shall be laid in accordance with the pipe manufacturer's published installation guide, the AWWA Manual of Practice No. M23 "PVC Pipe-Design and Installation" and the Uni-Bell Plastic Pipe Association installation recommendations.

D. PVC Pipe Joint Assembly for Rubber Gasketed Bell and Spigot Pipe:

1. The PVC bell and spigot joint shall be assembled in accordance with the pipe manufacturer's installation instructions. Clean the interior of the bell, the gasket, and the spigot of the pipe to be jointed with a rag to remove any dirt or foreign material before assembling. Inspect the gasket, pipe spigot bevel, gasket groove and sealing surfaces for damage or deformation.

2. Lubricate the spigot end of the pipe with a lubricant supplied or specified by the pipe manufacturer for use with gasketed PVC pipe in potable water systems. The lubricant should be supplied as specified by the pipe manufacturer. After then spigot end is lubricated, it must be kept clean and free of dirt and sand. If dirt and sand adhere to the lubricated end, the spigot must be wiped clean and relubricated.

3. Insert the spigot into the bell so that it contacts the gasket uniformly. Align the pipe sections and push the spigot end into the bell until the manufacturer's reference mark on the spigot is flush with the end of the bell. The pipe should be pushed into the bell using a bar and wood block. The joint shall not be assembled by "stabbing" or swinging the pipe into the bell, nor shall construction machinery be used to push the pipe into the bell.

4. If undue resistance to insertion of the spigot end is encountered or if the reference mark does not reach the flush position, disassemble the joint and check the position of the gasket. If the gasket is twisted or pushed out of its seat, inspect the components, repair or replace damaged items, clean the components and repeat the assembly steps. Be sure the pipe is in proper alignment during assembly. If the gasket was not out of position, check the distance between the spigot end and the reference mark and relocate the mark if it is out of position.

E. PVC Pipe Joint Assembly for Threaded and Solvent Welded Pipe

1. All threaded and solvent welded joints shall be made watertight. All pipe cutting, threading and jointing procedures for threaded and solvent welded PVC pipe joints shall be in strict accordance with the pipe and fitting manufacturer's printed installation instructions. Thread lubricant for threaded joints shall be Teflon tape only.

2. At threaded joints between PVC and metal pipes, the metal side shall contain the socket end and the PVC side the spigot. A metal spigot shall not, under any circumstances, be screwed into a PVC socket.

F. PVC forcemains underground shall be strapped every 10 feet or spiral wrapped with an insulated green No. 14 gauge copper ground wire for future location. The wire shall be stubbed out at each valve box or manhole.

3.5 FITTING INSTALLATION FOR UNDERGROUND PIPING

A. The weight of ductile iron fittings shall not be carried by the pipe on which they are installed. The fitting shall be supported by a concrete cradle as shown on the standard details. Concrete used for supports shall have a minimum compressive strength of 3000 psi at 28 days. Concrete for support cradle shall be poured against undisturbed soil.

B. All glands, clamps, bolts, nuts, studs and other uncoated parts of fitting joints for underground installation shall be coated with two coats, 10 mils DFT per coat, of coal tar epoxy equal to Kop-Coat Bitumastic No. 300-M.

3.6 CONCRETE PIPE ENCASEMENT

A. Concrete for concrete pipe encasement shall have a minimum strength of 3000 psi at 28 days and encasement shall be constructed in accordance with details shown on the Drawings. Encasement shall be constructed where:

1. Indicated on the Drawings

2. The Engineer shall order the pipeline encased.

B. The points of beginning and ending of concrete pipe encasement shall be not more than six inches from a pipe joint to protect the pipe from cracking due to uneven settlement of its foundation or the effects of superimposed live loads. Pipe shall be wrapped in visqueen.

C. Pipe encasement shall provide a minimum coverage of 6 inches all around the pipe including pipe bells.

3.7 INSTALLATION OF PIPE SLEEVES, WALL CASTINGS AND COUPLINGS

A. Pipe sleeves and wall castings shall be provided at the locations called for on the Drawings. These units shall be as detailed and of the material as noted on the Drawings. They shall be accurately set in the concrete or masonry to the elevations shown. All wall sleeves and castings required in the walls shall be in place when the walls are poured. Ends of all wall castings and wall sleeves shall be of a type consistent with the piping to be connected to them.

B. Link seals for wall sleeves shall be installed in strict accordance with the manufacturer's printed installation instructions. For watertight applications in tanks or treatment units, the link seal installation shall be tested hydrostatically for leaks at the same time as the tank or treatment unit. Any leaks that occur during the test period shall be repaired by checking the link seals for proper installation and replacement of unit(s) found to be defective at no additional cost to the Owner.

C. Pipe couplings shall be installed in strict accordance with the manufacturer's published instructions and recommendations.

3.8 INSTALLATION OF VALVES

A. Valves of the size and type shown on the Drawings shall be set plumb and installed at the locations indicated on the Drawings. Valves shall be installed in accordance with manufacturer's installation instructions and with the Details shown on the Drawings.

B. Valves shall be installed such that they are supported properly in their respective positions, free from distortion and strain. Valves shall be installed such that their weight is not borne by pumps and equipment that are not designed to support the weight of the valve.

C. Valves shall be carefully inspected during installation; they shall be opened wide and then tightly closed and the various nuts and bolts shall be tested for tightness. Special care shall be taken to prevent any foreign matter from becoming lodged in the valve seat. Check and adjust all valves for smooth operation.

D. Install valves with the operating stem in either horizontal or vertical position.

E. Allow sufficient clearance around the valve operator for proper operation.

F. Clean iron flanges by wire brushing before installing flanged valves. Clean carbon steel flange bolts and nuts by wire brushing, lubricate threads with oil or graphite, and tighten nuts uniformly and progressively. Clean threaded joints by wire brushing or swabbing. Apply Teflon joint compound or Teflon tape to pipe threads before installing threaded valves. Joints shall be watertight.

G. For buried valves, a valve box shall be centered accurately over the operating nut and the entire assembly shall be plumb. The tops of valve boxes shall be adjusted to the proper elevation as specified below and as shown on the Drawings.

1. In paved areas, tops of valve box covers shall be set flush with pavement. Following paving operations, a 16-inch square shall be neatly cut in the pavement around the box and the paving removed. The top of the box shall then be adjusted to the proper elevation and a 30-inch square by 6-inch thick concrete pad poured around the box cover. Concrete pads in traffic areas shall be reinforced with No. 4 reinforcement bars as shown on the Drawings. Concrete for the pad shall be 3000 psi compressive strength.

2. In unpaved areas, tops of valve box covers shall be set 2 inches above finished grade. After the top of the box is set to the proper elevation, a 16-inch square by 6 inch thick concrete pad shall be poured around the box cover. Concrete for the pad shall be 3000 psi compressive strength.

H. Valves shall be tested hydrostatically, concurrently with the pipeline in which they are installed. Protect or isolate any parts of valves, operators, or control and instrumentation system whose pressure rating is less than the pressure test(s). If valve joints leak during pressure testing, loosen or remove the nuts and bolts, reseat or replace the gasket, reinstall or retighten the bolts and nuts and hydrostatically retest the joints.

I. Following installation, all aboveground valves shall be painted in accordance with the painting system specified in accordance with manufacturer's recommendations. Following installation of buried valves or valves installed in valve vaults, repair any scratches, marks and other types of surface damage, etc., with a coating equal to the original coating supplied by the manufacturer. Prior to backfilling, all nuts, bolts and other parts of the valve joints shall be coated with two coats, 10 mils DFT per coat, of coal tar epoxy equal to Kop-Coat Bitumastic No. 300-M.

3.9 SEPARATION OF NON-POTABLE WATER MAINS AND POTABLE WATER MAINS

A. Reclaimed water mains shall be installed with at least a 3 foot horizontal separation from any potable water main. Force mains and gravity sewers shall have a 6 foot separation from potable mains. At crossings the installation shall provide of a minimum vertical separation distance of 12 inches between the outside of the crossing non-potable and potable water mains. This separation shall be provided where the potable water main is either below or above the non-potable water main. When the 12 inch minimum vertical separation distance cannot be maintained, the potable water main shall be encased in concrete. Concrete encasement shall be as specified above. The potable water main shall be encased for 10 feet each way of the crossing.

3.10 MAIN CLEANING AND FLUSHING

A. Following the hydrostatic and leakage tests, all the mains constructed under this Contract shall be cleaned and flushed to remove sand, loose dirt and other debris. Flushing velocity shall be a minimum of 2.5 fps. Flushing shall continue until clean water flows from the main. However, the Contractor shall endeavor to use the minimum amount of flushing water required to complete the work. To increase the efficiency of the cleaning and flushing operation, the Contractor shall use a pipeline pigging device of the proper size and designed to clean the intended pipeline. The pigging device shall be capable of turning through a standard 90 degree MJ bend. The type of pipeline pigging device and the method of operation shall be approved by the Engineer.

B. Upon completion of testing for the gravity drain line system, drain lines shall be flushed to remove dirt, sand, stones and other debris which may have entered the lines during construction and settled out in the lines and manholes. Materials and debris flushed from the drain lines shall be removed from a downstream manhole or basin and disposed of at an approved disposal area.

C. Water for flushing shall be clean water provided by the Contractor from a source approved by the Engineer and the Owner prior to beginning connections for flushing operations. Flushing shall only be completed upon approval by the Owner.

D. Temporary blow offs may be required for the purpose of flushing mains. Temporary blow offs shall be installed as close as possible to the ends of the main being flushed. Blow offs installed on the main shall be the same diameter as the main. Temporary blow offs shall be removed and plugged after the main is flushed. All costs for installing and removing temporary blow offs shall be at no additional cost to the Owner.

E. The Owner shall be notified at least three (3) working days prior to flushing mains.

F. Blow offs and temporary drainage piping used for flushing shall not be discharged into any gravity sewer or pumping station wetwell. The Contractor shall obtain prior approvals from the Engineer and the Owner as to the methods and locations of flushing water discharge.

3.11 INSTALLATION OF TIE RODS

A. Tie rods shall be installed in strict accordance with the manufacturer's written installation requirements. Unless otherwise indicated on the Drawings, the size and number of tie rods for a joint or installation shall be as recommended by the manufacturer's design chart for a working pressure of 150 psi.

B. Following installation and prior to backfilling, all parts of the tie rod joint restraint system, including tie rods, tie bolts, nuts, washers, and other fasteners, shall be coated with two (2) coats, 10 mils DFT per coat, of coal tar epoxy equal to Kop-Coat Bitumastic No. 300-M.

3.12 INSTALLATION OF REDUCED PRESSURE BACKFLOW PREVENTERS

A. Backflow preventers shall be installed at the locations shown on the Drawings. Backflow preventers shall be installed in accordance with the manufacturer's written installation instructions and as shown on the Drawings.

B. Reduced pressure principle backflow preventers shall be installed horizontally with an 18-inch minimum clearance between the finished grade and the lowest point on the bottom of the unit. Reduced pressure backflow preventers shall be installed with provisions for a suitable drain arrangement to drain off discharges from the relief valve, so that discharges are not objectionable. Backflow preventers shall be installed such that they are easily accessible for testing, maintenance and repair.

C. Piping and fittings for units three inches and larger in size shall have flanged joints. Piping, fittings and valves shall be properly supported with pipe support stands as shown on the Drawings.

D. Following installation of the reduced pressure backflow preventer, piping, fittings and valves, the entire aboveground assembly shall be finished painted in accordance with manufacturer's recommendations.

END OF SECTION 33 01 00

SECTION 33 01 12 – INSPECTION AND TESTING OF WATER UTILITIES

PART 1 - GENERAL

1.1 DESCRIPTION

A. Scope of Work: This section specifies the pneumatic, hydrostatic, and leakage testing of piping and acceptable piping materials for each application. The piping designations (mark) are also indicated.

B. Testing Records:

1. Provide a record of each piping installation during the testing. These records shall include:
   a. Date of test.
   b. Identification of pipeline tested or retested including designation.
   c. Identification of pipeline material.
   d. Identification of pipe specifications.
   e. Test fluid.
   f. Test pressure.
   g. Remarks: Leaks identified (type and location), types of repairs, or corrections made.
   h. Certification by Contractor that the leakage rate measured conformed to the Specifications.
   i. Signature of Engineer's representative witnessing pipe test.

2. Submit the test records to the Engineer's representative upon completion of the testing.

PART 2 - PRODUCTS

2.1 GENERAL

A. Testing fluid shall be water unless a pneumatic test for air or chemical systems is indicated on the Piping Pressure Test Schedule.

2.2 MATERIALS AND EQUIPMENT

A. Provide pressure gauges, pipes, bulkheads, pumps, and meters to perform the hydrostatic and pneumatic testing.

PART 3 - EXECUTION

3.1 TESTING PREPARATION

A. Pipes shall be in place and anchored before commencing pressure testing.

B. Conduct hydrostatic and pneumatic tests on exposed and above ground piping after the piping has been installed and attached to the pipe supports, hangers, anchors, expansion joints, valves, and meters.

C. Before conducting hydrostatic tests, flush pipes with water to remove dirt and debris. For pneumatic tests, blow air through the pipes.

D. Test new pipelines which are to be connected to existing pipelines by isolating the new line from the existing line by means of pipe caps, special flanges, or blind flanges. After the new line has been successfully tested, remove caps or flanges and connect to the existing piping.

E. Conduct hydrostatic tests on buried pipe after the trench has been completely backfilled. The pipe may be partially backfilled and the joints left exposed for inspection for an initial leakage test. Perform the final test, however, after completely backfilling and compacting the trench.

F. Testing of piping under structures shall be completed prior to beginning construction of the structure. In the case of concrete encased piping, the pressure test shall be conducted after the concrete encasement has been placed and cured, but prior to beginning construction of any structure above the piping.

3.2 INSPECTION AND TESTING

A. Hydrostatic Testing of Aboveground or Exposed Piping: Open vents at high points of the piping system to purge air while the pipe is being filled. Subject the piping system to the test pressure indicated. Maintain the test pressure for a minimum of two (2) hours. Examine joints, fittings, valves, and connections for leaks. The piping system shall show no leakage or weeping. Correct leaks and retest until no leakage is obtained. Test pressure shall be 150 psi for water unless otherwise specified.

B. Hydrostatic Testing of Buried Piping:

1. Where any section of the piping contains concrete thrust blocks or encasement, do not make the pressure test until at least ten (10) days after the concrete has been poured. When testing mortar lined or PCCP piping, fill the pipe to be tested with water and allow it to soak for at least forty-eight (48) hours to absorb water before conducting the pressure test.

2. Apply and maintain the test pressure by means of a hydraulic force pump. Maintain the test pressure for a minimum duration of two (2) hours. After the test pressure is reached, use a meter to measure the additional water added to maintain the pressure. This amount of water is the loss due to leakage in the piping system. The allowable leakage rate is defined by the formula.

$$L = \frac{ND\sqrt{P}}{7{,}400}$$

in which:

L = allowable leakage (gallons/hours) during the test period.

N = number of rubber gasketed joints in the pipe tested (zero for flanged

or welded pipe).

D = diameter of the pipe (inches).

P = specified test pressure (psig).

3. Repair and retest any pipes showing leakage rates greater than that allowed in the above formula.

C. Pneumatic Testing:

1. Test Pressure: As shown in the Specifications, or 150 psi.

2. Perform pneumatic testing using dry air. Perform tests only after the piping has been completely installed including supports, hangers, and anchors. Protect test personnel and Owner's operating personnel. Secure piping to be tested to prevent the pipe from moving and to prevent damage to adjacent piping and equipment. Remove or isolate from the pipe any appurtenant instruments or devices that could be damaged by the test, prior to applying the test.

3. Apply an initial pneumatic leakage test of 25 psig to the piping system prior to final leak testing. Examine for leakage, detected by soap bubbles, at joints and connections. After correcting visible leaks, gradually increase the pressure in the system to not more than one-half of the test pressure. Then increase the pressure in steps of approximately one-tenth of the test pressure until the required test pressure has been reached. Continuously maintain the pneumatic test pressure for a minimum time of four (4) hours and for such additional time as may be necessary to conduct a soap bubble examination for leakage. The piping system shall show no leakage. Correct any visible leakage and retest.

D. Testing of Non-Pressure Piping:

1. Testing of non-pressure gravity flow pipe shall be accomplished by infiltration or exfiltration testing. Non-pressure piping which has a crown elevation below the groundwater table shall be tested by measuring the infiltration. Non-pressure piping which has a crown elevation above the groundwater table shall be tested by measuring the exfiltration.
   a. Infiltration Testing: The Contractor shall identify and prepare each section of piping to be tested. The designated piping shall be monitored for a minimum of four (4) hours. All buried leaks shall be located and repaired immediately and retested. All visible leaks must be repaired regardless of the measured leakage. No visible leakage will be allowed.
   b. Exfiltration Testing: The Contractor shall close all openings in the section of pipe to be tested. The hydrostatic water level of the pipe system shall be raised to a height equal to the maximum design submergence, but in no case less than three feet above the highest point in the line. The closed system shall be maintained for a minimum duration of four (4) hours. Any loss of volume shall be noted. The line will not be accepted until this measured quantity is less than 25 gallons per inch of diameter of pipe per mile of pipe per twenty-four (24) hours. All buried leaks shall be located and repaired as soon as possible. All visible leaks must be repaired regardless of the measured leakage.

2. If impractical to conduct the infiltration or exfiltration tests as specified, the line can be pressurized for low pressure air testing. The air test shall be made by attaching an air compressor or testing apparatus to a suitable opening. After closing all other inlets and outlets to the system, force air into the system until there is a uniform gauge pressure of 5 psi. This pressure shall be held constant without introduction of additional air for a period of at least thirty (30) minutes.

3. The allowable limits of infiltration or exfiltration of manholes shall not exceed a rate of 0.165 gallons per manhole per hour.

4. Testing shall proceed for a continuous period of at least four (4) hours, with exfiltration or infiltration amounts measured by approved methods. Upon application of internal hydrostatic pressure for exfiltration testing, care shall be taken to preclude unseating the joint gaskets for a specific type of pipe by exceeding the pressure capability thereof.

5. Should any test fail, necessary repairs shall be accomplished by the Contractor and the test repeated until within the established limits. The Contractor shall furnish the necessary labor, water and all other items required to conduct the required testing and shall perform the necessary system repairs required to comply with the specified test.

3.3 DISINFECTION

A. Following pressure testing, the Contractor shall disinfect all sections of the water or reclaimed water distribution system, and receive approval thereof from the appropriate agencies, prior to placing in service. Advance notice shall be provided to the Engineer before disinfection procedures start. The disinfection shall be accomplished in accordance with the applicable provisions of AWWA Standard C651, "Disinfecting Water Mains", and all appropriate approval agencies. Testing shall be performed by approved, professional laboratory.

B. The disinfecting agent shall be liquid chlorine or sodium hypochlorite solution conforming to Federal Specification O-S-602b Sodium Hypochlorite, Grade D. Dry hypochlorite, similar or equal to "HTH" may also be used as the disinfecting agent.

C. The piping shall be disinfected by introducing the disinfecting agent into the water, which is being pumped into the system, in such manner that the entire system will be filled with water containing a minimum chlorine concentration of 50 ppm at any point. This water shall be allowed to remain in the system for a minimum contact period of eight (8) hours before the system is flushed out.

D. After the disinfecting agents have been permitted to remain for the specified contact periods, the structures, pipelines, pumps and valves shall be thoroughly flushed with water until the residual chlorine tests are less than 0.2 ppm in each instance. The determination of the amount of residual chlorine in the system shall be made at such points and in accord with standard tests by means of a standard orthotolodine test set.

E. After any units or portions of the system have been disinfected and flushed as specified, samples of water shall be taken from several points as applicable in suitable sterilized containers and the samples forwarded to an independent, approved testing laboratory for bacterial examination. If repeated tests of such samples show the presence of coliform organisms, the disinfection shall be repeated or continued until tests indicate the absence of pollution. Two (2) consecutive daily

samples of two (2) samples per day per sampling point shall be satisfactorily tested, sent to the Florida Department of Environmental Regulation for their approval, and approved before the system is placed in service.

F. The Contractor shall furnish all equipment and materials and perform the work necessary for the disinfecting procedures, including additional disinfection as required and testing lab services.

3.4 CONNECTION TO EXISTING SYSTEM

A. All connections to existing mains shall be made after complete disinfection of the proposed system and shall be made under the direction of the Owners of the existing system. Valves separating the mains being installed from existing mains shall be operated by or under the direction of said Owner's representative. The cost of the work in making the connections shall be paid for by the Contractor.

B. In the event the proposed main is to be connected to a main which has one or more active services between the point of connection and the first existing line valve, a temporary plug or cap shall be installed on the new main until the pressure tests and disinfecting are completed. Upon satisfactory completion, the cap or plug shall be removed from both mains and the connection made with pipe which has been swabbed out with a solution of chlorine and water. The connection shall be made as swiftly as possible and any water in the ditch shall be kept below the level of the pipe. The pipeline shall then be placed in service by the Owner's personnel.

C. In the event any existing users will be without water while a connection is being made, the Contractor shall give the Owner forty-eight (48) hours' notice. The Owner will notify residents when the water will be turned off and when service will be resumed. In some instances, these connections may have to be made at night. No user shall be without water service for more than two (2) hours.

D. Cut overs from existing water service lines at the meter box shall be accomplished by Contractor personnel after the new water mains have been "cleared" for use and the Contractor has installed the required new water line corporation stops, service lines and curb stops as shown on the Drawings.

TABLE 33 01 12

TREATMENT PLANT PIPING PRESSURE TEST SCHEDULE
AND MATERIAL LISTING

SERVICE	MARK	TEST PRESSURE IN PSIG	MATERIAL
Air	A	See Note 1	DIP OR SS
Alum	$ALW(SO4)^3$	See Note 2	SCH. 80 PVC
Backwash Air	BWA	See Note 1	DIP
Backwash Water	BWW	100	DIP
Chlorinated Effluent	CLE	100	DIP
Chlorine Gas Pressure	CGP	300, See Note 3	BLK. STEEL
Chlorine Gas Vacuum	CGV	See Note 4	SCH. 80 PVC
Chlorine Solution	CS	100	SCH. 80 PVC
Clarifier Effluent	CE	See Note 5	DIP
Compressed Air	CA	200	GS
Dechlorinated Effluent	DCLE	See Note 5	DIP
Dirty Backwash Water	DBWW	See Note 5	DIP
Drain	D	See Note 5	SEE NOTE 6
Filter Effluent	FE	See Note 5	DIP
Filter Influent	FI	See Note 5	DIP
Filtrate	F	100	DIP
Grit	GR	50	DIP
Internal Recirculation	IR	50	DIP

Methanol	M	See Note 2	SCH. 80 PVC
Mixed Liquor	ML	See Note 5	DIP
Non-Potable Water	NPW	150	SEE NOTE 7
Odor Control Duct	OCD	See Note 1	SEE NOTE 8
Potable Water	PW	150	SEE NOTE 7
Plant Recycle	PR	50	DIP
Plant Recycle Drain	PRD	See Note 5	SEE NOTE 6
Polymer Liquid	PYL	See Note 2	SCH 80 PVC
Polymer Solution	PYS	See Note 2	SCH 80 PVC
Raw Sewage	RS	50	DIP
Return Activated Sludge	RAS	50	DIP
Reuse Water (Pressure)	RW	150	DIP, HDPE or PVC
Reuse Water (Gravity)	RW	50	DIP
Sanitary Sewer	S	See Note 5	SEE NOTE 6
Scum	SC	50	DIP
Seal Water	SW	See Note 9	SCH. 80 PVC
Sodium Hydroxide	NaOH	See Note 2	SCH. 80 PVC
Sodium Hypochlorite	NaOC1	See Note 2	SCH. 80 PVC
Sulfur Dioxide Gas Pressure	SDGP	300, See Note 3	BLK. STEEL
Sulfur Dioxide Gas Vacuum	SDGV	See Note 4	SCH. 80 PVC
Sulfur Dioxide Solution	SDS	100	SCH. 80 PVC
Sulfuric Acid	H2SO4	See Note 2	BLK. STEEL
Sump Pump Discharge	SPD	50	SCH. 80 PVC
Thickened Waste Activated Sludge	TWAS	100	DIP
Waste Activated Sludge	WAS	50	DIP

NOTES:

1. Discharge pipes shall be tested at 1.5 times the maximum output pressure of the blowers but shall not be less than 50 psig. In addition, suction pipes, duct work or other vacuum conduits shall be vacuum tested at 1.5 times the maximum vacuum produced by blower operation.

2. Chemical feed piping shall be tested at 75 psig using compressed air.

3. Pneumatic test. Pressure test the system with nitrogen. Do not test through equipment.

4. Vacuum test. Perform pneumatic test to 100 psig using nitrogen. Do not perform pneumatic test through equipment. Afterward, perform vacuum test at 10 inch Hg VAC between vacuum regulator and chlorinator or sulphonator, and at 25 inch Hg VAC between chlorinator or sulphonator and injectors.

5. See paragraph 3.2D for testing of non-pressure piping. Calculations for restraint of non-pressure piping shall use a valve of 15 psig.

6. Drains pipes/sanitary sewers shall be DR 18 PVC meeting AWWA C900 or C905 or Class 52 DIP. All drain pipes under structures shall be DIP and shall be concrete encased in accordance with the Contract Documents.

7. Piping for sizes less than 4 inches shall be Schedule 80 PVC or HDPE, (as indicated). All other sizes of pipe shall be DIP of Class 250 or (DR 18) PVC. All above ground piping outside of structure 3 inches and less shall be Schedule 80 PVC while piping above 3 inches in diameter shall be DIP.

8. Odor control duct work shall be vacuum tested at 1.5 times the maximum vacuum produced by blower operation, but shall not be tested at less than 10 inches water VAC.

9. Test pressure requirements for seal water piping shall be 1.5 times the maximum working pressure, but test pressure shall not be less than 100 psig.

END OF SECTION 33 01 12

SECTION 33 14 00 – WATER UTILITY TRANSMISSION AND DISTRIBUTION

PART 1 - GENERAL

1.1 DESCRIPTION

A. Scope of Work:

1. The work under this section includes providing a complete system of water and reclaimed water distribution pressure piping and appurtenant items.

1.2 QUALITY ASSURANCE

A. Design Requirements:

1. Water and reclaimed water mains shall be laid with a minimum cover of 36 inches below finished grade, unless otherwise indicated.

2. Water and reclaimed water (typical this section) mains shall be constructed of the materials indicated on the Drawings. Ductile iron pipe may be substituted for polyvinyl chloride pipe.

3. Changes in horizontal alignment of 113 degrees or less may be achieved through use of allowable pipe deflection in lieu of fittings shown on the Drawings at the Contractor's option, but subject to approval of the Engineer as to layout. Said deflection shall not exceed limits set forth in applicable AWWA Standards.

B. Pipe Inspection: The Contractor shall obtain from the pipe manufacturers a certificate of inspection to the effect that the pipe and fittings supplied for this Contract have been inspected at the plant and that they meet the requirements of these Specifications. All pipe and fittings shall be subjected to visual inspection at time of delivery by rail or truck, also just before they are lowered into the trench to be laid, and joints or fittings that do not conform to these Specifications will be rejected and must be remove immediately by the Contractor. The entire product of any plant may be rejected when, in the opinion of the Owner, the methods of manufacture fail to secure uniform results, or where the materials used are such as to produce inferior pipe or fittings.

C. Prevention of Electrolysis: Where deemed necessary, electrolytic action through the contact of dissimilar metals, shall be prevented by either:

1. The separation of one material from the other by means of an insulating or dielectric coupling, or

2. The use of alternative materials, as approved by the Engineer.

1.3 SUBMITTALS

A. A. Shop Drawings: The Contractor shall submit to the Engineer shop drawings in accordance with the applicable Specification. At minimum the shop drawings shall include:

1. Mill test certificates or certified test reports on pipe.

2. Details of restrained and flexible joints.

3. Meter vault and boxes

4. Valves and valve boxes

5. Service connection assemblies

6. Disinfection method

B. Acceptance of Material: The Owner reserves the right to sample and test any pipe or fitting after delivery and to reject all pipe and fittings represented by any sample which fails to comply with the specified requirements.

1.4 JOB CONDITIONS

A. Water in Excavation: Water shall not be allowed in the trenches while the pipes are being laid and/or tested. The Contractor shall not open more trench than the available pumping facilities are able to dewater to the satisfaction of the Engineer. The Contractor shall assume responsibility for disposing of all water so as not to injure or interfere with the normal drainage of the territory in which they are working. In no case shall the pipelines being installed be used as drains for such water, and the ends of the pipe shall be kept properly and adequately blocked during construction by the use of approved stoppers and not by improvised equipment. All necessary precautions shall be taken to prevent to entrance of mud, sand, or other obstructing matter into the pipelines. If on completion of the work any such material has entered the pipelines, it must be cleaned as directed by the Engineer so that the entire system will be left clean and obstructed.

PART 2 - PRODUCTS

2.1 MATERIAL

A. Materials shall conform to Division 33

PART 3 - EXECUTION

3.1 PREPARATION

A. Bedding:

1. Pipe Cradle: Upon satisfactory installation of the pipe bedding material

a. Excavating, backfilling, and compacting, a continuous trough for the pipe barrel and recesses for the pipe bells or couplings shall be excavated by hand digging. When the pipe is laid in the prepared trench, true to line and grade, the pipe barrel shall receive continuous, uniform support and no pressure will be exerted on the pipe joints from the trench bottom.

2. Cleanliness: The interior of the pipes shall be thoroughly cleaned of all foreign matter before being gently lowered into the trench and shall be kept clean during laying operations by means of plugs or other approved methods. During suspension of work for any reason at any time, a suitable stopper shall be placed in the end of the pipe last laid to prevent mud or other foreign material from entering the pipe.

3.2 INSTALLATION

A. Pipe:

1. Gradient: Lines shall be laid straight, and depth of cover shall vary to provide uniform gradient or slope to pipe whether grading is completed or proposed at time of pipe installation. When a grade or slope is shown on the Drawings, batter boards with string line paralleling design grade, or other previously approved means, shall be used by the Contractor to assure conformance to require grade.

2. Pipe Joint Deflection: Whenever it is desirable to deflect pipe, the amount of deflection shall not exceed the maximum limits as shown in AWWA Standard C600 for ductile iron pipe and the maximum limits as established by the manufacturer of PVC pipe.

3. Rejects: Any pipe found defective shall be immediately removed and replaced with sound pipe at the Contractor's expense.

4. Joint Compounds: No sulphur base joint compound shall be used.

5. Anchors: Concrete thrust blocks shall be placed at all bends, tees, plugs and other fittings to provide lateral support, except when restrained joints are specified. Thrust blocks shall conform to the details shown on the Drawings and shall be of Class "B" concrete.

6. "Grip Ring", Special MJ Gland and Grip Ring: as manufactured by Romac Industries, Inc., Seattle, WA 98114 or approved restraining devices shall be used instead of thrust blocks for all pressure rated pipe sizes 4 inch through 24 inch diameter.

B. Installing Valves and Boxes:

1. Valves: Valves shall be carefully inspected, opened wide and then tightly closed and the various nuts and bolts shall be tested for tightness. Special care shall be taken to prevent any foreign matter from becoming lodged in the valve seat. Gate valves, unless shown otherwise, shall be set with their stems vertically above the centerline of the pipe. Butterfly valves shall have the disc shaft installed horizontally. Any valve that does not operate correctly shall be removed and replaced by the Contractor at no expense to the Owner.

2. Valve Boxes: Valve boxes shall be carefully centered over the operating nuts of the valves so as to permit a valve key to be fitted easily to the operating nut. In areas to be paved, valve boxes shall be set to conform to the level of the finished surface and held in position by a ring of concrete placed under the support flange as shown on the Drawings. The valve box shall not transmit surface loads to the pipe or valve. Care shall be taken to prevent earth and other material from entering the valve box. Any valve box which is out of alignment or whose top does not conform to the finished ground surface shall be dug out and reset. Before final acceptance of the work all valve boxes shall be adjusted to finish grade.

C. Installing Hydrants: Hydrants shall be set plumb and in true alignment with mains. They shall be securely braced against the end of the trench with concrete thrust blocks as shown on the Drawings. Backfilling around hydrants shall be carefully done so as not to disturb the hydrant and shall be thoroughly compacted so as to support the hydrant securely.

D. Concrete Encasement:

1. Concrete encasement shall be constructed in accordance with the details shown on the Drawings and shall be constructed of Class "B" concrete. Encasement shall be constructed as indicated on the Drawings. Any fittings to be encased shall first be poly-wrapped and tied to facilitate repairs if needed at a later date.

2. The points of beginning and ending of pipe encasement shall be not more than six inches from a pipe joint to protect the pipe from cracking due to uneven settlement of its foundation or the effects of superimposed live loads.

E. Blow Off Connections: Blow off connections shall be installed at the locations and in accordance with the details shown on the Drawings.

F. Service Connections: Service connections shall be installed at the locations and in accordance with the details shown on the Drawings.

G. Backfilling:

1. After pipe has been laid, inspected, and found satisfactory, sufficient backfill shall be placed along the pipe barrel to hold the pipe securely in place during the conduction of the preliminary hydrostatic test. No backfill shall be placed over joints until the preliminary test is satisfactorily completed, leaving them exposed to view for the detection of visible leaks.

2. Upon satisfaction completion of the preliminary hydrostatic test, backfilling and compacting of the trench shall be completed.

H. Separation from Various Non-Potable Lines:

1. Potable water mains should be laid at least ten feet horizontally from wastewater/sludge/chemical piping and at least three feet horizontally from reclaimed water piping, or if a potable water main is laid less than ten feet horizontally from reclaimed water piping, the potable water main should be laid so that the bottom of the potable water main is at least 12 inches above the top of the wastewater/sludge/chemical/reclaimed water

piping. Where a potable water main crosses wastewater/sludge/chemical/reclaimed water piping, the potable water main should be laid so that the bottom of the potable water main is at least 12 inches above the top of the wastewater/sludge/chemical/reclaimed water piping; or the crossing should be arranged so that all potable water main joints and wastewater/sludge/chemical/reclaimed water piping joints are equidistant from the point of crossing with no less than ten feet between any two (2) joints.

3.3 FIELD QUALITY CONTROL

A. Flushing: All water mains shall be flushed to remove all sand and other foreign matter. The velocity of the flushing water shall be at least four feet per second. Flushing shall be terminated at the direction of the Engineer. The Contractor shall dispose of the flushing water without causing a nuisance or property damage.

B. Hydrostatic Tests:

1. Hydrostatic tests shall be conducted in accordance with the applicable Specification.

2. Water for testing and flushing shall be potable water provided by the Contractor from a source approved by the Engineer.

C. Disinfection:

1. Before any portion of water distribution system is to be placed in service it shall be disinfected in accordance with the requirements of AWWA Standard C651; and its disinfection shall be demonstrated by bacteriological tests conducted in accordance with "Standard Methods for Examination of Water and Wastewater" for the coli aerogenes group, by an approved laboratory, acceptable to the Engineer and the County Health Department having jurisdiction and the State of Florida.

2. The disinfecting agent shall be free chlorine in aqueous solution, with sustained concentration for 12 hours or more of not less than 50 parts per million (ppm). Chlorine may be derived from chlorine gas, or 70 percent (high test) calcium hypochlorite (HTH or Perchloron, or equal). Administration may be by any of the several methods described in AWWA Standard C651 as proposed by the Contractor and approved by the Engineer. Proposals as to method must be made prior to commencement of the disinfection process.

3. Following contact with chlorine solution, the system shall be thoroughly flushed out. Samples shall then be taken using sterile containers. Samples shall be taken by the Contractor and delivered to an approved laboratory for analysis.

4. If samples do not demonstrate satisfactory results, the disinfection procedure shall be repeated until two (2) series of satisfactory samples are obtained, the period between such series of samples to be a minimum of twenty-four (24) hours.

5. For reclaimed water mains, all lines shall be backflushed and cleared until chlorine residual is maintained.

3.4 SCHEDULE

A. Connection to Existing System:

1. All connections to existing mains shall be made after complete disinfection of the proposed system and shall be made under the direction of the Owner of the existing system. Valves separating the mains being installed from existing mains shall be operated by or under the direction of the Engineer. The cost of the work in making the connection shall be paid for by the Contractor.

2. In the event the proposed main is to be connected to a main which has one or more active services between the point of connection and the first existing line valve, a temporary plug or cap shall be installed on the new main until the pressure tests and disinfecting are completed. Upon satisfactory completion, the cap or plug shall be removed from both mains and the connection made with pipe which has been swabbed out with a solution of chlorine and water. The connection shall be made as swiftly as possible and any water in the ditch shall be kept below the level of the pipe. The pipeline shall then be placed in service by the Owner's personnel.

3. In the event any existing users will be without water while a connection is being made, the Contractor shall notify them when the water will be turned off and when they estimate service will be resumed. In some instances, these connections may have to be made at night. No user shall be without water service for more than two (2) hours.

END OF SECTION 33 14 00

END OF DOCUMENT

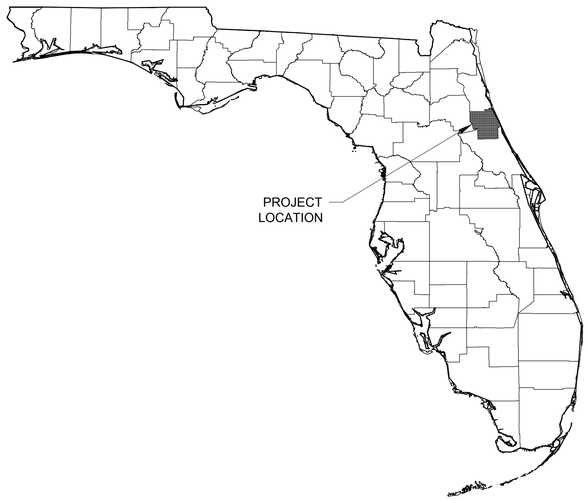
CITY OF FLAGLER BEACH

S. CENTRAL WATER MAIN REPLACEMENT

BID SET

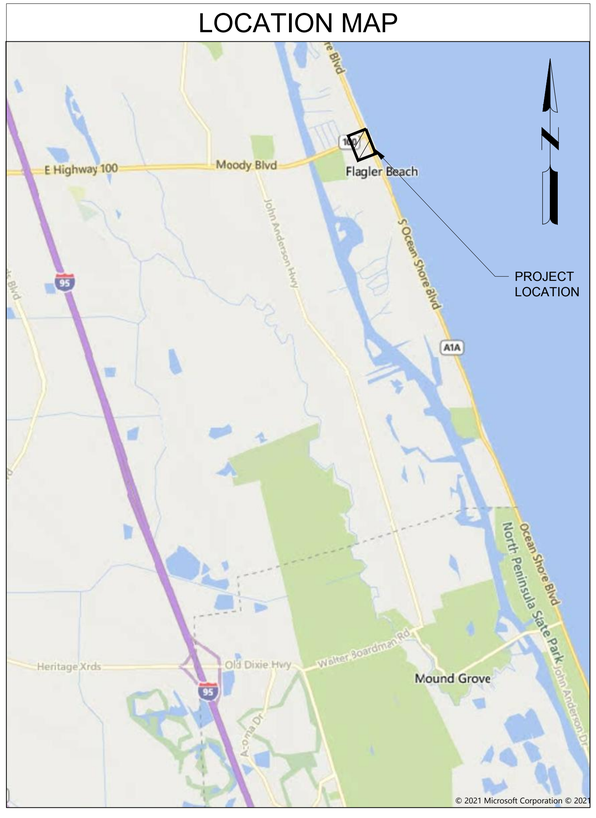
BID NO. 24-1021

OCTOBER 2024

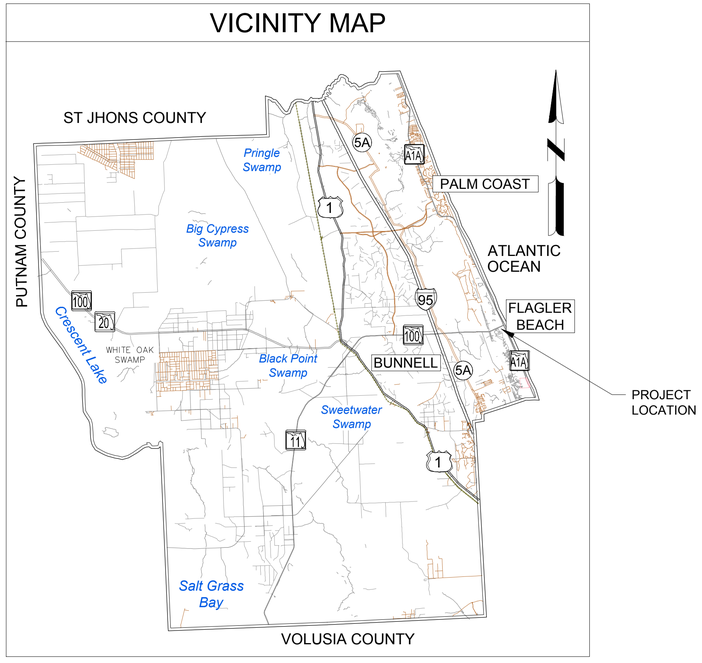


FLAGLER COUNTY

LOCATION MAP



VICINITY MAP



SHEET LIST TABLE

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G-003	SYMBOLS & ABBREVIATIONS
G-021	KEY MAP
C-001	TRAFFIC DETAILS
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C-003	TRAFFIC DETAILS
C-101	SITE PLAN
C-501	STANDARD DETAILS
C-502	STANDARD DETAILS
C-503	STANDARD DETAILS

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CITY OF FLAGLER BEACH
S. CENTRAL WATER MAIN REPLACEMENT
FLAGLER BEACH, FLORIDA

ISSUED

M&H NO.: 1000709-231849.01
DATE: August 16, 2024
DESIGNED BY: CMC
DRAWN BY: MRM
CHECKED BY: DAK
DO NOT SCALE DRAWINGS

SHEET CONTENTS
COVER SHEET

SHEET NO.
G-001

LEGEND & ABBREVIATIONS:

- ● = IRON ROD
- ■ = CONCRETE MONUMENT
- ⊙ = NAIL & DISC
- ○ = IRON PIPE
- A/C = AIR CONDITIONING
- = POWER POLE
- = SIGN
- TN = TANK
- = TREE/HEDGE LINE
- = BUSH
- = FIRE HYDRANT
- WV = WATER VALUE
- = CLEANOUT
- STA = STATION
- LT = LEFT
- RT = RIGHT
- = WATER METER
- -Δ- = VINYL FENCE
- = TELEPHONE PEDESTAL
- = SERVICE POLE
- LSA = LANDSCAPE AREA
- = GUY WIRE ANCHOR
- = DRAINAGE MANHOLE
- = SANITARY MANHOLE
- = TRAFFIC SIGN
- = FLAT GRATE INLET
- = COMBINATION POLE
- = "X" CUT
- = MAIL BOX
- UM = UTILITY METER
- -OHL- = OVERHEAD UTILITY LINE
- -X- = CHAINLINK FENCE
- -0- = WOOD FENCE
- ABS = ACRYLONITRILE BUTADIENE STYRENE PIPE
- PVC = POLYVINYL CHLORIDE PIPE
- INV = INVERT
- FF = FINISH FLOOR ELEVATION
- LB = LICENSED BUSINESS
- LS = LICENSED SURVEYOR
- NAVD = NORTH AMERICAN VERTICAL DATUM
- TRAV.PT. = TRAVERSE POINT
- SSMC = SOUTHEASTERN SURVEYING & MAPPING CORPORATION

SIZE SHOWN IS TRUNK DIAMETER IN INCHES MEASURED AT CHEST HEIGHT

= PALM
C = CABBAGE

= TREE
O = OAK

GENERAL NOTES

1. UTILITIES & STRUCTURES AS SHOWN ON PLANS HAVE BEEN LOCATED FROM AVAILABLE RECORDS, HOWEVER IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO CONFIRM THE LOCATION OF ALL UTILITIES AND STRUCTURES TO BE ENCOUNTERED IN THE WORK AND TO AVOID CONFLICT WITH EXISTING FACILITIES.
2. THE OWNER AND/OR THE ENGINEER SHALL NOT BE HELD RESPONSIBLE FOR INACCURACIES OR OMISSIONS IN THE LOCATION, ELEVATION AND DIMENSIONS OF EXISTING UTILITIES, STRUCTURES AND OTHER EXISTING FEATURES.
3. THE CONTRACTOR SHALL CONTACT THE ENGINEER'S OFFICE IMMEDIATELY UPON ANY CONFLICTS ARISING DURING CONSTRUCTION OF ANY PROPOSED IMPROVEMENTS SHOWN ON THESE DRAWINGS.
4. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL DAMAGE TO, AND REPLACEMENT OF, EXISTING UTILITIES. REPLACEMENT SHALL BE TO THE COMPLETE SATISFACTION OF THE ENGINEER.
5. THE CONTRACTOR SHALL PRESERVE FROM DAMAGE, ALL PROPERTY ALONG THE LINE OF WORK, OR THAT IS IN THE VICINITY THEREOF, OR IS IN ANY WAY AFFECTED BY THE WORK; THE REMOVAL OF OR DESTRUCTION OF WHICH IS NOT CALLED FOR BY THE PLANS. WHEREVER SUCH PROPERTY IS DAMAGED DUE TO CONSTRUCTION ACTIVITIES OF THE CONTRACTOR, IT SHALL BE IMMEDIATELY RESTORED TO ITS ORIGINAL CONDITION BY THE CONTRACTOR AT NO COST TO THE OWNER.
6. THE CONTRACTOR SHALL PROVIDE FORTY EIGHT (48) HOURS NOTICE TO THE VARIOUS UTILITY OWNERS PRIOR TO CONSTRUCTION.
7. ALL UTILITY OUTAGES SHALL BE COORDINATED WITH AND APPROVED BY THE SUPERINTENDENT OF THE DEPARTMENT AFFECTED, PRIOR TO OUTAGE.
8. THE CONTRACTOR SHALL CONDUCT HIS WORK AS TO INSURE LEAST POSSIBLE IMPACTS TO TRAFFIC AND INCONVENIENCE TO THE GENERAL PUBLIC AND THE RESIDENTS IN THE VICINITY OF THE WORK AND TO INSURE THE PROTECTION OF PERSONS AND PROPERTY. NO ROAD SHALL BE CLOSED TO THE PUBLIC WITHOUT PRIOR APPROVAL OF THE ENGINEER AND THE PROPER GOVERNMENTAL AUTHORITY.
9. THE CONTRACTOR SHALL EMPLOY A LAND SURVEYOR, REGISTERED IN THE STATE OF FLORIDA, TO REFERENCE AND RESTORE PROPERTY CORNERS AND LAND MARKERS WHICH MAY BE DISTURBED BY CONSTRUCTION AND TO ASSURE ACCURATE HORIZONTAL AND VERTICAL CONTROLS DURING CONSTRUCTION.
10. THE CONTRACTOR SHALL DO ALL THAT IS POSSIBLE TO AVOID TREES, PARTICULARLY TREES 6" DIAMETER OR LARGER. NO TREE SHALL BE REMOVED UNLESS IN DIRECT CONFLICT WITH CONSTRUCTION AND DESIGNATED FOR REMOVAL BY THE ENGINEER.
11. THE CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING EFFECTIVE DRAINAGE AND EROSION CONTROL DURING CONSTRUCTION AND RESTORATION. TEMPORARY PROVISIONS SHALL BE MADE TO INSURE THE PROPER FUNCTIONING OF ALL GUTTERS, STORM INLETS AND DRAINAGE DITCHES. EROSION AND SILTATION CONTROL MEASURES ARE TO BE PROVIDED AND INSTALLED PRIOR TO COMMENCEMENT OF CONSTRUCTION. THESE MEASURES ARE TO BE MAINTAINED OR REPAIRED ON AN IMMEDIATE BASIS AS REQUIRED. REFER TO THE "FLORIDA EROSION AND SEDIMENT CONTROL MANUAL" FOR ADDITIONAL REQUIREMENTS FOR EROSION CONTROL AND SURFACE DRAINAGE.
12. RIGHT-OF-WAY RESTORATION IS TO BE CONDUCTED CONCURRENTLY WITH CONSTRUCTION AS DIRECTED BY THE ENGINEER. THE ENGINEER SHALL HAVE AUTHORITY TO SUSPEND CONSTRUCTION WORK WHEN RESTORATION IS NOT BEING ADEQUATELY PERFORMED. ALL DISTURBED AREAS ARE TO BE RESTORED TO EXISTING OR BETTER CONDITION. ALL AREAS DISTURBED BY CONSTRUCTION SHALL BE SODDED TO MATCH EXISTING SPECIES AND VARIETY OF GRASS. PIPE INSTALLATION UNIT PRICE SHALL INCLUDE RESTORATION AND SODDING TO EQUAL OR BETTER CONDITION.
13. THE CONTRACTOR SHALL FURNISH, ERECT AND MAINTAIN ALL NECESSARY TRAFFIC CONTROL AND SAFETY DEVICES IN ACCORDANCE WITH THE "U.S. DEPARTMENT OF TRANSPORTATION MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES," THE LATEST "FLORIDA DEPARTMENT OF TRANSPORTATION STANDARDS" AND CITY OF FLAGLER BEACH STANDARDS. CONTRACTOR SHALL PROVIDE CITY, F.D.O.T. AND COUNTY WITH DRAWINGS FOR APPROVAL OF TRAFFIC CONTROL PLANS. DEVICES SHALL BE IN ACCORDANCE WITH SECTION 102 (MAINTENANCE OF TRAFFIC) PER F.D.O.T. STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION (LATEST EDITION).
14. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY AND AT THE CONTRACTOR'S EXPENSE TO PROVIDE THE CONSULTING ENGINEER WITH "AS-BUILT" DRAWINGS OF CONSTRUCTION. DRAWINGS SHALL CONTAIN SPECIFIC LOCATION OF ALL RECLAIMED WATER MAINS, VALVES, SERVICES, AND OTHER WORK PERFORMED BY THE CONTRACTOR. REFER TO THE CONTRACT DOCUMENTS FOR FURTHER INFORMATION ON THE AS-BUILT REQUIREMENTS.
15. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROPER APPLICATION OF THRUST RESTRAINT SYSTEM PER D.I.P.R.A. TO PREVENT MOVEMENT OF PIPE AND FITTINGS. CONCRETE THRUST BLOCKS SHALL NOT BE ALLOWED.
16. NO FLANGED PIPE SHALL BE INSTALLED UNDERGROUND UNLESS SPECIFICALLY NOTED ON PLAN OR IN SPECIFICATIONS.
17. PIPE BEDDING SHALL BE CLASS I SOIL COMPACTED IN 6" LAYERS TO A HEIGHT OF 18" ABOVE PIPE, 12" LAYERS ARE ACCEPTABLE FROM 18" ABOVE PIPE TO FINISH GRADE, COMPACTED TO 95% OF MODIFIED PROCTOR DENSITY. (AASHTO-T-180) PIPE TO BE LAID ON FIRM FOUNDATION.
18. COMPACTION TEST TO BE TAKEN AT POINTS ONE (1) FOOT ABOVE PIPE AND TWO (2) FOOT VERTICAL INTERVALS TO FINISH GRADE AND AT HORIZONTAL SPACING OF THREE HUNDRED (300) FEET.
19. ADEQUATE EXCAVATION, SHEETING, SHORING AND BRACING SHALL BE PROVIDED AND SHALL CONFORM TO CONSTRUCTION REQUIREMENTS AS SET FORTH BY THE FEDERAL DEPARTMENT OF LABOR, OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION (O.S.H.A.).
20. PROVISIONS FOR DEWATERING SHALL BE MADE TO KEEP GROUNDWATER ELEVATION A MINIMUM OF 6" BELOW THE PIPE BEING INSTALLED.
21. LENGTHS OF PIPE SHOWN IN THESE PLANS ARE APPROXIMATE. EXACT LENGTHS ARE TO BE DETERMINED IN THE FIELD.
22. WATER LINE TO BE HYDROSTATICALLY TESTED AND FLUSHED.
23. DOUBLE STRAP/CORPORATION STOP, POLYETHYLENE TUBING AND CURB STOP ARE REQUIRED FOR TESTING.
24. ALL DRIVEWAYS TO BE REPAIRED TO EXISTING OR BETTER CONDITION. ALL ASPHALT DRIVEWAYS SHALL BE SAWCUT AND REPAIRED. OVERLAY ASPHALT DRIVES FROM EDGE OF ROAD OR BACK OF CURB TO RIGHT OF WAY LINE. ALL CONCRETE DRIVES TO BE REPLACED FROM R/W LINE AND/OR NEAREST CONSTRUCTION JOINT TO EDGE OF ROAD OR BACK OF CURB. ALL REPAIRS/OVERLAYS SHALL BE CONCRETE. CONCRETE DRIVES ARE 6" THICK 3000 PSI CONCRETE UNLESS OTHERWISE NOTED. ADDITIONAL HOUSES, DRIVEWAYS AND SIDEWALKS MAY HAVE BEEN CONSTRUCTED SINCE THE SURVEY WAS COMPLETED. NEW CONSTRUCTION IS NOT SHOWN ON THESE PLANS. PAYMENT WILL BE MADE FOR REPAIR OF DRIVEWAYS AND SIDEWALKS ACCORDING TO THE LINE ITEM AMOUNT IN THE SCHEDULE OF UNIT PRICES.
25. ALL NEW WATER SERVICE LOCATIONS SHALL BE FIELD LOCATED AND THE EXACT LOCATION APPROVED BY THE PROPERTY OWNER AND/OR CITY REPRESENTATIVE.
26. THE CONTRACTOR SHALL FURNISH, ERECT AND MAINTAIN ALL NECESSARY TRAFFIC CONTROL AND SAFETY DEVICES, IN ACCORDANCE WITH THE PLANS, U.S. DEPARTMENT OF TRANSPORTATION'S "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES" AND THE FLORIDA DEPARTMENT OF TRANSPORTATION'S "STANDARD PLANS" (ALL LATEST EDITIONS). CONTRACTOR SHALL SUBMIT A DETAILED TRAFFIC CONTROL PLAN FOR REVIEW AND APPROVAL.
27. THE CONTRACTOR SHALL SUBMIT A COMPREHENSIVE TRAFFIC CONTROL PLAN FOR APPROVAL PRIOR TO BEGINNING ANY WORK ON THE SITE. IF WORK WILL ADVANCE IN SECTIONS OR STAGES, THE TRAFFIC CONTROL PLAN SHALL REFLECT THE REQUIRED TRAFFIC CONTROL AND MAINTENANCE ASSOCIATED WITH EACH STAGE.
28. CONTRACTOR SHALL NOTE THAT THERE ARE SIDEWALKS ADJACENT TO THIS PROJECT. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO ENSURE THAT ALL PEDESTRIAN TRAFFIC ON THESE SIDEWALKS IS SAFELY MAINTAINED.
29. THE CONTRACTOR SHALL PROVIDE, ERECT AND MAINTAIN EFFECTIVE BARRICADES, DANGER SIGNALS, SIGNS AND PEDESTRIAN DETOURS IN ALL AREAS WHERE REQUIRED FOR THE PROTECTION OF THE WORK AND SAFETY OF THE PUBLIC.
30. CAUTION SHALL BE TAKEN WHEN PLACING SIGNAGE TO AVOID BLOCKING SIGHT DISTANCES AT INTERSECTIONS OR ANY TRAFFIC CONTROL DEVICES.
31. CONTRACTOR WILL BE RESPONSIBLE FOR ADEQUATELY BARRICADING AND SECURING AREAS WITHIN THE CONSTRUCTION ZONE THAT ARE HAZARDOUS FOR VEHICULAR ARE PEDESTRIAN ACCESS.
32. VEHICULAR AND PEDESTRIAN ACCESS SHALL BE MAINTAINED FOR ALL RESIDENTS AND EMERGENCY RESPONSE VEHICLES.
33. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO PREPARE SUBMITTALS AND OBTAIN ALL NECESSARY PERMITS RELATED TO TRAFFIC CONTROL WITHIN CITY AND COUNTY RIGHT-OF -WAYS.
34. THE CONTRACTOR SHALL BE RESPONSIBLE TO MAKE A REVIEW OF THE SITE TO DETERMINE EXISTING CONDITIONS AND ANYTHING NOT SHOWN ON THESE DRAWINGS SHOULD BE BROUGHT TO THE ATTENTION OF THE ENGINEER AND SHALL NOT CONSTITUTE AN EXTRA UNLESS APPROVED BY THE ENGINEER. THE CONTRACTOR SHALL VERIFY THE LOCATIONS, ELEVATIONS AND OTHER FEATURES AFFECTING THE WORK PRIOR TO CONSTRUCTION.
35. STATIONING DISCLAIMER: THE BASELINE STATIONING SHOWN ON THE PROJECT PLANS IS FOR REFERENCE AND INFORMATIONAL PURPOSES ONLY AND SHOULD NOT BE USED FOR PROJECT SITE SURVEY LAYOUT OR DIMENSIONING.

UTILITY INFORMATION PROVIDED TO OR COLLECTED BY MEAD & HUNT DURING DESIGN

UTILITY TYPE	UTILITY COMPANY	CONTACT	PHONE	EMAIL	PRELIMINARY PLANS PROVIDED TO UTILITY	INFORMATION QUALITY LEVEL AND DATE RECEIVED				FINAL PLANS PROVIDED TO UTILITY
						LEVEL A/4	LEVEL B/3	LEVEL C/2	LEVEL D/1	
WATER/WASTEWATER	CITY OF FLAGER BEACH	JENNIFER CREWS	(386)517-2000	JCrews@cityoffl aglerbeach.com						
FIBER	CHARTER	KEN ROBBINS	(386) 414-5076	Kenneth.Robbins@charter.com	8/21/2024				9/5/2024	10/7/2024
FIBER	UNITI FIBER LLC	ZACH OLIVER	(251) 214-7059	ZACH.OLIVER@UNITI.COM	8/21/2024				9/20/2024	10/7/2024
ELECTRIC	FPL	JAMIE PURNELL	(386) 586-6403	JAMIE.PURNELL@FPL.COM	8/21/2024					10/7/2024
TELEPHONE	AT&T	DINO FARRUGGIO		G27896@ATT.COM	8/21/2024				9/5/2024	10/7/2024
COMMUNICATION	MCI	INVESTIGATIONS TEAM	(800) 624-9675	INVESTIGATIONS@VERIZON.COM	8/21/2024					10/7/2024
GAS	TECO PEOPLES GAS- DAYTONA	CHEYENNE THOMPSON	(813) 743-7164	CTHOMPSON@TECOENERGY.COM	8/21/2024				8/26/2024	10/7/2024

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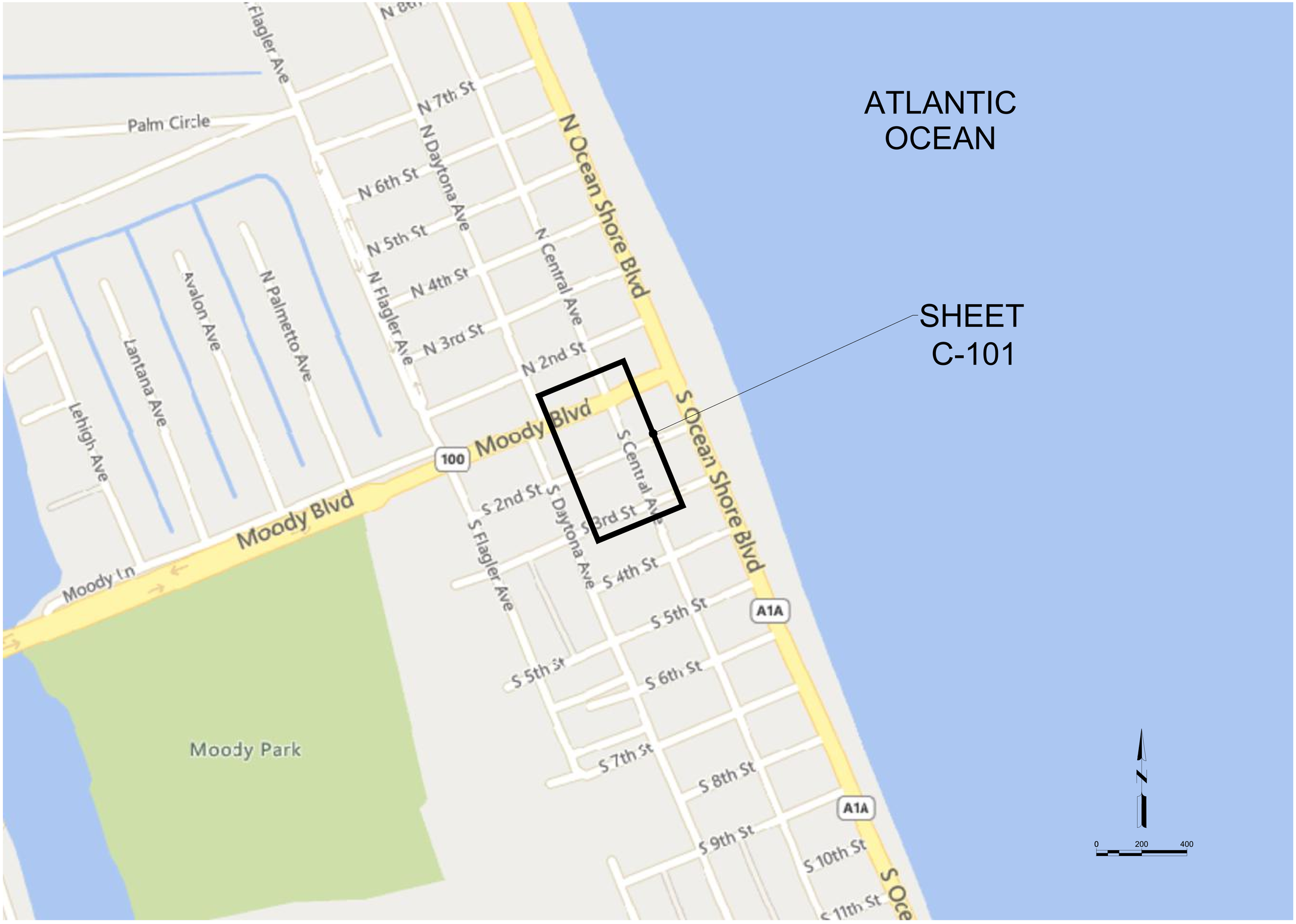
CITY OF FLAGLER BEACH
S. CENTRAL WATER MAIN REPLACEMENT
FLAGLER BEACH, FLORIDA

ISSUED

M&H NO.: 1000709-231849.01
DATE: August 16, 2024
DESIGNED BY: CMC
DRAWN BY: MRM
CHECKED BY: DAK
DO NOT SCALE DRAWINGS

SHEET CONTENTS
GENERAL NOTES, SYMBOLS & ABBREVIATIONS

SHEET NO.
G-002



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CITY OF FLAGLER BEACH
S. CENTRAL WATER MAIN
REPLACEMENT

FLAGLER BEACH, FLORIDA

ISSUED

M&H NO.: 1000709-231849.01
DATE: August 16, 2024
DESIGNED BY: CMC
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SHEET CONTENTS
KEY MAP

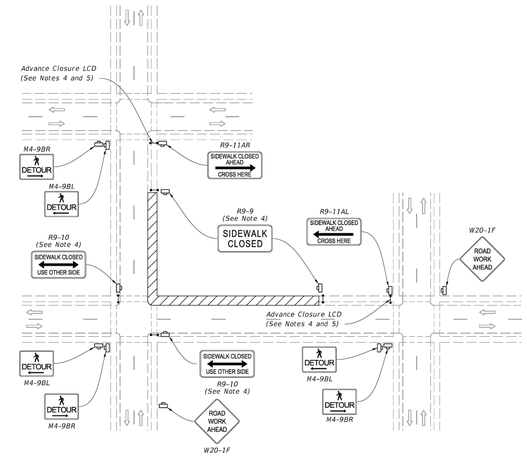
SHEET NO.
G-021

NOTES:

1. *Cover or deactivate pedestrian traffic signal display(s) controlling closed crosswalks.*
2. *Place pedestrian LCDs across the full width of the closed sidewalk.*
3. *For post mounted signs located near or adjacent to a sidewalk, maintain a minimum 7' clearance from the bottom of the sign panel to the surface of the sidewalk.*
4. *"Sidewalk Closed" signs (R9-XX) may be mounted on pedestrian LCDs in accordance with the manufacturer's instructions.*
5. *Omit the Advance Closure LCD if it blocks access to other pedestrian facilities (e.g., transit stops, residences, or business entrances).*

SYMBOLS:

- *Work Area*
- *Work Zone Sign*
- *Pedestrian Longitudinal Channelizing Device (LCD)*
- *Lane Identification and Direction of Traffic*



PEDESTRIAN DETOUR

LAST REVISION	DESCRIPTION:	FY 2023-24 STANDARD PLANS	SIDEWALK CLOSURE	INDEX	SHEET
11/01/20				102-660	1 of 2

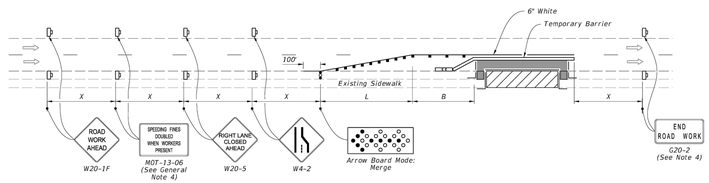
10/26/2022 8:45:50 AM

NOTES:

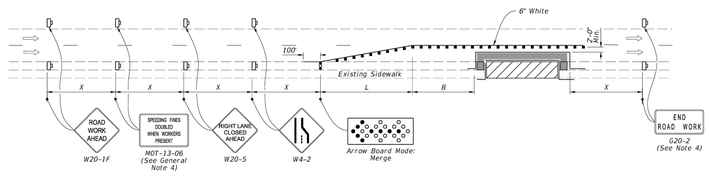
1. *L = Taper Length*
   B = Buffer Length
   X = Work Zone Sign Distance
   See Index 102-600 for "L", "B", "X", channelizing device spacing values.
2. *Provide a 5' wide temporary pedestrian way with a maximum cross-slope of 0.02, except where space restrictions warrant a minimum width of 4'. Provide a 5' x 5' passing space for temporary pedestrian ways less than 5' in width at intervals not to exceed 200'.*
3. *When temporary pedestrian ways require curb ramps, meet the requirements of Index 522-002. Detectable warnings are not required for curb ramps diverting pedestrian traffic into a closed lane.*
4. *The "Speeding Fines Doubled When Workers Present" signs (MOT-13-06) and "End Road Work" signs (G20-2), along with associated work zone sign distances, may be omitted when the work operation will be in place for 24 hours or less.*
5. *Pedestrian Diversion Option 2 may only be used when called for in the Plans or as approved by an Engineer.*

SYMBOLS:

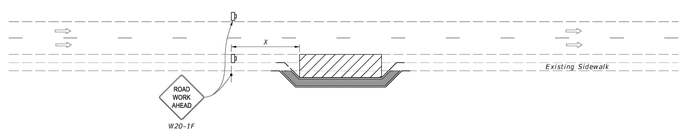
- *Work Area*
- *Temporary Pedestrian Way*
- *Channelizing Device (See Index 102-600)*
- *Pedestrian Longitudinal Channelizing Device (LCD)*
- *Work Zone Sign*
- *Arrow Board*
- *Crash Cushion*
- *Lane Identification and Direction of Traffic*



PEDESTRIAN DIVERSION - OPTION 1
(Temporary Barrier Shown, Low Profile Barrier Similar)



PEDESTRIAN DIVERSION - OPTION 2
(Work Zone Speed 35 mph or Less)



PEDESTRIAN SPECIAL DETOUR

LAST REVISION	DESCRIPTION:	FY 2023-24 STANDARD PLANS	SIDEWALK CLOSURE	INDEX	SHEET
11/01/21				102-660	2 of 2

10/26/2022 8:45:51 AM

GENERAL M.O.T. NOTES

1. ALL SIGNS AND BARRICADES SHALL BE FABRICATED IN ACCORDANCE WITH THE MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES.
2. CAUTION SHALL BE EXERCISED IN SIGN PLACEMENT TO AVOID BLOCKING SIGHT DISTANCE AT INTERSECTIONS OR ANY EXISTING TRAFFIC CONTROL SIGNS OR DEVICES.
3. ALL SIGNS SHALL BE POST MOUNTED UNLESS OTHERWISE NOTED. FLASHING BEACONS TO BE INSTALLED AS SHOWN.
4. DURING LANE CLOSURE, FLAGGERS SHALL USE STOP/SLOW PADDLES. THE USE OF FLAGS IS NOT PERMITTED.
5. NO CHANGES SHALL BE MADE TO THIS TRAFFIC CONTROL PLAN WITHOUT THE PRIOR CONSENT OF THE FLAGLER COUNTY TRAFFIC ENGINEERING DEPARTMENT AND THE FDOT (AS APPLICABLE).
6. CONTRACTOR WILL BE RESPONSIBLE FOR ADEQUATELY BARRICADING ALL AREAS DEEMED HAZARDOUS FOR VEHICULAR ACCESS INSIDE CONSTRUCTION ZONE.
7. LOCAL RESIDENTS AND EMERGENCY RESPONSE VEHICLES WILL BE PERMITTED ACCESS AT ALL TIMES.

FDOT RIGHT-OF-WAY CONSTRUCTION NOTES

1. ALL CONSTRUCTION WITHIN FDOT RIGHT-OF-WAY SHALL CONFORM TO THE LATEST EDITIONS OF THE FDOT STANDARD PLANS INDICES. THE FDOT STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION, AND THE FDOT UTILITY ACCOMMODATIONS MANUAL.
2. IF REQUIRED FOR CONSTRUCTION OR REPAIR, SAW CUT SIDEWALK(S) AT EXISTING JOINTS REMOVE AND REPLACE FULL SECTIONS.
3. ALL SIDEWALK REPLACEMENT WITHIN FDOT RIGHT-OF-WAY SHALL BE IN ACCORDANCE WITH THE LATEST EDITION OF FDOT INDEX 310.
4. CONTRACTOR SHALL NOTIFY THE OWNER'S REPRESENTATIVE AND FDOT A MINIMUM OF TWO (2) BUSINESS DAYS IN ADVANCE OF WORKING WITHIN THE FDOT RIGHT-OF-WAY.

IT IS UNDERSTOOD AND AGREED
THAT THE CONTRACTOR DEPLOYING THE MAINTENANCE OF TRAFFIC PLAN HEREIN WILL AT ALL TIMES, ASSUME ANY AND ALL RISK OF AND INDEMNIFY, DEFEND, AND HOLD HARMLESS THE ENGINEER AND THE OWNER FROM AND AGAINST ANY AND ALL LOSSES, DAMAGES, COSTS, AND EXPENSES ARISING IN ANY MANNER WHATSOEVER ON ACCOUNT OF IN ANY WAY RESULTING FROM THE ACTS OR OMISSIONS OF THE CONTRACTOR OR ITS OFFICERS, EMPLOYEES OR AGENTS IN IMPLEMENTING AND MAINTAINING THE MAINTENANCE OF TRAFFIC PLAN. THE CONTRACTOR AGREES TO ITS ASSUMPTIONS OF RISKS AND OBLIGATIONS TO INDEMNIFY THE ENGINEER AND THE OWNER RELATED TO CONTRACTORS ACTIVITIES.

POSTED SPEED LIMITS:

SR A1A
25 MPH

CITY WIDE
20 MPH

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CITY OF FLAGLER BEACH
S. CENTRAL WATER MAIN
REPLACEMENT
FLAGLER BEACH, FLORIDA

ISSUED

M&H NO.: 1000709-231849.01
DATE: August 16, 2024
DESIGNED BY: CMC
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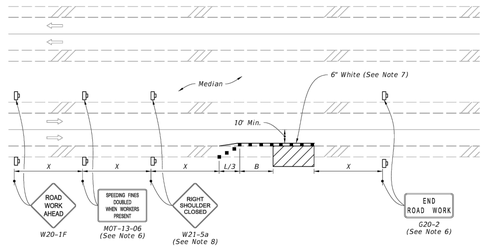
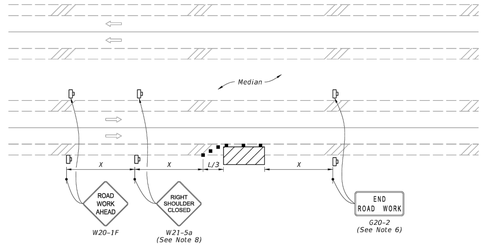
SHEET CONTENTS
TRAFFIC DETAILS

SHEET NO.
C-001



MULTILANE ROADWAY
SHOULDER WORK LESS THAN 2' FROM THE TRAVELED WAY
WITH WORK ZONE SPEED OF 45 MPH OR LESS



MULTILANE ROADWAY
SHOULDER WORK BETWEEN 2' AND 15' FROM THE TRAVELED WAY

SYMBOLS:

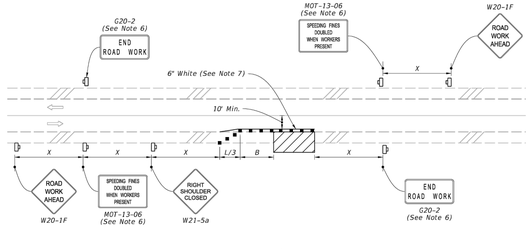
- Work Area
- Channelizing Device (See Index 102-600)
- Work Zone Sign
- Lane Identification and Direction of Traffic

10/29/2022 8:45:34 AM

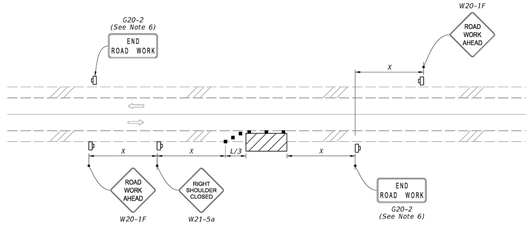
LAST REVISION 11/01/20	REVISION	DESCRIPTION:	FDOT FY 2023-24 STANDARD PLANS	TWO-LANE AND MULTILANE, WORK ON SHOULDER	INDEX 102-602	SHEET 2 of 2

NOTE:

1. This Index applies to Two-Lane, Two-Way and Multilane Roadways, including Medians of divided roadways, with work on the shoulder.
2. L = Taper Length
   X = Work Zone Sign Spacing
   B = Buffer Length
   See Index 102-600 for "L", "X", "B", and channelizing device spacing values.
3. Where work activities are between 2' and 15' from the edge of traveled way, the Engineer may omit signs and channelizing devices for work operations 60 minutes or less.
4. When four or more work vehicles enter the through traffic lanes in a one hour period (excluding establishing and terminating the work area), use a flagger or lane closure to accommodate work vehicle ingress and egress.
5. For work less than 2' from the traveled way and work zone speed is greater than 45 MPH, use a lane closure.
6. The "Speeding Fines Doubled When Workers Present" signs (MOT-13-06) and "End Road Work" Signs (G20-2) along with the associated work zone sign spacing distances may be omitted when the work operation is in place for 24 hours or less.
7. Temporary pavement markings may be omitted when the work operation is in place for 3 days or less.
8. Omit "Shoulder Closed" signs (W21-5a) along with associated work zone sign spacing distances for work on the median.
9. When there is no paved shoulder, the "Worker" sign (W21-1) may be used instead of the "Shoulder Closed" sign (W21-5a).



TWO-LANE ROADWAY
SHOULDER WORK LESS THAN 2' FROM THE TRAVELED WAY
WITH WORK ZONE SPEED OF 45 MPH OR LESS



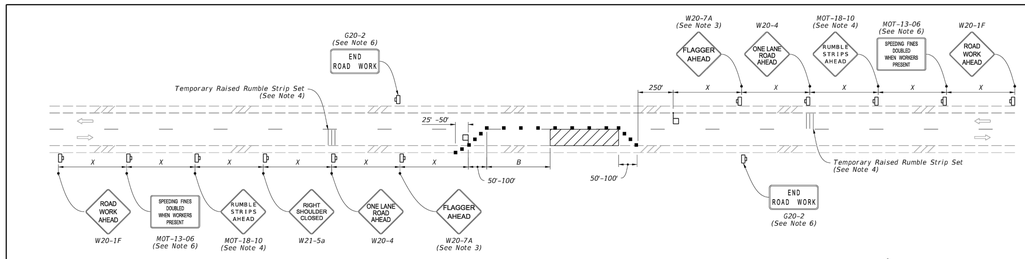
TWO-LANE ROADWAY
SHOULDER WORK BETWEEN 2' AND 15' FROM THE TRAVELED WAY

SYMBOLS:

- Work Area
- Channelizing Device (See Index 102-600)
- Work Zone Sign
- Lane Identification and Direction of Traffic

10/29/2022 8:45:39 AM

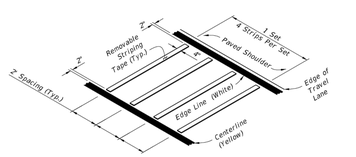
LAST REVISION 11/01/21	REVISION	DESCRIPTION:	FDOT FY 2023-24 STANDARD PLANS	TWO-LANE AND MULTILANE, WORK ON SHOULDER	INDEX 102-602	SHEET 1 of 2



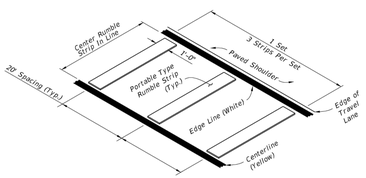
NOTES:

1. This Index applies to Two-Lane, Two-Way Roadways with work within the traveled way.
2. L = Taper Length
   B = Buffer Length
   X = Work Zone Sign Spacing
   See Index 102-600 for "L", "B", "X" and channelizing device spacing values.
3. Optionally, use "Flagger Ahead" sign with symbol (W20-7) instead of "Flagger Ahead" sign with text (W20-7A).
4. Use temporary raised rumble strips when the existing posted speed is 55 mph or greater and the work duration is greater than 60 minutes. If temporary raised rumble strips are not used, omit "Rumble Strips Ahead" signs (MOT-18-10) and associated work zone sign spacing.
5. Additional one-way control may be provided by the following means:
   a. Flag-carrying vehicle
   b. Official vehicle
   c. Pilot vehicles
   d. Traffic signals

   When flaggers are the sole means of one-way control, the flaggers must be in sight of each other or in direct communication at all times.
6. The "Speeding Fines Doubled When Workers Present" signs (MOT-13-06) and "End Road Work" signs (G20-2), along with associated work zone sign spacing, may be omitted when the work operation will be in place for 24 hours or less.
7. Automated Flagger Assistance Devices (AFADs) may be used in accordance with Specification Sections 102, 990 and the APL vendor drawings.
8. Railroad Crossings:
   a. If an active railroad crossing is located closer to the Work Area than the queue length plus 300 feet, extend the Buffer Space as shown on Sheet 2.
   b. If the queuing of vehicles across an active railroad crossing cannot be avoided, provide a uniformed traffic control officer or flagger at the highway-rail grade crossing to prevent vehicles from stopping within the highway-rail grade crossing, even if automatic train warning devices are in place.



OPTION - 1
REMOVABLE STRIPING TYPE



OPTION - 2
PORTABLE TYPE

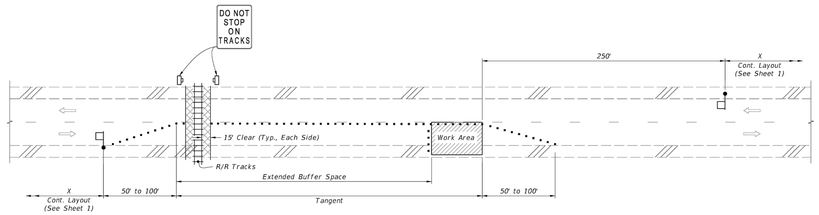
RUMBLE STRIP SETS

SYMBOLS:

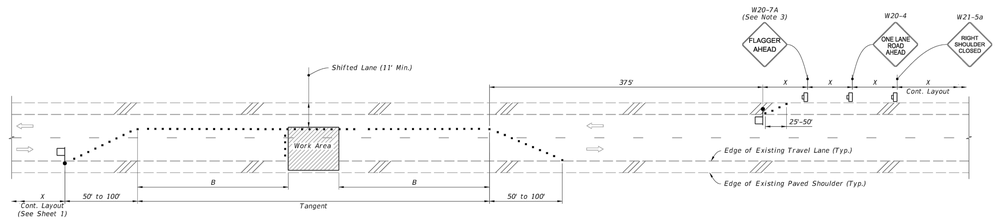
- Work Area
- Channelizing Device (See Index 102-600)
- Work Zone Sign
- Flagger
- Lane Identification and Direction of Traffic

10/29/2022 8:45:39 AM

LAST REVISION 11/01/21	REVISION	DESCRIPTION:	FDOT FY 2023-24 STANDARD PLANS	TWO-LANE, TWO-WAY WORK WITHIN THE TRAVEL WAY	INDEX 102-603	SHEET 1 of 2



TEMPORARY RAILROAD CROSSING BUFFER SPACE EXTENSION



TEMPORARY LANE SHIFT TO SHOULDER WHEN WORK AREA ENCROACHES ON THE CENTERLINE
(For Work Operations In place 24 Hours or Less)

SYMBOLS:

- Work Area
- Channelizing Device (See Index 102-600)
- Work Zone Sign
- Flagger
- Lane Identification and Direction of Traffic

SPECIAL CONDITIONS

10/29/2022 8:45:39 AM

LAST REVISION 11/01/21	REVISION	DESCRIPTION:	FDOT FY 2023-24 STANDARD PLANS	TWO-LANE, TWO-WAY WORK WITHIN THE TRAVEL WAY	INDEX 102-603	SHEET 2 of 2

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CITY OF FLAGLER BEACH
S. CENTRAL WATER MAIN REPLACEMENT

FLAGLER BEACH, FLORIDA

ISSUED

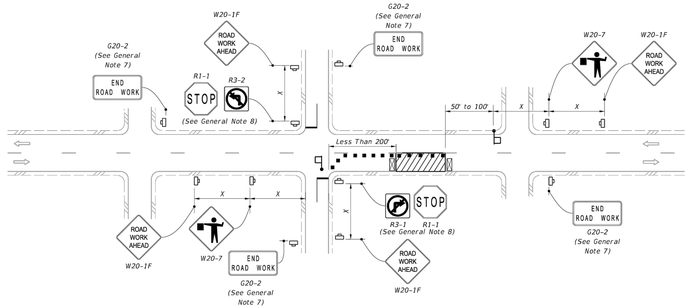
M&H NO.: 1000709-231849.01
DATE: August 16, 2024
DESIGNED BY: CMC
DRAWN BY: MRM
CHECKED BY: DAK
DO NOT SCALE DRAWINGS

SHEET CONTENTS
TRAFFIC DETAILS

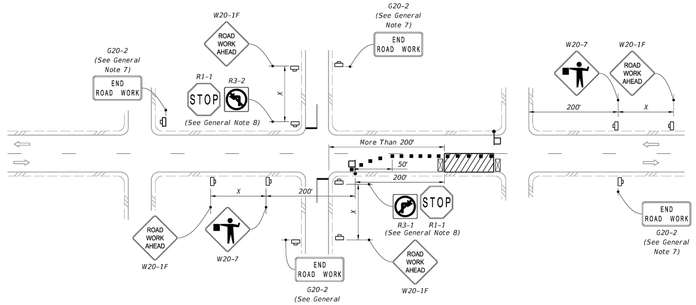
SHEET NO.
C-002

GENERAL NOTES:

1. This Index applies to two-lane, two-way roadways with work within or near the intersection.
2. X = Work Zone Sign Spacing
   See Index 102-600 for "X" and channelizing device spacing values.
3. Optionally, use "Flagger Ahead" sign with text (W20-7A) instead of "Flagger Ahead" sign with symbol (W20-7).
4. If vehicles in a parking zone block the line of sight to TCZ signs, locate and post mount signs in accordance with Index 700-101.
5. If the work area extends across a crosswalk, close the crosswalk in accordance with Index 102-660.
6. For unsignalized intersections, use Temporary Raised Rumble Strips in accordance with Index 102-603. Placement of Rumble Strips and additional signs should begin at FLAGGER sign location.
7. The "End Road Work" signs (G20-2) along with the associated work zone sign distances may be omitted when the work zone will be in place for 24 hours or less.
8. As an option to the "STOP" sign (R1-1) and Restricted Left/Right Turning Movement sign (R3-1 or R3-2), the "SIDE ROAD INTERSECTING THE WORK ZONE" flagging operation from Index 102-600 may be used.



LANE CLOSURE FOR WORK LESS THAN 200' FROM INTERSECTION



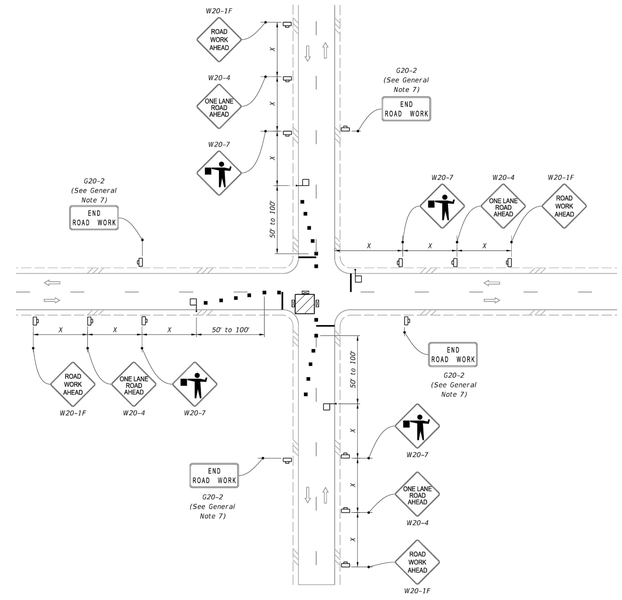
LANE CLOSURE FOR WORK MORE THAN 200' FROM INTERSECTION

SYMBOLS:

- Work Area
- Channelizing Device (See Index 102-600)
- Work Zone Sign
- Type III Barricade
- Stop Bar
- Flagger
- Lane Identification and Direction of Traffic

10/30/2022 8:43:31 AM

LAST REVISION 11/01/22	REVISION	DESCRIPTION:	FDOT FY 2023-24 STANDARD PLANS	TWO-LANE, TWO-WAY, INTERSECTION WORK	INDEX 102-604	SHEET 1 of 2



WORK IN INTERSECTION OF TWO-LANE ROADWAY

SYMBOLS:

- Work Area
- Channelizing Device (See Index 102-600)
- Work Zone Sign
- Type III Barricade
- Stop Bar
- Flagger
- Lane Identification and Direction of Traffic

10/30/2022 8:43:31 AM

LAST REVISION 11/01/22	REVISION	DESCRIPTION:	FDOT FY 2023-24 STANDARD PLANS	TWO-LANE, TWO-WAY, INTERSECTION WORK	INDEX 102-604	SHEET 2 of 2

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CITY OF FLAGLER BEACH
S. CENTRAL WATER MAIN REPLACEMENT

FLAGLER BEACH, FLORIDA

ISSUED

M&H NO.: 1000709-231849.01
DATE: August 16, 2024
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SHEET CONTENTS
TRAFFIC DETAILS

SHEET NO.
C-003

0 20 40

NOTE1:
SEE SHEET C-102 FOR CROSS SECTION A - A

BID ALTERNATE 1: CONTRACTOR TO LOCATE AND EXPOSE AREA SURROUNDING EXPOSED VALVE. CONTRACTOR TO REMOVE EXPOSED VALVE AND REPLACE WITH SIDE ACTUATED VALVE

(1) 12" LINE STOP

(1) 12" LINE STOP

(4) 8" 45° BENDS

(6) 8" 45° BENDS

PROPOSED 20 LF OF 8" PVC RECLAIM MAIN VIA OPEN CUT

(1) 8" X 8" TEE

(2) 8" X 8" TEE
(2) 8" CAP
(2) 8" GATE VALVE

(1) 8" GATE VALVE
(1) 8" CAP

(1) 8" GATE VALVE
(1) 8" CAP
(1) BLOW OFF ASSEMBLY

PROPOSED 34 LF OF 8" PVC RECLAIM MAIN VIA OPEN CUT

CONNECT TO EXISTING 8" WATER MAIN
(1) 8" TAPPING SLEEVE AND VALVE

EX. S INV. 13.55 8" PVC
EX. E INV. 11.10 18" RCP
EX. N INV. 11.37 36" HDPE

CROSS UNDER EXISTING 18" RCP STORM PIPE WITH 12" MINIMUM SEPERATION

DEFLECT UNDER EXISTING FIBER OPTIC CABLE

PROPOSED 2" RECLAIM SERVICE

PROPOSED 20 LF 6" PVC WATER MAIN VIA OPEN CUT

PROPOSED FIRE HYDRANT ASSEMBLY

EXISTING 8" ACP WATER MAIN TO BE CUT, CAPPED, AND PLACED OUT OF SERVICE ONCE PROPOSED 8" WATER MAIN IS IN SERVICE

(2) 8" LINE STOP

CONNECT EXISTING WATER SERVICES TO NEW 8" WATER MAIN

EX. W INV. 11.10 18" RCP

PROPOSED 2 " RECLAIM SERVICE

UPON ACCTIVATION OF NEW WATER MAIN, CLOSE/PLUG HYDRANT VALVE, REMOVE HYDRANT, TURN OVER TO CITY

PROPOSED 27 LF OF 8" PVC RECLAIM MAIN VIA OPEN CUT

PROPOSED 33 LF OF 4" PVC WATER MAIN VIA OPEN CUT

CONNECT EXISTING WATER SERVICES TO NEW 8" WATER MAIN

EX. W INV. 11.22 18" RCP

(4) 8" 45° BENDS

(4) 8" 45° BENDS

EX. E INV. 11.22 18" RCP
EX. S INV. 10.42 36" HDPE

HOTEL IMPROVEMENTS BY OTHERS

CONTRACTOR TO COORDINATE WORK BETWEEN SR100 AND S 2ND ST WITH HOTEL CONTRACTOR

PROPOSED 492 LF 8" PVC WATER MAIN VIA OPEN CUT

(2) 8" X 8" TEE
(2) 8" CAP
(2).8" GATE VALVE

PROPOSED 492LF OF 8" PVC RECLAIM MAIN VIA OPEN CUT

(1) 8" GATE VALVE
(2) 8" CAP
(1) 8" X 8" TEE
(4) 45° BENDS

CROSS OVER EXISTING 8" SANITARY SEWER WITH 6" MINIMUM SEPERATION

PROPOSED 34 LF OF 8" PVC RECLAIM MAIN VIA OPEN CUT

PROPOSED 25 LF OF 8" PVC RECLAIM MAIN VIA OPEN CUT

TIE INTO EXISTING 16" WATER MAIN
(1) 16" X 8" TAPPING SLEEVE AND VALVE

(2) 8" LINE STOP

EXISTING 8" ACP WATER MAIN TO BE CUT, CAPPED, AND PLACED OUT OF SERVICE ONCE PROPOSED 8" WATER MAIN IS IN SERVICE

(2) 8" X 4" TEE
(2) 4" CAP
(2) 4" GATE VALVE

PROPOSED 28 LF OF 4" PVC WATER MAIN VIA OPEN CUT

PROPOSED 2 " RECLAIM SEVICE

TIE IN EXISTING 2" WATER MAIN
(2) 2" SERVICE SADDLES
(2) 2" GATE VALVE

CONNECT EXISTING WATER SERVICES TO NEW 8" MAIN

LEGEND:

- OPEN CUT/REPAIRASPHALT
- MILL AND RESURFACE 1 ½"
- OPEN CUT ASPHALT, REPLACE BASE AND SEAL (ASPHALT BY OTHERS)
- REPLACE ENTIRETY OF DISTURBED PATTERNED PAVEMENT CROSSWALK

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CITY OF FLAGLER BEACH
S. CENTRAL WATER MAIN REPLACEMENT

FLAGLER BEACH, FLORIDA

ISSUED

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M&H NO.:	1000709-231849.01
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CHECKED BY:	DAK

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SHEET CONTENTS
SITE PLAN

SHEET NO.
C-101

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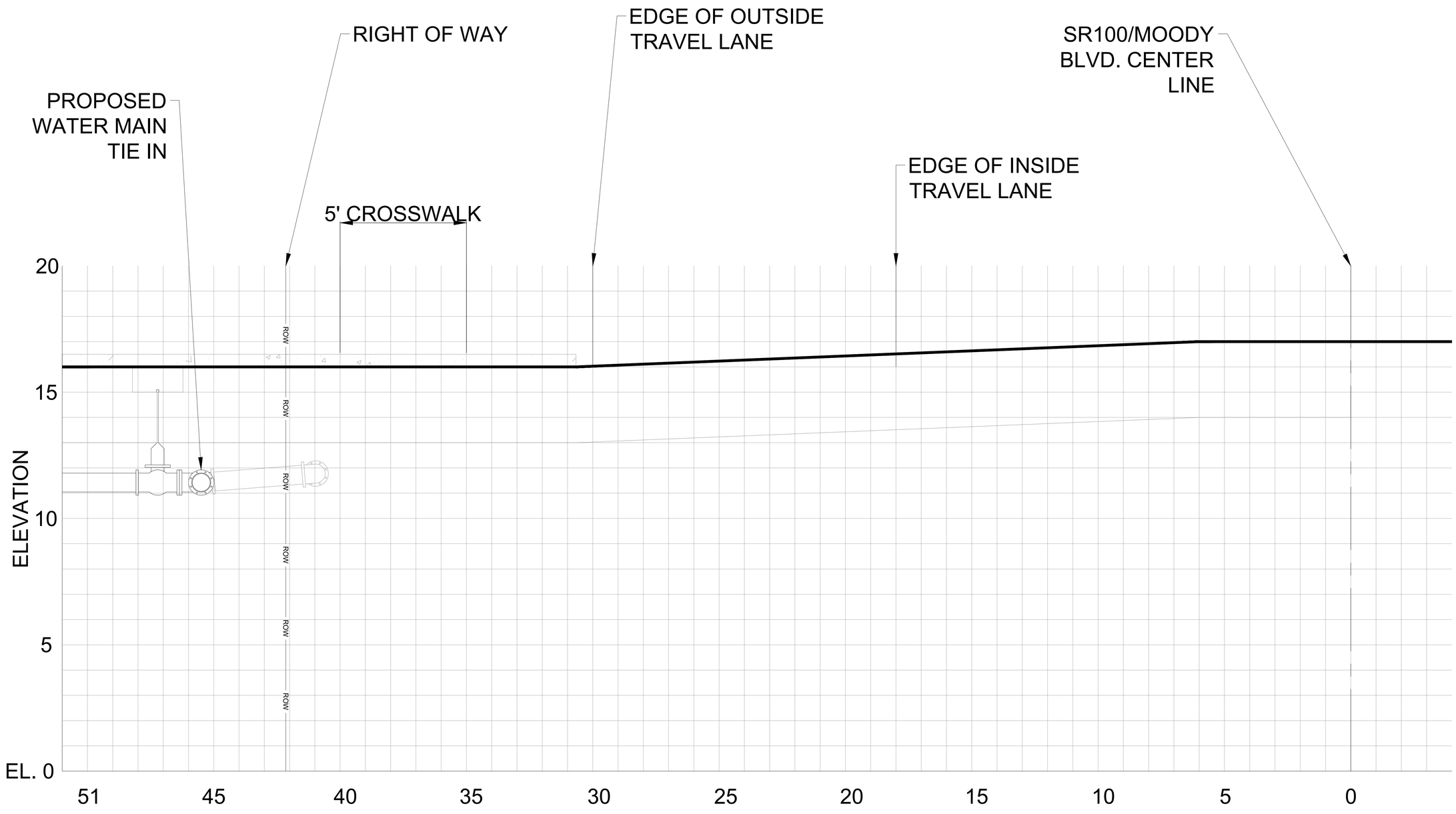

CROSS SECTION A - A

1" = 2'

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CITY OF FLAGLER BEACH
S. CENTRAL WATER MAIN
REPLACEMENT

FLAGLER BEACH, FLORIDA

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SHEET CONTENTS
CROSS SECTION A - A

SHEET NO.
C-102

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GENERAL NOTES
WATER SYSTEM CONSTRUCTION

1. THE CITY SHALL BE NOTIFIED PRIOR TO BEGINNING ANY WATER SYSTEM CONSTRUCTION.
2. DEWATERING SHALL BE PROVIDED TO KEEP GROUNDWATER ELEVATION A MINIMUM OF 6 INCHES BELOW WATER MAIN BEING LAID.
3. ALL WATER MAINS SHALL BE LAID ON A FIRM FOUNDATION WITH ALL UNSUITABLE MATERIAL (MUCK, ROCK, COQUINA, ETC.) REMOVED AND REPLACED WITH CLEAN GRANULAR MATERIAL.
4. TRENCHES SHALL BE BACKFILLED WITH CLEAN GRANULAR MATERIAL IN MAX. 1' LIFTS WITH A MINIMUM COMPACTION OF 98 PERCENT (AASHTO–T180) IN PAVED AREAS AND 90 PERCENT IN UNPAVED AREAS.
5. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO ENSURE THAT TRENCH COMPACTION TESTS BE PROVIDED AT POINTS 1 FOOT ABOVE THE PIPE AND AT 1 FOOT VERTICAL INTERVALS TO FINISH GRADE, AT A MINIMUM SPACING OF EVERY 300 FEET, AND TO FURNISH COPIES OF TEST REPORTS PROMPTLY TO THE CITY.
6. METALLIZED PIPE LOCATION TAPE SHALL BE LOCATED 15 INCHES BELOW FINISHED GRADE OR AS SPECIFIED BY MANUFACTURER FOR ALL PVC LINES. MARKER TAPE SHALL BE USED ON ALL DUCTILE IRON PIPE.
7. WATER SERVICES (SINGLE 1") SHALL BE POLYETHYLENE TUBING (BLUE IN COLOR) ; POLYBUTYLENE SHALL NOT BE ALLOWED.
8. ALL WATER SERVICE ENDINGS SHALL BE MARKED WITH 4" X 4" LUMBER (PRESSURE TREATED) EXTENDING 4 FEET ABOVE GRADE, WITH WATER SERVICES SECURED 24" ABOVE THE GROUND. WIRE TIES SHALL BE USED TO SECURE THE CURB STOPS TO SUPPORT POSTS.
9. WATER VALVES SHALL BE PLACED AT ALL STREET INTERSECTIONS AND AT MAXIMUM SPACING OF 500 FEET.
10. AT ALL WATER MAIN TEES AND CROSSES, VALVES SHALL BE INSTALLED ON ALL LEGS EXCEPT ONE.
11. APPROVED WATER VALVE TYPES ARE THE FOLLOWING:
    A. STANDARD GATE VALVES LESS THAN 48" DIAMETER RESILIENT SEAT GATE VALVES (AWWA C–509 OR C–515).
    B. MECHANICAL TAPPING SLEEVE SHALL BE STAINLESS STEEL. (AWWA C – 509)

STANDARD CONSTRUCTION DETAIL
GENERAL NOTES
WATER SYSTEM CONSTRUCTION
INDEX W–1A
FEB 2018

GENERAL NOTES
WATER SYSTEM CONSTRUCTION

12. ALL WATER VALVE BOXES SHALL BE ADJUSTED TO FINISH GRADE AND THE LIDS PAINTED BLUE TO MAKE THEM PLAINLY VISIBLE.
13. WATER VALVES SHALL BE COMPLETELY OPENED BY THE CONTRACTOR UPON FINAL ACCEPTANCE OF NEW WATER SYSTEMS IN THE PRESENCE OF THE CITY.
14. HYDRANTS SHALL BE PLACED AT 500 FEET MAXIMUM SPACING IN RESIDENTIAL DEVELOPMENTS AND AT 300 FEET MAXIMUM SPACING IN BUSINESS AND INDUSTRIAL DEVELOPMENTS. ALL WATER MAIN TO WHICH HYDRANTS ARE CONNECTED SHALL BE 6 INCHES MINIMUM.
15. ALL FIRE HYDRANTS SHALL BE CONSTRUCTED TO MAKE THEM EASILY ACCESSIBLE TO FIRE PERSONNEL IN CASE OF FIRE. THE MAIN NOZZLE CONNECTION SHOULD ALWAYS FACE THE STREET AND BE 18–24" ABOVE GRADE.
16. AS STANDARD PRACTICE, WATER MAINS SHALL BE INSTALLED 4 FEET OFF THE BACK OF CURB OR AS APPROVED BY THE CITY.
17. ALL WATER MAINS SHALL BE NSF–APPROVED FOR POTABLE WATER USE, AND SHALL HAVE A MINIMUM COVER OF 36 INCHES. IN SPECIAL CASES WHERE IT IS IMPOSSIBLE OR INAPPROPRIATE TO PROVIDE ADEQUATE COVER, DUCTILE IRON CLASS 350 MAY BE USED AS APPROVED BY THE CITY.
18. ALL NEWLY CONSTRUCTED WATER MAINS SHALL BE FLUSHED, CLEANED WITH A POLY PIG, PRESSURE TESTED, DISINFECTED AND BACTERIOLOGICALLY CLEARED FOR SERVICE IN ACCORDANCE WITH LATEST AWWA STANDARDS AND THE FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION REQUIREMENTS.
19. WATER MAINS SHALL BE AWWA C–900 CL 150, OR D.I.P. CLASS 350 STANDARD CEMENT LINED.
20. UPON CONSTRUCTION COMPLETION AND ACCEPTANCE OF THE SYSTEM, IT SHALL BE THE DESIGN ENGINEER'S RESPONSIBILITY TO ENSURE THAT THE SYSTEM IS PROPERLY CERTIFIED AND ACCEPTED BY THE FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION, AND THAT CERTIFIED AS–BUILT DRAWINGS (24"x36") ARE PROVIDED TO THE CITY PRIOR TO PAVING AND ANY USE OF THE SYSTEM. PROVIDE THREE (3) BLUELINE COPIES, ONE (1) MYLAR OF AS–BUILT DRAWINGS AND A DIGITAL COPY.
21. MEGALUG OR EQUIVALENT, RESTRAINED JOINT SYSTEM MAY BE USED ON ALL RESTRAINED FITTINGS, VALVES, ETC. MINIMUM DEPTH OF BURY ON PIPES NOT MEETING REQUIRED COVER REQUIREMENTS SHALL FOLLOW THE MOST RECENT DIPRA THRUST RESTRAINT DESIGN GUIDELINES.

STANDARD CONSTRUCTION DETAIL
GENERAL NOTES
WATER SYSTEM CONSTRUCTION
INDEX W–1B
FEB 2018

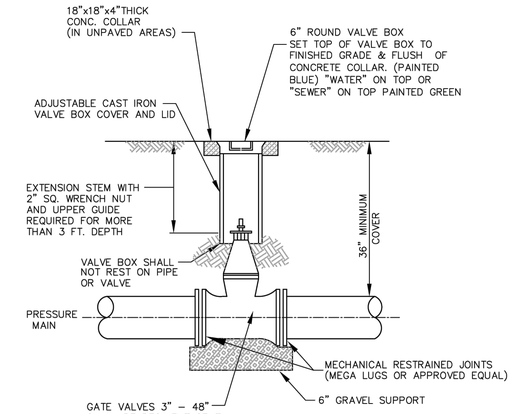
GENERAL NOTES
WATER SYSTEM CONSTRUCTION

22. WATER SYSTEMS SHALL BE PRESSURE TESTED AT 150 PSI STATIC PRESSURE FOR A PERIOD OF 2 HOURS PER AWWA STANDARDS. TESTS SHALL BE CONDUCTED BEFORE FINAL PAVING AND IN THE PRESENCE OF THE CITY.
23. ALL WATER SERVICES SHALL BE MARKED WITH A "Λ" SAW CUT INTO THE CURB OR BY METAL TABS SET INTO THE PAVEMENT.
24. ALL WATER VALVES AND BLOW–OFFS SHALL BE MARKED WITH AN "X" SAW CUT INTO THE CURB OR BY METAL TABS SET INTO THE PAVEMENT. LOCATION OF METAL TABS IN INCHES FROM EDGE OF PAVEMENT SHALL EQUAL DISTANCE IN FEET FROM EDGE OF PAVEMENT TO VALVE.
25. UNIFLANGE 1300 SERIES PIPE RESTRAINTS AS MANUFACTURED BY FORD OR APPROVED EQUAL MAY BE USED AS APPROPRIATE FOR RESTRAINING IN–LINE PRESSURE PIPE EACH SIDE OF PIPE JOINT. AS REQUIRED BY RESTRAINT TABLE.
26. TRACING WIRE SHALL BE INSTALLED IN ACCORDANCE WITH UTILITY PIPE LOCATION MATERIALS DETAIL.
27. NO GALVANIZED PIPE, FITTINGS, ETC. ARE ACCEPTED.
28. UNLESS APPROVED BY THE CITY, ALL WATER METERS SHALL BE INSTALLED AT THE RIGHT OF WAY LINE ONLY REGARDLESS OF SIZE.
29. SUBMIT ASSEMBLY CERTIFICATION FOR ALL BACKFLOW PREVENTERS TO THE CITY BEFORE FINAL INSPECTION.
30. PIPING FOR RAW WATER SHALL BE OLIVE GREEN FOR ABOVE GROUND PIPING, BURIED PVC PIPING SHALL BE BLUE WITH WHITE COLOR BACKGROUND LOCATOR TAPE PLACED DIRECTLY ON TOP OF THE PIPE AND AT 12" TO 18" ABOVE THE PIPE. THE TAPE SHALL CONTINUOUSLY READ "CAUTION – RAW WATER MAIN BURIED BELOW" OR WHITE WITH LOCATOR TAPE PLACED 12" TO 18" ABOVE THE TOP OF THE PIPE.
31. SEE CHART BELOW FOR WATER MAIN SIZE AND MATERIALS.

M A T E R I A L S		
DIAMETER	MATERIAL	STANDARD
< 12"	DIP CLASS 350	AWWA C 150
> 12"	DIP CLASS 250	AWWA C 150
4"	PVC 1120 / SDR 21 (1)	ASTM D 2241
> 4" – 12"	PVC DR–18 (1)	AWWA C 900
> 4" – 12" DEDICATED FIRE LINE	PVC DR–14 (1)	AWWA C 900
14" – 36" (16"– 24" —— DR – 18) (30"– 36" —— DR – 21)	PVC 1120 (1)	AWWA C 905
ALL SIZES	HDPE DIPS DR 11 (2)	ASTM F 714

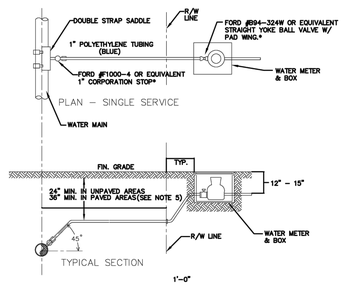
NOTE: (1) PVC PIPE COLOR SHALL BE BLUE FOR POTABLE WATER MAINS, BLUE WITH WHITE LOCATOR TAPE OR WHITE WHITE LOCATOR TAPE FOR RAW WATER MAIN.
(2) HDPE TO BE PROVIDED IN NEXT LARGER DIAMETER IN ORDER TO HAVE REQUIRED INSIDE DIAMETER.

STANDARD CONSTRUCTION DETAIL
GENERAL NOTES
WATER SYSTEM CONSTRUCTION
INDEX W–1C
FEB 2018



STANDARD CONSTRUCTION DETAIL
GATE VALVE AND VALVE BOX
NTS.
INDEX W–2
FEB 2018

VALVE SCHEDULE FOR OR EQUIVALENT	
WATER SERVICES	
VALVES AT MAIN	
1"	F1000–4
1 1/2" (REQ. C84–66 PACK JOINT COUPLING)	B81–666
2" (REQ. C84–77 PACK JOINT COUPLING)	B81–777
VALVES AT METER	
1"	B94–324W
1 1/2"–2"	BF43–777W



NOTES:
1. CUSTOMER POINT OF SERVICE IS TYPICALLY AT THE LOCATION WHERE CUSTOMER PLUMBING IS ATTACHED TO THE YOKE NUT.
2. HDPE SHALL BE 200 PSI, NSF APPROVED, SDR 9, MEETING ASTM D1248. TUBING SHALL BE ENDOT ENDOTRACE (OR APPROVED EQUAL).
3. REDUCED PRESSURE BACKFLOW PREVENTERS ARE REQUIRED FOR ALL COMMERCIAL SERVICES AND SHALL BE INSTALLED BY A CERTIFIED TECHNICIAN AT OWNERS EXPENSE
4. ALL SERVICE TAPS SHALL BE NO CLOSER THAN 2'–0" STAGGERED INTERVAL OR WITHIN 2'–0" OF BELL OR SPIGOT ENDS.
5. IN AREAS TO BE PAVED PROVIDE A 2" MIN. PVC SCHEDULE 40 SLEEVE FOR PE–TUBING. SLEEVE SHALL EXTEND A MIN. OF 2' BEHIND BACK OF CURB AT EACH SIDE OF ROAD.
6. ALL RESIDENTIAL WATER METERS SHALL BE EQUIPPED WITH A DOUBLE CHECK BACKFLOW PREVENTER.
7. CONTRACTOR TO PROVIDE SERVICE IN BOX WITH STAKE MARKING THE LOCATION.
8. CITY TO PROVIDE METER AND BACK FLOW PREVENTER.

STANDARD CONSTRUCTION DETAIL
WATER LATERAL SERVICE
5/8", 3/4", 1", 1–1/2", 2" METERS
NTS
INDEX W–3
DEC 2015

TABLE APPLIES TO PVC PIPE FOR THE FOLLOWING CONDITIONS:
TEST PRESSURE: 150 PSIG
SOIL TYPE: SP
COVER DEPTH: 2.5 FEET
SAFETY FACTOR: 1.5
TRENCH TYPE: 3

SCHEDULE OF LENGTHS OF RESTRAINED PVC PIPE (FT.)					
FITTING	1/4 BEND	1/8 BEND	1/16 BEND	1/32 BEND	TEE OR DEAD END
PIPE SIZE (IN.) :					
4"	20	18	18	18	45
6"	28	18	18	18	63
8"	36	18	18	18	82
10"	44	28	18	18	98
12"	51	21	18	18	116
14"	57	24	18	18	132
16"	63	26	18	18	148
18"	69	29	18	18	163
20"	75	31	18	18	179
24"	87	36	18	18	208
30"	102	42	20	18	248

LENGTHS BETWEEN HEAVY LINES INDICATE ONE FULL LENGTH (18' MIN.) OF PIPE TO BE RESTRAINED.
TABLE SHOWS MINIMUM LENGTH OF PIPE EACH WAY FROM FITTING FOR WHICH RESTRAINT IS REQUIRED.

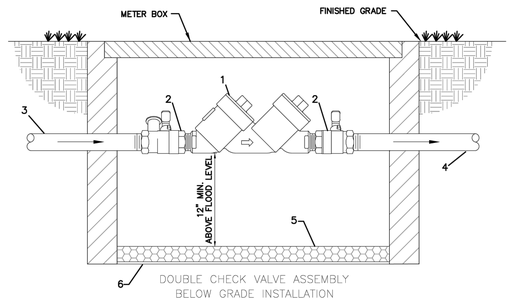
TABLE APPLIES TO D.I.P.
FOR THE FOLLOWING CONDITIONS:
TEST PRESSURE: 150 PSIG
SOIL TYPE: SP
COVER DEPTH: 2.5 FEET
SAFETY FACTOR: 1.5
TRENCH TYPE: 2

SCHEDULE OF LENGTHS OF RESTRAINED DIP (FT.)					
FITTING	1/4 BEND	1/8 BEND	1/16 BEND	1/32 BEND	TEE OR DEAD END
PIPE SIZE (IN.) :					
4"	21 (26)	18 (18)	18 (18)	18 (18)	37 (55)
6"	30 (36)	18 (18)	18 (18)	18 (18)	52 (78)
8"	38 (45)	18 (18)	18 (18)	18 (18)	67 (100)
10"	45 (54)	18 (22)	18 (18)	18 (18)	81 (122)
12"	52 (63)	22 (26)	18 (18)	18 (18)	94 (141)
14"	60 (72)	25 (30)	18 (18)	18 (18)	107 (160)
16"	66 (80)	27 (33)	18 (18)	18 (18)	120 (180)
18"	74 (87)	31 (36)	18 (18)	18 (18)	132 (198)
20"	80 (94)	33 (39)	18 (18)	18 (18)	144 (216)
24"	92 (108)	38 (45)	18 (22)	18 (18)	167 (250)
30"	106 (128)	44 (53)	21 (25)	18 (18)	199 (298)
36" *	69 (82)	28 (34)	18 (18)	18 (18)	170 (204)
42" *	76 (92)	31 (37)	18 (18)	18 (18)	191 (229)
48" *	90 (106)	40 (46)	18 (18)	18 (18)	212 (254)

LENGTHS BETWEEN HEAVY LINES INDICATE ONE FULL LENGTH (18' MIN.) OF PIPE TO BE RESTRAINED.
TABLE SHOWS MINIMUM LENGTH OF PIPE EACH WAY FROM FITTING FOR WHICH RESTRAINT IS REQUIRED.
VALUES IN PARENTHESIS ARE FOR PIPE ENCASED IN POLYETHYLENE.

STANDARD CONSTRUCTION DETAIL
PVC AND D.I.P. RESTRAINED JOINT TABLE
INDEX W–5
FEB 2018

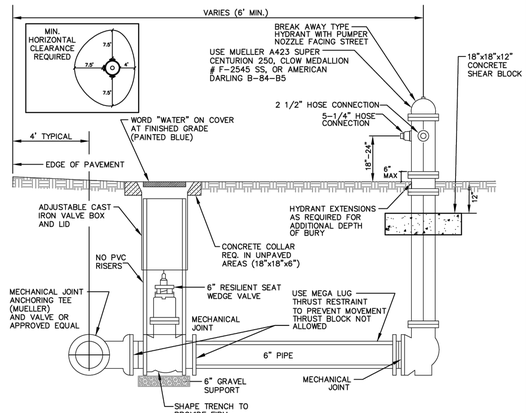
ACCEPTABLE MANUFACTURERS: HERSEY MODEL FDC, WILKINS MODEL 950XLT, CONBRACO (APOLLO) MODEL 40–100–A2T



M A T E R I A L S		
ITEM	QUANT.	D E S C R I P T I O N
1	1	3/4", 1", 1–1/2" OR 2" BACKFLOW PREVENTER ASSEMBLY
2	2	3/4", 1", 1–1/2" OR 2" BALL VALVE
3	1	3/4", 1", 1–1/2" OR 2" x VARIES INLET – PVC, BRASS OR COPPER
4	1	3/4", 1", 1–1/2" OR 2" x VARIES OUTLET – PVC, BRASS OR COPPER
5	*	PEA GRAVEL
6	*	FILTER FABRIC

NOTE: –FIELD ADJUST AND CUT ITEM 3 AND 4 TO THE PROPER LENGTH.
–NO GALVANIZED PIPE OR FITTINGS ALLOWED.
–A COPY OF THE ASSEMBLY CERTIFICATION SHALL BE SUBMITTED TO THE CITY BEFORE FINAL INSPECTION.
–WILKINS ASSEMBLIES ARE REQUIRED FOR CITY OWNED FACILITIES.
–MAY BE PLACED WITH METER IN ONE METER BOX.

STANDARD CONSTRUCTION DETAIL
DOUBLE CHECK BACKFLOW PREVENTER
3/4", 1", 1–1/2", OR 2"
NTS.
INDEX W–6A
FEB 2018



NOTES:
1. ALL JOINTS SHALL BE RESTRAINED
2. HYDRANTS TO BE PAINTED SAFETY YELLOW (PUBLIC) OR RED (PRIVATE).
3. HYDRANT BONNET AND CAP TO BE PAINTED ACCORDING TO THE FOLLOWING SCHEME:
   CLASS AA – 1500 GPM AND GREATER – LIGHT BLUE
   CLASS A – 1000 GPM TO 1499 GPM – GREEN
   CLASS B – 500 GPM TO 999 GPM – ORANGE
   CLASS C – LESS THAN 500 GPM – RED
4. HYDRANTS SHALL BE PRIMED WITH A CATALYZED TWO PART PRIMER (DURAPLATE #235), ELECTRICALLY CHARGED AND A CATALYZED URETHANE TOP COAT (ACROLON 218), TWO COMPONENT POLYURETHANE PAINT.
5. HOSE CONNECTIONS TO BE AMERICAN STANDARD THREADS.
6. THE HYDRANT SHOE WILL BE COATED INSIDE WITH FUSION BONDED EPOXY, 6 MIL MINIMUM.
7. ADJUSTMENTS OR REPAIRS TO THE HYDRANT AFTER INSTALLATION SHALL BE DONE BY AN UNDERGROUND UTILITY CONTRACTOR OR THE CITY AND ALL COST SHALL BE CHARGED TO THE DEVELOPER. PAYMENT SHALL BE MADE PRIOR TO CERTIFICATE OF OCCUPANCY OF PROPERTY.
8. RESTRAINED JOINTS REQUIRED. THRUST BLOCKS NOT PERMITTED.
9. BOLTS SHALL BE 316 STAINLESS STEEL.
10. INSTALL BLUE REFLECTIVE MARKER IN SUCH A MANNER THAT THE REFLECTIVE FACE OF THE MARKER IS PERPENDICULAR TO A LINE PARALLEL TO THE ROADWAY CENTERLINE. THE BLUE REFLECTIVE MARKERS SHALL BE PLACED IN THE CENTER OF THE TRAVEL LANE, DIRECTLY ACROSS FROM AND ADJACENT TO EACH FIRE HYDRANT.

STANDARD CONSTRUCTION DETAIL
FIRE HYDRANT ASSEMBLY
NTS
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FEB 2018

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CITY OF FLAGLER BEACH
S. CENTRAL WATER MAIN REPLACEMENT
FLAGLER BEACH, FLORIDA

ISSUED

M&H NO.: 1000709-231849.01
DATE: August 16, 2024
DESIGNED BY: CMC
DRAWN BY: MRM
CHECKED BY: DAK
DO NOT SCALE DRAWINGS

SHEET CONTENTS
STANDARD DETAILS

SHEET NO.
C-501

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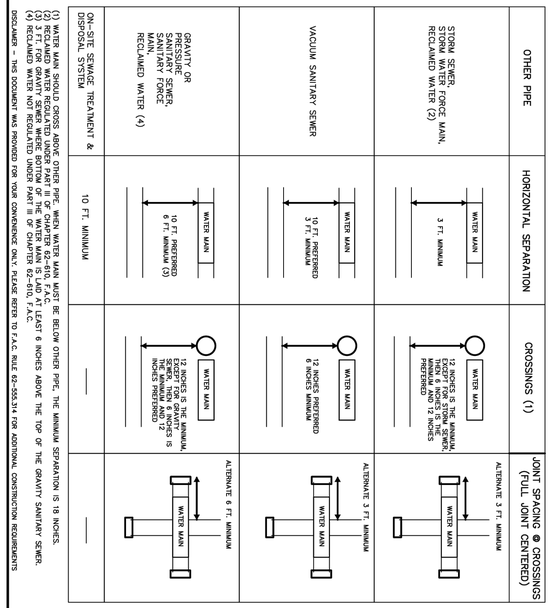

STANDARD CONSTRUCTION DETAIL
WATER MAIN SEPARATION
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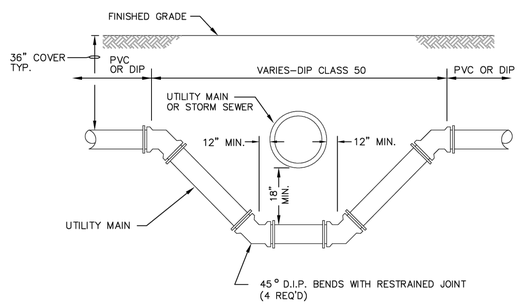

NOTE: ABOVE DETAIL TO BE UTILIZED IF CONTRACTOR CANNOT MAINTAIN 18" CLEAR BETWEEN MAINS BY DEFLECTING PIPE IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.

STANDARD CONSTRUCTION DETAIL
PIPE CROSSING
NTS.
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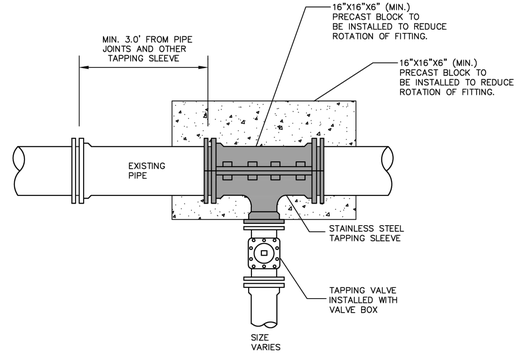

NOTES:

1. STAINLESS STEEL SLEEVES ONLY WITH 316 STAINLESS STEEL BOLTS ARE PERMITTED FOR ALL TYPES OF PIPE MATERIALS.
2. INSTALL REQUIRED RESTRAINED JOINTS. IN NO INSTANCE SHALL THRUST BLOCK BE PERMITTED.
3. ALL TAPPING OF MAINS SHALL BE PERFORMED BY THE CONTRACTOR UNDER SUPERVISION OF A CITY REPRESENTATIVE. ALL MATERIALS TO BE PROVIDED BY DEVELOPER / CONTRACTOR
4. ALL VALVES 2" OR GREATER SHALL BE GATE VALVES. CORPORATION STOPS ARE NOT ALLOWED ON VALVES 2" OR GREATER EXCEPT ON BLOW-OFFS.

STANDARD CONSTRUCTION DETAIL
TAPPING VALVE AND SLEEVE
NTS
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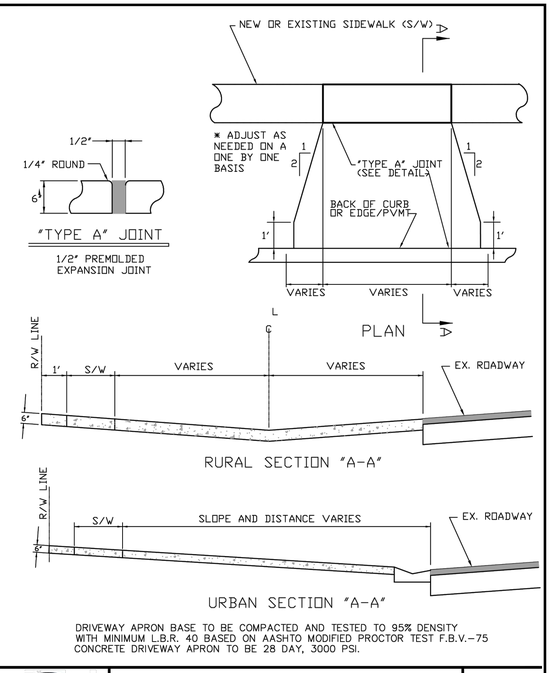
FEB 2018



DRIVEWAY APRON BASE TO BE COMPACTED AND TESTED TO 95% DENSITY WITH MINIMUM L.B.R. 40 BASED ON AASHTO MODIFIED PROCTOR TEST F.B.V.-75 CONCRETE DRIVEWAY APRON TO BE 28 DAY, 3000 PSI.

STANDARD CONSTRUCTION DETAIL
RESIDENTIAL DRIVEWAY APRON DRAWINGS
NTS
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FEB 2018

ROADWAY CONSTRUCTION NOTES

1. ALL RIGHT OF WAY OTHER THAN ROADWAY AREAS SHALL BE SEEDED AND MULCHED OR SODDED. ALL SLOPES GREATER THAN 6% SHALL BE SODDED. THE CITY RESERVES THE RIGHT TO REQUIRE SODDING IN SPECIAL AREAS WHERE EROSION IS A CONCERN.
2. THE FOLLOWING WILL BE THE STANDARD PROTECTION FOR DITCHES UNLESS DRAINAGE CALCULATIONS INDICATE OTHERWISE:

SWALE PROFILE GRADES	PROTECTION REQUIRED
0.2% – 1.0%	SEEDING AND MULCHING
1.0% – 4.0%	SODDING
4.0% AND GREATER	DITCH PAVING

3. ALL FRANCHISE UTILITY CROSSINGS, INCLUDING BUT NOT LIMITED TO FPL, BELLSOUTH AND CABLE SHALL BE INSTALLED PRIOR TO INSTALLATION AND COMPACTION OF THE ROAD SUB BASE. ANY CROSSINGS AFTER INSTALLATION OF THE SUB BASE SHALL BE BY DIRECTIONAL BORE.
4. THE LIMITS OF STABILIZED SUB BASE SHALL EXTEND TO A DEPTH OF SIX INCHES (6") BELOW THE BOTTOM OF THE BASE AND OUTWARD TO TWELVE INCHES (12") BEYOND THE CURB.
5. THE STABILIZING MATERIAL, IF REQUIRED, SHOULD BE A HIGH BEARING VALUE SOIL, SAND-CLAY, LIMEROCK, RECYCLED CONCRETE, SHELL OR OTHER MATERIAL AS APPROVED BY THE CITY AND A LICENSED SOILS ENGINEER.
6. THE SUB BASE SHALL BE STABILIZED NOT LESS THAN FORTY (40) POUNDS LIMEROCK BEARING RATIO (LBR). A COMPACTION OF NO LESS THAN NINETY-EIGHT (98%) PERCENT DENSITY BASED ON AASHTO T-180 SHALL BE REQUIRED.
7. TESTS FOR SUB BASE BEARING CAPACITY AND COMPACTION SHALL BE DONE AT A MINIMUM OF EVERY 300 FEET AND SHALL BE STAGGERED TO THE LEFT, RIGHT AND AT CENTER LINE OF THE ROADWAY.
8. BASES FOR ALL STREETS SHALL HAVE A MINIMUM SIX INCH (6") DEPTH. PRIMING AND SANDING SHALL BE REQUIRED AS SOON AS BEARING CAPACITY AND COMPACTION HAS BEEN ACHIEVED.
9. MAXIMUM DENSITY BASED ON AASHTO T-180 MODIFIED PROCTOR TEST. RECYCLED CONCRETE OR LIMEROCK BASES SHALL BE COMPACTED TO (98%)
10. MATERIAL DELIVERY TICKETS SHALL BE PROVIDED TO THE CITY AT THE TIME OF PLACEMENT.
11. TESTING OF THE IN-PLACE BASE SHALL BE DONE AT INTERVALS EQUIVALENT TO SUB BASE TESTING AND SHALL CONSIST OF, AS A MINIMUM, MOISTURE CONTENT AND COMPACTION TEST.

STANDARD CONSTRUCTION DETAIL
ROADWAY CONSTRUCTION NOTES
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FEB 2018

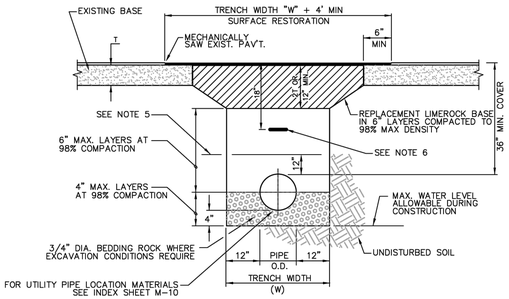
12. DESIGN MIXES SHALL BE SUBMITTED TO THE CITY FOR THEIR APPROVAL NO LESS THAN THREE (3) WORKING DAYS PRIOR TO ANY ROADWAY CONSTRUCTION.
13. ASPHALT SPECIFICATIONS SHALL BE SUBMITTED BY THE DESIGN ENGINEER WITH FINAL PLANS TO THE CITY. FLORIDA STATE CERTIFIED BATCH PLANTS MUST THEN CERTIFY THAT THESE APPROVED SPECIFICATIONS HAVE BEEN MET.
14. EXTRACTION AND GRADATION TESTS ON ASPHALT MIXES SHALL BE PROVIDED TO THE CITY TO INSURE THAT DESIGN MIXES MEET THE CITY STANDARD SPECIFICATIONS.
15. THE ROADWAY CROWN SHALL HAVE A STANDARD ONE QUARTER INCH (1/4") PER FOOT SLOPE.
16. ALL ROADWAYS WITH CURB AND GUTTER SECTIONS SHALL HAVE AS A STANDARD A MINIMUM LONGITUDINAL SLOPE OF 0.30%.
17. THE FINISHED PAVEMENT EDGE SHALL BE WITHIN ONE QUARTER INCH (1/4") OF THE ADJACENT CONCRETE CURB.
18. CONCRETE CURBS SHALL BE PROVIDED ON BOTH SIDES OF ALL STREETS AND CONSTRUCTED WITH 2500 PSI CONCRETE AT 28 DAYS.
19. CONCRETE CURBS SHALL BE SAW CUT TO A DEPTH EQUAL TO 1/4 OF CURB THICKNESS AT INTERVALS OF TEN FEET (10') WITH EXPANSION JOINTS AT STREET INTERSECTIONS, STRUCTURES AND ALONG CURVES AT SIXTY FEET (60') INTERVALS. ALL EXPANSION JOINT MATERIAL IS REQUIRED TO BE INSTALLED THROUGH THE ENTIRE DEPTH OF THE CONCRETE CURB.
20. AN "X" SHALL BE CUT IN THE CURB TO MARK THE LOCATION OF WATER DISTRIBUTION SYSTEM VALVE.
21. AN "X" SHALL BE CUT INTO THE CURB TO MARK THE LOCATION OF ALL VALVES OTHER THAN WATER DISTRIBUTION VALVES.
22. A "V" SHALL BE CUT IN THE CURB TO MARK THE LOCATION OF ALL SEWER SERVICES.
23. A "⊥" SHALL BE CUT IN THE CURB TO MARK THE LOCATION OF ALL RECLAIMED WATER SERVICES.
24. A "Λ" SHALL BE CUT IN THE CURB TO MARK THE LOCATION OF ALL WATER SERVICES.

STANDARD CONSTRUCTION DETAIL
ROADWAY CONSTRUCTION NOTES
INDEX R-1B
FEB 2018

ROADWAY COMPACTION AND DENSITY TESTING REQUIREMENTS

ITEM	TEST	FREQUENCY	STANDARD	TEST METHOD
ROADWAY SUBBASE (BOTTOM OF SUBBASE DOWN 1 FOOT)	IN-PLACE DENSITY	ONE (1) TEST/300 LF	95% MODIFIED PROCTOR (ASTM D-1557 OR AASHTO T-180)	ASTM D-2937 D-2922 D-1556
STABILIZED SUBBASE	IN-PLACE DENSITY	ONE (1) TEST/300 LF	95% MODIFIED PROCTOR (ASTM D-1557 OR AASHTO T-180)	ASTM D-2937 D-2922 D-1556
STABILIZED SUBBASE	FLORIDA BEARING VALUE (FBV)	ONE (1) TEST/300 LF	FBV = 75	
STABILIZED SUBBASE	LIMEROCK BEARING RATIO (LBR)	ONE (1) TEST/SOIL TYPE	LBR = 40	
LIMEROCK BASE	IN-PLACE DENSITY	ONE (1) TEST/300 LF	98% MODIFIED PROCTOR (ASTM D-1557 OR AASHTO T-180)	ASTM D-2937 D-2922 D-1556
LIMEROCK BASE	LIMEROCK BEARING RATIO (LBR)	PROVIDE CERTIFICATE FROM PLANT	LBR 100	FM 5-515
CRUSHED CONCRETE BASE	IN-PLACE DENSITY	ONE (1) TEST/300 LF	98% MODIFIED PROCTOR (ASTM D-1557 OR AASHTO T-180)	ASTM D-2937 D-1556
CRUSHED CONCRETE BASE	LIMEROCK BEARING RATIO (LBR)	(1) PER VISIBLE CHANGE IN MATERIAL BLEND	LBR 100	
ASPHALT	EXTRACTION AND GRADATION	(1) PER DAY PER MIX	PER MIX DESIGN	D-2922
ASPHALT	THICKNESS AND DENSITY	(1) PER 300 LF ROADWAY	PER MIX DESIGN AND JOB SPECS	CORING OR NUCLEAR (DENSITY ONLY)
SOIL OPTIMUM MOISTURE/DENSITY	PROCTOR TEST	(1) PER SOIL OR BASE TYPE		ASTM D-1557 (MODIFIED) ASTM D-558 (STANDARD) AASHTO T-180 (MODIFIED) AASHTO T-99 (STANDARD)
CURB SUBBASE	IN-PLACE DENSITY	ONE (1) TEST/300 LF	98% MODIFIED PROCTOR (ASTM D-1557 OR AASHTO T-180)	
CURB SUBBASE (LBR)	LIMEROCK BEARING RATIO (LBR)	(1) TEST/SOIL CHANGE	LBR 40	

STANDARD CONSTRUCTION DETAIL
TECHNICAL SPECIFICATIONS FOR TESTING REQUIREMENTS
INDEX R-6A
FEB 2018



PAVEMENT CUT AND PATCH DETAIL

NOTES:

1. WHERE SOIL CONDITIONS CAN NOT BE MAINTAINED AS SHOWN ABOVE, PROVIDE APPROVED METHOD OF CONSTRUCTION.
2. SHEETING WILL BE REQUIRED AS DETERMINED IN THE FIELD.
3. NEW SURFACING MATERIALS SHALL BE CONSISTENT WITH EXISTING AND SHALL HAVE LAPPED & FEATHERED JOINTS (1 1/2" MIN. THK.)
4. COMPACTION PERCENTAGES SHOWN REFER TO A.A.S.H.T.O. T-180. PROVIDE COMPACTION TEST REPORTS TO THE CITY.
5. MECHANICAL COMPACTION NOT ALLOWED BELOW THIS LEVEL.
6. INSTALL METALLIC TAPE OVER FULL LENGTH OF PIPE.
7. EIGHT INCHES (8") OF HIGH EARLY-STRENGTH CONCRETE MAY BE SUBSTITUTED FOR LIMEROCK UPON APPROVAL BY THE CITY.

STANDARD CONSTRUCTION DETAIL
PAVEMENT CUT AND PATCH
NTS
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FEB 2018

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CITY OF FLAGLER BEACH
S. CENTRAL WATER MAIN REPLACEMENT
FLAGLER BEACH, FLORIDA

ISSUED

M&H NO.: 1000709-231849.01
DATE: August 16, 2024
DESIGNED BY: CMC
DRAWN BY: MRM
CHECKED BY: DAK
DO NOT SCALE DRAWINGS

SHEET CONTENTS
STANDARD DETAILS

SHEET NO.
C-502

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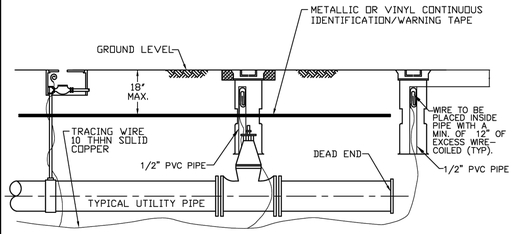

ALL PVC PIPE, OR OTHER CITY APPROVED NONMETALLIC PIPE INSTALLED WITHIN THE CITY'S WATER, SANITARY SEWER, OR RECLAIMED WATER SYSTEMS, SHALL BE INSTALLED WITH 10 THHN SOLID COPPER TRACING WIRE. IF PIPE IS INSTALLED BY DIRECTIONAL BORE, USE (2) 10 THHN SOLID COPPER TRACING WIRE.

THE TRACING WIRE MUST BE INSTALLED DIRECTLY BELOW THE PIPE AND BROUGHT TO THE SURFACE AT 500' MINIMUM INTERVALS. WIRE SHALL EXTEND A MINIMUM OF 12" ABOVE GRADE AT EACH INTERVAL AND BE COILED AND PLACED IN A VALVE BOX, METER BOX, MANHOLE, CLEANOUT OR OTHER APPLICABLE STRUCTURE.

TRACING WIRE BETWEEN INTERVALS SHALL BE INSTALLED SO AS TO PROVIDE CONTINUOUS CURRENT WHEN LINE LOCATION EQUIPMENT IS CONNECTED TO THE TRACING WIRE. WIRE BRANCHING FROM MAIN LINES SHALL BE LINKED BY A CITY APPROVED CONNECTOR SUCH AS KING # 2011 SAFETY SEALED CONNECTORS OR APPROVED EQUAL.

COLOR CODING:

POTABLE WATER SYSTEM:	BLUE
RECLAIMED WATER SYSTEM:	LAVENDER
SANITARY SEWER FORCE MAIN SYSTEM:	GREEN

1. POTABLE WATER AND RECLAIMED WATER SYSTEMS: WIRE SHALL BE INSTALLED BELOW ALL MAINS AND SERVICE LINES AND ATTACHED TO VALVES, HYDRANTS AND FITTINGS. WIRE INSTALLED WITH SERVICE LINES SHALL CONNECT TO THE WIRE INSTALLED BELOW THE MAIN AND EXTEND TO THE CURB STOP.
2. FIRE SPRINKLER LINES: WIRE SHALL CONNECT TO THE WIRE INSTALLED BELOW THE MAIN AND EXTEND TO THE RISER CONNECTION.
3. SANITARY SEWER FORCE MAINS: WIRE SHALL BE INSTALLED BELOW THE FORCE MAIN AND ATTACHED TO ALL VALVES AND FITTINGS AND BROUGHT TO THE SURFACE AND PLACED IN A METAL, CITY APPROVED, VALVE BOX.
4. DEAD END MAINS: WIRE SHALL BE PLACED IN A PROPERLY IDENTIFIED METAL VALVE BOX AT THE END OF THE RUN.
5. WIRE SHALL NOT BE FASTENED OR COILED TO VALVE OPERATING NUT.

STANDARD CONSTRUCTION DETAIL	INDEX
UTILITY PIPE LOCATION MATERIALS	M-10
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GENERAL NOTES
RECLAIMED WATER SYSTEM CONSTRUCTION

1. THE CITY SHALL BE NOTIFIED PRIOR TO BEGINNING ANY RECLAIMED WATER SYSTEM CONSTRUCTION.
2. DEWATERING SHALL BE PROVIDED TO KEEP GROUNDWATER ELEVATION A MINIMUM OF 6 INCHES BELOW RECLAIMED WATER MAIN BEING LAID.
3. ALL RECLAIMED WATER MAINS SHALL BE LAID ON A FIRM FOUNDATION WITH ALL UNSUITABLE MATERIAL (MUCK, ROCK, COQUINA, ETC.) REMOVED AND REPLACED WITH CLEAN GRANULAR MATERIAL.
4. TRENCHES SHALL BE BACKFILLED WITH CLEAN GRANULAR MATERIAL IN MAX. 1' LIFTS WITH A MINIMUM COMPACTION OF 98 PERCENT (AASHTO-T180) IN PAVED AREAS AND 90 PERCENT IN UNPAVED AREAS.
5. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO ENSURE THAT TRENCH COMPACTION TESTS BE PROVIDED AT POINTS 1 FOOT ABOVE THE PIPE AND AT 1 FOOT VERTICAL INTERVALS TO FINISH GRADE, AT A MINIMUM SPACING OF EVERY 300 FEET, AND TO FURNISH COPIES OF TEST REPORTS PROMPTLY TO THE CITY.
6. METALLIZED PIPE LOCATION TAPE SHALL BE LOCATED 15 INCHES BELOW FINISHED GRADE OR AS SPECIFIED BY MANUFACTURER FOR ALL PVC LINES. MARKER TAPE SHALL BE USED ON ALL DUCTILE IRON PIPE.
7. RECLAIMED WATER SERVICES (SINGLE 1") SHALL BE POLYETHYLENE TUBING (PURPLE IN COLOR) ; POLYBUTYLENE SHALL NOT BE ALLOWED.
8. ALL RECLAIMED WATER SERVICE ENDINGS SHALL BE MARKED WITH 4" X 4" LUMBER (PRESSURE TREATED) EXTENDING 4 FEET ABOVE GRADE, WITH WATER SERVICES SECURED 24" ABOVE THE GROUND. WIRE TIES SHALL BE USED TO SECURE THE CURB STOPS TO SUPPORT POSTS.
9. RECLAIMED WATER VALVES SHALL BE PLACED AT ALL STREET INTERSECTIONS AND AT MAXIMUM SPACINGS OF 1000 FEET.
10. AT ALL RECLAIMED WATER MAIN TEES AND CROSSES, VALVES SHALL BE INSTALLED ON ALL LEGS EXCEPT ONE.
11. APPROVED RECLAIMED WATER VALVE TYPES ARE THE FOLLOWING:
    A. STANDARD GATE VALVES LESS THAN 48" DIAMETER RESILIENT SEAT GATE VALVES (AWWA C-509 OR C-515).
    B. TAPPING VALVES AND MECHANICAL TAPPING SLEEVE SHALL BE STAINLESS STEEL. (AWWA C - 509)

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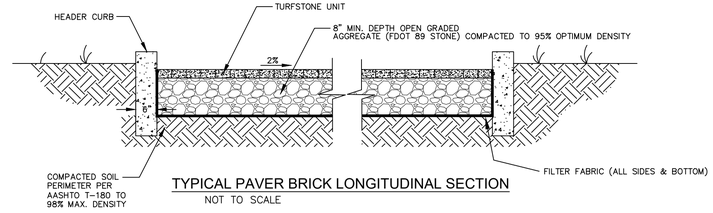
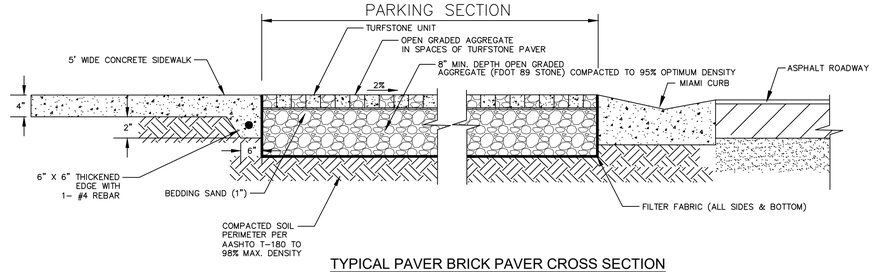
GENERAL NOTES RECLAIMED WATER SYSTEM CONSTRUCTION	RW-1A
	FEB 2018



TYPICAL PAVER BRICK LONGITUDINAL SECTION
NOT TO SCALE



TYPICAL PAVER BRICK PAVER CROSS SECTION
NOT TO SCALE

GENERAL NOTES
RECLAIMED WATER SYSTEM CONSTRUCTION

12. ALL RECLAIMED WATER VALVE BOXES SHALL BE ADJUSTED TO FINISH GRADE AND THE LIDS PAINTED PURPLE TO MAKE THEM PLAINLY VISIBLE.
13. RECLAIMED WATER VALVES SHALL BE COMPLETELY OPENED BY THE CONTRACTOR UPON FINAL ACCEPTANCE OF NEW RECLAIMED WATER SYSTEMS IN THE PRESENCE OF THE CITY.
14. A. HYDRANTS SHALL BE LOCATED AS REQUIRED TO OPTIMIZE FLUSHING
    B. ALL HYDRANTS SHALL BE CONSTRUCTED TO MAKE THEM EASILY ACCESSIBLE TO MAINTENANCE PERSONNEL. THE MAIN NOZZLE CONNECTION SHOULD ALWAYS FACE THE STREET AND BE 18"-24" ABOVE GRADE.
    C. ALL PROPOSED RECLAIMED WATER MAINS SHALL BE FLUSHED AND CLEANED WITH A POLY PIG IN ACCORDANCE WITH LATEST AWWA STANDARDS.
15. AS STANDARD PRACTICE, RECLAIMED WATER MAINS SHALL BE INSTALLED 4 FEET OFF THE BACK OF CURB ON OPPOSITE SIDE OF ROADWAY FROM WATER MAIN OR AS APPROVED BY THE CITY.
16. ALL RECLAIMED WATER MAINS AND SHALL HAVE A MINIMUM COVER OF 36 INCHES. IN SPECIAL CASES WHERE IT IS IMPOSSIBLE OR INAPPROPRIATE TO PROVIDE ADEQUATE COVER, DUCTILE IRON CLASS 350 OR CONCRETE ENCASEMENT MAY BE USED AS APPROVED BY THE CITY.
17. RECLAIMED WATER MAINS SHALL BE AWWA C-900 CL 150, HDPE SDR-11, OR D.I.P. CLASS 350 STANDARD CEMENT LINED.
18. UPON CONSTRUCTION COMPLETION PRIOR TO ACCEPTANCE OF THE SYSTEM, IT SHALL BE THE DESIGN ENGINEER'S RESPONSIBILITY TO ENSURE THAT THE SYSTEM IS PROPERLY FLUSHED, PIGGED, AND PRESSURE TESTED BEFORE PAVING.
19. MEGALUG OR EQUIVALENT, RESTRAINED JOINT SYSTEM MAY BE USED ON ALL RESTRAINED FITTINGS, VALVES, ETC. MINIMUM DEPTH OF BURY ON PIPES NOT MEETING REQUIRED COVER REQUIREMENTS SHALL FOLLOW THE MOST RECENT DIPRA THRUST RESTRAINT DESIGN GUIDELINES.
20. CERTIFIED AS-BUILT DRAWINGS (24"x36") SHALL BE PROVIDED TO THE CITY PRIOR TO PAVING AND ANY USE OF THE SYSTEM. PROVIDE THREE (3) BLUELINED COPIES, ONE (1) MYLAR, AND ONE (1) DIGITAL COPY OF AS-BUILT DRAWINGS.

STANDARD CONSTRUCTION DETAIL	INDEX
GENERAL NOTES RECLAIMED WATER SYSTEM CONSTRUCTION	RW-1B
	FEB 2018

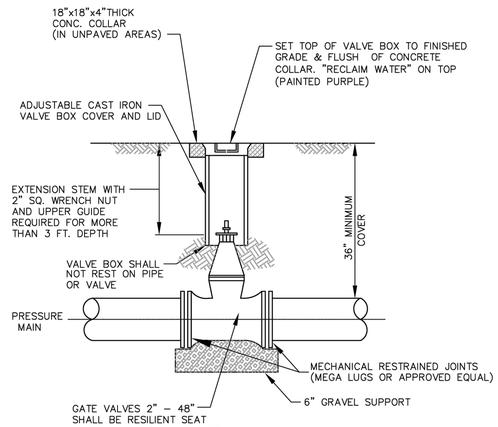
GENERAL NOTES
RECLAIMED WATER SYSTEM CONSTRUCTION

21. RECLAIMED WATER SYSTEMS SHALL BE PRESSURE TESTED AT 150 PSI STATIC PRESSURE FOR A PERIOD OF 2 HOURS PER AWWA STANDARDS. TESTS SHALL BE CONDUCTED BEFORE FINAL PAVING (IF APPLICABLE) IN THE PRESENCE OF THE CITY AND CERTIFIED BY THE ENGINEER.
22. ALL RECLAIMED WATER SERVICES SHALL BE MARKED WITH A "⊥" SAWCUT INTO THE CURB OR BY METAL TABS SET INTO THE PAVEMENT.
23. ALL RECLAIMED WATER VALVES AND BLOW-OFFS SHALL BE MARKED WITH AN "✖" SAWCUT INTO THE CURB OR BY METAL TABS SET INTO THE PAVEMENT. LOCATION OF METAL TABS IN INCHES FROM EDGE OF PAVEMENT SHALL EQUAL DISTANCE IN FEET FROM EDGE OF PAVEMENT TO VALVE.
24. UNIFLANGE 1300 SERIES PIPE RESTRAINTS AS MANUFACTURED BY FORD OR APPROVED EQUAL MAY BE USED AS APPROPRIATE FOR RESTRAINING IN-LINE PRESSURE PIPE EACH SIDE OF PIPE JOINT. AS REQUIRED BY RESTRAINT TABLE.
25. TRACING WIRE SHALL BE INSTALLED IN ACCORDANCE WITH UTILITY PIPE LOCATION MATERIALS DETAIL.
26. NO GALVANIZED PIPE, FITTINGS, ETC. ARE ACCEPTED.
27. ALL METER BOXES SHALL BE INSTALLED AT THE RIGHT OF WAY LINE ONLY, REGARDLESS OF SIZE.
28. SEE CHART BELOW FOR WATER MAIN SIZE AND MATERIALS.

MATERIALS		
DIAMETER	MATERIAL	STANDARD
2" - 4"	PVC 1120 / SDR 21	ASTM D 2241
> 4" - 12"	PVC DR-18	AWWA C 900-07
> 4" - 12" DEDICATED FIRE LINE	PVC DR-14	AWWA C 900-07
14" - 36" (16"- 24" — DR - 18) (30"- 36" — DR - 21)	PVC 1120	AWWA C 905
ALL SIZES	HDPE DIPS DR 11	ASTM F 714

NOTE: PVC PIPE COLOR SHALL BE PURPLE, BLUE WITH PURPLE LOCATOR TAPE FOR RAW WATER MAIN.

STANDARD CONSTRUCTION DETAIL	INDEX
GENERAL NOTES RECLAIMED WATER SYSTEM CONSTRUCTION	RW-1C
	FEB 2018

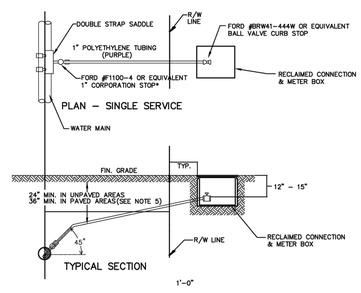


GATE VALVES 2" - 48" SHALL BE RESILIENT SEAT WEDGE VALVE (AWWA C-509 OR C-515). AS MANUFACTURED BY AMERICAN FLOW CONTROL, CLOW, M&H, KENNEDY, OR MUELLER. GATE VALVES LESS THAN 2" SHALL BE BRASS CONFORMING TO FED. SPEC. WW-V-54.

NOTE: USE RESTRAINED JOINT WHERE APPLICABLE.

STANDARD CONSTRUCTION DETAIL	INDEX
GATE VALVE AND VALVE BOX	RW-2
NTS.	FEB 2018

VALVE SCHEDULE FORD OR EQUIVALENT	
REUSE SERVICES	
VALVES AT MAIN	
1"	F1100-4
2"	FB1100-7
VALVES AT R/W LINE	
1"	BRW41-444W
2"	BRW41-777W



NOTES:

1. HDPE SHALL BE 200 PSI, NSF APPROVED, SDR 9, MEETING ASTM D1248. TUBING SHALL BE ENDOT ENDOTRACE (OR APPROVED EQUAL)
2. ALL SERVICE TAPS SHALL BE NO CLOSER THAN 2'-0" STAGGERED INTERVAL OR WITHIN 2'-0" OF BELL OR SPIGOT ENDS.
3. IN AREAS TO BE PAVED PROVIDE A 2" MIN. PVC SCHEDULE 40 SLEEVE FOR PE-TUBING. SLEEVE SHALL EXTEND A MIN. OF 2' BEHIND BACK OF CURB AT EACH SIDE OF ROAD.

STANDARD CONSTRUCTION DETAIL	INDEX
RECLAIMED WATER LATERAL SERVICE 1" OR 2" SERVICES	RW-3
NTS	FEB 2018

Mead & Hunt
Mead and Hunt, Inc.
2440 Deming Way
Middleton, WI 53562
phone: 608-273-6380
meadhunt.com

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CITY OF FLAGLER BEACH
S. CENTRAL WATER MAIN
REPLACEMENT

FLAGLER BEACH, FLORIDA

ISSUED

M&H NO.: 1000709-231849.01
DATE: August 16, 2024
DESIGNED BY: CMC
DRAWN BY: MRM
CHECKED BY: DAK
DO NOT SCALE DRAWINGS

SHEET CONTENTS
STANDARD DETAILS

SHEET NO.
C-503

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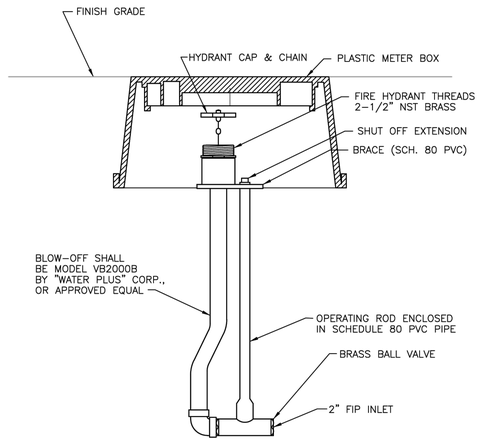

1. WRENCH AND DISCHARGE SPOUT AS SUPPLIED BY MANUFACTURER SHALL BE TURNED OVER TO THE CITY DURING FINAL INSPECTION.

	STANDARD CONSTRUCTION DETAIL **BLOW-OFF ASSEMBLY WITH METER BOX** NTS.	INDEX W-11 FEB 2018

Mead & Hunt

Mead and Hunt, Inc.
2440 Deming Way
Middleton, WI 53562
phone: 608-273-6380
meadhunt.com

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CITY OF FLAGLER BEACH
S. CENTRAL WATER MAIN REPLACEMENT

FLAGLER BEACH, FLORIDA

ISSUED

M&H NO.: 1000709-231849.01
DATE: August 16, 2024
DESIGNED BY: CMC
DRAWN BY: MRM
CHECKED BY: DAK
DO NOT SCALE DRAWINGS

SHEET CONTENTS
STANDARD DETAILS

SHEET NO.
C-503

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City of Flagler Beach
105 S. 2nd Street
Flagler Beach, Florida 32136
(386) 517 – 2000 ext. 233

ADDENDUM NO. 1

RESPONSE TO INQUIRIES RECEIVED
South Central Water Main Replacement
Bid Number FB-24-1021
City Project No. 570
November 08, 2024

To All Plan Holders:

The following changes, clarifications and additions are hereby made a part of the bidding and contract documents for the above referenced project, and prepared by the City of Flagler Beach as fully and completely as if the same were fully set forth therein.

Response to Questions received at the Pre-bid Meeting and before the deadline of 5:00 p.m. Friday, November 08, 2024

1. What will the Scope be when connecting the existing water service to the new water main? What should we be providing?

Response: Refer to Pay item 2.14 in specification 01 20 00 and Detail W-3 on plan sheet C-501.

2. Has a geotechnical report been filed for this project?

Response: See specification section 00 31 32.

3. Will the City provide a laydown area in close proximity to the project?

Response: The City has options that are available to use as a laydown yard. Specific locations will be discussed at the preconstruction meeting.

4. Will you require the abandoned water main to be grout filled?

Response: Yes

5. Is there an engineering budget for this project?

Response: Yes, but that is not disclosed.

6. In the bid document it states that bidder needs to submit "Attachment O" which is a List of Proposed Equipment. However, the actual "Attachment O" document is a List of Licenses and Certifications. Can this be clarified?

Response: Attachment "O" should read "List of Licenses and Certifications" in the TOC (Page 5 of 326).

7. Will bid bond forms be provided? Article 8.01 -Bid Security - states that a bid must be accompanied by bid security made payable to Owner in an amount of five (5) percent of

Bidder's maximum Bid price (determined by adding the base bid and all alternates) an
form of a certified check, bank money order, or a Bid bond (on the form included in th
Documents) issued by a surety meeting the requirements of Paragraphs 6.01 and 6.02 of the General Conditions.

Response: No.

8. Does the city have a preferred method of road closures and detours?

Response: The City does not have a "preferred method" but will discuss with the selected contractor once the project kicks off. Contractor to provide traffic control plan for approval.

9. South 2nd Street is one way going away from the project site. If we close the intersection of Central Ave and 2nd Street, there will be no way for traffic to travel down South 2nd street. Does the city have a preferred method for this scenario?

Response: See response 8 above.

10. Certificate of Corporation is asking for the executed date of the contract. Unsure how to fill this form out since no there is no signed contract date. Please advise? This is on page 15 of the bid docs.

Response: Attached a copy of the Certificate of Corporation and leave page 15 blank the awarded contractor will complete this page.

11. Is this project subject to State Bill SB 674 that went into effect on July 1, 2024?

Response: No

12. Is this project subject to BABAA or any other federal requirement for domestic made products?

Response: No

13. If State of Florida or Federal funds are being used where are those funds coming from?

Response: The funding source is 100% the City of Flagler Beach.

14. What are the depths of Asphalt, base, and subgrade for the open cut/repair base, bid item number 17?

Response: See detail R-8 on sheet C-502.

15. What are the depths of Asphalt, base, and subgrade for the open cut/repair asphalt, bid item number 18 & 6A?

Response: See response 14 above.

16. Can you please provide a geotechnical report for this project?

Response: See response 2 above.

17. Is removal of existing ACP water main, that is to be abandoned, required?

Response: No. Existing ACP is to be cut, capped, and grouted in place once new water main is in service.

18. Is in place grout filling of existing ACP water main, that is to be abandoned, required?

Response: Yes.

19. Are there any limits to the work times or day of week for this project?

Response: See specification section 00 22 13 Item 7.02.

Disclaimer: It is the sole responsibility of bidder to confirm that all addenda have been received prior to submitting bid and acknowledge such in bid documents

END OF ADDENDUM 1

City of Flagler Beach
105 S. 2nd Street
Flagler Beach, Florida 32136
(386) 517 – 2000 ext. 233

ADDENDUM NO. 2

RESPONSE TO INQUIRIES RECEIVED
South Central Water Main Replacement
Bid Number FB-24-1021
City Project No. 570
November 08, 2024

To All Plan Holders:

The following changes, clarifications and additions are hereby made a part of the bidding and contract documents for the above referenced project, and prepared by the City of Flagler Beach as fully and completely as if the same were fully set forth therein.

Question 7 in Addendum NO. 1 was responded to incorrectly. Below is the correction

Response to Questions received at the Pre-bid Meeting and before the deadline of 5:00 p.m. Friday, November 08, 2024

Will bid bond forms be provided? Article 8.01 -Bid Security - states that a bid must be accompanied by bid security made payable to Owner in an amount of five (5) percent of Bidder's maximum Bid price (determined by adding the base bid and all alternates) and in the form of a certified check, bank money order, or a Bid bond (on the form included in the Bidding Documents) issued by a surety meeting the requirements of Paragraphs 6.01 and 6.02 of the General Conditions.

Response: ~~***No.***~~ ***Yes, a Bid bond is required.***

Disclaimer: It is the sole responsibility of bidder to confirm that all addenda have been received prior to submitting bid and acknowledge such in bid documents

END OF ADDENDUM 2

Flagler Beach Project #570
South Central Avenue Water Main
Pre-Bid Meeting (October 28, 2024)

MEETING MINUTES

I. Introductions

a. Owner: Flagler Beach
   i. Project Coordinator: Lee Richards (LR)
      1. LRichards@cityofflaglerbeach.com
      2. 386-517-2000 EXT 248
   ii. Project Manager: Christine Novak (CN)
      1. cnovak@CityofFlaglerBeach.com
      2. 386-517-2000 EXT 242
   iii. City Engineer: Bill Freeman (BF)
      1. bfreeman@cityofflaglerbeach.com
      2. 386-517-2000 EXT 230
   iv. Public Works Superintendent – Jenifer Crews (JC)
      1. jcrews@cityofflaglerbeach.com
      2. 386-285-7737
   v. Engineer of Record: Casey Cissell, Mead & Hunt (CS)
      1. Cassandra.cissell@meadhunt.com
      2. 386-414-5062

II. Bid Package

a. LR went through the Project Manual pointing out various important milestones, form submissions with bid, unit pricing for Base Bid and Alternate #1.
b. All questions must be sent to Penny Overstreet on or before November 5.
c. All questions will be addressed in the addendum(a).

III. Scope of Work Review

a. CS went through a summary of the scope of work.
b. JC added information regarding the connection point and the connection locations.
c. Alternate 1 is exploratory work to install a valve and valve box at the S. Third St. terminus of the new water line.
d. There are laterals and other mains that connect into this new line of approximately 500 linear feet.
e. The work also includes installing a dry reclaim water line for future use.

IV. Miscellaneous

a. Project work north of the intersection at 2d St. S. and S. Central is the hotel construction area. The work in this project must coordinate with the work done by the hotel construction.
b. A screen shot of the CPM schedule showing the timing of the hotel work will be provided in an addendum.
c. The MOT is complicated and must be followed.
d. Staging area is available at the Wastewater Treatment Plant. Coordinate with CN (Project Manager).

STAFF REPORT

Regular City Commission Meeting

January 09, 2025

To: Elected Officials

From: Dale L. Martin, City Manager

Date: December 30, 2024

Item Name: Resolution 2025-03. A Resolution by the City of Flagler Beach, Florida approving a Professional Services Task Order from McKim & Creed in an amount not to exceed $99,060.00 for the design and other services summarized in Attachment "A" of a 1.0-million-gallon (MG) storage tank at the Water Treatment Facility; providing for conflict and an effective date.

Background: The City owns and operates a two-million-gallon per day potable Water Treatment Facility (WTF). The WTF provides potable water to serve the needs of Flagler Beach residents, businesses, and the City. To maintain an adequate supply of water, the City currently maintains an existing one-million-gallon storage tank located on S. Flagler Avenue.

To enhance the City's ability to provide uninterrupted service and to ease plant operations, City staff has recommended the design and construction of an additional one-million-gallon storage tank. This recommendation has been incorporated into the City's Five-Year Capital Plan (Annual Budget 2024/2025). The intent is to construct the additional storage tank on the grounds of the WTP (4680 Seminole Woods Blvd., Palm Coast).

Pursuant to the terms of the Master Contract for Professional Services recently renewed in March 2024, McKim & Creed (Consultant) was asked by City staff to provide a scope of services, lump sum fee proposal, and schedule to develop preliminary design services for this Task. Please see the attached Proposal for specific details.

This preliminary work will produce a "Basis of Design Report" that will establish the parameters for moving forward with the full construction drawings, specifications and bidding documents. These will be presented for approval at a future CC meeting to be determined.

Fiscal Impact: Project Number 639, included in the FY 24-25 budget, GL 402.5391.606300.639.

Staff Recommendation: Staff recommends approval of Resolution 2025-03, awarding a design services contract to McKim & Creed in an amount not to exceed $99,060.00.

Attachments:

Resolution 2025-03
Professional Services Task Order Proposal (McKim & Creed)

RESOLUTION 2025-03

A RESOLUTION BY THE CITY OF THE CITY OF FLAGLER BEACH, FLORIDA, APPROVING A PROFESSIONAL SERVICES TASK ORDER FROM MCKIM & CREED IN AN AMOUNT NOT TO EXCEED $99,060.00 FOR THE DESIGN AND OTHER SERVICES SUMMARIZED IN EXHIBIT A OF A 1.0-MILLION-GALLON (MG) STORAGE TANK AT THE WATER TREATMENT FACILITY; PROVIDING FOR CONFLICT AND AN EFFECTIVE DATE.

WHEREAS, the City operates and maintains a municipal water system (the "SYSTEM"), providing safe potable water to residents, businesses, and other agencies; and

WHEREAS, in order to enhance the efficiency and capacity of the System, City staff proposed the addition of another one-million-gallon storage tank, supplementing the existing one-million-gallon storage tank; and,

WHEREAS, the City Commission, in the 2024/2025 Budget Five-Year Capital Plan, approved the design for the additional storage tank; and,

WHEREAS, City staff solicited a proposal (Exhibit A) from McKim & Creed, a consulting engineering firm included on the City's approved and qualified consultant register;

NOW THEREFORE BE IT RESOLVED BY THE CITY COMMISSION OF THE CITY OF FLAGLER BEACH, AS FOLLOWS:

SECTION 1. The City of Flagler Beach City Commission approves the proposal submitted by McKim & Creed in an amount not to exceed $99,060 (Exhibit A) for design services related to an additional one-million-gallon water storage tank.

SECTION 2. The City Commission authorizes City Staff to issue a Notice to Proceed.

SECTION 3. All resolutions or parts of resolutions in conflict herewith be and the same are hereby repealed.

SECTION 4. This Resolution shall become effective immediately upon passage as provided by law.

PASSED AND ADOPTED THIS 9th DAY OF JANUARY, 2025.

CITY OF FLAGLER BEACH, FLORIDA
CITY COMMISSION

ATTEST:

_____
Patti King, Mayor

_____
Penny Overstreet, City Clerk

McKIM&CREED
ENGINEERS SURVEYORS PLANNERS

December 5, 2024 244125

Bill Freeman, P.E.
City Engineer
City of Flagler Beach
Via Email: bfreeman@cityofflaglerbeach.com

RE: Water Treatment Plant Storage Tank
Professional Services Task Order Proposal

Dear Bill,

On behalf of McKim & Creed, we appreciate the opportunity to assist with Professional Services for the City's Water Treatment Plant Storage Tank Project. The table below summarizes our proposed tasks and fees. For additional details on scope and schedule, please see **Attachment A – Scope of Services Summary**. Fees are summarized below and detailed in **Attachment B – Fee Schedule**.

Task	Description	Task Fee
Task 1	Project Management Services	$18,226.00
Task 2	Preliminary Design Services	$80,834.00
	Total Proposed Fee	**$99,060.00**

This proposal covers services for project management and establishing a basis of design. Due to the number of project unknowns, services associated with the final design, permitting, bid phase, and construction phase are not detailed in this scope at this time. We recommend that these services be developed as a later amendment when the basis of design is better established. At that time, McKim and Creed can provide a proposal for the City's review.

After you review the details of our proposal, please let us know when you would like to schedule a time to discuss.

Sincerely,

McKim & Creed, Inc.

Mario E. Loaiza, P.E., F.ASCE
Regional Manager

Charles Hill, P.E., BCEE
Client Manager

Attachments
Attachment A – Scope of Services Summary
Attachment B – Fee Schedule
Attachment C – Project Area

ATTACHMENT A
SCOPE OF SERVICES SUMMARY

Proposal No:	**244125**
Project Name:	**Water Treatment Plant Storage Tank**
Project Jurisdiction:	**City of Flagler Beach, Florida**
Proposal Date:	**December 5, 2024**

Pursuant to the terms of the Master Contract for Professional Service executed in March 2022 and later renewed in March 2024. McKim & Creed, Inc. (Consultant) is providing this scope of services to the City of Flagler Beach, Florida (City) for design services of a 1.0 million gallon (MG) storage tank at the City's Water Treatment Plan (WTP).

A. PROJECT UNDERSTANDING

The City owns and operates a 2.0 million gallon per day potable water treatment facility (WTF), located at 4680 Seminole Woods Blvd, Palm Coast, Florida, under Public Water System (PWS) permit 2180349. The WTF had a lime softening treatment train, which has mostly been demolished and replaced with membrane filtration. The current WTF consists of a well field, prefiltration, nano-filtration, degasifier, disinfection, corrosion inhibitor, and high service pumping. Concentrate from the nano-filtration process is transmitted to the wastewater treatment plant for blending and final disposal. The distribution system provides potable water service to the residents of the City, both on the mainland and on the barrier island. There are several emergency interconnects with neighboring utilities, which usually remain closed. Currently, there is no onsite storage other than the final clear well, but offsite storage and pumping are in the distribution system.

To enhance the City's ability to provide uninterrupted service and to aid ease of operation, the City wishes to design, permit, and construct a 1.0 million gallon (MG) storage tank on the water treatment plant site. A pre-scope meeting was held on October 22, 2024, to discuss project goals and perform a site inspection. The current facility process flow is accomplished by gravity from the influent of the degasifier towers to the clearwell. Finish water is then provided to the distribution system by high service pumps (HSPs) from the clearwell. During the pre-scope meeting and later discussions, the City identified that it wants to assess the feasibility of various configurations. The assessment will focus on hydraulics, pumping, structures, yard piping, chemical dosing, electrical, instrumentation, and controls

Since the overall Project is not well defined at this point, this Scope of Services is laid out to provide services to establish a basis of design. Typical support services, such as subsurface utility engineering, geotechnical investigations, environmental impact assessment, and professional surveying, will be scoped once the basis of design is established.

Attachment A – Scope
City of Flagler Beach, WTP Storage Tank

B. PROPOSED SCOPE

The following pages outline our proposed scope of services, deliverables, and fees associated with the Project. These services will be performed after a Notice to Proceed has been issued in a written work or purchase order.

TASK 1 PROJECT MANAGEMENT SERVICES

SUBTASK 1.01 PROJECT MANAGEMENT

1. The Consultant will provide overall project management, including contract administration, budget management, invoicing, monthly status reports, and coordination with the City and the Consultant's sub-consultants.

SUBTASK 1.02 KICKOFF MEETING

1. The Consultant will attend one (1) kickoff meeting with the City. The meeting will include a review of the project scope, possible project hurdles, and a collaboration of site configuration and equipment preferences. The Consultant will prepare an agenda and minutes for the meeting.
2. The Consultant will also prepare a request for background documentation, such as existing drawings, reports, SCADA data, work order data, inspection sheets, photos, standards, planning documents, and necessary general conditions and construction forms.

SUBTASK 1.03 PROGRESS MEETINGS

1. The Consultant will attend up to two (2) progress meetings. For the preparation of the Scope, it is estimated that services through Task 2 will take six (6) months and that progress meetings will be held every other month, starting with month three after kickoff. The Consultant will prepare an agenda and minutes for each meeting.

SUBTASK 1.04 PUBLIC COORDINATION

1. The Consultant, as needed, will attend up to two (2) public coordination meetings. This can include public or commission workshops. The Consultant will prepare documents, visual aids, agendas, and minutes for each meeting. Expenses associated with this task are included.

TASK 2 PRELIMINARY DESIGN SERVICES

SUBTASK 2.01 REVIEW OF EXISTING CONDITIONS

1. The Consultant will review the surveying findings, record drawings, and other discovered information, and provide any additional requests for information.

SUBTASK 2.02 BASIS OF DESIGN REPORT

1. The Consultant will prepare and submit a Draft Basis of Design Report (BDR) which will outline:
   a. General project information and background,
   b. Findings of observed existing site conditions,

c. Basic statement on potential impacts to wetlands, wildlife, existing features, and private property,
d. Existing utility materials and construction,
e. Feasibility statements on no more than two process configurations,
f. Design data and design calculations,
g. Proposed improvement configurations, locations, materials, and recommended methods of construction,
h. Anticipated permitting jurisdictions, permit forms, and schedule of permit fees (including information on which party will submit application and fees),
i. Rough order of magnitude (ROM) engineer's opinion of construction cost for each process configuration,
j. Discussion on out-of-scope work was discovered as needed to complete the Project, and
k. Associated figures such as preliminary site plans, process flow diagrams, and hydraulic profiles,
l. And appendix materials.

2. The Consultant will facilitate one (1) review workshop of the report, including preparing an agenda and minutes. The Consultant will also prepare a response to City comments and incorporate resolved comments into the finalized BDR.

The following Tasks will be further developed once a Basis of Design Report is completed and accepted by the City.

TASK 3 DESIGN SUPPORT SERVICES

Final design support services will be amended to the task order at City's direction. These services are proposed not to be at this time limit the chance they will be misdirected prior to a basis of design has been established.

TASK 4 FINAL DESIGN SERVICES

Final design services will be amended to the task order at City's direction.

TASK 5 PERMITTING SERVICES

Permitting services will be amended to the task order at City's direction.

TASK 6 BIDDING PHASE SERVICES

Bidding phase services will be amended to the task order at City's direction.

TASK 7 CONSTRUCTION PHASE SERVICES

Construction phase services will be amended to the task order at City's direction.

C. SUB-CONSULTANTS

No sub-consultants are identified for this phase of the project. As later tasks are authorized, sub-consultants will be listed here.

D. MILESTONES AND SCHEDULE

1. Project Milestones are identified by deliverables at the proposed schedule below:

Task	Deliverable	Months from Notice to Proceed
Task 2	Draft Basis of Design Report	6
Task 2	Final Basis of Design Report	7

E. ASSUMPTIONS

1. With notice, the City will provide the Consultant with the following information and services, and the Consultant may reasonably rely on this information for use on the project:
   a. Access to facilities and properties related to the Project,
   b. Copies of existing permits and regulatory correspondence related to the Project,
   c. Copies of existing design and record drawings and plans related to the Project area,
   d. Copies of agreements related to the Project. This could include agreements between the City, contractors, other engineers, or local, state, or federal agencies, and
   e. Copies of the City utility construction standards and details.
2. The following services related to the project are not included in this Scope of Services, but can be provided at the request of the City for an additional fee via scope amendment:
   a. Title Reports, Easement Documents, or Legal Descriptions and Sketches,
   b. Real Property and Easement acquisition services,
   c. Design support services, final design, permitting, bidding, or construction phase assistance,
   d. Permitting services, where it is advised to await more detailed design to support applications,
   e. Wetlands delineation or protected species flagging, and
   f. Geotechnical investigations.

F. PROPOSED FEE AND PAYMENT

1. The Consultant proposes to provide the professional consulting services described herein at the established fixed fees outlined in the table below. Fixed fees will be invoiced at the rate of project progression. Direct expenses will be invoiced at the rate incurred and provided backup documentation.
2. Costs are computed by the Consultant's 2024 Rate Schedule. A complete copy of this Rate Schedule can be provided at request.
3. The proposed totalized fees for the service described are summarized as follows:

Task	Description	Fixed Fee Amount	Time and Materials Amount	Total
Task 1	Project Management Services	$17,726.00	$500.00	$18,226.00
Task 2	Preliminary Design Services	$80,834.00	$0	$80,834.00
	Total Proposed Fee	**$98,560.00**	**$500.00**	**$99,060.00**

4. **Attachment B** includes a complete proposed fee breakdown.

END OF ATTACHMENT A
SCOPE OF SERVICES SUMMARY

Attachment B

Fee Summary

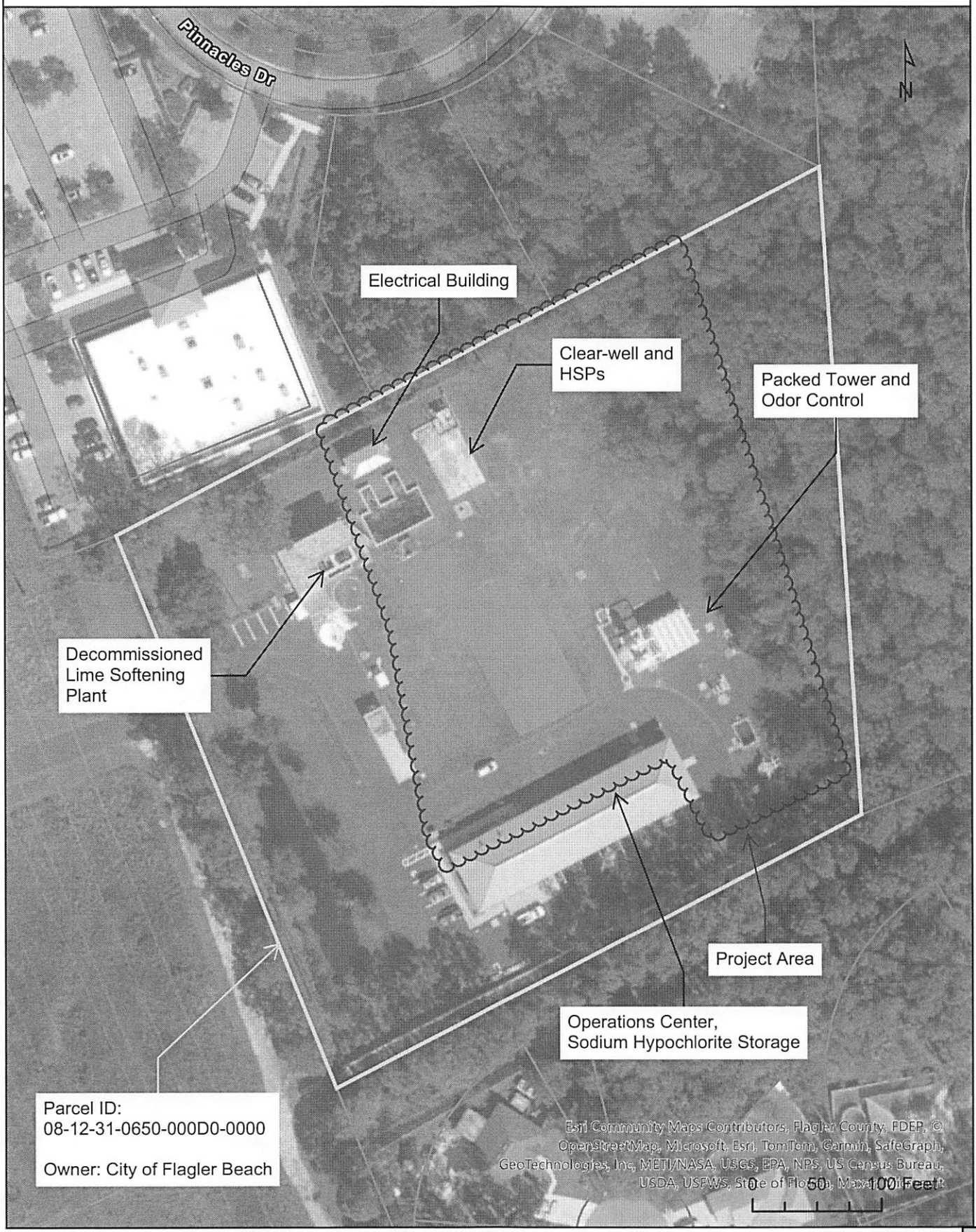
Task		Principal	Project Manager III (Civil/Mech)	Technical Specialist III (Structural)	Technical Specialist III (Elec/I&C)	Project Engineer II (Civil/Mech)	Project Engineer II (Structural)	Project Engineer II (Elec/I&C)	Project Engineer I (Civil/Mech)	Designer II	Sn Project Admin	Total Hours	Total Labor Fee	Direct Expenses	Total Fee
		$ 312.00	$ 239.00	$ 291.00	$ 291.00	$ 182.00	$ 182.00	$ 182.00	$ 161.00	$ 135.00	$ 109.00				
Task 1 Project Management Services															
1.01	Project Management	1	8	1	1	9					8	28	$ 5,316.00	$ -	$ 5,316.00
1.02	Kickoff Meeting		3	5	5	5					1	19	$ 4,646.00	$ -	$ 4,646.00
1.03	Progress Meetings		6			6						12	$ 2,526.00	$ -	$ 2,526.00
1.04	Public Coordination		8			10			8		2	28	$ 5,238.00	$ 500.00	$ 5,738.00
Task 1 Subtotal		**1**	**25**	**6**	**6**	**30**			**8**		**11**	**87**	**$ 17,726.00**	**$ 500.00**	**$ 18,226.00**
Task 2 Preliminary Design															
2.01	Review of Existing Conditions		1			15		3	14		3	36	$ 6,096.00	$ -	$ 6,096.00
2.02	Basis of Design Report	2	25	16	27	69	32	81	102	41	5	400	$ 74,738.00	$ -	$ 74,738.00
Task 2 Subtotal		**2**	**26**	**16**	**27**	**84**	**32**	**84**	**116**	**41**	**8**	**436**	**$ 80,834.00**	**$ -**	**$ 80,834.00**
Total		**3**	**51**	**22**	**33**	**114**	**32**	**84**	**124**	**41**	**19**	**523**	**$ 98,560.00**	**$ 500.00**	**$ 99,060.00**

Attachment B

Direct Expenses Detail

Task		SUE	Geotech	Enviro	Survey							Retrographics	Direct Expense Total
Task 1 Project Management Services													
1.01	Project Management												$ -
1.02	Kickoff Meeting												$ -
1.03	Progress Meetings												$ -
1.04	Public Coordination											$ 500.00	$ 500.00
Task 1 Subtotal													$ -
Task 2 Preliminary Design													
2.01	Review of Existing Conditions												$ -
2.02	Basis of Design Report												$ -
Task 2 Subtotal													$ -

ATTACHMENT C
PROJECT AREA



STAFF REPORT

Regular Commission Meeting

January 09, 2025

To: Elected Officials

From: Dale L. Martin, City Manager

Date: December 30, 2024

Item Name: Resolution 2025-05. A Resolution by the City of Flagler Beach, Florida, designating Municipal Emergency Services (MES) as a Sole Source Vendor for the purchase of fire support equipment, in an amount not to exceed $145,428.26; providing for conflict and an effective date.

Background: The Fire Department requires a substantial amount of equipment to provide for the safety of City firefighters. Many pieces of equipment require regular replacement to ensure safe operations and proper compliance with appropriate regulations. Firefighter breathing apparatus is a critical piece for firefighter safety.

The City annually budgets funds to a reserve account to fund the acquisition of new air packs. Sufficient funds are available for the proposed purchase of the air packs.

Municipal Emergency Services (MES) provides proprietary equipment that will integrate with existing Fire Department breathing apparatus equipment, enabling the City to utilize equipment that has been previously acquired. Due to the desire to ensure compatibility with current equipment, City Staff seeks to declare Municipal Emergency Services as a “sole source vendor” for the acquisition of air packs.

Fiscal Impact: Budgeted funding: $139,414.50 Fire Support Equipment Reserve (Line 001-0000-247113) and $6,013.76 Fire Support Equipment (Line 304-5392-606400-559)

Staff Recommendation: Staff recommends approval of Resolution 2025-05.

Attachments:

Resolution 2025-05
Sales Order, MES to Deputy Chief S. Cox, Flagler Beach Fire Department (Dec 10, 2024)

RESOLUTION 2025-05

A RESOLUTION BY THE CITY OF THE CITY OF FLAGLER BEACH, FLORIDA, DESIGNATING MUNICIPAL EMERGENCY SERVICES (MES) AS A SOLE SOURCE VENDOR FOR THE PURCHASE OF FIRE SUPPORT EQUIPMENT, IN AN AMOUNT NOT TO EXCEED $145,428.26; PROVIDING FOR CONFLICT AND AN EFFECTIVE DATE.

WHEREAS, the City operates a Fire Department to protect the lives and property of community residents and businesses; and,

WHEREAS, the continued operations of the Fire Department require specialized equipment to ensure the safety of City firefighters, including breathing apparatus; and,

WHEREAS, due to use, age, and regulatory compliance, breathing apparatus requires replacement on a recurring basis, and the City annually budgets funding for replacement; and

WHEREAS, equipment previously procured by the City remains functionally operable, but requires the continued use of proprietary equipment to ensure compatibility;

NOW THEREFORE BE IT RESOLVED BY THE CITY COMMISSION OF THE CITY OF FLAGLER BEACH, AS FOLLOWS:

SECTION 1. The City of Flagler Beach City Commission declares Municipal Emergency Services (MES) as a Sole Source Vendor of breathing apparatus for the Flagler Beach Fire Department.

SECTION 2. The City Commission authorizes the purchase of air packs and other Fire Support Equipment from MES in an amount not to exceed $145,428.26.

SECTION 3. All resolutions or parts of resolutions in conflict herewith be and the same are hereby repealed.

SECTION 4. This Resolution shall become effective immediately upon passage as provided by law.

PASSED AND ADOPTED THIS 9th DAY OF JANUARY, 2025.

CITY OF FLAGLER BEACH, FLORIDA
CITY COMMISSION

ATTEST:

_____
Patti King, Mayor

_____
Penny Overstreet, City Clerk

MUNICIPAL EMERGENCY SERVICES

(877) 637-3473

Sales Order

Order #	SO2036175
Date	12/10/2024
Terms	Net 30
PO #	Email Chief Cox
Sales Rep	Mclester, Rickey
Shipping Method	FedEx Ground
Ship Complete	No
Customer	Flagler Beach Fire Dept (FL)
Customer #	C208554

Bill To

Stephen Cox
Flagler Beach Fire Department
320 S. Flagler Ave.
Flagler Beach FL 32136
United States

Ship To

Stephen Cox
Flagler Beach Fire Department
320 S. Flagler Ave.
Flagler Beach FL 32136
United States

Item	Alt Item #	Units	Description	Qty	Unit Price	Amount
FQ-AAAX			Seek FirePRO 300 Thermal Imager Sale Price	3	$999.00	$2,997.00
201215-02			AV-3000 HT (M), KVLR	13	$345.68	$4,493.84
X8914N25305A03			Air-Pak X3 Pro SCBA (2018 Edition) with Snap-Change Cylinder Connection, 4.5, Standard Harness with Parachute Buckles, EZ-Scape Pro (Fixed) Belt with No Accessory Pouch, E-Z Flo+ Regulator with Quick Disconnect Hose (Rectus-type fittings), Universal EBSS Accessory Hose, No Airline Connection, No Spare Harness Kit, SEMS II Pro, No Case, Packaged 1 SCBA Per Box	13	$8,529.00	$110,877.00
200128-01-1			Snap-Change Cylinder, Carbon-Wrapped, Pressure 4500, 30 Minutes (at 40 lpm) - no USA label	23	$1,176.54	$27,060.42

Subtotal	$145,428.26
Shipping Cost	$0.00
Tax Total	$0.00
Total	$145,428.26

All returns must be processed within 30 days of receipt and require a return authorization number and are subject to a restocking fee. Custom orders are not returnable. Effective tax rate will be applicable at the time of invoice.

SO2036175

STAFF REPORT

Regular City Commission Meeting

December 12, 2024

To: Elected Officials

From: Dale L. Martin, City Manager

Date: December 4, 2024

Item Name: Ordinance 2024-23, and Ordinance of the City of Flagler Beach, Florida, amending the City of Flagler Beach Code of Ordinances, Appendix "A" "Land Development Regulations, Article V, "Development Design Standards" relating to certain fees and charges related to water service; providing for severability; providing for codification, conflicts and effective date - first reading.

Background: This ordinance updates language in Sec. 5.03.02 – Deferment of charges due to broken waterlines, etc. and Sec. 5.03.42 – Access to water meters for city meter readers.

- Sec. 5.03.02 – Remove language that specifies a specific dollar amount for a meter re-read, due to the change in the fee schedule as well as clarification on sewer credit(s) in relation to 'routine pool filling.'
- Sec. 5.03.42 – Incorporating language into this ordinance regarding clearing the perimeter of meters and is subject to a fee specified on the utility billing fee schedule.

Fiscal Impact: None

Staff Recommendation: To approve ordinance 2024-23.

Attachments: Ordinance 2024-23

ORDINANCE NO. 2024-_____

AN ORDINANCE OF THE CITY OF FLAGLER BEACH, FLORIDA, AMENDING THE CITY OF FLAGLER BEACH CODE OF ORDINANCES, APPENDIX "A," "LAND DEVELOPMENT REGULATIONS, ARTICLE V, "DEVELOPMENT DESIGN STANDARDS," RELATING TO CERTAIN FEES AND CHARGES RELATED TO WATER SERVICE; PROVIDING FOR SEVERABILITY; PROVIDING FOR CODIFICATION, CONFLICTS, AND EFFECTIVE DATE.

WHEREAS, in updating its fees for utility services, the City has also conducted a review of its Code related to certain service charges; and

WHEREAS, the City has identified provisions related to water service it desires to clarify; and

WHEREAS, the Code currently requires property owners to keep the area around a water meter clear and accessible; and

WHEREAS, the Code currently allows the City to clear around a meter if it becomes inaccessible; and

WHEREAS, the Code does not currently specify that an account holder may be charged for such clearing; and

WHEREAS, the City has recently adopted a fee in its fee schedule for clearing around meters when the property owner has failed to do so and has also incorporated a fee for meter re-reads making the inclusion of the amount of such fee in the Code of Ordinances unnecessary; and

WHEREAS, the inclusion of the word "routine" before "pool filling" in the prohibition contained Section 5.03.02 against the City allowing credits for certain usage has caused confusion and the City desires to state simply that credits will not be allowed for pool filling and to state that a one time credit may be applied in the instance of a leak; and

WHEREAS, the City Commission finds and determines that adoption of this Ordinance is in the best interest of the residents, businesses, and visitors of Flagler Beach.

NOW THEREFORE, BE IT ORDAINED BY THE CITY COMMISSION OF THE CITY OF FLAGLER BEACH, FLORIDA, AS FOLLOWS:

SECTION ONE. The findings set forth in the recitals above are hereby adopted as legislative findings of the City Commission pertaining to this Ordinance.

SECTION TWO. Article V of the City's Land Development Regulations is amended as follows: (note, <u>underlined</u> text notates additions, ~~strikethrough~~ text notates deletions, and ellipses (***) notate text which remains unchanged and is not reprinted here):

*** * ***

Sec. 5.03.42. Access to water meters for city meter readers.

(a) All owners of real property and/or tenants of real property receiving water from the city water system and having a water meter located on their property or the city's right-of-way abutting their property shall be responsible for keeping the area from the edge of the roadway up to and within a two-foot radius of the water meter free of shrubbery, plant life, automobiles, fences and other materials which might prevent ready and convenient access to the water meter by the city meter reader at all times.

(b) In the event the owners and/or tenant of such real property fails to comply with subsection (a), hereof, authorized city personnel shall have the right to trim or remove shrubbery and plant life and remove or have removed automobiles and other materials from the area of the water meter so that the meter is readily accessible to the meter reader and is free from obstructions which may prevent him from carrying out his authorized duties.

(c) If the perimeter of a meter is not cleared within thirty (30) days after mailing of written notice to the account holder by the City that such area has not been maintained to the standard of paragraph (a), above), the account holder will be subject to a fee for clearing the area around the meter as specified on the utility billing fee schedule adopted by the City.

* * *

Sec. 5.03.02. Deferment of charges due to broken waterlines, etc.

In those instances where customers receive utility service bills which are due and payable, but vary from their normal monthly bill as a result of accidental broken waterlines or other plumbing failure or defects, where the water did not enter the sewer system, the city manager may, upon request of the customer, issue a credit for the amount of the sewer flow adjustment. The leak adjustment request must be made on a form approved by the city and include evidence that the leak is now repaired, either by including a paid invoice or a receipt for parts used in the repair. The city will issue no credits for water or sewer charges due to ~~routine~~ pool filling, lawn irrigation, or leaking plumbing fixtures. The city may issue a one-time per calendar year sewer adjustment for a pool fill related to a leak.

Commented [HH1]: Added the word pool.

If any utility customer questions the monthly reading of their meter, upon customer requests, the city will re-read the customer's water meter to verify the existing reading. A ~~ten dollar~~ service charge will be added to the customer's account for this service in accordance with the City's adopted utility fee schedule. In any case, where the initial reading is found to be incorrect, or in cases where there is a documented leak and a sewer credit is issued, this charge will be refunded.

SECTION THREE. Codification. It is the intent of the City Commission of the City of Flagler Beach that the provisions of this Ordinance shall be codified**.** The codifier is granted broad and liberal authority in codifying the provisions of this Ordinance.

SECTION FOUR. Conflicts. In any case where a provision of this Ordinance is found to be in conflict with the provisions of any other ordinance of this City, the conflicting provisions of the previous ordinance shall be repealed and superseded by this Ordinance.

SECTION FIVE. Effective date. This Ordinance shall take effect immediately upon adoption as provided by the Charter of the City of Flagler Beach.

PASSED ON FIRST READING THIS _____ DAY OF _____, 2024.

PASSED AND ADOPTED THIS _____ DAY OF _____, 2024.

CITY OF FLAGLER BEACH, FLORIDA
CITY COMMISSION

_____
Patti King, Mayor

ATTEST:

_____
Penny Overstreet, City Clerk

THE DAYTONA BEACH
NEWS-JOURNAL PO Box 631244 Cincinnati, OH 45263-1244

AFFIDAVIT OF PUBLICATION

CITY OF FLAGLER BEACH CITY OF FLAGLER - LEGAL
City Of Flagler - Legal
Po Box 70
Flagler Beach FL 32136-0070

STATE OF WISCONSIN, COUNTY OF BROWN

Before the undersigned authority personally appeared, who on oath says that he or she is the Legal Coordinator of The News-Journal, published in Volusia and Flagler Counties, Florida; that the attached copy of advertisement, being a Govt Public Notices, was published on the publicly accessible website of Volusia and Flagler Counties, Florida, or in a newspaper by print in the issues of, on:

12/18/2024

Affiant further says that the website or newspaper complies with all legal requirements for publication in chapter 50, Florida Statutes.
Subscribed and sworn to before me, by the legal clerk, who is personally known to me, on 12/18/2024

Legal Clerk

Notary, State of WI, County of Brown

3.7.27

My commission expires

Publication Cost:	$237.04	
Tax Amount:	$0.00	
Payment Cost:	$237.04	
Order No:	10862680	# of Copies:
Customer No:	464924	1
PO #:		

THIS IS NOT AN INVOICE!

Please do not use this form for payment remittance.

KAITLYN FELTY
Notary Public
State of Wisconsin

ORDINANCE 2024-23
AN ORDINANCE OF THE CITY OF FLAGLER BEACH, FLORIDA, AMENDING THE CITY OF FLAGLER BEACH CODE OF ORDINANCES, APPENDIX "A," "LAND DEVELOPMENT REGULATIONS, ARTICLE V, "DEVELOPMENT DESIGN STANDARDS," RELATING TO CERTAIN FEES AND CHARGES RELATED TO WATER PROVIDING FOR SERVICE; SEVERABILITY; PROVIDING CODIFICATION, 9 CONFLICTS, AND EFFECTIVE DATE.
Public Hearings will be conducted to consider the amendments as follows:
Flagler Beach City Commission: Thursday, January 09, 2024 @ 5:30 p.m. or soon thereafter
The public hearings may be continued to a future date or dates. The times and dates of any continuances of a public hearing shall be announced during the public hearing without any further published notice. The request will be heard at 5:30 PM, or as soon thereafter as possible, in the City Commission Chambers located at 105 South Second Street, Flagler Beach, Florida. If a person decides to appeal any decision made with respect to any matter considered at the above referenced hearings, he/she will need a record of the proceedings. For such purposes, it may be necessary to ensure that a verbatim record of the proceedings is made, which record includes the testimony and evidence upon which the appeal is to be based. In accordance with the Americans with Disabilities Act, persons needing assistance to participate in any of these proceedings should contact the City Clerk's Office at 386-517-2000 Ext. 233 at least 48 hours prior to the meeting.
L#10862680 December 18, 2024, 2T

Received
DEC 23 2024
City of Flagler Beach

City of Flagler Beach

800 South Daytona Avenue
Flagler Beach, Florida 32136
Phone 386-517-2000 Ext. 257

To: City Commission

From: Lupita McClenning, City Planner

Date: January 2, 2025

RE: Legacy Pointe Cottages Final Site Plan Approval

Project: Legacy Pointe Cottages
Address: 2401 Leslie Street., Flagler Beach, FL
Parcel ID: 11-12-31-0650-000D0-0050
Area: 137,812.959 SQFT.

Parcel Description

Property:	3.16 acres vacant, undeveloped land
FLUM Map Designation:	Medium Density Residential (MDR)
Zoning Map Designation:	General Commercial (GC)

Existing Conditions:

- 3.16-acres vacant, wooded parcel.
- Located at termination of Leslie and Joyce Streets, west of John Anderson Highway.
- **Access to property is provided via Leslie Street, a paved road; and a secondary ingress/egress via Joyce Street, an unpaved/unimproved road.**

Surrounding Properties

- North: 1.20 acres undeveloped land
- South: Developed zoned Medium Density Residential (MDR).
- East: Developed zoned Single-Family Residential (SFR-1).
- West: Developed zoned Highway Commercial (HC).

As a follow up to the Conceptual Review and Planning and Architectural Review consideration to move forward with a final site plan that reflects the installation of all required improvements and, in a manner, consistent with standards of the City's Code the applicant submitted the technical requirements for a major site plan including stormwater management, utilities, lighting, sidewalks, landscaping plans, demonstrating compliance with road ingress/egress, right-of-way improvements for Joyce St., traffic generation LOS and/or improvements and concurrency requirements in accordance with 9J-5.

The Staff Report includes overview of submittal requirements for a major site plan including minimum site improvements; project and parcel description; Future Land Use and Zoning Category; permitted

uses; existing conditions; surrounding properties; lot dimensions; minimum square footage requirements; subdivision improvements; site planning design principals including: stormwater, utilities, parking, landscaping, lighting, sidewalks, roadway improvements, and relevant goals and policies from the Comprehensive Plan.

Project Description

- 22 buildings / total of 17,248 SQFT
- Multi-family units – 2-bedroom 1 bath
- 25’ x 32’4” x 8’
- 784 SQFT.
- 1.096 acres impervious surface
- Access: Leslie Street; exit Joyce St.
- Parking: 44 spaces

Submittal Package

- Application Fee
- Survey
- Application/Development Checklist
- Site Plan Drawings- Landscape and Architectural (2) 24x36 and (1) 11x17
- Warranty Deed
- Stormwater Report
- Geotechnical Report
- Traffic Statement
- Building Elevations
- Water, Sewer, Paving, and Drainage Plan
- Landscape Plan
- Site Lighting Plan
- Preliminary Signage Plan

Survey

The survey is based on current title work and reflects angles, bearings, utility poles, catch basins, manholes, fire hydrants, water and sewer lines. The survey includes natural features, location of buildings, intersections, sidewalks, driveways, curbs and streets, internal streets and width, abutting and internal streets and width, and a tree survey showing location of existing trees. See

Surrounding Land Use and Properties

- North: 1.20 acres undeveloped land
- South: Developed zoned Medium Density Residential (MDR).
- East: Developed zoned Single-Family Residential (SFR-1).
- West: Developed zoned Highway Commercial (HC).

Building Elevations

The submittal includes the building elevations drawn for all sides, height measured from grade to top of roof, building materials and finishes for exterior surfaces and including roofs. *See Site Plan A-01 through A-06.*

Water, Wastewater, Stormwater and Utilities

- Stormwater retention provided by interconnected dry retention pond exfiltration trench system.
- Potable water provided by 6" water main extension
- Fire protection provided by three (3) fire hydrants
- Sanitary Sewer provided by 8" gravity main extension
- Irrigation provided by private well system

Paving and Drainage

The submittal includes water, sewer, paving and drainage plans and calculation for the parking lot, driveways, and other paved and unpaved areas including the direction of drainage. On-site drainage provisions, location of elevation swales and water and sewer availability.

Landscaping and Lighting Plan

The submittal includes signed and sealed landscaping plans, location, size and species, irrigation system, and proposed exterior lighting.

Trees, Landscaping, Environmental

The site has 83 total existing trees including the following specimen trees:

- cedar, cherry, elm, hackberry, magnolia, oak, and sweet gum trees.

Per Section 02.06.09 (4) (A) if a tree is located in a buildable area, street or parking area where a structure or improvement is to be placed, or within the area necessary to provide utility service to the lot meets any of the following criteria, a tree removal permit shall be issued.

Listed Species and Plant Report

The project site consists of upland hardwood forests, a burrow pit, and a ditch system. The project boundaries were assessed for the potential of flora and fauna listed as threatened or endangered by the US Fish and Wildlife Service (USFWS), Florida Fish and Wildlife Conservation Commission (FWC), and the Florida Department of Agriculture (FDA).

There is one protected species, *coontie* found on the project site. There is no state or agency requirement to relocate or mitigate for protected plants, nor a statutory prohibition against property owners harvesting a threatened plant from his/her property.

The USFWs must be notified at least 30 days prior to any land clearing with protection/education plan concerning eastern indigo snakes.

Transportation /Trip Generation

- Total project generated trip to external roadway is 146 Daily Trips
  - 11AM (2-in; 9 out; and 0 pass-by)
  - 14 PM Peak hours (9 in, 5 out and 0 pass by)

Daily trips do not exceed 500 daily trips and considered minimal impact to John Anderson Highway, SR 100, A1A and surrounding local road network.

Trip Generation 11 AM

- SR 100 (in bound): 1 east bound and 1 west bound to John Anderson Dr.
- SR 100 (out bound) 5 east bound and 4 wet bound from John Anderson Dr.

Peak Hour 7:00 am – 9:00 am trips will not impact the adopted level of service of John Anderson Dr. SR 100, A1A as max trips in any direction are less than 20.

Trip Generation 14 PM

- SR 100 (in bound) 6 east bound and 3 west bound to John Anderson Dr.
- SR 100 (out bound) 3 east bound and 2 west bound from John Anderson Dr.

Peak Hour 4:00 – 6:00 pm trips will not impact the adopted level of service of John Anderson Dr., SR 100, A1A as max trips in any direction are less than 20.

School Concurrency

The applicant submitted a letter of School Capacity Reservation with Flagler County School Board to evaluate the impact of students generated from the multi-family development. A capacity analysis was developed with an overview of the requirement to enter into a proportionate mitigation agreement.

Findings and Recommendation

Per the technical review of the Legacy Pointe Final Site Plan, the City's Engineering and Planning staff recommend that the Planning and Architectural Review Board (PARB) forward to the City Commission to recommend approval of the Final Site Plan with the following condition:

Improve Joyce Street to the 50' wide per standard R-2 of City of Flagler Beach standard drawings as noted on page 20 of the applicants Final Site Plan Submittal.

Joyce Street is unimproved, dirt road. The project requires receiving stormwater and water utilities within the right of way. Joyce St. currently has a 40' right of way width and not in compliance with city standards. Joyce Street will be receiving stormwater and water utilities within the right of way. The minimum width will be required to be 50' wide per standard R-2 of Flagler Beach's standard drawings. This may be accomplished by obtaining 10' of utility easements along Joyce Street, either 5' on each side of Joyce Street, or 10' on one side of Joyce St.; and be continuous from John Anderson Rd. to the eastern property line of Legacy Pointe Apts.

ATTACHEMENTS

- Renderings
- Aerial
- FLUM
- Zoning
- Staff Report – Conceptual Site Plan Review
- Application
- Site Plan

RENDERINGS

AERIAL

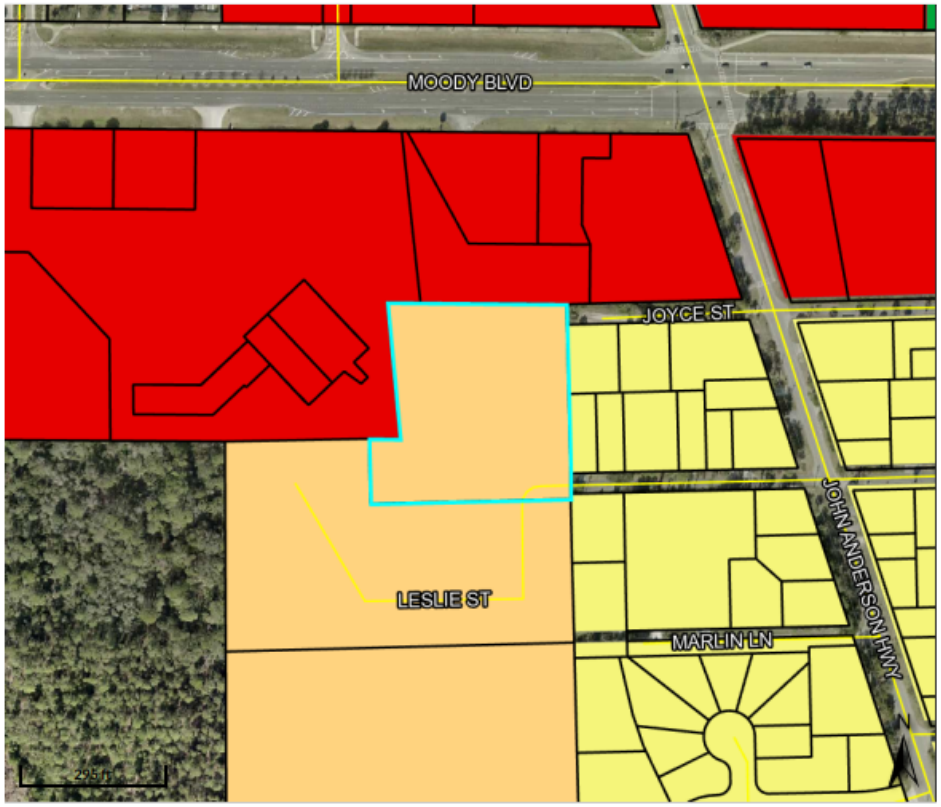
FLAGLER COUNTY PROPERTY APPRAISER

Legend
- Parcels
- Roads
- Streams and Rivers

Parcel ID	11-12-31-0650-000D0-0050	**Owner**	ALT HOMES LLC 39 AUDUBON LANE FLAGLER BEACH, FL 32136	**Land Value**	$393,970	**Last 2 Sales**			
Prop ID	78097			**Ag Land Value**	$0	**Date**	**Price**	**Reason**	**Qual**
Class Code	VACANT COMMERCIAL					11/22/2021	$425000	I	Q
Taxing District	21	**Physical Address**	2401 LESLIE ST	**Building Value**	$0	12/27/2018	$240000	V	U
GIS sqft	137,812.959			**Misc Value**	$0	**MLS** #MISSING#			
				Just Value	$393,970				
				Assessed Value	$306,613				
				Exempt Value	$0				
				Taxable Value	$306,613				

FLUM

FLAGLER COUNTY PROPERTY APPRAISER



Legend

- Parcels
- Roads
- Streams and Rivers

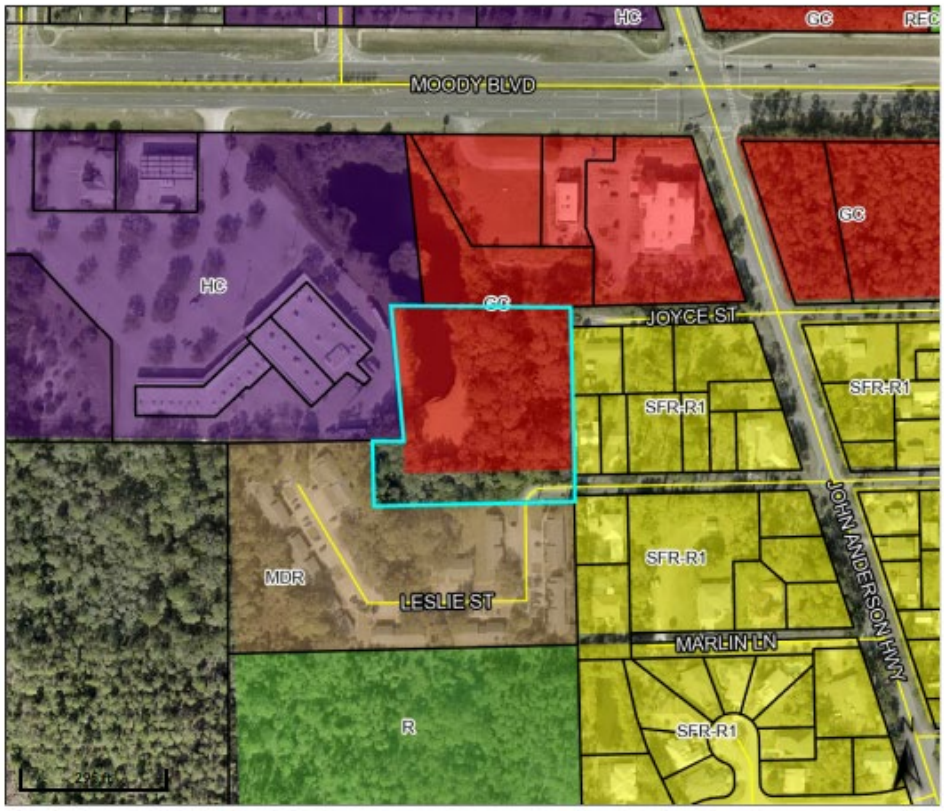
Flagler Beach FLUM

- Commercial
- Golf Course
- High Density
- Low Density
- Medium Density
- Mixed Use Overlay
- Mobile Home Park
- Other Public Facilities
- Park
- Public Buildings & Grounds
- Salt Water Marsh
- Spoil Area
- Undefined

Parcel ID	11-12-31-0650-000D0-0050	**Owner**	ALT HOMES LLC 39 AUDUBON LANE FLAGLER BEACH, FL 32136	**Land Value**	$393,970	**Last 2 Sales**			
Prop ID	78097			**Ag Land Value**	$0	**Date**	**Price**	**Reason**	**Qual**
Class Code	VACANT COMMERCIAL					11/22/2021	$425000	I	Q
Taxing District	21	**Physical Address**	2401 LESLIE ST	**Building Value**	$0	12/27/2018	$240000	V	U
GIS sqft	137,812.959			**Misc Value**	$0	**MLS** #MISSING#			
				Just Value	$393,970				
				Assessed Value	$306,613				
				Exempt Value	$0				
				Taxable Value	$306,613				

ZONING

FLAGLER COUNTY PROPERTY APPRAISER



Legend

- Parcels
- Roads
- Streams and Rivers

Flagler Beach Zoning

- C- CONSERVATION
- CLOSED STREETS
- GC- GENERAL COMMERICAL
- HIGHWAY COMMERICAL
- LDR- LOW DENSITY
- LI- LIGHT INDUSTRIAL
- MDR- MEDIUM DENSITY RESIDENTIAL
- MIRROR LAKE WATERSHED DISTRICT (R1)
- P- PRESERVATION
- PUD- PLANNED UNIT DEVELOPMENT
- R- RESERVED
- REC- RECREATION
- REC/PUD- RECEATION/PUD
- SFR- SINGLE FAMILY RESIDENTIAL (R1)
- SFR- SINGLE FAMILY RESIDENTIAL (R4)
- TC- TOURIST COMMERICAL

NEWKIRK ENGINEERING, INC.
CIVIL ENGINEERING - TRANSPORTATION - CEI - LANDSCAPE ARCHITECTURE
1230 N US HWY 1, SUITE 3, ORMOND BEACH, FLORIDA 32174 386-872-7794

October 28, 2024

Lupita McClenning, City Planner
Planning
Flagler Beach
800 S. Daytona Avenue
Flagler Beach, FL 32136
(386) 517-2000

Re: Legacy Pointe Cottages
Site Plan Submittal

Dear Ms. McClenning:

Please find enclosed a Site Plan Review Application for the above referenced project:

- Application Fee of $1,535
- (2) Sets of Site Plan Drawings with Landscape and Architectural (24x36)
- (1) Set of Site Plan Drawings with Landscape and Architectural (11x17)
- (1) Site Plan Application
- (1) Site Development Checklist
- (1) Warranty Deed
- (1) Stormwater Report
- (1) Geotechnical Report
- (1) Traffic Statement

The Applicant, ALT Homes LLC, proposes a 22-unit multi-family project. The site consists of 3.159 acres with 1.096 acres of impervious surface. Access to the site is from Leslie Street with exit on Joyce Street. Joyce Street right-of-way will be improved with pavement and curbing from John Anderson Highway to the project site. The site requires 44 parking spaces and 44 spaces are provided. Stormwater retention will be provided by interconnected dry retention pond and exfiltration trench system. Potable water is provided by 6-inch water main extension. Fire protection is provided by three (3) proposed fire hydrants. Sanitary sewer will be provided by 8-inch gravity main extension. Irrigation is provided by private well system.

If you have any questions or need additional information, please feel free to call or email me at Harry@Newkirk-Engineering.com.

Sincerely,

Digitally signed by Harry Newkirk
DN: C=US, E=harry@newkirk-engineering.com, O=Newkirk Engineering, CN=Harry Newkirk, OU=PE 62971
Date: 2024.10.28 09:53:37-04'00'

Harry Newkirk

Harry Newkirk, PE # 62971
President/CEO of Newkirk Engineering, Inc.

City of Flagler Beach
PO Box 70 - 105 South 2nd Street
Flagler Beach, Florida 32136
Phone (386) 517-2000 Fax (386) 517-2016

FINAL SITE PLAN

APPLICATION

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Project Description	5 - 6
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Site Plan Review Checklist	9 - 12

SITE PLAN REVIEW SUBMITTAL REQUIREMENTS

Note:

- *A Pre-submittal meeting is required ith City Staff.*
- Application for Site Plan requires appointment with Planning and Zoning Director prior to meeting cut off date. Please call (386) 517-2000 ext. 230
- Application will **not** be accepted unless all required documents are completed.

Required Documents:

- Twelve (12) sets of all required documents.
- Site Plan Application
- Application Fee (payable to the City of Flagler Beach)
- Warranty Deed
- Survey
- Surrounding Land Use
- Location Map
- Site Plan
- Building Elevations
- Landscape Plan
- Lighting Plan
- Water, Sewer, Paving and Drainage Plan

SPR#: _____ DATE FILED: _____

FINAL SITE PLAN APPLICATION

PROJECT TITLE: Legacy Pointe Cottages

PROJECT ADDRESS: 2401 Leslie Street, Flagler Beach

Subdivision: _____ Block: 00D0 Lot(s): 0050

TAX MAP NUMBER: 11-12-31-0650-0050 **ZONING DISTRICT:** GC

OWNERS INFORMATION:

OWNERS NAME: ALT Homes, LLC ; TJ McNitt, Manager
ADDRESS: 3371 N State Street, Unit 1 Bunnell, FL 32110
PHONE NUMBER: 386-356-0020 & 904-710-2397 FAX NUMBER: _____

SIGNATURE OF OWNER: _____

APPLICANTS INFORMATION:

APPLICANTS NAME (IF OTHER THAN OWNER): _____
ADDRESS: _____
PHONE NUMBER: _____ FAX NUMBER: _____

SIGNATURE OF APPLICANT: _____

REPRESENTATIVE:

NAME: Katie Crooke
ADDRESS: 3371 N State Street, Unit 1 Bunnell, FL 32110
PHONE NUMBER: 386-356-0020 & 904-710-2397 FAX NUMBER: _____

SIGNATURE OF REPRESENTATIVE: _____

PROPERTY OWNER AUTHORIZATION

*FOR USE WHEN APPLICANT IS **NOT** THE OWNER OF SUBJECT PROPERTY:*

Property Address: _____
_____

Parcel ID: _____

This is to certify that I am the owner of the subject property described above and that I authorize: (PRINT NAME) _____ to make and file the aforesaid application for site plan review.

OWNER'S SIGNATURE: _____
PRINT OWNER'S NAME: _____

Sworn to and subscribed before me this _____day of _____, 20_____.
Personally known to me or produced identification: _____(type)
Notary Public: _____My commission expires: _____

Notary Seal

FINAL SITE PLAN

General Information

A. Pre-Submittal Meeting:

It is recommended that the applicant meet with City Staff once it has been determined that Final Site Plan Application is required. Staff will meet with the applicant to discuss any questions regarding plan proposals, City processes, deposits, fees, and requirements listed on the Final Site Plan Application Checklist.

B. Site Plan Submittal:

Once the application is submitted, City Staff will review the application for completeness. Unless otherwise determined, all items on the checklist must be completed prior to scheduling for a formal hearing date.

C. Site Plan Processing and Review:

City Staff may forward your plans to other review agencies as deemed necessary. The timeframe for other agency review may require approximately three weeks to complete. Upon receipt of other agency review, City Staff will contact the applicant to resolve any outstanding issues. A document will be prepared and forwarded to the applicant indicating the requirements and conditions of approval for the project. The correspondence will include comments from the respective agency involved in the review of the project plans.

D. Receipt/Review of Comments by Applicant:

It is recommended the applicant and/or his representative(s), contact city Staff to discuss any issues requiring modification or meeting code compliance standards. City Staff can facilitate a meeting(s) between the applicant(s) and participating agencies to clarify outstanding issues.

E. Application Hearing Process

Once all Final Site Plan application issues have been resolved and the application is deemed acceptable by City Staff, the application will be scheduled for the next timetabled Planning and Architectural Review Board (PARB) hearing.

The PARB is an advisory board that reports directly to the City Commission. The Board is comprised of City of Flagler Beach residents appointed by the City Commission. The Board's responsibility upon hearing all facts is to provide to the City Commission a recommendation of approval, denial, or an approval with conditions. The Board may also table an application an application for just cause.

FINAL SITE PLAN

PROJECT DESCRIPTION

PRINT OR TYPE INFORMATION

A. Provide a detailed description of the proposed project:
22 Coastal cottages that will be long term rentals. All units will be 2 bedroom and 1 bathroom.

B. Provide the lot size (parcel) and square footage of all building(s):
Lot size = 3.159 acres. All buildings = 17,248 sf

C. Provide the size, height and proposed use of each building:
Size = 784 sf. Height = 1-story, 14.25 feet peak roof

D. Provide a detailed description of the following:

Exterior finish and color: Combination of coastal colors. Finishes = lap siding, stucco, board & batten
Roof material and color: Shingles. Dark color

E. Indicate the project floor area ratio or lot coverage (if applicable):
0.125 or 12.5%

F. Provide the total number of:

Required on-site parking spaces: 44
Proposed on-site parking spaces: 44
Required on-site Handicapped parking spaces: 2
Proposed on-site Handicapped Parking spaces: 2

G. Any off-site parking spaces proposed? If yes, describe number, location, and distance from proposed project location:
N/A

H. Will project be accomplished in phases? If Yes, describe phasing plans an timeframe:

No

I. Describe the nature of any tree and native vegetation removal, if applicable:

Site shall be cleared and grubbed of all vegetation and debris within construction limits.

Debris removed to landfill. Trees may be logged or mulched for off site disposal.

J. If a Commercial use, describe the operational characteristics of the development (proposed hours of operation, any unique characteristics of the proposed use.

N/A

K. Provide other pertinent information regarding the proposed development:

N/A

Site Plan Review

EXISTING CONDITIONS

A. Describe all previous uses or activities on the site:

Vacant land.

B. Describe all existing structures on the site in terms of their use, construction type, height, density, and size:

No existing structures.

C. Describe the project site as it presently exists before the project in terms of:

- Site topography:

  EL 11.5 to EL 6.0. Site drains to existing stormwater pond.

- Plant life (existing trees, vegetative cover):

  Cedar, cherry, elm, hackberry, magnolia, maple, oak and sweet gum trees.

  83 existing trees total. 60 to be removed and 23 to be saved.

- Soil conditions:

  Myakka-Myakka, wet fine sands.

- Historic or cultural resources (if applicable):

  N/A

D. Describe the land use and zoning of surrounding properties within 200 feet of project location:

North:
Zoned GC - Consisting of vacant land & commercial businesses.

South:
Zoned MDR - Flagler Beach Villas

East:
Zoned SFR - Single Family Homes

West:
Zoned HC - Store fronts and gas station

FINAL SITE PLAN APPLICATION CHECKLIST

Note: All plans submitted with the application must be folded and stapled to standard notebook size.

1. SURVEY

The survey shall be based on current title work and shall be reflected as such on the survey. The following information is required:

- ☑ Angles and bearings, including utility poles catch basins, manholes, fire hydrants and water, sewer lines.
- ☑ Natural features (topography: existing and proposed contours and/or spot grades).
- ☑ The location of buildings, including the location & size of berms & walls.
- ☑ Location of light poles & fire hydrants.
- ☑ Location of underground facilities.
- ☑ Location of intersections, sidewalks, driveway, curbs and streets.
- ☑ Abutting and internal streets and their widths
- ☑ Easements and/or dedications with O.R. Books and Page Number provided.
- ☐ If site has wetlands, provide applicable permits from outside permitting agencies. Indicate wetlands jurisdiction line and required buffer.
- ☑ Provide a tree survey showing location of existing trees. Overlay all existing trees on the site plan.

2. SURROUNDING LAND USE

The following information is required on an aerial photograph of property within 200 ft. of the subject property.

- ☑ Identification of land use and zoning.

3. LOCATION MAP

Provide on the cover sheet.

4. SITE PLAN

The following information is required on the site plan:

Note: Drawn to a regular engineering scale (i.e. 1 inch = 10 feet, 1 inch = 20 feet but no larger than 1 inch = 40 feet) and plotted on a sheet no larger than 24 by 36 inches in size.

- [x] Parcel boundaries and dimensions.
- [x] Title Block:
  1. Development's name
  2. Site address
  3. Scale
  4. North arrow
  5. Legend
  6. Site Acreage
  7. Name and address of the Developer and the designer of the plans.
  8. Date
  9. Legal Description of subject property.

Building footprints.
Dimensions for **all** proposed improvements.

- [x] Street improvements (curb, lane striping, sidewalks, fire hydrants, street lights, etc.).
- [x] Dedicated rights of ways and street names.
- [x] Pedestrian Facilities. ☐ ☐ ☐ ☐
- [x] Points of access in driveways.
- [x] Parking lots, including circulation patterns.
- [x] Walls, fences and retaining walls, including height and materials (on and adjacent to site).
- [x] Dumpster enclosures, including height and screening materials.
- [x] Drainage facilities (on an adjacent to site).
- [x] Minimum setback lines.
- [x] Dimensions between building(s) and all perimeter uses.
- [x] Open space and parks (if applicable).
- [x] Phase lines if the development will be built in stages.
- [x] Site Plan Summary to include:
  - Total site area
  - Indicate pervious/impervious land coverage
  - Required vs. proposed parking spaces

5. BUILDING ELEVATIONS

Building elevations must be drawn for all sides of the building to an architectural scale (1/4 inch = 1 foot is preferred).

- [x] The height of the building is measured from grade to the top of the roof for a flat roof, or from grade to the mean height between the eave and the ridge for pitched roofs.
- [x] Elevations for all sides of all structures as they will appear upon completion.
- [x] Building materials and finishes for all exterior surfaces, including roofs.
- [x] Color of all exterior surfaces, including roofs.

6. **WATER, SEWER, PAVING AND DRAINAGE PLANS**
Water, sewer, paving and drainage plans and calculations for all parking lots, driveways, and other large paved and unpaved area, and the direction of drainage.

- ☑ On-site drainage provisions.
- ☑ Delineate retention facilities and disposition of storm water.
- ☑ Delineate the direction of drainage flow.
- ☑ Location and finished elevation of swales.
- ☑ Location of manholes, swales and catch basins.
- ☑ Provide written approval from the St. Johns Water Management District (if applicable).
- ☑ Water and sewer availability (application form provided).

7. **LANDSCAPE PLAN**
Landscape plans must be drawn to the same scale as the site plan. For simple site plans, the landscape plan can be made part of the site plan. All landscape plans must include or show the following information:

- ☑ Signed and sealed landscape plans, including detail and specifications on plant material.
- ☑ The location, size and species of all proposed plantings.
- ☑ Existing trees which are being used to offset landscape requirements.
- ☑ Groundcover for all landscaped or disturbed areas.
- ☑ Landscaping calculations for parking areas per code.
- ☑ Irrigation system, including lines.
- ☑ If applicable, retaining walls with landscape treatment.
- ☑ Buffer areas and specific landscape treatment.
- ☑ Indicate any overhead power lines.
- ☑ Lift stations, dumpsters, and transformer vaults with landscape treatments.

8. **SITE LIGHTING PLAN**
All lighting plans must include or show the following information:

- ☑ The location of all existing and proposed exterior light fixtures (can be included on the landscape plan).

9. **PRELIMINARY SIGNAGE PLAN**
All preliminary signage plans must include or show the following information:

- ☑ The location of all existing and proposed signage (can be included on the site plan and/or landscape plan).

☐ Drawings showing the size, copy, materials, illumination, and general design/layout of all proposed signs.

10. OTHER DESIGN FEATURES (IF APPLICABLE)

☐ Awnings (material, design and color).
☐ Address, directory signs.
☐ Walkway treatment or pavers.
☐ Other _____

NEWKIRK ENGINEERING, INC.
CIVIL ENGINEERING - TRANSPORTATION - CEI - LANDSCAPE ARCHITECTURE
1230 N US HWY 1, SUITE 3, ORMOND BEACH, FLORIDA 32174 386-872-7794

December 19, 2024

Lupita McClenning, City Planner
Planning
Flagler Beach
800 S. Daytona Avenue
Flagler Beach, FL 32136
(386) 517-2000

Re: Legacy Pointe Cottages - Site Plan Resubmittal

Dear Ms. McClenning:

Please find enclosed a Site Plan Review Application for the above referenced project:

- (2) Sets of Site Plan Drawings with Landscape and Architectural (24x36)
- (1) Set of Site Plan Drawings with Landscape and Architectural (11x17)
- Thumb Drive of Entire Submittal

In addition, the following comments are in response to PAR comments:

1. Review and ensure 2 additional fire hydrants on plans; need to make sure the one on the entrance is on the west side of property as Fire Department is concerned that if needed, it could be blocked. **Response: The project provides three (3) proposed fire hydrants. The fire hydrant at the entrance was relocated to the west side per comment. All fire hydrants will have Blue RPM within pavement for location identification.**
2. Add centrally located community mailbox. **Response: Community mailbox added to center of community. See revised site plan, Sheet 7.**
3. Steet speed limit signs are to go to 20 mph from 25 mph. **Response: Speed limit signs revised to 20 mph. See Sheet 7.**
4. Add 2 stop signs – one at entrance for residents to go left or right depending on which community and one exiting Legacy Cottages. **Response: Two (2) stop signs added to the revised site plan, Sheet 7.**
5. Site plan clarification – does not show fence all way around waters edge; had been noted and shown previously – needs to go around, especially near community play/game areas. **Response: Fence revised to be all the way around and to match. See revised site plan, Sheet 7.**
6. Ensure landscape and civil match and show fence all the way. **Response: Fence revised to be all the way around and to match. See revised site plan, Sheet 7.**
7. Keep façade/elevations different as shared. **Response: Acknowledged and agreed.**

If you have any questions or need additional information, please feel free to call or email me at Harry@Newkirk-Engineering.com.

Sincerely,

Harry Newkirk
Digitally signed by Harry Newkirk
DN: C=US, E=harry@newkirk-engineering.com, O=Newkirk Engineering Inc, OU=PE 62971, CN=Harry Newkirk
Date: 2024.12.19 09:50:51-05'00'

Harry Newkirk, PE # 62971
President/CEO of Newkirk Engineering, Inc.

	INDEX OF SHEETS
DWG.NO.	DESCRIPTION
1	COVER
SU-1 & SU-2	BOUNDARY AND TOPOGRAPHIC SURVEY
3	DEVELOPMENT INFORMATION
4	DEMOLITION, TREE REMOVAL AND SWPPP PLAN
5	SWPPP DETAILS AND NOTES
6	SWPPP DETAILS AND NOTES
7	SITE LAYOUT PLAN
8	DRAINAGE PLAN
9	DRAINAGE DETAILS
10	DRAINAGE DETAILS
11	CULTEC OPERATION AND MAINTENANCE
12	GRADING PLAN
13	CROSS SECTIONS
14	CROSS SECTIONS
15	UTILITY PLAN
16	PLAN AND PROFILE
17	PLAN AND PROFILE
18	PLAN AND PROFILE
19	UTILITY DETAILS AND NOTES
20	CITY OF FLAGLER BEACH UTILITY DETAILS
21	CITY OF FLAGLER BEACH UTILITY DETAILS
22	CITY OF FLAGLER BEACH UTILITY DETAILS
23	CITY OF FLAGLER BEACH UTILITY DETAILS
24	MISCELLANEOUS DETAILS AND NOTES
25	FDOT DETAILS
26	MAINTENANCE OF TRAFFIC
27	AUTOTURN TRUCK PLAN
28	EASEMENT PLAN
29	PHOTOMETRIC PLAN
30	PHOTOMETRIC DETAILS
31	TREE PROTECTION DETAILS
32	TREE REPLACEMENT PLAN
33	SURFACE WATER / WETLAND IMPACT PLAN
L1	LANDSCAPE DESIGN
IRR-01	IRRIGATION PLAN
IRR-02	IRRIGATION DETAILS
IRR-03	INSTALLATION DETAILS
A-01	BUILDING ELEVATION TYPES
A-02	BUILDING ELEVATION "A"
A-03	BUILDING ELEVATION "B"
A-04	BUILDING ELEVATION "C"
A-05	BUILDING ELEVATION "D"
A-06	DUMPSTER ENCLOSURE

LEGAL DESCRIPTION

DESCRIPTION: PARCEL 1:
A PARCEL OF LAND LYING SOUTH OF STATE ROAD 100 WITHIN GOVERNMENT SECTION 11, TOWNSHIP 12 SOUTH, RANGE 31 EAST, FLAGLER COUNTY, FLORIDA, BEING MORE PARTICULARLY DESCRIBED AS FOLLOWS:
A POINT OF BEGINNING BEING THE NORTHWEST COMER OF THE SOUTH HALF (1/2) OF TRACT 4, BLOCK D, ACCORDING TO THE PLAT BUNNELL DEVELOPMENT COMPANY, RECORDED IN MAP BOOK 1, PAGE 1, OF THE PUBLIC RECORDS OF FLAGLER COUNTY, FLORIDA, SAID NORTHWEST COMER BEING THE NORTHWEST COMER OF HILLCREST UNRECORDED SUBDIVISION, THENCE SOUTH 01° 20' 27" EAST ALONG THE WEST LINE OF TRACT 4, BLOCK D, A DISTANCE OF 320.00 FEET, THENCE DEPARTING TRACT 4, BLOCK D, SOUTH 88° 39' 33" WEST A DISTANCE OF 331.10 FEET, THENCE NORTH 01° 20' 27" WEST A DISTANCE OF 64.70 FEET TO A POINT ON THE BOUNDARY OF LANDS RECORDED IN OFFICIAL RECORDS BOOK 244, PAGE 576 THROUGH 578, THENCE NORTH 05° 21' 24" WEST A DISTANCE OF 267.29 FEET, THENCE SOUTH 89° 29' 02" EAST ALONG THE SOUTH LINE OF SAID LANDS RECORDED IN OFFICIAL RECORDS BOOK 244, PAGES 576 THROUGH 578, A DISTANCE OF 350.00 FEET TO THE POINT OF BEGINNING, PARCEL CONTAINING 2.5303 ACRES MORE OR LESS.
TOGETHER WITH,
PARCEL 2:
A PARCEL OF LAND LYING SOUTH OF STATE ROAD 100 WITHIN GOVERNMENT SECTION 11, TOWNSHIP 12 SOUTH, RANGE 31 EAST, FLAGLER COUNTY, FLORIDA, BEING MORE PARTICULARLY DESCRIBED AS FOLLOWS:
A POINT OF REFERENCE BEING THE NORTHWEST CORNER OF THE SOUTH HALF (1/2) OF TRACT 4, BLOCK D, ACCORDING TO THE PLAT BUNNELL DEVELOPMENT COMPANY, RECORDED IN MAP BOOK 1, PAGE 1, OF THE PUBLIC RECORDS OF FLAGLER COUNTY, FLORIDA, SAID NORTHWEST COMER BEING THE NORTHWEST COMER OF HILLCREST UNRECORDED SUBDIVISION, THENCE SOUTH 01° 20' 27" EAST ALONG THE WEST LINE OF TRACT 4, BLOCK D, A DISTANCE OF 320.00 FEET TO THE POINT OF BEGINNING OF THIS DESCRIPTION, THENCE CONTINUE SOUTH 01° 20' 27" EAST A DISTANCE OF 60.00 FEET, THENCE DEPARTING TRACT 4, BLOCK D, SOUTH 88° 39' 33" WEST A DISTANCE OF 391.10 FEET, THENCE NORTH 01° 20' 27" WEST A DISTANCE OF 126.65 FEET TO A POINT ON THE BOUNDARY OF LANDS RECORDED IN OFFICIAL
RECORDS BOOK 244, PAGE 576 THROUGH 578, THENCE SOUTH 89° 29' 02" EAST ALONG THE SOUTH BOUNDARY LINE OF SAID LANDS RECORDED IN OFFICIAL RECORDS BOOK 244, PAGES 576 THROUGH 578, A DISTANCE OF 60.03 FEET, THENCE DEPARTING SAID BOUNDARY SOUTH 01° 20' 27" EAST A DISTANCE OF 64.70 FEET, THENCE NORTH 88° 39' 33" EAST A DISTANCE OF 331.10 FEET TO THE POINT OF BEGINNING, PARCEL CONTAINING 0.6292 ACRES MORE OR LESS.
PARCEL 2, SUBJECT TO AN EXISTING EASEMENT FOR ACCESS AND UTILITIES.
PARCELS 1 AND 2 CONTAINING 3.1595 ACRES MORE OR LESS.

JURISDICTIONAL AGENCY PERMIT No.

CITY OF FLAGLER BEACH (DEVELOPMENT ORDER)	SP#23-04-01
SJRWMD (STORMWATER)	199375-1
FDEP (WATER)	.
FDEP (WASTEWATER)	.
FDEP (NPDES NOI)	FLR

THE GENERAL CONTRACTOR SHALL ENSURE THAT ANY SUBCONTRACTOR HAS A COMPLETE SET OF CONSTRUCTION DRAWINGS FOR ITS RESPECTIVE WORK. THE ENGINEER ASSUMES NO RESPONSIBILITY FOR SUBCONTRACTORS ONLY UTILIZING INDIVIDUAL DRAWINGS FOR ITS WORK WHERE ADDITIONAL INFORMATION MAY BE CONTAINED ON OTHER DRAWINGS WITHIN THE SET.

THESE DRAWINGS ARE THE PROPERTY OF NEWKIRK ENGINEERING, INC. ANY USE OR REPRODUCTION IN WHOLE OR PART IS PROHIBITED WITHOUT THE EXPRESSED WRITTEN CONSENT OF NEWKIRK ENGINEERING, INC. COPYRIGHT 2013 ALL RIGHTS RESERVED.

SITE PLAN DRAWINGS FOR

LEGACY POINTE COTTAGES

SECTION 11, TOWNSHIP 12 S, RANGE 31 E
11-12-31-0650-000D0-0050
LESLIE STREET
FLAGLER BEACH, FL 32136

OCTOBER 2024
REVISED DECEMBER 2024

PROJECT TEAM

PROPERTY OWNER / APPLICANT: ALT HOMES LLC
39 AUDUBON LANE
FLAGLER BEACH, FL 32136
PHONE: (386) 931-6018
EMAIL: ALTHOMESLLC@GMAIL.COM

ENGINEER/ LANDSCAPE ARCHITECT/ AGENT: NEWKIRK ENGINEERING, INC.
1230 NORTH US1, SUITE 3
ORMOND BEACH, FL 32174
PHONE: (386) 872-7794
EMAIL: HARRY@NEWKIRK-ENGINEERING.COM

ARCHITECT: ROBERT HALL ARCHITECTS, INC.
217 ROBERTS ROAD
NEW SMYRNA BEACH, FL 32169
PHONE: (386) 214-4529
EMAIL: HALLARCHITECTS@RHALLARCH.COM

SURVEYOR: CPH, INC.
520 PALM COAST PARKWAY SW
PALM COAST, FL 32137
PHONE: (386) 445-6569

GEOTECHNICAL: UNIVERSAL ENGINEERING SCIENCES
911 BEVILLE ROAD, SUITE 3
SOUTH DAYTONA BEACH, FL 32119
PHONE: (386) 756-1105
EMAIL: BPOHL@UNIVERSALENGINEERING.COM

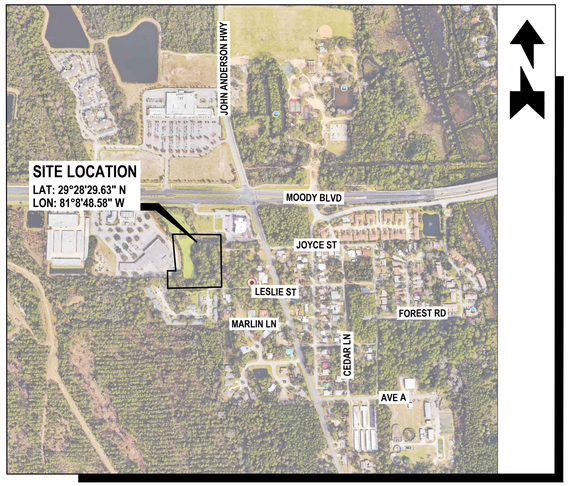
ENVIRONMENTAL: ECOLOGICAL CONSULTING SOLUTIONS, INC.
235 HUNT CLUB BOULEVARD, SUITE 202
LONGWOOD, FL 32779
PHONE: (407) 869-9434
EMAIL: BGRIFFY@ECSFL.CC

CONTACT NUMBERS

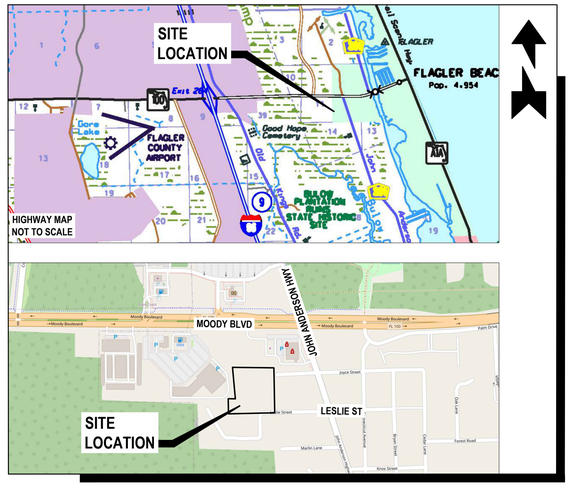
PLANNING DIVISION - CITY OF FLAGLER BEACH (386) 517-2016
BUILDING SERVICES - CITY OF FLAGLER BEACH (386) 517-2016
WATER - CITY OF FLAGLER BEACH UTILITY DEPARTMENT (386) 517-2000
WASTEWATER - FLAGLER BEACH UTILITY DEPARTMENT (386) 517-2000
GAS - TECO PEOPLES GAS - (386) 672-2232
ELECTRIC - FLORIDA POWER & LIGHT (386) 257-7502
TELEPHONE/CABLE - AT&T (386) 254-8550

PROJECT STATEMENT

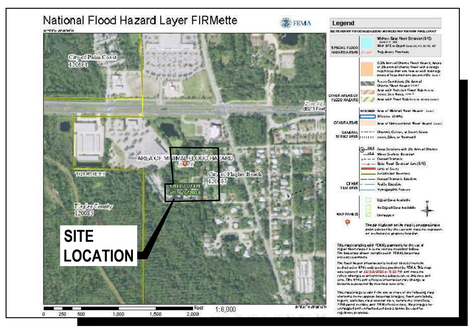
PROPOSE A 22 UNIT, 1-STORY COTTAGE STYLE MULTIFAMILY DEVELOPMENT. THE SITE CONSISTS OF 3.159 ACRES WITH 1.096 ACRES IMPERVIOUS SURFACE.



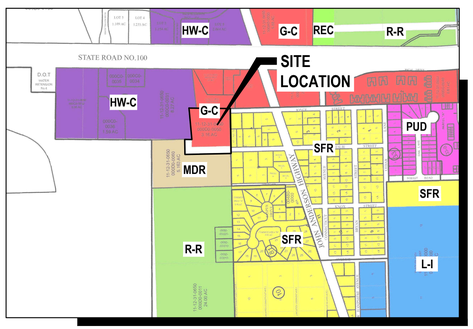
AERIAL MAP
SCALE: 1" = 600'



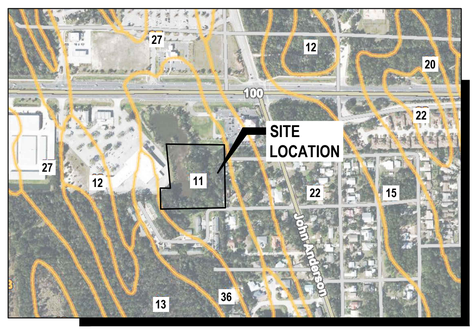
LOCATION MAP
SCALE: 1" = 700'



FLOOD ZONE MAP
SCALE: 1" = 600'
PANEL NO. 12035C0232 E
FLOOD ZONE "X"



ZONING MAP
SCALE: 1" = 700'
PROJECT ZONING DISTRICT:
GC (GENERAL COMMERCIAL)



SOILS MAP
SCALE: 1" = 500'
SOIL TYPES: (11) MYAKKA-MYAKKA, WET, FINE SANDS, 0 TO 2 PERCENT SLOPES

1230 North US1, Suite 3
Ormond Beach, Florida 32174
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C.A. # 30209
L.C. # 26000584
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Civil Engineering, Transportation, CEI & Landscape Architecture
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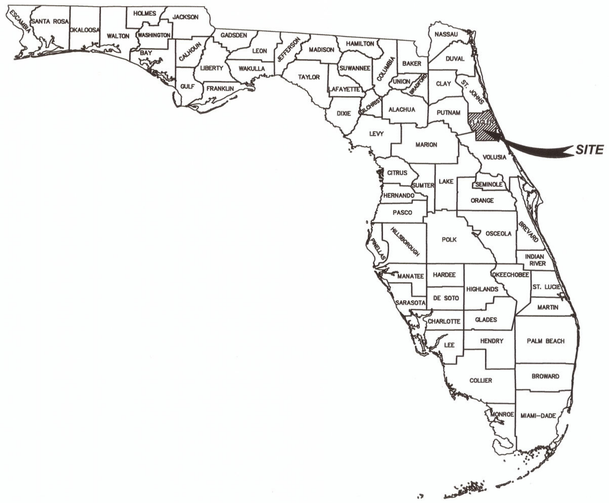
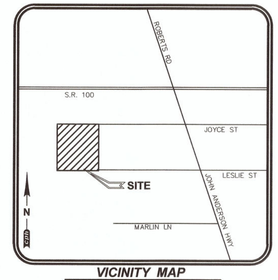
HARRY NEWKIRK LICENSE NO. 62971 STATE OF FLORIDA PROFESSIONAL ENGINEER
HARRY H. NEWKIRK, P.E. # 62971

DRAWING NUMBER
1

PROJECT No. 2023-17



BOUNDARY & TOPOGRAPHIC SURVEY
FOR
ALT HOMES LLC
AT
FLAGLER BEACH
LYING IN
SECTION 11-TOWNSHIP 12 SOUTH-RANGE 31 EAST
FLAGLER COUNTY, FLORIDA



VICINITY MAP
NOT TO SCALE

Legal Description:
(PER ORB 2634, PG 1299, AS PROVIDED BY CLIENT)

DESCRIPTION: PARCEL 1:

A PARCEL OF LAND LYING SOUTH OF STATE ROAD 100 WITHIN GOVERNMENT SECTION 11, TOWNSHIP 12 SOUTH, RANGE 31 EAST, FLAGLER COUNTY, FLORIDA, BEING MORE PARTICULARLY DESCRIBED AS FOLLOWS:

A POINT OF BEGINNING BEING THE NORTHWEST COMER OF THE SOUTH HALF (1/2) OF TRACT 4, BLOCK D, ACCORDING TO THE PLAT BUNNELL DEVELOPMENT COMPANY, RECORDED IN MAP BOOK 1, PAGE 1, OF THE PUBLIC RECORDS OF FLAGLER COUNTY, FLORIDA, SAID NORTHWEST COMER BEING THE NORTHWEST COMER OF HILLCREST UNRECORDED SUBDIVISION, THENCE SOUTH 01° 20' 27" EAST ALONG THE WEST LINE OF TRACT 4, BLOCK D, A DISTANCE OF 320.00 FEET, THENCE DEPARTING TRACT 4, BLOCK D, SOUTH 88° 39' 33" WEST A DISTANCE OF 331.10 FEET, THENCE NORTH 01° 20' 27" WEST A DISTANCE OF 64.70 FEET TO A POINT ON THE BOUNDARY OF LANDS RECORDED IN OFFICIAL RECORDS BOOK 244, PAGE 576 THROUGH 578, THENCE NORTH 05° 21' 24" WEST A DISTANCE OF 267.29 FEET, THENCE SOUTH 89° 29' 02" EAST ALONG THE SOUTH LINE OF SAID LANDS RECORDED IN OFFICIAL RECORDS BOOK 244, PAGES 576 THROUGH 578, A DISTANCE OF 350.00 FEET TO THE POINT OF BEGINNING, PARCEL CONTAINING 2.5303 ACRES MORE OR LESS.

TOGETHER WITH,

PARCEL 2:

A PARCEL OF LAND LYING SOUTH OF STATE ROAD 100 WITHIN GOVERNMENT SECTION 11, TOWNSHIP 12 SOUTH, RANGE 31 EAST, FLAGLER COUNTY, FLORIDA, BEING MORE PARTICULARLY DESCRIBED AS FOLLOWS:

A POINT OF REFERENCE BEING THE NORTHWEST CORNER OF THE SOUTH HALF (1/2) OF TRACT 4, BLOCK D, ACCORDING TO THE PLAT BUNNELL DEVELOPMENT COMPANY, RECORDED IN MAP BOOK 1, PAGE 1, OF THE PUBLIC RECORDS OF FLAGLER COUNTY, FLORIDA, SAID NORTHWEST COMER BEING THE NORTHWEST COMER OF HILLCREST UNRECORDED SUBDIVISION, THENCE SOUTH 01° 20' 27" EAST ALONG THE WEST LINE OF TRACT 4, BLOCK D, A DISTANCE OF 320.00 FEET TO THE POINT OF BEGINNING OF THIS DESCRIPTION, THENCE CONTINUE SOUTH 01° 20' 27" EAST A DISTANCE OF 20.00 FEET, THENCE DEPARTING TRACT 4, BLOCK D, SOUTH 88° 39' 33" WEST A DISTANCE OF 391.10 FEET, THENCE NORTH 01° 20' 27" WEST A DISTANCE OF 126.65 FEET TO A POINT ON THE BOUNDARY OF LANDS RECORDED IN OFFICIAL
RECORDS BOOK 244, PAGE 576 THROUGH 578, THENCE SOUTH 89° 29' 02" EAST ALONG THE SOUTH BOUNDARY LINE OF SAID LANDS RECORDED IN OFFICIAL RECORDS BOOK 244, PAGES 576 THROUGH 578, A DISTANCE OF 60.03 FEET, THENCE DEPARTING SAID BOUNDARY SOUTH 01° 20' 27" EAST A DISTANCE OF 64.70 FEET, THENCE NORTH 88° 39' 33" EAST A DISTANCE OF 331.10 FEET TO THE POINT OF BEGINNING, PARCEL CONTAINING 0.6292 ACRES MORE OR LESS.

PARCEL 2, SUBJECT TO AN EXISTING EASEMENT FOR ACCESS AND UTILITIES.

PARCELS 1 AND 2 CONTAINING 3.1595 ACRES MORE OR LESS.

Survey Notes:

1. COPIES OF THIS SURVEY ARE NOT VALID WITHOUT THE ORIGINAL SIGNATURE AND SEAL OF A FLORIDA LICENSED SURVEYOR AND MAPPER.
2. ADDITIONS OR DELETIONS TO SURVEY MAPS OR REPORTS BY OTHER THAN THE SIGNING PARTY OR PARTIES IS PROHIBITED WITHOUT WRITTEN CONSENT OF THE SIGNING PARTY OR PARTIES.
3. THIS SURVEY IS BASED ON THE NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD '88)

   THE SITE BENCHMARKS FOR THIS TOPOGRAPHIC SURVEY ARE DISPLAYED ON THE RESPECTIVE SURVEY FILE. THESE BENCHMARKS ARE BASED ON A CLOSED VERTICAL CONTROL LOOP HAVING AN ACTUAL ERROR OF CLOSURE OF 0.014' WHICH MEETS THE ALLOWABLE CLOSURE OF 0.054. THIS FIELDWORK WAS PERFORMED USING A NIKON LEVEL MODEL #AS-2 AND REFERENCES THE FOLLOWING PUBLISHED BENCHMARKS AS ESTABLISHED BY THE NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD '88) AND ALL VERTICAL INFORMATION INCLUDING SPOT ELEVATIONS, NOTATIONS AND THE CONTOUR LINES DERIVED THEREFROM ARE BASED ON AND MATCHED TO VERTICAL CONTROL BENCHMARKS SUPPLIED BY NGS DATA SHEETS PUBLISHED AT WWW.LABINS.ORG AS FOLLOWS:

   a) DESIGNATION #T 491, PID #DE8123, SURVEY DISK IN 4"X4" CONCRETE MONUMENT STAMPED "T 491 2000" (NAVD '88) ELEVATION = 12.01'

   b) DESIGNATION #S 491, PID #DE8122, SURVEY DISK IN 4"X4" CONCRETE MONUMENT STAMPED "S 491 2000" (NAVD '88) ELEVATION = 21.28'

   SITE BENCHMARKS ARE AS SHOWN ON SHEET 2 OF 2.

4. THIS SURVEY IS NOT VALID WITHOUT SHEETS 1 THROUGH 2 OF 2.
5. THE LAST DAY FIELD WORK WAS PERFORMED WAS 2/2/22; ALL BOUNDARY CORNERS WERE RECOVERED OR SET AS NOTED HEREON.
6. THE "LEGAL DESCRIPTION" HEREON IS IN ACCORD WITH THE INSTRUMENT OF RECORD, AND WAS PROVIDED BY THE CLIENT.
7. BEARINGS SHOWN HEREON ARE RELATIVE TO THE WEST LINE OF TRACT 4, BLOCK D, AS DESCRIBED IN OFFICIAL RECORDS BOOK 1814, PAGE 1479 OF THE PUBLILC RECORDS OF FLAGLER COUNTY, FLORIDA, SAID BEARING BEING SOUTH 01°20'27" EAST.
8. HAVING CONSULTED THE NATIONAL FLOOD INSURANCE PROGRAM, FLOOD INSURANCE RATE MAP (FIRM) COMMUNITY PANEL NO. 12035C0232E, CITY OF FLAGLER BEACH, REVISED DATE JUNE 6, 2018, THE SUBJECT PROPERTY APPEARS TO LIE IN ZONE X, WHICH ARE AREAS OF MINIMAL FLOOD HAZARD (NAVD '88). THIS DETERMINATION WAS BASED ON GEOSPATIAL DATA DOWNLOADED FROM WWW.FEMA.GOV AND THE SHAPE FILE DISPLAYED HEREON WAS REFERENCED TO ABOVE GROUND IMPROVEMENTS. THIS DETERMINATION WAS BASED ON A GRAPHIC INTERPOLATION OF SAID MAP AND NOT ON ACTUAL FIELD MEASUREMENTS.
9. HORIZONTAL WELL-IDENTIFIED FEATURES IN THIS SURVEY AND MAP HAVE BEEN MEASURED TO AN ESTIMATED HORIZONTAL POSITIONAL ACCURACY OF 0.05 (FT). THE EQUIPMENT USED TO VERIFY THE HORIZONTAL CONTROL ON THE SUBJECT SURVEY WAS A TOPCON GPS HIPER V). THE EQUIPMENT USED TO LOCATE THE FEATURES WAS A TOPCON GPS HIPER V.
10. THIS SURVEY WAS PREPARED WITHOUT THE BENEFIT OF AN ABSTRACT OR OPINION OF TITLE. NO INSTRUMENTS OF RECORD REFLECTING EASEMENTS, RIGHTS-OF-WAY, AND/OR OWNERSHIP WERE FURNISHED TO THIS SURVEYOR EXCEPT AS NOTED BELOW:
    FLAGLER COUNTY PROPERTY APPRAISER INFORMATION DISPLAYED HEREON AS PARCEL# IS PER THE COUNTY PROPERTY APPRAISER'S WEBSITE FLAGLERPA.COM AS OF FEBRUARY 2, 2022.
11. NO UNDERGROUND UTILITIES, FOUNDATIONS OR IMPROVEMENTS, IF ANY, HAVE BEEN LOCATED EXCEPT AS SHOWN.
12. THIS SURVEY DOES NOT IDENTIFY THE LIMITS OR EXTENT OF POTENTIAL JURISDICTIONAL WETLAND BOUNDARIES.
13. FENCES AND WALLS EXISTING ON, OVER OR ADJACENT TO SUBJECT PROPERTY, ARE DISPLAYED HEREON; OWNERSHIP WHETHER SINGULAR OR JOINT WAS NOT DETERMINED BY THIS SURVEY.
14. VERTICAL FEATURE ACCURACY: "ELEVATIONS OF WELL-IDENTIFIED FEATURES CONTAINED IN THIS SURVEY AND MAP HAVE BEEN MEASURED TO AN ESTIMATED VERTICAL POSITIONAL ACCURACY OF 0.05 (FT)."
15. DIMENSIONS ARE SHOWN RELATIVE TO UNITED STATES STANDARD FEET AND DECIMALS THEREOF, UNLESS THE OBJECT SHOWN IS COMMONLY IDENTIFIED IN INCHES, I.E. TREE DIAMETER, PIPE DIAMETER, ETC. TREES DEPICTED ARE COMMON NAMES AND MEASURED AND LABELED AS DIAMETER AT BREAST HEIGHT IN INCHES.
16. THE UNDERGROUND UTILITIES DEPICTED BY PIPE LINETYPES ARE APPROXIMATE IN NATURE BASED UPON AN INSPECTION OF THE MANHOLE, GRATE, ETC. OF EACH FACILITY. EXISTING PIPES WERE NOT LAMPED OR REMOTELY VIEWED FOR DIRECTION, OBSTRUCTIONS OR CONNECTIVITY.

Reference Material

1) MAP OF THE BUNNELL DEVELOPMENT COMPANY'S LAND, AS RECORDED IN MAP BOOK 1, PAGE 1 OF THE PUBLIC RECORDS OF FLAGLER COUNTY, FLORIDA.

2) OFFICIAL RECORDS BOOK 1814, PAGE 1479 OF THE PUBLIC RECORDS OF FLAGLER COUNTY, FLORIDA.

Abbreviation Legend:

(A)	– ACTUAL	MH	– MANHOLE
A/C	– AIR CONDITIONER	MLP	– METAL LIGHT POLE
ACSM	– AMERICAN CONGRESS ON SURVEYING & MAPPING	MPH	– MILES PER HOUR
ADA	– AMERICANS WITH DISABILITIES ACT	MPP	– METAL POWER POLE
ALTA	– AMERICAN LAND TITLE ASSOCIATION	N/A	– NOT APPLICABLE
APPROX	– APPROXIMATE	NAVD	– NORTH AMERICAN VERTICAL DATUM
ARV	– AIR RELEASE VALVE	NAD	– NORTH AMERICAN DATUM
AVE	– AVENUE	NG	– NATURAL GROUND
AVG	– AVERAGE	NGS	– NATIONAL GEODETIC SURVEY
(BB)	– BEARING BASIS	NGVD	– NATIONAL GEODETIC VERTICAL DATUM
BFP	– BACK FLOW PREVENTER	N & D	– NAIL AND DISK
BLK	– BLOCK	NO.	– NUMBER
BLDG	– BUILDING	NR	– NON-RADIAL
BLVD	– BOULEVARD	NSPS	– NATIONAL SOCIETY OF PROFESSIONAL SURVEYORS
BM	– BENCH MARK		
BOC	– BACK OF CURB	NT	– NON-TANGENT
BOW	– BACK OF WALK	NTS	– NOT TO SCALE
BSL	– BUILDING SETBACK LINE	OD	– OUTSIDE DIAMETER
BWF	– BARBED WIRE FENCE	ORB	– OFFICIAL RECORDS BOOK
C-X	– DENOTES SHEET NUMBERING FOR ENGINEERING PLANS	OR	– OFFICIAL RECORDS
(C)	– CALCULATED	OUL	– OVERHEAD UTILITY LINES
C	– CHORD	OTL	– OVERHEAD TRAFFIC LINES
CATV	– CABLE TELEVISION RISER	(P)	– PLAT
CB	– CHORD BEARING	PB	– PLAT BOOK
CBS	– CONCRETE BLOCK STRUCTURE	PC	– POINT OF CURVATURE
C.C.R.	– CERTIFIED CORNER RECORD	PCC	– POINT OF COMPOUND CURVATURE
C&G	– CURB & GUTTER	PCP	– PERMANENT CONTROL POINT
CI	– CATCH INLET	PFF	– PROPOSED FINISHED FLOOR
C/L	– CENTERLINE	PG	– PAGE
CLF	– CHAIN LINK FENCE	PGS	– PAGES
CM	– CONCRETE MONUMENT	PI	– POINT OF INTERSECTION
CMP	– CORRUGATED METAL PIPE	PIV	– POST INDICATOR VALVE
CO	– CLEANOUT	PK	– PARKER KAYLON
CONC	– CONCRETE	POB	– POINT OF BEGINNING
COR	– CORNER	POC	– POINT OF COMMENCEMENT
CRPP	– CORRUGATED PLASTIC PIPE	POL	– POINT ON LINE
CUE	– COUNTY UTILITY EASEMENT	PP	– POWER POLE
CWS	– CROSSWALK SIGNAL	PRC	– POINT OF REVERSE CURVATURE
Δ	– DELTA	PRM	– PERMANENT REFERENCE MONUMENT
(D)	– DESCRIPTION	PSM	– PROFESSIONAL SURVEYOR & MAPPER
DB	– DEED BOOK	PT	– POINT OF TANGENCY
DBH	– DIAMETER AT BREAST HEIGHT IN INCHES	PVC	– POLYVINYL CHLORIDE PIPE
DE	– DRAINAGE EASEMENT	PVMT	– PAVEMENT
DEPT	– DEPARTMENT	R31E	– RANGE 31 EAST
DIP	– DUCTILE IRON PIPE	R	– RADIUS
DR	– DRIVE	RAD	– RADIAL
D/U	– DRAINAGE AND UTILITY EASEMENT	RCP	– REINFORCED CONCRETE PIPE
(E)	– ENGINEERING PLAN	REC	– RECOVERED
EJB	– ELECTRIC JUNCTION BOX	REV	– REVISION
EL	– UNDERGROUND ELECTRICAL LINES	RP	– RADIUS POINT
ELEC	– ELECTRIC	R/W	– RIGHT-OF-WAY
ELEV	– ELEVATION	RLS	– REGISTERED LAND SURVEYOR
ELLIP	– ELLIPTICAL	RP	– RADIUS POINT
EOI	– END OF INFORMATION	RWL	– UNDERGROUND RECLAIM WATER LINE
EOP	– EDGE OF PAVEMENT	RWM	– RECLAIMED WATER METER
FB	– FIELD BOOK	SE	– SPECIAL EASEMENT
FDOT	– FLORIDA DEPARTMENT OF TRANSPORTATION	SEC 11	– SECTION 11
FF	– FINISH FLOOR	SMH	– SANITARY SEWER MANHOLE
FGI	– FLAT GRATE INLET	(SP)	– STATE PLANE
FGLP	– FIBERGLASS LIGHT POLE	SQ	– SQUARE
FHYD	– FIRE HYDRANT	SQ FT	– SQUARE FEET
FM	– FORCE MAIN	ST	– STREET
FND	– FOUND	STMH	– STORM DRAINAGE MANHOLE
FP&L	– FLORIDA POWER AND LIGHT	S/W	– SIDEWALK
FS	– FLORIDA STATUTES	TB	– TANGENT BEARING
(G)	– GRID (STATE PLANE)	T12S	– TOWNSHIP 12 SOUTH
GL	– UNDERGROUND GAS LINES	TELE	– TELEPHONE
GOV'T	– GOVERNMENT	TL	– OVERHEAD TRAFFIC SIGNAL LINES
GPR	– GROUND PENETRATING RADAR	TOB	– TOP OF BANK
GTMH	– GREASE TRAP MANHOLE	TOE	– TOE OF SLOPE
HDPE	– HIGH DENSITY POLYETHYLENE PIPE	TR	– TELEPHONE RISER
HWF	– HOG WIRE FENCE	TRANS	– TRANSFORMER
ID	– IDENTIFICATION	TSB	– TRAFFIC SIGNAL BOX
ICV	– IRRIGATION CONTROL VALVE	TSSP	– TRAFFIC SIGNAL SUPPORT POLE
INFO	– INFORMATION	TVL	– UNDERGROUND CABLE TV LINES
INV	– INVERT	(TYP)	– TYPICAL
IP	– IRON PIPE	UE	– UTILITY EASEMENT
IP&C	– IRON PIPE & CAP	UNK	– UNKNOWN
IR	– IRON ROD	UTL	– UNDERGROUND TELEPHONE LINES
IR&C	– IRON REBAR & CAP	W/	– WITH
IRR	– IRRIGATION	WL	– UNDERGROUND WATER LINE
L	– ARC LENGTH	WLP	– WOOD LIGHT POLE
LB#	– LICENSED BUSINESS NUMBER	WM	– WATER METER
LP	– LIGHT POLE	WP	– WORK PROGRAM
(M)	– MEASURED	WPF	– WOOD POST FENCE
MB	– MAP BOOK	WPP	– WOOD POWER POLE
MBX	– MAILBOX	WV	– WATER VALVE
MES	– MITERED END SECTION		

Line Legend:
NOT TO SCALE

= 1 FOOT CONTOURS
= 5 FOOT CONTOURS
= ADJOINER PROPERTY LINES
= BARBED WIRE FENCE
= BROKEN LINE
= BURIED CABLE
= BURIED CABLE TELEVISION
= BURIED ELECTRIC
= BURIED FIBER OPTICS
= BURIED GAS
= BURIED RECLAIMED WATER LINE
= BURIED SANITARY LINES
= BURIED SANITARY SEWER FORCE MAIN LINE
= BURIED TRAFFIC CONTROL
= BURIED TELEPHONE LINE
= BURIED WATER LINES
= CENTER LINE R/W
= CHAIN LINK FENCE
= EASEMENT LINES (EXISTING)
= EASEMENT LINES (PROPOSED)
= EDGE OF WATER LINES
= EXISTING DRAINAGE PIPES
= EXISTING DRAINAGE PIPES (TERMINUS & ANGLE UNKNOWN)
= FIRE WATER MAIN LINES
= HOT WATER SUPPLY LINES
= IRRIGATION LINES
= OVERHEAD TRAFFIC LINES
= OVERHEAD UTILITY LINES
= RAILROAD TRACKS
= RIGHT-OF-WAY LINES
= SECTION LINES
= STONE WALL LINES
= TOP OF BANK LINES
= TOE OF SLOPE LINES
= TREE LINES
= TRAVERSE LINES
= UNKNOWN BURIED LINES
= VINYL FENCE
= WOOD FENCE
= WETLAND LINE
= ORANGE PAINT LINE
= GREEN PAINT LINE
= RED PAINT LINE
= WHITE PAINT LINE
= PURPLE PAINT LINE
= BLUE PAINT LINE
= YELLOW PAINT LINE

Symbol Legend:
NOT TO SCALE

– AIR RELEASE VALVE
– BORING HOLE LOCATION
– BRICK PAVERS
– CABLE TV RISER
– CENTRAL ANGLE
– CLEAN OUT
– CONCRETE
– CONCRETE LIGHT POLE
– CONCRETE LIGHT POLE (DUAL)
– CONCRETE LIGHT POLE (TRIPLE)
– CONCRETE LIGHT POLE (QUAD)
– CONCRETE MITERED END SECTION
– CONCRETE PAVERS
– CONCRETE RIP RAP
– CONCRETE UTILITY POLE
– COUNTY ROAD SYMBOL
– CROSSWALK SIGNAL POLE
– DETECTABLE WARNING AREA
– DUAL SUPPORT SIGN
– ELECTRICAL MANHOLE
– ELECTRIC METER
– ELECTRICAL JUNCTION BOX
– ELECTRIC OUTLET
– ELECTRIC RISER
– FIBER OPTIC MARKER
– FIRE HYDRANT
– FLOOD LIGHT
– FOUND CONCRETE MONUMENT (AS NOTED)
– FOUND IRON PIPE (AS NOTED)
– FOUND IRON REBAR (AS NOTED)
– FOUND/SET NAIL (AS NOTED)
– GARBAGE CAN
– GAS MARKER
– GAS VALVE
– GOPHER TORTOISE HOLE
– GRATE INLET
– GRAVEL/DIRT
– GREASE TRAP MANHOLE
– GROUND LIGHT
– GUY ANCHOR
– HANDICAP PARKING SPACE
– INTERSTATE SYMBOL
– IRRIGATION CONTROL VALVE
– LIGHT POLE
– LIGHT POLE (DUAL)
– LIGHT POLE (TRIPLE)
– LIGHT POLE (QUAD)
– MAILBOX
– MONITOR WELLS
– NAIL & DISC (AS NOTED)
– PARKING SPACES (2)
– PULL BOX (AS NOTED)
– REVISION NUMBER (3)
– RECLAIMED WATER METER
– RECLAIMED WATER VALVE
– ROOF DRAIN
– SANITARY SEWER MANHOLE
– SANITARY SEWER VALVE
– SCHEDULE B ITEM NUMBER (8)
– SECTION CORNER
– 4" X 4" CM LB #7143
– 5/8" IR&C LB #7143
– SIGN
– SITE BENCH MARK
– STORM SEWER MANHOLE
– STRIPING (DIRECTIONAL)
– TELEPHONE CABLE RISER
– TELEPHONE MANHOLE
– TELEPHONE LINE MARKER
– TELEPHONE JUNCTION BOX
– TEST HOLE
– TRAFFIC SIGNAL BOX
– TRAFFIC SIGNAL SUPPORT POLE
– UNKNOWN MANHOLE
– UNKNOWN UTILITY MARKER
– UNKNOWN RISER
– UNKNOWN VALVE
– UTILITY FLAG (AS NOTED)
– VENT (AS NOTED)
– WATER METER
– WATER RISER
– WATER SERVICE
– WATER SPIGOT
– WATER SPRINKLER
– WATER VALVE
– WELL
– WETLAND FLAG
– WOOD UTILITY POLE
– WIRE LINE MARKER
– WIRE HEIGHTS (SEE CHART)

Sign Legend:
NOT TO SCALE

(R1) – ROW NUMBER SIGN
(B) – BUS STOP SIGN
(DE) – DEAD END SIGN
(DNE) – DO NOT ENTER SIGN (R5-1)
(HC) – HANDICAP SIGN
(HC) – DUAL HANDICAP SIGN
(FDC) – FIRE DEPARTMENT CONNECTION
(INFO) – INFORMATION SIGN
(KR) – KEEP RIGHT SIGN
(LTO) – LEFT TURN ONLY
(ME) – MEDIAN SIGN
(ND) – NO DUMPING SIGN
(NL) – NO LEFT TURN SIGN (R3-2)
(NU) – NO LITTERING SIGN
(NO) – NO OUTLET SIGN
(FL) – NO PARKING FIRE LANE SIGN
(NOR) – NO RIGHT TURN SIGN (R3-1)
(NTT) – NO THRU TRAFFIC SIGN
(NOT) – NO TRUCKS (R5-2)
(NP) – NO PARKING SIGN
(1W) – ONE WAY SIGN (R6-2)
(PE) – PEDESTRIAN CROSSING SIGN
(RTO) – RIGHT TURN ONLY
(SL) – SPEED LIMIT SIGN
(ST) – STOP SIGN (R1-1)
(SS) – STREET SIGN
(TZ) – TOW AWAY ZONE SIGN
(TE) – TRUCK ENTRANCE SIGN
(U) – UNKNOWN SIGN
(WL) – WEIGHT LIMIT SIGN
(WW) – WRONG WAY SIGN
(Y) – YIELD SIGN

NOTE:
THIS SURVEY IS NOT VALID WITHOUT SHEETS 1 THROUGH 2 OF 2.

TITLE BLOCK ABBREVIATIONS
Eng. = ENGINEERING L.B. = LICENSED BUSINESS
C.O.A. = CERTIFICATE OF AUTHORIZATION Arch.= ARCHITECTURAL
Landscp. = LANDSCAPE N/A = NOT APPLICABLE Lic. = LICENSED
No. = NUMBER P.O. = POST OFFICE © = COPYRIGHT

Index of Sheets

1 COVER SHEET
2 BOUNDARY & TOPOGRAPHIC SURVEY

Surveyor's Certification:

Certified to: ALT Homes LLC

I hereby certify that the attached "Boundary & Topographic Survey" of the hereon-described property is true and correct to the best of my knowledge, information and belief as surveyed in the field on February 2, 2022. I further certify that this "Boundary & Topographic Survey" meets the standards of practice set forth in Rule Chapter 5J-17 of the Florida Administrative Code, pursuant to F.S. 472.027.

LS6384
STATE OF FLORIDA

For the Firm By:
Jeffrey W. Patterson
Professional Surveyor and Mapper
Florida Registration No. 6384

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No.	Date	Revision	By
1	2/16/2022	ADDED SHEET 2 OF 2	J.W.P.

Field Crew: D.S.
Drawn by: B.B.
Checked by: R.L.R.
Approved by: J.W.P.
Scale: N/A
Date: 2/2/2022
Job No.: U3401.1
File: U3401.1.dwg
© 2022

Survey Prepared By:
CPH, Inc.
520 Palm Coast Parkway SW
Palm Coast, Fl. 32137
Ph: 386.445.6569
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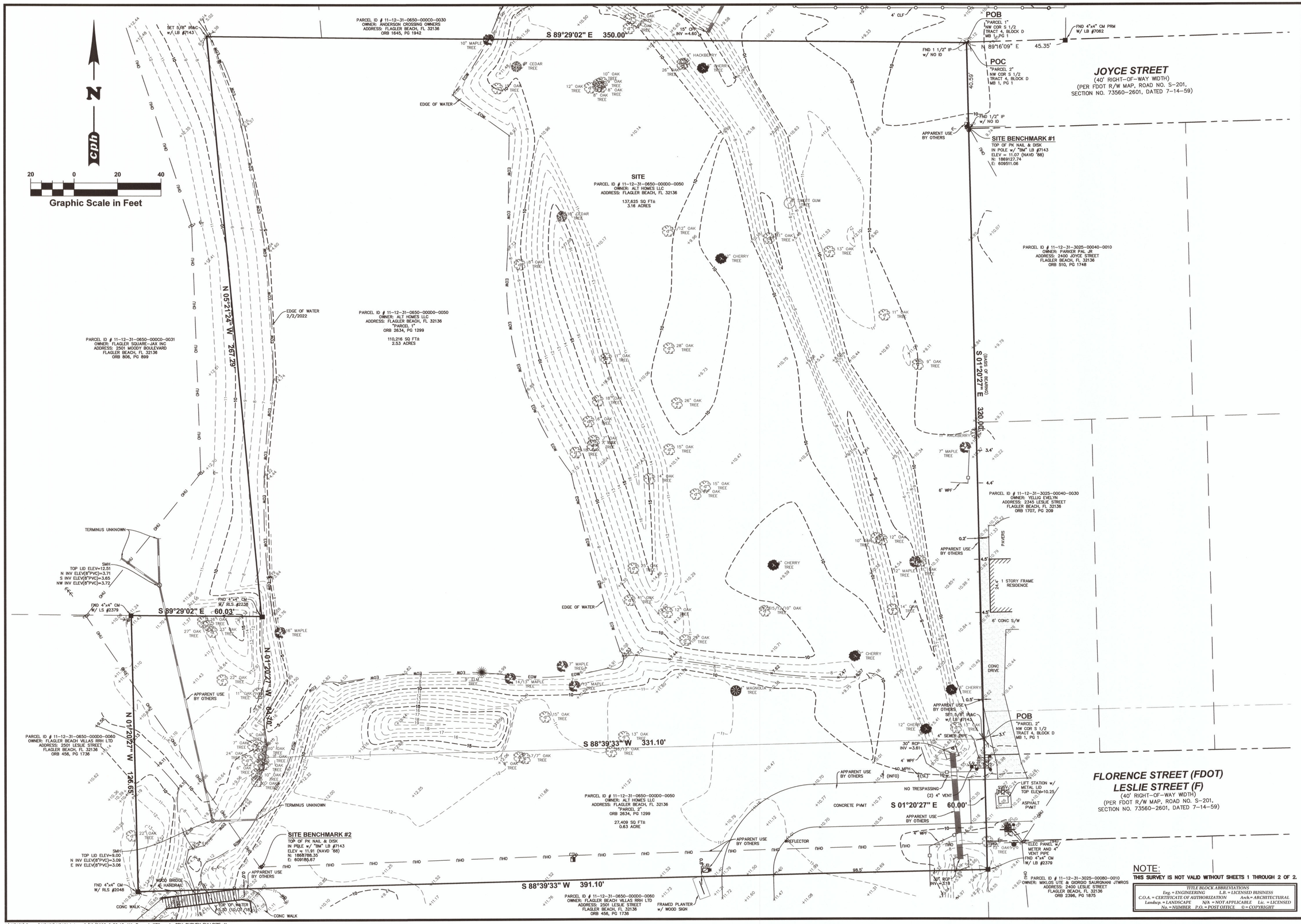
Eng. C.O.A. No. 3215
Survey L.B. No. 7143
Arch. Lic. No. AA2600926
Lndscp. Lic. No. LC0000298

BOUNDARY & TOPOGRAPHIC SURVEY
ALT HOMES LLC
FLAGLER BEACH
SECTION 11-TOWNSHIP 12 SOUTH-RANGE 31 EAST
FLAGLER COUNTY, FLORIDA

Sheet No. 1 of 2

J:\U3401\Survey\U3401\U3401.1.dwg, 2/16/2022 9:48:26 AM, Benard, William J., CPH SURVEY FULLSIZE.ctb



TITLE BLOCK ABBREVIATIONS
Eng. = ENGINEERING L.B. = LICENSED BUSINESS
C.O.A. = CERTIFICATE OF AUTHORIZATION Arch.= ARCHITECTURAL
Landscp. = LANDSCAPE N/A = NOT APPLICABLE Lic. = LICENSED
No. = NUMBER P.O. = POST OFFICE © = COPYRIGHT

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No.	Date	Revision	By
1	2/16/2022	U3401.1	D.S.
2	2/2/2022	© 2022	B.B.
3			R.L.R.
4			J.W.P.

Field Crew:
Drawn by: D.S.
Checked by: B.B.
Approved by: R.L.R.
Scale: 1"=20' J.W.P.
Date: 2/2/2022
Job No.: U3401.1
File: U3401.1.dwg

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Lndscp. Lic. No. LC0000298

BOUNDARY & TOPOGRAPHIC SURVEY

ALT HOMES LLC

FLAGLER BEACH
SECTION 11-TOWNSHIP 12 SOUTH-RANGE 31 EAST
FLAGLER COUNTY, FLORIDA

Sheet No.
2
of 2

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GENERAL CONSTRUCTION NOTES

1. GOVERNING SPECIFICATIONS: CITY OF FLAGLER BEACH LAND DEVELOPMENT CODE, CITY OF FLAGLER BEACH STANDARD CONSTRUCTION DETAILS AND SPECIFICATIONS, CURRENT EDITION.
2. ALL CONSTRUCTION WITHIN THE FDOT RIGHT-OF-WAY SHALL CONFORM TO THE CURRENT EDITION OF THE FDOT DESIGN STANDARD INDEXES, THE FDOT STANDARD SPECIFICATION FOR ROAD AND BRIDGE CONSTRUCTION AND THE FDOT UTILITY ACCOMMODATIONS MANUAL.
3. ALL UTILITY MATERIAL, CONSTRUCTION AND TESTING COVERED BY THESE DRAWINGS SHALL COMPLY WITH THE CITY OF FLAGLER BEACH STANDARD CONSTRUCTION DETAILS AND SPECIFICATIONS, LATEST EDITION. ALL UTILITY WORK AND CONNECTIONS SHALL BE COORDINATED WITH THE CITY OF FLAGLER BEACH INSPECTOR.
4. THE CONTRACTOR SHALL PAY FOR AND OBTAIN A BUILDING PERMIT. THE ENGINEER WILL SCHEDULE THE PRECONSTRUCTION CONFERENCE BEFORE THE CONTRACTOR'S START OF WORK. THE CONTRACTOR SHALL CONTACT THE BUILDING DEPARTMENT AT (386) 517-2016 FOR INFORMATION ON ISSUANCE OF CITY PERMITS AND / OR OTHER REQUIREMENTS.
5. IT IS THE CONTRACTOR'S RESPONSIBILITY TO NOTIFY THE ENGINEER OF ANY DEFICIENCIES OR DISCREPANCIES AMONG THE DIVISIONS OF THE DRAWING AND SPECIFICATIONS PRIOR TO THE BID DATE. NEITHER THE OWNER OR ENGINEER WILL BE RESPONSIBLE FOR ANY DEFICIENCIES OR DISCREPANCIES RAISED AFTER THE BID OPENING. ACCORDINGLY, IN LIGHT OF THESE OBLIGATIONS, THE ENGINEER IS OBLIGATED TO INTERPRET THE DRAWINGS AND SPECIFICATIONS IN A MANNER THAT WILL PROVIDE THE OWNER WITH A COMPLETE, FUNCTIONING FACILITY FOR THE BID PRICE.
6. THESE DRAWINGS AND THE PROJECT MANUAL ARE COMPLEMENTARY, AND ANY REQUIREMENT OF ONE SHALL BE A REQUIREMENT OF THE OTHER. IT IS THE CONTRACTOR'S RESPONSIBILITY TO CAREFULLY EXAMINE THE DRAWINGS AND SPECIFICATIONS AND TO COMPARE THE REQUIREMENTS OF EACH DIVISION AND ENSURE THAT EACH TRADE OR SUBCONTRACTOR IS MAKING THE ALLOWANCES NECESSARY TO PROVIDE THE OWNER A COMPLETE FACILITY, OPERATIONAL IN ALL RESPECTS, UNLESS OTHERWISE SPECIFICALLY STATED IN THE DRAWINGS.
7. THE ENGINEER ASSUMES NO RESPONSIBILITY FOR INSTRUCTING THE CONTRACTOR IN THE METHODS OF CONSTRUCTION. IT IS THE CONTRACTOR'S RESPONSIBILITY TO DETERMINE THE METHOD TO CONSTRUCT THE IMPROVEMENTS AS SHOWN ON THE PLANS.
8. ONLY ONE TEMPORARY CONSTRUCTION SIGN IS PERMITTED, NOT TO EXCEED 32 SQUARE FEET IN SIGN AREA, MAXIMUM HEIGHT OF 8 FEET AND NO CLOSER THAN 10 FT FROM PUBLIC RIGHT-OF-WAY. THE CONTRACTOR SHALL APPLY FOR A TEMPORARY SIGN PERMIT AT THE CITY OF FLAGLER BEACH BUILDING DEPARTMENT. THE SIGN MUST BE REMOVED UPON RECEIPT OF THE CERTIFICATE OF OCCUPANCY.
9. LITTER CONTROL MEASURES TO PREVENT WIND-DRIVEN DEBRIS SHALL BE IMPLEMENTED THROUGHOUT THE DURATION OF CONSTRUCTION. ALL DEBRIS SHALL BE REMOVED AND THE PROJECT SITE CLEANED WITHIN 30 DAYS OF COMPLETION OF CONSTRUCTION.
10. AT NO TIME SHALL EXCAVATIONS BE LEFT UNCOVERED AFTER WORKING HOURS. CONTRACTOR SHALL SECURE THE WORK AREA AT THE END OF EACH DAY'S WORK.
11. AT ALL TIMES, THE CONTRACTOR SHALL TAKE PRECAUTIONS TO PROTECT UNDERGROUND UTILITIES, STRUCTURES AND OTHER ASSOCIATED FACILITIES FROM DAMAGE DURING CONSTRUCTION. IT IS THE CONTRACTOR'S RESPONSIBILITY TO DETERMINE THE MEASURES OF PROTECTION. ANY DAMAGED FACILITIES SHALL BE REPAIRED OR REPLACED AS DIRECTED BY THE CITY OR ENGINEER AT THE CONTRACTORS EXPENSE.
12. THERE SHALL BE NO DEVIATIONS FROM THESE PLANS UNLESS APPROVED IN WRITING BY THE ENGINEER AND THE OWNER.
13. THE CONTRACTOR SHALL CONTACT ALL CONCERNED UTILITIES AT LEAST FORTY-EIGHT (48) HOURS IN ADVANCE OF CONSTRUCTION OPERATIONS.
14. CONTRACTOR SHALL COORDINATE AND COMPLY WITH ALL UTILITY COMPANIES INVOLVED IN PROJECT AND PAY ALL REQUIRED FEES AND COST.
15. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING CERTIFIED MATERIAL TEST RESULTS TO THE ENGINEER OF THE RECORD PRIOR TO THE RELEASE OF FINAL CERTIFICATION BY THE ENGINEER, TEST RESULTS MUST INCLUDE, BUT MAY NOT BE LIMITED TO, DENSITIES FOR SUBGRADE AND BASE DENSITIES AT UTILITY CROSSINGS, MANHOLES, INLETS, STRUCTURES. TEST SHALL INCLUDE ASPHALT GRADATION REPORTS, CONCRETE CYLINDERS, ETC.
16. WHERE NEW ASPHALT MEETS EXISTING ASPHALT, THE EXISTING ASPHALT SHALL BE SAW CUT TO PROVIDE A STRAIGHT EVEN LINE.
17. PRIOR TO REMOVING CURB OR GUTTER, THE ADJACENT ASPHALT SHALL BE SAW CUT TO PROVIDE A STRAIGHT EVEN LINE.
18. ALL PROPOSED ELEVATIONS REFER TO FINISHED GRADES.
19. CONCRETE WALKS SHALL BE 4 INCHES THICK HAVING A 3,500 PSI STRENGTH, POURED OVER PROPERLY PREPARED SUBGRADE. ALL CONCRETE SIDEWALKS SHALL BE 8 INCHES THICK ACROSS DRIVEWAYS. 1/2 INCH EXPANSION JOINTS SHALL BE PLACED AT A MAXIMUM OF 50'. CRACK CONTROL JOINTS SHALL BE 5' ON CENTERS.
20. CORE TESTS SHALL BE TAKEN TO VERIFY THICKNESS AND SUBSURFACE COMPACTION. PROVIDE FOR THREE SAMPLES, RANDOMLY LOCATED. TEST FOR EXTRACTION, GRADATION, LABORATORY DENSITY, AND MARSHALL'S STABILITY. PROVIDE A CERTIFICATE FROM THE TESTING AGENCY THAT MATERIALS AND INSTALLATION COMPLY WITH SPECIFICATIONS, SIGNED BY THE ASPHALTIC CONCRETE PRODUCER AND CONTRACTOR. ALL COSTS OF TESTS SHALL BE PAID BY THE CONTRACTOR. IF TESTS SHOW THE INSTALLATION DOES NOT MEET SPECIFICATIONS, THE PAVING SHALL BE REMOVED, REPLACED, AND RETESTED.
21. IF ANY MUCK-LIKE MATERIAL IS DISCOVERED, IT WILL BE REQUIRED TO BE REMOVED, BACKFILLED WITH APPROPRIATE FILL, COMPACTED, AND TESTED USING AASHTO T-180 MODIFIED PROCTOR METHOD.
22. FILL MATERIAL IS TO BE PLACED IN ONE FOOT LIFTS AND COMPACTED TO THE APPROPRIATE DENSITY (98% FOR PAVED AREAS AND 95% FOR BUILDING PADS AND ALL OTHER AREAS AS PER AASHTO T-180).
23. NO BURYING OF ANY ORGANIC MATERIALS ALLOWED.
24. THERE WILL BE NO PROPOSED OVERHEAD UTILITY AND SERVICE LINES ASSOCIATED WITH THIS PROJECT. ALL UTILITY LINES AND SERVICES WILL BE INSTALLED UNDERGROUND AT THE OWNER'S, DEVELOPER'S OR BUILDER'S EXPENSE.

SITE AND GENERAL INFORMATION

1. THE PROPERTY AREA BOUNDARY CONSISTS OF 137,625 SF OR 3.159 ACRES. FOR BOUNDARY AND TOPOGRAPHIC SURVEY REFER TO THE SURVEY PERFORMED BY SLIGER & ASSOCIATES, INC. (SEE SHEET No. 2 OF THESE PLANS).
2. THE EXISTING AND PROPOSED ZONING IS GC (GENERAL COMMERCIAL).
3. THE TAX PARCEL NUMBER IS 11-12-31-0650-000D0-0050.
4. FLORIDA BUILDING CODE-ACCESSIBILITY (FBCA) AS THE CONTROLLING REGULATION FOR ACCESSIBLE PARKING REQUIREMENTS.
5. THE EXISTING SITE CONDITION IS UNDEVELOPED AND PARTIALLY CLEARED AND GRADED. THE FLUCFCS LAND USE IS (191) UNDEVELOPED LAND WITHIN URBAN AREAS.
6. PER THE USDA NATURAL RESOURCES CONSERVATION SERVICE FOR FLAGLER COUNTY, THE SCS SOILS MAP INDICATES THE SITE CONSISTS OF (11) MYAKKA-MYAKKA, WET, FINE SANDS, 0 TO 2 PERCENT SLOPES.
7. THE SITE IS LOCATED WITHIN ZONE "X" PER FEMA MAP PANEL No. 12035C0232 E, DATED JUNE 6, 2018.
8. ELECTRICAL UTILITY SERVICE WILL BE PROVIDED BY FLORIDA POWER & LIGHT. NATURAL GAS WILL BE PROVIDED BY TECO PEOPLES GAS COMPANY. TELEPHONE, CABLE AND INTERNET SERVICE WILL BE PROVIDED BY AT&T. CABLE TV AND INTERNET CAN ALSO BE PROVIDED BY SPECTRUM.
9. SOLID WASTE WILL BE COLLECTED AND DISPOSED OF BY WASTE PRO, INC.
10. THE SITE IS NOT LOCATED WITHIN THE LIMITS OF A WELLHEAD PROTECTION ZONE AND THERE IS NO ORDINARY HIGH WATER (OHW) LINE WITHIN THE SITE.
11. STORMWATER WILL BE PROVIDED BY INTERCONNECTED DRY RETENTION TO EXFILTRATION TRENCH SYSTEM.
12. POTABLE WATER AND WASTEWATER UTILITIES PROVIDED BY CITY OF FLAGLER BEACH.
13. IRRIGATION SERVICE WILL BE PROVIDED BY A PRIVATE WELL.

LEGEND

NOTE: NOT ALL SYMBOLS SHOWN HERE MAY BE APPLICABLE TO THESE DRAWINGS, ALSO THERE MAY BE ADDITIONAL SYMBOLS WITHIN PLANS NOT SHOWN HERE, SEE INDIVIDUAL DRAWING LEGEND WHERE APPLICABLE.

#3	BENCHMARK ID		4" BY 4" CONCRETE MONUMENT
B24	BORING ID		EXISTING EASEMENT
TV	EXISTING CABLE TV PEDESTAL	FOC	EXISTING UNDERGROUND FIBER OPTIC CABLE
	EXISTING CAP OR PLUG	#FM	EXISTING FORCE MAIN (# INDICATES SIZE)
	EXISTING CLEAN OUT	GAS	EXISTING GAS MAIN
	EXISTING CONDUIT RISER/ MARKER	OHE	EXISTING OVERHEAD ELECTRIC CABLES
E	EXISTING ELECTRIC METER	OHT	EXISTING OVERHEAD TRAFFIC SIGNAL CABLE
+11.7	EXISTING ELEVATION (SOFT)	#RAW	EXISTING RAW WATER MAIN (# INDICATES SIZE)
5.0±	PROPOSED ELEVATION (SOFT)	#REC	EXISTING RECLAIM WATER MAIN (# INDICATES SIZE)
+11.75	EXISTING ELEVATION (HARD)	#SAN	PROPOSED SANITARY SEWER (# INDICATES SIZE)
5.00	PROPOSED ELEVATION (HARD)	#WM	PROPOSED WATER MAIN (# INDICATES SIZE)
	EXISTING FIRE HYDRANT	12	EXISTING CONTOUR
	PROPOSED FIRE HYDRANT	~0~	PROPOSED CONTOUR (SOFT)
	EXISTING FLOW DIRECTION	~0~	PROPOSED CONTOUR (HARD)
	PROPOSED FLOW DIRECTION	UTEL	EXISTING UNDERGROUND TELEPHONE CABLE
	EXISTING GAS METER	UTV	EXISTING UNDERGROUND TELEVISION CABLE
	EXISTING GAS VALVE	UGE	EXISTING UNDERGROUND ELECTRICAL POWER CABLE
	EXISTING GUY WIRE & ANCHOR PIN		JURISDICTIONAL WETLAND LINE
	EXISTING MAIL BOX	#SAN	EXISTING SANITARY SEWER (# INDICATES SIZE)
	EXISTING MANHOLE (UNKNOWN)	#WM	EXISTING WATER MAIN (# INDICATES SIZE)
	PROPOSED MANHOLE		EXISTING PIPE OR CONDUIT (TYPE SPECIFIED)
	EXISTING SANITARY SEWER CLEANOUT		EXISTING SWALE OR CENTER OF DITCH
	EXISTING SANITARY SEWER MANHOLE		PROPOSED SWALE OR CENTER OF DITCH
	EXISTING ROAD SIGNS AND POSTS		EXISTING TOP OF DITCH BANK
	PROPOSED SIGN AND POST		EXISTING BOTTOM OF DITCH BANK
	EXISTING TEE	// // //	EXISTING WOOD FENCE
	EXISTING UTILITY POLE	x x	EXISTING WIRE OR CHAIN LINK FENCE
	EXISTING VALVE IRRIGATION	x x	PROPOSED WIRE OR CHAIN LINK FENCE
	EXISTING VALVE WATER		PROPOSED SILT/SEDIMENT FENCE
	PROPOSED WATER VALVE		PROPOSED COIR ROLL OR WATTLE
	EXISTING WATER METER		PROPOSED FLOATING TURBIDITY BARRIER
	EXISTING STORM SEWER WITH INLET	TP TP	PROPOSED TREE PROTECTION
	PROPOSED STORM SEWER WITH INLET		
	1/2" IRON ROD (NO I.D.)		

SITE DEVELOPMENT USAGE

1. SETBACK: BUILDING SETBACK REQUIRED

FRONT (EAST)	25 FEET
REAR (WEST)	25 FEET
SIDE (NORTH)	15 FEET
SIDE (SOUTH)	15 FEET
MAXIMUM BUILDING HEIGHT	35 FEET
ZONING	GC (GENERAL COMMERCIAL)
FLUM	MEDIUM DENSITY RESIDENTIAL
BUILDING HEIGHT	BUILDING 1 = 34'-1/2"
	BUILDING 2 = 35'-0"
DENSITY	12.35 UNITS/ACRE
MULTI-FAMILY UNITS	
2 BEDROOM	22
TOTAL UNITS	22 UNITS

2. PROPOSED SITE COVERAGE

SITE COVERAGE - PROPOSED			
AREA TYPE	SF	ACRE	% OF SITE
BUILDING	17,248	0.396	12.5%
ASPHALT PAVEMENT/ VUA	24,905	0.572	18.1%
CONCRETE / SIDEWALKS	5,578	0.128	4.1%
GREEN SPACE	89,894	2.064	65.3%
TOTAL SITE	137,625	3.159	100.0%
TOTAL IMPERVIOUS	47,731	1.096	34.7%
TOTAL OPEN SPACE	89,894	2.064	65.3%

FLOOR AREA RATIO (FAR) 0.125

3. PARKING REQUIREMENTS
   MULTI-FAMILY: 2 SPACES PER DWELLING UNIT
   2 SPACES x 22 UNITS = 44
   TOTAL REQUIRED: 44 SPACES
4. PARKING PROVIDED

	SPACES	%
HANDICAP	2	4.5
STANDARD	39	88.6
PARALLEL	3	6.9
TOTAL PARKING PROVIDED	44	100.0

5. BICYCLE PARKING REQUIRED
   10% OF REQUIRED VEHICULAR PARKING
   0.1 x 44 SPACES = 4.4
   5 BICYCLE SPACES REQUIRED
6. BICYCLE PARKING PROVIDED
   6 BICYCLE SPACES PROVIDED
7. REQUIRED RECREATIONAL AREA
   200 SF PER UNIT = 200 SF x 22 UNITS = 4,400 SF
   PROVIDED ACTIVE AREA = PLAY AREA AND GRILL AREA = 9,164 SF
   PROVIDED PASSIVE AREA = BENCHES, FLOATING FOUNTAIN AND CONVERSATION AREA = 571 SF
   TOTAL RECREATION AREA = 9,735 SF
8. COMMON OPEN SPACE
   REQUIRED COMMON OPEN SPACE
   250 SF PER UNIT = 250 SF x 22 UNITS = 5,500 SF
   PROVIDED COMMON OPEN SPACE = 15,313 SF
   (ACTIVE AND PASSIVE RECREATION AND SIDEWALKS)

STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION ROADWAY AND TRAFFIC DESIGN STANDARDS - 2024 / 2025 AND QUALIFIED PRODUCTS LIST

INDEX NO.	DESCRIPTION	INDEX NO.	DESCRIPTION
102	TEMPORARY EROSION AND SEDIMENT CONTROL	514	OPTIONAL BASE GROUP AND STRUCTURAL NUMBERS
425-010	STRUCTURE BOTTOMS - TYPES J AND P	330-001	TURNOUTS
205	PIPE BACKFILL	546	SIGHT DISTANCE AT INTERSECTIONS
425-024	CURB INLET TOP - TYPE 9	102-600	GENERAL INFORMATION FOR TRAFFIC CONTROL THROUGH WORK ZONES
425-052	DITCH BOTTOM INLETS - TYPES C, D, E AND H		
430-022	SIDE DRAIN MITERED END SECTION	102-602	TWO-LANE AND MULTILANE, WORK ON SHOULDER
520-001	CURB & CURB AND GUTTER	102-603	TWO-LANE, TWO-WAY, WORK WITHIN THE TRAVEL WAY
522-002	PUBLIC SIDEWALK CURB RAMPS	700-101	TYPICAL SECTIONS FOR PLACEMENT OF SINGLE & MULTIPLE-COLUMN SIGNS
350-001	CONCRETE PAVEMENT JOINTS		
522-001	CONCRETE SIDEWALK	711-001	SPECIAL MARKING AREAS
120-001	EMBANKMENT UTILIZATION		

ABBREVIATIONS

AWWA	AMERICAN WATER WORKS ASSOCIATION	HDPE	HIGH DENSITY POLYETHYLENE	RCP	REINFORCED CONCRETE PIPE
CMP	CORRUGATED METAL PIPE	INV	INVERT	REQ'D	REQUIRED
CPP	CORRUGATED PLASTIC PIPE	K_H	HORIZONTAL PERMEABILITY	RPM	REFLECTIVE PAVEMENT MARKER
CTV	CABLE TELEVISION	K_V	VERTICAL PERMEABILITY	R/W	RIGHT-OF-WAY
DIP	DUCTILE IRON PIPE	LF	LINEAL FEET	SAN	SANITARY
ESMT	EASEMENT	MB	MAP BOOK	SH	SEASONAL HIGH
EXIST	EXISTING	MES	MITERED END SECTION	SMH	SANITARY MANHOLE
FAC	FLORIDA ADMINISTRATIVE CODE	MJ	MECHANICAL JOINT	SJRWMD	ST. JOHNS RIVER WATER MANAGEMENT DISTRICT
FDEP	FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION	MPD	MULTI-PRODUCT DISPENSER (FUEL PUMP)	SS	SANITARY SEWER
		N/A	NOT APPLICABLE	SWPPP	STORMWATER POLLUTION PREVENTION PLAN
		NIC	NOT IN CONTRACT	TSB	TEMPORARY SEDIMENT BASIN
FEMA	FEDERAL EMERGENCY MANAGEMENT AGENCY	NGVD	NATIONAL GEODETIC VERTICAL DATUM	TYP	TYPICAL
FH	FIRE HYDRANT	OHE	OVERHEAD ELECTRIC	UGE	UNDERGROUND ELECTRIC
FOC	FIBER OPTIC CABLE	OR	OFFICIAL RECORD	UGT	UNDERGROUND TELEPHONE
FF EL	FINISH FLOOR ELEVATION	PG	PAGE	USACOE	UNITED STATES ARMY CORP OF ENGINEERS
FM	FORCE MAIN	PSI	POUNDS PER SQUARE INCH	W	WATER (POTABLE)
FPD	FEET PER DAY				
G	GAS	PVC	POLYVINYL CHLORIDE		
GPC	GULF POWER COMPANY	PVMT	PAVEMENT		
GW	GROUND WATER	PROP	PROPOSED		
H/C	HANDICAP	R	RADIUS		

SITE GEOTECHNICAL CONSIDERATIONS

SEE GEOTECHNICAL REPORT UNIVERSAL ENGINEERING SCIENCES. (REPORT No. 134233, DATED JANUARY 14, 2019) FOR ALL SUBSURFACE CONDITIONS, GROUNDWATER, SITE PREPARATION FOR PAVEMENT AND ALL EARTHWORK REQUIREMENTS.

REVISIONS

DATE	DESCRIPTION

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www.Newkirk-Engineering.com
C.A. # 30209
L.C. # 26000584
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Civil Engineering
Transportation, CEI &
Landscape Architecture

NEWKIRK ENGINEERING INC.

DEVELOPMENT INFORMATION
LEGACY POINTE COTTAGES
LESLIE STREET
FLAGLER BEACH, FL 32136

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THIS ITEM HAS BEEN DIGITALLY SIGNED AND SEALED BY HARRY NEWKIRK, PE # 62971 ON

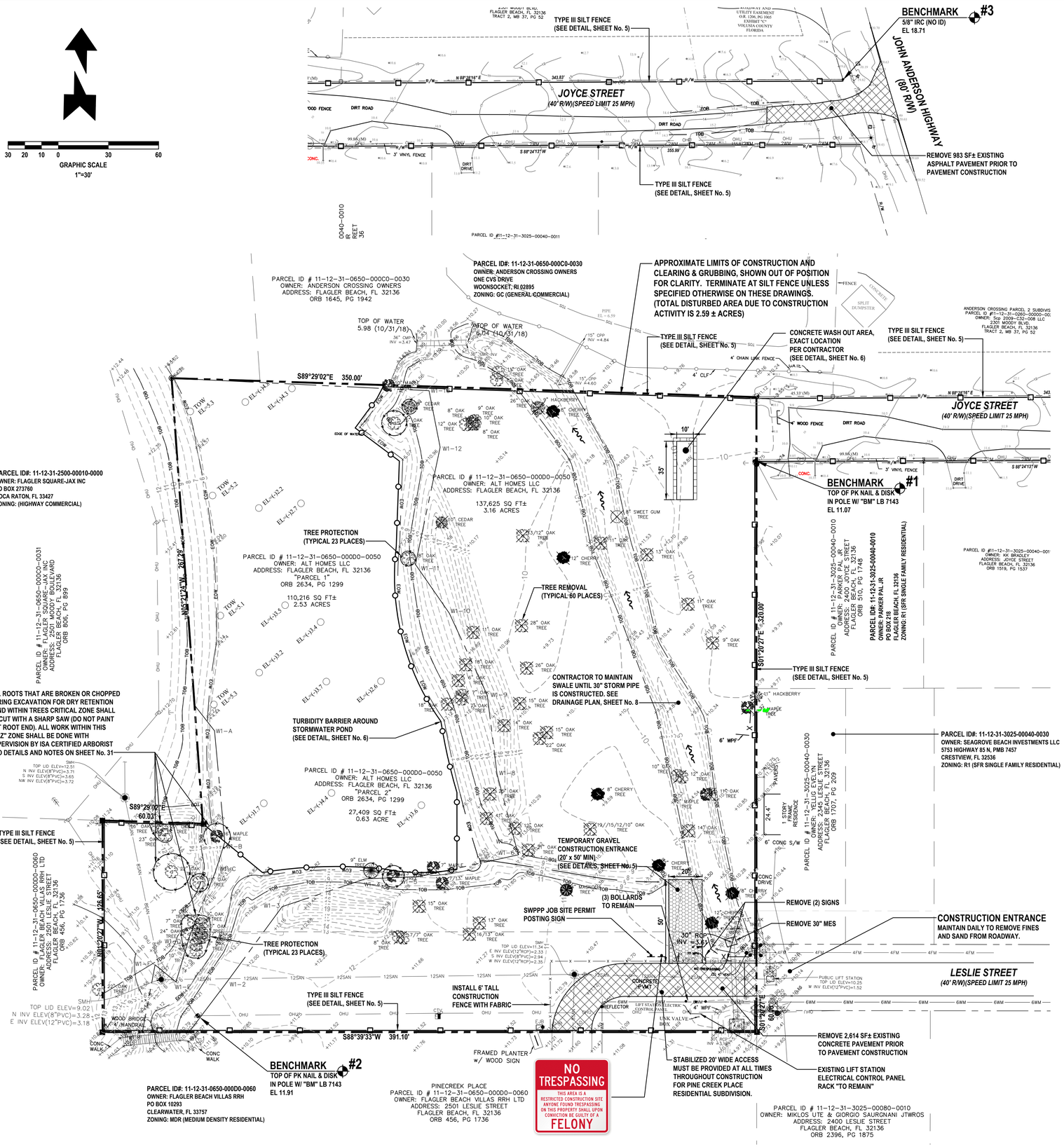
HARRY NEWKIRK LICENSE NO. 62971 STATE OF FLORIDA PROFESSIONAL ENGINEER

PRINTED COPIES OF THIS DOCUMENT ARE NOT CONSIDERED SIGNED AND SEALED AND THE SIGNATURE MUST BE VERIFIED ON ANY ELECTRONIC COPIES.

PROJECT No:	2023-17
DATE:	OCTOBER 2024
DESIGN BY:	HHN
DRAWN BY:	NWS
CHECKED BY:	HHN
SCALE:	

DRAWING NUMBER

3



DEMOLITION AND EROSION CONTROL NOTES:

1. ALL EROSION CONTROL DEVICES AND VISIBLE BARRICADES SHALL BE INSTALLED AND APPROVED BY THE ENGINEER PRIOR TO THE START OF CLEARING AND GRUBBING.
2. THE SITE SHALL BE CLEARED AND GRUBBED OF ALL VEGETATION AND DEBRIS WITHIN THE APPROXIMATE LIMITS OF CLEARING AS INDICATED ON THE DRAWING.
3. THE CONTRACTOR SHALL BE RESPONSIBLE FOR CONTACTING THE CITY FLAGLER BEACH UTILITY DEPARTMENT, FLORIDA SUNSHINE AND EMERGENCY SERVICES FOR RESPECTIVE UTILITY LOCATIONS AND "NOTICE" OF CONSTRUCTION ACTIVITY.
4. ALL REMOVED MATERIAL SHALL BE HAULED OFF-SITE TO AN APPROVED LANDFILL. TREES MAY BE LOGGED OR MULCHED FOR OFF-SITE DISPOSAL AT THE CONTRACTOR'S DISCRETION.
5. ALL EROSION CONTROL DEVICES SHALL BE PLACED PRIOR TO THE START OF WORK AND REMAIN IN PLACE UNTIL ALL WORK IS COMPLETE.
6. CONTRACTOR SHALL BE RESPONSIBLE FOR PERIODIC INSPECTION AND REMOVAL OF DEBRIS AND SILT BEHIND EROSION CONTROL DEVICES.
7. ALL OFF-SITE AREAS DISTURBED DURING CONSTRUCTION ACTIVITY SHALL BE IMMEDIATELY RESTORED TO PRIOR CONDITION UPON COMPLETION OF WORK.
8. SOILS ARE TO BE STABILIZED BY WATER OR OTHER MEANS DURING CONSTRUCTION. THIS IS INTENDED TO REDUCE SOIL EROSION, BLOWING SAND AND THE IMPACT TO NEIGHBORING PROPERTIES.
9. IF PREHISTORIC OR HISTORIC ARTIFACTS, SUCH AS POTTERY OR CERAMICS, STONE TOOLS OR METAL IMPLEMENTS, DUGOUT CANOES, OR ANY OTHER PHYSICAL REMAINS THAT COULD BE ASSOCIATED WITH NATIVE AMERICAN CULTURES, OR EARLY COLONIAL OR AMERICAN SETTLEMENT ARE ENCOUNTERED AT ANY TIME WITHIN THE PROJECT SITE AREA, THE PERMITTED PROJECT SHOULD CEASE ALL ACTIVITIES INVOLVING SUBSURFACE DISTURBANCE IN THE IMMEDIATE VICINITY OF SUCH DISCOVERIES. THE PERMITTEE, OR OTHER DESIGNEE, SHOULD CONTACT THE FLORIDA DEPARTMENT OF STATE, DIVISION OF HISTORICAL RESOURCES, REVIEW AND COMPLIANCE SECTION AT (850) 245-6333 OR (800) 847-7278, AS WELL AS THE APPROPRIATE PERMITTING AGENCY OFFICE. PROJECT ACTIVITIES SHOULD NOT RESUME WITHOUT VERBAL AND/OR WRITTEN AUTHORIZATION FROM THE DIVISION OF HISTORICAL RESOURCES. IN THE EVENT THAT UNMARKED HUMAN REMAINS ARE ENCOUNTERED DURING PERMITTED ACTIVITIES, ALL WORK SHALL STOP IMMEDIATELY AND THE PROPER AUTHORITIES NOTIFIED IN ACCORDANCE WITH SECTION 872.05, FLORIDA STATUTES.

SWPPP INSPECTIONS AND RECORD KEEPING:

INSPECTIONS ARE REQUIRED AT LEAST EVERY SEVEN (7) CALENDAR DAYS AND WITHIN 24 HOURS FOLLOWING A RAINFALL EVENT OF ONE-HALF (1/2) OF AN INCH OF RAINFALL OR GREATER AND SHALL CONTINUE UNTIL THE SITE COMPLIES WITH FINAL STABILIZATION (NOTICE OF TERMINATION). INSPECTIONS MUST BE CONDUCTED BY A "QUALIFIED" INSPECTOR. "QUALIFIED" IS DEFINED AS A PERSON THAT A). HAS SUCCESSFULLY COMPLETED AND MET ALL REQUIREMENTS NECESSARY TO BE FULLY CERTIFIED THROUGH THE FDEP STORMWATER, EROSION AND SEDIMENTATION CONTROL INSPECTOR TRAINING PROGRAM; B). HAS SUCCESSFULLY COMPLETED AN EQUIVALENT FORMAL TRAINING PROGRAM; OR C). THAT IS QUALIFIED BY OTHER TRAINING OR PRACTICAL EXPERIENCE IN THE FIELD OF STORMWATER POLLUTION PREVENTION AND EROSION AND SEDIMENTATION CONTROL. EACH INSPECTION MUST BE FOLLOWED UP BY A REPORT DOCUMENTING THE INSPECTOR'S FINDINGS AND REQUEST THE REQUIRED MAINTENANCE AND/OR REPAIR FOR THE EROSION AND SEDIMENTATION CONTROL MEASURES. THESE RECORDS ARE USED TO PROVE THAT THE REQUIRED INSPECTION AND MAINTENANCE WERE PERFORMED AND SHALL BE PLACED IN THE SWPPP LEDGER. IN ADDITION TO INSPECTION AND MAINTENANCE REPORTS, RECORDS SHOULD BE KEPT OF CONSTRUCTION ACTIVITIES THAT OCCUR ON THE SITE. THE CONTRACTOR SHALL RETAIN COPIES OF THE SWPPP, ALL REPORTS AND DATA FOR A MINIMUM OF FIVE (5) YEARS AFTER THE PROJECT IS COMPLETE IN PAPER AND CD FORMAT.

LEGEND:

- PROPOSED SILT FENCE WITH WIRE (SEE DETAIL, SHEET No. 5)
- PROPOSED TREE PROTECTION (SEE DETAIL, SHEET No. 5)
- PROPOSED TURBIDITY BARRIER (SEE DETAIL SHEET No. 6)
- PROPOSED 6' TALL CONSTRUCTION FENCE WITH FABRIC
- PROPOSED AGGREGATE
- CONCRETE PAVEMENT REMOVAL
- 11" HACKBERRY — EXISTING TREE (No. INDICATES SIZE)
- 11" OAK TREE — TREE TO BE REMOVED
- INLET PROTECTION

BENCHMARK INFORMATION:

#1 TOP OF PK NAIL & DISK IN POLE W/ "BM" LB 7143 ELEVATION = 11.07

#2 TOP OF PK NAIL & DISK IN POLE W/ "BM" LB 7143 ELEVATION = 11.91

#3 5/8" IRC (NO ID) ELEVATION = 18.71

VERTICAL DATA
ELEVATIONS REFER TO (NAVD) NORTH AMERICAN VERTICAL DATUM 1988. FEET AND DECIMAL PART THEREOF. BENCHMARK REFERENCE NAVD DATUM OF 1988.

OVERALL TREE LEGEND:

NAME	SYMBOL	EXISTING	REMOVE	REMAIN
CEDAR		2	1	1
CHERRY		7	7	0
ELM		1	0	1
HACKBERRY		2	1	1
MAGNOLIA		1	1	0
MAPLE		9	5	4
OAK		60	44	16
SWEET GUM		1	1	0
TOTALS:		83	60	23

WARNING !!
CONTRACTOR SHALL TAKE ALL PRECAUTIONS DURING CONSTRUCTION TO AVOID CONTACT WITH EXISTING UNDERGROUND UTILITIES, GAS MAINS AND OVERHEAD ELECTRIC IN THE RIGHT-OF-WAY.

REVISIONS

DATE	DESCRIPTION

1230 North US1, Suite 3
Ormond Beach, Florida 32174
Phone (386) 672-7784
www.Newkirk-Engineering.com
C.A. # 30209
L.C. # 26000584
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Civil Engineering
Transportation, CEI &
Landscape Architecture
NEWKIRK ENGINEERING INC.

DEMOLITION, TREE REMOVAL AND SWPPP PLAN

LEGACY POINTE COTTAGES

LESLIE STREET
FLAGLER BEACH, FL 32136

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HARRY NEWKIRK LICENSE NO. 62971 STATE OF FLORIDA PROFESSIONAL ENGINEER

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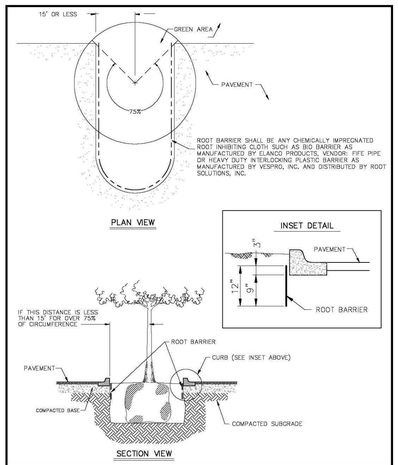
PROJECT No:	2023-17
DATE:	OCTOBER 2024
DESIGN BY:	HHN
DRAWN BY:	NWS
CHECKED BY:	HHN
SCALE:	1" = 30'

DRAWING NUMBER

4



STANDARD CONSTRUCTION DETAIL
ROOT BARRIER
NTS

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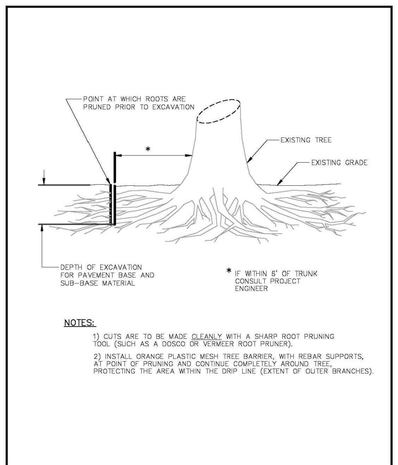
FEB 2018



STANDARD CONSTRUCTION DETAIL
ROOT PRUNING
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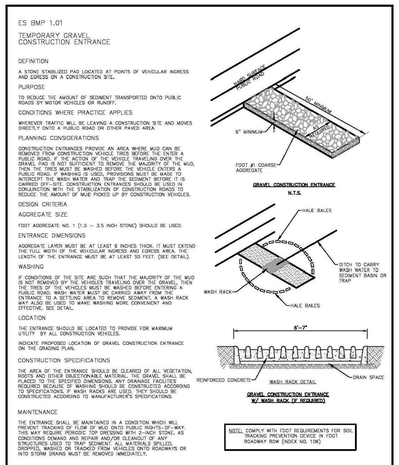

STANDARD CONSTRUCTION DETAIL
TEMPORARY GRAVEL CONSTRUCTION ENTRANCE
NTS

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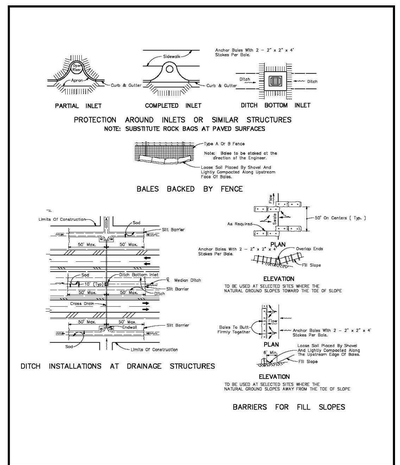

STANDARD CONSTRUCTION DETAIL
EROSION CONTROL – SYNTHETIC BALES
NT

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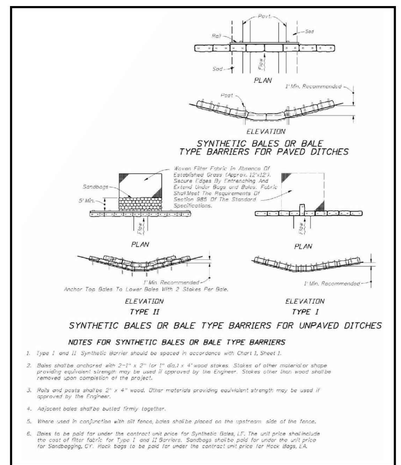
FEB 2018



STANDARD CONSTRUCTION DETAIL
EROSION CONTROL – SYNTHETIC BALES
NTS

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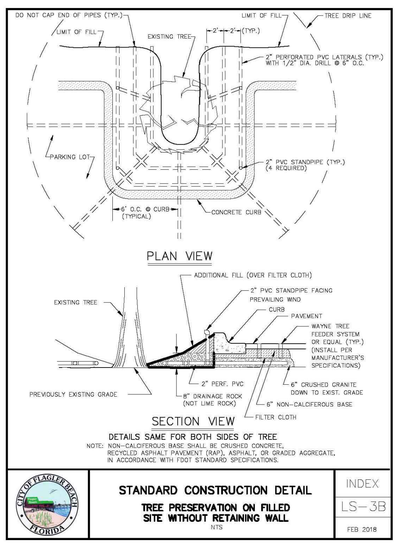

STANDARD CONSTRUCTION DETAIL
TREE PRESERVATION ON FILLED SITE WITHOUT RETAINING WALL
NTS

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LS-3B
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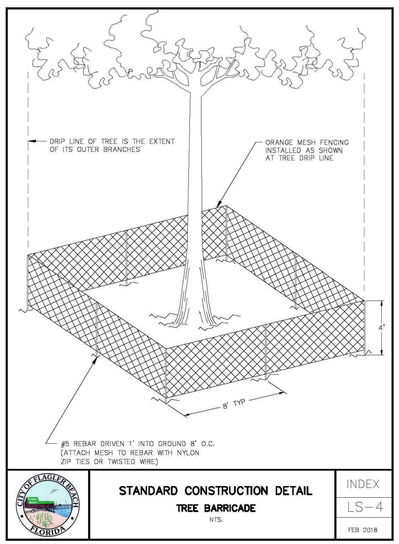

STANDARD CONSTRUCTION DETAIL
TREE BARRICADE
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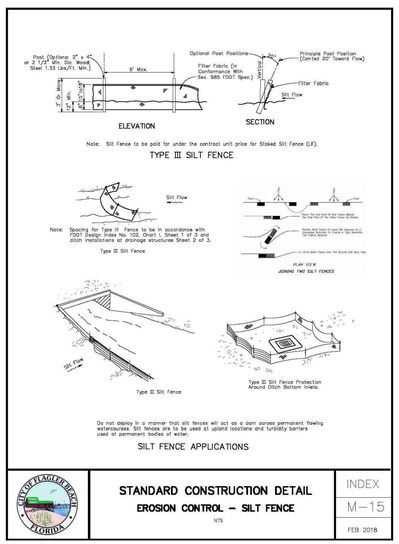

STANDARD CONSTRUCTION DETAIL
EROSION CONTROL – SILT FENCE
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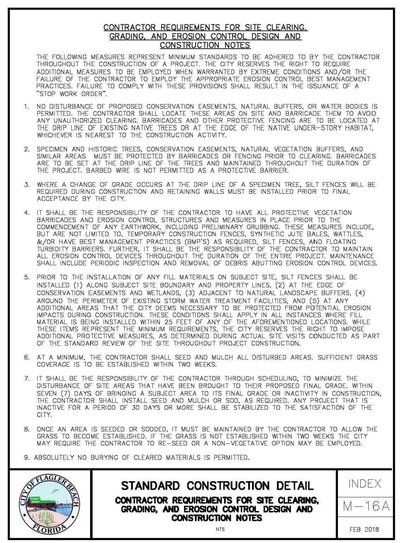

CONTRACTOR REQUIREMENTS FOR SITE CLEARING, GRADING, AND EROSION CONTROL DESIGN AND CONSTRUCTION NOTES

THE FOLLOWING MEASURES REPRESENT MINIMUM STANDARDS TO BE ADHERED TO BY THE CONTRACTOR THROUGHOUT THE CONSTRUCTION OF A PROJECT. THE CITY RESERVES THE RIGHT TO REQUIRE ADDITIONAL MEASURES TO BE EMPLOYED WHEN WARRANTED BY EXTREME CONDITIONS AND/OR THE FAILURE OF THE CONTRACTOR TO EMPLOY THE APPROPRIATE EROSION CONTROL BEST MANAGEMENT PRACTICES. FAILURE TO COMPLY WITH THESE PROVISIONS SHALL RESULT IN THE ISSUANCE OF A "STOP WORK ORDER".

1. NO DISTURBANCE OF PROPOSED CONSERVATION EASEMENTS, NATURAL BUFFERS, OR WATER BODIES IS PERMITTED. THE CONTRACTOR SHALL LOCATE THESE AREAS ON SITE AND BARRICADE THEM TO AVOID ANY UNAUTHORIZED CLEARING. BARRICADES AND OTHER PROTECTIVE FENCING ARE TO BE LOCATED AT THE DRIP LINE OF EXISTING NATIVE TREES OR AT THE EDGE OF THE NATIVE UNDER-STORY HABITAT, WHICHEVER IS NEAREST TO THE CONSTRUCTION ACTIVITY.
2. SPECIMEN AND HISTORIC TREES, CONSERVATION EASEMENTS, NATURAL VEGETATION BUFFERS, AND SIMILAR AREAS MUST BE PROTECTED BY BARRICADES OR FENCING PRIOR TO CLEARING. BARRICADES ARE TO BE SET AT THE DRIP LINE OF THE TREES AND MAINTAINED THROUGHOUT THE DURATION OF THE PROJECT. BARBED WIRE IS NOT PERMITTED AS A PROTECTIVE BARRIER.
3. WHERE A CHANGE OF GRADE OCCURS AT THE DRIP LINE OF A SPECIMEN TREE, SILT FENCES WILL BE REQUIRED DURING CONSTRUCTION AND RETAINING WALLS MUST BE INSTALLED PRIOR TO FINAL ACCEPTANCE BY THE CITY.
4. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO HAVE ALL PROTECTIVE VEGETATION BARRICADES AND EROSION CONTROL STRUCTURES AND MEASURES IN PLACE PRIOR TO THE COMMENCEMENT OF ANY EARTHWORK, INCLUDING PRELIMINARY GRUBBING. THESE MEASURES INCLUDE, BUT ARE NOT LIMITED TO, TEMPORARY CONSTRUCTION FENCES, SYNTHETIC JUTE BALES, MATTLES, &/OR HAVE BEST MANAGEMENT PRACTICES (BMP'S) AS REQUIRED, SILT FENCES, AND FLOATING TURBIDITY BARRIERS. FURTHER, IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO MAINTAIN ALL EROSION CONTROL DEVICES THROUGHOUT THE DURATION OF THE ENTIRE PROJECT. MAINTENANCE SHALL INCLUDE PERIODIC INSPECTION AND REMOVAL OF DEBRIS ABUTTING EROSION CONTROL DEVICES.
5. PRIOR TO THE INSTALLATION OF ANY FILL MATERIALS ON SUBJECT SITE, SILT FENCES SHALL BE INSTALLED (1) ALONG SUBJECT SITE BOUNDARY AND PROPERTY LINES, (2) AT THE EDGE OF CONSERVATION EASEMENTS AND WETLANDS, (3) ADJACENT TO NATURAL LANDSCAPE BUFFERS, (4) AROUND THE PERIMETER OF EXISTING STORM WATER TREATMENT FACILITIES, AND (5) AT ANY ADDITIONAL AREAS THAT THE CITY DEEMS NECESSARY TO BE PROTECTED FROM POTENTIAL EROSION IMPACTS DURING CONSTRUCTION. THESE CONDITIONS SHALL APPLY IN ALL INSTANCES WHERE FILL MATERIAL IS BEING INSTALLED WITHIN 25 FEET OF ANY OF THE AFOREMENTIONED LOCATIONS. WHILE THESE ITEMS REPRESENT THE MINIMUM REQUIREMENTS, THE CITY RESERVES THE RIGHT TO IMPOSE ADDITIONAL PROTECTIVE MEASURES, AS DETERMINED DURING ACTUAL SITE VISITS CONDUCTED AS PART OF THE STANDARD REVIEW OF THE SITE THROUGHOUT PROJECT CONSTRUCTION.
6. AT A MINIMUM, THE CONTRACTOR SHALL SEED AND MULCH ALL DISTURBED AREAS. SUFFICIENT GRASS COVERAGE IS TO BE ESTABLISHED WITHIN TWO WEEKS.
7. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR THROUGH SCHEDULING, TO MINIMIZE THE DISTURBANCE OF SITE AREAS THAT HAVE BEEN BROUGHT TO THEIR PROPOSED FINAL GRADE. WITHIN SEVEN (7) DAYS OF BRINGING A SUBJECT AREA TO ITS FINAL GRADE OR INACTIVITY IN CONSTRUCTION, THE CONTRACTOR SHALL INSTALL SEED AND MULCH OR SOD, AS REQUIRED. ANY PROJECT THAT IS INACTIVE FOR A PERIOD OF 30 DAYS OR MORE SHALL BE STABILIZED TO THE SATISFACTION OF THE CITY.
8. ONCE AN AREA IS SEEDED OR SODDED, IT MUST BE MAINTAINED BY THE CONTRACTOR TO ALLOW THE GRASS TO BECOME ESTABLISHED. IF THE GRASS IS NOT ESTABLISHED WITHIN TWO WEEKS THE CITY MAY REQUIRE THE CONTRACTOR TO RE-SEED OR A NON-VEGETATIVE OPTION MAY BE EMPLOYED.
9. ABSOLUTELY NO BURYING OF CLEARED MATERIALS IS PERMITTED.

STANDARD CONSTRUCTION DETAIL
CONTRACTOR REQUIREMENTS FOR SITE CLEARING, GRADING, AND EROSION CONTROL DESIGN AND CONSTRUCTION NOTES
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CONTRACTOR REQUIREMENTS FOR SITE CLEARING, GRADING, AND EROSION CONTROL DESIGN AND CONSTRUCTION NOTES

10. THE REMOVAL OF ALL VEGETATION AND TOPSOIL ON THE FUTURE ROADWAY, PARKING AND BUILDING LOT AREAS IS REQUIRED TO BE COMPLETED PRIOR TO THE PLACEMENT OF FILL ON THOSE AREAS. THE TOPSOIL MAY BE TEMPORARILY STOCKPILED AND USED AS TOPSOIL OVER OVER PROPOSED GREEN AREAS SUCH AS PLANT BEDS, SODDED AREAS, AND WHERE TREES ARE TO BE INSTALLED OR RELOCATED.
11. A SIGNED, DATED, AND SEALED LETTER FROM A SOILS ENGINEER OR THE ENGINEER OF RECORD CERTIFYING THAT THE AREAS TO BE FILLED HAVE BEEN STRIPPED OF ORGANIC MATERIALS, MUST BE SUBMITTED TO THE CITY PRIOR TO FILLING.
10. FILL MATERIAL IS TO BE PLACED IN ONE FOOT LIFTS AND COMPACTED TO THE APPROPRIATE DENSITY (98% FOR PAVED AREAS AND 95% FOR BUILDING PADS AND ALL OTHER AREAS AS PER AASHTO T-180).
11. DURING SUBDIVISION DEVELOPMENT WHEN FUTURE BUILDING LOTS ARE FILLED AS PART OF THE OVERALL SUBDIVISION IMPROVEMENTS, COMPACTION TEST REPORTS MUST BE PERFORMED ON THE BUILDING LOTS AT 300 FOOT INTERVALS. THESE TESTS ARE TO BE PERFORMED IN ONE-FOOT VERTICAL INCREMENTS. THE RESULTS OF THESE TESTS ARE TO BE SUBMITTED TO THE CITY UPON COMPLETION OF THE TESTS.
12. IF ANY MUCK MATERIAL IS DISCOVERED, IT SHALL BE REQUIRED TO BE REMOVED AND REPLACED WITH A SUITABLE MATERIAL THAT IS PROPERLY BACKFILLED, COMPACTED AND TESTED USING AASHTO T-180 MODIFIED PROCTOR METHOD.
13. STOCKPILING IS NOT GENERALLY PERMITTED BY THE CITY. WHEN ALLOWED, STOCKPILES SHALL NOT EXCEED SIX FEET IN HEIGHT MEASURED FROM THE ORIGINAL GRADE. AT A MINIMUM, STOCK PILES THAT WILL REMAIN IN PLACE IN EXCESS OF TWENTY DAYS SHOULD BE SEEDED AND MULCHED IMMEDIATELY UPON PLACEMENT OF THE FINAL LIFT.
14. SOILS ARE TO BE STABILIZED BY WATER OR OTHER MEANS DURING CONSTRUCTION. THIS IS INTENDED TO REDUCE DUST, EROSION AND THE IMPACT TO NEIGHBORING COMMUNITIES. ADEQUATE WATERING METHODS SHOULD BE EMPLOYED TO ALLOW DAILY COVERAGE OF THE ENTIRE LIMITS OF ALL AREAS THAT DO NOT HAVE AN ESTABLISHED VEGETATIVE COVER. METHODS TO BE EMPLOYED INCLUDE, BUT ARE NOT LIMITED TO, WATER TRUCKS, PERMANENT IRRIGATION SYSTEMS, TEMPORARY SPRINKLER SYSTEMS OPERATED BY PUMPING UNITS CONNECTED TO WET RETENTION PONDS, WATER CANNONS, TEMPORARY IRRIGATION SYSTEMS MOUNTED ATOP STOCKPILE AREAS, AND OTHER METHODS AS DEEMED NECESSARY BY THE CITY.
15. ALL FILL MATERIALS LOCATED BENEATH STRUCTURES AND PAVEMENT SHALL CONSIST OF CLEAN GRANULAR SAND FREE FROM ORGANICS AND SIMILAR MATERIAL THAT COULD DECOMPOSE.
16. ALL FILL TO BE PLACED IN LANDSCAPED AREAS SHALL HAVE A Ph RANGE BETWEEN 5.5 AND 7.5, BE ORGANIC IN NATURE, FREE OF ROCKS AND DEBRIS, OR MATCH NATIVE EXISTING SOILS.
17. OWNER SHALL FILE A "NOTICE OF INTENT TO USE GENERIC PERMIT FOR STORM WATER DISCHARGE FROM LARGE AND SMALL CONSTRUCTION ACTIVITIES" WITH THE FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION AS REQUIRED BY DEP. CONTRACTOR SHALL BE REQUIRED TO COMPLY WITH ALL PROVISIONS OF THE GENERIC PERMIT INCLUDING BUT NOT LIMITED TO:
    A. PROVIDE SUCH EROSION AND SEDIMENT CONTROL MEASURES AS MAY BE NECESSARY TO PREVENT DISCHARGE OF POLLUTANTS FROM THE SITE FROM THE START OF CONSTRUCTION UNTIL THE FINAL GROUND COVER HAS BEEN ESTABLISHED.
    B. EMPLOY A DEP CERTIFIED INSPECTOR TO MAKE WEEKLY INSPECTIONS / REPORTS OF THE CONDITION OF EROSION AND SEDIMENT CONTROL MEASURES.
    C. EMPLOY A DEP CERTIFIED INSPECTOR TO MAKE INSPECTIONS / REPORTS OF THE CONDITION OF EROSION AND SEDIMENT CONTROL MEASURES WITHIN 24 HOURS OF EVERY RAINFALL EVENT EXCEEDING ONE-HALF INCH.
    D. MAINTAIN ALL EROSION AND SEDIMENT CONTROL MEASURES THROUGHOUT CONSTRUCTION.
    E. ADD EROSION AND SEDIMENT CONTROL MEASURES AS SITE CONDITIONS CHANGE.

STANDARD CONSTRUCTION DETAIL
CONTRACTOR REQUIREMENTS FOR SITE CLEARING, GRADING, AND EROSION CONTROL DESIGN AND CONSTRUCTION NOTES
NTS

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M-16B
FEB 2018

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NEWKIRK ENGINEERING INC.

REVISIONS

DATE	DESCRIPTION

SWPPP DETAILS AND NOTES
LEGACY POINTE COTTAGES
LESLIE STREET
FLAGLER BEACH, FL 32136

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HARRY NEWKIRK LICENSE NO. 62971 STATE OF FLORIDA PROFESSIONAL ENGINEER

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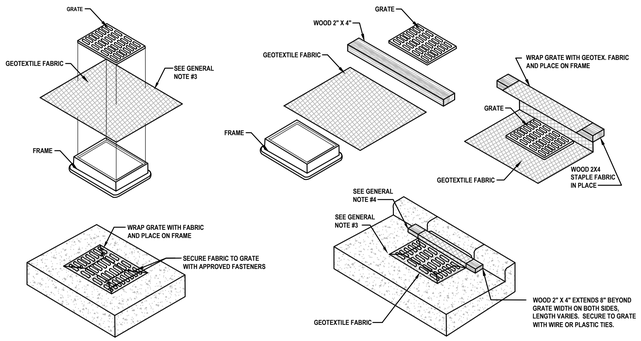
PROJECT No:	2023-17
DATE:	OCTOBER 2024
DESIGN BY:	HHN
DRAWN BY:	NWS
CHECKED BY:	HHN
SCALE:	

DRAWING NUMBER

5



YARD INLET PROTECTION
(CAN BE INSTALLED IN ANY INLET WITHOUT A CURB BOX)

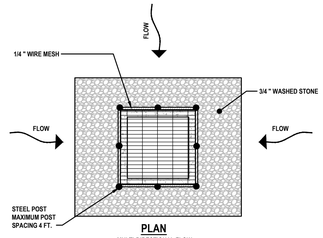
CURB INLET PROTECTION

GENERAL NOTES:

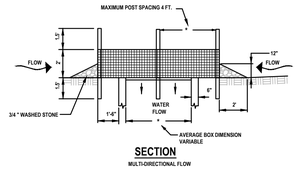
1. GEOTEXTILE TO BE MIRAFI FILTERWEAVE 402 OR GEOTEX 111F. ALTERNATIVES INCLUDE APPROVED EQUAL ASTM D4491 OR 100 TO 150 GALLON PER MINUTE PER SQUARE FOOT.
2. WHEN REMOVING OR MAINTAINING INLET PROTECTION, CARE SHALL BE TAKEN SO THAT THE SEDIMENT TRAPPED ON THE GEOTEXTILE FABRIC DOES NOT FALL INTO THE INLET. ANY MATERIAL FALLING INTO THE INLET SHALL BE REMOVED IMMEDIATELY.
3. FINISHED SIZE, INCLUDING FLAP POCKETS WHERE REQUIRED, SHALL EXTEND A MINIMUM OF 10" AROUND THE PERIMETER TO FACILITATE MAINTENANCE OR REMOVAL.
4. FOR CURB INLET PROTECTION AN ADDITIONAL 18" OF FABRIC IS WRAPPED AROUND THE WOOD AND SECURED WITH STAPLES. THE WOOD SHALL NOT BLOCK THE ENTIRE HEIGHT OF THE CURB BOX OPENING.
5. TRIM EXCESS FABRIC IN THE FLOW LINE TO WITHIN 3" OF THE GRATE.
6. THE CONTRACTOR SHALL DEMONSTRATE A METHOD OF MAINTENANCE, USING A SEWN FLAP, HAND HOLDS, OR OTHER METHOD TO PREVENT ACCUMULATED SEDIMENT FROM ENTERING THE INLET.

GEOTEXTILE FABRIC INLET PROTECTION

NOT TO SCALE



PLAN
MULTI-DIRECTIONAL FLOW



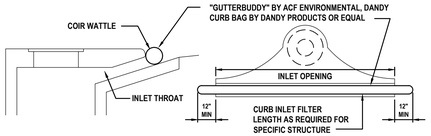
SECTION
MULTI-DIRECTIONAL FLOW

NOTE:

1. SEDIMENT CONTROL STONE SHALL BE 3/4" WASHED STONE.
2. WIRE MESH SHALL BE HARDWARE CLOTH 23 GAUGE MIN. AND SHALL HAVE 1/4 INCH MESH
3. TOP OF WIRE MESH SHALL BE A MINIMUM OF ONE FOOT BELOW THE SHOULDER OR ANY DIVERSION POINT.
4. STEEL POST SHALL BE 5 FT. IN LENGTH, BE INSTALLED 1.5 FT. DEEP MINIMUM, AND BE OF THE SELF-FASTENER ANGLE STEEL TYPE.
5. WOOD POST SHALL BE 5 FT. IN HEIGHT, BE INSTALLED TO 1.5 FT. DEEP MINIMUM, AND BE 3 INCHES IN DIAMETER.
6. POST SPACING SHALL BE A MAXIMUM OF 4 FT.

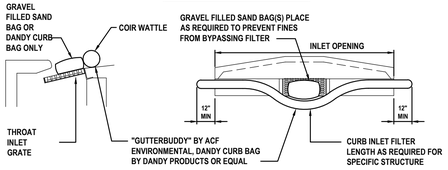
HARDWARE CLOTH INLET PROTECTION

NOT TO SCALE



SECTION PLAN

CURB INLET WITHOUT GRATE



SECTION PLAN

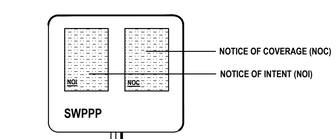
CURB INLET WITH GRADE

NOTES:

1. INSTALL FILTER PRIOR TO BEGINNING CONSTRUCTION.
2. INSPECT ONCE EACH WEEK AND AFTER ANY RAIN EVENT. REMOVE ANY FINES AND DEBRIS THAT MAY HAVE ACCUMULATED AND DISPOSE OF PROPERLY.

CURB INLET SEDIMENT PREVENTION DETAIL

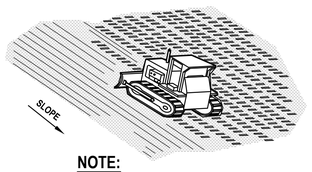
NOT TO SCALE



1. NOTICE OF INTENT (NOI) (APPLICATION FOR PERMIT COVERAGE) AND NOTICE OF COVERAGE (NOC) (OR APPROVAL FROM REGULATORY AGENCY) ARE TO BE POSTED.
2. ALL POSTING IS TO BE AT JOB SITE ENTRANCE WHERE IT MAY BE VIEWED BY AUTHORITIES HAVING JURISDICTION AND THE PUBLIC.
3. POSTING IS REQUIRED FROM THE DAY CONSTRUCTION ACTIVITIES START UNTIL THE NOTICE OF TERMINATION (NOT) IS FILED.
4. PROJECT MUST BE POSTED IN TWO LOCATIONS: AT THE JOB SITE ENTRANCE AND INSIDE WALL OF JOB TRAILER.

JOB SITE PERMIT POSTING DETAIL

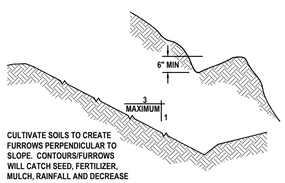
NOT TO SCALE



NOTE:
USE DOZER TRACKS TO CREATE GROOVES PERPENDICULAR TO THE SLOPE. GROOVES WILL CATCH SEED, FERTILIZER, MULCH, RAINFALL AND DECREASE SEDIMENT IN RUNOFF.

TRACKING DETAIL

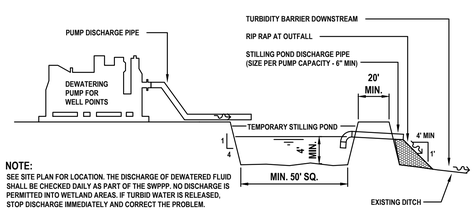
NOT TO SCALE



CULTIVATE SOILS TO CREATE FURROWS PERPENDICULAR TO SLOPE. CONTOURS/FURROWS WILL CATCH SEED, FERTILIZER, MULCH, RAINFALL AND DECREASE RUNOFF.

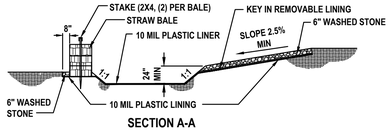
SURFACE ROUGHENING

(NOT TO SCALE)

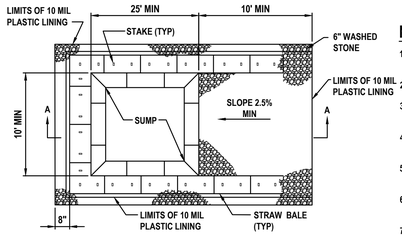


NOTE:
SEE SITE PLAN FOR LOCATION. THE DISCHARGE OF DEWATERED FLUID SHALL BE CHECKED DAILY AS PART OF THE SWPPP. NO DISCHARGE IS PERMITTED INTO WETLAND AREAS. IF TURBID WATER IS RELEASED, STOP DISCHARGE IMMEDIATELY AND CORRECT THE PROBLEM.

TYPICAL DEWATERING DISCHARGE DETAIL



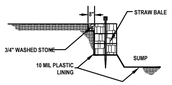
SECTION A-A



PLAN

CONCRETE WASHOUT AREA

NOT TO SCALE



ALTERNATE SECTION
USE WHERE MORE THAN ONE ACCESSIBLE SIDE IS NEEDED

WASHOUT SIGN

NOTES:

1. PIT IS SPECIFICALLY DESIGNATED, DIKED AND IMPERVIOUS CONTAINMENT TO PREVENT CONTACT BETWEEN CONCRETE WASH AND STORMWATER.
2. WASH WATER SHALL NOT BE ALLOWED TO FLOW TO SURFACE WATER.
3. FACILITY MUST HOLD SUFFICIENT VOLUME TO CONTAIN CONCRETE WASTE WITH A MINIMUM FREEBOARD OF 12."
4. FACILITY SHALL NOT BE FILLED BEYOND 95% CAPACITY UNLESS A NEW FACILITY IS CONSTRUCTED.
5. SAW CUT PORTLAND CEMENT CONCRETE, RESIDUE FROM SAWCUT & GRINDING TO BE DISPOSED OF IN THE PIT.
6. CONCRETE WASHOUTS SHALL BE LOCATED A MINIMUM OF 100' FROM DRAINAGE WAYS, INLETS, & SURFACE WATERS.
7. MANUFACTURED CONCRETE WASHOUT DEVICES MAY BE USED IF REMOVED FROM THE SITE WHEN 95% FULL CAPACITY.

TEMPORARY SEEDING SPECIFICATION:

GENERAL
SEEDING CAN BE USED FOR TEMPORARY STABILIZATION. DISTURBED AREAS OF THE SITE WHERE CONSTRUCTION ACTIVITY HAS CEASED FOR MORE THAN 7 DAYS SHALL BE TEMPORARILY SEEDED AND WATERED. AREAS WHERE FINAL GRADING HAS BEEN COMPLETED FOR MORE THAN 7 DAYS SHALL BE TEMPORARILY SEEDED. TEMPORARY SEED MIXTURE IS SPECIFIED BELOW.

SEEDING MIXTURES
SEED MIXTURE SHALL BE BERMUDA COMMON 90 LB PURE LIVE SEED PER ACRE, FIBER 2000 LB PER ACRE, STABILIZER 120 LB PER ACRE AND FERTILIZER 300 LB PER ACRE.

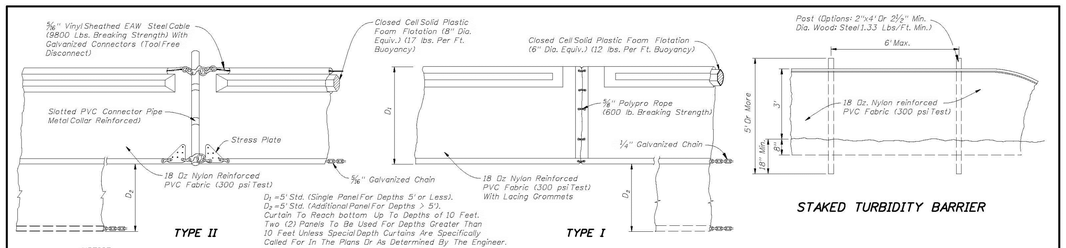
ALL SLOPES AND FLAT GRADE
APPLY 6:20:20 COMMERCIAL ORGANIC FERTILIZER AT A RATE OF 300 LB PER ACRE AND SEED IN ACCORDANCE WITH THE FOLLOWING SCHEDULE:

TEMPORARY SEEDING

PLANTING DATES	SEED VARIETY	APPLICATION RATE
MARCH 15 - OCTOBER 15	PENSACOLA BAHIA (SCARIFIED)	90
	BERMUDA COMMON (50% HULLED)	25
0CTOBER 16 - MARCH 14	PENSACOLA BAHIA (SCARIFIED)	100
	BERMUDA COMMON (50% HULLED)	35
	ANNUAL RYE GRASS	10
	RYE GRAIN	30

MULCH SEEDED AREA WITH 2 TONS PER ACRE CLEAN GRAIN STRAW. ANCHOR STRAW WITH HYDRAULIC WOOD FIBER MULCH AT THE RATE OF 1000 LB PER ACRE, OR 150-200 POUNDS OF ORGANIC MULCH TACKIFIER PER ACRE, OR USE NETTING.

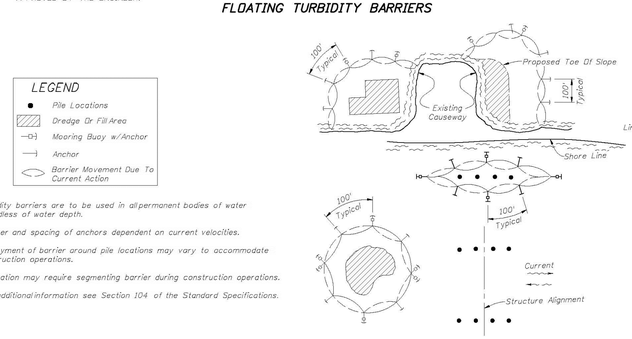
HYDRO FIBER MULCH MIXTURE SHALL BE PERFORMED IN A TANK WITH A CONTINUOUS AGITATION AND RECIRCULATION SYSTEM WITH SUFFICIENT OPERATING CAPACITY TO PRODUCE A HOMOGENOUS SLURRY AND DISCHARGE SYSTEM WHICH WILL APPLY THE SLURRY AT A CONTINUOUS AND UNIFORM RATE. MIXTURE SHALL CONTAIN A GREEN FUGITIVE DYE AS AN APPLICATION INDICATOR.



TYPE II TYPE I STAKED TURBIDITY BARRIER

NOTICE:
COMPONENTS OF TYPES I AND II MAY BE SIMILAR OR IDENTICAL TO PROPRIETARY DESIGNS. ANY INFRINGEMENT ON THE PROPRIETARY RIGHTS OF THE DESIGNER SHALL BE THE SOLE RESPONSIBILITY OF THE USER. SUBSTITUTIONS FOR TYPES I AND II SHALL BE AS APPROVED BY THE ENGINEER.

FLOATING TURBIDITY BARRIERS



Notes:
1. Turbidity barriers are to be used in all permanent bodies of water regardless of water depth.
2. Number and spacing of anchors dependent on current velocities.
3. Deployment of barrier around pile locations may vary to accommodate construction operations.
4. Navigation may require segmenting barrier during construction operations.
5. For additional information see Section 104 of the Standard Specifications.

Note:
Turbidity barriers for flowing streams and tidal creeks may be either floating, or staked types or any combinations of types that will suit site conditions and meet erosion control and water quality requirements. The barrier type(s) will be at the Contractor's option unless otherwise specified in the plans, however payment will be under the pay item(s) established in the plans for Floating Turbidity Barrier and/or Staked Turbidity Barrier. Posts in staked turbidity barriers to be installed in vertical position unless otherwise directed by the Engineer.

GENERAL NOTES

1. Floating turbidity barriers are to be paid for under the contract unit price for Floating Turbidity Barrier, LF.
2. Staked turbidity barriers are to be paid for under the contract unit price for Staked Turbidity Barrier, LF.

TURBIDITY BARRIER APPLICATIONS

2010 FDOT Design Standards	Last Revision	Sheet No.
TURBIDITY BARRIERS	07/01/07	1 of 1
	Index No.	103

REVISIONS

DATE	DESCRIPTION

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SWPPP DETAILS AND NOTES

LEGACY POINTE COTTAGES

LESLIE STREET
FLAGLER BEACH, FL 32136

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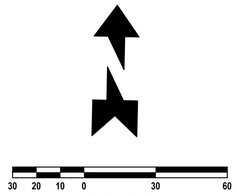
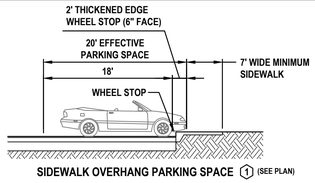




SIDEWALK OVERHANG PARKING SPACE (1) (SEE PLAN)

PAVING LEGEND

ASPHALT PAVEMENT	1.5" SP-12.5 (TL-C) WITH TACK COAT PER FDOT SPECIFICATIONS 6" CRUSHED CONCRETE (LBR=130) MIN OF 98% MODIFIED PROCTOR MAX DENSITY PER AASHTO T-180 (4" MAX. LIFTS) 12" STABILIZED SUBBASE (LBR 40) MIN OF 98% MODIFIED PROCTOR MAX DENSITY PER AASHTO T-180 (TYPE B STABILIZATION) * ALTERNATE 12" STABILIZED SUBBASE: 6.5" CRUSHED CONCRETE (LBR=130) MIN OF 98% MODIFIED PROCTOR MAX DENSITY PER AASHTO T-180 (4" MAX. LIFTS) (TYPE B STABILIZATION) *ALTERNATE PAVEMENT TO ASPHALT IS CONCRETE PAVEMENT
CONCRETE PAVEMENT	6" CONCRETE (4,000 P.S.I. @ 28 DAYS) 12" STABILIZED SUBGRADE (LBR 40) MIN OF 98% MODIFIED PROCTOR MAX DRY DENSITY PER ASTM D1557, AASHTO T-180 (6" LIFTS) (TYPE B STABILIZATION). SEE DETAIL, SHEET No. 21 & 24
CONCRETE SIDEWALK	4" THICK CLASS I CONCRETE (3,000 P.S.I. @ 28 DAYS) PER FDOT INDEX 522-001 (SEE DETAIL, SHEET No. 20, 24 & 25)
ARTIFICIAL TURF	ARTIFICIAL TURF (INSTALL PER MANUFACTURER SPECIFICATIONS)

LEGEND

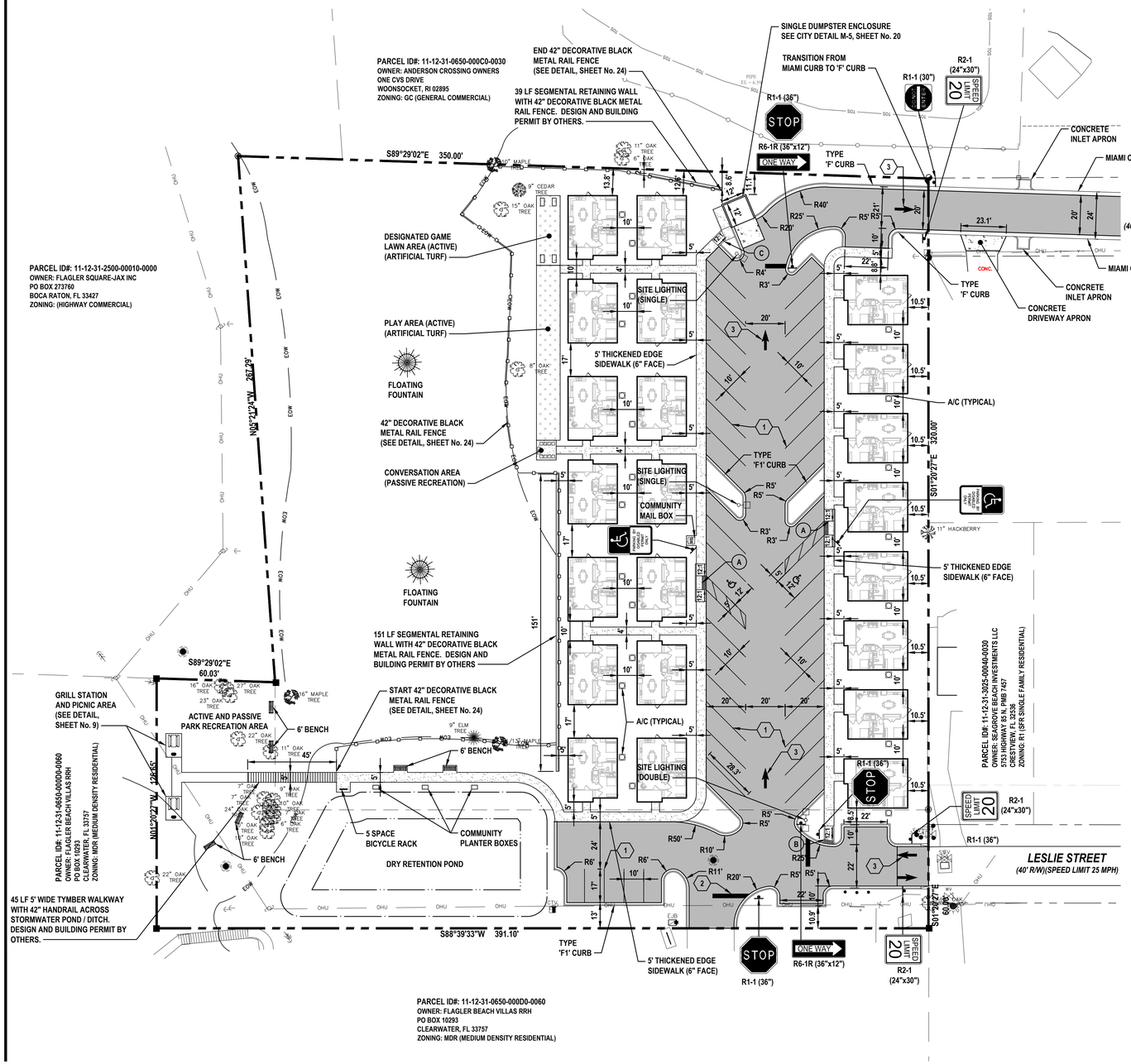
- TYPE 'F1' CURB
- TYPE 'F' CURB
- MIAMI CURB
- 24" DETECTABLE WARNING MAT
- TRANSITION FROM "F1" CURB ENVIRONMENTAL CURB
- SITE LIGHTING
  SEE SITE LIGHTING PLAN FOR COMPLETE SPECIFICATIONS
  (SITE LIGHTING SHALL NOT EMIT MORE THAN 0.5 FOOT-CANDLES AT THE PROPERTY LINE. ADD GLARE GUARDS IF REQUIRED.) (SEE SHEET, No. 29-30)
- FLOATING FOUNTAIN
  FOUNTAIN SPECIFICATIONS:
  MANUFACTURER - EAGLE FOUNTAINS
  MODEL - EFS-3000 (BIG FOUNTAIN)
  MOTOR - 230V, 1 PHASE
- 6' BENCH
  SEE DETAIL, SHEET No. 9

SIDEWALK RAMP KEYNOTES:

(A) SIDEWALK CURB RAMP C (SEE DETAIL, SHEET No. 25)

(B) SIDEWALK CURB RAMP E (SEE DETAIL, SHEET No. 25)

(C) SIDEWALK CURB RAMP G (SEE DETAIL, SHEET No. 25)



GENERAL NOTES:

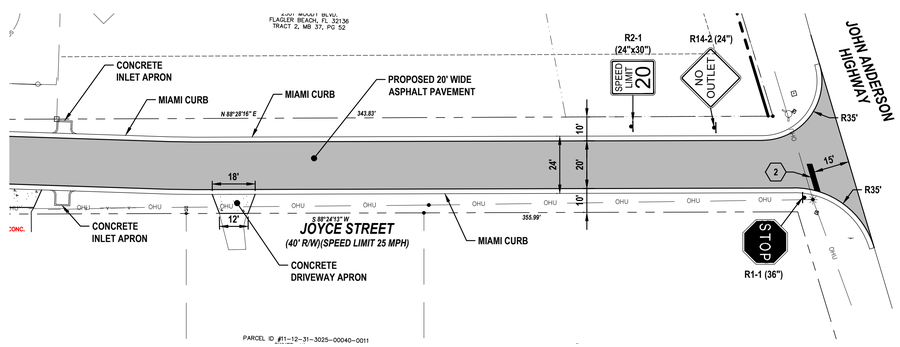
1. CITY OF FLAGLER BEACH BUILDING PERMITS ARE REQUIRED FOR BUILDING, CANOPIES, DUMPSTER ENCLOSURE, LIGHT POLES, FENCE AND SIGNS. CONTRACTOR SHALL BE RESPONSIBLE FOR SUBMITTING APPROPRIATE INFORMATION (ENGINEERING, SPECIFICATIONS, ETC.) AT TIME OF BUILDING PERMIT.
2. ALL CONSTRUCTION IN THE FDOT ROW SHALL CONFIRM TO THE LATEST EDITIONS OF THE FDOT DESIGN STANDARDS [INDEXES], THE FDOT STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION AND THE FDOT UTILITY ACCOMMODATION MANUAL.
3. ALL DIMENSIONS AND TIES ARE TO THE EDGE OF PAVEMENT AND OUTSIDE FACE OF BUILDING.
4. ALL IMPROVEMENTS SHALL BE STAKED FOR CONSTRUCTION BY MEANS OF DIGITAL COORDINATES BY SURVEYOR UTILIZING GEODETIC TOTAL STATION OR GPS. SCALING OF DRAWINGS FOR PURPOSES OF STAKING ARE AT THE SURVEYOR'S RISK.
5. THE CONTRACTOR SHALL COORDINATE WITH THE EXISTING ADJACENT BUSINESSES TO ENSURE THERE IS NO DISRUPTION TO THEIR RESPECTIVE OPERATIONS.
6. THE CONTRACTOR AT ITS OWN DISCRETION SHALL MAINTAIN THE CONSTRUCTION SITE SECURE FROM TRESPASS.
7. SOD ALL DISTURBED AREAS IN RIGHT-OF-WAY WITH BAHIA SOD.
8. ALL CURB RAMPS SHALL COMPLY WITH SECTION 406 OF FLORIDA ACCESSIBILITY CODE FOR BUILDING CONSTRUCTION (FACBC).
9. ALL PAVEMENT EDGE SHALL HAVE TYPE "F-1" CURBING UNLESS OTHERWISE NOTED ON THESE PLANS.
10. ALL WALL-MOUNTED EQUIPMENT SUCH AS ELECTRICAL METERS, IRRIGATION METERS, PHONE/CABLE BOXES, EXTERNAL VENTS AND LOUVERS, ETC., SHALL BE PAINTED TO MATCH THE WALL ON WHICH IT IS MOUNTED OR OTHERWISE CONSISTENT WITH THE COLOR(S) OF THE BUILDING.
11. ALL MATERIALS, MACHINERY AND VEHICLES SHALL BE STORED ON-SITE IN AN ORDERLY ORGANIZED FASHION.
12. COMMERCIAL IMPACT FEE SHALL BE CALCULATED, DUE AND PAYABLE WITHIN 30 DAYS OF INITIATION OF PERMANENT ELECTRIC SERVICE.
13. CONTRACTOR TO PROVIDE PREMISE IDENTIFICATION FOR BUILDING DURING CONSTRUCTION.
14. THE PROPOSED FIVE FOOT SIDEWALK THAT CONNECTS TO THE EXISTING SIDEWALK ALONG SR-100 SHALL BE MAINTAINED BY THE PROPERTY OWNER.
15. ALL PROPOSED CURBING SHALL BE TYPE 'F1'.
16. ALL COMPACTION SHALL BE 98% OF THE MODIFIED PROCTOR MAXIMUM DENSITY (AASHTO T-180).
17. THE USES PROPOSED AS PART OF THIS SITE PLAN DO NOT REQUIRE A SUBMITTAL OF A RISK MANAGEMENT PLAN (RMP) PURSUANT TO U.S. ENVIRONMENTAL PROTECTION AGENCY (EPA) REGULATIONS AND SHALL NOT EXCEED EPA's RMP THRESHOLD QUANTITIES OF LISTED SUBSTANCES.
18. THE SIGN PERMIT WILL BE UNDER SEPARATE APPLICATION TO BE REVIEWED BY THE CITY'S PLANNING AND ZONING DEPARTMENT.

PAVEMENT MARKING NOTES:

1. PARKING STALL LINES AND LOADING ZONE PAVEMENT MARKINGS COMPLY WITH THE MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES (MUTCD), LATEST EDITION, AND MAINTAINED IN A CLEAR AND VISIBLE CONDITION.
2. PAINTED PAVEMENT MARKINGS SHALL BE APPLIED AFTER PAVEMENT SURFACE HAS CURED. SURFACE SHALL BE FREE OF FINE SAND AND DEBRIS PRIOR TO APPLICATIONS.
3. APPLY PAINTED PAVEMENT MARKINGS AT LAST STAGE OF CONSTRUCTION AFTER LANDSCAPE PLANTINGS ARE INSTALLED.
4. PAINT SHALL BE SHERWIN WILLIAMS LOW-VOC ACRYLIC PRO PARK PAINT, APPLY PER MANUFACTURER'S RECOMMENDATIONS. REFER TO DRAWINGS FOR LOCATIONS OF SPECIFIC COLORS.
5. ALL STOP BARS SHALL BE THERMOPLASTIC.
6. ALL REFLECTIVE PAVEMENT MARKERS ARE TO BE PLACED IN ACCORDANCE WITH FDOT STANDARD INDEX NO. 706-101.
7. LOCATION OF SIGNS IS APPROXIMATE ONLY AND IS SUBJECT TO CHANGE AS DIRECTED BY THE ENGINEER.
8. FOR ADDITIONAL DETAILS SEE INDEX NO. 700-010, 700-101 AND 711-001.

STRIPING KEYNOTES: (PER FDOT INDEX No. 711-001, ONLY THERMOPLASTIC IN R/W)

(1) 6" SOLID WHITE LINE
(2) 24" WHITE STOP BAR
(3) WHITE DIRECTIONAL ARROW



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12/19/24	CITY COMMENTS

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SITE LAYOUT PLAN
LEGACY POINTE COTTAGES
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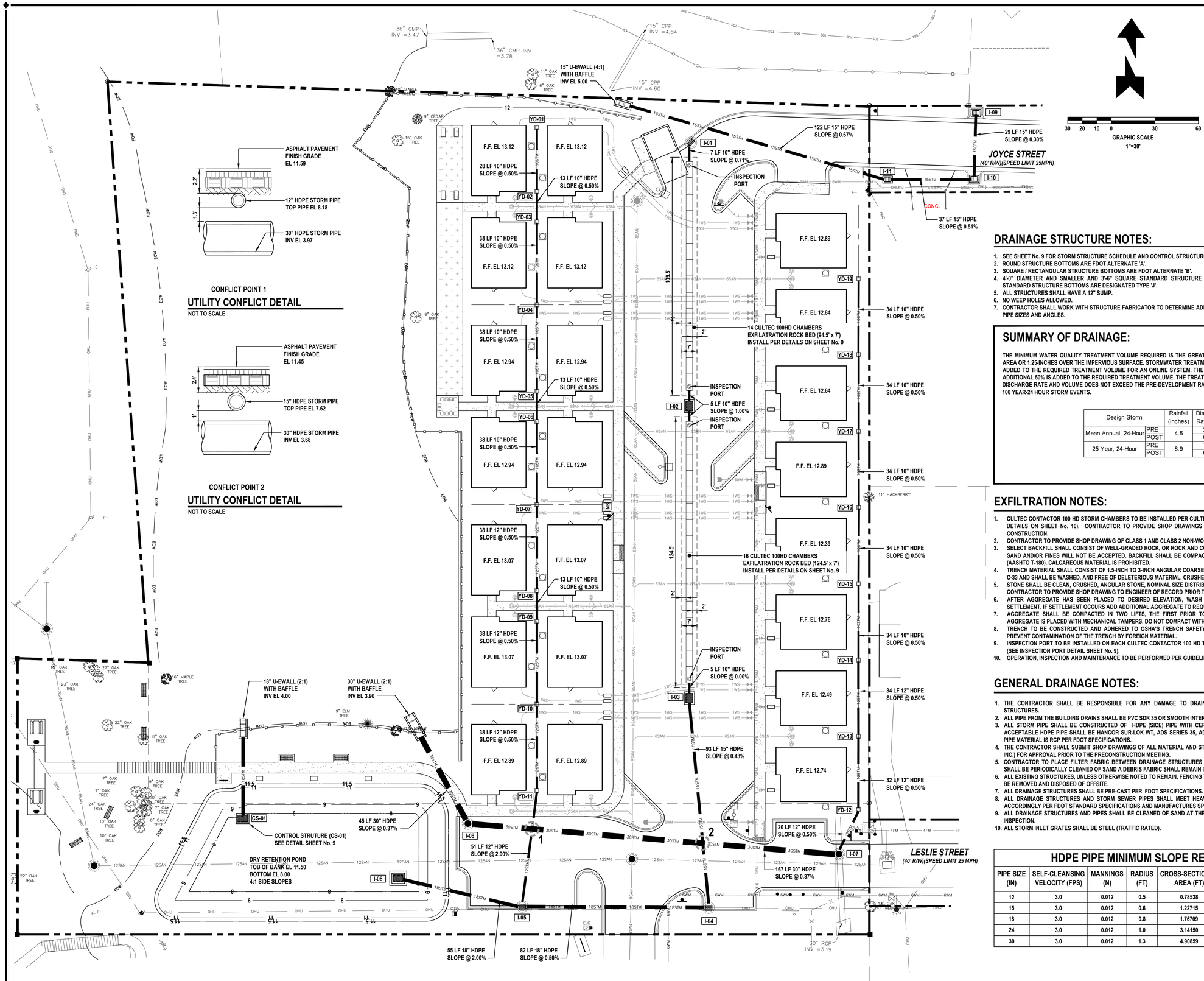

DRAINAGE STRUCTURE NOTES:

1. SEE SHEET No. 9 FOR STORM STRUCTURE SCHEDULE AND CONTROL STRUCTURE DETAIL.
2. ROUND STRUCTURE BOTTOMS ARE FDOT ALTERNATE 'A'.
3. SQUARE / RECTANGULAR STRUCTURE BOTTOMS ARE FDOT ALTERNATE 'B'.
4. 4'-0" DIAMETER AND SMALLER AND 3'-6" SQUARE STANDARD STRUCTURE BOTTOMS ARE FDOT TYPE DESIGNATED 'P' LARGER STANDARD STRUCTURE BOTTOMS ARE DESIGNATED TYPE 'J'.
5. ALL STRUCTURES SHALL HAVE A 12" SUMP.
6. NO WEEP HOLES ALLOWED.
7. CONTRACTOR SHALL WORK WITH STRUCTURE FABRICATOR TO DETERMINE ADEQUATE STRUCTURE BOTTOM SIZE FOR THE PROPOSED PIPE SIZES AND ANGLES.

SUMMARY OF DRAINAGE:

THE MINIMUM WATER QUALITY TREATMENT VOLUME REQUIRED IS THE GREATER OF 0.5-INCHES OF RUNOFF OVER THE DRAINAGE RETENTION AREA OR 1.25-INCHES OVER THE IMPERVIOUS SURFACE. STORMWATER TREATMENT IS PROVIDED BY DRY RETENTION. AN ADDITIONAL 0.5-INCH IS ADDED TO THE REQUIRED TREATMENT VOLUME FOR AN ONLINE SYSTEM. THE STORMWATER SYSTEM DISCHRAGES TO AN OFW, THREFORE AN ADDITIONAL 50% IS ADDED TO THE REQUIRED TREATMENT VOLUME. THE TREATMENT SYSTEM IS DESIGNED TO ENSURE THE POST DEVELOPMENT DISCHARGE RATE AND VOLUME DOES NOT EXCEED THE PRE-DEVELOPMENT RATE AND VOLUME FOR THE MEAN ANNUAL, 25 YEAR-24 HOUR, AND 100 YEAR-24 HOUR STORM EVENTS.

Design Storm		Rainfall (inches)	Discharge Rate (cfs)	Outflow Volume (ft³)	Peak Stage (ft)
Mean Annual, 24-Hour	PRE	4.5	2.53	16,223	10.39
	POST		0.17	4,909	
25 Year, 24-Hour	PRE	8.9	7.07	44,888	10.98
	POST		6.36	31,300	

EXFILTRATION NOTES:

1. CULTEC CONTACTOR 100 HD STORM CHAMBERS TO BE INSTALLED PER CULTEC DETAILS AND MANUFACTURER SPECIFICATIONS (SEE DETAILS ON SHEET No. 10). CONTRACTOR TO PROVIDE SHOP DRAWINGS FOR APPROVAL BY ENGINEER OF RECORD PRIOR TO CONSTRUCTION.
2. CONTRACTOR TO PROVIDE SHOP DRAWING OF CLASS 1 AND CLASS 2 NON-WOVEN FILTER FABRIC.
3. SELECT BACKFILL SHALL CONSIST OF WELL-GRADED ROCK, OR ROCK AND COARSE SAND FILL. FILL HAVING A HIGH PROPORTION OF SAND AND/OR FINES WILL NOT BE ACCEPTED. BACKFILL SHALL BE COMPACTED BY MECHANICAL TAMPERS TO 98% MAX. DENSITY (AASHTO T-180). CALCAREOUS MATERIAL IS PROHIBITED.
4. TRENCH MATERIAL SHALL CONSIST OF 1.5-INCH TO 3-INCH ANGULAR COARSE AGGREGATE MEETING F.D.O.T. SECTION 901 AND ASTM C-33 AND SHALL BE WASHED, AND FREE OF DELETERIOUS MATERIAL. CRUSHED RECYCLED CONCRETE IS ACCEPTABLE.
5. STONE SHALL BE CLEAN, CRUSHED, ANGULAR STONE, NOMINAL SIZE DISTRIBUTION 1.5-INCHES TO 3-INCHES WITH A 50% VOID RATIO. CONTRACTOR TO PROVIDE SHOP DRAWING TO ENGINEER OF RECORD PRIOR TO CONSTRUCTION..
6. AFTER AGGREGATE HAS BEEN PLACED TO DESIRED ELEVATION, WASH DOWN WITH CLEAR WATER TO ALLOW FOR INITIAL SETTLEMENT. IF SETTLEMENT OCCURS ADD ADDITIONAL AGGREGATE TO REQUIRED ELEVATION.
7. AGGREGATE SHALL BE COMPACTED IN TWO LIFTS, THE FIRST PRIOR TO PLACING PIPE, AND THE SECOND AFTER THE TOP AGGREGATE IS PLACED WITH MECHANICAL TAMPERS. DO NOT COMPACT WITH VIBRATORY ROLLERS.
8. TRENCH TO BE CONSTRUCTED AND ADHERED TO OSHA'S TRENCH SAFETY CODE. CONTRACTOR SHALL TAKE PRECAUTIONS TO PREVENT CONTAMINATION OF THE TRENCH BY FOREIGN MATERIAL.
9. INSPECTION PORT TO BE INSTALLED ON EACH CULTEC CONTACTOR 100 HD TERMINAL END CAP AND MIDDLE POINT ON LONG RUNS. (SEE INSPECTION PORT DETAIL SHEET No. 9).
10. OPERATION, INSPECTION AND MAINTENANCE TO BE PERFORMED PER GUIDELINES PROVIDED ON SHEET No. 10.

GENERAL DRAINAGE NOTES:

1. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY DAMAGE TO DRAINAGE SYSTEM AND SHALL RESTORE ANY DAMAGED STRUCTURES.
2. ALL PIPE FROM THE BUILDING DRAINS SHALL BE PVC SDR 35 OR SMOOTH INTERIOR HDPE.
3. ALL STORM PIPE SHALL BE CONSTRUCTED OF HDPE (SICE) PIPE WITH CERTIFIED WATERTIGHT JOINTS BY THE MANUFACTURER. ACCEPTABLE HDPE PIPE SHALL BE HANCOR SUR-LOK WT, ADS SERIES 35, ADS N-12 WITH WT JOINT OR EQUAL. ALTERNATE STORM PIPE MATERIAL IS RCP PER FDOT SPECIFICATIONS.
4. THE CONTRACTOR SHALL SUBMIT SHOP DRAWINGS OF ALL MATERIAL AND STRUCTURES TO THE ENGINEER (NEWKIRK ENGINEERING, INC.) FOR APPROVAL PRIOR TO THE PRECONSTRUCTION MEETING.
5. CONTRACTOR TO PLACE FILTER FABRIC BETWEEN DRAINAGE STRUCTURES AND TOPS TO PREVENT SOIL INTRUSION. THE FABRIC SHALL BE PERIODICALLY CLEANED OF SAND A DEBRIS FABRIC SHALL REMAIN IN PLACE UNTIL PAVING IS COMPLETE.
6. ALL EXISTING STRUCTURES, UNLESS OTHERWISE NOTED TO REMAIN. FENCING TREES, & ETC., WITHIN THE CONSTRUCTION AREA SHALL BE REMOVED AND DISPOSED OF OFFSITE.
7. ALL DRAINAGE STRUCTURES SHALL BE PRE-CAST PER FDOT SPECIFICATIONS.
8. ALL DRAINAGE STRUCTURES AND STORM SEWER PIPES SHALL MEET HEAVY DUTY TRAFFIC (H20) LOADING AND BE INSTALLED ACCORDINGLY PER FDOT STANDARD SPECIFICATIONS AND MANUFACTURES SPECIFICATIONS RESPECTIVELY.
9. ALL DRAINAGE STRUCTURES AND PIPES SHALL BE CLEANED OF SAND AT THE LAST STAGE OF CONSTRUCTION PRIOR TO THE FINAL INSPECTION.
10. ALL STORM INLET GRATES SHALL BE STEEL (TRAFFIC RATED).

HDPE PIPE MINIMUM SLOPE REQUIREMENTS

PIPE SIZE (IN)	SELF-CLEANSING VELOCITY (FPS)	MANNINGS (N)	RADIUS (FT)	CROSS-SECTIONAL AREA (FT)	WETTED PERIMETER (FT)	MINIMUM SLOPE (FT/FT)
12	3.0	0.012	0.5	0.78538	1.1415	0.0036
15	3.0	0.012	0.6	1.22715	3.9269	0.0027
18	3.0	0.012	0.8	1.76709	4.7123	0.0021
24	3.0	0.012	1.0	3.14150	6.2830	0.0015
30	3.0	0.012	1.3	4.90859	7.8538	0.0011

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DRAINAGE PLAN
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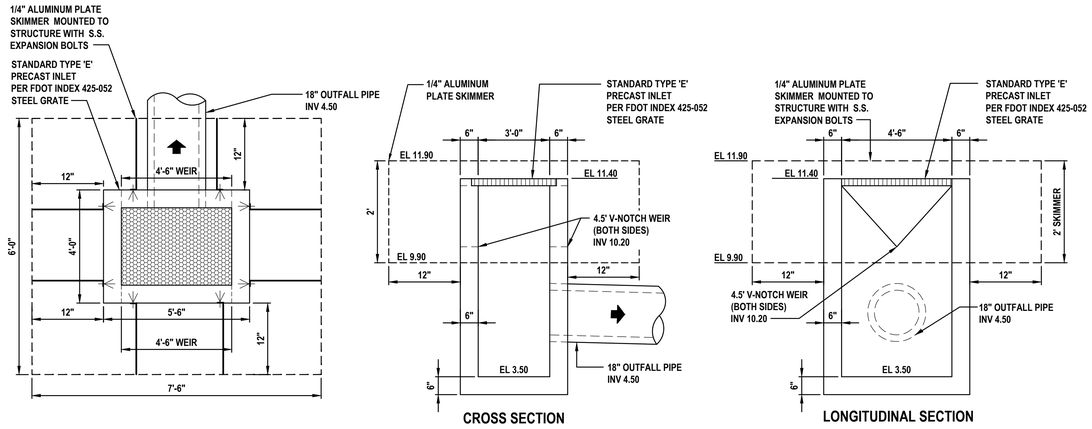


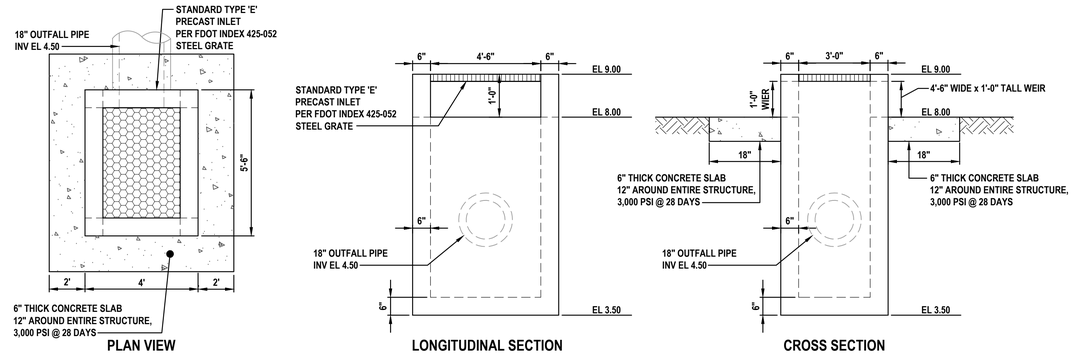
PLAN VIEW

CROSS SECTION

LONGITUDINAL SECTION

CONTROL STRUCTURE CS-01 DETAIL

NOT TO SCALE



PLAN VIEW

LONGITUDINAL SECTION

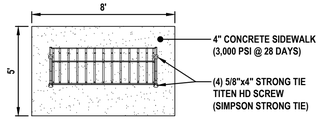
CROSS SECTION

TYPE 'E' BUBBLE-UP STRUCTURE DETAIL: INLET 06

NOT TO SCALE

46" METAL ROUND OR SQUARE PICNIC TABLE BY ULINE. COLOR = BLACK

BELSON OUTDOORS (MODEL G620-3)
ADJUSTABLE ROTATING METAL PEDESTAL GRILL (14"x20")
POST: 3.5" DIAMETER x 40" HEIGHT
MOUNT PER MANUFACTURER SPECIFICATIONS



BENCH MOUNTING WITH CONCRETE PAD DETAIL

NOT TO SCALE

STORM STRUCTURE SCHEDULE

I.D.	SIZE	TYPE BOT	TYPE TOP	TOP ELEV	BOT ELEV	N INV	S INV	E INV	W INV
I-01	---	ALT-B	E	10.90	7.55	---	10" 8.55	---	---
I-02	---	ALT-B	E	10.90	7.55	10" 8.55	10" 8.55	---	---
I-03	---	ALT-B	E	10.90	6.90	10" 8.55	15" 7.90	---	---
I-04	---	ALT-A	9	EOP 10.90	6.50	15" 7.50	---	---	18" 7.5
I-05	---	ALT-A	9	EOP 10.90	4.60	12" 7.50	---	18" 7.09	18" 5.60
I-06	---	ALT-B	E	9.00	3.50	---	---	18" 4.50	---
I-07	5' DIA.	ALT-B	M.H.	10.50	2.45	12" 6.47	30" 3.45	---	30" 3.45
I-08	5' DIA.	ALT-B	M.H.	11.65	3.07	30" 4.07	---	30" 4.07	---
I-09	---	ALT-B	C	9.60	5.10	---	15" 6.10	---	---
I-10	---	ALT-B	C	9.60	5.01	15" 6.01	---	---	15" 6.01
I-11	---	ALT-B	C	9.60	4.82	---	---	15" 5.82	15" 5.82
CS-01	---	ALT-B	E	SEE DETAIL, THIS SHEET					

I.D.	SIZE	TOP ELEV	N INV	S INV	E INV	W INV
YD-01	12"	12.00	---	10" 10.00	---	---
YD-02	12"	12.00	10" 9.86	10" 9.86	---	---
YD-03	12"	12.00	10" 9.80	10" 9.80	---	---
YD-04	12"	12.00	10" 9.61	10" 9.61	---	---
YD-05	12"	12.00	10" 9.42	10" 9.42	---	---
YD-06	12"	12.00	10" 9.35	10" 9.35	---	---
YD-07	12"	12.00	10" 9.16	12" 9.16	---	---
YD-08	12"	12.00	12" 8.97	12" 8.97	---	---
YD-09	12"	12.00	12" 8.90	12" 8.90	---	---
YD-10	12"	12.00	12" 8.71	12" 8.71	---	---
YD-11	12"	12.00	12" 8.52	12" 8.52	---	---
YD-12	12"	10.00	12" 6.57	12" 6.57	---	---
YD-13	12"	10.00	12" 6.73	12" 6.73	---	---
YD-14	12"	10.50	10" 6.90	12" 6.90	---	---
YD-15	12"	10.50	10" 7.07	10" 7.07	---	---
YD-16	12"	10.00	10" 7.24	10" 7.24	---	---
YD-17	12"	10.00	10" 7.41	10" 7.41	---	---
YD-18	12"	10.00	10" 7.58	10" 7.58	---	---
YD-19	12"	10.00	---	10" 7.75	---	---

REVISIONS

DATE	DESCRIPTION

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DRAINAGE DETAILS
LEGACY POINTE COTTAGES
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HARRY NEWKIRK LICENSE NO. 62971 STATE OF FLORIDA PROFESSIONAL ENGINEER

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PROJECT No:	2023-17
DATE:	OCTOBER 2024
DESIGN BY:	HHN
DRAWN BY:	NWS
CHECKED BY:	HHN
SCALE:	AS SHOWN

DRAWING NUMBER

9

CULTEC CONTACTOR ® 100HD CHAMBER PRODUCT SPECIFICATIONS

GENERAL
CULTEC CONTACTOR 100HD CHAMBERS ARE DESIGNED FOR UNDERGROUND STORMWATER MANAGEMENT. THE CHAMBERS MAY BE USED FOR RETENTION, RECHARGING, DETENTION OR CONTROLLING THE FLOW OF ON-SITE STORMWATER RUNOFF.

CHAMBER PARAMETERS

1. THE CHAMBERS SHALL BE MANUFACTURED BY CULTEC, INC. OF BROOKFIELD, CT. (203-775-4416 OR 1-800-428-5832)
2. THE CHAMBER SHALL BE VACUUM THERMOFORMED OF HIGH MOLECULAR WEIGHT HIGH DENSITY POLYETHYLENE (HMWHDPE) WITH A BLACK INTERIOR AND BLUE EXTERIOR.
3. THE CHAMBER SHALL BE ARCHED IN SHAPE.
4. THE CHAMBER SHALL BE OPEN-BOTTOMED.
5. THE CHAMBER SHALL BE JOINED USING AN INTERLOCKING OVERLAPPING RIB METHOD. CONNECTIONS MUST BE FULLY SHOULDERED OVERLAPPING RIBS, HAVING NO SEPARATE COUPLINGS OR SEPARATE END WALLS.
6. THE NOMINAL CHAMBER DIMENSIONS OF THE CULTEC CONTACTOR 100HD SHALL BE 12.5 INCHES (318 mm) TALL, 36 INCHES (914 mm) WIDE AND 8 FEET (2.44 m) LONG. THE INSTALLED LENGTH OF A JOINED CONTACTOR 100HD SHALL BE 7.5 FEET (2.29 m).
7. MAXIMUM INLET OPENING ON THE CHAMBER ENDWALL IS 10 INCHES (250 mm).
8. THE CHAMBER SHALL HAVE TWO SIDE PORTALS TO ACCEPT CULTEC HVLV® SFCX2 FEED CONNECTORS TO CREATE AN INTERNAL MANIFOLD. THE NOMINAL INSIDE DIMENSIONS OF EACH SIDE PORTAL SHALL BE 5.75 INCHES (146 mm) HIGH BY 7.5 INCHES (191 mm) WIDE. MAXIMUM ALLOWABLE OUTER DIAMETER (O.D.) PIPE SIZE IN THE SIDE PORTAL IS 6.9 INCHES (175 mm).
9. THE NOMINAL CHAMBER DIMENSIONS OF THE CULTEC HVLV SFCX2 FEED CONNECTOR SHALL BE 7.6 INCHES (194 mm) TALL, 12 INCHES (305 mm) WIDE AND 19.7 INCHES (500 mm) LONG.
10. THE NOMINAL STORAGE VOLUME OF THE CONTACTOR 100HD CHAMBER SHALL BE 1.866 FT³ / FT (0.173 m³ / m) - WITHOUT STONE. THE NOMINAL STORAGE VOLUME OF A JOINED CONTACTOR 100HD SHALL BE 13.995 FT³ / UNIT (0.396 m³ / UNIT) - WITHOUT STONE.
11. THE NOMINAL STORAGE VOLUME OF THE HVLV SFCX2 FEED CONNECTOR SHALL BE 0.294 FT³ / FT (0.027 m³ / m) - WITHOUT STONE.
12. THE CONTACTOR 100HD CHAMBER SHALL HAVE FORTY-FOUR DISCHARGE HOLES BORED INTO THE SIDEWALLS OF THE UNIT'S CORE TO PROMOTE LATERAL CONVEYANCE OF WATER.
13. THE CONTACTOR 100HD CHAMBER SHALL HAVE 16 CORRUGATIONS.
14. THE ENDWALL OF THE CHAMBER, WHEN PRESENT, SHALL BE AN INTEGRAL PART OF THE CONTINUOUSLY FORMED UNIT. SEPARATE END PLATES CANNOT BE USED WITH THIS UNIT.
15. THE CONTACTOR 100RHD STARTER UNIT MUST BE FORMED AS A WHOLE CHAMBER HAVING TWO FULLY FORMED INTEGRAL ENDWALLS AND HAVING NO SEPARATE END PLATES OR SEPARATE END WALLS.
16. THE CONTACTOR 100EHD MIDDLE/END UNIT MUST BE FORMED AS A WHOLE CHAMBER HAVING ONE FULLY FORMED INTEGRAL ENDWALL AND ONE FULLY OPEN END WALL AND HAVING NO SEPARATE END PLATES OR END WALLS.
17. THE HVLV SFCX2 FEED CONNECTOR MUST BE FORMED AS A WHOLE CHAMBER HAVING TWO OPEN END WALLS AND HAVING NO SEPARATE END PLATES OR SEPARATE END WALLS. THE UNIT SHALL FIT INTO THE SIDE PORTALS OF THE CONTACTOR 100HD AND ACT AS CROSS FEED CONNECTIONS.
18. CHAMBERS MUST HAVE HORIZONTAL STIFFENING FLEX REDUCTION STEPS BETWEEN THE RIBS.
19. THE CHAMBER SHALL BE DESIGNED TO WITHSTAND TRAFFIC LOADS WHEN INSTALLED ACCORDING TO CULTEC'S RECOMMENDED INSTALLATION INSTRUCTIONS.
20. HEAVY DUTY UNITS ARE DESIGNATED BY A COLORED STRIPE FORMED INTO THE PART ALONG THE LENGTH OF THE CHAMBER.
21. THE CHAMBER SHALL HAVE A RAISED INTEGRAL CAP AT THE TOP OF THE ARCH IN THE CENTER OF EACH UNIT TO BE USED AS AN OPTIONAL INSPECTION PORT OR CLEAN-OUT.
22. THE UNITS MAY BE TRIMMED TO CUSTOM LENGTHS BY CUTTING BACK TO ANY CORRUGATION.
23. THE CHAMBER SHALL BE MANUFACTURED IN AN ISO 9001:2015 CERTIFIED FACILITY.
24. THE CHAMBER SHALL BE DESIGNED AND MANUFACTURED TO MEET THE MATERIAL AND STRUCTURAL REQUIREMENTS OF IAPMO PS 63-2019, INCLUDING RESISTANCE TO AASHTO H-10 AND H-20 HIGHWAY LIVE LOADS, WHEN INSTALLED IN ACCORDANCE WITH CULTEC'S INSTALLATION INSTRUCTIONS.
25. MAXIMUM ALLOWED COVER ON TOP OF UNIT SHALL BE 12.0 FEET [3.66 m]

CULTEC HVLV® SFCx2 FEED CONNECTOR

GENERAL
CULTEC HVLV SFCx2 FEED CONNECTORS ARE DESIGNED TO CREATE AN INTERNAL MANIFOLD FOR CULTEC CONTACTOR 100HD STORMWATER CHAMBERS.

CHAMBER PARAMETERS

1. THE CHAMBERS SHALL BE MANUFACTURED BY CULTEC, INC. OF BROOKFIELD, CT. (203-775-4416 OR 1-800-428-5832)
2. THE CHAMBER SHALL BE VACUUM THERMOFORMED OF HIGH MOLECULAR WEIGHT HIGH DENSITY POLYETHYLENE (HMWHDPE) WITH A BLACK INTERIOR AND BLUE EXTERIOR.
3. THE CHAMBER SHALL BE ARCHED IN SHAPE.
4. THE CHAMBER SHALL BE OPEN-BOTTOMED.
5. THE NOMINAL CHAMBER DIMENSIONS OF THE CULTEC HVLV SFCX2 FEED CONNECTOR SHALL BE 7.6 INCHES (194 mm) TALL, 12 INCHES (305 mm) WIDE AND 19.7 INCHES (500 mm) LONG.
6. THE NOMINAL STORAGE VOLUME OF THE HVLV SFCX2 FEED CONNECTOR SHALL BE 0.294 FT3 / FT (0.027 m3 / m) - WITHOUT STONE.
7. THE HVLV SFCX2 FEED CONNECTOR CHAMBER SHALL HAVE 3 CORRUGATIONS.
8. THE HVLV SFCX2 FEED CONNECTOR MUST BE FORMED AS A WHOLE CHAMBER HAVING TWO OPEN END WALLS AND HAVING NO SEPARATE END PLATES OR SEPARATE END WALLS. THE UNIT SHALL FIT INTO THE SIDE PORTALS OF THE CONTACTOR 100HD STORMWATER CHAMBER AND ACT AS CROSS FEED CONNECTIONS CREATING AN INTERNAL MANIFOLD.
9. THE CHAMBER SHALL BE DESIGNED TO WITHSTAND TRAFFIC LOADS WHEN INSTALLED ACCORDING TO CULTEC'S RECOMMENDED INSTALLATION INSTRUCTIONS.
10. THE CHAMBER SHALL BE MANUFACTURED IN AN ISO 9001:2008 CERTIFIED FACILITY.

CULTEC NO. 410 ™ NON-WOVEN GEOTEXTILE
CULTEC NO. 410™ NON- WOVEN GEOTEXTILE MAY BE USED WITH CULTEC CONTACTOR® AND RECHARGER® STORMWATER INSTALLATIONS TO PROVIDE A BARRIER THAT PREVENTS SOIL INTRUSION INTO THE STONE.

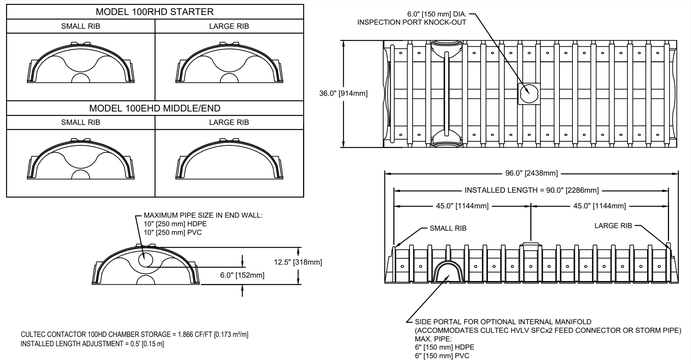
GEOTEXTILE PARAMETERS

1. THE GEOTEXTILE SHALL BE PROVIDED BY CULTEC, INC. OF BROOKFIELD, CT .(203-775-4416 OR 1-800-428-5832)
2. THE GEOTEXTILE SHALL BE BLACK IN APPEARANCE.
3. THE GEOTEXTILE SHALL HAVE A TYPICAL WEIGHT OF 4.5 OZ/SY (142 G/M).
4. THE GEOTEXTILE SHALL HAVE A TENSILE STRENGTH VALUE OF 120 LBS (533 N) PER ASTM D4632 TESTING METHOD.
5. THE GEOTEXTILE SHALL HAVE AN ELONGATION @ BREAK VALUE OF 50% PER ASTM D4632 TESTING METHOD.
6. THE GEOTEXTILE SHALL HAVE A MULLEN BURST VALUE OF 225 PSI (1551 KPA) PER ASTM D3786 TESTING METHOD.
7. THE GEOTEXTILE SHALL HAVE A PUNCTURE STRENGTH VALUE OF 65 LBS (289 N) PER ASTM D4833 TESTING METHOD.
8. THE GEOTEXTILE SHALL HAVE A CBR PUNCTURE VALUE OF 340 LBS (1513 N) PER ASTM D6241 TESTING METHOD.
9. THE GEOTEXTILE SHALL HAVE A TRAPEZOID TEAR VALUE OF 50 LBS (222 N) PER ASTM D4533 TESTING METHOD.
10. THE GEOTEXTILE SHALL HAVE A AOS VALUE OF 70 U .S. SIEVE (0.212 MM) PER ASTM D4751 TESTING METHOD.
11. THE GEOTEXTILE SHALL HAVE A PERMITTIVITY VALUE OF 1.7 SEC-1 PER ASTM D4491 TESTING METHOD.
12. THE GEOTEXTILE SHALL HAVE A WATER FLOW RATE VALUE OF 135 GAL/MIN/SF (5500 L/MIN/SM) PER ASTM D4491 TESTING METHOD.
13. THE GEOTEXTILE SHALL HAVE A UV STABILITY @ 500 HOURS VALUE OF 70% PER ASTM D4355 TESTING METHOD.

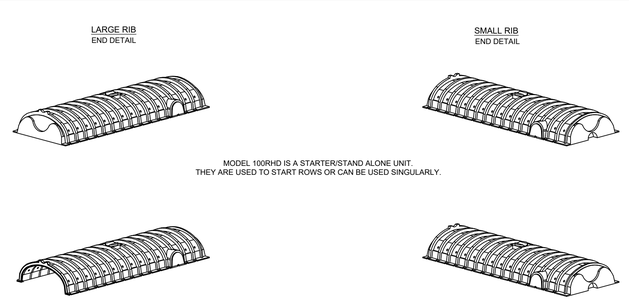
CULTEC NO. 4800 ™ WOVEN GEOTEXTILE
CULTEC NO. 4800 WOVEN GEOTEXTILE IS DESIGNED AS A UNDERLAYMENT TO PREVENT SCOURING CAUSED BY WATER MOVEMENT WITHIN THE CULTEC CHAMBERS AND FEED CONNECTORS UTILIZING THE CULTEC MANIFOLD FEATURE. IT MAY ALSO BE USED AS A COMPONENT OF THE CULTEC SEPARATOR ROW TO ACT AS A BARRIER TO PREVENT SOIL/CONTAMINANT INTRUSION INTO THE STONE WHILE ALLOWING FOR MAINTENANCE.

GEOTEXTILE PARAMETERS

1. THE GEOTEXTILE SHALL BE PROVIDED BY CULTEC, INC. OF BROOKFIELD, CT (203-775-4416 OR 1-800-428-5832)
2. THE GEOTEXTILE SHALL BE BLACK IN APPEARANCE.
3. THE GEOTEXTILE SHALL HAVE A TENSILE STRENGTH OF 550 X 550 LBS (2,448 X 2,448 N) PER ASTM D4632 TESTING METHOD.
4. THE GEOTEXTILE SHALL HAVE A ELONGATION @ BREAK RESISTANCE OF 20 X 20% PER ASTM D4632 TESTING METHOD.
5. THE GEOTEXTILE SHALL HAVE A WIDE WIDTH TENSILE RESISTANCE OF 5,070 X 5,070 LBS/FT (74 X 74 KN/M) PER ASTM D4595 TESTING METHOD.
6. THE GEOTEXTILE SHALL HAVE A WIDE WIDTH TENSILE RESISTANCE @ 2% STRAIN OF 960 X 1,096 LBS/FT (14 X 16 KN/M) PER ASTM D4595 TESTING METHOD.
7. THE GEOTEXTILE SHALL HAVE A WIDE WIDTH TENSILE RESISTANCE @ 5% STRAIN OF 2,740 X 2, 740 LBS/FT (40 X 40 KN/M) PER ASTM D4595 TESTING METHOD.
8. THE GEOTEXTILE SHALL HAVE A WIDE WIDTH TENSILE RESISTANCE @ 10% STRAIN OF 4,800 X 4,800 LBS/FT (70 X 70 KN/M) PER ASTM D4595 TESTING METHOD.
9. THE GEOTEXTILE SHALL HAVE A CBR PUNCTURE RESISTANCE OF 1,700 LBS (7,560 N) PER ASTM D6241 TESTING METHOD.
10. THE GEOTEXTILE SHALL HAVE A TRAPEZOIDAL TEAR RESISTANCE OF 180 X 180 LBS (801 X 801 N) PER ASTM D4533 TESTING METHOD.
11. THE GEOTEXTILE SHALL HAVE AN APPARENT OPENING SIZE OF 40 US STD. SIEVE (0.425 MM) PER ASTM D4751 TESTING METHOD.
12. THE GEOTEXTILE SHALL HAVE A PERMITTIVITY RATING OF 0.15 SEC-1 PER ASTM D4491 TESTING METHOD.
13. THE GEOTEXTILE SHALL HAVE A WATER FLOW RATING OF 11.5 GPM/FT2 (470 LPM/M2) PER ASTM D4491 TESTING METHOD.
14. THE GEOTEXTILE SHALL HAVE A UV RESISTANCE OF 80% @ 500 HRS. PER ASTM D4355 TESTING METHOD.

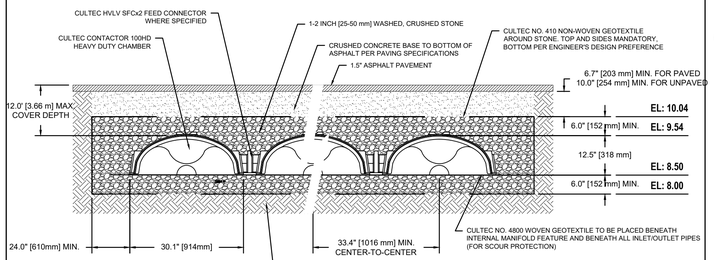


CULTEC CONTACTOR 100HD CHAMBER STORAGE = 1.866 CF/FT [0.173 m³/m]
INSTALLED LENGTH ADJUSTMENT = 0.5' [0.15 m]



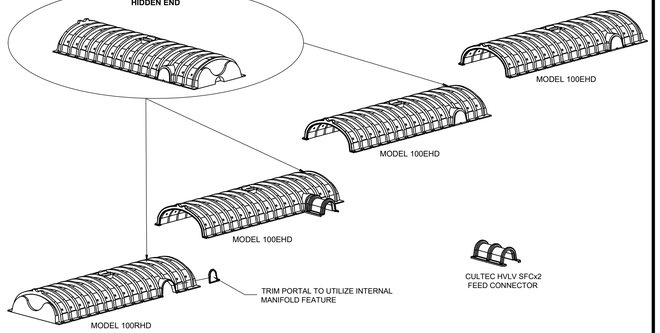
100HD 2.0

CULTEC CONTACTOR 100HD HEAVY DUTY THREE VIEW



100HD 3.0

CULTEC CONTACTOR 100HD HEAVY DUTY END DETAIL INFORMATION

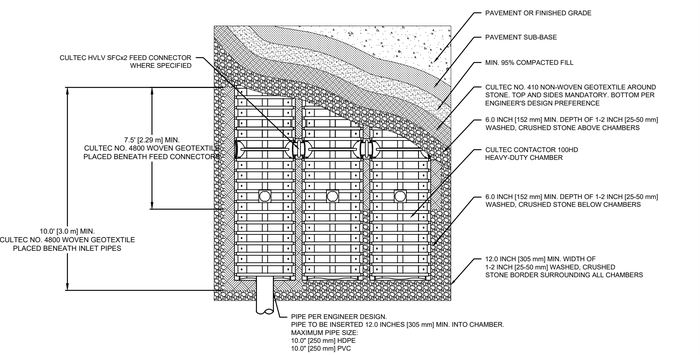


100HD 1.0

GENERAL NOTES

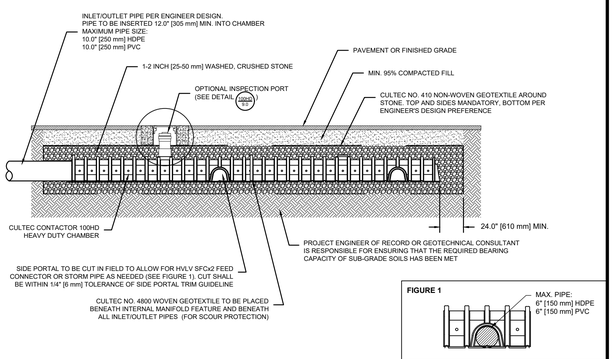
100HD 5.0

CULTEC CONTACTOR 100HD HEAVY DUTY SYSTEM CROSS SECTION



100HD 6.0

CULTEC CONTACTOR 100HD HEAVY DUTY TYPICAL INTERLOCK

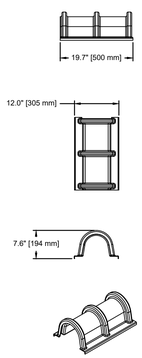


100HD 7.0

CULTEC CONTACTOR 100HD HEAVY DUTY PLAN VIEW

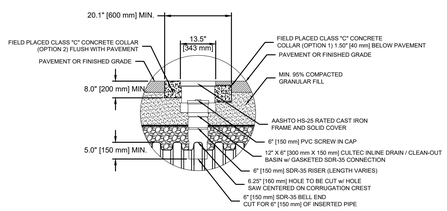
100HD 8.0

CULTEC HVLV SFCx2 FEED CONNECTOR



100HD 9.0

OPTIONAL INSPECTION PORT - ZOOM DETAIL



100HD 10.0

CULTEC MANIFOLD - OPTIONAL INSPECTION PORT DETAIL

TM
CULTEC

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CONTACTOR 100HD
DETAIL SHEET
TRAFFIC APPLICATION

CULTEC STORMWATER CHAMBER

PROJECT NO:	DATE: 2019
DRAWN BY:	CHECKED BY:
SCALE: N.T.S.	SHEET NO:

REVISIONS

DATE	DESCRIPTION
.	

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SCALE:	AS SHOWN

DRAWING NUMBER
10

This manual contains guidelines recommended by CULTEC, Inc. and may be used in conjunction with, but not to supersede, local regulations or regulatory authorities. OSHA Guidelines must be followed when inspecting or cleaning any structure.

Introduction

The CULTEC Subsurface Stormwater Management System is a high-density polyethylene (HDPE) chamber system arranged in parallel rows surrounded by washed stone. The CULTEC chambers create arch-shaped voids within the washed stone to provide stormwater detention, retention, infiltration, and reclamation. Filter fabric is placed between the native soil and stone interface to prevent the intrusion of fines into the system. In order to minimize the amount of sediment which may enter the CULTEC system, a sediment collection device (stormwater pretreatment device) is recommended upstream from the CULTEC chamber system. Examples of pretreatment devices include, but are not limited to, an appropriately sized catch basin with sump, pretreatment catchment device, oil grit separator, or baffled distribution box. Manufactured pretreatment devices may also be used in accordance with CULTEC chambers. Installation, operation, and maintenance of these devices shall be in accordance with manufacturer's recommendations. Almost all of the sediment entering the stormwater management system will be collected within the pretreatment device.

Best Management Practices allow for the maintenance of the preliminary collection systems prior to feeding the CULTEC chambers. The pretreatment structures shall be inspected for any debris that will restrict inlet flow rates. Outfall structures, if any, such as outlet control must also be inspected for any obstructions that would restrict outlet flow rates. OSHA Guidelines must be followed when inspecting or cleaning any structure.

Operation and Maintenance Requirements

I. Operation

CULTEC stormwater management systems shall be operated to receive only stormwater run-off in accordance with applicable local regulations. CULTEC subsurface stormwater management chambers operate at peak performance when installed in series with pretreatment. Pretreatment of suspended solids is superior to treatment of solids once they have been introduced into the system. The use of pretreatment is adequate as long as the structure is maintained and the site remains stable with finished impervious surfaces such as parking lots, walkways, and pervious areas are properly maintained. If there is to be an unstable condition, such as improvements to buildings or parking areas, all proper silt control measures shall be implemented according to local regulations.

II. Inspection and Maintenance Options

A. The CULTEC system may be equipped with an inspection port located on the inlet row. The inspection port is a circular cast box placed in a rectangular concrete collar. When the lid is removed, a 6-inch (150 mm) pipe with a screw-in plug will be exposed. Remove the plug. This will provide access to the CULTEC Chamber row below. From the surface, through this access, the sediment may be measured at this location. A stadia rod may be used to measure the depth of sediment if any in this row. If the depth of sediment is in excess of 3 inches (76 mm), then this row should be cleaned with high pressure water through a culvert cleaning nozzle. This would be carried out through an upstream manhole or through the CULTEC StormFilter Unit (or other pretreatment device). CCTV inspection of this row can be deployed through this access port to deter mine if any sediment has accumulated in the inlet row.

B. If the CULTEC bed is not equipped with an inspection port, then access to the inlet row will be through an upstream manhole or the CULTEC StormFilter.

1. Manhole Access
This inspection should only be carried out by persons trained in confined space entry and sewer inspection services. After the manhole cover has been removed a gas detector must be lowered into the manhole to ensure that there are not high concentrations of toxic gases present. The inspector should be lowered into the manhole with the proper safety equipment as per OSHA requirements. The inspector may be able to observe sediment from this location. If this is not possible, the inspector will need to deploy a CCTV robot to permit viewing of the sediment.

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2. StormFilter Access
Remove the manhole cover to allow access to the unit. Typically a 30-inch (750 mm) pipe is used as a riser from the StormFilter to the surface. As in the case with manhole access, this access point requires a technician trained in confined space entry with proper gas detection equipment. This individual must be equipped with the proper safety equipment for entry into the StormFilter. The technician will be lowered onto the StormFilter unit. The hatch on the unit must be removed. Inside the unit are two filters which may be removed according to StormFilter maintenance guidelines. Once these filters are removed the inspector can enter the StormFilter unit to launch the CCTV camera robot.

C. The inlet row of the CULTEC system is placed on a polyethylene liner to prevent scouring of the washed stone beneath this row. This also facilitates the flushing of this row with high pressure water through a culvert cleaning nozzle. The nozzle is deployed through a manhole or the StormFilter and extended to the end of the row. The water is turned on and the inlet row is back-flushed into the manhole or StormFilter. This water is to be removed from the manhole or StormFilter using a vacuum truck.

III. Maintenance Guidelines

The following guidelines shall be adhered to for the operation and maintenance of the CULTEC stormwater management system:

A. The owner shall keep a maintenance log which shall include details of any events which would have an effect on the system's operational capacity.

B. The operation and maintenance procedure shall be reviewed periodically and changed to meet site conditions.

C. Maintenance of the stormwater management system shall be performed by qualified workers and shall follow applicable occupational health and safety requirements.

D. Debris removed from the stormwater management system shall be disposed of in accordance with applicable laws and regulations.

IV. Suggested Maintenance Schedules

A. Minor Maintenance
The following suggested schedule shall be followed for routine maintenance during the regular operation of the stormwater system:

Frequency	Action
Monthly in first year	Check inlets and outlets for clogging and remove any debris, as required.
Spring and Fall	Check inlets and outlets for clogging and remove any debris, as required.
One year after commissioning and every third year following	Check inlets and outlets for clogging and remove any debris, as required.

B. Major Maintenance
The following suggested maintenance schedule shall be followed to maintain the performance of the CULTEC stormwater management chambers. Additional work may be necessary due to insufficient performance and other issues that might be found during the inspection of the stormwater management chambers. (See table on next page)

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	Frequency	Action
Inlets and Outlets	Every 3 years	• Obtain documentation that the inlets, outlets and vents have been cleaned and will function as intended.
	Spring and Fall	• Check inlet and outlets for clogging and remove any debris as required.
CULTEC Stormwater Chambers	2 years after commissioning	• Inspect the interior of the stormwater management chambers through inspection port for deficiencies using CCTV or comparable technique. • Obtain documentation that the stormwater management chambers and feed connectors will function as anticipated.
	9 years after commissioning every 9 years following	• Clean stormwater management chambers and feed connectors of any debris. • Inspect the interior of the stormwater management structures for deficiencies using CCTV or comparable technique. • Obtain documentation that the stormwater management chambers and feed connectors have been cleaned and will function as intended.
	45 years after commissioning	• Clean stormwater management chambers and feed connectors of any debris. • Determine the remaining life expectancy of the stormwater management chambers and recommended schedule and actions to rehabilitate the stormwater management chambers as required. • Inspect the interior of the stormwater management chambers for deficiencies using CCTV or comparable technique. • Replace or restore the stormwater management chambers in accordance with the schedule determined at the 45-year inspection. • Attain the appropriate approvals as required. • Establish a new operation and maintenance schedule.
Surrounding Site	Monthly in 1st year	• Check for depressions in areas over and surrounding the stormwater management system.
	Spring and Fall	• Check for depressions in areas over and surrounding the stormwater management system.
	Yearly	• Confirm that no unauthorized modifications have been performed to the site.

For additional information concerning the maintenance of CULTEC Subsurface Stormwater Management Chambers, please contact CULTEC, Inc. at 1-800-428-5832.

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REVISIONS

DATE	DESCRIPTION

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C.A. # 30209
L.C. # 26000584
C 2013
Civil Engineering
Transportation, CEI &
Landscape Architecture

NEWKIRK ENGINEERING INC.

CULTEC OPERATION AND MAINTENANCE

LEGACY POINTE COTTAGES

LESLIE STREET
FLAGLER BEACH, FL 32136

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HARRY NEWKIRK LICENSE NO. 62971 STATE OF FLORIDA PROFESSIONAL ENGINEER

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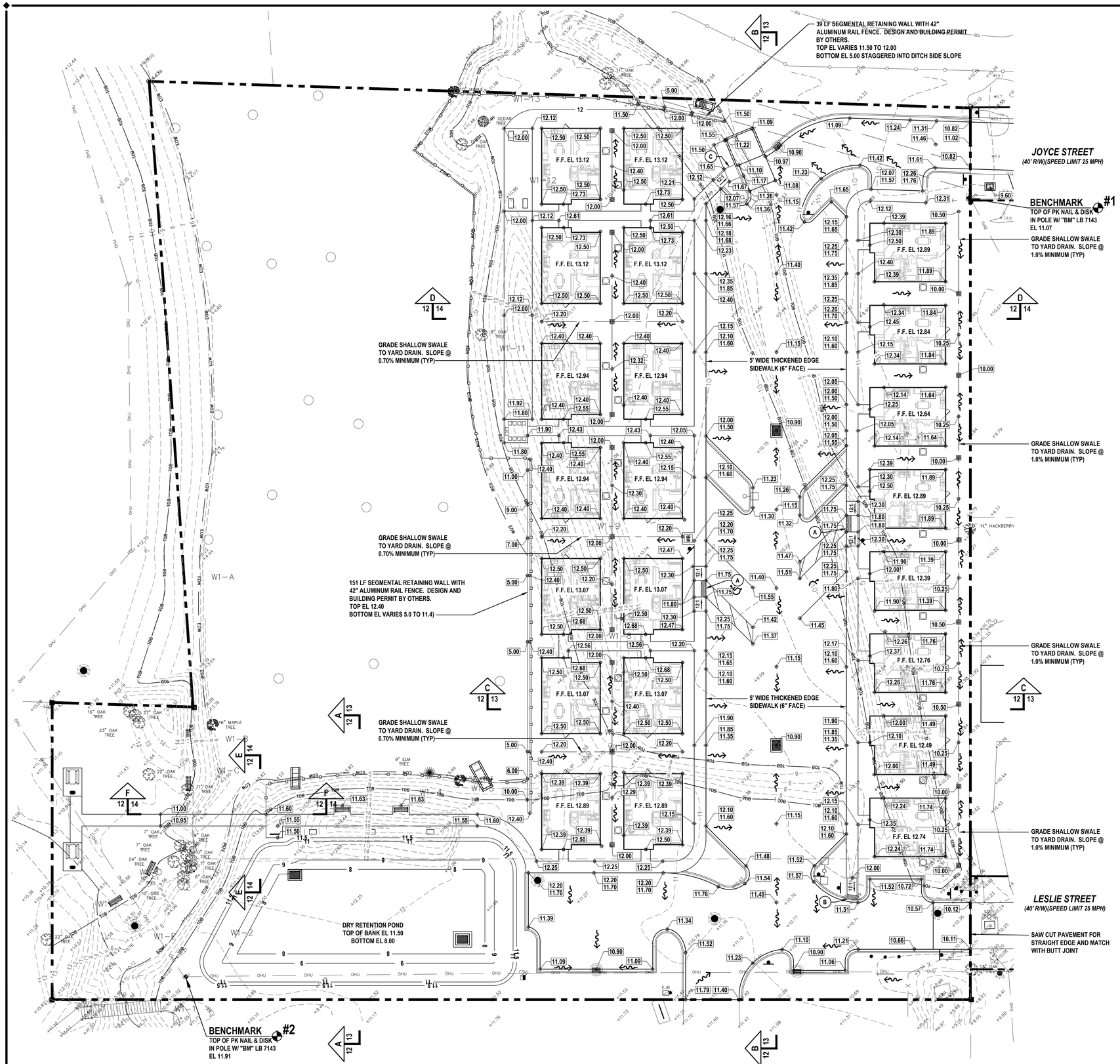
PROJECT No:	2023-17
DATE:	OCTOBER 2024
DESIGN BY:	HHN
DRAWN BY:	NWS
CHECKED BY:	HHN
SCALE:	

DRAWING NUMBER

11



GENERAL EARTHWORK NOTES:

1. REMOVE ALL ORGANIC OR UNSUITABLE MATERIALS. IF ANY MUCK OR MUCK-LIKE MATERIAL IS DISCOVERED, IT WILL BE REQUIRED TO BE REMOVED, BACKFILLED WITH APPROPRIATE FILL, COMPACTED, AND TESTED USING AASHTO T-180 MODIFIED PROCTOR METHOD.
2. ALL FILLING IS TO BE PERFORMED IN ONE-FOOT LIFTS. THE COMPACTION REQUIREMENT IS 98% FOR PAVED AREAS AND 95% FOR UNPAVED AREAS PER AASHTO T-180 MODIFIED PROCTOR TEST.
3. TEMPORARY FILL STOCKPILING IS NOT PERMITTED IN LIFTS GREATER THAN SIX FEET.
4. SOILS ARE TO BE STABILIZED BY WATER OR OTHER MEANS DURING CONSTRUCTION. THIS IS INTENDED TO REDUCE SOIL EROSION AND THE IMPACT TO NEIGHBORING COMMUNITIES.
5. ONCE AN AREA IS SEEDED OR SODDED, IT MUST BE MAINTAINED TO ALLOW THE GRASS TO GROW.
6. ALL NON-PAVED AREAS MUST BE PLANTED, GRASSED, OR MULCHED.

GENERAL GRADING NOTES:

1. CROSS SLOPES OF ACCESSIBLE PARKING SPACES AND ACCESS AISLE SHALL NOT EXCEED 1:48 IN ACCORDANCE WITH SECTION 502.4 OF FLORIDA ACCESSIBILITY CODE FOR BUILDING CONSTRUCTION (FACBC).
2. THE MAXIMUM ELEVATION CHANGE AT THE ENTRANCE DOOR MAY NOT EXCEED 1/2 INCH.
3. ALL SIDEWALK LANDINGS SHALL HAVE SLOPES NO GREATER THAN 1/4 INCH / 1 FOOT IN MANEUVERING SPACES AT ALL DOORWAYS.
4. ALL SIDEWALKS SHALL HAVE A 1.0% CROSS SLOPE (2.0% MAXIMUM) AND 5.0% MAXIMUM LONGITUDINAL SLOPE.
5. ALL CURB RAMPS SHALL COMPLY WITH SECTION 406 OF FACBC. LANDINGS OF 36 INCHES AT HEAD OF CURB RAMPS SHALL COMPLY WITH FACBC SECTION 406.4.
6. ALL IMPROVEMENTS SHALL BE STAKED FOR CONSTRUCTION BY MEANS OF DIGITAL COORDINATES BY SURVEY OR UTILIZING GEODETIC TOTAL STATION. SCALING OF DRAWINGS FOR PURPOSES OF STAKING ARE AT THE SURVEYOR.

BENCHMARK INFORMATION:

#1 TOP OF PK NAIL & DISK IN POLE W/ "BM" LB 7143 ELEVATION = 11.07

#2 TOP OF PK NAIL & DISK IN POLE W/ "BM" LB 7143 ELEVATION = 11.91

#3 5/8" IRC (NO ID) ELEVATION = 18.71

VERTICAL DATA
ELEVATIONS REFER TO (NAVD) NORTH AMERICAN VERTICAL DATUM 1988. FEET AND DECIMAL PART THEREOF. BENCHMARK REFERENCE NAVD DATUM OF 1988.

SIDEWALK RAMP KEYNOTES:

(A) SIDEWALK CURB RAMP C (SEE DETAIL, SHEET No. 25)

(B) SIDEWALK CURB RAMP E (SEE DETAIL, SHEET No. 25)

(C) SIDEWALK CURB RAMP G (SEE DETAIL, SHEET No. 25)

GRADING LEGEND:

- EXISTING CONTOUR
- PROPOSED CONTOUR
- DRAINAGE FLOW ARROW
- EXISTING SPOT ELEVATION
- PROPOSED SPOT ELEVATION
- MATCH EXISTING GRADE

One Nation... One Number... 811 Know what's below. Call before you dig.

WARNING !!
CONTRACTOR SHALL TAKE ALL PRECAUTIONS DURING CONSTRUCTION TO AVOID CONTACT WITH EXISTING UNDERGROUND UTILITIES, GAS MAINS AND OVERHEAD ELECTRIC IN THE RIGHT-OF-WAY.

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L.C. # 26000584
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GRADING PLAN
LEGACY POINTE COTTAGES
LESLIE STREET
FLAGLER BEACH, FL 32136

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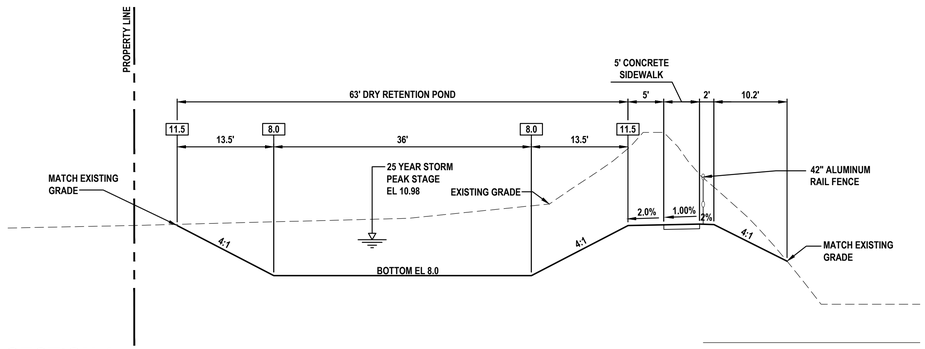
CHECKED BY:	HHN
SCALE:	1" = 20'

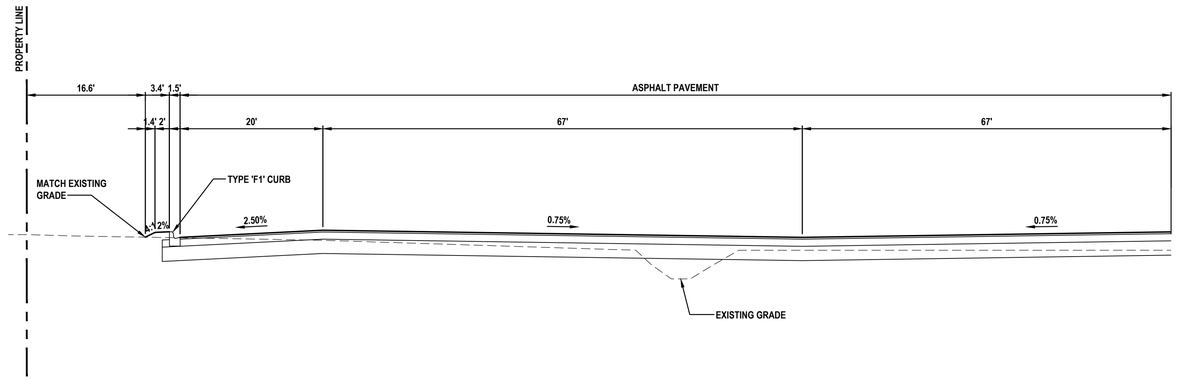
DRAWING NUMBER

12



SECTION A

NOT TO SCALE



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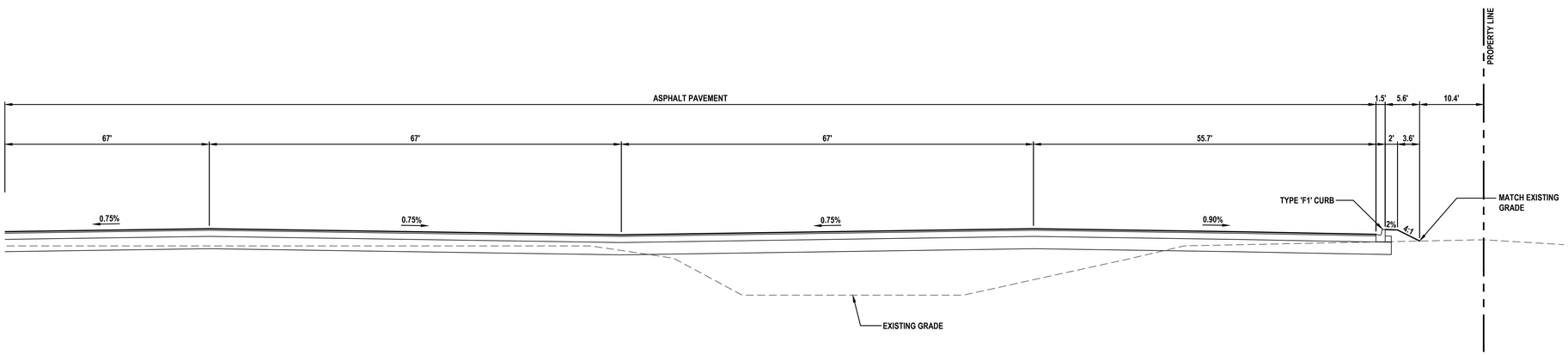

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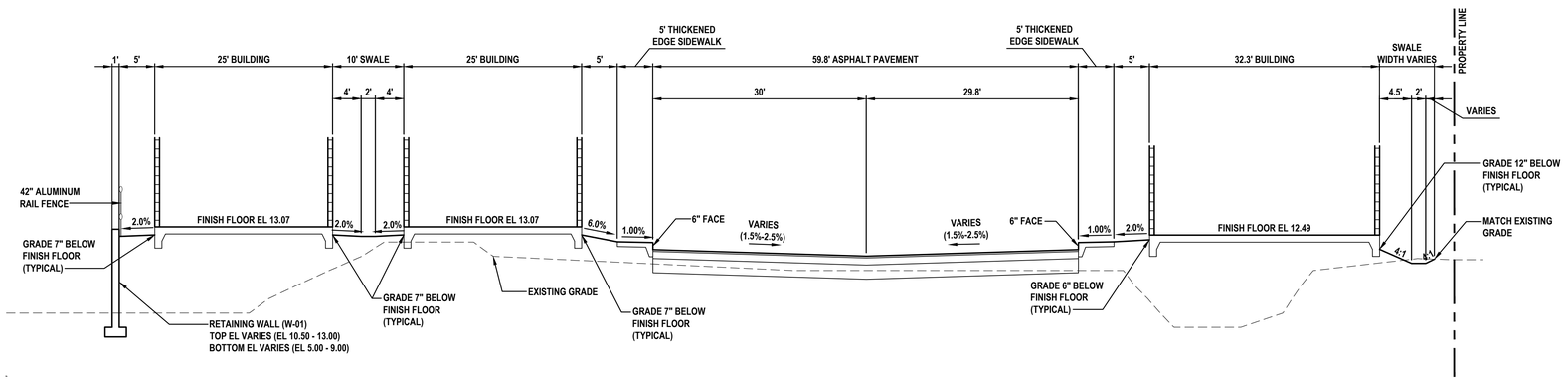

SECTION C

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CROSS SECTIONS
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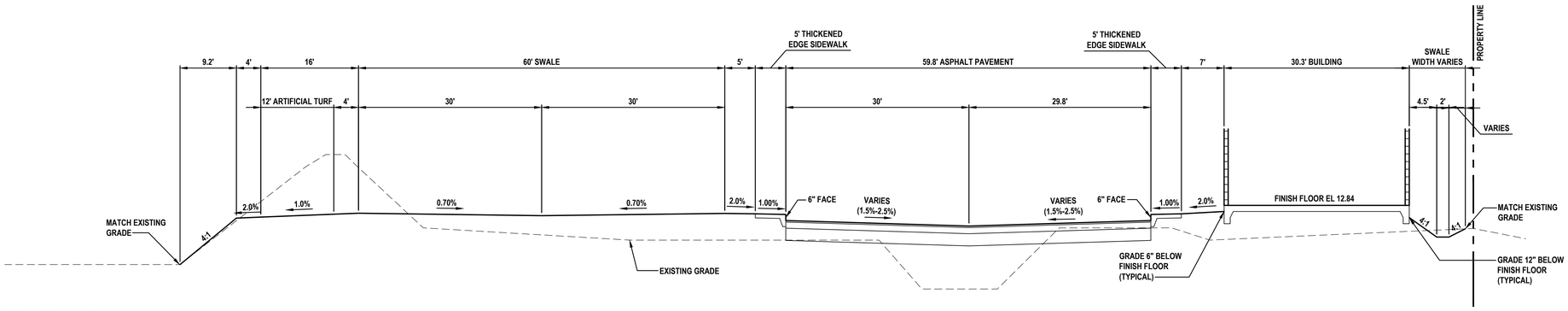
13



SECTION D

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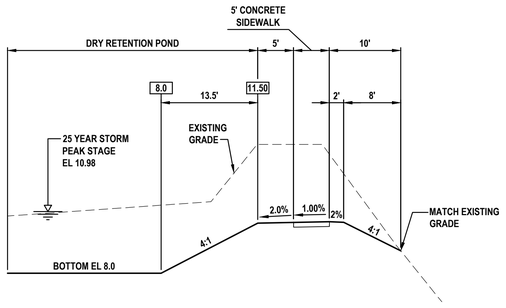

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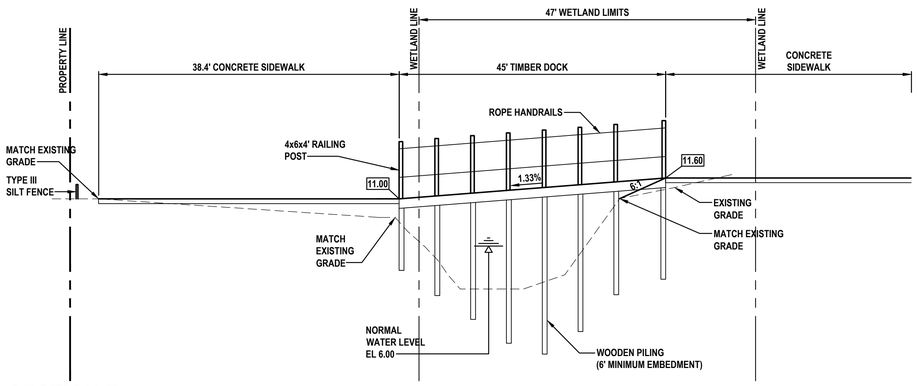

SECTION F

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14

BUILDING FIRE PROTECTION NOTES:

1. FIRE ALARM PER NEFA 72.

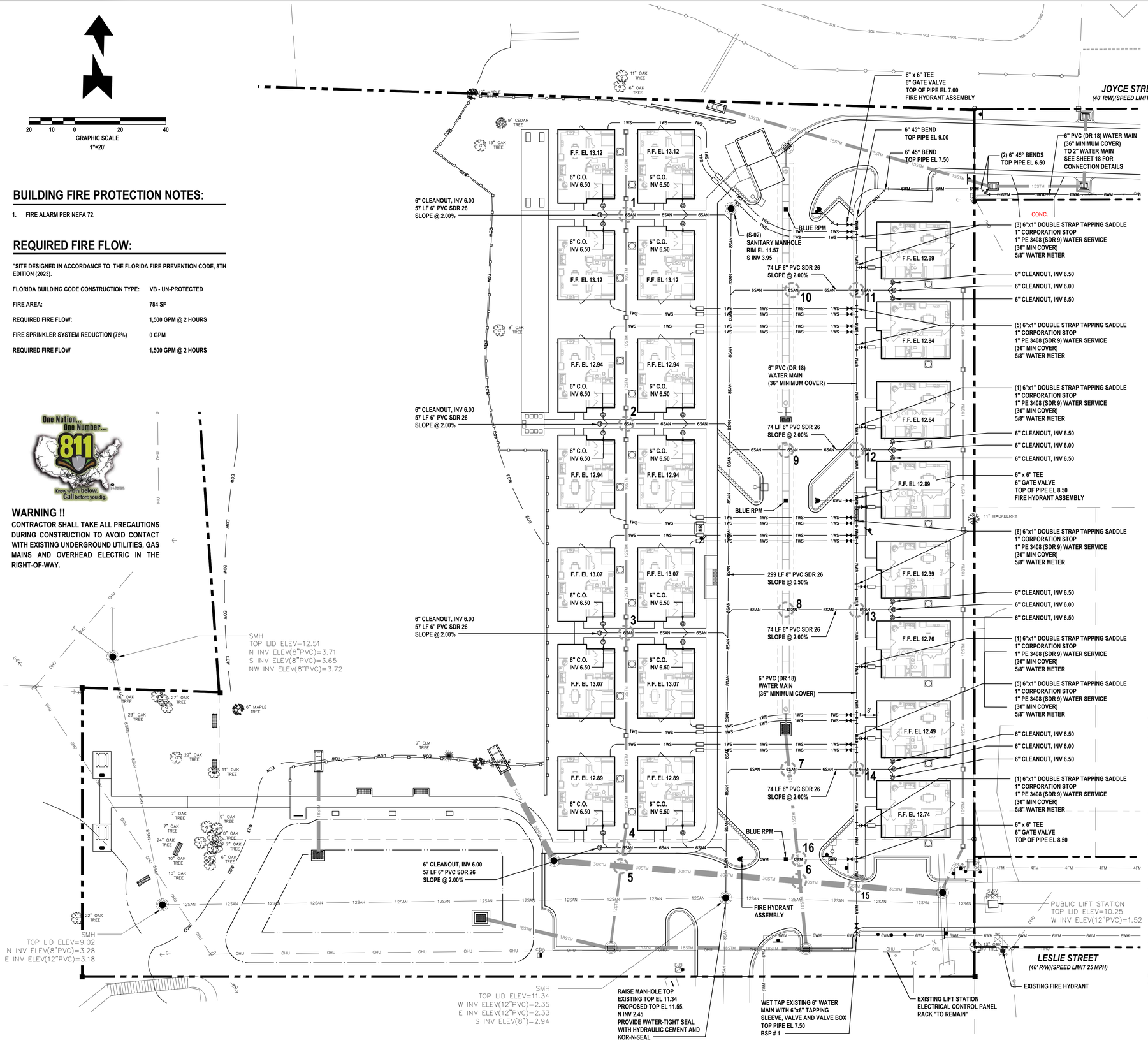
REQUIRED FIRE FLOW:

"SITE DESIGNED IN ACCORDANCE TO THE FLORIDA FIRE PREVENTION CODE, 8TH EDITION (2023).

FLORIDA BUILDING CODE CONSTRUCTION TYPE:	VB - UN-PROTECTED
FIRE AREA:	784 SF
REQUIRED FIRE FLOW:	1,500 GPM @ 2 HOURS
FIRE SPRINKLER SYSTEM REDUCTION (75%)	0 GPM
REQUIRED FIRE FLOW	1,500 GPM @ 2 HOURS

WARNING !!

CONTRACTOR SHALL TAKE ALL PRECAUTIONS DURING CONSTRUCTION TO AVOID CONTACT WITH EXISTING UNDERGROUND UTILITIES, GAS MAINS AND OVERHEAD ELECTRIC IN THE RIGHT-OF-WAY.



UTILITY LEGEND

	PROPOSED 11.25° BEND
	PROPOSED 22.5° BEND
	PROPOSED 45° BEND
	PROPOSED 90° BEND
	PROPOSED TEE
	PROPOSED GATE VALVE
	PROPOSED FIRE HYDRANT ASSEMBLY
RPZ	REDUCED PRESSURE BACKFLOW PREVENTER
1WS	PROPOSED 6"x1" SERVICE SADDLE, 1" CORPORATION STOP, 1" PE 3408 (SDR 9), 5/8" WATER METER. SEE CITY DETAIL W-3 ON SHEET 23.
	PROPOSED SANITARY SEWER MANHOLE
6WM	PROPOSED 6" PVC CLASS 150 (DR-18) WATER MAIN (36" MIN. COVER)
8SAN	PROPOSED 8" PVC SDR 26 SANITARY MAIN SLOPE @ 0.50% MIN.
6SAN	PROPOSED 6" PVC SDR 26 SANITARY SERVICE WITH 2.0% MIN. SLOPE
1	UTILITY CONFLICT (SEE DETAILS, SHEET No. 19)

GENERAL WATER NOTES:

1. THE CITY OF FLAGLER BEACH WATER UTILITY DEPARTMENT SHALL BE NOTIFIED PRIOR TO BEGINNING ANY WATER SYSTEM CONSTRUCTION.
2. ALL WATER DISTRIBUTION CONSTRUCTION SHALL BE IN ACCORDANCE WITH FDEP REGULATIONS AND THE CITY OF FLAGLER BEACH UTILITY DETAILS AND SPECIFICATIONS (LATEST EDITION).
3. CONTRACTOR IS TO VERIFY THE LOCATION (HORIZONTAL AND VERTICAL) OF ALL EXISTING UTILITIES (UNDERGROUND AND OVERHEAD) PRIOR TO COMMENCEMENT OF CONSTRUCTION. ANY CONFLICTS SHALL BE REPORTED TO THE ENGINEER.
4. CONTRACTOR IS RESPONSIBLE FOR RESTORATION OF ANY EXISTING PAVEMENT, SIDEWALK, CURBING, UTILITIES AND DRAINAGE SYSTEMS DAMAGED DURING CONSTRUCTION. ALL DAMAGED AREAS TO BE RESTORED TO ORIGINAL CONDITION OR BETTER.
5. LOCATION OF TELEPHONE, T.V. CABLE AND ELECTRICAL SERVICE CONNECTIONS TO BE DETERMINED BY APPROPRIATE UTILITIES PERSONNEL IN COOPERATION WITH CONTRACTOR.
6. ALL WATER MAINS SHALL BE LAID ON A FIRM FOUNDATION WITH ALL UNSUITABLE MATERIAL (MUCK, ROCK, COQUINA, ETC.) REMOVED AND REPLACED WITH CLEAN GRANULAR MATERIAL.
7. TRENCHES SHALL BE BACKFILLED WITH MATERIAL ACCEPTABLE TO THE CITY WITH A MINIMUM COMPACTION OF 98 PERCENT (AASHTO-T180).
8. WATER SERVICES FROM 3/4" TO 2" POLYETHYLENE (ENDOTRACE) WITH 30" MINIMUM COVER.
9. WATER MAIN FROM 4" TO 12" SHALL BE PVC CLASS 150 (DR 18) WITH 36" MINIMUM COVER.
10. ALL WATER AND FIRE SERVICES ARE REQUIRED TO HAVE A HARD BODY GATE VALVE OFF THE MAIN LINE.
11. ALL VALVES SHALL BE BOLTED TO TEES.
12. ALL POTABLE WATER PIPE SHALL HAVE "NSF POTABLE WATER" IMPRINTED ON THE PIPE.
13. ALL WATER MAIN FITTINGS 4 INCHES OR LARGER SHALL BE CEMENT LINED DIP.
14. A TAPPING CONTRACTOR ACCEPTABLE TO THE CITY OF FLAGLER BEACH WILL BE REQUIRED FOR TAPS.
15. THE CONTRACTOR SHALL MAKE ALL ATTEMPTS TO LOCATE BURIED UTILITIES AND NOTIFY THE UTILITY COMPANIES 48 HR. PRIOR TO CONSTRUCTION.
16. UTILITY TRENCH CONSTRUCTION SHALL CONFORM TO CITY OF FLAGLER BEACH AND OSHA REQUIREMENTS.
17. IN THE CASE WHERE SOLVENT CONTAMINATION IS FOUND IN THE TRENCH, WORK WILL BE STOPPED AND THE PROPER AUTHORITIES NOTIFIED. WITH THE APPROVAL OF THE CITY OF FLAGLER BEACH UTILITY DEPARTMENT, DUCTILE IRON PIPE, FITTINGS AND APPROVED SOLVENT RESISTANT GASKET MATERIAL SHALL BE USED IN THE CONTAMINATED AREA. THE DUCTILE IRON PIPE WILL EXTEND AT LEAST 100 FEET BEYOND ANY DISCOVERED SOLVENT.

GENERAL SEWER NOTES:

1. CITY OF FLAGLER BEACH SHALL BE NOTIFIED PRIOR TO ANY SEWER CONSTRUCTION.
2. ALL SEWER CONSTRUCTION MUST COMPLY WITH FDEP REGULATIONS AND THE CITY OF FLAGLER BEACH UTILITY DETAILS AND SPECIFICATIONS (LATEST EDITION).
3. ALL SANITARY SEWER LINES SHALL BE PVC SDR 26 DUE TO THE MINIMUM AMOUNT OF COVER. WATER LINES, RECLAIMED LINES AND STORM DRAINAGE CROSSINGS SHALL FOLLOW THE C-900 OR CONCRETE ENCASEMENT REQUIREMENT PER THESE STANDARDS AND AS FDEP REQUIREMENTS.
4. SEWER LINE CONSTRUCTION SHALL BE ACCOMPLISHED BY THE USE OF A LASER INSTRUMENT UNLESS ANOTHER METHOD IS PREVIOUSLY APPROVED BY CITY OF FLABLER BEACH.
5. THE CONTRACTOR SHALL AT ALL TIMES, DURING PIPE LAYING, DEWATER THE GROUND SUFFICIENTLY TO KEEP THE GROUNDWATER ELEVATION A MINIMUM OF 6" BELOW THE PIPE BEING LAID WITHIN THE AREA OF THE TRENCH.
6. ALL PIPES SHALL BE LAID ON A FIRM FOUNDATION. SOFT OR SPONGY BEDDING FOR PIPES WILL NOT BE ACCEPTED. ANY UNSUITABLE MATERIAL SHALL BE REMOVED AND REPLACED WITH A DRY, COMPACTED, GRANULAR MATERIAL SATISFACTORY TO THE CITY OF FLAGLER BEACH.
7. SANITARY SEWER PIPE SHALL BE PVC SDR 26.
8. EXCAVATION AND BACKFILL: THE CONTRACTOR SHALL PROVIDE ADEQUATE SHEETING AND BRACING OF EXCAVATION WORK IN ORDER TO PROVIDE FOR THE SAFETY OF WORKMEN, AS WELL AS REPRESENTATIVES OF THE CITY OF FLAGLER BEACH, THE DESIGN ENGINEER, AND THE DEVELOPER.
9. ALL TRENCHES SHALL BE BACKFILLED WITH ACCEPTABLE MATERIAL AND COMPACTED TO MINIMUM COMPACTION OF (95) PERCENT OF THE OPTIMUM DENSITY OF THAT MATERIAL BASED ON THE AASHTO T-180 MODIFIED PROCTOR TEST.
10. ALL TESTING REQUIRED BY THE CITY SHALL BE PAID FOR BY THE CONTRACTOR.
11. GRAVITY MAINS MUST HAVE A TELEVISED INSPECTION. A VIDEO INSPECTION FORM MUST BE FAXED TO THE CITY OF FLAGLER BEACH WASTEWATER COLLECTION DEPARTMENT 48 HOURS PRIOR TO VIDEO INSPECTION. A CITY INSPECTOR MUST BE PRESENT.
12. SEWER CLEANOUT LOCATED ON PAVEMENT AND SIDEWALK AREA SHALL BE TRAFFIC BEARING FLAT TOP BRASS CAP.
13. ALL GREASE TANKS SHALL HAVE A MINIMUM CAPACITY OF 1,250 GALLONS.
14. PLUMBING CONTRACTOR SHALL INSTALL TANK AND COORDINATE PIPE INVERTS TO BUILDING WITH UTILITY CONTRACTOR.

CITY OF FLAGLER BEACH NOTES:

A. ALL UTILITIES SHALL BE LOCATED UNDERGROUND.
B. CONTRACTOR TO ATTEND A MANDATORY PRECONSTRUCTION MEETING WITH CITY STAFF PRIOR TO ANY DISTURBANCE OF THE PROPERTY.

REVISIONS

DATE	DESCRIPTION
12/10/24	CITY COMMENTS

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UTILITY PLAN
LEGACY POINTE COTTAGES

LESLIE STREET
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SCALE:	1" = 20'

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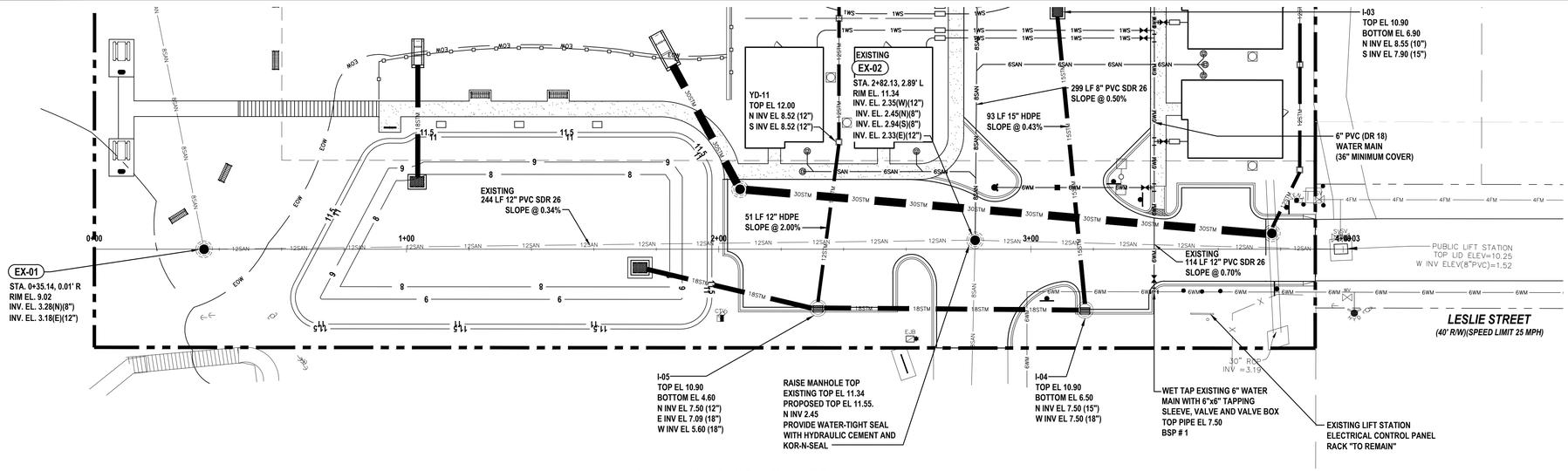
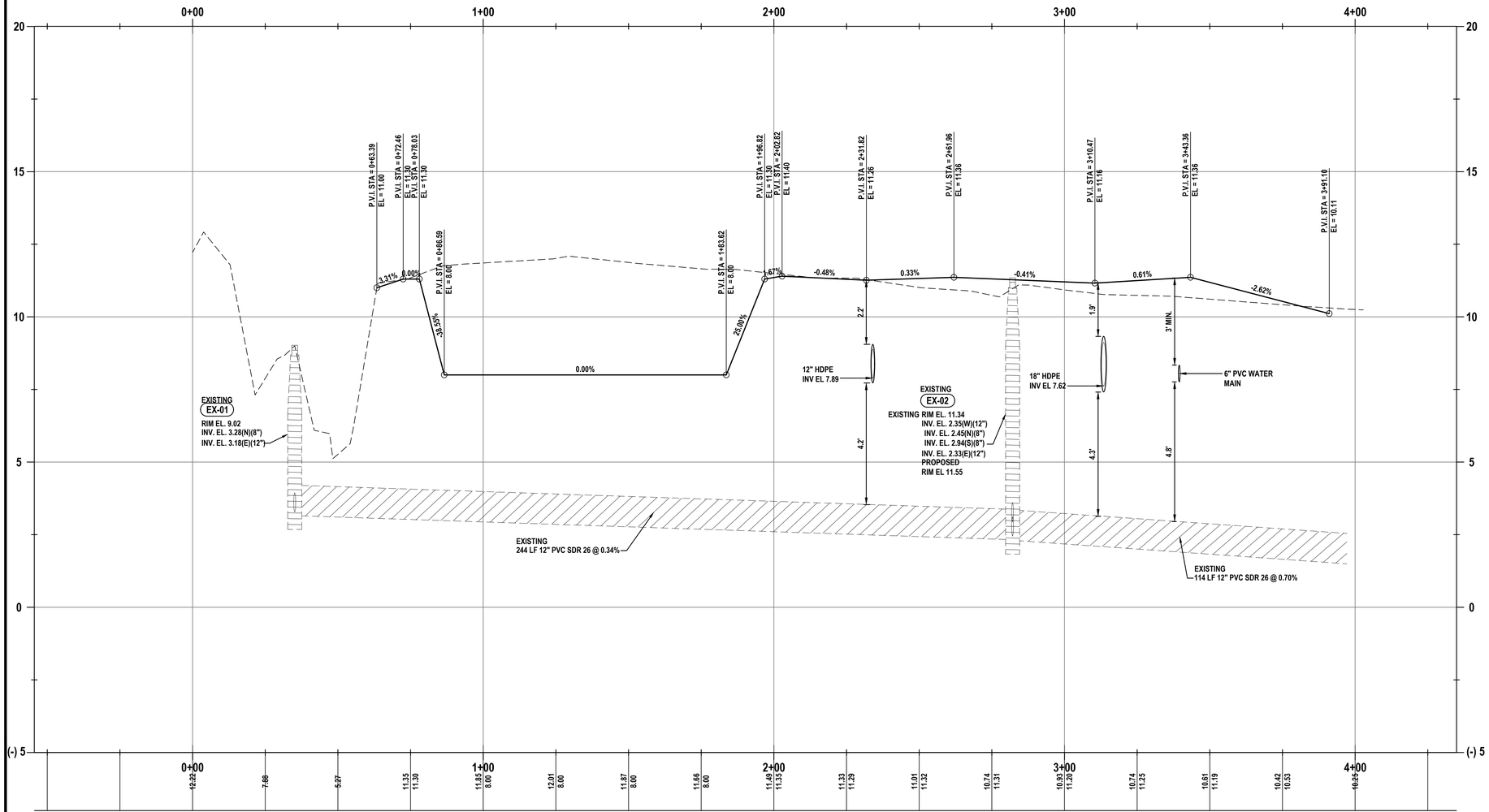
15



STATION 0+00 TO 4+03

HORIZONTAL SCALE: 1" = 20'
VERTICAL SCALE: 1" = 2'



UTILITY LEGEND

	PROPOSED 11.25° BEND
	PROPOSED 22.5° BEND
	PROPOSED 45° BEND
	PROPOSED 90° BEND
	PROPOSED TEE
	PROPOSED GATE VALVE
	PROPOSED FIRE HYDRANT ASSEMBLY
RPZ	REDUCED PRESSURE BACKFLOW PREVENTER
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PLAN AND PROFILE STA. 0+00 - 4+03

LEGACY POINTE APARTMENTS

LESLIE STREET
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16

RAISE MANHOLE TOP
EXISTING TOP EL 11.34
PROPOSED TOP EL 11.55.
N INV 2.45
PROVIDE WATER-TIGHT SEAL
WITH HYDRAULIC CEMENT AND
KOR-N-SEAL

FIRE HYDRANT ASSEMBLY

EX-02
STA. 2+82.13, 2.89' L
RIM EL. 11.34
INV. EL. 2.35(W)(12")
INV. EL. 2.45(N)(8")
INV. EL. 2.94(S)(8")
INV. EL. 2.33(E)(12")

WET TAP EXISTING 6" WATER
MAIN WITH 6"x6" TAPPING
SLEEVE, VALVE AND VALVE BOX
TOP PIPE EL 7.50
BSP # 1

6" x 6" TEE
6" GATE VALVE
TOP OF PIPE EL 8.50

74 LF 6" PVC SDR 26
SLOPE @ 2.00%

74 LF 6" PVC SDR 26
SLOPE @ 2.00%

299 LF 8" PVC SDR 26
SLOPE @ 0.50%

6" x 6" TEE
6" GATE VALVE
TOP OF PIPE EL 8.50
FIRE HYDRANT ASSEMBLY

74 LF 6" PVC SDR 26
SLOPE @ 2.00%

S-01
STA. 2+84.70, 305.06' L
RIM EL. 11.57
INV. EL. 3.95(S)(8")

6" x 6" TEE
6" GATE VALVE
TOP OF PIPE EL 7.00
FIRE HYDRANT ASSEMBLY

(5) 6"x1" DOUBLE STRAP TAPPING SADDLE
1" CORPORATION STOP
1" PE 3408 (SDR 9) WATER SERVICE
(30" MIN COVER)
5/8" WATER METER

(5) 6"x1" DOUBLE STRAP TAPPING SADDLE
1" CORPORATION STOP
1" PE 3408 (SDR 9) WATER SERVICE
(30" MIN COVER)
5/8" WATER METER

(3) 6"x1" DOUBLE STRAP TAPPING SADDLE
1" CORPORATION STOP
1" PE 3408 (SDR 9) WATER SERVICE
(30" MIN COVER)
5/8" WATER METER

(5) 6"x1" DOUBLE STRAP TAPPING SADDLE
1" CORPORATION STOP
1" PE 3408 (SDR 9) WATER SERVICE
(30" MIN COVER)
5/8" WATER METER

6" PVC (DR 18)
WATER MAIN
(36" MINIMUM COVER)

F.F. EL 12.89
6" C.O.
INV 6.50

F.F. EL 13.07
6" C.O.
INV 6.50

F.F. EL 13.07
6" C.O.
INV 6.50

F.F. EL 12.94
6" C.O.
INV 6.50

F.F. EL 12.94
6" C.O.
INV 6.50

F.F. EL 13.12
6" C.O.
INV 6.50

F.F. EL 13.12
6" C.O.
INV 6.50

6" CLEANOUT
INV 6.50
6" CLEANOUT
INV 6.00
6" CLEANOUT
INV 6.50
F.F. EL 12.74

F.F. EL 12.49

6" CLEANOUT
INV 6.50
6" CLEANOUT
INV 6.00
6" CLEANOUT
INV 6.50
F.F. EL 12.76

F.F. EL 12.39

6" CLEANOUT
INV 6.50
6" CLEANOUT
INV 6.00
6" CLEANOUT
INV 6.50
F.F. EL 12.89

F.F. EL 12.64

6" CLEANOUT
INV 6.50
6" CLEANOUT
INV 6.00
6" CLEANOUT
INV 6.50
F.F. EL 12.84

F.F. EL 12.89

15" CPP
INV = 4.84

15" CPP
INV = 4.60

18" HDPE
INV = 5.59

30" RCP
INV = 3.19

LESLIE STREET
(40' R/W)

JOYCE STREET
(40' R/W)

11" HACKBERRY

CONNECT TO
2" WATER MAIN WITH
6"x2" REDUCER
6" GATE VALVE
BSP #3

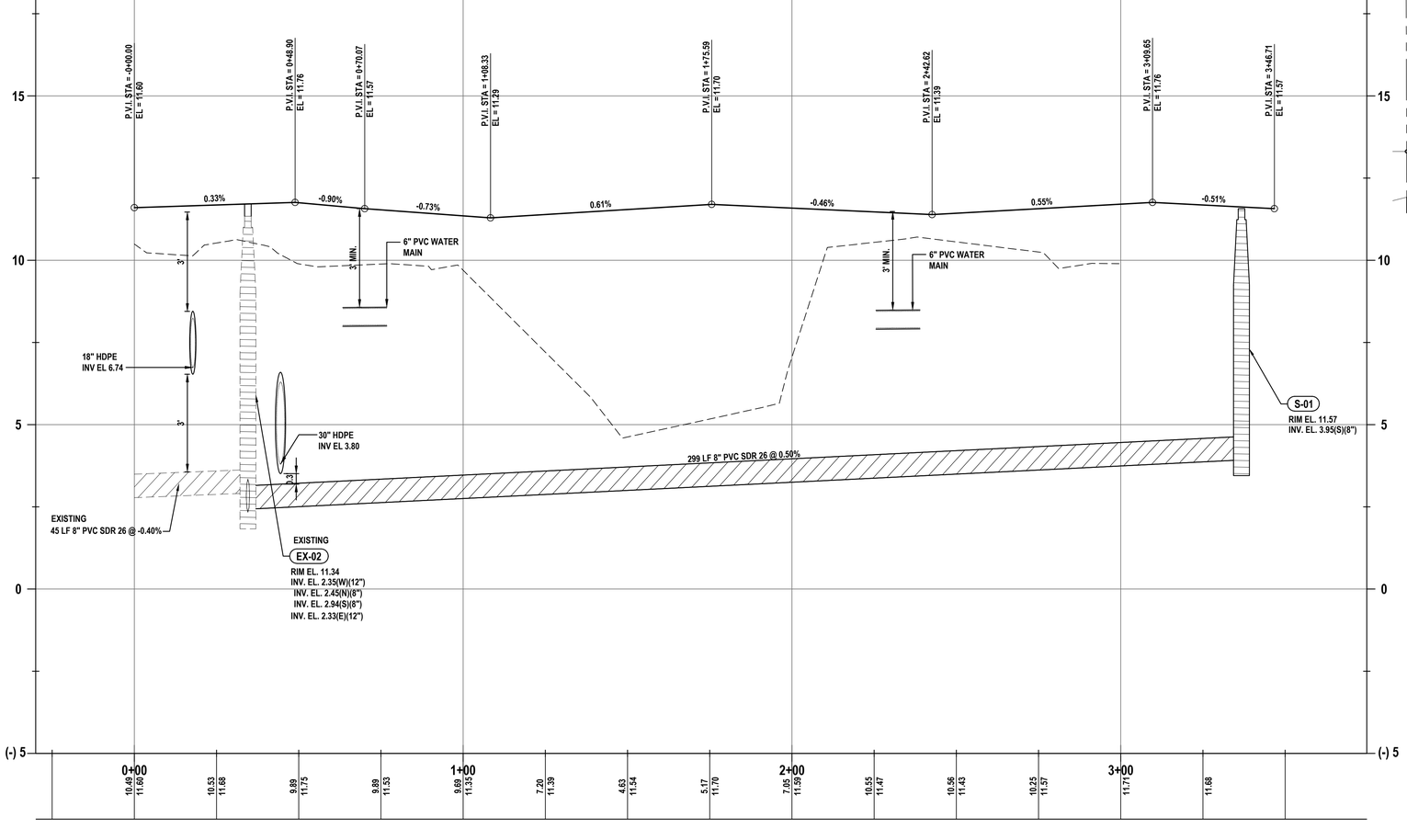
EXISTING 2"
WATER MAIN

18' N

GRAPHIC SCALE
1"=20'
20 10 0 20 40

STATION 0+00 TO 3+47

HORIZONTAL SCALE: 1" = 20'
VERTICAL SCALE: 1" = 2'



UTILITY LEGEND

	PROPOSED 11.25° BEND
	PROPOSED 22.5° BEND
	PROPOSED 45° BEND
	PROPOSED 90° BEND
	PROPOSED TEE
	PROPOSED GATE VALVE
	PROPOSED FIRE HYDRANT ASSEMBLY
RPZ	REDUCED PRESSURE BACKFLOW PREVENTER
1WS	PROPOSED 6"x1" SERVICE SADDLE, 1" CORPORATION STOP, 1" PE 3408 (SDR 9), 5/8" WATER METER. SEE CITY DETAIL W-3 ON SHEET 23.
	PROPOSED SANITARY SEWER MANHOLE
6WM	PROPOSED 6" PVC CLASS 150 (DR-18) WATER MAIN (36" MIN. COVER)
8SAN	PROPOSED 8" PVC SDR 26 SANITARY MAIN SLOPE @ 0.50% MIN.
6SAN	PROPOSED 6" PVC SDR 26 SANITARY SERVICE WITH 2.0% MIN. SLOPE

One Nation... One Number... 811
Know what's below. Call before you dig.

WARNING !!
CONTRACTOR SHALL TAKE ALL PRECAUTIONS DURING CONSTRUCTION TO AVOID CONTACT WITH EXISTING UNDERGROUND UTILITIES, GAS MAINS AND OVERHEAD ELECTRIC IN THE RIGHT-OF-WAY.

REVISIONS

DATE	DESCRIPTION

1230 North US1, Suite 3
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Phone (386) 872-7794
www.Newkirk-Engineering.com
C.A. # 30209
L.C. # 26000584
C 2013

Civil Engineering
Transportation, CEI &
Landscape Architecture

NEWKIRK ENGINEERING INC.

PLAN AND PROFILE
STA. 0+00 - 3+47
LEGACY POINTE APARTMENTS

LESLIE STREET
FLAGLER BEACH, FL 32136

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SCALE:	AS SHOWN

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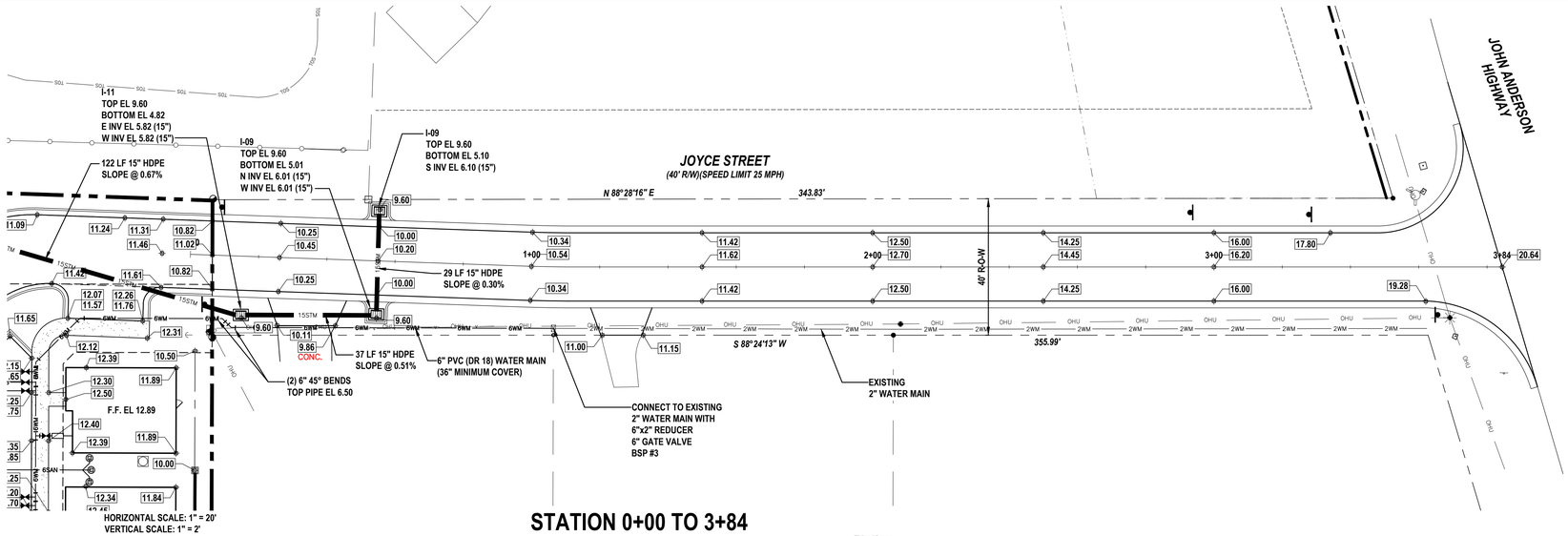
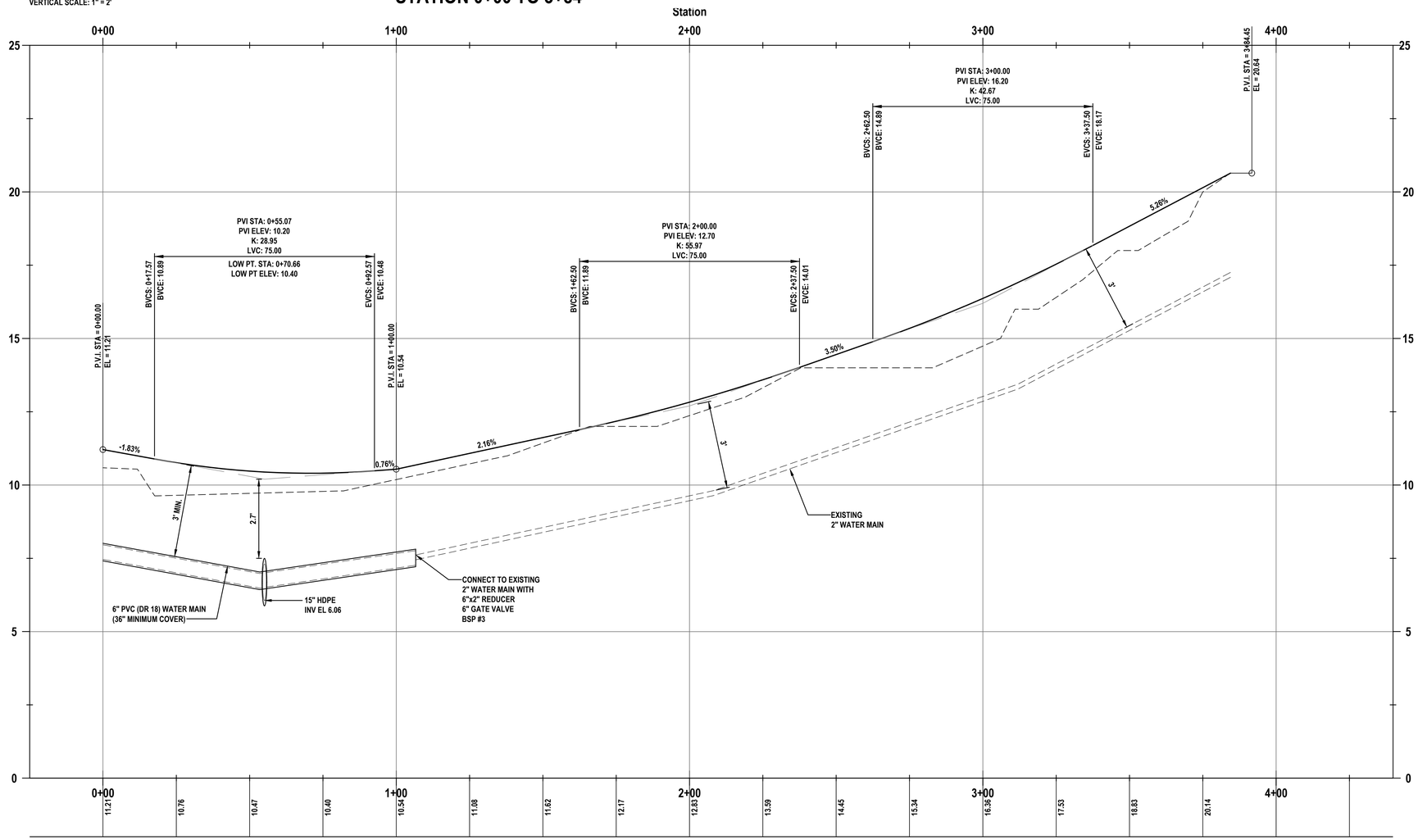
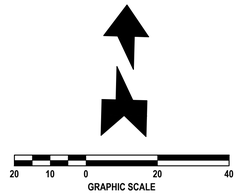
17



STATION 0+00 TO 3+84





UTILITY LEGEND

	PROPOSED 11.25° BEND
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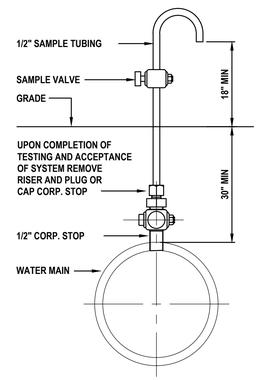
TABLE 1: CLASSES OF EMBEDMENT AND BACKFILL MATERIALS

ASTM D 2321 MATERIAL CLASS	ASTM D 2487 USCS SOIL GROUP	MATERIAL TYPE	% PASSING			ATTERBERG LIMITS	
			1 1/2 IN.	NO. 4	NO. 200	LL	PI
IA	NONE	MANUFACTURED OPEN GRADED AGGREGATES	100%	≤10%	<5%	NON PLASTIC	
IB	NONE	MANUFACTURED DENSE GRADED AGGREGATES	100%	≤50%	<5%	NON PLASTIC	
II	GW	COARSE-GRAINED SOILS, CLEAN	100%	<50% OF "COARSE FRACTION"	<5%	NON PLASTIC	
	GP						
	SW			>50% OF "COARSE FRACTION"			
	SP						
III	GM	COARSE-GRAINED SOILS W/ FINES	100%	<50% OF "COARSE FRACTION"	12% TO 50%		<4 OR <"A" LINE
	GC						<7 OR >"A" LINE
	SM			>50% OF "COARSE FRACTION"			>4 OR <"A" LINE
	SC						>7 OR >"A" LINE
IV-A	ML	FINE-GRAINED SOILS	100%	100%	>50%	<50	<4 OR <"A" LINE
	CL						>7 OR >"A" LINE

LOCATION OF PUBLIC WATER SYSTEM MAINS IN ACCORDANCE WITH F.A.C. RULE 62-555.314

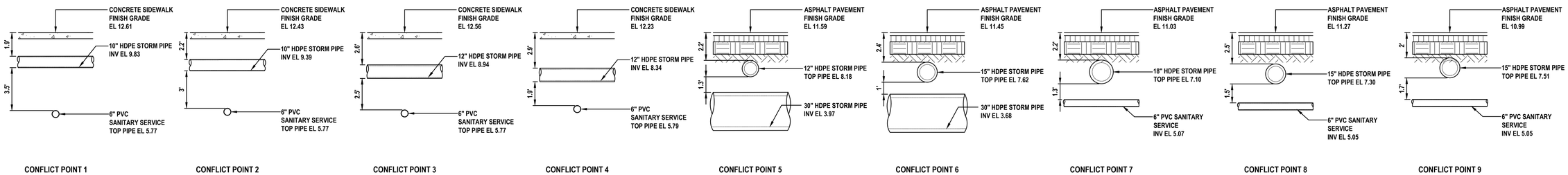
OTHER PIPE	HORIZONTAL SEPARATION	CROSSINGS (1)	JOINT SPACING AT CROSSINGS (FULL JOINT CENTERED)
STORM SEWER, STORMWATER FORCE MAIN, RECLAIMED WATER (2)	WATER MAIN 3 FT MINIMUM	WATER MAIN 12 INCHES IS THE MINIMUM EXCEPT FOR STORM SEWER, THEN 6 INCHES IS THE MINIMUM AND 12 INCHES IS PREFERRED	ALTERNATE 3 FT MINIMUM WATER MAIN
VACUUM SANITARY SEWER	WATER MAIN 10 FT PREFERRED 3 FT MINIMUM	WATER MAIN 12 INCHES PREFERRED 6 INCHES MINIMUM	ALTERNATE 3 FT MINIMUM WATER MAIN
GRAVITY OR PRESSURE SANITARY SEWER, SANITARY SEWER FORCE MAIN, RECLAIMED WATER (4)	WATER MAIN 10 FT PREFERRED 6 FT MINIMUM (3)	WATER MAIN 12 INCHES IS THE MINIMUM EXCEPT FOR STORM SEWER, THEN 6 INCHES IS THE MINIMUM AND 12 INCHES IS PREFERRED	ALTERNATE 6 FT MINIMUM WATER MAIN
ON-SITE SEWAGE TREATMENT AND DISPOSAL SYSTEM	10 FT MINIMUM (3)	——	——

(1) WATER MAIN SHOULD CROSS ABOVE OTHER PIPE. WHEN WATER MAIN MUST BE BELOW OTHER PIPE, THE MINIMUM SEPARATION IS 12 INCHES.
(2) RECLAIMED WATER REGULATED UNDER PART III OF CHAPTER 62-610, F.A.C.
(3) 3 FT FOR GRAVITY SANITARY SEWER WHERE THE BOTTOM OF THE WATER MAIN IS LAID AT LEAST 6 INCHES ABOVE THE TOP OF THE GRAVITY SANITARY SEWER.
(4) RECLAIMED WATER NOT REGULATED UNDER PART III OF CHAPTER 62-610, F.A.C.



BACTERIOLOGICAL SAMPLE POINT DETAIL

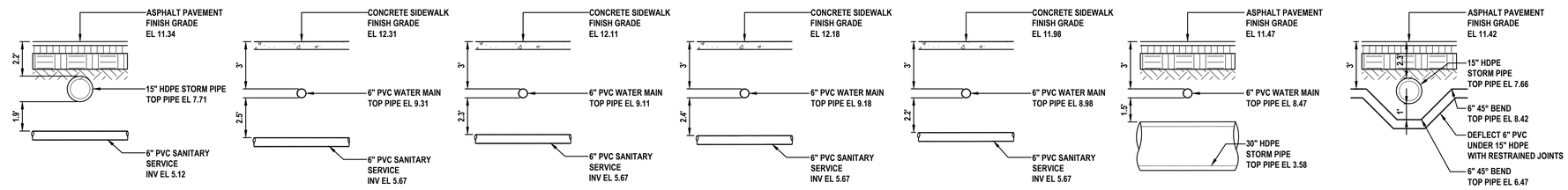
NOT TO SCALE



CONFLICT POINT 1 | CONFLICT POINT 2 | CONFLICT POINT 3 | CONFLICT POINT 4 | CONFLICT POINT 5 | CONFLICT POINT 6 | CONFLICT POINT 7 | CONFLICT POINT 8 | CONFLICT POINT 9

UTILITY CONFLICT DETAIL

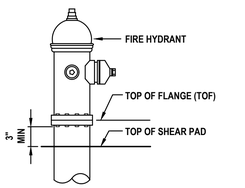
NOT TO SCALE



CONFLICT POINT 10 | CONFLICT POINT 11 | CONFLICT POINT 12 | CONFLICT POINT 13 | CONFLICT POINT 14 | CONFLICT POINT 15 | CONFLICT POINT 16

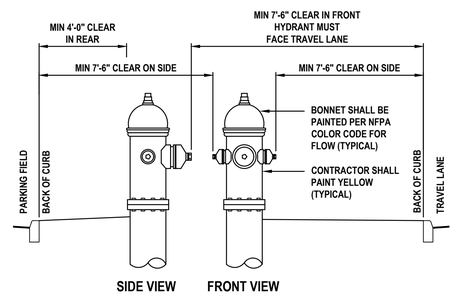
UTILITY CONFLICT DETAIL

NOT TO SCALE



TOP OF FLANGE REFERENCE POINT DETAIL

NOT TO SCALE



TYPICAL FIRE HYDRANT CLEARANCE REQUIREMENT

NOT TO SCALE

REVISIONS

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Civil Engineering
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UTILITY DETAILS AND NOTES
LEGACY POINTE COTTAGES
LESLIE STREET
FLAGLER BEACH, FL 32136

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19

IN ORDER TO ENSURE THAT NEW DEVELOPMENTS WITHIN THE CITY ARE CONSTRUCTED SUBSTANTIALLY IN ACCORDANCE WITH CITY REGULATIONS AND THE APPROVED DRAWINGS "AS-BUILT" DRAWINGS ARE REQUIRED:

THE FOLLOWING INFORMATION IS REQUIRED ON ALL PAVING AND DRAINAGE "AS-BUILT" DRAWINGS:

1. PAVEMENT AND CURB WIDTHS SHALL BE VERIFIED AND DIMENSIONED FOR EACH STREET AT EACH BLOCK. ALL RADII AT INTERSECTIONS SHALL BE VERIFIED AND DIMENSIONED. THIS INFORMATION TO CLEARLY INDICATE IT AS AS BEING "AS-BUILT" INFORMATION.
2. ROADWAY ELEVATIONS SHALL BE RECORDED AT ALL GRADE CHANGES OR OTHER INTERVALS AS NEEDED ALONG ALL STREETS. STREET CENTERLINE AND CURB INVERT ELEVATIONS SHALL BE RECORDED AS NOTED. THE "AS-BUILT" CENTERLINE PROFILE OF ALL STREETS SHALL ALSO BE SHOWN ON THE PLAN AND PROFILE SO IT MAY BE COMPARED TO THE EXISTING AND DESIGNED PROFILE GRADE LINES. ALL STREET CENTERLINES ON "AS-BUILTS" SHALL BE LABELED WITH STREET NAME AND RIGHT-OF-WAY WIDTH ON EVERY PAGE.
3. STORM DRAINAGE STRUCTURES SHALL BE LOCATED AND/OR DIMENSIONED FROM CENTERLINES OR LOT LINES AS APPROPRIATE.
4. STORM DRAINAGE PIPE INVERT AND STRUCTURE TOP AND BOTTOM ELEVATIONS SHALL BE RECORDED AND CLEARLY DENOTED AS "AS-BUILT" INFORMATION. DESIGN ELEVATIONS SHALL BE CROSSED OUT AND "AS-BUILT" INFORMATION WRITTEN NEXT TO IT.
5. STORM DRAINAGE PIPE MATERIAL, LENGTH, AND SIZE SHALL BE MEASURED AND/OR VERIFIED. THIS INFORMATION TO CLEARLY INDICATE IT AS BEING "AS-BUILT" INFORMATION.
6. ALL APPLICABLE TOPOGRAPHIC INFORMATION, PERTINENT TO THE ON SITE DRAINAGE SYSTEM SUCH AS DITCHES, LAKES, CANALS, ETC. THAT ARE DEEMED APPROPRIATE BY THE CITY SHALL BE NOTED. NORMALLY, RECORDING ELEVATIONS EVERY 100 FEET AT THE TOP OF BANK AND TOE OF SLOPE WILL BE REQUIRED. MEASUREMENTS SHALL BE TAKEN AND RECORDED IN ORDER TO ACCURATELY TIE DOWN THESE FEATURES TO THE ROADWAY CENTERLINES AND TO PLAT LINES. WHENEVER POSSIBLE, CONTOUR LINES SHALL BE UTILIZED TO GRAPHICALLY DESCRIBE THESE TOPOGRAPHIC FEATURES.
7. RETENTION AREAS SHALL HAVE THEIR TOP-OF-BANK AND BOTTOM ELEVATIONS RECORDED. ACTUAL MEASUREMENTS SHALL BE TAKEN AND DIMENSIONS RECORDED OF THE SIZE OF ALL RETENTION AREAS. MEASUREMENTS SHALL BE DONE FROM TOP-OF-BANK TO TOP-OF-BANK WITH SIDE SLOPES INDICATED. SEPARATE CALCULATIONS SHALL BE SUBMITTED TO INDICATE REQUIRED AND PROVIDED RETENTION VOLUMES.
8. STORM DRAINAGE SWALE CENTERLINES SHALL BE LOCATED AND ELEVATIONS OF FLOW LINE SHALL BE RECORDED EVERY 100 FEET.
9. ANY SPECIAL FEATURES SUCH AS CONCRETE FLUMES, LAKE BANKS, WALLS, FENCING, ETC., WHICH WERE A PART OF THE APPROVED CONSTRUCTION DRAWINGS SHOULD ALSO BE LOCATED AND DIMENSIONED.
10. ACTUAL MATERIALS USED AND ELEVATIONS AND DIMENSIONS OF OVERFLOW WEIR STRUCTURES AND SKIMMERS SHALL BE NOTED ON THE "AS-BUILT".

THE FOLLOWING INFORMATION IS REQUIRED ON ALL WATER AND SEWER "AS-BUILT" DRAWINGS:

11. SANITARY SEWER MANHOLES SHALL BE VERIFIED AND DIMENSIONED FROM STREET CENTERLINES OR LOT LINES AS APPROPRIATE. ALL RIM AND INVERT ELEVATIONS SHALL BE VERIFIED AND RECORDED. THIS INFORMATION TO CLEARLY INDICATE IT AS BEING "AS-BUILT" INFORMATION.
12. SANITARY SEWER LINE LENGTHS, SIZES, MATERIAL, SLOPE, ETC., SHALL BE VERIFIED AND RECORDED. THIS INFORMATION TO CLEARLY INDICATE IT AS BEING "AS-BUILT" INFORMATION.

STANDARD CONSTRUCTION DETAIL
REQUIREMENTS FOR "AS-BUILT" DRAWINGS
INDEX M-1A
FEB 2018

13. SEWER LATERALS SHALL BE VERIFIED AND RECORDED AT THEIR CLEAN-OUT LOCATIONS. STATIONING AND OFFSET DISTANCES SHALL BE MEASURED FROM DOWNSTREAM MANHOLES TOWARDS UPSTREAM MANHOLES.
14. LIFT STATIONS AND FORCE MAINS SHALL BE VERIFIED AND DIMENSIONED FROM STREET CENTERLINES OR LOT LINES AS APPROPRIATE. FORCE MAIN DEPTH AND LOCATION INCLUDING VALVES WILL BE PROVIDED AND TIED TO PERMANENT ABOVE GRADE FEATURES EVERY 500 FEET. DIMENSIONAL AND ELEVATION INFORMATION INDICATED ON THE APPROVED PLAN SHALL BE VERIFIED AND RECORDED. THIS INFORMATION TO CLEARLY INDICATE IT AS BEING "AS-BUILT" INFORMATION. BURIED ELECTRICAL SERVICE LINE SHALL BE CLEARLY DIMENSIONED, LOCATED AND LABELED.
15. CURB CUTS OR METAL TABS, USED TO MARK SEWER LATERALS, WATER SERVICES AND WATER VALVES, SHALL BE VERIFIED FOR PRESENCE AND ACCURACY OF LOCATION.
16. WATER MAIN LINES SHALL BE DIMENSIONED OFF THE BACK OF CURB OR EDGE OF PAVEMENT IF NO CURB IS PRESENT. WATER MAIN LINE MATERIAL, SIZE, LENGTH AND DEPTH PLACED SHALL ALSO BE NOTED. THIS INFORMATION TO CLEARLY INDICATE IT AS BEING "AS-BUILT" INFORMATION.
17. WATER VALVES, TEES, ALL SERVICES, BLOW - OFFS AND FIRE HYDRANTS SHALL BE LOCATED BY TYING THEM TO SANITARY SEWER MANHOLES. STATIONING AND OFFSET DISTANCES SHALL BE MEASURED FROM DOWNSTREAM MANHOLES TO UPSTREAM MANHOLES.

THE FOLLOWING INFORMATION IS GENERAL REQUIREMENTS OF ALL "AS-BUILT" DRAWINGS:

18. FOR PERPENDICULAR CROSSINGS OF STORM WATER, SANITARY SEWER, POTABLE WATER, OR RECLAIMED WATER, THE "AS-BUILT" PLANS SHALL CLEARLY INDICATE WHICH UTILITIES ARE LOCATED OVER OR UNDER OTHER UTILITIES, AS NECESSARY.
19. WHEN STORM WATER, POTABLE WATER, RECLAIMED WATER, OR SANITARY SEWER IMPROVEMENTS ARE LOCATED WITHIN AN EASEMENT, THE "AS-BUILT" SHALL ACCURATELY DEPICT THE LOCATION OF THE EASEMENT ITSELF AS WELL AS THE EXACT LOCATION OF THE IMPROVEMENTS WITHIN THE EASEMENT. THIS IS REQUIRED IN ORDER TO VERIFY THAT THE IMPROVEMENTS HAVE BEEN PROPERLY LOCATED AND TO ENSURE THAT FUTURE SUBSURFACE EXCAVATION TO PERFORM REMEDIAL REPAIR CAN BE ACCOMPLISHED WITHOUT DISTURBANCE BEYOND THE EASEMENT. SUCH DOCUMENTATION AND THE ASSOCIATED PROPOSED EASEMENT DOCUMENT WITH LEGAL DESCRIPTION SHALL BE SUBMITTED FOR CITY REVIEW AND APPROVAL PRIOR TO RECORDING OF SAID EASEMENT. UPON CITY APPROVAL, THE EASEMENT SHALL BE RECORDED VIA A SEPARATE LEGAL INSTRUMENT AND SHALL NOT BE INCLUDED AS PART OF HOMEOWNER COVENANTS AND RESTRICTIONS.
20. SUBMIT CERTIFIED PAPER PRELIMINARY "AS-BUILT" (24"x36") WITH REQUEST FOR FINAL INSPECTION. SUBMIT 3 SETS SHOWING WATER FACILITIES, 3 SETS WITH SEWER FACILITIES, AND 3 SETS WITH PAVING AND DRAINAGE FACILITIES. FOLLOWING FINAL INSPECTION AND COMMENTS, THE CONTRACTOR SHALL REVISE AS-BUILTS TO ADDRESS CITY COMMENTS AND SUBMIT 3 SETS CERTIFIED FINAL "AS-BUILTS" ALONG WITH 1 SET CERTIFIED MYLARS AND 1 CD-ROM CONTAINING AUTO-CAD FILES AND PDF VERSIONS SHOWING ALL "AS-BUILT" SHEETS. ALL "AS-BUILT" DRAWINGS SHALL BE CERTIFIED BY A REGISTERED LAND SURVEYOR AND ENGINEER OF RECORD.
21. INDICATE VERTICAL DATUM REFERENCE ON ALL SHEETS.
22. CAD FILE OF "AS-BUILTS" SHALL BE IN STATE PLANE COORDINATES; FILE SHOULD INCLUDE REFERENCE TO PROJECTION. (FLORIDA EAST, NAD83)
23. ALL "AS-BUILT" DRAWINGS SHALL BE PREPARED BY A FLORIDA REGISTERED LAND SURVEYOR USING THE FINAL APPROVED SITE DESIGN PREPARED BY THE ENGINEER OF RECORD. LINE WEIGHTS, LINETYPES, AND ANNOTATION SHALL BE MANAGED IN A MANNER THAT CLEARLY DISTINGUISHES DESIGN INFORMATION FROM "AS-BUILT" INFORMATION.
24. ALL "AS-BUILT" SHEETS SHALL INCLUDE A TITLE BLOCK AND CLEARLY STATE PROJECT NAME, PROJECT SURVEYOR, DATE OF FIELD WORK, AS WELL AS PROJECT CERTIFICATION BLOCK FROM THE ENGINEER OF RECORD.

NOTE: REFERENCES TO WATER SHALL MEAN BOTH POTABLE AND RECLAIMED WATER.

STANDARD CONSTRUCTION DETAIL
REQUIREMENTS FOR AS BUILT DRAWINGS
INDEX M-1B
FEB 2018

GENERAL NOTES:

1. ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE CITY'S LAND DEVELOPMENT CODE REQUIREMENTS, AND THE STANDARD CONSTRUCTION DETAILS AND CONSTRUCTION SPECIFICATIONS (SCDCS). AN ENGINEERING PERMIT AND TREE REMOVAL PERMIT IS REQUIRED PRIOR TO STARTING CONSTRUCTION.
2. NO LAND SHALL BE CLEARED, EXCAVATED OR FILLED AND NO STRUCTURE SHALL BE ERECTED, REPAIRED OR DEMOLISHED WITHOUT PROPER PERMIT(S) AS REQUIRED BY THE CITY.
3. NOTIFY THE CITY 48 HOURS PRIOR TO THE START OF CONSTRUCTION.
4. ANY CONSTRUCTION CHANGES TO APPROVED PLANS SHALL BE SUBMITTED TO THE CITY FOR APPROVAL PRIOR TO PERFORMING THE WORK.
5. ROAD CONSTRUCTION AND PIPE INSTALLATION COMPACTION AND DENSITY TESTING SHALL CONFORM TO THE CITY'S MINIMUM REQUIREMENTS. CERTIFIED COPIES OF TEST REPORTS SHALL BE SUBMITTED TO THE CITY.
6. A PRE-PAVING UTILITY INSPECTION MUST BE REQUESTED AND COMPLETED PRIOR TO THE PAVING OF ALL ROADS, STREETS, AND PARKING AREAS.
7. A FINAL INSPECTION, TO BE CONDUCTED BY THE CITY, SHALL BE PERFORMED ON ALL CONSTRUCTION. THE DESIGN ENGINEER SHALL NOTIFY THE CITY WHEN REQUESTING A FINAL INSPECTION.
8. THREE (3) COMPLETE SETS OF AS-BUILT DRAWINGS (5 FOR SUBDIVISIONS) ARE REQUIRED TO BE SUBMITTED TO THE CITY PRIOR TO REQUESTING A FINAL INSPECTION.
9. THE CITY HAS A CONTRACTOR FOR ROLL OFF SERVICE. NO OTHER CONTRACTOR SHALL BE PERMITTED TO PROVIDE THIS SERVICE. VERIFY COMPANY UNDER CONTRACT WITH THE CITY.
10. CONSTRUCTION SITES THAT DISTURB ONE ACRE OR MORE WILL BE REQUIRED TO SEEK COVERAGE UNDER THE GENERIC PERMIT FOR STORM WATER DISCHARGE FROM LARGE AND SMALL CONSTRUCTION ACTIVITIES. IN ACCORDANCE WITH THIS REQUIREMENT, A STORM WATER POLLUTION PREVENTION PLAN (SWPP) MUST BE SUBMITTED TO THE CITY PRIOR TO CONSTRUCTION TO BE IN COMPLIANCE WITH THE PERMIT.
11. CONTRACTOR WILL FOLLOW REQUIRED WASTE MANAGEMENT PRACTICES
12. SEEDING OR SODDING SHALL BE INITIATED FOR EROSION AND SEDIMENT CONTROL ON DISTURBED AREAS AS SOON AS PRACTICABLE IN PORTIONS OF THE SITE WHERE CONSTRUCTION ACTIVITIES HAVE TEMPORARILY OR PERMANENTLY CEASED.
13. ANY FIELD MODIFICATIONS OR DEVIATIONS TO THIS CONSTRUCTION PLAN REQUIRES WRITTEN APPROVAL BY BOTH THE ENGINEER OF RECORD AND THE CITY.

STANDARD CONSTRUCTION DETAIL
GENERAL CONSTRUCTION NOTES
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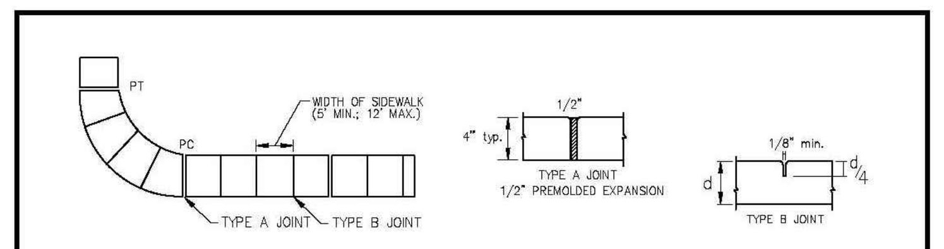
FEB 2018



1. SIDEWALKS, BIKEPATHS, RAMPS, AND DRIVEWAY APRONS SHALL BE CONSTRUCTED OF PLAIN PORTLAND CEMENT CONCRETE WITH A MAXIMUM SLUMP OF 3 INCHES, A MINIMUM DEVELOPED COMPRESSIVE STRENGTH OF 2500 P.S.I. IN 28 DAYS, AND A MINIMUM UNIFORM THICKNESS OF 4 INCHES WHERE INTENDED SOLELY FOR PEDESTRIAN TRAFFIC, AND 6 INCHES THICK WHERE MOTOR VEHICLES ARE LIKELY TO CROSS. SIDEWALKS SHALL BE 5 FOOT WIDE UNLESS OTHERWISE SHOWN ON PLANS.
2. SIDEWALKS AND BIKE PATHS SHALL BE PLACED PARALLEL TO, AND ONE FOOT WITHIN THE RIGHT-OF-WAY LINE EXCEPT THAT THE CITY MAY APPROVE DEVIATIONS TO SAVE SPECIMEN TREES PROVIDED THAT THE PAVEMENT REMAINS WITHIN THE RIGHT-OF-WAY, IS NOT DIMINISHED IN WIDTH, AND REMAINS AT LEAST 4 FEET FROM THE EDGE OF THE STREET PAVEMENT, UNLESS OTHERWISE APPROVED BY THE CITY.
3. THE TOP OF THE CONCRETE SHALL BE AT AN ELEVATION NO LOWER THAN THE CROWN OF THE ADJACENT ROADWAY, AND NO HIGHER THAN 6 INCHES ABOVE THE CROWN UNLESS APPROVED BY THE CITY TO MAKE A MORE NATURAL TRANSITION WITH THE ADJACENT LAND.
4. ALL WALKS SHALL HAVE A CROSS SLOPE OF 1/4 INCH PER FOOT AND SHALL NOT EXCEED A LONGITUDINAL SLOPE OF 1:20, EXCEPT AT DESIGNATED RAMPS THAT SHALL NOT EXCEED 1:12. PROVIDE A TACTIBLE WARNING SURFACE AT ALL RAMPS PER A.D.A. THE CONTRACTOR SHALL INSURE THAT ALL PROVISIONS OF A.D.A AND FLORIDA ACCESSIBILITY CODE ARE MET.*
5. ISOLATION JOINTS (TYPE A JOINTS) SHALL BE PROVIDED BETWEEN EXISTING SLABS OR STRUCTURES AND FRESH CONCRETE, TO SEPARATE PEDESTRIAN SECTIONS FROM SECTIONS WHICH WILL ENCOUNTER VEHICLE TRAFFIC, TO SEPARATE FRESH PLACEMENT FROM CONCRETE WHICH HAS SET FOR MORE THAN 60 MINUTES, AND NO FARTHER APART THAN 100 FEET IN SIDEWALKS AND BIKEPATHS. JOINT MATERIAL SHALL BE SPECIFIED IN FDOT STANDARDS AND SPECIFICATIONS AND SHALL BE RUBBER, PLASTIC OR OTHER APPROVED NON-BIODEGRADABLE ELASTOMERIC MATERIAL. WOOD IS PROHIBITED.
6. CONTROL JOINTS (TYPE B JOINTS) SHALL BE TOOLED INTO THE FRESH CONCRETE TO A DEPTH EQUAL TO 1/4 THE SLAB THICKNESS AND SPACED APART A DISTANCE EQUAL TO THE WIDTH OF THE SLAB, AT MINIMUM SPACING OF 5', MAX SPACING OF 12'.
7. THE SLAB SURFACE SHALL BE BROOM FINISHED TO BE SLIP RESISTANT, AND SHALL MATCH AS CLOSELY AS POSSIBLE THE FINISH OF THE EXISTING ADJACENT SLABS AND ALL EDGES SHALL BE TOOLED TO ELIMINATE SHARP CORNERS.
8. THE BEARING SUBSURFACE SHALL HAVE ALL ORGANIC, LOOSE, AND DELETERIOUS MATTER REMOVED, AND THE REMAINING CLEAN SOIL SHALL BE SMOOTH, SOUND, AND SOLID. ANY FILL MATERIAL SHALL BE COMPACTED WITH A VIBRATORY OR IMPACT COMPACTION MACHINE IN MAXIMUM 12 INCH LIFTS OR COMPACTED WITH A HAND TAMPER IN MAXIMUM 4 INCH LIFTS. THE CITY SHALL REQUIRE A COMPACTION TEST FOR EACH LIFT IF THE TOTAL FILLED SECTION IS MORE THAN 12 INCHES DEEP OR IF THE SUBSURFACE HAS BEEN DISTURBED MORE THAN 12 INCHES DEEP. WHERE SUCH TEST IS REQUIRED, THE RESULTS SHALL SHOW A MINIMUM PROCTOR FIELD DENSITY OF 95 PERCENT.
9. ALL CONCRETE WORK IN THE RIGHT-OF-WAY SHALL BE INSPECTED BY THE CITY AFTER THE SUBSOIL IS PREPARED AND THE FORMS ARE SET BUT, BEFORE THE CONCRETE PLACEMENT BEGINS.
10. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROTECTING THE FINISHED SLAB FROM ALL DAMAGE AND VANDALISM UNTIL THE CITY ACCEPTS OR APPROVES THE SLAB, AFTER WHICH TIME THE OWNER OF THE ABUTTING LAND SHALL BE RESPONSIBLE FOR THE SLAB IN ACCORDANCE WITH THE CITY CODE. ANY SLAB SECTION DAMAGED OR VANDALIZED PRIOR TO ACCEPTANCE OR APPROVAL SHALL BE CUT OUT BETWEEN JOINTS AND REPLACED. REPAIRS ARE NOT ACCEPTABLE.
11. SIDEWALKS LOCATED WITHIN THE RIGHT-OF-WAY SHALL NOT BE TINTED, STAINED, COLORED, OR COATED.
12. ALL FORMS SHALL BE REMOVED PRIOR TO ACCEPTANCE OR APPROVAL AND THE DISTURBED GROUND SHALL BE BACKFILLED, REGRADED, AND SODDED SO THAT THE WEAR SURFACE OF THE CONCRETE IS REASONABLY FLUSH WITH THE ADJACENT GRADE.

STANDARD CONSTRUCTION DETAIL
SIDEWALK, RAMP, AND DRIVEWAY APRON CONSTRUCTION REQUIREMENTS
NTS
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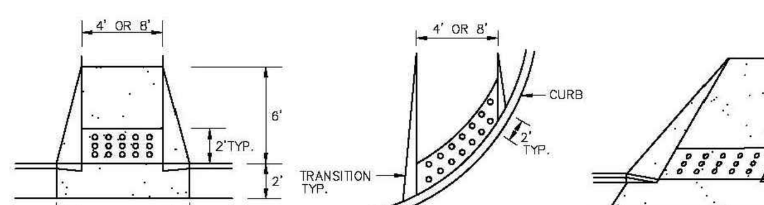
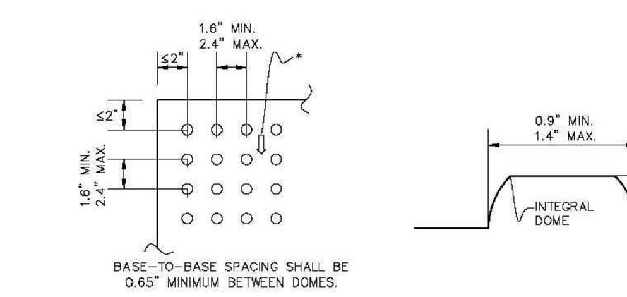
FEB 2018



NOTES:
1. RAMP LOCATIONS ARE TO BE COORDINATED WITH AND IN CONFORMANCE WITH CROSSWALK MARKING DETAILS SHOWN IN THE PLANS.
2. CURBED RAMPS SHALL HAVE FLARED SIDES WITH A MAXIMUM SLOPE OF 12:1.
3. RAMPS SHALL HAVE A DETECTABLE WARNING SURFACE AS SHOWN.
4. RAMPS ARE TO BE CONSTRUCTED AT ALL LOCATIONS SHOWN IN THE PLANS EVEN WHEN A SIDEWALK IS NOT CONSTRUCTED CONCURRENTLY.
5 NO CURB TRANSITION IS NEEDED FOR MIAMI CURBS.
6. ALL RAMPS SHALL BE CONSTRUCTED IN ACCORDANCE WITH FDOT INDEX NO. 304 AND HANDICAPPED ACCESSIBILITY REQUIREMENTS IN ACCORDANCE WITH THE AMERICAN DISABILITIES ACT.



NOTES:
* ON RAMPS THAT ARE PERPENDICULAR WITH THE CURB LINE, THE DOME PATTERN SHALL BE IN-LINE WITH THE DIRECTION OF TRAVEL. ON RAMPS INTERSECTING CURBS ON A RADIUS, THE DOME PATTERN SHALL BE IN-LINE WITH THE DIRECTION OF TRAVEL TO THE EXTENT PRACTICAL.

STANDARD CONSTRUCTION DETAIL
SIDEWALK AND BIKE PATH RAMP
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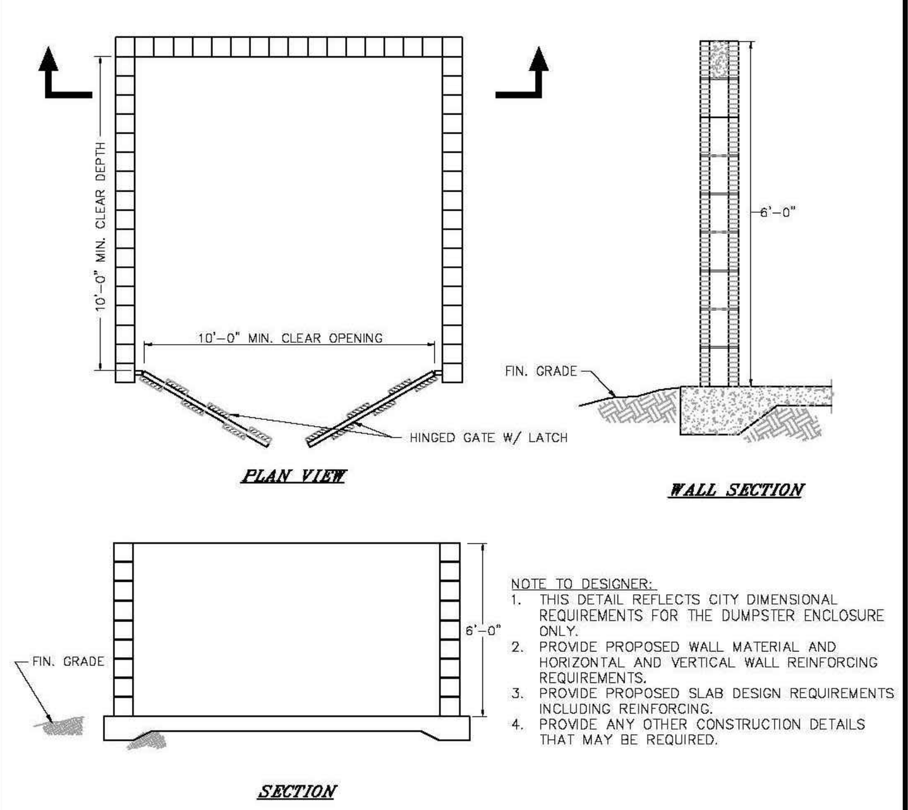

NOTE TO DESIGNER:
1. THIS DETAIL REFLECTS CITY DIMENSIONAL REQUIREMENTS FOR THE DUMPSTER ENCLOSURE ONLY.
2. PROVIDE PROPOSED WALL MATERIAL AND HORIZONTAL AND VERTICAL WALL REINFORCING REQUIREMENTS.
3. PROVIDE PROPOSED SLAB DESIGN REQUIREMENTS INCLUDING REINFORCING.
4. PROVIDE ANY OTHER CONSTRUCTION DETAILS THAT MAY BE REQUIRED.

NOTES:
1. BLOCK MUST BE FINISHED WITH STUCCO OR BRICK VENEER PAINTED TO MATCH BUILDING.
2. DUMPSTER STRUCTURE SHALL MEET THE REQUIREMENTS OF CHAPTER 2, ARTICLE 3, 2-50, J OF THE LAND DEVELOPMENT CODE (LDC).
3. SHRUB PLANTINGS REQUIRED (MIN. 3-FOOT WIDE PLANTING AREA) AROUND PERIMETER WALLS (EXCEPT OPENING).
4. GATES TO BE CONSTRUCTED OF PRESSURE-TREATED WOOD, OR APPROVED EQUAL.
5. THE CITY HAS A CONTRACTOR FOR ROLL OFF SERVICE. NO OTHER CONTRACTOR SHALL BE PERMITTED TO PROVIDE THIS SERVICE. VERIFY COMPANY UNDER CONTRACT WITH THE CITY.
6. DUMPSTER ENCLOSURE HEIGHT MAY BE INCREASED TO A MAXIMUM HEIGHT OF EIGHT (8) FEET.
7. IF BOLLARDS ARE INSTALLED CLEAR DEPTH MUST BE MEASURED FROM BOLLARDS TO GATES.

STANDARD CONSTRUCTION DETAIL
SINGLE USE DUMPSTER ENCLOSURE
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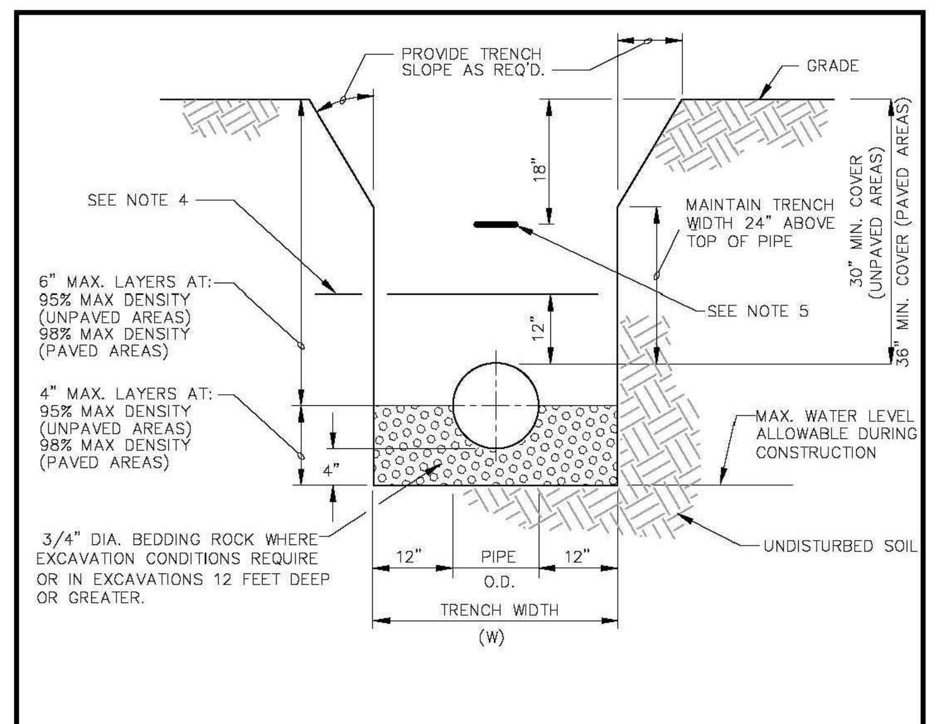

PIPE INSTALLATION DETAIL

NOTES:
1. WHERE SOIL CONDITIONS CAN NOT BE MAINTAINED AS SHOWN ABOVE, PROVIDE APPROVED METHOD OF CONSTRUCTION.
2. SHEETING WILL BE REQUIRED AS DETERMINED IN THE FIELD.
3. COMPACTION PERCENTAGES SHOWN REFER TO A.A.S.H.T.O. T-180. PROVIDE COPIES OF CERTIFIED TEST REPORTS TO THE CITY.
4. MECHANICAL COMPACTION NOT ALLOWED BELOW THIS LEVEL.
5. INSTALL UTILITY COLOR CODED METALLIC TAPE OVER FULL LENGTH OF PIPE.

STANDARD CONSTRUCTION DETAIL
PIPE INSTALLATION
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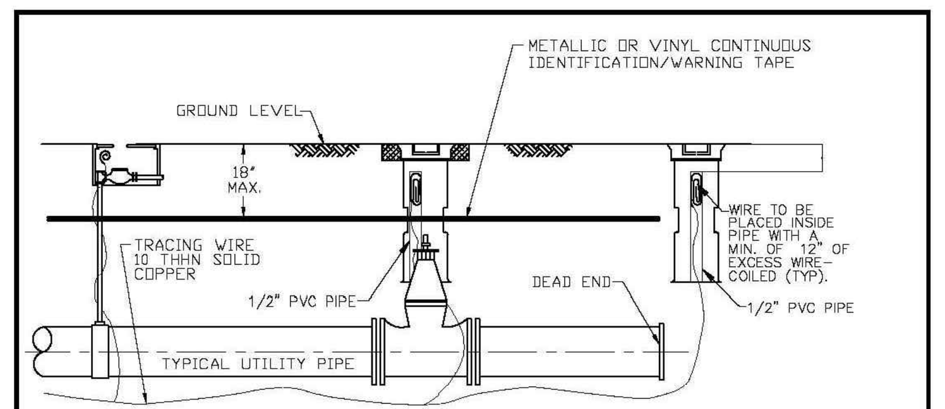

ALL PVC PIPE, OR OTHER CITY APPROVED NONMETALLIC PIPE INSTALLED WITHIN THE CITY'S WATER, SANITARY SEWER, OR RECLAIMED WATER SYSTEMS, SHALL BE INSTALLED WITH 10 THHN SOLID COPPER TRACING WIRE. IF PIPE IS INSTALLED BY DIRECTIONAL BORE, USE (2) 10 THHN SOLID COPPER TRACING WIRE.

THE TRACING WIRE MUST BE INSTALLED DIRECTLY BELOW THE PIPE AND BROUGHT TO THE SURFACE AT 500' MINIMUM INTERVALS. WIRE SHALL EXTEND A MINIMUM OF 12" ABOVE GRADE AT EACH INTERVAL AND BE COILED AND PLACED IN A VALVE BOX, METER BOX, MANHOLE, CLEANOUT OR OTHER APPLICABLE STRUCTURE.

TRACING WIRE BETWEEN INTERVALS SHALL BE INSTALLED SO AS TO PROVIDE CONTINUOUS CURRENT WHEN LINE LOCATION EQUIPMENT IS CONNECTED TO THE TRACING WIRE. WIRE BRANCHING FROM MAIN LINES SHALL BE LINKED BY A CITY APPROVED CONNECTOR SUCH AS KING # 2011 SAFETY SEALED CONNECTORS OR APPROVED EQUAL.

COLOR CODING:

POTABLE WATER SYSTEM:	BLUE
RECLAIMED WATER SYSTEM:	LAVENDER
SANITARY SEWER FORCE MAIN SYSTEM:	GREEN

1. POTABLE WATER AND RECLAIMED WATER SYSTEMS: WIRE SHALL BE INSTALLED BELOW ALL MAINS AND SERVICE LINES AND ATTACHED TO VALVES, HYDRANTS AND FITTINGS. WIRE INSTALLED WITH SERVICE LINES SHALL CONNECT TO THE WIRE INSTALLED BELOW THE MAIN AND EXTEND TO THE CURB STOP.
2. FIRE SPRINKLER LINES: WIRE SHALL CONNECT TO THE WIRE INSTALLED BELOW THE MAIN AND EXTEND TO THE RISER CONNECTION.
3. SANITARY SEWER FORCE MAINS: WIRE SHALL BE INSTALLED BELOW THE FORCE MAIN AND ATTACHED TO ALL VALVES AND FITTINGS AND BROUGHT TO THE SURFACE AND PLACED IN A METAL, CITY APPROVED, VALVE BOX.
4. DEAD END MAINS: WIRE SHALL BE PLACED IN A PROPERLY IDENTIFIED METAL VALVE BOX AT THE END OF THE RUN.
5. WIRE SHALL NOT BE FASTENED OR COILED TO VALVE OPERATING NUT.

STANDARD CONSTRUCTION DETAIL
UTILITY PIPE LOCATION MATERIALS
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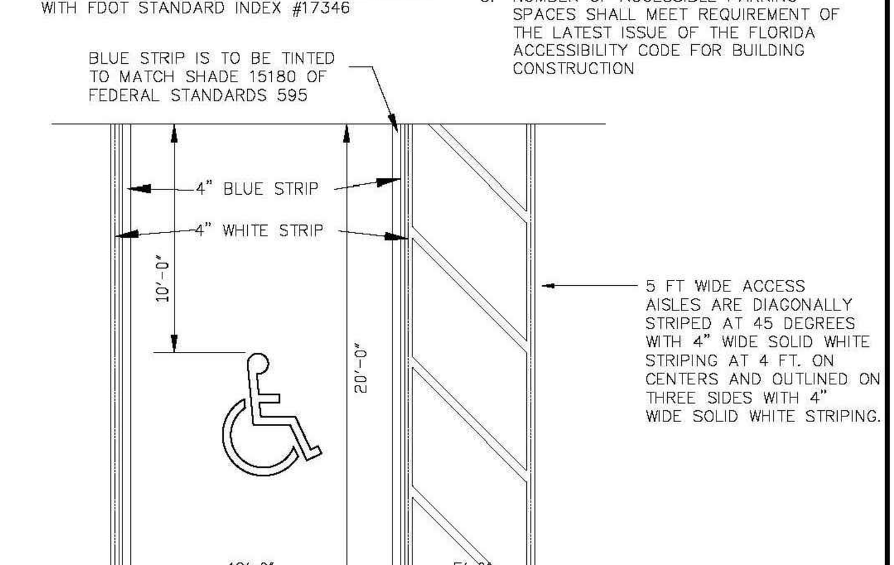
HANDICAPPED PAVEMENT SYMBOL

USE OF PAVEMENT SYMBOL IN HANDICAPPED PARKING SPACES IS REQUIRED. WHEN USED THE SYMBOL SHALL BE 5 FT. HIGH AND WHITE IN COLOR. TO BE INSTALLED IN ACCORDANCE WITH FDOT STANDARD INDEX #17346

NOTES:
1. ACCESSIBLE PARKING SPACES AND ACCESS AISLES SHALL BE LEVEL WITH SURFACE SLOPES NOT EXCEEDING 2.0% IN ALL DIRECTIONS.
2. IF ACCESSIBLE AISLE CROSSES THE TOP OF THE HANDICAP SPACE, WHEEL STOP SHALL BE USED TO MAINTAIN MINIMUM 44 INCH CLEAR ACCESSIBLE ROUTE.
3. IF WHEEL STOP IS USED, PARKING SHALL HAVE 18' CLEAR SPACE.
4. ACCESSIBLE PARKING SIGN SHALL BE PLACED AS TO NOT ENCROACH INTO THE ACCESSIBLE AISLE MINIMUM 44 INCH CLEAR ACCESSIBLE ROUTE.
5. NUMBER OF ACCESSIBLE PARKING SPACES SHALL MEET REQUIREMENT OF THE LATEST ISSUE OF THE FLORIDA ACCESSIBILITY CODE FOR BUILDING CONSTRUCTION



STANDARD CONSTRUCTION DETAIL
TYPICAL MARKINGS FOR HANDICAPPED PARKING
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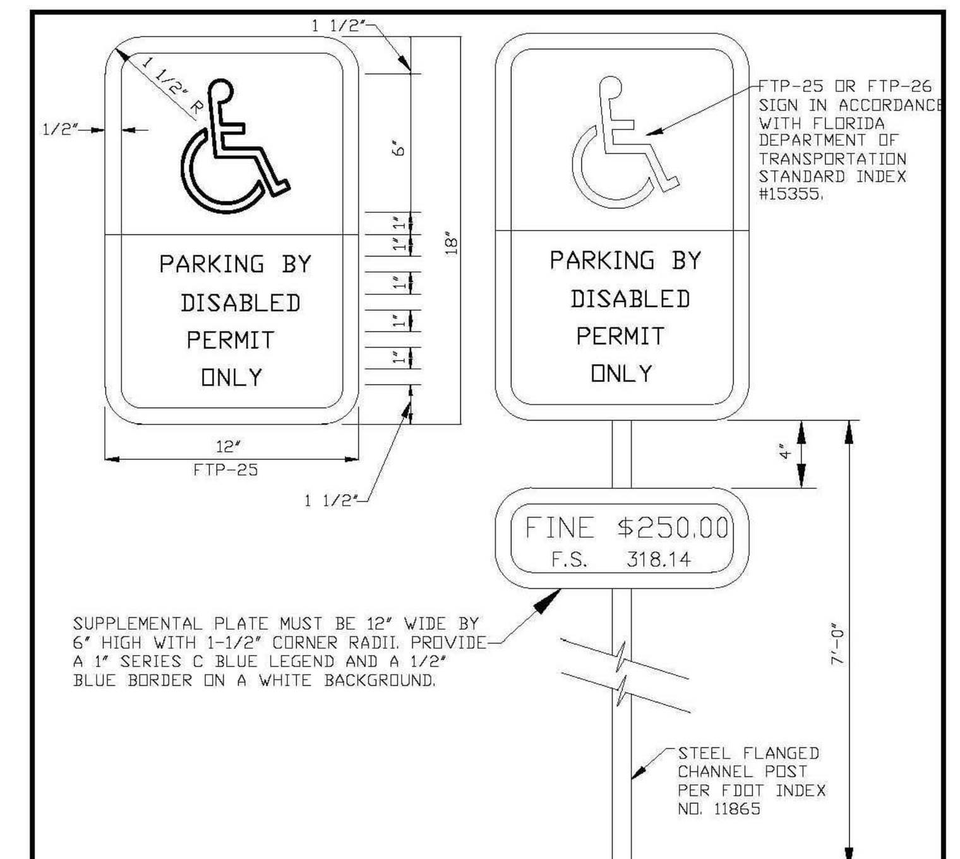

1.) TOP PORTION OF SIGN TO HAVE A REFLECTIVE BLUE BACKGROUND WITH WHITE REFLECTIVE SYMBOL AND BORDER.
2.) BOTTOM PORTION SHALL HAVE A REFLECTIVE WHITE BACKGROUND WITH BLACK OPAQUE LEGEND AND BORDER.
3.) SIGN MAY BE FABRICATED ON ONE PANEL OR TWO.
4.) SIGNS ARE TO BE MOUNTED AT STANDARD HEIGHT. (7' FROM PAVEMENT TO BOTTOM OF SIGN.)

STANDARD CONSTRUCTION DETAIL
HANDICAP PARKING SIGN DETAIL
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FEB 2018

ROADWAY CONSTRUCTION NOTES

1. ALL RIGHT OF WAY OTHER THAN ROADWAY AREAS SHALL BE SEEDED AND MULCHED OR SODDED. ALL SLOPES GREATER THAN 6% SHALL BE SODDED. THE CITY RESERVES THE RIGHT TO REQUIRE SODDING IN SPECIAL AREAS WHERE EROSION IS A CONCERN.
2. THE FOLLOWING WILL BE THE STANDARD PROTECTION FOR DITCHES UNLESS DRAINAGE CALCULATIONS INDICATE OTHERWISE:

SWALE PROFILE GRADES	PROTECTION REQUIRED
0.2% - 1.0%	SEEDING AND MULCHING
1.0% - 4.0%	SODDING
4.0% AND GREATER	DITCH PAVING

3. ALL FRANCHISE UTILITY CROSSINGS, INCLUDING BUT NOT LIMITED TO FPL, BELLSOUTH AND CABLE SHALL BE INSTALLED PRIOR TO INSTALLATION AND COMPACTION OF THE ROAD SUB BASE. ANY CROSSINGS AFTER INSTALLATION OF THE SUB BASE SHALL BE BY DIRECTIONAL BORE.
4. THE LIMITS OF STABILIZED SUB BASE SHALL EXTEND TO A DEPTH OF SIX INCHES (6") BELOW THE BOTTOM OF THE BASE AND OUTWARD TO TWELVE INCHES (12") BEYOND THE CURB.
5. THE STABILIZING MATERIAL, IF REQUIRED, SHOULD BE A HIGH BEARING VALUE SOIL, SAND-CLAY, LIMEROCK, RECYCLED CONCRETE, SHELL OR OTHER MATERIAL AS APPROVED BY THE CITY AND A LICENSED SOILS ENGINEER.
6. THE SUB BASE SHALL BE STABILIZED NOT LESS THAN FORTY (40) POUNDS LIMEROCK BEARING RATIO (LBR). A COMPACTION OF NO LESS THAN NINETY-EIGHT (98%) PERCENT DENSITY BASED ON AASHTO T-180 SHALL BE REQUIRED.
7. TESTS FOR SUB BASE BEARING CAPACITY AND COMPACTION SHALL BE DONE AT A MINIMUM OF EVERY 300 FEET AND SHALL BE STAGGERED TO THE LEFT, RIGHT AND AT CENTER LINE OF THE ROADWAY.
8. BASES FOR ALL STREETS SHALL HAVE A MINIMUM SIX INCH (6") DEPTH. PRIMING AND SANDING SHALL BE REQUIRED AS SOON AS BEARING CAPACITY AND COMPACTION HAS BEEN ACHIEVED.
9. MAXIMUM DENSITY BASED ON AASHTO T-180 MODIFIED PROCTOR TEST. RECYCLED CONCRETE OR LIMEROCK BASES SHALL BE COMPACTED TO (98%)
10. MATERIAL DELIVERY TICKETS SHALL BE PROVIDED TO THE CITY AT THE TIME OF PLACEMENT.
11. TESTING OF THE IN-PLACE BASE SHALL BE DONE AT INTERVALS EQUIVALENT TO SUB BASE TESTING AND SHALL CONSIST OF, AS A MINIMUM, MOISTURE CONTENT AND COMPACTION TEST.

STANDARD CONSTRUCTION DETAIL
ROADWAY CONSTRUCTION NOTES
INDEX R-1A
FEB 2018

12. DESIGN MIXES SHALL BE SUBMITTED TO THE CITY FOR THEIR APPROVAL NO LESS THAN THREE (3) WORKING DAYS PRIOR TO ANY ROADWAY CONSTRUCTION.
13. ASPHALT SPECIFICATIONS SHALL BE SUBMITTED BY THE DESIGN ENGINEER WITH FINAL PLANS TO THE CITY. FLORIDA STATE CERTIFIED BATCH PLANTS MUST THEN CERTIFY THAT THESE APPROVED SPECIFICATIONS HAVE BEEN MET.
14. EXTRACTION AND GRADATION TESTS ON ASPHALT MIXES SHALL BE PROVIDED TO THE CITY TO INSURE THAT DESIGN MIXES MEET THE CITY STANDARD SPECIFICATIONS.
15. THE ROADWAY CROWN SHALL HAVE A STANDARD ONE QUARTER INCH (1/4") PER FOOT SLOPE.
16. ALL ROADWAYS WITH CURB AND GUTTER SECTIONS SHALL HAVE AS A STANDARD A MINIMUM LONGITUDINAL SLOPE OF 0.30%.
17. THE FINISHED PAVEMENT EDGE SHALL BE WITHIN ONE QUARTER INCH (1/4") OF THE ADJACENT CONCRETE CURB.
18. CONCRETE CURBS SHALL BE PROVIDED ON BOTH SIDES OF ALL STREETS AND CONSTRUCTED WITH 2500 PSI CONCRETE AT 28 DAYS.
19. CONCRETE CURBS SHALL BE SAW CUT TO A DEPTH EQUAL TO 1/4 OF CURB THICKNESS AT INTERVALS OF TEN FEET (10') WITH EXPANSION JOINTS AT STREET INTERSECTIONS, STRUCTURES AND ALONG CURVES AT SIXTY FEET (60') INTERVALS. ALL EXPANSION JOINT MATERIAL IS REQUIRED TO BE INSTALLED THROUGH THE ENTIRE DEPTH OF THE CONCRETE CURB.
20. AN "X" SHALL BE CUT IN THE CURB TO MARK THE LOCATION OF WATER DISTRIBUTION SYSTEM VALVE.
21. AN "X" SHALL BE CUT INTO THE CURB TO MARK THE LOCATION OF ALL VALVES OTHER THAN WATER DISTRIBUTION VALVES.
22. A "V" SHALL BE CUT IN THE CURB TO MARK THE LOCATION OF ALL SEWER SERVICES.
23. A "⊥" SHALL BE CUT IN THE CURB TO MARK THE LOCATION OF ALL RECLAIMED WATER SERVICES.
24. A "Λ" SHALL BE CUT IN THE CURB TO MARK THE LOCATION OF ALL WATER SERVICES.

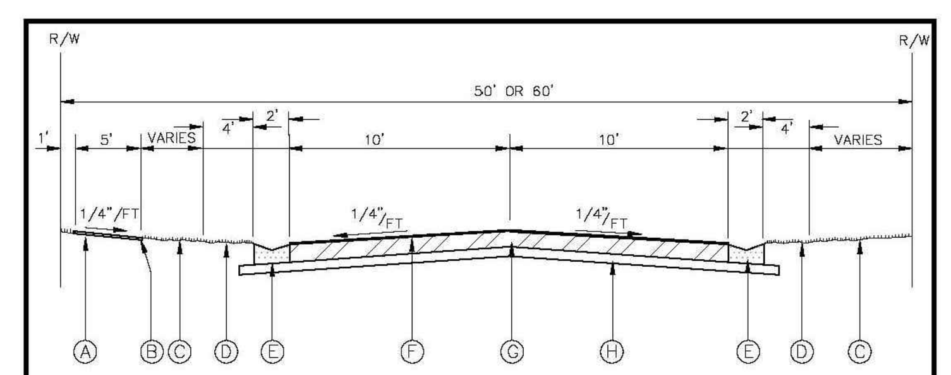
STANDARD CONSTRUCTION DETAIL
ROADWAY CONSTRUCTION NOTES
INDEX R-1B
FEB 2018

25. THREE (3) CONCRETE CYLINDERS SHALL BE TAKEN AND TESTED FOR EVERY THREE HUNDRED (300) FEET OF ROADWAY CONSTRUCTED. TEST RESULTS SHALL THEN BE PROVIDED TO THE CITY AS THEY BECOME AVAILABLE.
26. THE DEVELOPER SHALL PROVIDE ALL REQUIRED PAVEMENT MARKINGS ON ALL ROADWAYS PER CITY, COUNTY AND STATE REQUIREMENTS. CENTERLINE STRIPES SHALL BE PROVIDED ON EXTENSIONS OF CITY COLLECTOR OR ARTERIAL ROADS, COUNTY ROADS AND STATE HIGHWAYS ONLY.
27. STOP BARS SHALL BE PLACED AT ALL SUBDIVISION ENTRANCES AND INTERSECTIONS CONTAINING CITY COLLECTOR AND ARTERIAL ROADS, COUNTY ROADS AND STATE HIGHWAYS.
28. ALL TRAFFIC CONTROL DEVICES PLACED AT INTERSECTIONS, PRIVATE STREETS, PUBLIC STREETS, COUNTY ROADS AND STATE HIGHWAYS WITHIN THE CITY LIMITS SHALL BE INSTALLED ACCORDING TO THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES, LATEST EDITION.
29. THE DEVELOPER IS RESPONSIBLE FOR PAYING FEES FOR ALL STREET LIGHTS PRIOR TO ACCEPTANCE OF THE PROJECT BY THE CITY.
30. STANDARD TURNING RADII FOR INTERSECTIONS:

2-LANE ACCESS OR FEEDER	35'
LOCAL TO COLLECTOR	35'
LOCAL OR COLLECTOR TO ARTERIAL	40'
ARTERIAL TO ARTERIAL	50'

31. THE CITY SHALL BE PRESENT DURING PAVING OF ALL PUBLIC AND PRIVATE ROADS. PAVING SHALL BE PERFORMED DURING NORMAL BUSINESS HOURS, MONDAY THROUGH FRIDAY. PAVING DURING WEEKENDS IS NOT PERMITTED.
32. CONSTRUCTION METHODS AND DESIGN FOR CONCRETE PAVEMENT SHALL CONFORM TO FDOT STANDARD SPECIFICATION FOR ROAD AND BRIDGE CONSTRUCTION, LATEST EDITION.
33. ALL CONTRACTORS THAT ARE PERFORMING THE CONSTRUCTION OF PUBLIC IMPROVEMENTS (WATER MAIN, SANITARY SEWER MAIN, RECLAIMED WATER MAIN, STORM WATER PIPES AND INLETS AND ALSO CONSTRUCTION OF ROADWAYS) SHALL BE CERTIFIED WITH THE FLORIDA STATE DEPARTMENT OF PROFESSIONAL REGULATIONS (DPR) FOR THE TYPE OF WORK THAT THEY PERFORM. A COPY OF THE VALID LICENSE IS REQUIRED AT PRE CONSTRUCTION MEETING.
34. UTILITY DEPTH:
    - HIGH VOLTAGE UTILITIES SUCH AS POWER (FEEDER, SERVICE AND DROPS) SHALL BE BURIED A MINIMUM OF 30 INCHES IN DEPTH.
    - LOW VOLTAGE UTILITIES SUCH AS PHONE AND CABLE TV SHALL BE BURIED A MINIMUM OF 12 INCHES IN DEPTH FOR FEEDER AND SERVICES. SERVICE DROPS SHALL BE BURIED A MINIMUM OF 6 INCHES IN DEPTH.
    - HIGH VOLTAGE UTILITIES INSTALLED PARALLEL TO PRESSURE MAINS SHALL MAINTAIN A MINIMUM FIVE FOOT SEPARATION.
35. GEOTECHNICAL TESTING REPORTS SIGNED AND SEALED BY A PROFESSIONAL ENGINEER SHALL BE SUBMITTED TO THE CITY PRIOR TO FINAL SIGN OFF. REPORTS SHALL CLEARLY LABEL PROJECT NAME AND PHASE.

STANDARD CONSTRUCTION DETAIL
ROADWAY CONSTRUCTION NOTES
INDEX R-1C
FEB 2018



Ⓐ 5'-0" WIDE CONCRETE SIDEWALK
4" THICK, 2500 P.S.I.
6" THICK AT DRIVEWAY

Ⓑ 6" ABOVE CENTERLINE ROAD GRADE

Ⓒ SOD or SEED AND MULCH PER F.D.O.T. STANDARD SPECIFICATION SECTION 570. 1' SOD STRIP REQUIRED ADJACENT TO CURB AND AROUND DRAINAGE STRUCTURES.

Ⓓ 4' WIDE AREA WITH MAX. SLOPE OF 1"/4 FEET

Ⓔ CONCRETE MIAMI CURB, 2500 P.S.I.

Ⓕ ASPHALT PAVEMENT:
1-1/2" ASPHALT BITUMINOUS CONCRETE SP-9.5 OR SP-12.5;
MINIMUM MARSHALL FIELD STABILITY 1500.

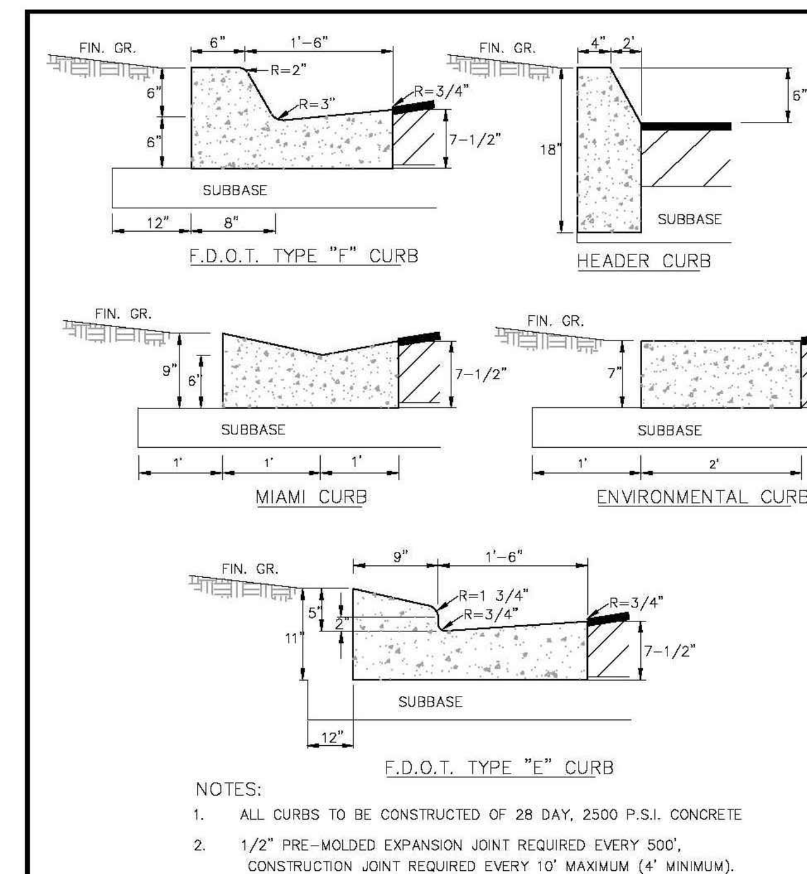
Ⓖ BASE:
6" LIMEROCK (LBR 100) COMPACTED TO 98% DENSITY BASED ON AASHTO T-180 MODIFIED PROCTOR TEST.
OR
6" CRUSHED CONCRETE (LBR 100) COMPACTED TO 98% DENSITY BASED ON AASHTO T-180 MODIFIED PROCTOR TEST.

NOTE TO ENGINEER:
ENGINEER TO SELECT BASE OPTION

Ⓗ SUB BASE:
6" SUB BASE COMPACTED TO 98% DENSITY BASED ON AASHTO T-180 MODIFIED PROCTOR TEST WITH MINIMUM LBR 40.

NOTE:
A REPRESENTATIVE OF A CERTIFIED SOIL LABORATORY SHALL BE PRESENT DURING ALL CONSTRUCTION PHASES TO PERFORM ROADWAY COMPACTION AND DENSITY TESTING AS REQUIRED - SEE INDEX R-6(A/B).

STANDARD CONSTRUCTION DETAIL
50' OR 60' R/W/ ROAD SECTION
NTS
INDEX R-2
FEB 2018



NOTES:
1. ALL CURBS TO BE CONSTRUCTED OF 28 DAY, 2500 P.S.I. CONCRETE
2. 1/2" PRE-MOLDED EXPANSION JOINT REQUIRED EVERY 500', CONSTRUCTION JOINT REQUIRED EVERY 10' MAXIMUM (4' MINIMUM).
3. 1/2" PRE-MOLDED EXPANSION JOINT REQUIRED AT EACH SIDE OF ALL STORM INLET STRUCTURES AND AT ALL RADIUS POINTS.
4. 6" SUBBASE TO BE COMPACTED AND TESTED TO 98% DENSITY WITH MINIMUM L.B.R. 40 BASED ON AASHTO T-180 MODIFIED PROCTOR TEST.
5. EXPANSION JOINT MATERIAL MUST COVER THE ENTIRE CROSS SECTION OF CURB.
6. ALL EXPOSED CORNERS TO BE ROUNDED AT 3/4" MIN. RADIUS.
7. ALL CURB ENDS THAT DO NOT TIE INTO OTHER FACILITIES SHALL TRANSITION DOWN TO PAVEMENT GRADE IN 24 INCHES.

STANDARD CONSTRUCTION DETAIL
STANDARD CURB CONSTRUCTION
NTS
INDEX R-4
FEB 2018

REVISIONS

DATE	DESCRIPTION

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NEWKIRK ENGINEERING INC.

CITY OF FLAGLER BEACH
UTILITY DETAILS
LEGACY POINTE COTTAGES
LESLIE STREET
FLAGLER BEACH, FL 32136

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STATE OF
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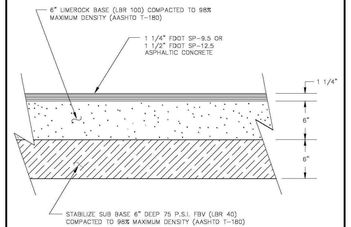
PROJECT No:	2023-17
DATE:	OCTOBER 2024
DESIGN BY:	HHN
DRAWN BY:	NWS
CHECKED BY:	HHN
SCALE:	

DRAWING NUMBER
20



CITY OF FLAGLER BEACH FLORIDA

STANDARD CONSTRUCTION DETAIL
STANDARD PAVING DETAIL
NTS

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ROADWAY COMPACTION AND DENSITY TESTING REQUIREMENTS

ITEM	TEST	FREQUENCY	STANDARD	TEST METHOD
ROADWAY SUBBASE (BOTTOM OF SUBBASE DOWN 1 FOOT)	IN-PLACE DENSITY	ONE (1) TEST/200 LF	95% MODIFIED PROCTOR (ASTM D-1557 OR AASHTO T-180)	ASTM D-2937 D-2922 D-1556
STABILIZED SUBBASE	IN-PLACE DENSITY	ONE (1) TEST/200 LF	95% MODIFIED PROCTOR (ASTM D-1557 OR AASHTO T-180)	ASTM D-2937 D-2922 D-1556
STABILIZED SUBBASE	FLORIDA BEARING VALUE (FBV)	ONE (1) TEST/200 LF	FBV = 75	
STABILIZED SUBBASE	LIMEROCK BEARING RATIO (LBR)	ONE (1) TEST/SOIL TYPE	LBR = 40	
LIMEROCK BASE	IN-PLACE DENSITY	ONE (1) TEST/200 LF	98% MODIFIED PROCTOR (ASTM D-1557 OR AASHTO T-180)	ASTM D-2937 D-2922 D-1556
LIMEROCK BASE	LIMEROCK BEARING RATIO (LBR)	PROVIDE CERTIFICATE FROM PLANT	LBR 100	FM 5-515
CRUSHED CONCRETE BASE	IN-PLACE DENSITY	ONE (1) TEST/200 LF	98% MODIFIED PROCTOR (ASTM D-1557 OR AASHTO T-180)	ASTM D-2937 D-1556
CRUSHED CONCRETE BASE	LIMEROCK BEARING RATIO (LBR)	(1) PER VISIBLE CHANGE IN MATERIAL BLEND	LBR 100	
ASPHALT	EXTRACTION AND GRADATION	(1) PER DAY PER MIX	PER MIX DESIGN	
ASPHALT	THICKNESS AND DENSITY	(1) PER 300 LF ROADWAY	PER MIX DESIGN AND JOB SPECS	ASTM D-2950 CORING OR NUCLEAR (DENSITY ONLY)
SOIL OPTIMUM MOISTURE/DENSITY	PROCTOR TEST	(1) PER SOIL OR BASE TYPE		ASTM D-1557 (MODIFIED) ASTM D-558 (STANDARD) AASHTO T-180 (MODIFIED) AASHTO T-99 (STD.)
CURB SUBBASE	IN-PLACE DENSITY	ONE (1) TEST/200 LF	98% MODIFIED PROCTOR (ASTM D-1557 OR AASHTO T-180)	
CURB SUBBASE (LBR)	LIMEROCK BEARING RATIO (LBR)	(1) TEST/SOIL CHANGE	LBR 40	

CITY OF FLAGLER BEACH FLORIDA

STANDARD CONSTRUCTION DETAIL
TECHNICAL SPECIFICATIONS FOR TESTING REQUIREMENTS

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PIPED UTILITY INSTALLATION REQUIREMENTS

ITEM	TEST	FREQUENCY	STANDARD	TEST METHOD
PIPE TRENCH SUBBASE (IF SPECIFIED)	IN-PLACE DENSITY	ONE (1) TEST/300 LF	98% MODIFIED PROCTOR	ASTM D-2937 D-2922 D-1556
PIPED BACKFILL IN PAVED AREAS	IN-PLACE DENSITY	ONE (1) TEST/300 LF PER ONE (1) FOOT VERTICAL LIFT OF FILL	98% MODIFIED PROCTOR	ASTM D-2937 D-2922 D-1556
PIPED BACKFILL IN GREEN AREAS	IN-PLACE DENSITY	ONE (1) TEST/300 LF PER ONE (1) FOOT VERTICAL LIFT OF FILL	90% MODIFIED PROCTOR	ASTM D-2937 D-2922 D-1556
SOIL OPTIMUM MOISTURE/DENSITY	PROCTOR TEST	ONE (1) PER SOIL OR BASE TYPE		ASTM D-2937 (MODIFIED) ASTM D-558 (STANDARD) AASHTO T-180 (MODIFIED) AASHTO T-99 (STD.)

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STANDARD CONSTRUCTION DETAIL
TECHNICAL SPECIFICATIONS FOR TESTING REQUIREMENTS

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A. SCOPE OF WORK – THE WORK IN THIS SECTION CONSISTS OF FURNISHING AND COMPLETELY INSTALLING SEED AND MULCH OVER THE LIMITS CALLED FOR ON THE CONSTRUCTION DRAWINGS.

B. MATERIALS – GRASS SEED SHALL BE A MIXTURE OF:

PENSACOLA BAHIA (50% SCARIFIED SEED)	80 LBS/ACRE
HULLED BERMUDA	20 LBS/ACRE
BROWN TOP MILLET	30 LBS/ACRE

IN THE FALL AND WINTER MONTHS (OCT. THRU FEB.) AND WITH THE APPROVAL OF THE CITY, ANNUAL RYE GRASS SHALL BE SUBSTITUTED IN EQUAL AMOUNTS FOR THE BROWN TOP MILLET. SEED SHALL BE PREMIXED BY A SEED COMPANY TO THE PROPORTIONS DESCRIBED ABOVE, WITH CERTIFICATION FROM THE SUPPLIER PROVIDED TO THE CITY, PRIOR TO USE. MULCH USED SHALL BE STRAW OR HAY CONSISTING OF OATS, RYE OR WHEAT STRAW OF PANGOLA, PEANUT, COASTAL BERMUDA OR BAHIA GRASS HAY. MULCH SHALL BE FREE FROM UNDESIRABLE WEED AND OTHER UNDESIRABLE GRASS.

C. METHODS – GRASSING SHALL BE DONE IMMEDIATELY UPON COMPLETION OF THE FINE GRADING OPERATION, HOWEVER, NO SEEDING SHALL BE DONE WHEN THE GROUND IS FROZEN OR UNDULY WET, THE RATE OF SPREAD FOR THE SEED MATERIAL SHALL BE ONE HUNDRED AND THIRTY (130) POUNDS PER ACRE, APPROXIMATELY TWO INCHES (2"), LOOSE THICKNESS, OF MULCH MATERIAL SHALL BE APPLIED UNIFORMALLY OVER THE GRASSED AREAS (APPROXIMATELY 1 1/2 BALES PER 1000 SQUARE FEET). THE MULCH MATERIAL SHALL BE CUT INTO THE SOIL WITH A DISC HARROW OR OTHERWISE, ANCHORED DOWN.

D. FERTILIZER
1. ANALYSIS OF SOILS SHALL BE OBTAINED BY SUBMITTAL OF SAMPLES TO FLAGLER COUNTY. ALL APPLICATION RATES WILL BE BASED ON THIS REPORT. SUBMIT A COPY OF THIS REPORT TO THE CITY PRIOR TO COMMENCING ANY SOIL MODIFICATION.

2. THE FERTILIZER SHALL BE A COMMERCIAL GRANULAR TYPE WITH A CHEMICAL DESIGNATION AS RECOMMENDED IN THE SOILS ANALYSIS REPORT.

3. THE NUMERICAL DESIGNATIONS FOR FERTILIZER INDICATE THE MINIMUM PERCENTAGES (RESPECTIVELY) OF (1) TOTAL NITROGEN, (2) AVAILABLE PHOSPHORIC ACID AND (3) WATER SOLUBLE POTASH CONTAINED IN THE FERTILIZER.
a) AT LEAST 50 PERCENT (50%) OF THE PHOSPHORIC ACID SHALL BE FROM A NORMAL SUPER PHOSPHATE OR AN EQUIVALENT SOURCE WHICH WILL PROVIDE A MINIMUM OF TWO UNITS OF SULFUR.
b) THE AMOUNT OF SULFUR SHALL BE INDICATED ON THE QUANTITIVE ANALYSIS CARD ATTACHED TO EACH BAG OR CONTAINER.

4. COMMERCIAL FERTILIZERS SHALL COMPLY WITH THE STATE FERTILIZER LAWS.

5. FERTILIZER MAY, AT THE DISCRETION OF THE ENGINEER/ARCHITECT, UPON THE PRESENTATION BY THE MANUFACTURE OF SATISFACTORY FACTORY EVIDENCE OF ITS FEASIBILITY, BE APPLIED IN LIQUID FORM.

CITY OF FLAGLER BEACH FLORIDA

STANDARD CONSTRUCTION DETAIL
SEEDING AND MULCHING

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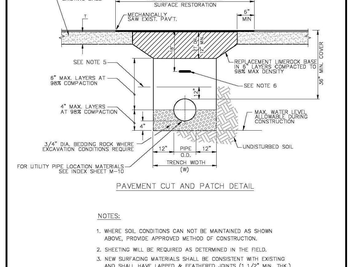

PAVEMENT CUT AND PATCH DETAIL

NOTES:

1. WHERE SOIL CONDITIONS CAN NOT BE MAINTAINED AS SHOWN ABOVE, PROVIDE APPROVED METHOD OF CONSTRUCTION.
2. SHEETING WILL BE REQUIRED AS DETERMINED IN THE FIELD.
3. NEW SURFACING MATERIALS SHALL BE CONSISTENT WITH EXISTING AND SHALL HAVE LAPPED & FEATHERED JOINTS (1 1/2" MIN. THK.)
4. COMPACTION PERCENTAGES SHOWN REFER TO A.A.S.H.T.O. T-180, PROVIDE COMPACTION TEST REPORTS TO THE CITY.
5. MECHANICAL COMPACTION NOT ALLOWED BELOW THIS LEVEL.
6. INSTALL METALLIC TAPE OVER FULL LENGTH OF PIPE.
7. EIGHT INCHES (8") OF HIGH EARLY-STRENGTH CONCRETE MAY BE SUBSTITUTED FOR LIMEROCK UPON APPROVAL BY THE CITY.

CITY OF FLAGLER BEACH FLORIDA

STANDARD CONSTRUCTION DETAIL
PAVEMENT CUT AND PATCH
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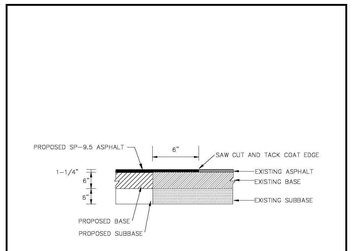

CITY OF FLAGLER BEACH FLORIDA

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PAVEMENT BUTT JOINT
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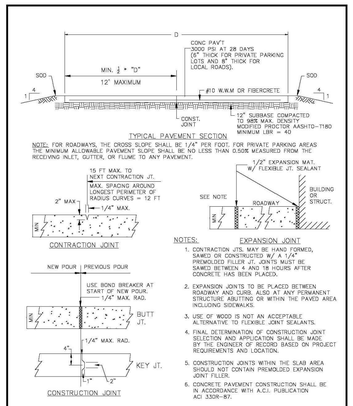

CITY OF FLAGLER BEACH FLORIDA

STANDARD CONSTRUCTION DETAIL
CONCRETE PAVEMENT DETAILS
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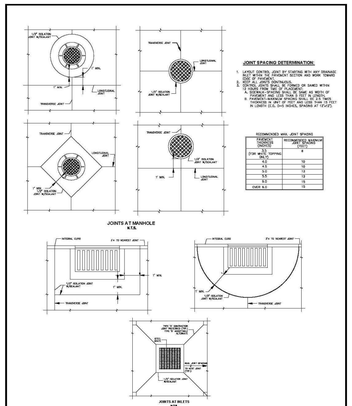

CITY OF FLAGLER BEACH FLORIDA

STANDARD CONSTRUCTION DETAIL
CONCRETE PAVEMENT DETAILS
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SANITARY SEWER CONSTRUCTION GENERAL NOTES

1. THE CITY SHALL BE NOTIFIED PRIOR TO BEGINNING ANY SEWER CONSTRUCTION.
2. ALL GRAVITY SANITARY SEWER LINES SHALL BE A MINIMUM OF 8" IN DIAMETER. SERVICE LATERALS SHALL BE A MINIMUM OF 4" DIAMETER (RESIDENTIAL) OR A MINIMUM OF 6" DIAMETER (COMMERCIAL).
3. ALL SANITARY SEWER LINES SHALL BE PVC SDR 26, IN PLACES WHERE A MINIMUM COVER OF 4.0' CANNOT BE MAINTAINED, C-900 GREEN PVC DR-25, CLASS 100 OR CONCRETE ENCASEMENT SHALL BE USED.
4. MINIMUM ALLOWABLE SANITARY SEWER SLOPES ALLOWED ARE:
   8" PIPE 0.40%
   10" PIPE 0.30%
   12" PIPE 0.22%
5. SEWER LINE CONSTRUCTION SHALL BE ACCOMPLISHED BY THE USE OF A LASER INSTRUMENT.
6. THE CONTRACTOR SHALL AT ALL TIMES, DURING PIPE LAYING, DEWATER THE GROUND SUFFICIENTLY TO KEEP THE GROUNDWATER ELEVATION A MINIMUM OF 6" BELOW THE PIPE BEING LAID WITHIN THE AREA OF THE TRENCH.
7. ALL PIPES SHALL BE LAID ON A FIRM FOUNDATION. SOFT OR SPONGY BEDDING FOR PIPES WILL NOT BE ACCEPTED. ANY UNSUITABLE MATERIAL SHALL BE REMOVED AND REPLACED WITH A DRY, COMPACTED, GRANULAR MATERIAL SATISFACTORY TO THE CITY.
8. TRENCHES SHALL BE BACKFILLED WITH CLEAN GRANULAR MATERIAL IN MAX. 1' LIFTS WITH A MINIMUM COMPACTION OF 98 PERCENT (ASSHTO-T180) IN PAVED AREAS AND 90 PERCENT IN UNPAVED AREAS.
9. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO ENSURE THAT TRENCH COMPACTION TEST BE PROVIDED AT POINTS 1 FOOT ABOVE THE PIPE AND AT 1 FOOT VERTICAL INTERVALS TO FINISH GRADE, AT A MINIMUM SPACING OF EVERY 300 FEET, AND TO FURNISH COPIES OF TEST REPORTS PROMPTLY TO THE CITY.
10. EXCAVATION AND BACKFILL: THE CONTRACTOR SHALL PROVIDE ADEQUATE SHEETING AND BRACING OF EXCAVATION WORK OR USE OF TRENCH BOX IN ORDER TO PROVIDE FOR THE SAFETY OF WORKMEN, AS WELL AS REPRESENTATIVES OF THE CITY, THE DESIGN ENGINEER, AND THE DEVELOPER.
11. THE CONTRACTOR SHALL INSTALL A METALLIZED FOIL LOCATER TAPE, OR SIMILAR DEVICE AS MAY BE APPROVED BY THE CITY FOR THE FULL LENGTH OF ALL PVC WATER, RECLAIMED WATER AND SEWAGE FORCE MAINS. THIS PIPE LOCATER AID SHALL BE INSTALLED (16) INCHES BELOW FINISHED GRADE OR AS DIRECTED BY THE MANUFACTURER AND IS IN ADDITION TO THE LOCATER WIRE REQUIRED IN THE UTILITY PIPE LOCATION MATERIALS DETAIL (MISCELLANEOUS DETAILS SECTION – M10).
12. MANHOLES SHALL BE LOCATED AT INTERVALS NOT EXCEEDING 400 FEET.
13. MANHOLE RIMS SHALL MATCH FLUSH WITH THE FINISH GRADE ELEVATION IN PAVED AREAS AND A MINIMUM OF 0.2 FEET ABOVE GRADE IN UNPAVED AREAS.

CITY OF FLAGLER BEACH FLORIDA

STANDARD CONSTRUCTION DETAIL
GENERAL NOTES
SANITARY SEWER CONSTRUCTION

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SANITARY SEWER CONSTRUCTION GENERAL NOTES

14. THE CONTRACTOR SHALL CONSTRUCT SANITARY SEWER MANHOLES IN SUCH A WAY THAT SEWER LINES DO NOT INTERSECT SEALED JOINTS BETWEEN SECTIONS OF THE MANHOLE.
15. RUBBER BOOTS AND STAINLESS STEEL BANDS SHALL BE UTILIZED IN THE CONNECTION OF THE SEWER MAIN TO THE MANHOLES (SEE RUBBER BOOT AND PRECAST JOINT CONNECTION DETAIL).
16. DOGHOUSE TYPE MANHOLES ARE NOT PERMITTED WITHIN THE CITY.
17. INDIVIDUAL SANITARY SERVICE CONNECTORS ON NEW CONSTRUCTION SHALL NOT BE CONNECTED DIRECTLY INTO MANHOLES, BUT TO SEWER MAIN LINES BY USE OF WYE CONNECTIONS.
18. FOR SINGLE FAMILY HOMES, SINGLE FOUR INCH SEWER SERVICES SHALL BE CONSTRUCTED AT EACH LOT OR UNIT AND LOCATED ON THE DOWNSTREAM SIDE OF THE LOT CENTER LINE. THESE SERVICES SHALL BE EXTENDED 4 FEET ABOVE GROUND AT THE PROPERTY LINE WITH A PVC RISER AND PLUG(BEING EASILY VISIBLE FROM THE ROAD. RUBBER SEAL FITTINGS TO BE USED ON ALL LINES, NO GLUED JOINTS.
19. FOR MULTI-FAMILY AND COMMERCIAL SITES, SIX INCH MINIMUM SEWER SERVICES AND CLEANOUTS SHALL BE PROVIDED AS APPROVED BY THE CITY.
20. SANITARY SEWER LATERALS LONGER THAN 70 FEET, MEASURED FROM THE SEWER MAIN TO THE RIGHT-OF-WAY LINE MAY BE APPROVED ON A CASE BY CASE BASIS. SUCH LATERALS SHALL BE D.I.P. EPOXY LINED OR C-900 PVC.
21. SANITARY SEWER MANHOLES WHICH HAVE SEWER FORCE MAINS DISCHARGING DIRECTLY INTO THEM, OR ANY MANHOLE WITHIN 200 FEET OF A LIFT STATION, SHALL BE FIBERGLASS OR PVC LINED. RETRO-FITTING OF MANHOLES WITH LINERS SHALL BE REQUIRED WHEN NEW CONNECTIONS SUCH AS THIS ARE MADE. LINING SHALL BE AGRU SURE-GRIP, RAVEN, SEMPERCOAT, GREEN MONSTER, OR PRE-APPROVED EQUAL.
22. SEE CHART ON DETAIL INDEX S-1C FOR FORCE MAIN AND REUSE PIPE SIZE AND MATERIALS.
23. THE CITY REQUIRES THE DEVELOPER TO TELEVISE ALL SANITARY SEWER MAIN LINES AND LATERALS PRIOR TO FINAL ACCEPTANCE, AND RESERVES THE RIGHT TO REQUEST WATER AND AIR TESTING.
24. ALL SEWER MAINS PRIOR TO ACCEPTANCE BY THE CITY SHALL BE TELEVISED BY A REPUTABLE COMPANY THAT ENGAGES IN THIS TYPE OF WORK. THE DVD SHALL BE NON-STOP WITH AUDIO DESCRIBING WHAT IS BEING REVIEWED. WRITTEN DVD LOGS DESCRIBING THE CONDITION OF THE LINES SHALL ACCOMPANY THE DVD SUBMISSION TO THE CITY.
25. CONTRACTORS SHALL BE REQUIRED TO TELEVISE ALL SEWER MAINS AND LATERAL LINES IN THE PRESENCE OF THE CITY AND PROVIDE TWO COPIES OF THE DVD ALONG WITH WRITTEN LOGS TO THE CITY. ANY DEFECTS NOTED SHALL BE CORRECTED PRIOR TO ACCEPTANCE BY THE CITY.

CITY OF FLAGLER BEACH FLORIDA

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GENERAL NOTES
SANITARY SEWER CONSTRUCTION

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SANITARY SEWER CONSTRUCTION GENERAL NOTES

26. ALL MANHOLES CONSTRUCTED IN SIDE YARDS, BACKYARDS, AND EASEMENTS OFF THE RIGHT-OF-WAY SHALL BE OUTFITTED WITH FIBERGLASS LINERS OR OTHER TYPES OF LINERS OR COATINGS APPROVED BY THE CITY. IN ADDITION THE CITY MAY REQUIRE LINERS OR COATINGS TO BE INSTALLED IN OTHER AREAS WHERE THE PUBLIC UTILITY DEPARTMENTS BELIEVE THE NEED IS JUSTIFIED.
27. ALL SEWER LINES WHICH ARE CONSTRUCTED OFF PUBLIC RIGHTS-OF-WAY WITHIN SIDEYARDS, BACKYARDS, AND OTHER POORLY ACCESSIBLE AREAS SHALL BE CONSTRUCTED OF C-900 PVC, OR EPOXY LINED DUCTILE IRON PIPE, ABSOLUTELY NO USE OF PLASTIC STYRENE FITTINGS SHALL BE ALLOWED.
28. SEWER LATERAL LOCATIONS SHALL BE MARKED ALONG THE OUTSIDE OF THE CURB WITH A SAW CUT 'V, OR BY A METAL TAB SET INTO THE PAVEMENT.
29. EZ-WRAP PLASTIC, AS MANUFACTURED BY PRESS-SEAL GASKET CORPORATION OR APPROVED EQUAL, SHALL BE USED ON THE OUTSIDE OF ALL MANHOLE AND WET WELL JOINTS. APPLY ONE LAYER OF 9" WRAP CENTERED ON EACH JOINT. THE CITY SHALL PERSONALLY INSPECT ALL JOINT SEALS PRIOR TO BACKFILLING OPERATIONS .
30. ALL PROPOSED SEWER MAINS, 4" OR GREATER, SHALL BE FLUSHED AND CLEANED WITH A POLY PIG IN ACCORDANCE WITH LATEST AWWA STANDARDS AND THE FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION REQUIREMENTS.
31. ALL SEWER MAINS SHALL HAVE A MINIMUM COVER OF 36 INCHES AND A MAXIMUM DEPTH OF 12' TO ANY MANHOLE OR MITWELL. IN SPECIAL CASES WHERE IT IS IMPOSSIBLE OR INAPPROPRIATE TO PROVIDE ADEQUATE COVER, DUCTILE IRON CLASS 350 OR CONCRETE ENCASEMENT MAY BE USED AS APPROVED BY THE CITY.
32. SEWER SYSTEMS SHALL BE PRESSURE TESTED AT 100 PSI STATIC PRESSURE FOR A PERIOD OF 2 HOURS PER AWWA STANDARDS. TESTS SHALL BE CONDUCTED BEFORE FINAL PAVING AND IN THE PRESENCE OF THE CITY.
33. DURING CONSTRUCTION, CONTRACTOR SHALL ISOLATE NEW SANITARY SEWER CONSTRUCTION FROM EXISTING SANITARY SEWER MAINS. THIS ISOLATION MAY BE BY INSTALLATION OF A BLADDER/PLUG PLACED AT POINT OF CONNECTION OR BY OTHER METHODS. THE PURPOSE OF THIS ISOLATION IS TO ENSURE SURFACE WATER IS NOT RELEASED TO THE TREATMENT PLANT. SURFACE WATER SHALL BE REMOVED PRIOR TO THE BLADDER BEING REMOVED.

FORCE MAIN & REUSE MAIN STANDARDS

DIAMETER	MATERIAL	STANDARD
2" – 4"	PVC 1120 / SDR 21	ASTM D 2241
> 4" – 12"	PVC 1120 / CLASS 100	AWWA C 900
(14" – 36" (30" – 36" —— DR – 18) —— DR – 21)	PVC 1120	AWWA C 905
ALL SIZES	HDPE (DIPS) DR 13.5	ASTM F 714

NOTE: PVC PIPE COLOR SHALL BE GREEN OR WHITE FOR SEWER FORCE MAIN, AND PURPLE FOR REUSE MAIN.

CITY OF FLAGLER BEACH FLORIDA

STANDARD CONSTRUCTION DETAIL
GENERAL NOTES
SANITARY SEWER CONSTRUCTION

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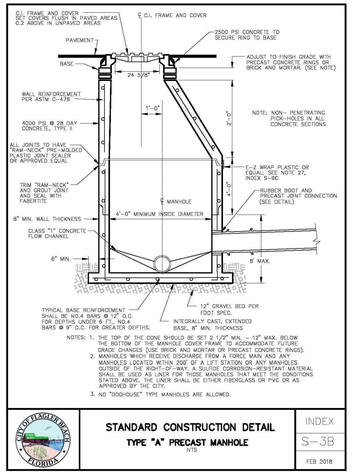

CITY OF FLAGLER BEACH FLORIDA

STANDARD CONSTRUCTION DETAIL
TYPE "A" PRECAST MANHOLE
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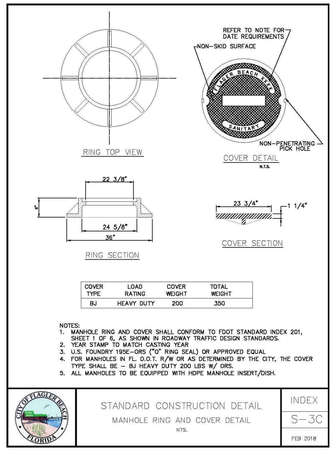

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MANHOLE RING AND COVER DETAIL
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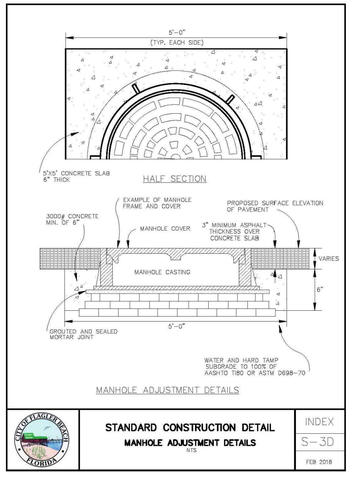

CITY OF FLAGLER BEACH FLORIDA

STANDARD CONSTRUCTION DETAIL
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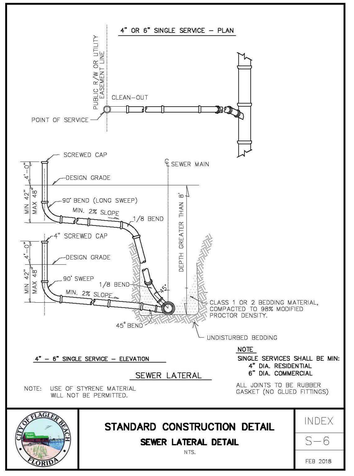

CITY OF FLAGLER BEACH FLORIDA

STANDARD CONSTRUCTION DETAIL
SEWER LATERAL DETAIL
NTS.

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REVISIONS

DATE	DESCRIPTION

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CITY OF FLAGLER BEACH
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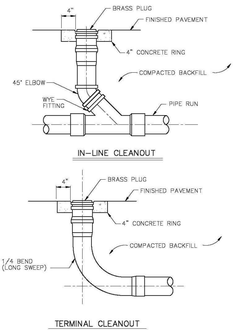

NOTE: CLEANOUT TO BE INSTALLED IN GREEN METER BOX (SOLID LID) IF IN GRASS/NON-PAVED AREAS.

STANDARD CONSTRUCTION DETAIL
CLEANOUT DETAIL
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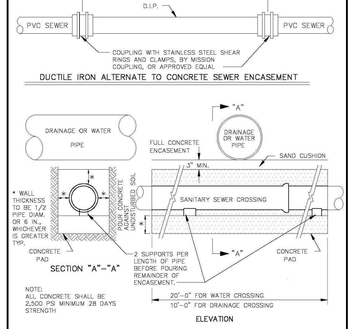

WATER MAIN SHALL BE LOCATED ABOVE ENCASEMENT AS SHOWN ON PLANS OR DETERMINED IN THE FIELD, USE ENCASEMENT WHERE VERTICAL CLEARANCE BETWEEN WATER MAIN AND SEWER IS LESS THAN 12 INCHES.

STANDARD CONSTRUCTION DETAIL
SANITARY SEWER CROSSING
NTS.

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1. CONSTRUCTION STANDARDS FOR ALL DRAINAGE SYSTEM COMPONENTS SHALL CONFORM TO THE LATEST EDITION OF THE "FDOT STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION" AND AS SPECIFIED HEREIN.
2. ALL STORM WATER PIPES AND STRUCTURES SHALL BE INSTALLED ON A FIRM FOUNDATION WITH ALL UNSUITABLE MATERIAL (MUCK, ROCK, COQUINA, ETC.) REMOVED AND REPLACED WITH CLEAN GRANULAR MATERIAL.
3. DEWATERING SHALL BE PROVIDED TO KEEP GROUNDWATER ELEVATION A MINIMUM OF 6 INCHES BELOW THE COMPONENT BEING INSTALLED.
4. ALL PIPES AND STRUCTURES SHALL BE PLACED TRUE TO LINES AND GRADES AS DEPICTED ON THE APPROVED PLANS.
5. ALL PIPE JOINTS SHALL BE PROPERLY HONED AND FILTER FABRIC LINED USING A METHOD TO HOLD THE FABRIC IN PLACE DURING BACKFILL.
6. BACKFILL AND COMPACT TO THE SPRING-LINE (CENTER OF PIPE) ELEVATION AND REQUEST CITY INSPECTION AND APPROVAL BEFORE CONTINUING.
7. ALL WORK COVERED WITHOUT CITY INSPECTION WILL BE REQUIRED TO BE EXCAVATED AND INSPECTED AT THE CONTRACTOR'S EXPENSE.
8. TRENCHES SHALL BE BACKFILLED AND COMPACTED WITH CLEAN GRANULAR MATERIAL IN MAX 6" LIFTS WITH A MINIMUM COMPACTION OF 98 PERCENT (AASHTO-T180) IN PAVED AREAS AND 95 PERCENT (AASHTO-T180) IN UNPAVED AREAS.
9. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO ENSURE THAT TRENCH COMPACTION TESTS AT POINTS 1' ABOVE THE PIPE AND AT A MAX. 1' VERTICAL INTERVALS TO FINISH GRADE, AT A MAXIMUM SPACING OF 100 FEET, AND TO FURNISH COPIES OF TEST REPORTS PROMPTLY TO THE CITY.
10. ALL STORM SEWER PIPE SHALL BE REINFORCED CONCRETE (RCP), HIGH DENSITY POLYETHYLENE (HDPE), AS SHOWN ON THE PLANS.
11. STORM DRAINAGE PIPES WITHIN PUBLIC RIGHT-OF-WAY SHALL BE A MINIMUM OF FIFTEEN (15) INCH RCP DIAMETER OR EQUIVALENT.
12. STORM INLETS, MANHOLES, AND CATCH BASINS SHALL BE EITHER POURED IN PLACE OR PRECAST REINFORCED CONCRETE. STRUCTURES SHALL BE REQUIRED AT EACH CHANGE OF PIPE SIZE OR CHANGE IN PIPE DIRECTION.

STANDARD CONSTRUCTION DETAIL
STORM DRAINAGE CONSTRUCTION NOTES
NTS.

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13. STORM INLETS SHALL BE SPACED IN SUCH A MANNER AS TO ACCEPT ONE HUNDRED (100) PERCENT OF THE DESIGN STORM RUNOFF.
14. WET DETENTION PONDS SHALL BE EIGHT (8) FEET MINIMUM TO TWELVE (12) FEET MAXIMUM DEPTH BELOW THE DESIGN LOW OR NORMAL WATER STAGE.
15. MAXIMUM DISTANCES BETWEEN INLETS AND/OR JUNCTION BOXES:

PIPES SIZE (INCHES)	LENGTH OF RUN (FEET)
15	150
18	300
24 OR GREATER	400

16. ALL SWALES, DITCHES, AND DRY RETENTION POND SIDE SLOPES SHALL BE NO STEEPER THAT 4:1 (H:V) AND SHALL BE SODDED.
17. ALL RETENTION POND BACKSLOPES SHALL BE NO STEEPER THAN 3:1 (H:V) AND SHALL BE SODDED.
18. NORMAL ROADSIDE SWALES SHALL BE CONSTRUCTED TO A MAXIMUM DEPTH OF 18" BELOW THE OUTSIDE EDGE OF PAVEMENT OR CONCRETE CURB.
19. CONCRETE EROSION CONTROL MUST BE PROVIDED WHERE SWALES OR CULVERTS INTERCEPT DRAINAGE DITCHES.
20. A MINIMUM ONE FOOT (1') FREEBOARD ABOVE THE DESIGN HIGH WATER ELEVATION IS REQUIRED AT ALL POINTS AROUND WET RETENTION PONDS.
21. A MINIMUM SIX INCH (6") FREEBOARD ABOVE THE DESIGN HIGH WATER ELEVATION IS REQUIRED AT ALL POINTS AROUND DRY RETENTION PONDS.
22. POND INFLOW SHALL GENERALLY BE CONSTRUCTED WITH REINFORCED CONCRETE AND SHALL BE SUBJECT TO THE APPROVAL OF THE CITY.
23. OUTLET STRUCTURES ARE REQUIRED ON ALL PONDS. ALL OUTLET STRUCTURES SHALL BE PERMANENT CONCRETE OVERFLOW WEIRS OR CONCRETE OUTLET CONTROL STRUCTURES. NO SODDED WEIRS OR OTHER NON-PERMANENT OVERFLOW STRUCTURES SHALL BE ALLOWED.
24. SOIL EROSION CONTROL MEASURES SATISFACTORY TO THE CITY, SHALL BE EMPLOYED DURING CONSTRUCTION AND UPON COMPLETION OF THE POND.
25. THE CITY MAY REQUEST THAT THE DEVELOPER SUBMIT A REPORT BY A QUALIFIED HYDROLOGIST ON THE IMPACT THE POND WILL HAVE ON NEIGHBORING WATER TABLE ELEVATIONS BOTH DURING CONSTRUCTION AND AFTER POND COMPLETION. THE CITY MAY REQUIRE GROUNDWATER MONITORING DURING THE POND EXCAVATION.

STANDARD CONSTRUCTION DETAIL
STORM DRAINAGE CONSTRUCTION NOTES
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26. ADEQUATE MAINTENANCE ACCESS AS APPROVED BY THE CITY SHALL BE PROVIDED AROUND THE ENTIRE PERIMETER OF ALL PONDS AND ASSOCIATED OUTFALLS DISCHARGING INTO AND OUT OF PONDS.
27. IN GENERAL, ALL RETENTION/DETENTION PONDS MUST BE CONSTRUCTED PRIOR TO ANY ROAD, PARKING LOT, OR BUILDING CONSTRUCTION COMMENCING OR AS CURRENT PERMIT CONDITIONS DICTATE.
28. THE CONTRACTOR SHALL BE RESPONSIBLE TO OBTAIN ANY DEWATERING PERMITS THAT MAY BE REQUIRED.
29. CULVERTS CROSSING RIGHT-OF-WAYS SHALL EXTEND FROM RIGHT-OF-WAY LINE TO RIGHT-OF-WAY LINE UNDER THE ROADWAY.
30. ALL STORM WATER DISCHARGE FROM RETENTION/DETENTION PONDS ARE REQUIRED TO BE CHANNELED INTO DEFINED DRAINAGE PATHS TO EXISTING WATER BODIES, WETLANDS, DITCHES, ETC.
31. THE CITY REQUIRES THE DEVELOPER TO TELEVISE ANY AND ALL STORM SEWER PIPE SYSTEMS IN THE PRESENCE OF THE CITY BY A REPUTABLE COMPANY THAT ENGAGES IN THIS TYPE OF WORK. THE DVD SHALL BE IN HIGH QUALITY STANDARD RESOLUTION USING A CAMERA WITH SUITABLE LIGHTING TO ALLOW A CLEAR FOCUSED PICTURE OF THE ENTIRE INSIDE PIPE CIRCUMFERENCE. THE DVD SHALL BE NON-STOP WITH AUDIO DESCRIBING WHAT IS BEING VIEWED. COPIES OF DVD SHALL BE SUBMITTED IN DVD FORMAT ACCOMPANIED BY WRITTEN LOGS DESCRIBING THE CONDITION OF THE LINES AT LEAST FORTY-EIGHT (48) HOURS PRIOR TO REQUESTING FINAL INSPECTIONS. ANY DEFECTS NOTED SHALL BE CORRECTED PRIOR TO ACCEPTANCE BY THE CITY OR ISSUANCE OF CERTIFICATE OF OCCUPANCY.

STANDARD CONSTRUCTION DETAIL
STORM DRAINAGE CONSTRUCTION NOTES
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STANDARD CONSTRUCTION DETAIL
STORM INLET APRON
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STANDARD CONSTRUCTION DETAIL
DRY RETENTION POND
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NOTE: YEAR STAMP TO MATCH CASTING YEAR

U. S. FOUNDRY 195E OR APPROVED EQUAL

COVER TYPE	LOAD RATING	COVER WEIGHT	TOTAL WEIGHT
E	HEAVY DUTY	130	325

FOR MANHOLES IN FL. D.O.T. R/W OR AS DETERMINED BY THE CITY. THE COVER TYPE SHALL BE – BJ HEAVY DUTY 200 LBS W/ ORS.

STANDARD CONSTRUCTION DETAIL
MANHOLE RING AND COVER DETAIL
NTS.

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FEB 2018

GENERAL NOTES
WATER SYSTEM CONSTRUCTION

1. THE CITY SHALL BE NOTIFIED PRIOR TO BEGINNING ANY WATER SYSTEM CONSTRUCTION.
2. DEWATERING SHALL BE PROVIDED TO KEEP GROUNDWATER ELEVATION A MINIMUM OF 6 INCHES BELOW WATER MAIN BEING LAID.
3. ALL WATER MAINS SHALL BE LAID ON A FIRM FOUNDATION WITH ALL UNSUITABLE MATERIAL (MUCK, ROCK, COQUINA, ETC.) REMOVED AND REPLACED WITH CLEAN GRANULAR MATERIAL.
4. TRENCHES SHALL BE BACKFILLED WITH CLEAN GRANULAR MATERIAL IN MAX. 1' LIFTS WITH A MINIMUM COMPACTION OF 98 PERCENT (AASHTO-T180) IN PAVED AREAS AND 90 PERCENT IN UNPAVED AREAS.
5. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO ENSURE THAT TRENCH COMPACTION TESTS BE PROVIDED AT POINTS 1 FOOT ABOVE THE PIPE AND AT 1 FOOT VERTICAL INTERVALS TO FINISH GRADE, AT A MINIMUM SPACING OF EVERY 300 FEET, AND TO FURNISH COPIES OF TEST REPORTS PROMPTLY TO THE CITY.
6. METALLIZED PIPE LOCATION TAPE SHALL BE LOCATED 15 INCHES BELOW FINISHED GRADE OR AS SPECIFIED BY MANUFACTURER FOR ALL PVC LINES. MARKER TAPE SHALL BE USED ON ALL DUCTILE IRON PIPE.
7. WATER SERVICES (SINGLE 1") SHALL BE POLYETHYLENE TUBING (BLUE IN COLOR) ; POLYBUTYLENE SHALL NOT BE ALLOWED.
8. ALL WATER SERVICE ENDINGS SHALL BE MARKED WITH 4" X 4" LUMBER (PRESSURE TREATED) EXTENDING 4 FEET ABOVE GRADE, WITH WATER SERVICES SECURED 24" ABOVE THE GROUND. WIRE TIES SHALL BE USED TO SECURE THE CURB STOPS TO SUPPORT POSTS.
9. WATER VALVES SHALL BE PLACED AT ALL STREET INTERSECTIONS AND AT MAXIMUM SPACING OF 500 FEET.
10. AT ALL WATER MAIN TEES AND CROSSES, VALVES SHALL BE INSTALLED ON ALL LEGS EXCEPT ONE.
11. APPROVED WATER VALVE TYPES ARE THE FOLLOWING:
    A. STANDARD GATE VALVES LESS THAN 48" DIAMETER RESILIENT SEAT GATE VALVES (AWWA C-509 OR C-515).
    B. MECHANICAL TAPPING SLEEVE SHALL BE STAINLESS STEEL. (AWWA C – 509)

STANDARD CONSTRUCTION DETAIL
GENERAL NOTES
WATER SYSTEM CONSTRUCTION

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GENERAL NOTES
WATER SYSTEM CONSTRUCTION

12. ALL WATER VALVE BOXES SHALL BE ADJUSTED TO FINISH GRADE AND THE LIDS PAINTED BLUE TO MAKE THEM PLAINLY VISIBLE.
13. WATER VALVES SHALL BE COMPLETELY OPENED BY THE CONTRACTOR UPON FINAL ACCEPTANCE OF NEW WATER SYSTEMS IN THE PRESENCE OF THE CITY.
14. HYDRANTS SHALL BE PLACED AT 500 FEET MAXIMUM SPACING IN RESIDENTIAL DEVELOPMENTS AND AT 300 FEET MAXIMUM SPACING IN BUSINESS AND INDUSTRIAL DEVELOPMENTS. ALL WATER MAIN TO WHICH HYDRANTS ARE CONNECTED SHALL BE 6 INCHES MINIMUM.
15. ALL FIRE HYDRANTS SHALL BE CONSTRUCTED TO MAKE THEM EASILY ACCESSIBLE TO FIRE PERSONNEL IN CASE OF FIRE. THE MAIN NOZZLE CONNECTION SHOULD ALWAYS FACE THE STREET AND BE 18–24" ABOVE GRADE.
16. AS STANDARD PRACTICE, WATER MAINS SHALL BE INSTALLED 4 FEET OFF THE BACK OF CURB OR AS APPROVED BY THE CITY.
17. ALL WATER MAINS SHALL BE NSF–APPROVED FOR POTABLE WATER USE, AND SHALL HAVE A MINIMUM COVER OF 36 INCHES, IN SPECIAL CASES WHERE IT IS IMPOSSIBLE OR INAPPROPRIATE TO PROVIDE ADEQUATE COVER, DUCTILE IRON CLASS 350 MAY BE USED AS APPROVED BY THE CITY.
18. ALL NEWLY CONSTRUCTED WATER MAINS SHALL BE FLUSHED, CLEANED WITH A POLY PIG, PRESSURE TESTED, DISINFECTED AND BACTERIOLOGICALLY CLEARED FOR SERVICE IN ACCORDANCE WITH LATEST AWWA STANDARDS AND THE FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION REQUIREMENTS.
19. WATER MAINS SHALL BE AWWA C–900 CL 150, OR D.I.P. CLASS 350 STANDARD CEMENT LINED.
20. UPON CONSTRUCTION COMPLETION AND ACCEPTANCE OF THE SYSTEM, IT SHALL BE THE DESIGN ENGINEER'S RESPONSIBILITY TO ENSURE THAT THE SYSTEM IS PROPERLY CERTIFIED AND ACCEPTED BY THE FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION, AND THAT CERTIFIED AS–BUILT DRAWINGS (24"x36") ARE PROVIDED TO THE CITY PRIOR TO PAVING AND ANY USE OF THE SYSTEM. PROVIDE THREE (3) BLUELINE COPIES, ONE (1) MYLAR OF AS–BUILT DRAWINGS AND A DIGITAL COPY.
21. MEGALUG OR EQUIVALENT, RESTRAINED JOINT SYSTEM MAY BE USED ON ALL RESTRAINED FITTINGS, VALVES, ETC. MINIMUM DEPTH OF BURY ON PIPES NOT MEETING REQUIRED COVER REQUIREMENTS SHALL FOLLOW THE MOST RECENT DIPRA THRUST RESTRAINT DESIGN GUIDELINES.

STANDARD CONSTRUCTION DETAIL
GENERAL NOTES
WATER SYSTEM CONSTRUCTION

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GENERAL NOTES
WATER SYSTEM CONSTRUCTION

22. WATER SYSTEMS SHALL BE PRESSURE TESTED AT 150 PSI STATIC PRESSURE FOR A PERIOD OF 2 HOURS PER AWWA STANDARDS. TESTS SHALL BE CONDUCTED BEFORE FINAL PAVING AND IN THE PRESENCE OF THE CITY.
23. ALL WATER SERVICES SHALL BE MARKED WITH A "I" SAW CUT INTO THE CURB OR BY METAL TABS SET INTO THE PAVEMENT.
24. ALL WATER VALVES AND BLOW–OFFS SHALL BE MARKED WITH AN "V" SAW CUT INTO THE CURB OR BY METAL TABS SET INTO THE PAVEMENT. LOCATION OF METAL TABS IN LIEU FROM EDGE OF PAVEMENT SHALL EQUAL DISTANCE IN FEET FROM EDGE OF PAVEMENT TO VALVE.
25. UNIFLANGE 1300 SERIES PIPE RESTRAINTS AS MANUFACTURED BY FORD OR APPROVED EQUAL MAY BE USED AS APPROPRIATE FOR RESTRAINING IN–LINE PRESSURE PIPE EACH SIDE OF PIPE JOINT, AS REQUIRED BY RESTRAINT TABLE.
26. TRACING WIRE SHALL BE INSTALLED IN ACCORDANCE WITH UTILITY PIPE LOCATION MATERIALS DETAIL.
27. NO GALVANIZED PIPE, FITTINGS, ETC. ARE ACCEPTED.
28. UNLESS APPROVED BY THE CITY, ALL WATER METERS SHALL BE INSTALLED AT THE RIGHT OF WAY LINE ONLY REGARDLESS OF SIZE.
29. SUBMIT ASSEMBLY CERTIFICATION FOR ALL BACKFLOW PREVENTERS TO THE CITY BEFORE FINAL INSPECTION.
30. PIPING FOR RAW WATER SHALL BE OLIVE GREEN FOR ABOVE GROUND PIPING, BURIED PVC PIPING SHALL BE BLUE WITH WHITE COLOR BACKGROUND LOCATOR TAPE PLACED DIRECTLY ON TOP OF THE PIPE AND AT 12" TO 18" ABOVE THE PIPE. THE TAPE SHALL CONTINUOUSLY READ "CAUTION – RAW WATER MAIN BURIED BELOW" OR WHITE WITH LOCATOR TAPE PLACED 12" TO 18" ABOVE THE TOP OF THE PIPE.
31. SEE CHART BELOW FOR WATER MAIN SIZE AND MATERIALS.

W A T E R M A I N S	
DIAMETER	MATERIAL	STANDARD
4 "/2"	DIP, CLASS 350	AWWA C 150
6 "/2"	DIP, CLASS 350	AWWA C 150
4"	PVC 1120 / SDR 21 (1)	ASTM D 2241
6 - 4" – 12"	PVC DR-18 (1)	AWWA C 900
6 - 4" – 12"	PVC DR-14 (1)	AWWA C 900
(6", 8", 12" – 4" DR – 18) (6", 8", 12" – 4" DR – 25)	PVC 1120 (1)	AWWA C 905
ALL SIZES	HDPE (DPS DR 11 (2))	ASTM F 714

NOTE: (1) PVC PIPE COLOR SHALL BE BLUE FOR POTABLE WATER MAINS, BLUE WITH WHITE LOCATOR TAPE FOR RECLAIM WATER MAINS, GREEN FOR SEWER MAINS.
(2) HDPE TO BE PROVIDED IN NEXT LARGER DIAMETER IN ORDER TO HAVE REQUIRED INSIDE DIAMETER.

STANDARD CONSTRUCTION DETAIL
GENERAL NOTES
WATER SYSTEM CONSTRUCTION

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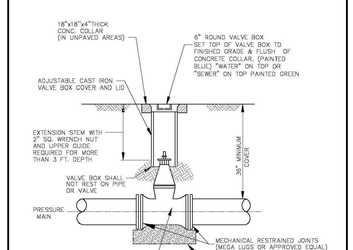

STANDARD CONSTRUCTION DETAIL
GATE VALVE AND VALVE BOX
NTS.

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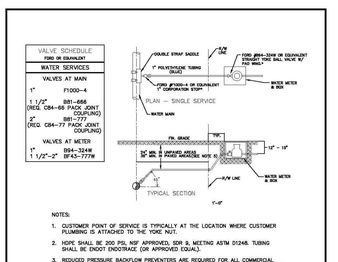

NOTES:
1. CUSTOMER POINT OF SERVICE IS TYPICALLY AT THE LOCATION WHERE CUSTOMER PLUMBING IS ATTACHED TO THE YOKE NUT.
2. HDPE SHALL BE 200 PSI, NSF APPROVED, SDR 9, MEETING ASTM D1248. TUBING SHALL BE ENDOT ENDGRADE (OR APPROVED EQUAL).
3. REDUCED PRESSURE BACKFLOW PREVENTERS ARE REQUIRED FOR ALL COMMERCIAL SERVICES AND SHALL BE INSTALLED BY A CERTIFIED TECHNICIAN AT OWNERS EXPENSE.
4. ALL SERVICE TAPS SHALL BE NO CLOSER THAN 2'-0" STAGGERED INTERVAL OR WITHIN 2'-0" OF BELL OR SPIGOT ENDS.
5. IN AREAS TO BE PAVED PROVIDE A 2" MIN. PVC SCHEDULE 40 SLEEVE FOR PE-TUBING. SLEEVE SHALL EXTEND A MIN. OF 2' BEHIND BACK OF CURB AT EACH SIDE OF ROAD.
6. ALL RESIDENTIAL WATER METERS SHALL BE EQUIPPED WITH A DOUBLE CHECK BACKFLOW PREVENTER.
7. CONTRACTOR TO PROVIDE SERVICE IN BOX WITH STAKE MARKING THE LOCATION.
8. CITY TO PROVIDE METER AND BACK FLOW PREVENTER.

STANDARD CONSTRUCTION DETAIL
WATER LATERAL SERVICE
5/8", 3/4", 1", 1-1/2", 2" METERS
NTS.

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DEC 2015

SCHEDULE OF LENGTHS OF RESTRAINED PVC PIPE (FT.)					
FITTING	1/4 BEND	1/8 BEND	1/16 BEND	1/32 BEND	TEE OR DEAD END
PIPE SIZE (IN.) :					
4"	20	18	18	18	45
6"	28	18	18	18	63
8"	36	18	18	18	82
10"	44	28	18	18	98
12"	51	21	18	18	116
14"	57	24	18	18	132
16"	63	26	18	18	146
18"	69	29	18	18	163
20"	75	31	18	18	179
24"	87	36	18	18	208
30"	102	42	20	18	248

TABLE APPLIES TO PVC PIPE FOR THE FOLLOWING CONDITIONS:
TEST PRESSURE: 150 PSIG
SOIL TYPE: SP
COVER DEPTH: 2.5 FEET
SAFETY FACTOR: 1.5
TRENCH TYPE: 3

LENGTHS BETWEEN HEAVY LINES INDICATE ONE FULL LENGTH (18' MIN.) OF PIPE TO BE RESTRAINED.
TABLE SHOWS MINIMUM LENGTH OF PIPE EACH WAY FROM FITTING FOR WHICH RESTRAINT IS REQUIRED.

SCHEDULE OF LENGTHS OF RESTRAINED DIP (FT.)					
FITTING	1/4 BEND	1/8 BEND	1/16 BEND	1/32 BEND	TEE OR DEAD END
PIPE SIZE (IN.) :					
4"	21 (26)	18 (18)	18 (18)	18 (18)	37 (55)
6"	30 (36)	18 (18)	18 (18)	18 (18)	52 (78)
8"	39 (45)	18 (18)	18 (18)	18 (18)	67 (100)
10"	45 (54)	18 (22)	18 (18)	18 (18)	81 (122)
12"	53 (63)	22 (26)	18 (18)	18 (18)	94 (141)
14"	60 (72)	25 (30)	18 (18)	18 (18)	107 (160)
16"	66 (80)	27 (33)	18 (18)	18 (18)	120 (180)
18"	74 (87)	31 (36)	18 (18)	18 (18)	132 (198)
20"	80 (94)	33 (39)	18 (18)	18 (18)	144 (216)
24"	92 (108)	38 (45)	18 (22)	18 (18)	167 (250)
30"	108 (128)	44 (53)	21 (25)	18 (18)	199 (298)
36" *	69 (82)	28 (34)	18 (18)	18 (18)	170 (254)
42" *	76 (92)	31 (37)	18 (18)	18 (18)	191 (229)
48" *	90 (106)	40 (46)	18 (18)	18 (18)	212 (254)

TABLE APPLIES TO D.I.P. FOR THE FOLLOWING CONDITIONS:
TEST PRESSURE: 150 PSIG
SOIL TYPE: SP
COVER DEPTH: 2.5 FEET
SAFETY FACTOR: 1.5
TRENCH TYPE: 2

LENGTHS BETWEEN HEAVY LINES INDICATE ONE FULL LENGTH (18' MIN.) OF PIPE TO BE RESTRAINED.
TABLE SHOWS MINIMUM LENGTH OF PIPE EACH WAY FROM FITTING FOR WHICH RESTRAINT IS REQUIRED.
VALUES IN PARENTHESES ARE FOR PIPE ENCASED IN POLYETHYLENE.

STANDARD CONSTRUCTION DETAIL
PVC AND D.I.P. RESTRAINED JOINT TABLE

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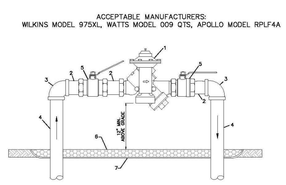
ACCEPTABLE MANUFACTURERS:
WILKINS MODEL 975XL, WATTS MODEL 009 QTS, APOLLO MODEL RPLF4A



M A T E R I A L S		
ITEM	QUANT.	D E S C R I P T I O N
1	1	3/4", 1", 1-1/2" OR 2" BACKFLOW PREVENTER ASSEMBLY
2	3	3/4", 1", 1-1/2" OR 2" x NOM. NIPPLES – BRASS
3	2	3/4", 1", 1-1/2" OR 2" x 90° ELBOWS – PVC, BRASS, OR COPPER
4	2	3/4", 1", 1-1/2" OR 2" x VARIES RISER – PVC, BRASS, OR COPPER
5	2	3/4", 1", 1-1/2" OR 2" BALL VALVE
6	*	PEA GRAVEL
7	*	PLASTIC LINER

NOTE:
–FIELD ADJUST AND CUT ITEM 4 TO THE PROPER LENGTH.
–NO GALVANIZED FITTINGS OR PIPE ALLOWED.
–A COPY OF THE ASSEMBLY CERTIFICATION SHALL BE SUBMITTED TO THE CITY BEFORE FINAL INSPECTION.
–ASSEMBLY SHOULD HAVE ADEQUATE LANDSCAPING AROUND TO OBSCURE VIEW.
–ASSEMBLY SHALL BE PAINTED FOREST GREEN.
–WILKINS ASSEMBLIES ARE REQUIRED FOR CITY OWNED FACILITIES.

STANDARD CONSTRUCTION DETAIL
REDUCED PRESSURE BACKFLOW PREVENTER (POTABLE WATER COMMERCIAL)
3/4", 1", 1 1/2", OR 2"
NTS

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FEB 2018

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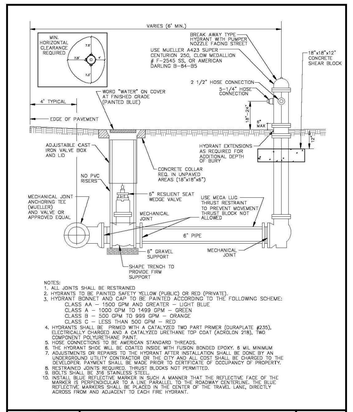
PROJECT No:	2023-17
DATE:	OCTOBER 2024
DESIGN BY:	HHN
DRAWN BY:	NWS
CHECKED BY:	HHN
SCALE:	

DRAWING NUMBER
22



CITY OF FLAGLER BEACH
FLORIDA

STANDARD CONSTRUCTION DETAIL
FIRE HYDRANT ASSEMBLY
NTS

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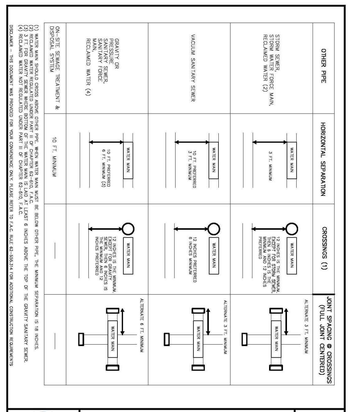

CITY OF FLAGLER BEACH
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STANDARD CONSTRUCTION DETAIL
WATER MAIN SEPARATION
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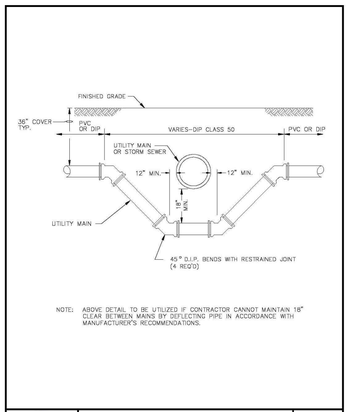

NOTE: ABOVE DETAIL TO BE UTILIZED IF CONTRACTOR CANNOT MAINTAIN 18" CLEAR BETWEEN MAINS BY DEFLECTING PIPE IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.

CITY OF FLAGLER BEACH
FLORIDA

STANDARD CONSTRUCTION DETAIL
PIPE CROSSING
NTS

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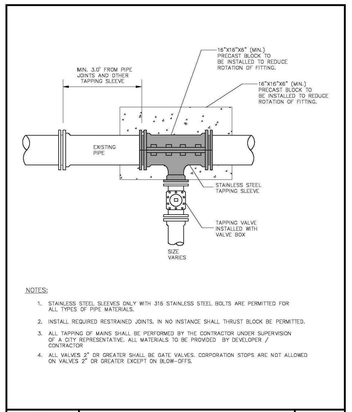

NOTES:
1. STAINLESS STEEL SLEEVES ONLY WITH 316 STAINLESS STEEL BOLTS ARE PERMITTED FOR ALL TYPES OF PIPE MATERIALS.
2. INSTALL REQUIRED RESTRAINED JOINTS. IN NO INSTANCE SHALL THRUST BLOCK BE PERMITTED.
3. ALL TAPPING OF MAINS SHALL BE PERFORMED BY THE CONTRACTOR UNDER SUPERVISION OF A CITY REPRESENTATIVE. ALL MATERIALS TO BE PROVIDED BY DEVELOPER / CONTRACTOR.
4. ALL VALVES 2" OR GREATER SHALL BE GATE VALVES. CORPORATION STOPS ARE NOT ALLOWED ON VALVES 2" OR GREATER EXCEPT ON BLOW-OFFS.

CITY OF FLAGLER BEACH
FLORIDA

STANDARD CONSTRUCTION DETAIL
TAPPING VALVE AND SLEEVE
NTS

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FEB 2018

REVISIONS	
DATE	DESCRIPTION

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FLAGLER BEACH, FL 32136

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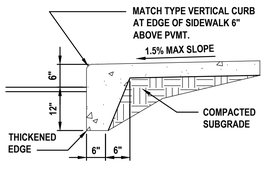
PROJECT No:	2023-17
DATE:	OCTOBER 2024
DESIGN BY:	HHN
DRAWN BY:	NWS
CHECKED BY:	HHN
SCALE:	

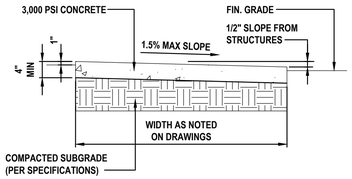
DRAWING NUMBER

23

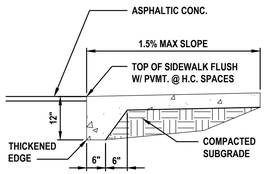
CONCRETE WALKS SHALL BE 4 INCHES THICK, CLASS I, HAVING A 3,000 PSI STRENGTH @ 28 DAYS, POURED OVER PROPERLY PREPARED SUBGRADE. ALL CONCRETE SIDEWALKS SHALL BE 8 INCHES THICK ACROSS DRIVEWAYS. 1/2 INCH EXPANSION JOINTS SHALL BE PLACED AT A MAXIMUM OF 30'. CRACK CONTROL JOINTS SHALL BE 5' ON CENTERS.



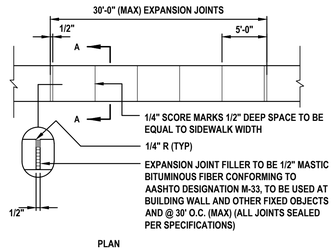
THICKENED EDGE ADJACENT TO PAVEMENT



SECTION A-A



THICKENED EDGE ADJACENT TO ADA WALKWAY

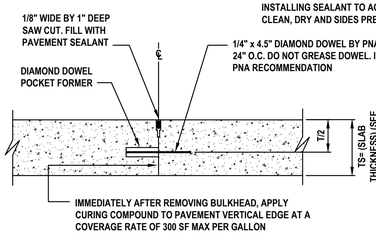


PLAN

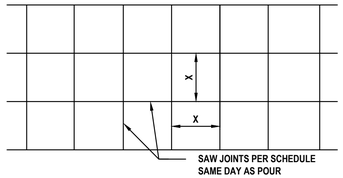
SIDEWALK DETAILS

NOT TO SCALE

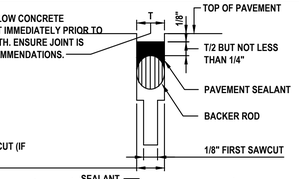
WAIT AS LONG AS FEASIBLE TO SEAL JOINTS TO ALLOW CONCRETE SHRINKAGE TO OCCUR. IF REQUIRED, RE-SAW JOINT IMMEDIATELY PRIOR TO INSTALLING SEALANT TO ACHIEVE A 1/4" JOINT WIDTH. ENSURE JOINT IS CLEAN, DRY AND SIDES PREPARED PER MFR'S RECOMMENDATIONS.



CONSTRUCTION JOINT



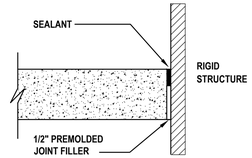
PLAN VIEW CONCRETE PAVEMENT



SAW JOINT

SAW CUT SCHEDULE

X = 12'x12'x2" DEEP

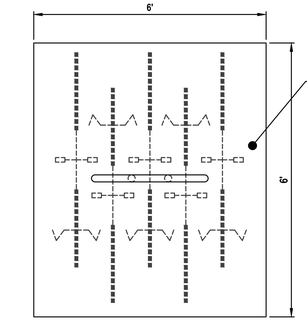


PROVIDE ISOLATION JOINT WHERE CONCRETE PAVEMENT ABUTS A RIGID STRUCTURE

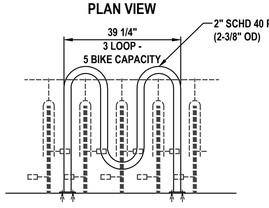
ISOLATION JOINT

CONCRETE PAVEMENT JOINT DETAILS

NOT TO SCALE

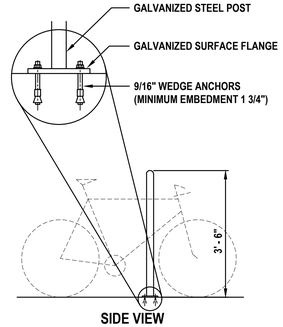


PLAN VIEW



FRONT VIEW

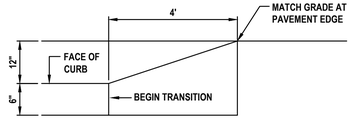
DETAIL SHOWN HEREON ARE FOR MADRAX HEAVY DUTY WINDER BIKE RACK, MODEL HW238-5-SF, GALVANIZED. CONTRACTOR MAY INSTALL DIFFERENT MODEL OR UNIT BY OTHER MANUFACTURER AS DETERMINED BY DEVELOPER.



SIDE VIEW

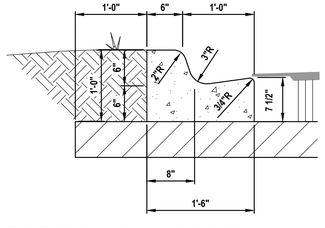
BICYCLE RACK DETAIL

NOT TO SCALE



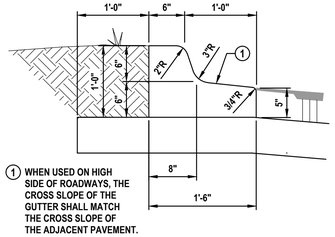
"F1" CURB TRANSITION TO FLAT DETAIL

NOT TO SCALE



TYPE "F1" CATCH CURB DETAIL

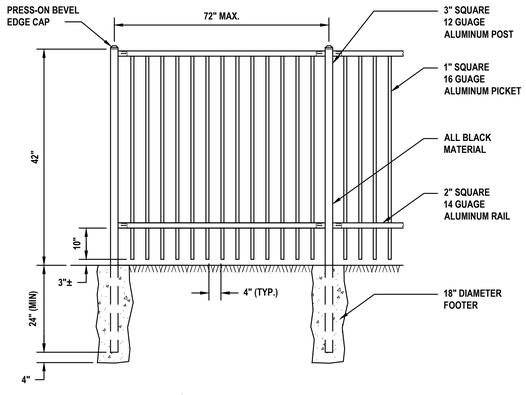
NOT TO SCALE



1 WHEN USED ON HIGH SIDE OF ROADWAYS, THE CROSS SLOPE OF THE GUTTER SHALL MATCH THE CROSS SLOPE OF THE ADJACENT PAVEMENT.

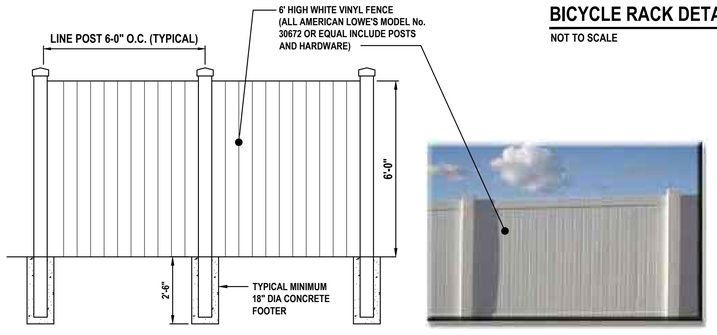
TYPE "F1" SPILLOUT CURB DETAIL

NOT TO SCALE



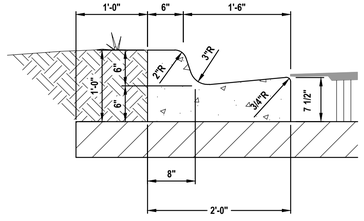
ALUMINIMUM RAIL FENCE DETAIL

NOT TO SCALE



VINYL FENCE DETAIL

NOT TO SCALE

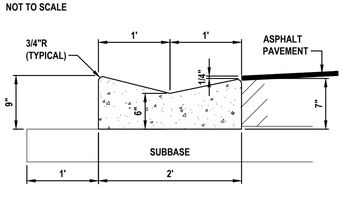


TYPE "F" CATCH CURB DETAIL

NOT TO SCALE

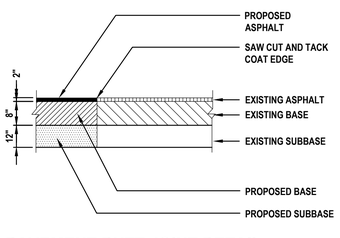
CURB CONSTRUCTION NOTES

1. ALL CURBS TO BE CONSTRUCTED OF 28 DAY, 3000 P.S.I. CONCRETE.
2. 1/2" PRE-MOLDED EXPANSION JOINT REQUIRED EVERY 50', CONSTRUCTION JOINT REQUIRED EVERY 10' MAXIMUM (4' MINIMUM).
3. 1/2" PRE-MOLDED EXPANSION JOINT REQUIRED AT EACH SIDE OF ALL STORM INLET STRUCTURES AND AT ALL RADIUS POINTS.
4. 6" SUBBASE TO BE COMPACTED AND TESTED TO 98% DENSITY BASED ON AASHTO T-180 MODIFIED PROCTOR TEST AND SHALL BE STABILIZED TO A MINIMUM L.B.R. 40.
5. EXPANSION JOINT MATERIAL MUST COVER ENTIRE CROSS SECTION OF CURB.
6. IN NO INSTANCE SHALL EXTRUDED CURBS (DEFINED AS HEADER-TYPE CURBS INSTALLED DIRECTLY ON TOP OF PAVEMENT) BE PERMITTED.



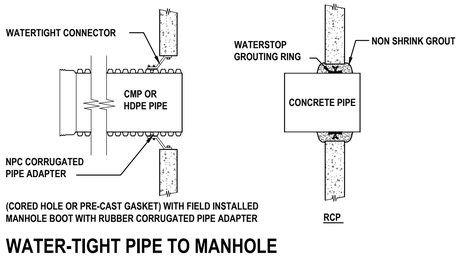
MIAMI CURB

NOT TO SCALE



PAVEMENT BUTT JOINT DETAIL

NOT TO SCALE

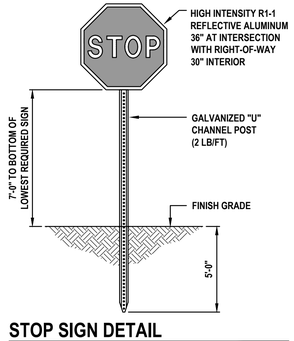


(CORED HOLE OR PRE-CAST GASKET) WITH FIELD INSTALLED MANHOLE BOOT WITH RUBBER CORRUGATED PIPE ADAPTER

WATER-TIGHT PIPE TO MANHOLE CONNECTION DETAIL

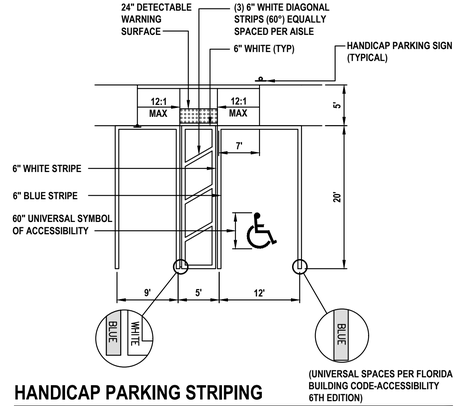
PRECAST HOLES REQUIRED

NOT TO SCALE



STOP SIGN DETAIL

NOT TO SCALE



(UNIVERSAL SPACES PER FLORIDA BUILDING CODE-ACCESSIBILITY 6TH EDITION)

HANDICAP PARKING STRIPING

SCALE: 1" = 10'

REVISIONS

DATE	DESCRIPTION

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Phone (386) 672-7794
www.Newkirk-Engineering.com
C.A. # 30209
L.C. # 26000584
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Civil Engineering
Transportation, CEI &
Landscape Architecture
NEWKIRK ENGINEERING INC.

MISCELLANEOUS DETAILS AND NOTES

LEGACY POINTE COTTAGES

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CHECKED BY:	HHN
SCALE:	AS SHOWN

DRAWING NUMBER

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GENERAL NOTES:

1. Cross Slopes and Grades:

   A. Sidewalk, ramp, and landing slopes (i.e. 0.02, 0.05, and 1:12) shown in this Index are maximums. With approval of the Engineer, provide the minimum feasible slope where the requirements cannot be met.

   B. Landings must have cross-slopes less than or equal to 0.02 in any direction.

   C. Maintain a single longitudinal slope along each side of the curb ramp. Ramp slopes are not required to exceed 15 feet in length.

   D. Joints permitted at the location of Slope Breaks. Otherwise locate joints in accordance with Index 522-001. No joints are permitted within the ramp portion of the Curb Ramp.

2. Curb, Curb and Gutter and/or Sidewalk:

   A. Refer to Index 522-001 for concrete thickness and sidewalk details.

   B. Remove any existing curb, curb and gutter, or sidewalk to the nearest joint beyond the curb transition or to the extent that no remaining section is less than 5 feet long.

   C. Width of Curb Ramp is 4'-0" minimum. Match sidewalk or Shared Use Path width as shown in the Plans.

3. Curb Ramp Alpha-Identification:

   A. Sidewalk curb ramp alpha-identifications (e.g. CR-A) are provided for reference purposes in the Plans.

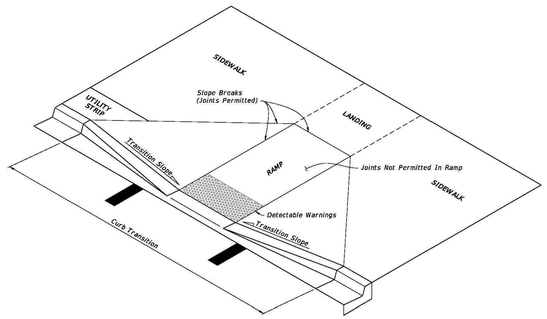
   B. Alpha-identifications CR-I and CR-J are intentionally omitted.

4. Detectable Warnings:

   A. Install detectable warnings in accordance with Specification 527.

   B. Place detectable warnings across the full width of the ramp or landing, to a minimum depth of 2 feet measured perpendicular to the curb line and no greater than 5 feet from the back of the curb or edge of pavement.

   C. If detectable warnings are shown in the Plans on slopes greater than 5%, align the truncated domes with the centerline of the ramp; otherwise, the truncated domes are not required to be aligned.



CURB RAMP NOMENCLATURE

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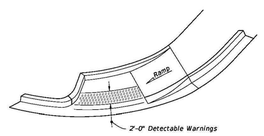
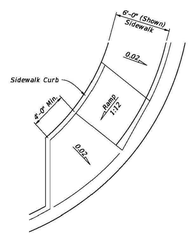
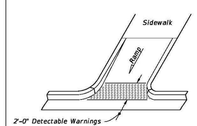


ISOMETRIC VIEW

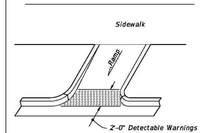


PLAN VIEW

CR-D

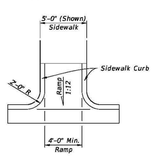


OPTION A



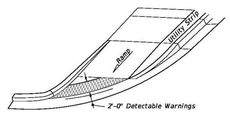
OPTION B

ISOMETRIC VIEW



PLAN VIEW

CR-E



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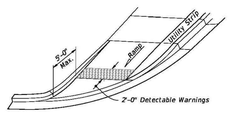
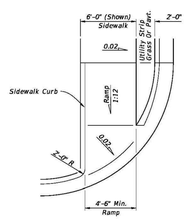


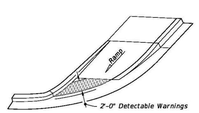
OPTION B

ISOMETRIC VIEW

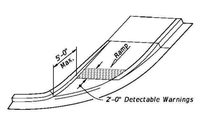


PLAN VIEW

CR-F

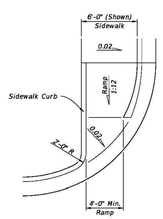


OPTION A



OPTION B

ISOMETRIC VIEW



PLAN VIEW

CR-G

SIDEWALK CURB RAMPS CR-D, CR-E, CR-F & CR-G

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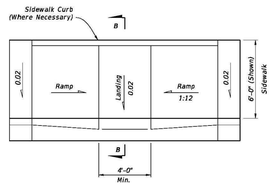
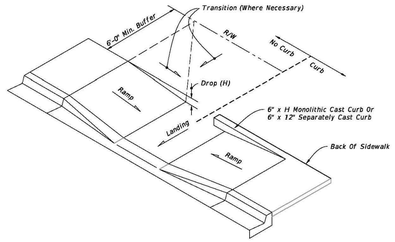
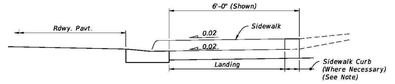


PLAN VIEW

CR-C

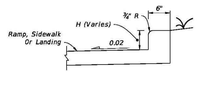


CONSTRUCTION OF SIDEWALK CURB IN CUT SECTIONS

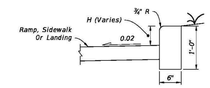


NOTE: For additional information on sidewalk curb construction, see SIDEWALK CURB OPTIONS details.

SECTION B-B



MONOLITHIC CAST CURB



SEPARATELY CAST CURB

SIDEWALK CURB OPTIONS

SIDEWALK CURB RAMPS CR-C AND SIDEWALK CURB

LAST REVISION	DESCRIPTION:	FDOT FY 2024-25 STANDARD PLANS	DETECTABLE WARNINGS AND SIDEWALK CURB RAMPS	INDEX	SHEET
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REVISIONS

DATE	DESCRIPTION

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Civil Engineering
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NEWKIRK ENGINEERING INC.

FDOT DETAILS
LEGACY POINTE COTTAGES
LESLIE STREET
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DRAWN BY:	NWS
CHECKED BY:	HHN
SCALE:	

DRAWING NUMBER

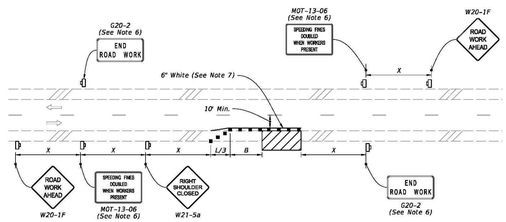
25

NOTE:

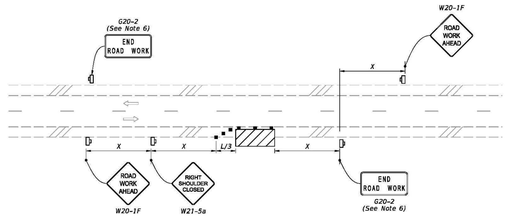
1. This Index applies to Two-Lane, Two-Way and Multilane Roadways, including Medians of divided roadways, with work on the shoulder.
2. L = Taper Length
   X = Work Zone Sign Spacing
   B = Buffer Length
   See Index 102-600 for "L", "X", "B", and channelizing device spacing values.
3. Where work activities are between 2' and 15' from the edge of traveled way, the Engineer may omit signs and channelizing devices for work operations 60 minutes or less.
4. When four or more work vehicles enter the through traffic lanes in a one hour period (excluding establishing and terminating the work area), use a flagger or lane closure to accommodate work vehicle ingress and egress.
5. For work less than 2' from the traveled way and work zone speed is greater than 45 MPH, use a lane closure.
6. The "Speeding Fines Doubled When Workers Present" signs (MOT-13-06) and "End Road Work" Signs (G20-2) along with the associated work zone sign spacing distances may be omitted when the work operation is in place for 24 hours or less.
7. Temporary pavement markings may be omitted when the work operation is in place for 3 days or less.
8. Omit "Shoulder Closed" signs (W21-5a) along with associated work zone sign spacing distances for work on the median.
9. When there is no paved shoulder, the "Worker" sign (W21-1) may be used instead of the "Shoulder Closed" sign (W21-5a).

SYMBOLS:

- Work Area
- Channelizing Device (See Index 102-600)
- Work Zone Sign
- Lane Identification and Direction of Traffic



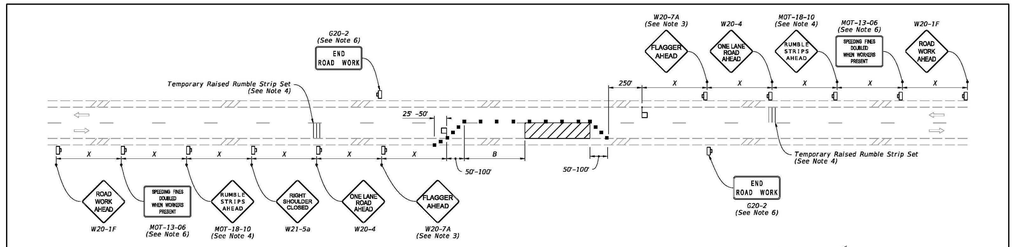
TWO-LANE ROADWAY
SHOULDER WORK LESS THAN 2' FROM THE TRAVELED WAY
WITH WORK ZONE SPEED OF 45 MPH OR LESS



TWO-LANE ROADWAY
SHOULDER WORK BETWEEN 2' AND 15' FROM THE TRAVELED WAY

LAST REVISION 11/01/21	DESCRIPTION:	FY 2024-25 STANDARD PLANS	TWO-LANE AND MULTILANE, WORK ON SHOULDER	INDEX 102-602	SHEET 1 of 2

8/28/2023 8:27:16 AM



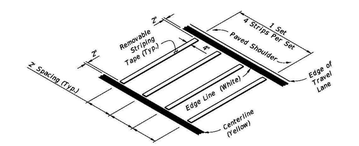
NOTES:

1. This Index applies to Two-Lane, Two-Way Roadways with work within the traveled way.
2. L = Taper Length
   B = Buffer Length
   X = Work Zone Sign Spacing
   See Index 102-600 for "L", "B", "X" and channelizing device spacing values.
3. Optionally, use "Flagger Ahead" sign with symbol (W20-7) instead of "Flagger Ahead" sign with text (W20-7A).
4. Use temporary raised rumble strips when the existing posted speed is 55 mph or greater and the work duration is greater than 60 minutes. If temporary raised rumble strips are not used, omit "Rumble Strips Ahead" signs (MOT-18-10) and associated work zone sign spacing.
5. Additional one-way control may be provided by the following means:
   a. Flag-carrying vehicle
   b. Official vehicle
   c. Pilot vehicles
   d. Traffic signals

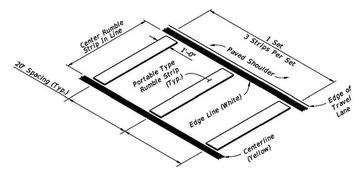
   When flaggers are the sole means of one-way control, the flaggers must be in sight of each other or in direct communication at all times.
6. The "Speeding Fines Doubled When Workers Present" signs (MOT-13-06) and "End Road Work" signs (G20-2), along with associated work zone sign spacing, may be omitted when the work operation will be in place for 24 hours or less.
7. Automated Flagger Assistance Devices (AFADs) may be used in accordance with Specification Sections 102, 990 and the APL vendor drawings.
8. Railroad Crossings:
   a. If an active railroad crossing is located closer to the Work Area than the queue length plus 300 feet, extend the Buffer Space as shown on Sheet 2.
   b. If the queuing of vehicles across an active railroad crossing cannot be avoided, provide a uniformed traffic control officer or flagger at the highway-rail grade crossing to prevent vehicles from stopping within the highway-rail grade crossing, even if automatic train warning devices are in place.

SYMBOLS:

- Work Area
- Channelizing Device (See Index 102-600)
- Work Zone Sign
- Flagger
- Lane Identification and Direction of Traffic



OPTION - 1
REMOVABLE STRIPING TYPE

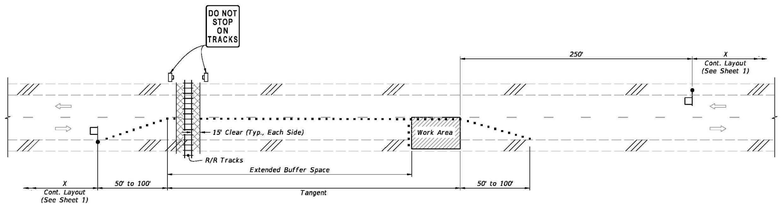


OPTION - 2
PORTABLE TYPE

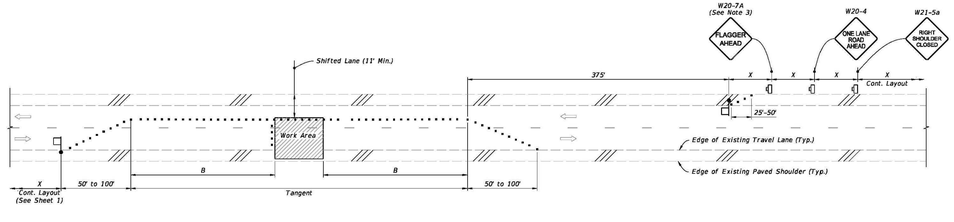
RUMBLE STRIP SETS

LAST REVISION 11/01/21	DESCRIPTION:	FY 2024-25 STANDARD PLANS	TWO-LANE, TWO-WAY WORK WITHIN THE TRAVEL WAY	INDEX 102-603	SHEET 1 of 2

8/28/2023 8:24:47 AM



TEMPORARY RAILROAD CROSSING BUFFER SPACE EXTENSION



TEMPORARY LANE SHIFT TO SHOULDER WHEN WORK AREA ENCROACHES ON THE CENTERLINE
(For Work Operations In place 24 Hours or Less)

SYMBOLS:

- Work Area
- Channelizing Device (See Index 102-600)
- Work Zone Sign
- Flagger
- Lane Identification and Direction of Traffic

SPECIAL CONDITIONS

LAST REVISION 11/01/21	DESCRIPTION:	FY 2024-25 STANDARD PLANS	TWO-LANE, TWO-WAY WORK WITHIN THE TRAVEL WAY	INDEX 102-603	SHEET 2 of 2

8/28/2023 8:23:51 AM

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NEWKIRK ENGINEERING INC.

MAINTENANCE OF TRAFFIC
LEGACY POINTE COTTAGES
LESLIE STREET
FLAGLER BEACH, FL 32136

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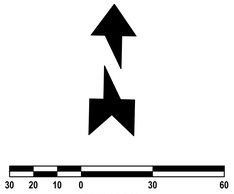
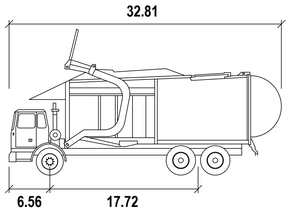
PROJECT No:	2023-17
DATE:	OCTOBER 2024
DESIGN BY:	HHN
DRAWN BY:	NWS
CHECKED BY:	HHN
SCALE:	

DRAWING NUMBER

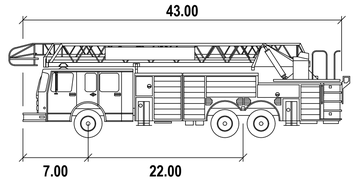
26





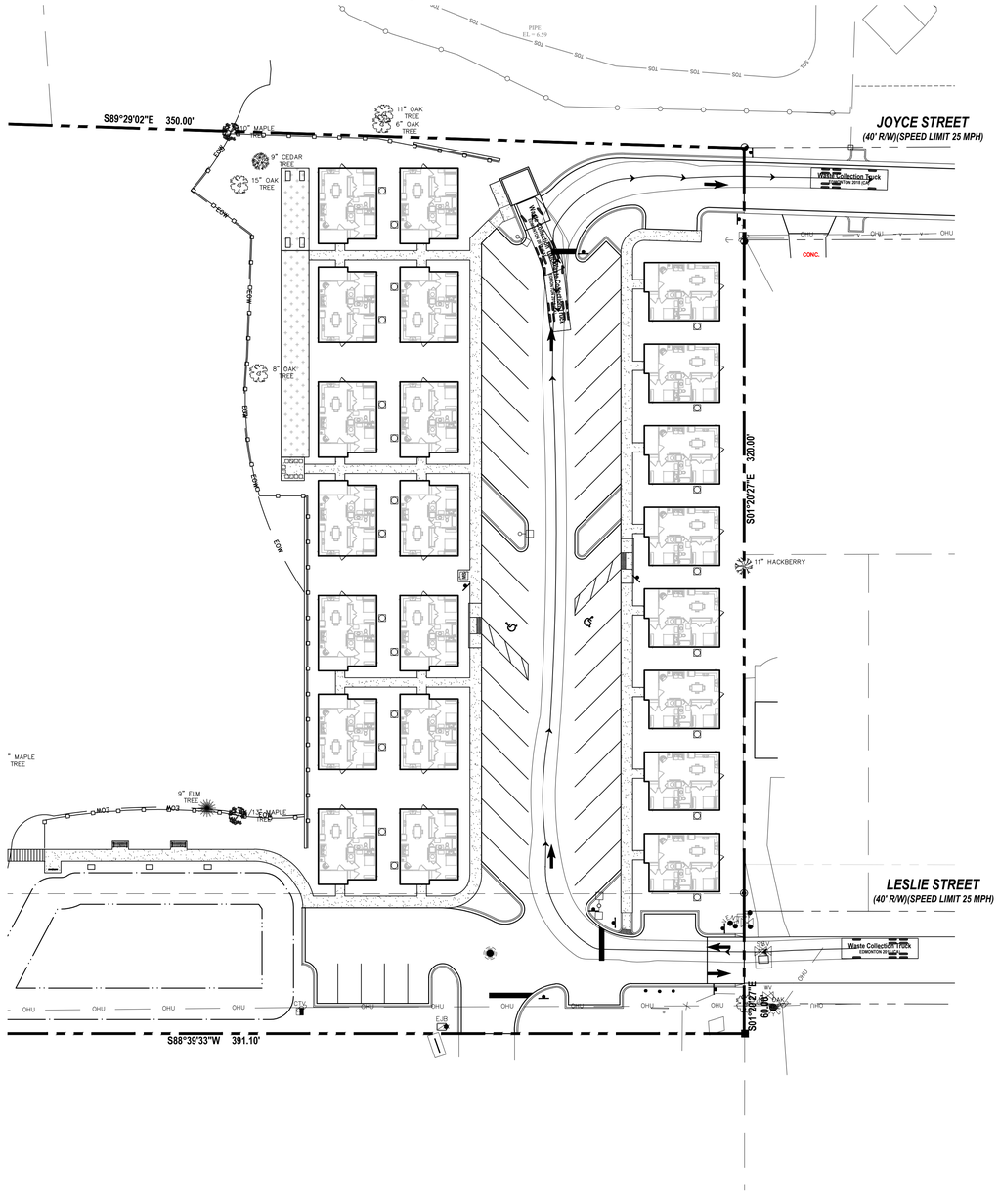
Waste Collection Truck

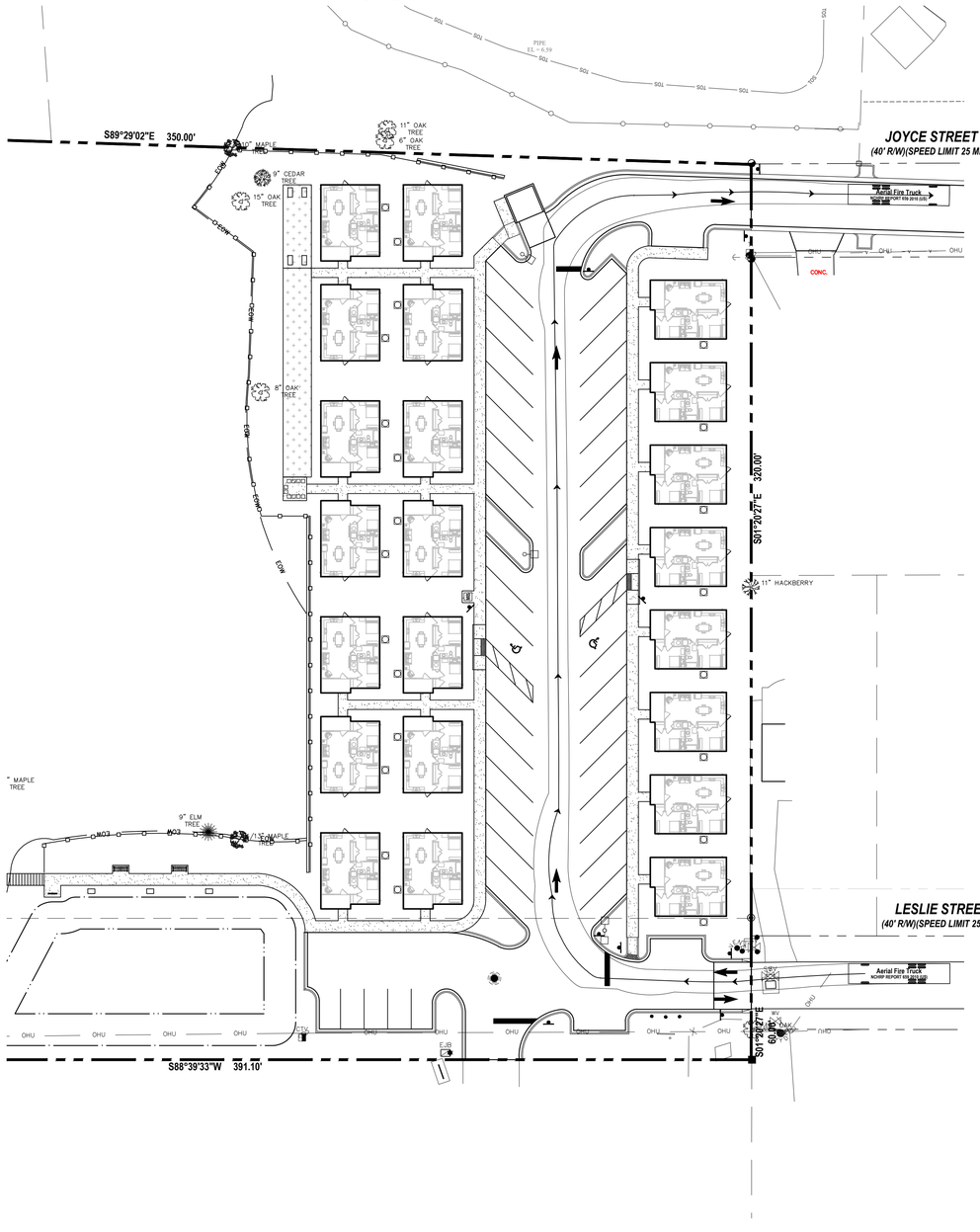
	feet
Width	: 8.53
Track	: 8.53
Lock to Lock Time	: 6.0
Steering Angle	: 27.7



Aerial Fire Truck

	feet
Width	: 8.50
Track	: 8.50
Lock to Lock Time	: 6.0
Steering Angle	: 33.3





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AUTOTURN TRUCK PLAN

LEGACY POINTE COTTAGES

LESLIE STREET
FLAGLER BEACH, FL 32136

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CHECKED BY:	HHN
SCALE:	1" = 30'

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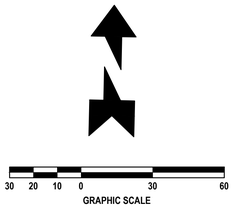
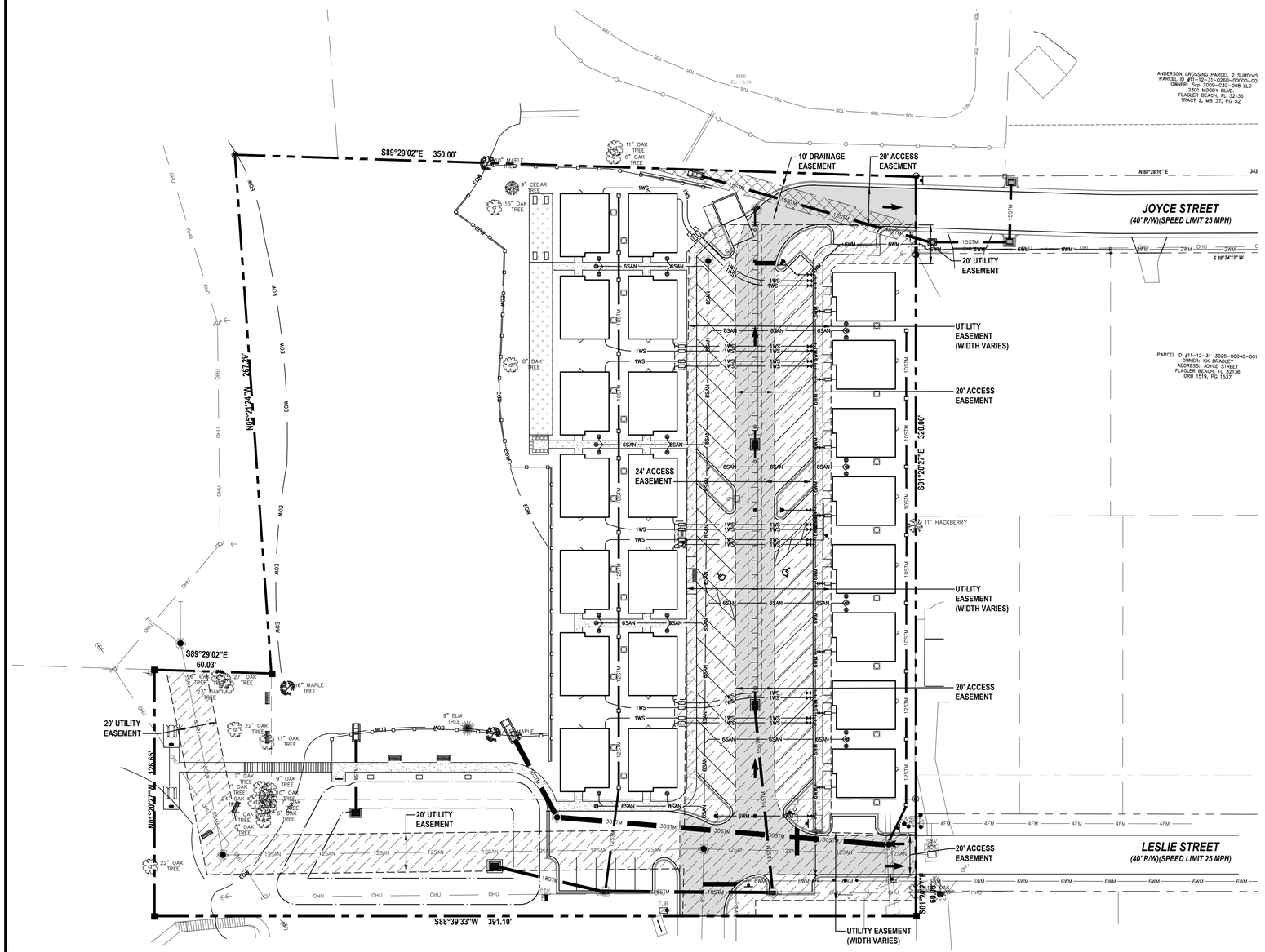
27





EASEMENT LEGEND:

- PROPOSED ACCESS EASEMENT
- PROPOSED UTILITY EASEMENT
- PROPOSED DRAINAGE EASEMENT

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EASEMENT PLAN
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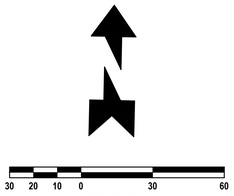

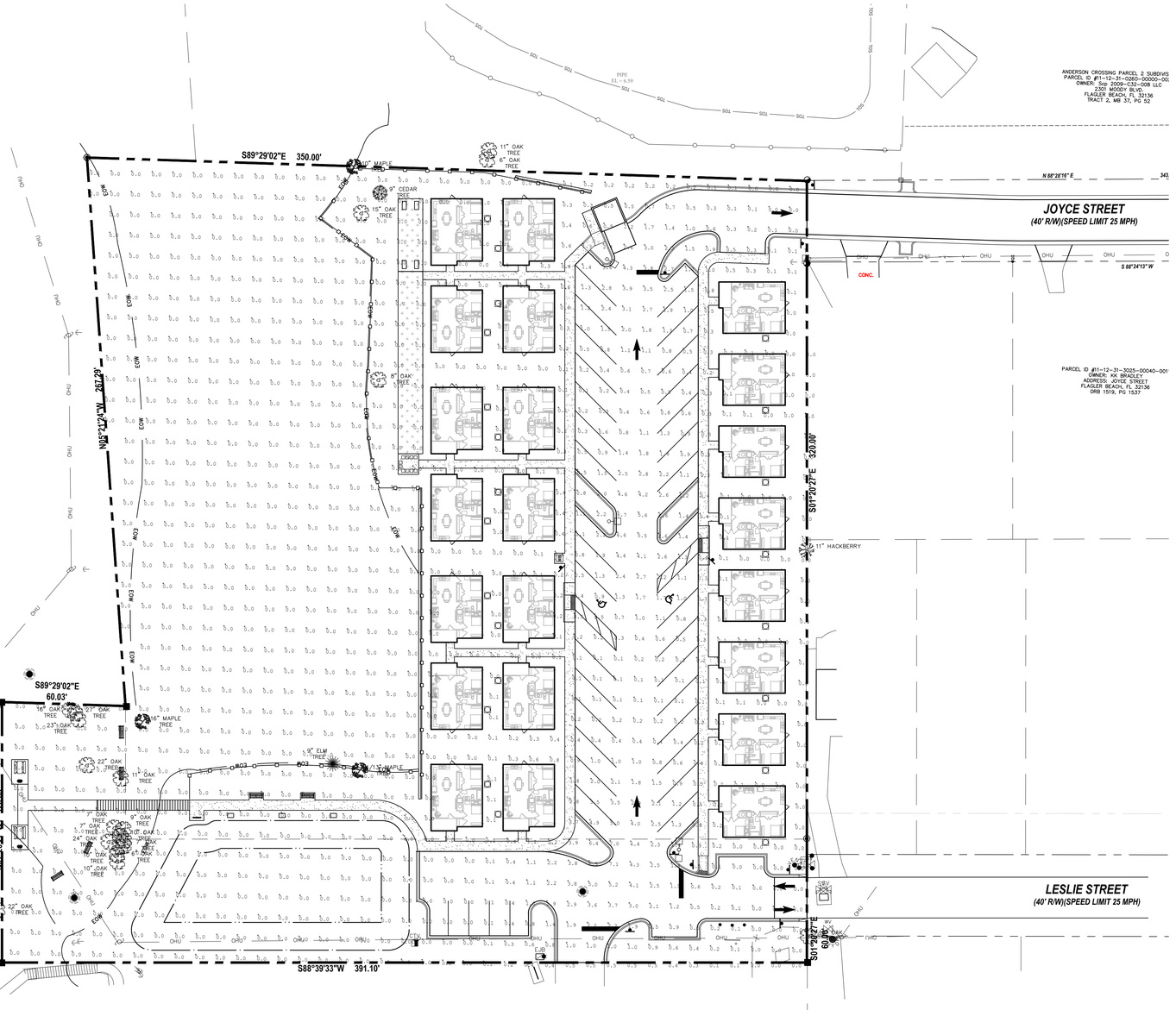

Luminaire Schedule				
Qty	Symbol	Label	Arrangement	LLF
1		ML740-CA-24L40T4-MDL014-CA	SINGLE	1.000
1		ML740-CA-24L40T3-MDL018-CA	SINGLE	1.000
1		ML740-CA-24L40T4-MDL014-CA	BACK-TO-BACK	1.000

Calculation Summary				
Label	Units	Avg	Max	Min
BOUNDARY	Fc	0..29	0.5	0.0
SITE	Fc	0.32	7.1	0.0

LIGHTING NOTES:

A. NO LIGHTS ALLOWED 90 DEGREES ABOVE HORIZONTAL PLANE, EXCEPT ACCENT LIGHTING.
B. LIGHT SHIELDING REQUIREMENTS SHALL PROTECT FROM GLARE, LIGHT SPILLAGE TO PEDESTRIANS, AIRCRAFT AND CARS.
C. MERCURY VAPOR SHALL NOT BE ALLOWED.
D. LIGHTING PLAN MEET THE REQUIREMENTS OF SECTION 14 OF IESNA RP-20-98 LIGHTING 1998 OR CURRENT EDITION.

REVISIONS

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PHOTOMETRIC PLAN
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CHECKED BY:	HHN
SCALE:	1" = 30'

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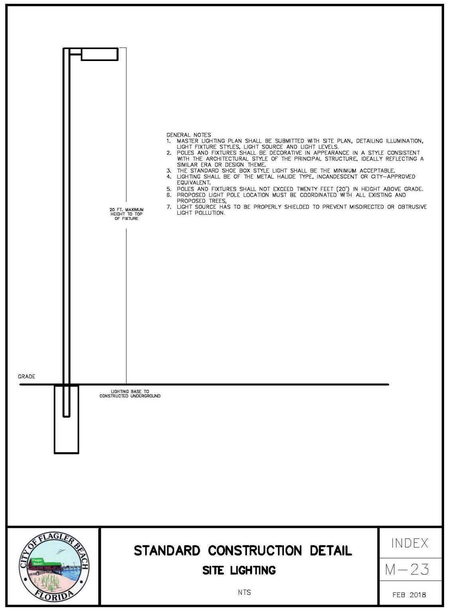
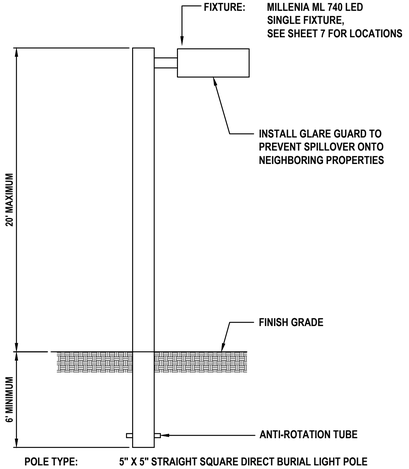
29



STANDARD CONSTRUCTION DETAIL
SITE LIGHTING
NTS

INDEX
M–23
FEB 2018



POLE TYPE:	5" X 5" STRAIGHT SQUARE DIRECT BURIAL LIGHT POLE STRENSBERG LIGHTING - URBANLINE
POLE HEIGHT:	25' MAXIMUM HEIGHT WITH 5' MINIMUM BURIAL
FINISH:	SMOOTH BLACK OR SATIN ALUMINUM
MATERIAL:	ALUMINUM

1. CONTRACTOR MUST OBTAIN CITY OF FLAGLER BEACH BUILDING PERMIT FOR LIGHT POLES. CONTRACTOR SHALL BE RESPONSIBLE FOR SUBMITTING APPROPRIATE INFORMATION (ENGINEERING, SPECIFICATIONS, ETC...) FOR LIGHT FIXTURES AT TIME OF PERMIT REVIEW.
2. DESIGNED TO HANDLE A MINIMUM 140 MPH WIND SPEED, EXPOSURE B OR C.
3. MAKE THE HOLE, GENERALLY HOLES SHALL BE ROUND WITH SMOOTH VERTICAL SIDES CONSISTING OF UNDISTURBED SOIL FOR BEST COMPACTION AND STABILITY OF POLES. DIAMETER OF POLE SHALL BE ABOUT TWICE THE DIAMETER OF THE POLE AT ITS BASE. HOLES SHALL BE AUGURED.
4. WIRE THE POLE UTILIZING APPROVED METHODS.
5. INSTALL THE POLE, IN MANY CASES COMPOSITE POLES CAN BE MANUALLY LIFTED INTO PLACE AND INSERTED INTO THE HOLE.
6. ALIGN AND LEVEL THE POLE.
7. BACKFILL THE HOLE, FILL AND TAMP EVERY 6 TO 8 INCHES OF BACKFILL, FREQUENT TAMPING IS IMPORTANT FOR INSTALLATION.
8. SITE LIGHTING MUST NOT SHINE DIRECTLY UPON ANY ADJACENT RESIDENCE AND MUST NOT PRODUCE EXCESSIVE GLARE. GLARE GUARDS WILL BE INSTALLED IF NEEDED.

SITE LIGHTING DETAIL

NOT TO SCALE

ML740 MILLENIA SERIES

LED

EPA 2.2 (ft²) | WEIGHT 45 LBS | 7 YEAR WARRANTY | LUMEN RANGE 9,355 to 21,035 | LIFE SPAN L70 MINIMUM 100,000 HOURS | UL LISTED | CLICK FOR FAQ's

JOB NAME
FIXTURE TYPE
MEMO

BUILD A PART NUMBER

ORDERING EXAMPLE: PT-ML740-32L40T3-MDLOI4-CA-FHD/SSQ-I4-I88/UGMT

Mounting Config.	Fixture	LED	CCT	Distribution Type	Driver	Lens	Option Pole Adapter	Optional Control Receptacle	Option Control	Option Fuse	Option House Side Shield	Pole See Pole Spec Sheets	Finish

Mounting Configuration
• PT
PT = Post Top

Fixture
• ML740

LED
• 40L • 32L • 24L

CCT - Color Temperature (K)
• 27(00) • 30(00) • 40(00) • 50(00)

Distribution Type
• T2 • T3 • T4 • T5

Driver
• **MDLOI8**[1] (120V-277V, 180mA)
• **MDHOI8**[2] (347V-480V, 180mA)
• **MDLOI6**[1] (120V-277V, 160mA)
• **MDHOI6**[2] (347V-480V, 160mA)
• **MDLOI4**[1] (120V-277V, 140mA)
• **MDHOI4**[2] (347V-480V, 140mA)
[1] 32L or 24L system only.
[2] 40L system only.

Lens
• **CA** (Clear Acrylic)
• **SV1** (Flat Soft Vue Light Diffused Acrylic)
• **SV2** (Flat Soft Vue Moderate Diffused Acrylic)

Options (Click here to view accessories sheet)
• **SQ4** Square pole adapter for 4" square pole shafts
• **R** 3-Pin control receptacle only
• **R5** 5-Pin control receptacle only
• **R7** 7-Pin control receptacle only
• **PE**[1] Twist-Loch Photocontrol (120V-277V)
• **PE3**[1] Twist-Loch Photocontrol (347V)
• **PE4**[1] Twist-Loch Photocontrol (480V)
• **SC**[1] Shorting Cap
• **FHD**[2] Double Fuse and Holder
• **HSS** 120° House Side Shield
• **BLOC** Bach Light Optical Control
[1] Requires control receptacle
[2] Ships loose for installation in base

Pole (Click here to link to pole specification page)
See Pole specification sheets.

Finish
Standard Urban Finishes (Click here to view paint finish sheet)
• **UGMT** Gun Metal Textured
• **UGM** Gun Metal Matte
• **UBT** Urban Bronze Textured
• **UB** Urban Bronze Matte
• **ULBT** Urban Light Bronze Textured
• **ULB** Urban Light Bronze Matte
• **USLT** Urban Silver Textured
• **USL** Urban Silver Matte
• **UWHT** Urban White Textured
• **UWH** Urban White Matte
• **UCHS** Urban Champagne Satin Smooth
• **BKT** Black Textured

Custom Urban Finishes[1]
• **CM** Custom Match
[1] Smooth finishes are available upon request.

Specifications

Fixture

The large scale ML740 Millenia® vertical tenon mount luminaire is a breakthrough in modern area lighting technology. Its new world urban design transcends traditional lighting convention by seamlessly interweaving form and function to yet another level. Our convective AAD™ "Advanced Air-flow Dynamics" maximizes heat sink expulsion to deliver unsurpassed thermal management for long-life LED performance and energy efficiency. Available with a myriad of options, the Millenia is perfect for commercial, institutional and municipal markets. The cast aluminum slipfitter slips a 3" OD x 3" tall tenon. The luminaire shall be UL listed in US and Canada.

LEDs

The luminaire shall use high output, high brightness LED's. They shall be mounted in arrays, on printed circuit boards designed to maximize heat transfer to the heat sink surface. The arrays shall be roof mounted to minimize up-light. The LED's and printed circuit boards shall be 100% recyclable; they shall also be protected from moisture and corrosion by a conformal coating. They shall not contain lead, mercury or any other hazardous substances and shall be RoHS compliant. The LED life rating data shall be determined in accordance with IESNA LM-80. The High Performance white LED's will have a life expectancy of approximately 100,000 hours with not less than 70% of original brightness (lumen maintenance), rated at 25°C. The High Brightness, High Output LED's shall be 4000K (2700K, 3000K or 5000K option) color temperature with a minimum CRI of 70. Consult factory for custom color CCT. The luminaire shall have a minimum _____ (see table) delivered initial lumen rating when operated at steady state with an average ambient temperature of 25°C (77°F).

Optics

The luminaire shall be provided with refractor type optics applied to each LED array. The luminaire shall provide Type ____ (2, 3, 4 or 5) light distribution per the IESNA classifications. Testing shall be done in accordance with IESNA LM-79.

BLOC Optic: An optional "Bach Light Optical Control" shield can be provided at the factory. This is an internal optic level "House Side Shield" offering significantly reduced backlight and glare while maintaining the original design aesthetics of the luminaire.

Electronic Drivers

The LED driver shall be U.L. Recognized. It shall be securely mounted inside the fixture, for optimized performance and longevity. It shall be supplied with a quick-disconnect electrical connector on the power supply, providing easy power connections and fixture installation. It shall have overload, overheat and short circuit protection, and have a DC voltage output, constant current design, 50/60HZ. It shall be supplied with line-ground, line-neutral and neutral-ground electrical surge protection in accordance with IEEE/ANSI C62.41.2 guidelines. It shall be a high efficiency driver with a THD less than 20% and a high power factor greater than .9. It shall be dimming capable

See next page

SternbergLighting
ESTABLISHED 1923 / EMPLOYEE OWNED

800-621-3376
555 Lawrence Ave., Roselle, IL 60172
info@sternberglighting.com
www.sternberglighting.com

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Independence Series

BUY AMERICAN COMPLIANT

Small LED Wall Light

REPLACES UP TO 100W MH

- Reduced Glare & Offensive Light
- Less Wasted Light
- More Footcandles on the Ground
- Creates a Smooth & Uniform Light Pattern

Patent Pending

8.75"Wx8.5"Hx9.05"D
6.6 LBS

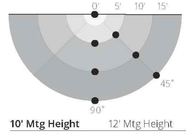
3,913 **LUMENS**
31 **WATTS**
125 **LPW**
80 **CRI**
4500K **CCT**
0-10V **DIMMING**
REC MNT HT 10 FT to 12 FT

ORDERING INFORMATION

CATALOG #	DESCRIPTION	CCT	REPLACES UP TO	VOLTS
WSG4L45K	Small LED Wall Light	4500K	100W MH	120-277

Specs shown are for 4500K CCT. Also available in 3000K, 4000K and 5000K. See Cut Sheet for more information.

FOOTCANDLES ON THE GROUND



10' Mtg Height

	90°	45°
0'	11.2	11.2
5'	10.2	8.7
10'	4.3	3.9
15'	2.3	1.8
Average	6.0	

12' Mtg Height

	90°	45°
0'	7.6	7.6
5'	7.5	6.4
10'	3.9	3.6
15'	2.2	1.8
Average	4.7	

OPTIONS

ADD SUFFIX #	DESCRIPTION	ADD SUFFIX #	DESCRIPTION
PC	120V Photocontrol	PM	208-277V Photocontrol

ENERGY SAVINGS

LED WATTAGE	LED ANNUAL COST	HID SOURCE WATTAGE	HID TOTAL WATTAGE USED	HID ANNUAL COST	ANNUAL SAVINGS
31	$14	50	72	$52	$38
31	$14	70	90	$59	$45
31	$14	100	129	$77	$63

200,000+ HOURS | cULus LISTED

*The majority of Atlas Lighting Products are assembled in USA facilities by an American Workforce utilizing both Domestic and Foreign components. *Qualifies for Buy American under ARRA

Atlas Lighting Products

REVISIONS

DATE	DESCRIPTION

1230 North US1, Suite 3
Ormond Beach, Florida 32174
Phone (386) 672-7794
www.Newkirk-Engineering.com
C.A. # 30209
L.C. # 26000584
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Civil Engineering
Transportation, CEI &
Landscape Architecture
NEWKIRK ENGINEERING INC.

PHOTOMETRIC DETAILS

LEGACY POINTE COTTAGES

LESLIE STREET
FLAGLER BEACH, FL 32136

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PROJECT No:	2023-17
DATE:	OCTOBER 2024
DESIGN BY:	HHN
DRAWN BY:	NWS
CHECKED BY:	HHN
SCALE:	

DRAWING NUMBER

30

TREE PROTECTION AND ROOT PRUNING SPECIFICATIONS

PART 1 GENERAL

1.1 SUMMARY

A. This item shall consist of furnishing all labor, materials, tools and equipment required to protect those trees designated to remain on the site. Protection of designated trees shall include directing heavy construction work activity away from the protected trees Section Includes the protection, trimming, and pruning of trees that interfere with, or are affected by, execution of the Work, whether temporary or new construction.

1.2 SUBMITTALS

A. Product Data: For each type of product indicated.
B. Tree Pruning Schedule: Written schedule from certified arborist detailing scope and extent of pruning of trees to remain that interfere with or are affected by construction.
C. Qualification Data: For tree service firm and arborist, ISA certification required.
D. Certification: From arborist, certifying that trees indicated to remain have been protected during construction according to recognized standards and that trees were promptly and properly pruned and repaired when damaged.
E. Maintenance Recommendations: From certified arborist, for care and protection of trees affected by construction during and after completion of the Work.
F. Provide final log of work performed including any damage that occurred during construction and subsequent repairs.

1.3 QUALITY ASSURANCE

A. Tree Service Qualifications: An experienced tree service firm that has successfully completed tree protection and trimming work similar to that required for this Project and that will assign an experienced, qualified arborist to Project site on a full-time basis during execution of the Work.
B. Arborist qualifications: An arborist certified by the International Society of Arboriculture.
C. Tree Pruning Standards: Comply with ANSI A300 (Part 1), Trees, Shrubs, and other Woody Plant Maintenance--Standard Practices (Pruning) and Part 8 - Root Management Standard.
D. Pre-installation Conference: Before starting tree protection and trimming, meet with representatives of authorities having jurisdiction, Owner, Architect, consultants, and other concerned entities to review tree protection and trimming procedures and responsibilities.

PART 2 PRODUCTS

2.1 MATERIALS

A. Materials for tree/vegetation protection barriers shall conform to the following requirements:

1. Mesh Construction Fencing by Conwed or Approved Equal (orange or green color)
2. Wood Posts (minimum length 6.0 feet)
3. #14 gauge steel wire

PART 3 EXECUTION

3.1 PREPARATION

A. Temporary Fencing: Install temporary fencing around the tree protection zones designated on the plans or where directed by the engineer to protect remaining vegetation from construction damage. Maintain temporary fence and remove when construction is complete. See detail this sheet.
B. Root Zone Protection: During the entire construction period all reasonable efforts shall be made to protect from damage those trees and their root system designated to remain. Around the trees to be protected, the Contractor shall avoid excessive excavation or compaction and damage during the removal of trees and shrubs designated to be removed. All plant material designated to be saved, or outside of the limits of construction, shall be protected during subsequent construction work. Work under these items will include construction and maintenance of temporary fencing to protect the root zones of existing trees and other plantings, construction and maintenance of tree trunk protection.

A protection barrier or temporary fence of at least 4 feet in height shall be installed around each tree to be protected and preserved. The tree protection shall be installed prior to the actual construction start and maintained for the duration of the project.

Within this protection zone, construction materials shall not be stored, equipment operated and/or temporary storage buildings or work trailers placed.

The protection barrier shall be constructed of orange snow fencing securely fastened to fence posts spaced a maximum of 6 feet on center. Posts are 6 feet in length with 2 feet set into the ground and 4 feet extending above ground. The fencing shall be attached to the post with a minimum of four (4) nylon-locking ties evenly placed at each post.

3.2 EXCAVATION

A. Install shoring or other protective support systems to minimize shoring or benching of excavations.
B. Do not excavate within tree protection zones, unless otherwise indicated on plans.
C. Where excavation for new construction is required within drip line of trees, clear and excavate to minimize damage to root systems. Use narrow-tine spading forks and comb soil to expose roots.

1. Relocate roots in backfill areas where possible. If encountering large, main lateral roots, expose roots beyond excavation limits as required to bend and relocate them without breaking. If encountered immediately adjacent to location of new construction and relocation is not practical; cut roots approximately 3 inches back from new construction.
2. Do not allow exposed roots to dry out before placing permanent backfill. Provide temporary earth cover or pack with peat moss and wrap with burlap. Water and maintain in a moist condition. Temporarily support and protect

D. Root Pruning: Cut roots with sharp pruning instruments. All roots that are broken or chopped by excavators during excavation will be required to be saw cut cleanly with a sharp saw and do not paint cut root end.
E. When excavating, place excavated soil on opposite side of trench from tree.

3.3 ROOT PRUNING

A. Root pruning shall take place only where the roots of existing trees have been damaged by the Contractor during construction of the Project, as directed by the Certified Arborist.
B. If construction is to occur within the root zone of existing plant material, root pruning and special plant care including fertilizing and watering will be required, as directed by the Certified Arborist and hereinafter specified. Prior to root pruning, remove all weeds growing in existing tree mulch rings. Root pruning using an approved mechanical root pruning saw shall be performed prior to digging where noted on the plans, or directed by the Certified Arborist. Air Spading excavation consisting of hand and/or pneumatic excavation may be required if indicated on plans or as directed by Certified Arborist. Whenever roots of plant material to remain are exposed during construction, the damaged root ends are to be removed by cutting them off cleanly.
C. Initial watering shall be performed on all trees, which are designated for root pruning. Water trees immediately by thoroughly saturating root balls and provide a horticultural watering bag, such as a Gator Bag or equivalent, filled with water to keep root balls thoroughly saturated during first three weeks following root pruning. Thereafter refill bags as required, according to weather conditions, to keep root balls in a moist condition during growing seasons, through the duration of the Project. Test root balls for optimal moisture once a week using a soil auger.
D. All pruning shall be overseen by a professional arborist (someone whose principal occupation is the care and maintenance of trees). All pruning shall be done according to the National Arborist Association's Pruning Standards for Shade Trees Class 11 - Standard Pruning Specifications.
E. Any damage to the root zone, as determined by the Certified Arborist, will be compensated by pruning an equivalent amount of the top vegetative growth of the material within 1 week following root damage, fertilization and supplemental watering.
F. Fertilize damaged trees with fertilizer that promotes root growth. Fertilizer nutrients shall be applied within 48 hours after root damage occurs. Fertilizer nutrients shall be applied within 48 hours after root damage occurs. A fertilizer with a 1: 1: 1 ratio shall be applied at the rate of .5 pounds of nutrients per 1000 square feet (2 kg per 90 square meters).
G. Application shall be accomplished by placing dry fertilizer in holes in the soil. The holes shall be 8 inches (200 mm) to 12 inches (300 mm) deep and spaced 24 inches (600 mm) apart in an area beginning 30 inches (1 meter) from the base of the plant. Holes can be punched with a punch bar, dug with a spade, drilled with an auger or any other method approved by the Certified Arborist.
H. Approximately 0.02 pounds (10 grams) of fertilizer nutrients shall be placed in each hole 250 holes per 1000 square feet (90 square meters). Fertilizer Nutrients shall not be measured for payment but considered incidental to root pruning. If the Certified Arborist determines that the whole method of fertilizer placement is not practical or desirable, an approved method of uniform surface application will be allowed. Neither separate measurement nor payment will be made for fertilization, but will be considered incidental to the cost of TREE PROTECTION.
I. Supplemental water shall be applied within 48 hours of any root damage. The water shall be applied at the rate of 7 quarts per square yard of surface area within the root zone of plant material having sustained damage to the root zone. Root zone shall be calculated as the areas, which extend three meters beyond the limits of the crown's branches. Subsequent weekly watering shall be applied if deemed necessary by the Certified Arborist. Neither separate measurement nor payment will be made for supplemental watering but will be considered incidental to the cost of TREE PROTECTION.
J. The Contractor shall repair or replace any and all damage determined by the Certified Arborist and City of Flagler Beach to any existing or newly installed plant material at its own expense. Unnecessary damage to ground cover or turf shall be repaired or replaced as specified for restoration of similar areas within the plans, or as directed by the Certified Arborist and City of Flagler Beach, and shall be at the Contractor's expense.
K. Materials shall be disposed of in accordance with specifications.

3.4 REGRADING

A. Do not fill within tree protection zones, unless otherwise indicated.

B. Where filling for new construction is required within drip line of trees, perform work by hand to minimize damage to root systems.
1. Where existing grade is below elevation of finish grade, fill with topsoil. Place topsoil by hand in a single uncompacted layer and hand grade to required finish elevations.

3.5 TREE PRUNING

A. Prune trees to remain that are affected by temporary and permanent construction.
B. Pruning Standards: Prune trees according to ANSI A300 (Part 1).
C. Cut branches with sharp pruning instruments; do not break or chop.
1. Clean all pruning instruments with antimicrobial solution between performing work on separate trees to avoid the potential spread of pathogens.
D. Chip removed tree branches and uses as organic mulch or dispose of off-site.

3.6 TREE REPAIR AND REPLACEMENT

A. Promptly repair trees damaged by construction operations within 24 hours. Treat damaged trunks, limbs, and roots according to arborist's written instructions.
B. Aerate surface soil, compacted during construction, 10 feet (3 m) beyond drip line. Drill 2-inch (50-mm) diameter holes a minimum of 12 inches (300 mm) deep at 24 inches (600 mm) o.c. Backfill holes with an equal mix of augered soil and sand.

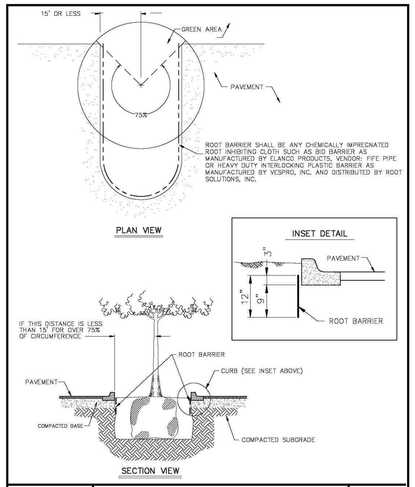
3.7 DISPOSAL OF WASTE MATERIALS

A. Burning is not permitted.
B. Disposal: Remove excess excavated material, displaced trees, and excess chips from Owner's property. Disposal shall be local landfill.

CONTRACTOR TO USE DOSKO OR VERMEER MECHANICAL ROOT PRUNER EQUIPMENT WHEN WITHIN CRITICAL ROOT ZONE OR TREE PROTECTION AREA FOR INSTALLATION OF 4" CONDUITS FOR ELECTRICAL, CABLE, TELECOMMUNICATIONS AND IRRIGATION SERVICES

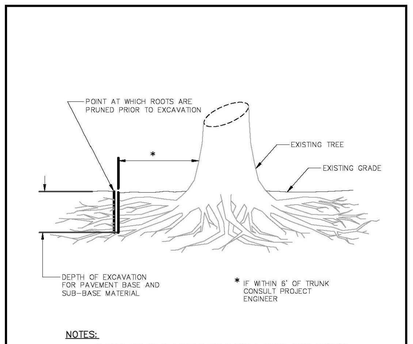
MECHANICAL ROOT PRUNER EQUIPMENT DETAIL

NOT TO SCALE



STANDARD CONSTRUCTION DETAIL
ROOT BARRIER
NTS

INDEX LS-1
FEB 2018



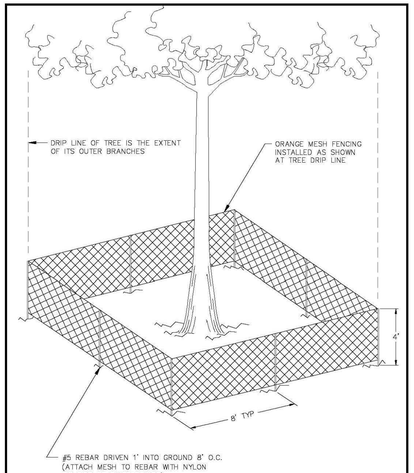
NOTES:

1) CUTS ARE TO BE MADE CLEANLY WITH A SHARP ROOT PRUNING TOOL (SUCH AS A DOSCO OR VERMEER ROOT PRUNER).

2) INSTALL ORANGE PLASTIC MESH TREE BARRIER, WITH REBAR SUPPORTS, AT POINT OF PRUNING AND CONTINUE COMPLETELY AROUND TREE, PROTECTING THE AREA WITHIN THE DRIP LINE (EXTENT OF OUTER BRANCHES).

STANDARD CONSTRUCTION DETAIL
ROOT PRUNING
NTS.

INDEX LS-2
FEB 2018



STANDARD CONSTRUCTION DETAIL
TREE BARRICADE
NTS.

INDEX LS-4
FEB 2018

REVISIONS

DATE	DESCRIPTION

1230 North US1, Suite 3
Ormond Beach, Florida 32174
Phone (386) 672-7794
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TREE PROTECTION DETAILS
LEGACY POINTE COTTAGES
LESLIE STREET
FLAGLER BEACH, FL 32136

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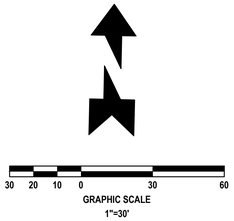
PROJECT No:	2023-17
DATE:	OCTOBER 2024
DESIGN BY:	HHN
DRAWN BY:	NWS
CHECKED BY:	HHN
SCALE:	AS SHOWN

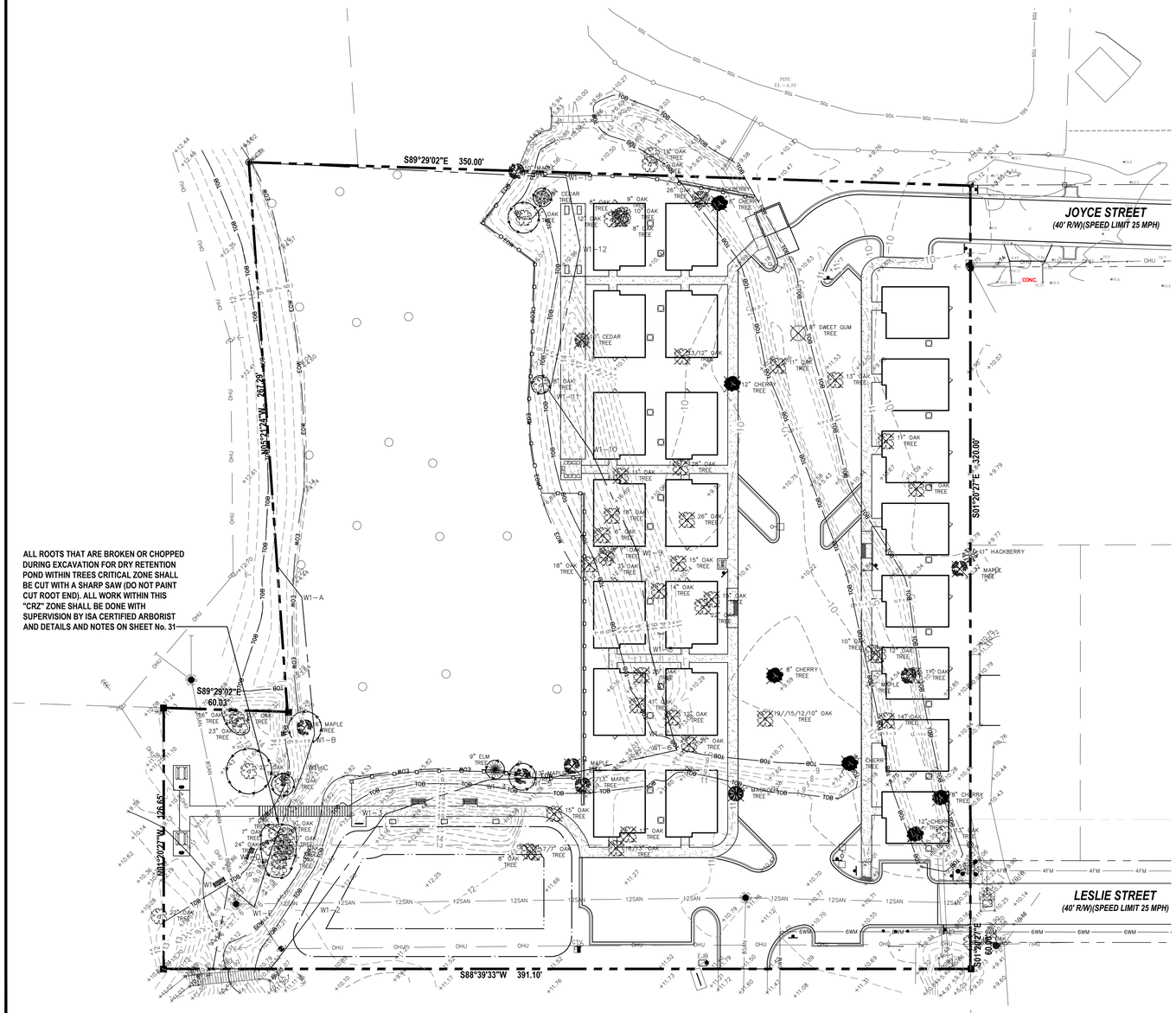
DRAWING NUMBER

31



OVERALL TREE LEGEND:

NAME	SYMBOL	EXISTING	REMOVE	REMAIN
CEDAR		2	1	1
CHERRY		7	7	0
ELM		1	0	1
HACKBERRY		2	1	1
MAGNOLIA		1	1	0
MAPLE		9	5	4
OAK		60	44	16
SWEET GUM		1	1	0
	TOTALS:	83	60	23



MAPLE	TREES REMOVED	TREES REMAIN
7"	3	
10"		1
12"	1	
13"	1	1
14"		1
16"		1
TOTAL	**5**	**4**

CEDAR	TREES REMOVED	TREES REMAIN
9"		1
10"	1	
TOTAL	**1**	**1**

OAK	TREES REMOVED	TREES REMAIN
6"	1	1
7"	4	3
8"	3	1
9"	2	1
10"	3	3
11"	4	1
12"	5	
13"	5	
14"	2	
15"	4	1
16"	1	1
18"	2	
19"	1	
21"	1	
22"	1	1
23"		1
24"		1
25"	1	
26"	2	
27"		1
28"	1	
41"	1	
TOTAL	**44**	**16**

ELM	TREES REMOVED	TREES REMAIN
9"		1
TOTAL	**0**	**1**

CHERRY	TREES REMOVED	TREES REMAIN
7"	1	
8"	3	
11"	1	
12"	2	
TOTAL	**7**	**0**

SWEET GUM	TREES REMOVED	TREES REMAIN
8"	1	
TOTAL	**1**	**0**

MAGNOLIA	TREES REMOVED	TREES REMAIN
14"	1	
TOTAL	1	0

TOTALS	**59**	**22**
TOTAL TREES REMOVED		**59**
TOTAL DBH REMOVED		**767"**

REQUIRED TREE REPLACEMENT: 59 CANOPY TREES (6' MINIMUM HEIGHT)

REVISIONS

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TREE PRESERVATION PLAN
LEGACY POINTE COTTAGES
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CHECKED BY:	HHN
SCALE:	1" = 30'

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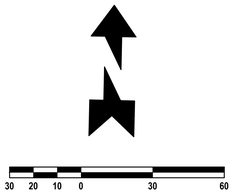
32



WETLAND AREAS SUMMARY CHART

1. WETLAND / UPLAND AREAS:	SQ. FT.	ACRE	%
WETLAND/SURFACE WATER IMPACT AREA 1	468	0.011	0.9
WETLAND/SURFACE WATER IMPACT AREA 2	4,839	0.111	9.5
WETLAND/SURFACE WATER IMPACT AREA 3	773	0.018	1.5
TOTAL WETLAND/SURFACE WATER IMPACTS	6,080	0.140	100.0

LEGEND

- TOTAL WETLAND / SURFACE WATER (51,108 SF / 1.173 AC) TOTAL
- WETLAND / SURFACE WATER IMPACT AREA (6,080 SF / 0.140 AC) TOTAL

REVISIONS

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SURFACE WATER / WETLAND IMPACT PLAN

LEGACY POINTE COTTAGES

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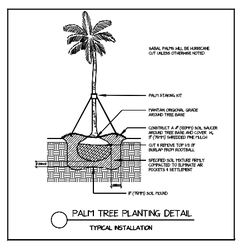
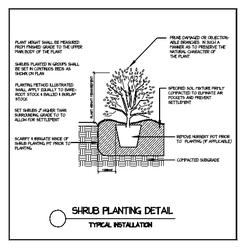
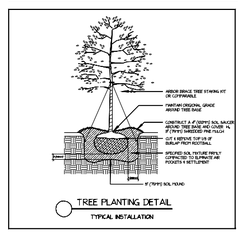
33

Key	Qty	Botanical Name	Common Name	Size/Condition		Spacing
Trees						
Qv	36	*Quercus virginiana*	SOUTHERN LIVE OAK	30g	2" cal. 8-10' ht.	See Plan
Td	19	*Taxodium distichum*	CYPRESS, BALD	30g	2" cal. 8-10' ht.	See Plan
Palms						
Pr	7	*Phoenix roebelenii*-Single	PYGMY DATE PALM, SINGLE	b&b	5'-6'	See Plan
Pr	7	*Phoenix roebelenii*	PYGMY DATE PALM, DOUBLE	b&b	5-6' oa	See Plan
Sp	39	Sabal palmetto	SABAL PALM	b&b	12' ct	See Plan
Shrubs						
Lj	338	Ligustrum japonicum	LIGUSTRUM, GREEN	3g	16" x 16"	36" oc
Lj	73	Ligustrum japonicum	LIGUSTRUM, GREEN	7g	24" ht.	36" oc
Lm	124	Liriope muscari	LIRIOPE, EVERGREEN GIANT	3g	18" x 18"	36" oc
JcP	81	Juniperus chinensis 'Parsonii'	JUNIPER, PARSONII	3g	14-16" Spread	36" oc
Pm	49	Podocarpus macrophyllus	PODOCARPUS	7g	24" ht.	36" oc
Pm	51	Podocarpus macrophyllus	PODOCARPUS	3g	18" x 18"	36" oc
Ri	87	Rhaphiolepis indica	INDIAN HAWTHORN	3g	12" x 14"	36" oc
Perennials						
Eh	620	Evolvulus hybrid	BLUE DAZE 'BLUE MY MIND'	1g	Full Plant	18" oc
LmE	124	Liriope muscari 'Evergreen Giant'	LIRIOPE, EVERGREEN GIANT	1g	Full Plant	24" oc
Ncr	154	Neomarica caerulea 'regina'	IRIS, REGINA	3g	18" x 18"	24" oc
TvP	316	Tulbaghia violacea 'Purple'	SOCIETY GARLIC, PURPLE	1g	Full Plant	18" oc







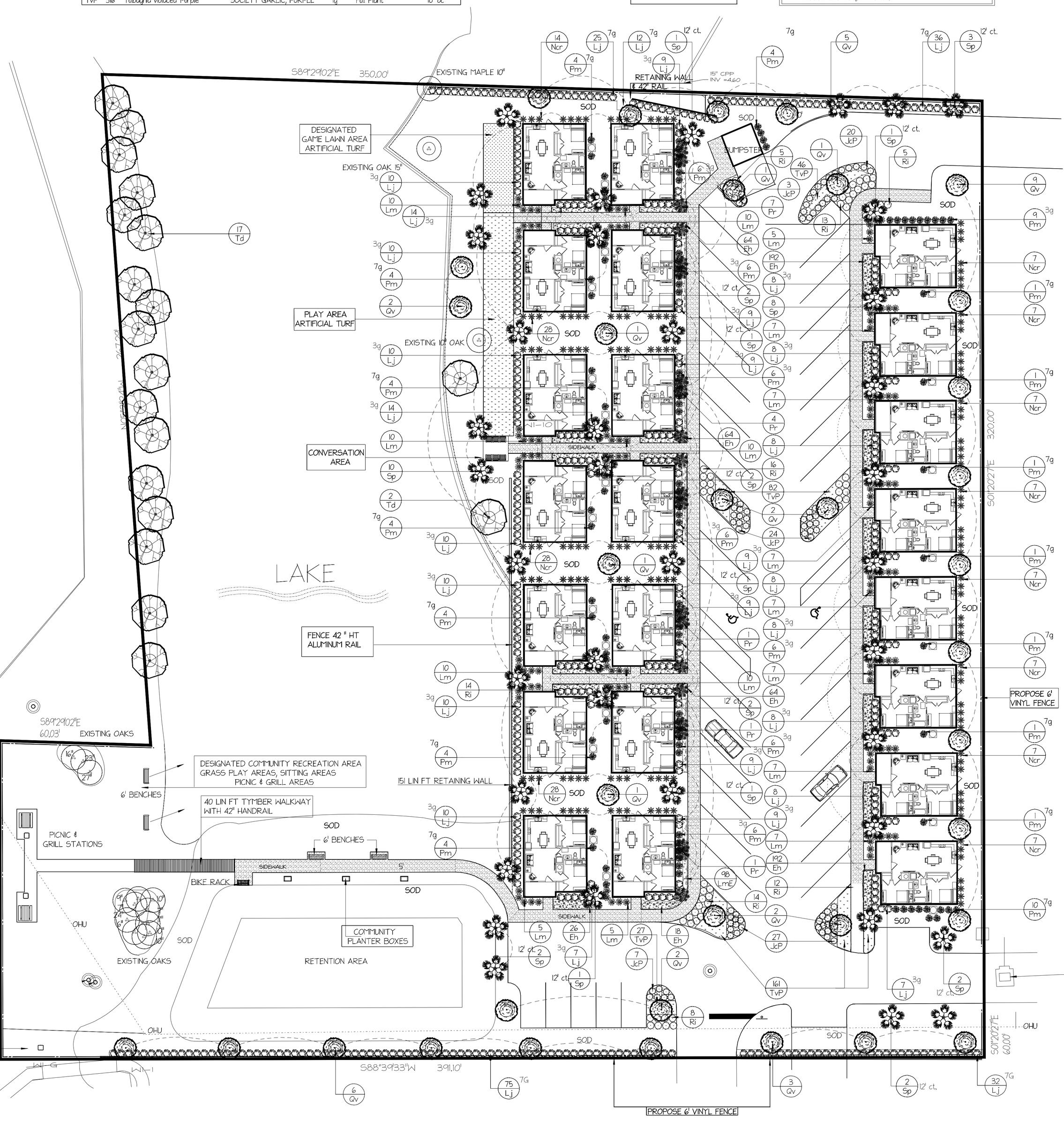
SOD: ST AUGUSTINE FLORATAM

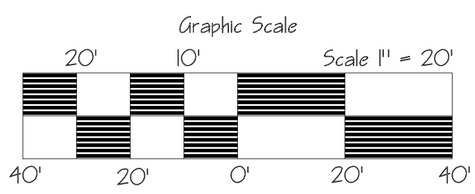
MULCH: PINE BARK

IRRIGATION: FULL COVERAGE TO ALL SODDED AND LANDSCAPED AREAS

Landscape Notes

1. All proposed materials shall be Florida #1 or better in quality based on the grades and standards for nursery plants by the Florida Department of Agriculture. All updated amendments apply.
2. All trees and plant material shall be planted in a professional manner according to the highest nursery standards.
3. Plant list quantities are for convenience only. The landscape contractor is responsible for all materials shown on the landscape plan. The plan always takes precedence over the plant list.
4. All mulch and stone beds are to have a 3" layer.
5. The landscape contractor is responsible for the stability and plumb condition of all trees planted. All hardwood and palm trees are to be staked.
6. All work performed on site must be done in a professional manner. The landscape contractor is responsible to leave the site clean of all materials and debris within the scope of their work.
7. All plant material will be trimmed as needed for a finished professional appearance. All labels and tags will be removed.
8. All work performed must meet or exceed all local codes and requirments.





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Job # | Date 5-1-24

Revisions 6-19-24, 10-16-24

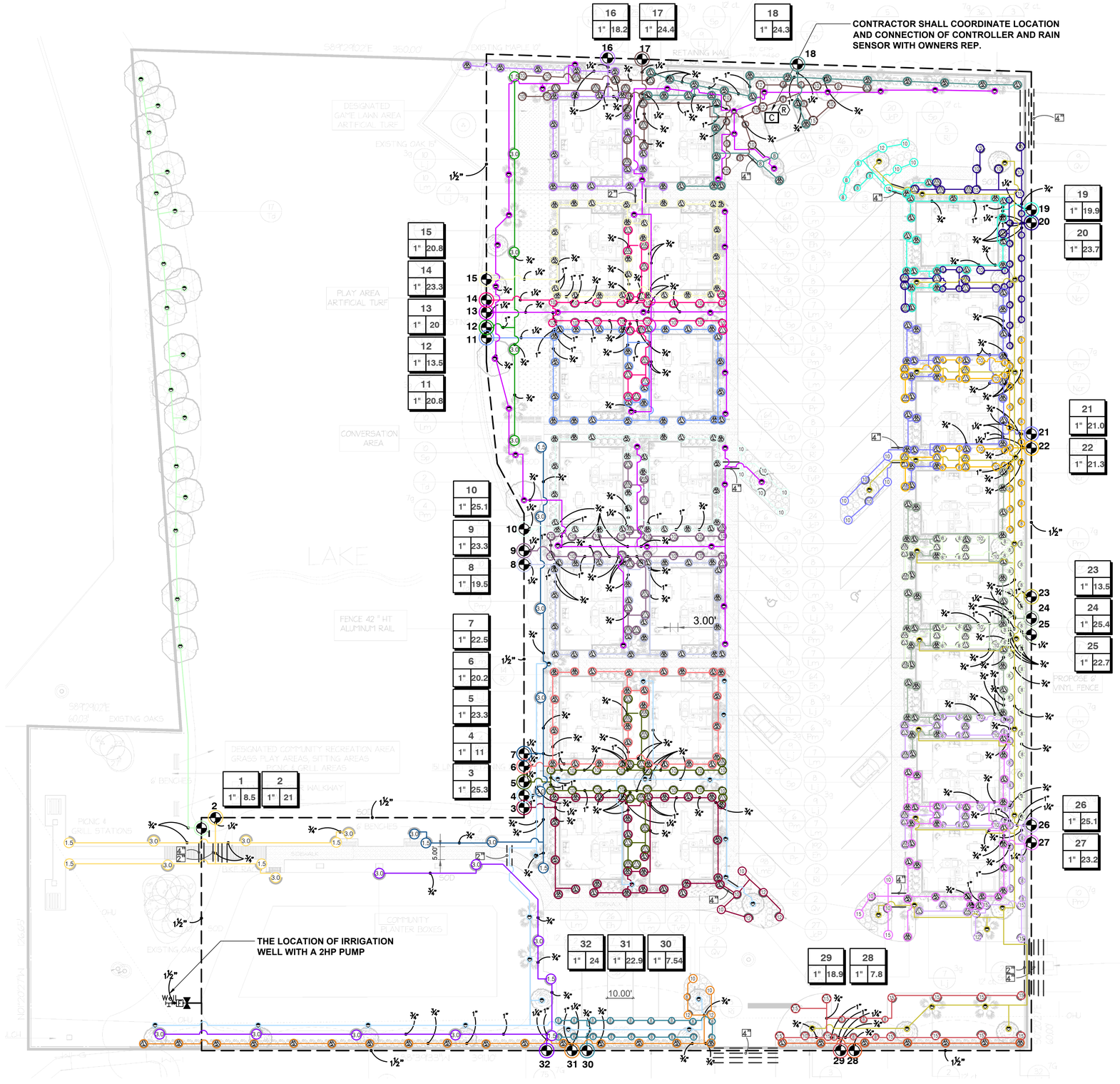
Designer B.P.

Landscape Design

Legacy Pointe
Leslie Street
Flagler Beach, Fl 32136

VERDEGO Design Center
Main Office/Garden Center
3335 North State Street, Bunnell FL 32110
P. 386.437.3122 F. 386.437.6883

T RELEASED FOR CONSTRUCTION



LEGACY POINTE

FLAGLER BEACH, FL 32136

Irrigation Plan

JOB NUMBER: 23FIS-01256
DRAWN BY: ZM
CHECKD BY: LG
DATE: 10-22-24

REVISIONS	DATE
1.	00-00-00
2.	00-00-00
3.	
4.	
5.	
6.	
7.	

NORTH

SCALE: 1" = 20'-0"

0 10' 20' 40'

0 1 2

IR-1.01A

HCSG DESIGN DISCLAIMER

A - The irrigation design services provided by HCSG are crafted to assist our customers during the project bidding process. These services are intended to facilitate preliminary planning and are not to be used for construction purposes. We strongly recommend that all designs, estimates, and related documents be reviewed and utilized by professionals who have the requisite experience and educational background in the field.

It is important to note that Heritage Commercial Services Group (HCSG), along with our brands, affiliates, vendors, and contractors, assumes no liability for inaccuracies, omissions, errors, or any potential financial losses (including lost income or revenue) arising from the use of our products and services. Our goal is to support your project planning efforts with quality designs and estimates, while emphasizing the need for further professional review and validation.

B - HCSG's irrigation design work is specifically tailored for bid preparation and is not intended for use in actual construction projects. For clients requiring detailed construction-ready drawings, our affiliate, WC3, a specialized irrigation design firm within the Heritage Landscape Supply Group, offers professional services. WC3 is equipped to create comprehensive construction drawings, which can be formally stamped and/or submitted for necessary approvals and reviews.

Please be aware that HCSG is not to be considered the "Designer/Architect of Record" for any irrigation design projects. Our role is to provide initial design assistance, with the understanding that final design responsibility and verification lie with the hiring of appropriately licensed professionals for construction purposes.

VALVE_SCHEDULE

NUMBER	MODEL	SIZE	TYPE	GPM	WIRE	PSI	PSI @ POC	PRECIP
1	Hunter PGV-101G	1"	Turf Spray	24.4	339.2	37.5	37.8	0.69 in/h
2	Hunter PGV-101G	1"	Turf Spray	18.87	190.4	35.4	36.5	0.82 in/h
3	Hunter PGV-101G	1"	Turf Spray	20.54	186.1	36.4	37.7	1.28 in/h
4	Hunter PGV-101G	1"	Shrub Spray	19.5	146.9	36.7	38.1	1.24 in/h
5	Hunter PGV-101G	1"	Bubbler	15	65.7	35.3	36.4	1.7 in/h
6	Hunter PGV-101G	1"	Turf Spray	20.87	65.7	37.6	40.1	0.89 in/h
7	Hunter PGV-101G	1"	Turf Spray	24.69	72.7	36.2	39.6	1.01 in/h
8	Hunter PGV-101G	1"	Shrub Spray	22.75	77.3	38.1	41.1	1.3 in/h
9	Hunter PGV-101G	1"	Turf Rotor	18	240.0	49.5	51.2	0.65 in/h
10	Hunter PGV-101G	1"	Shrub Spray	24.7	247.0	39.6	42.5	1.41 in/h
11	Hunter PGV-101G	1"	Turf Spray	20.87	252.5	36.6	38.7	1.14 in/h
12	Hunter PGV-101G	1"	Shrub Spray	22.1	414.2	36.7	39.2	1.48 in/h
13	Hunter PGV-101G	1"	Turf Spray	22.17	438.5	35.1	37.5	1.31 in/h
14	Hunter PGV-101G	1"	Turf Spray	21.59	650.4	37.7	40.0	0.74 in/h
15	Hunter PGV-101G	1"	Shrub Spray	23.4	654.8	37.7	40.4	1.53 in/h
16	Hunter PGV-101G	1"	Turf Spray	23.3	682.6	38.1	40.8	0.76 in/h
17	Hunter PGV-101G	1"	Shrub Spray	7.8	653.2	32.3	32.6	1.54 in/h
18	Hunter PGV-101G	1"	Turf Spray	21.97	648.1	34.6	36.7	1.3 in/h
19	Hunter PGV-101G	1"	Bubbler	21.5	638.9	39.7	41.7	1.7 in/h
20	Hunter PGV-101G	1"	Turf Spray	24.93	469.4	37.8	39.2	0.99 in/h
21	Hunter PGV-101G	1"	Shrub Spray	18.2	461.4	34.7	35.4	1.53 in/h
	Common Wire							

WATERING_SCHEDULE

NUMBER	MODEL	TYPE	PRECIP	IN./WEEK	MIN./WEEK	GAL./WEEK	GAL./DAY
1	Hunter PGV-101G	Turf Spray	0.69 in/h	1.01	88	2,147	716
2	Hunter PGV-101G	Turf Spray	0.82 in/h	1.01	75	1,415	472
3	Hunter PGV-101G	Turf Spray	1.28 in/h	1.01	48	986	329
4	Hunter PGV-101G	Shrub Spray	1.24 in/h	1.01	50	975	325
5	Hunter PGV-101G	Bubbler	1.7 in/h	0.75	27	405	135
6	Hunter PGV-101G	Turf Spray	0.89 in/h	1.01	69	1,440	480
7	Hunter PGV-101G	Turf Spray	1.01 in/h	1.01	61	1,506	502
8	Hunter PGV-101G	Shrub Spray	1.3 in/h	1.01	47	1,069	356
9	Hunter PGV-101G	Turf Rotor	0.65 in/h	1.01	94	1,692	564
10	Hunter PGV-101G	Shrub Spray	1.41 in/h	1.01	43	1,062	354
11	Hunter PGV-101G	Turf Spray	1.14 in/h	1.01	54	1,127	376
12	Hunter PGV-101G	Shrub Spray	1.48 in/h	1.01	41	906	302
13	Hunter PGV-101G	Turf Spray	1.31 in/h	1.01	47	1,042	347
14	Hunter PGV-101G	Turf Spray	0.74 in/h	1.01	83	1,792	597
15	Hunter PGV-101G	Shrub Spray	1.53 in/h	1.01	40	936	312
16	Hunter PGV-101G	Turf Spray	0.76 in/h	1.01	80	1,864	621
17	Hunter PGV-101G	Shrub Spray	1.54 in/h	1.01	40	312	104
18	Hunter PGV-101G	Turf Spray	1.3 in/h	1.01	47	1,033	344
19	Hunter PGV-101G	Bubbler	1.7 in/h	0.75	27	581	194
20	Hunter PGV-101G	Turf Spray	0.99 in/h	1.01	62	1,546	515
21	Hunter PGV-101G	Shrub Spray	1.53 in/h	1.01	40	728	243
		TOTALS:			1,163	24,564	8,188

CRITICAL ANALYSIS

Generated:
P.O.C. NUMBER: 01
Water Source Information:

FLOW AVAILABLE	
Custom Max Flow:	25 GPM
Flow Available	25 GPM
PRESSURE AVAILABLE	
Static Pressure at POC:	65 PSI
Pressure Available:	65 PSI
DESIGN ANALYSIS	
Maximum Station Flow:	24.93 GPM
Flow Available at POC:	25 GPM
Residual Flow Available:	0.07 GPM
Critical Station:	9
Design Pressure:	45 PSI
Friction Loss:	1.73 PSI
Fittings Loss:	0.17 PSI
Elevation Loss:	0 PSI
Loss through Valve:	2.62 PSI
Pressure Req. at Critical Station:	49.5 PSI
Loss for Fittings:	0.15 PSI
Loss for Main Line:	1.48 PSI
Loss for POC to Valve Elevation:	0 PSI
Loss for Backflow:	0 PSI
Critical Station Pressure at POC:	51.2 PSI
Pressure Available:	65 PSI
Residual Pressure Available:	13.8 PSI

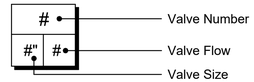
IRRIGATION_SCHEDULE

SYMBOL	MANUFACTURER/MODEL	QTY
ES LCS RCS CS SS	Hunter PROS-06-NSI Strip Series	19
Q T H F	Hunter PROS-06-NSI 8 Series	171
Q T H F	Hunter PROS-06-NSI 10 Series	36
Q T H TT TQ F	Hunter PROS-06-NSI 12 Series	18
Q T H TT TQ F	Hunter PROS-06-NSI 15 Series	55
	Hunter PROS-06-NSI Adj Series	15
ES LCS RCS CS SS	Hunter PROS-12-NSI Strip Series on riser	147
25 50 10 20	Hunter PCB-50 (One per Tree)	73

SYMBOL	MANUFACTURER/MODEL	QTY
1.5	Hunter PGP-04 1.5	4
3.0	Hunter PGP-04 3.0	4

SYMBOL	MANUFACTURER/MODEL	QTY
	Hunter PGV-101 Globe 1"	21
	Gate Valve 1-1/2"	1
C	Hunter I-Core Controller-Wall Mount	1
R	Hunter WR-CLIK	1
Well	Irrigation Well With a 2HP Pump	1
	Irrigation Lateral Line: PVC Class 160 SDR 26 3/4"	6,920 l.f.
	Irrigation Lateral Line: PVC Class 160 SDR 26 1"	860 l.f.
	Irrigation Lateral Line: PVC Class 160 SDR 26 1 1/4"	480 l.f.
	Irrigation Lateral Line: PVC Class 160 SDR 26 1 1/2"	10 l.f.
	Irrigation Mainline: PVC Class 200 SDR 21 1 1/2"	1,520 l.f.
	Pipe Sleeve: Conduit 1-1/4" (Control Wire)	100 l.f.
	Pipe Sleeve: PVC Schedule 40 2"	110 l.f.
	Pipe Sleeve: PVC Schedule 40 4"	160 l.f.

Valve Callout



SLEEVING SIZE SCHEDULE

PIPE SIZE	SLEEVE SIZE
3/4"	2" SLV
1"	2" SLV
1 1/4"	2" SLV
1 1/2"	4" SLV
2"	4" SLV
2 1/2"	4" SLV
3"	6" SLV

VALVE SIZING REQUIREMENTS

MAX.FLOW RANGE	VALVE SIZE
1 TO 25 GPM	1"
26 TO 50 GPM	1-1/2"
51 TO 75 GPM	2"

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LATERAL PIPE SIZING REQUIREMENTS

PVC CLASS 200		PVC SCH 40	
3/4"	10 GPM	3/4"	8 GPM
1"	16 GPM	1"	12 GPM
1 1/4"	26 GPM	1 1/4"	22 GPM
1 1/2"	35 GPM	1 1/2"	30 GPM
2"	55 GPM	2"	50 GPM
2 1/2"	80 GPM	2 1/2"	70 GPM
3"	120 GPM	3"	110 GPM

GENERAL IRRIGATION NOTES

1. IRRIGATION SYSTEM DESIGN IS BASED ON 25 GPM AND 65 PSI. EACH IRRIGATION ZONE SHALL BE PROGRAMMED ON THE BASIS OF WATER REQUIREMENT 0.75 (LOW VOLUME IRRIGATION) 1 (HIGH VOLUME IRRIGATION) INCH WATER PER WEEK TO THE LANDSCAPE IRRIGATION SYSTEM.
2. IRRIGATION DESIGN IS FROM THE POINT OF CONNECTION (POC) ONLY. THE DESIGN IS BASED ON GALLONS PER MINUTE (GPM) AND POUNDS PER SQUARE INCH (PSI) FURNISHED BY OTHERS.
3. CONTRACTOR IS RESPONSIBLE FOR VERIFYING LOCATION OF ALL SITE UTILITIES AND MAKING THE NECESSARY ADJUSTMENTS TO THE IRRIGATION SYSTEM TO ACCOMMODATE THE INFRASTRUCTURE.
4. THE PRESSURE REQUIREMENT AT THE POINT OF CONNECTION IS BASED ON NO MORE THAN 5 FEET OF ELEVATION CHANGE IN THE AREAS OF IRRIGATION.
5. PIPE LOCATIONS ARE DIAGRAMATIC. MAINLINE, LATERAL & VALVES SHOWN IN OUTSIDE OF CURBS FOR GRAPHIC CLARITY ONLY.
6. CONTRACTOR TO VERIFY WATER PRESSURE AND AVAILABILITY PRIOR TO INSTALLATION.
7. ALL CONTROL WIRING DOWNSTREAM OF THE CONTROLLER IS TO BE 14-AWG, UL APPROVED DIRECT BURY.
8. LOCATION OF IRRIGATION COMPONENTS SHOWN ON DRAWING IS APPROXIMATE. ACTUAL PLACEMENT MAY VARY SLIGHTLY AS REQUIRED TO ACHIEVE FULL, EVEN COVERAGE.
9. CONTRACTOR SHALL INSTALL ADDITIONAL CHECK VALVES TO HEADS AND LATERALS AS REQUIRED TO PREVENT LOW HEAD DRAINAGE.
10. ACTUAL LOCATION FOR THE INSTALLATION OF THE BACKFLOW AND THE CONTROLLER IS TO BE DETERMINED IN THE FIELD BY THE OWNER'S AUTHORIZED REPRESENTATIVE.
11. ALL HEADS ARE TO BE INSTALLED WITH THE NOZZLE, SCREEN AND ARCS SHOWN ON THE PLANS. ALL HEADS ARE TO BE ADJUSTED TO PREVENT OVERSPRAY ONTO BUILDINGS, WALLS, FENCE AND ANY HARD STRUCTURE.
12. FINAL LOCATION OF THE AUTOMATIC CONTROLLER (S) SHALL BE APPROVED BY THE OWNER'S AUTHORIZED REPRESENTATIVE PRIOR TO INSTALLATION (INDOOR VS OUTDOOR).
13. SLEEVE SHALL BE PLACED UNDER PAVEMENT AS SHOWN ON PLANS AND SHALL BE A MINIMUM OF 2X THE SIZE OF THE IRRIGATION PIPE. SEE SLEEVE SIZE CHART.
14. ALL MAINLINE PIPING SHALL BE BURIED TO A MINIMUM DEPTH OF 18" OF COVER AND ALL LATERAL PIPING SHALL BE BURIED TO A MINIMUM DEPTH OF 12" OF COVER.
15. ALL REMOTE CONTROL VALVES, GATE VALVES AND QUICK COUPLER VALVE SHALL BE INSTALLED IN VALVE BOXES.
16. ANY PIPING OR VALVES SHOWN OUTSIDE OF THE PROPERTY LINE OR OUTSIDE OF LANDSCAPE AREA IS SHOWN THERE FOR DESIGN CLARITY ONLY. ALL PIPING AND VALVES SHALL BE INSTALLED ON THE PROPERTY AND WITHIN LANDSCAPE AREAS.

2
2 of 3
IRRIGATION DETAILS LAYOUT

FIS OUTDOOR
FIRST IN SERVICE

PREPARED FOR:

LEGACY POINTE APARTMENTS

FLAGLER BEACH, FL

PREPARED BY:

FIS OUTDOOR
1112 Samples Industrial Dr.
Cumming, GA 30041

770-844-7899
www.fisoutdoor.com

FIS OUTDOOR

IRRIGATION DETAILS

REVISION

	COMMENTS	DATE
1		02-28-2023
2		05-03-2023
3		08-25-2023
4		XX-XX-XXXX
5		XX-XX-XXXX

DRAWING SCALE: NTS

PROJECT NUMBER: F56801

DRAWING TITLE: IRRIGATION DETAILS

DRAWN BY: ZN

CHECKED BY: JF

AUTHORIZED: JF

ISSUE: DESIGN

ISSUE DATE: 02-14-2023

SHEET NUMBER: IRR-02

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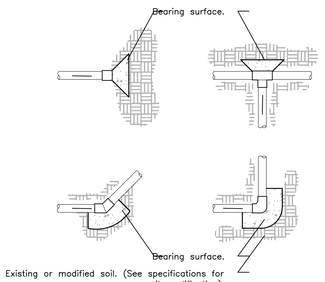

MINIMUM BEARING SURFACE AREA

PIPE SIZE	TEE AND PLUG	90° BEND	45° BEND
1–1/2"	Ø.45 FEET ^{2}	Ø.63 FEET ^{2}	Ø.34 FEET ^{2}
2"	Ø.69 FEET ^{2}	Ø.97 FEET ^{2}	Ø.53 FEET ^{2}
2–1/2"	1.Ø FEET ^{2}	1.41 FEET ^{2}	Ø.77 FEET ^{2}
3"	1.48 FEET ^{2}	2.1Ø FEET ^{2}	1.14 FEET ^{2}
4"	2.43 FEET ^{2}	3.45 FEET ^{2}	1.87 FEET ^{2}
6"	5.25 FEET ^{2}	7.41 FEET ^{2}	4.Ø2 FEET ^{2}
8"	9.Ø8 FEET ^{2}	12.83 FEET ^{2}	6.96 FEET ^{2}
1Ø"	14.93 FEET ^{2}	21.Ø7 FEET ^{2}	11.44 FEET ^{2}

Notes:
1– Size thrust blocks shall be specified as show in the table above.
2– Control wires shall not be encased in concrete.
3– All fittings shall be wrapped with polyethylene to prevent concrete from adhering to pipe, fittings or bolts.
4– Joints and bolts shall be accessible for repairs.
5– Thrust blocks shall be a minimum of 6" thick.
6– One 8Ø lbs. sack of concrete shall cover .6 ft.^{3}

01 THRUST BLOCK

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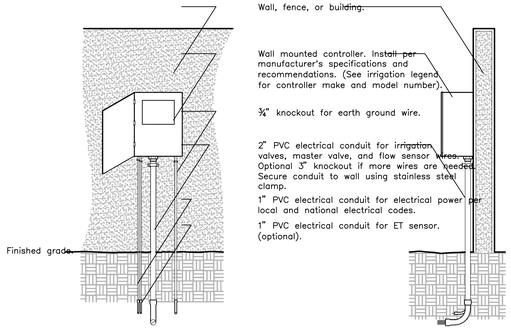

Notes:
1– Common and controller wire to be bundled using electrical tape at 1Ø'–Ø" on center.
2– Grounding rods shall be located between 8"– Ø" to 12'– Ø" away from the controller. Grounding rods shall be ⅝" in diameter x 8' in length. Connect the grounding rod to the controller using 6 gauge bare copper wire or per the manufacturer's specifications.See grounding rod detail.
3– ET Station shall be installed no further than 9Ø' away from the controller and a minimum of 15' off of the ground, out from under any overhead obstructions such as, but not limited to, building overhangs, trees, or utilities.

02 WALL MOUNTED CONTROLLER

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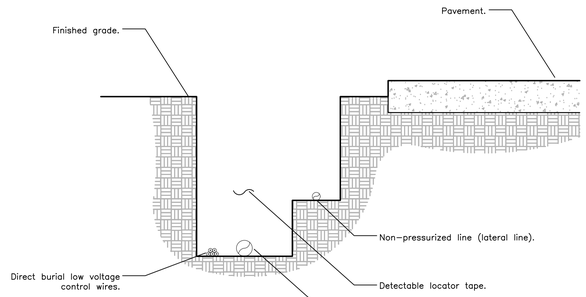

NOTES:
1– See irrigation legend for mainline and lateral line pipe size and type.
2– Direct burial control wires shall be installed in Sch. 4Ø PVC electrical conduit if required.
3– 2–wire irrigation wire shall be installed in Sch. 4Ø PVC electrical conduit.
4– Detectable locator tape shall be located six inches (6") above the entire mainline run.

03 IRRIGATION TRENCHING

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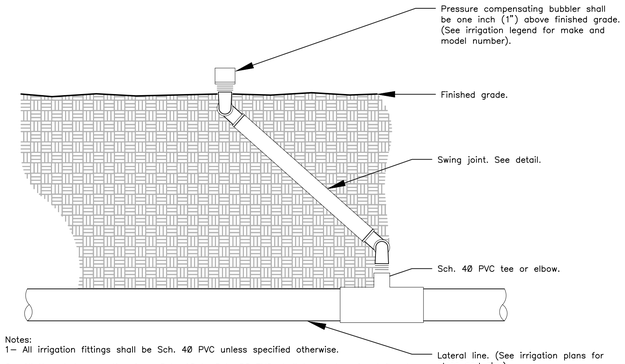

Notes:
1– All irrigation fittings shall be Sch. 4Ø PVC unless specified otherwise.
2– All threaded connection from Sch. 4Ø to Sch. 8Ø PVC shall be made using teflon tape.
3– Contractor shall settle soil around the bubbler and swing joint prior after installation.

04 BUBBLER ON SWING JOINT

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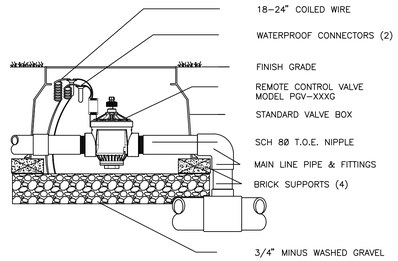
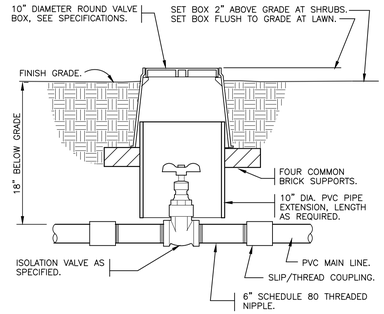
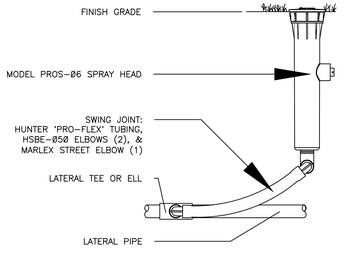


05 PGV GLOBE VALVE

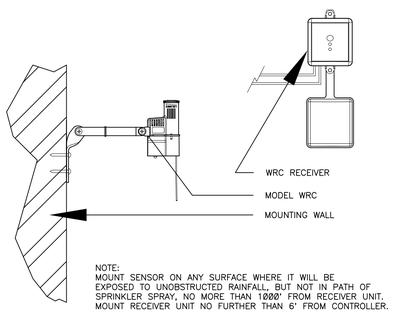


06 BRASS ISOLATION VALVE

Hunter®



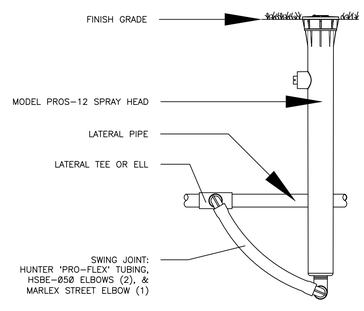
07 PROS-06 SPRAY HEAD WITH PRO-FLEX TUBING



NOTE:
MOUNT SENSOR ON ANY SURFACE WHERE IT WILL BE EXPOSED TO UNOBSTRUCTED RAINFALL, BUT NOT IN PATH OF SPRINKLER SPRAY, NO MORE THAN 1ØØØ' FROM RECEIVER UNIT. MOUNT RECEIVER UNIT NO FURTHER THAN 6" FROM CONTROLLER.

08 WIRELESS RAIN-CLIK

Hunter®



09 PROS-12 SPRAY HEAD WITH PRO-FLEX TUBING

3
3 of 3

IRRIGATION INSTALLATION DETAILS LAYOUT

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PREPARED FOR:

LEGACY POINTE APARTMENTS

FLAGLER BEACH, FL

PREPARED BY:

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FIS OUTDOOR

IRRIGATION DETAILS

REVISION

	COMMENTS	DATE
1		02-28-2023
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DRAWING SCALE: NTS

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CHECKED BY: JF

AUTHORIZED: JF

ISSUE: DESIGN

ISSUE DATE: 02-14-2023

SHEET NUMBER: IRR-03

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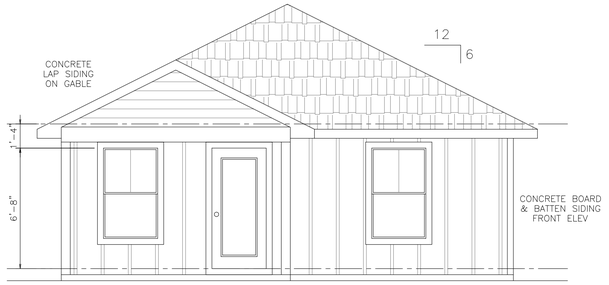
ELEVATION "A"

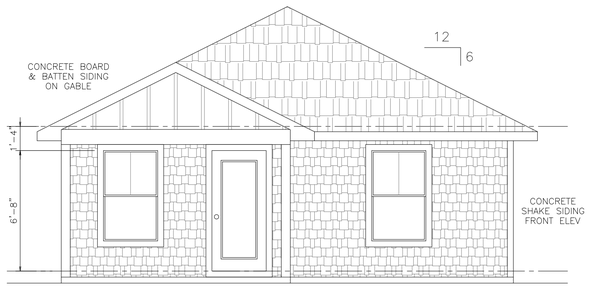
UNIT 1



FRONT ELEVATION

SCALE: 1/4" = 1'-0"

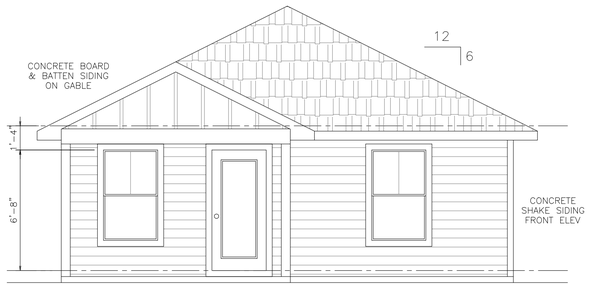
UNIT 5



FRONT ELEVATION

SCALE: 1/4" = 1'-0"

UNIT 9



FRONT ELEVATION

SCALE: 1/4" = 1'-0"

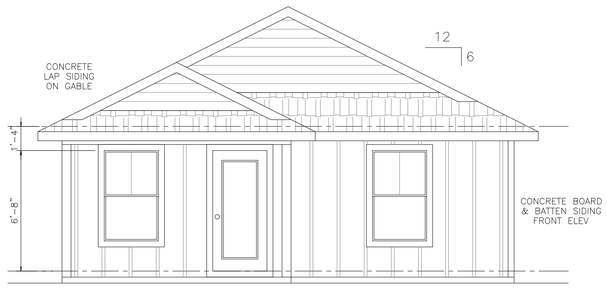
ELEVATION "B"

UNIT 2

FRONT ELEVATION

SCALE: 1/4" = 1'-0"

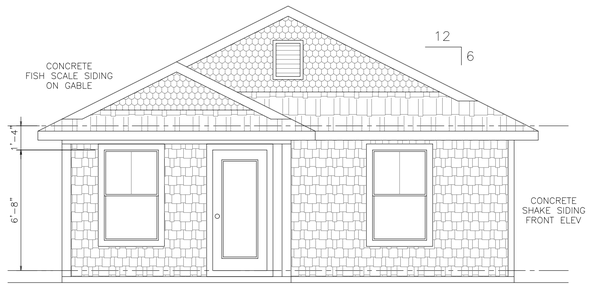
UNIT 6



FRONT ELEVATION

SCALE: 1/4" = 1'-0"

UNIT 10

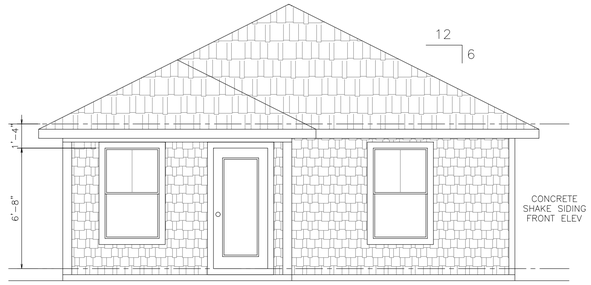


FRONT ELEVATION

SCALE: 1/4" = 1'-0"

ELEVATION "C"

UNIT 3



FRONT ELEVATION

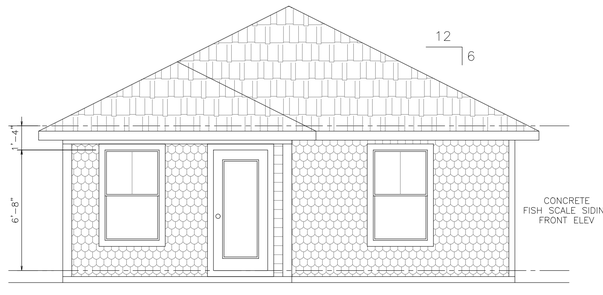
SCALE: 1/4" = 1'-0"

UNIT 7

FRONT ELEVATION

SCALE: 1/4" = 1'-0"

UNIT 11



FRONT ELEVATION

SCALE: 1/4" = 1'-0"

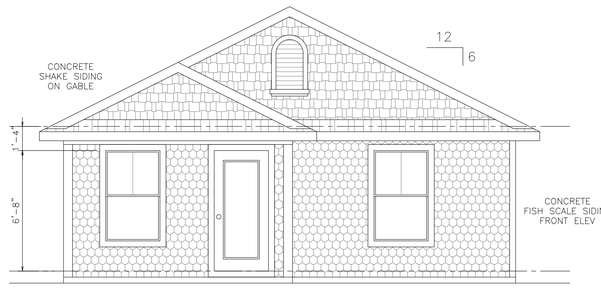
ELEVATION "D"

UNIT 4

FRONT ELEVATION

SCALE: 1/4" = 1'-0"

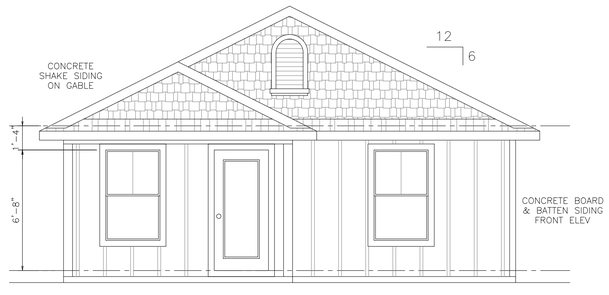
UNIT 8



FRONT ELEVATION

SCALE: 1/4" = 1'-0"

UNIT 12



FRONT ELEVATION

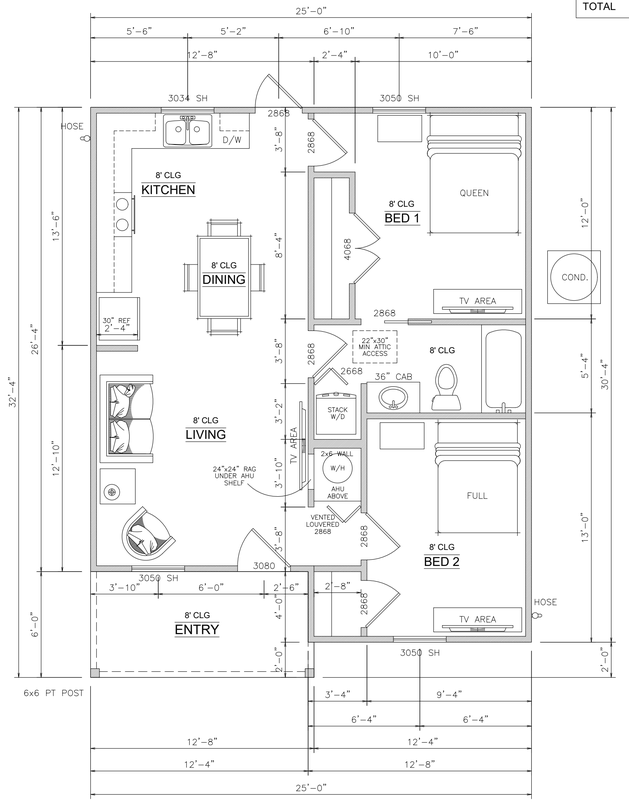
SCALE: 1/4" = 1'-0"

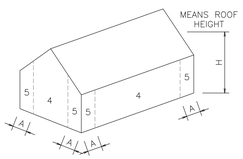
A-01

FLOOR PLAN

SCALE: 1/4" = 1'-0"

LIVING	709 sf
ENTRY	75 sf
TOTAL	784 sf





COMPONENTS AND CLADDING
WALLS
Structures less than or equal to 60 ft

COMPONENT PRESSURES:

AREA	PRESSURE (psf)
4	MAX = 25.45
4	MIN = -27.61
5	MAX = 25.45
5	MIN = -34.08

Dimension a = 5.60 ft

LIVING AREA ROOF VENTILATION

SPRAY FOAM INSULATION BLOWN IN ON THE UNDERSIDE OF THE ROOF SHEATHING, NO ROOF OR SOFFIT VENTS REQUIRED

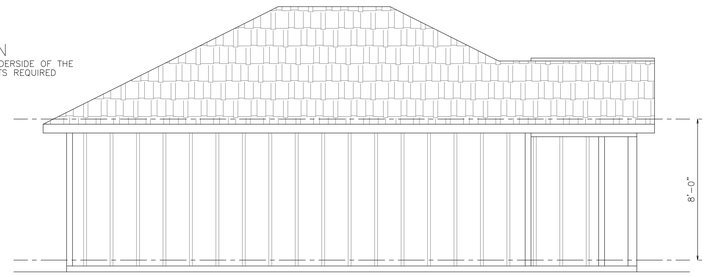
ENTRY ROOF VENTILATION

THE 1/300th RULE EQUATED TO 1 sq.ft. OF ATTIC VENTILATION FOR EVERY 300 sq.ft. OF ATTIC FLOOR SPACE AND THEN SPLIT THE VENTILATION # BETWEEN THE SOFFITS AND RIDGE OR HIGH LOW APPLICATIONS WHERE SOFFIT VENTS ARE ELIMINATED

METAL ROOF	=	1' OF RIDGE VENT =	75 sq.ft. OF ATTIC FLOOR SPACE
SHINGLE ROOF	=	1' OF RIDGE VENT =	75 sq.ft. OF ATTIC FLOOR SPACE
SHINGLE ROOF	=	4' OFF RIDGE VENT =	1000 sq.ft. OF ATTIC FLOOR SPACE
TILE ROOF	=	"S" VENT =	406 sq.ft. OF ATTIC FLOOR SPACE
TILE ROOF	=	FLAT VENT =	411 sq.ft. OF ATTIC FLOOR SPACE
SOFFIT	=	1' sq.ft. OF VENT =	102 sq.ft. OF ATTIC FLOOR SPACE

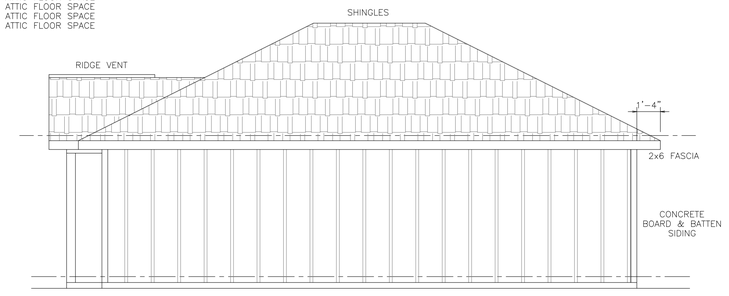
EXAMPLE:

ATTIC FLOOR SPACE	3000 sq.ft.
1' OF RIDGE VENT	÷ 75 sq.ft.
TOTAL RIDGE VENT	40 feet



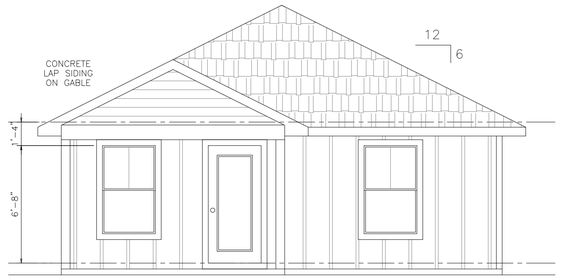
LEFT ELEVATION

SCALE: 1/4" = 1'-0"



RIGHT ELEVATION

SCALE: 1/4" = 1'-0"



FRONT ELEVATION

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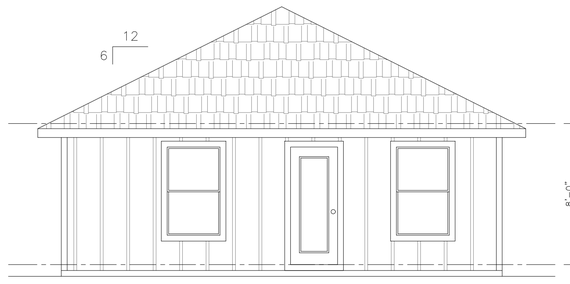

REAR ELEVATION

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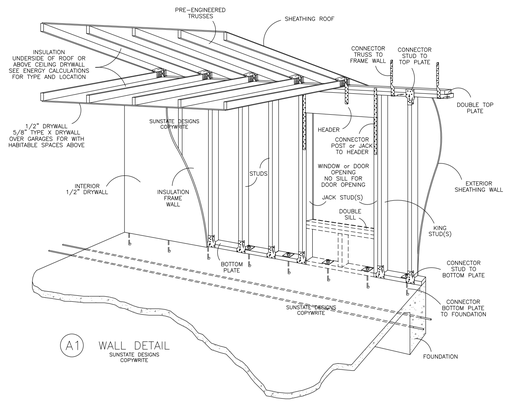
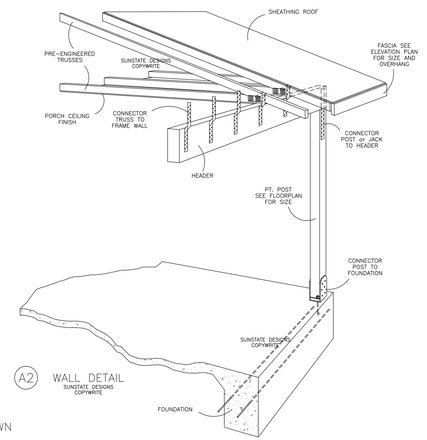


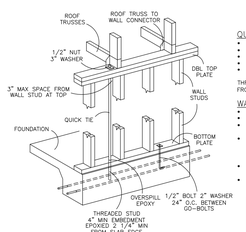
A1 WALL DETAIL



A2 WALL DETAIL

ALTERNATIVE TIE DOWN FOR FRAME WALLS

QUICK TIE AIRCRAFT WIRE ROPE ROD TIE DOWNS



QUICK TIE WALL LOCATION

- ALL QUICK TIE'S 3" FROM WALL STUDS AT TOP.
- 1 QUICK TIE WITHIN 3" OF ALL CORNER STUDS.
- 1 QUICK TIE EACH SIDE OF ALL HEADERS.
- 1 QUICK TIE NEXT TO ALL GIRDER POSTS.
- QUICK TIE SPACE TABLE FOR WALL SECTIONS.

THREADED STUDS SHALL HAVE MIN. 2 1/4" DISTANCE FROM EDGE OF SLAB & 4" MIN EMBEDMENT EPOXIED.

WALL CONNECTORS REQUIRED

- ROOF TRUSS TO WALL CONNECTORS.
- ROOF TRUSS CONNECTORS CONNECTS TO HEADERS
- SIMPSON CS16-32" HEADERS TO JACKS WHERE HEADER IS WIDER THAN QUICK TIE SPACING
- INTERIOR WALLS: (1) SIMPSON SPH TOP PLATE TO STUD WITH QUICK TIE SPACING 2' TO 5'. (2) SIMPSON SPH TOP PLATE TO STUD WITH QUICK TIE SPACING 5' TO 8'.
- BOTTOM PLATE TO SLAB OR MASONRY WALL 1/2" BOLTS 24" O.C. MAX SPACE BETWEEN QUICK TIE
- FLOOR TRUSSES TO MASONRY WALLS STILL REQUIRE 1 HETA20 EACH

QUICK TIE SPACING TABLE			
TRUSS UPLIFT PER TRUSS 24" O.C.	QUICK TIE SPACING FT. & IN.	TRUSS UPLIFT PER TRUSS 24" O.C.	QUICK TIE SPACING FT. & IN.
0-420	8'-0"	1161	4'-0"
522	7'-0"	1547	3'-0"
711	6'-0"	2321	2'-0"
928	5'-0"		

TRUSS COMPANY NOTES:

DO NOT START TRUSS DESIGN UNLESS TRUSS COMPANY ACCEPTS ALL TRUSS NOTES

1. LOAD BEARING WALLS AND HEIGHTS ARE PROVIDED ON THE PLAN: PLEASE DO NOT ADD OR CHANGE LOAD BEARING WALLS WITHOUT CALLING THE DESIGNER OF RECORD THE REQUESTED CHANGE, NEVER EXPECT CHANGES TO BE FOUND ON THE TRUSS LAYOUT
2. LEDGER BOARDS: ARE NEVER TO BE USED ON ANY 10 STORY HOUSES MASONRY OR FRAME WALLS
3. ALL AREAS OF FLOOR AND ROOF TRUSS SYSTEM ARE TO BE PROVIDED BY TRUSS COMPANY, NO AREAS ARE TO BE PROVIDED BY OTHERS
4. BALCONY FLOOR TRUSSES: 6" STEP DOWN TO BALCONY, BALCONY IS ROOF OVER AREA BLOW, MIN ¼" IN 12" DOWN SLOPE TO ALL OUTER EDGES OF THE BALCONY
5. LAMINATE BEAMS: CALLED OUT ON PLANS ARE TO BE PROVIDED BY TRUSS CO, THANKS

WALL SECTION NOTES:

GENERAL

ROOF/WALL SHEATHING 15/32" OR LESS (2 3/8"x.1113") RING SHANK NAILS 6" O.C. EDGE & FIELD
ROOF/WALL SHEATHING GREATER THAN 15/32" (2.5"x.131") RING SHANK NAILS 6" O.C. EDGE & FIELD
ROOF SHINGLE AND TILE ROOF 20 PSF LIVE LOAD & 15 PSF DEAD LOAD

FOUNDATION

SEE FOUNDATION PLAN AND FOOTER DETAILS FOR INFORMATION.
BOTH MONOLITHIC AND OR STEMWALL FOUNDATIONS CAN BE USED FOR ALL WALL DETAILS.
ALL FOUNDATION AND WALL REBAR IS TO BE MINIMUM GRADE SCHEDULE 40 KSI.

PORCH CEILINGS

CEILING FINISH CAN BE MOISTURE RESISTANT DRYWALL, DENZBOARD STUCCO, CONCRETE PANELS, VINYL BEADBOARD, 1x6 T&G OR ANYOTHER STATE APPROVED EXTERIOR CEILING PRODUCTS

FLOORS AND SEALED DECKS

3/4" SHEATHING = T&G GLUED AND NAILED 10d SCREW OR RING SHANK 6" O.C. EDGES 6" O.C. FIELD

EXTERIOR FINISH

SEE ELEVATIONS FOR EXTERIOR FINISH (EXAMPLES: LAP SIDING OR TEXTURED FINISH).
MASONRY WALLS = ADD 1x2 PT FURRING HORIZ. OR VERT. 24" MAX. O.C. FOR LAP OR PANEL SIDING.
FRAME WALLS AND GABLES = 1 LAYER HOUSE WRAP. TEXTURED FINISH ADD PAPER BACK WIRE LATH.
TEXTURED FINISH = STUCCO OR EXTERIOR PORLAND CEMENT PLASTER. 3-COAT WORK OVER METAL PLASTER BASE THICKNESS 0.875 MINIMUM. 2-COAT WORK OVER MASONRY UNIT THICKNESS 0.5 MINIMUM. 2-COAT WORK OVER CAST-IN-PLACE OR PRECAST CONCRETE THICKNESS 0.375 MINIMUM.

ROOFING & SOFFIT STANDARD SHEATHING

ROOF SHEATHING, EXPOSURE B MIN 7/16", EXPOSURE C MIN 15/32", EXPOSURE D MIN 19/32"
ROOF SHEATHING, MIN 19/32 FOR ALL FLAT OR BARREL TILE ROOF
ROOF SHEATHING (SP) SPECIFIC GRAVITY, PLYWOOD 0.57, OSB 0.62
UNDERLAYMENT TYPE II
WOOD or CONCRETE SOLID SOFFITS 3/8" THICK, 6d NAILS (2 x 0.099 x HEAD DIAMETER) GALVANIZED NAILS 6" O.C. of STAINLESS STEEL NAILS 4" O.C.

ZIP SYSTEM ROOF AND WALL SHEATHING

ZIP SYSTEM STRUCTURAL SHEATHING WITH WATER-RESISTIVE BARRIER DOES NOT REQUIRE HOUSE WRAP OR FELT DRY IN UNLESS MENTIONED IN THE NOTES BELOW. ZIP SYSTEM TAPE ALL SEAMS.
ZIP WALL SHEATHING = 7/16" THICK PANELS WITH GREEN SURFACE EXTERIOR OUTSIDE.
ZIP ROOF SHEATHING = 1/2" THICK PANELS WITH RED SURFACE UP. USE STANDARD FLASHING FOR ROOF VALLEYS AND WHERE ROOF SURFACES MEET GABLE & WALL SURFACES. SEE ELEVATIONS FOR ROOFING TYPE, EXAMPLES: SHINGLE, METAL OR TILE ROOFING.
SHINGLE ROOF = APPLY DIRECTLY TO ROOF SHEATHING ADD ONE LAYER 15lb FELT FOR ROOF PITCH FROM 2/12 TO LESS GHAN 4/12
METAL ROOF = APPLY DIRECTLY TO ROOF SHEATHING
TILE ROOF = USE 5/8" THICK PANELS ADD ONE LAYER OF MIN 30lb FELT
1 LAYER OF SELF ADHERING SYNTHETIC UNDERLAYMENT CAN REPLACE ALL FELT REQUIREMENTS AND CAN BE ADDED TO ALL ROOFS EVEN WHERE FELT IS NOT REQUIRED

FRAME WALLS

SHEATHING WALL - 7/16" SHEATHING ON EXTERIOR SIDE OF WALL
USE PRESSURE TREATED LUMBER or VAPOR BARRIOR WHERE FRAMING IS IN CONTACT WITH CONCRETE
STUDS - 2x4 MIN STUDS UNLESS OTHERWISE SPECIFIED ON PLAN = SPF#2 or SYP#2, 16" O.C.
TOP PLATE - (2) 2x4 OVERLAP ENDS 2' LOAD BEARING WALLS (2) 10d NAILS EA END 6" BETWEEN
BOTTOM PLATE - SAME SIZE AS STUDS = SYP#2 PT TO CONCRETE FLOOR & SPF#2 TO WOOD FLOOR

2x12 HEADERS SYP#2

30lb LIVE LOAD, 10lb DEAD LOAD, DEFLECTION L/240, ALL FRAME HEADERS MIN (2) 2x12 UNLESS OTHERWISE SPECIFIED
HEADER TABLE (PLF) DOWNLOAD POUNDS PER LINEAR FOOT (TOTAL) TOTAL MAX DOWNLOAD POUNDS

NUMBER OF 2x12's	4' SPAN PLF	4' SPAN TOTAL	6' SPAN PLF	6' SPAN TOTAL	8' SPAN PLF	8' SPAN TOTAL	10' SPAN PLF	10' SPAN TOTAL	12' SPAN PLF	12' SPAN TOTAL	14' SPAN PLF	14' SPAN TOTAL	16' SPAN PLF	16' SPAN TOTAL	18' SPAN PLF	18' SPAN TOTAL
(2) PLY 2x12	2020	8080	953	5718	545	4360	349	3490	242	2904	176	2464	133	2128	104	1872
(3) PLY 2x12	3425	13700	1633	9798	937	7496	603	6030	418	5016	305	4270	231	3696	180	2880
(4) PLY 2x12	4566	18264	2178	13068	1250	10000	804	8040	557	6684	406	5684	308	4928	241	4338

HEADERS MAX DOWNLOAD NUMBER JACKS & KINGS

1350 LBS DOWNLOAD PER STUD / HDR = HEADER, J = JACK K, = KING / KING & JACK STUD POSTS = SPF#2 or SYP#2

NUMBER KINGS & JACKS EA SIDE OF HDR	(1)J (1)K	(1)J (2)K	(2)J (2)K	(2)J (3)K	(3)J (3)K	(3)J (4)K	(4)J (4)K
TOTAL STUDS UNDER BOTH SIDE OF HDR	(4) STUDS	(6) STUDS	(8) STUDS	(10) STUDS	(12) STUDS	(14) STUDS	(16) STUDS
HEADER MAX LBS, POUNDS DOWNLOAD	5,400	8,100	10,800	13,500	16,200	18,900	21,600

SIMPSON HURRICANE TIE DOWN CONNECTORS

TRUSS TO CONCRETE WALL - HETA16 or LONGER
TRUSS TO FRAME WALL - MTS12 or LONGER
STUD TO TOP PLATE - SP2 or SP4,6,8
STUD TO BOTTOM PLATE - SP1 or SP4,6,8
BOTTOM PLATE TO SLAB - 1/2" BOLT & 2" WASHER 21" O.C. 6" EMBEDMENT EPOXIED OR J-BOLT 2" MIN DIST FROM EDGE OF SLAB
4x4 POST TO SLAB - ABU44 5/8"x7" BOLT
6x6 POST TO SLAB - ABU66 5/8"x7" BOLT

8x8 POST TO SLAB - ABU88 (2) 5/8"x7" BOLTS
JACK/POST to HEADER SPAN 0" to 48" - (1) LSTA24 eo SIDE
JACK/POST to HEADER SPAN 49" to 73" - (2) LSTA24 eo SIDE
JACK/POST to HEADER SPAN 73" to 97" - (2) LSTA36 eo SIDE
JACK/POST to HEADER SPAN 97" & UP - (1) MST27 eo SIDE
(1) HEADER JACK TO BOTTOM PLATE - SP1
(2) HEADER JACKS TO SLAB - LTT20B 1/2"x6" BOLT
(3) HEADER JACKS TO SLAB - HTT4 5/8"x7" BOLT
(4) HEADER JACKS TO SLAB - HTT5 5/8"x7" BOLT

OTHER CONNECTORS MAY BE CALLED OUT ON FLOOR, STRUCTURAL OR TRUSS SHEETS
OTHER SAME/SIMILAR USE TYPE CONNECTORS OF EQUAL OR GREATER STRENGTHS ARE ACCEPTABLE SUBSTITUTES

CORY A BROCKETT, PE
LICENSE #74677
2939 NW 39th PLACE
GAINESVILLE, FL 32605
352-359-1982

UNITED STATES COPYRIGHT OFFICE

FOR WORKS SECURING FEDERAL STATUTORY PROTECTION FOR THE FIRST TIME ON OR AFTER JANUARY 1, 1978, WORKS OF AUTHORSHIP FIXED IN TANGIBLE FORM

WORKS CREATED ON OR AFTER JANUARY 1, 1978 THE LAW AUTOMATICALLY PROTECTS A WORK THAT IS CREATED AND FIXED IN A TANGIBLE FORM FOR THE LIFE OF THE AUTHOR PLUS 70 YEARS. IF THE WORK IS A JOINT WORK, PROTECTION LASTS FOR 70 YEARS AFTER THE DEATH OF THE LAST SURVIVING AUTHOR. IF THE WORK WAS MADE FOR HIRE OR IS ANONYMOUS OR PSEUDONYMOUS, PROTECTION ENDURES FOR 95 YEARS FROM PUBLICATION OR 120 YEARS FROM CREATION, WHICHEVER IS SHORTER. UNLESS THE AUTHORS IDENTITY IS REVEALED OR IF THE AUTHOR FILES WITH THE COPYRIGHT OFFICE RECORDS, IN WHICH CASE THE TERM BECOMES THE AUTHORS LIFE PLUS 70 YEARS.

FOR WORKS MADE FOR HIRE AND ANONYMOUS AND PSEUDONYMOUS WORKS CREATED BEFORE JANUARY 1, 1978 BUT NOT PUBLISHED OR REGISTERED BEFORE JANUARY 1, 1978, FROM THE MOMENT OF ITS CREATION AND GIVES IT A TERM ENDING 95 YEARS FROM PUBLICATION OR 120 YEARS FROM CREATION, WHICHEVER IS SHORTER. UNLESS THE AUTHORS IDENTITY IS REVEALED OR IF THE AUTHOR FILES WITH THE COPYRIGHT OFFICE RECORDS, IN WHICH CASE THE TERM BECOMES THE AUTHORS LIFE PLUS 70 YEARS.

THE TRILEGACY GROUP

UNIT 1

2401 LESLIE ST., FLAGLER BCH

THE TRILEGACY GROUP

JOB NUMBER
3731

PLAN DATE
4/19/24

"PLANS CONFORM TO"
2023 FLORIDA BUILDING CODE
2020 NATIONAL ELEC CODE
2018 WFCM DESIGN CRITERIA
2014 ASCE24 FLOOD DESIGN
STRUCTURALLY ADEQUATE FOR
ALTERATION LEVEL: N/A
RISK CATEGORY: 2
WIND VELOCITY (MPH): 140
EXPOSURE CATEGORY: C
INTERNAL PRESSURE: .18
CONSTRUCTION TYPE: VB

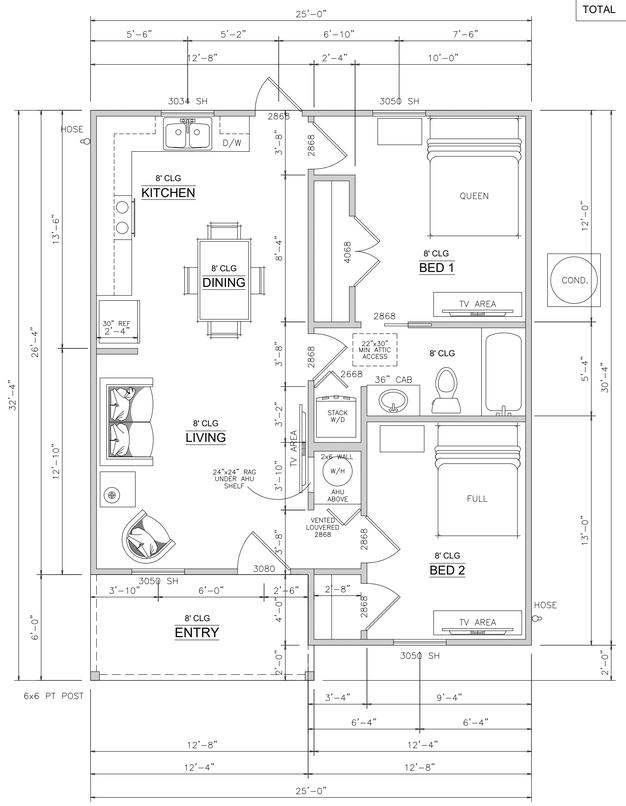
LOT:
2401 LESLIE ST
FLAGLER BEACH
FLORIDA

FLOOR ELEV

SHEET
A-02

FLOOR PLAN

SCALE: 1/4" = 1'-0"



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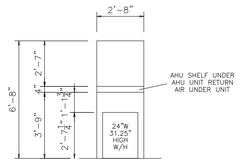

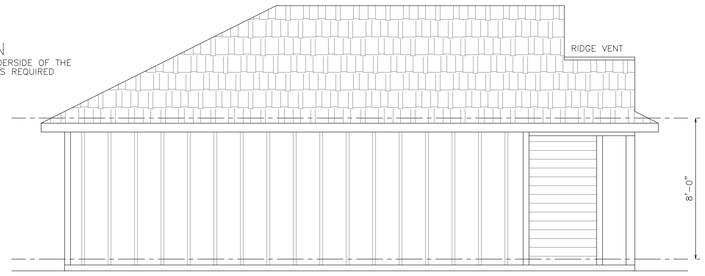

LEFT ELEVATION

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FRONT ELEVATION

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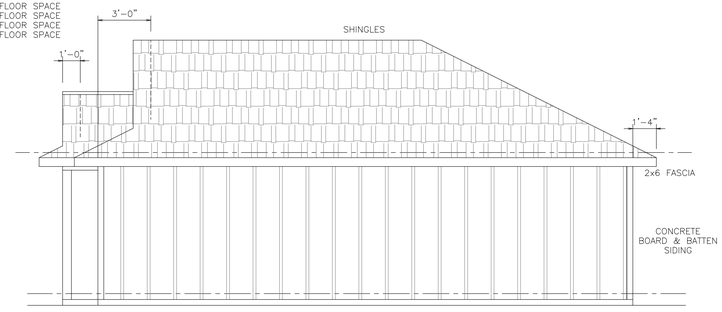

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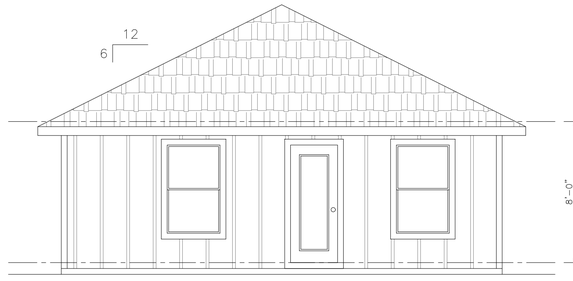

REAR ELEVATION

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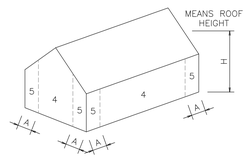

COMPONENTS AND CLADDING
WALLS
Structures less than or equal to 60 ft

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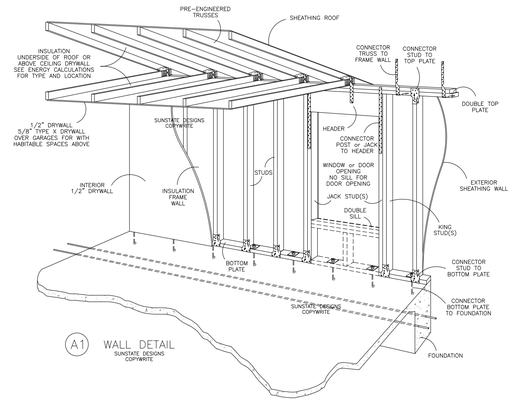
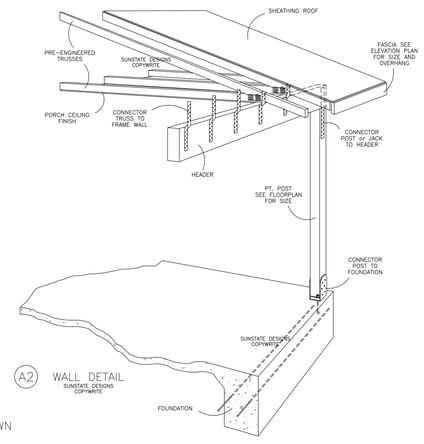


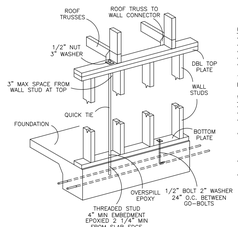
A1 WALL DETAIL
SUNSTATE DESIGNS COPYWRITE



A2 WALL DETAIL
SUNSTATE DESIGNS COPYWRITE

ALTERNATIVE TIE DOWN FOR FRAME WALLS

QUICK TIE AIRCRAFT WIRE ROPE ROD TIE DOWNS



QUICK TIE WALL LOCATION

- ALL QUICK TIE'S 3" FROM WALL STUDS AT TOP.
- 1 QUICK TIE WITHIN 3" OF ALL CORNER STUDS.
- 1 QUICK TIE EACH SIDE OF ALL HEADERS.
- 1 QUICK TIE NEXT TO ALL GIRDER POSTS.
- QUICK TIE SPACE TABLE FOR WALL SECTIONS.

THREADED STUDS SHALL HAVE MIN. 2 1/4" DISTANCE FROM EDGE OF SLAB & 4" MIN EMBEDMENT EPOXIED.

WALL CONNECTORS REQUIRED

- ROOF TRUSS TO WALL CONNECTORS.
- ROOF TRUSS CONNECTORS CONNECTS TO HEADERS
- SIMPSON CS16-32" HEADERS TO JACKS WHERE HEADER IS WIDER THAN QUICK TIE SPACING
- INTERIOR WALLS: (1) SIMPSON SPH TOP PLATE TO STUD WITH QUICK TIE SPACING 3' TO 5'. (2) SIMPSON SPH TOP PLATE TO STUD WITH QUICK TIE SPACING 5' TO 8'.
- BOTTOM PLATE TO SLAB OR MASONRY WALL 1/2" BOLTS 24" O.C. MAX SPACE BETWEEN QUICK TIE
- FLOOR TRUSSES TO MASONRY WALLS STILL REQUIRE 1 HETA20 EACH

QUICK TIE SPACING TABLE			
TRUSS UPLIFT PER TRUSS 24" O.C.	QUICK TIE SPACING FT. & IN.	TRUSS UPLIFT PER TRUSS 24" O.C.	QUICK TIE SPACING FT. & IN.
0-400	8'-0"	1161	4'-0"
522	7'-0"	1547	3'-0"
711	6'-0"	2321	2'-0"
928	5'-0"		

WALL SECTION NOTES:

GENERAL

ROOF/WALL SHEATHING 15/32" OR LESS (2 3/8"x.1131") RING SHANK NAILS 6" O.C. EDGE & FIELD
ROOF/WALL SHEATHING GREATER THAN 15/32" (2.5"x.131") RING SHANK NAILS 6" O.C. EDGE & FIELD
ROOF SHINGLE AND TILE ROOF 20 PSF LIVE LOAD & 15 PSF DEAD LOAD

FOUNDATION

SEE FOUNDATION PLAN AND FOOTER DETAILS FOR INFORMATION.
BOTH MONOLITHIC AND OR STEMWALL FOUNDATIONS CAN BE USED FOR ALL WALL DETAILS.
ALL FOUNDATION AND WALL REBAR IS TO BE MINIMUM GRADE SCHEDULE 40 KSI.

PORCH CEILINGS

CEILING FINISH CAN BE MOISTURE RESISTANT DRYWALL, DENZBOARD STUCCO, CONCRETE PANELS, VINYL BEADBOARD, 1x6 T&G OR ANYOTHER STATE APPROVED EXTERIOR CEILING PRODUCTS

FLOORS AND SEALED DECKS

3/4" SHEATHING = T&G GLUED AND NAILED 10d SCREW OR RING SHANK 6" O.C. EDGES 6" O.C. FIELD

EXTERIOR FINISH

SEE ELEVATIONS FOR EXTERIOR FINISH (EXAMPLES: LAP SIDING OR TEXTURED FINISH).
MASONRY WALLS = ADD 1x2 PT FURRING HORIZ. OR VERT. 24" MAX. O.C. FOR LAP OR PANEL SIDING.
FRAME WALLS AND GABLES = 1 LAYER HOUSE WRAP, TEXTURED FINISH ADD PAPER BACK WIRE LATH.
TEXTURED FINISH = STUCCO OR EXTERIOR PORLAND CEMENT PLASTER. 3-COAT WORK OVER METAL PLASTER BASE THICKNESS 0.875 MINIMUM. 2-COAT WORK OVER MASONRY UNIT THICKNESS 0.5 MINIMUM. 2-COAT WORK OVER CAST-IN-PLACE OR PRECAST CONCRETE THICKNESS 0.375 MINIMUM.

ROOFING & SOFFIT STANDARD SHEATHING

ROOF SHEATHING, EXPOSURE B MIN 7/16", EXPOSURE C MIN 15/32", EXPOSURE D MIN 19/32"
ROOF SHEATHING, MIN 19/32 FOR ALL FLAT OR BARREL TILE ROOF
ROOF SHEATHING (SP) SPECIFIC GRAVITY, PLYWOOD 0.57, OSB 0.62
UNDERLAYMENT TYPE II
WOOD or CONCRETE SOLID SOFFITS 3/8" THICK, 6d NAILS (2 x 0.099 x HEAD DIAMETER) GALVANIZED NAILS 6" O.C. of STAINLESS STEEL NAILS 4" O.C.

ZIP SYSTEM ROOF AND WALL SHEATHING

ZIP SYSTEM STRUCTURAL SHEATHING WITH WATER-RESISTIVE BARRIER DOES NOT REQUIRE HOUSE WRAP OR FELT DRY IN UNLESS MENTIONED IN THE NOTES BELOW. ZIP SYSTEM TAPE ALL SEAMS.
ZIP WALL SHEATHING = 7/16" THICK PANELS WITH GREEN SURFACE EXTERIOR OUTSIDE.
ZIP ROOF SHEATHING = 1/2" THICK PANELS WITH RED SURFACE UP. USE STANDARD FLASHING FOR ROOF VALLEYS AND WHERE ROOF SURFACES MEET GABLE & WALL SURFACES. SEE ELEVATIONS FOR ROOFING TYPE, EXAMPLES: SHINGLE, METAL OR TILE ROOFING.
SHINGLE ROOF = APPLY DIRECTLY TO ROOF SHEATHING ADD ONE LAYER 15lb FELT FOR ROOF PITCH FROM 2/12 TO LESS SHAN 4/12
METAL ROOF = APPLY DIRECTLY TO ROOF SHEATHING
TILE ROOF = USE 5/8" THICK PANELS ADD ONE LAYER OF MIN 30lb FELT
1 LAYER OF SELF ADHERING SYNTHETIC UNDERLAYMENT CAN REPLACE ALL FELT REQUIREMENTS AND CAN BE ADDED TO ALL ROOFS EVEN WHERE FELT IS NOT REQUIRED

FRAME WALLS

SHEATHING WALL – 7/16" SHEATHING ON EXTERIOR SIDE OF WALL
USE PRESSURE TREATED LUMBER or VAPOR BARRIER WHERE FRAMING IS IN CONTACT WITH CONCRETE
STUDS – 2x4 MIN STUDS UNLESS OTHERWISE SPECIFIED ON PLAN = SPF#2 or SYP#2, 16" O.C.
TOP PLATE – (2) 2x4 OVERLAP ENDS 2' LOAD BEARING WALLS (2) 10d NAILS EA END 6" BETWEEN
BOTTOM PLATE – SAME SIZE AS STUDS = SYP#2 PT TO CONCRETE FLOOR & SPF#2 TO WOOD FLOOR

2x12 HEADERS SYP#2

30lb LIVE LOAD, 10lb DEAD LOAD, DEFLECTION L/240, ALL FRAME HEADERS MIN (2) 2x12 UNLESS OTHERWISE SPECIFIED
HEADER TABLE (PLF) DOWNLOAD POUNDS PER LINEAR FOOT (TOTAL) TOTAL MAX DOWNLOAD POUNDS

NUMBER OF 2x12's	4' SPAN		6' SPAN		8' SPAN		10' SPAN		12' SPAN		14' SPAN		16' SPAN		18' SPAN	
	PLF	TOTAL	PLF	TOTAL	PLF	TOTAL	PLF	TOTAL	PLF	TOTAL	PLF	TOTAL	PLF	TOTAL	PLF	TOTAL
(2) PLY 2x12	2020	8080	853	5718	545	4360	349	3490	242	2904	176	2464	133	2128	104	1872
(3) PLY 2x12	3425	13700	1633	9798	937	7496	603	6030	418	5016	305	4270	231	3696	180	2880
(4) PLY 2x12	4566	18264	2178	13068	1250	10000	804	8040	557	6684	406	5684	308	4928	241	4338

HEADERS MAX DOWNLOAD NUMBER JACKS & KINGS

1350 LBS DOWNLOAD PER STUD / HDR = HEADER, J = JACK K, = KING / KING & JACK STUD POSTS = SPF#2 or SYP#2						
NUMBER KINGS & JACKS EA SIDE OF HDR	(1)J (1)K	(1)J (2)K	(2)J (2)K	(2)J (3)K	(3)J (3)K	(3)J (4)K	(4)J (4)K
TOTAL STUDS UNDER EACH SIDE OF HDR	(4) STUDS	(6) STUDS	(8) STUDS	(10) STUDS	(12) STUDS	(14) STUDS	(16) STUDS
HEADER MAX LBS, POUNDS DOWNLOAD	5,400	8,100	10,800	13,500	16,200	18,900	21,600

SIMPSON HURRICANE TIE DOWN CONNECTORS

TRUSS TO CONCRETE WALL – HETA16 or LONGER
TRUSS TO FRAME WALL – MTS12 or LONGER
STUD TO TOP PLATE – SP2 or SP4,6,8
STUD TO BOTTOM PLATE – SP1 or SP4,6,8
BOTTOM PLATE TO SLAB – 1/2" BOLT & 2" WASHER 21" O.C. 6" EMBEDMENT EPOXIED OR J-BOLT 2" MIN DIST FROM EDGE OF SLAB
4x4 POST TO SLAB – ABU44 5/8"x7" BOLT
6x6 POST TO SLAB – ABU66 5/8"x7" BOLT

8x8 POST TO SLAB – ABU88 (2) 5/8"x7" BOLTS
JACK/POST to HEADER SPAN 0" to 48" – (1) LSTA24 ea SIDE
JACK/POST to HEADER SPAN 49" to 73" – (2) LSTA24 ea SIDE
JACK/POST to HEADER SPAN 73" to 97" – (2) LSTA30 ea SIDE
JACK/POST to HEADER SPAN 97" & UP – (1) MST27 ea SIDE
(1) HEADER JACK TO BOTTOM PLATE – SP1
(2) HEADER JACKS TO SLAB – LTT20B 1/2"x6" BOLT
(3) HEADER JACKS TO SLAB – HTT4 5/8"x7" BOLT
(4) HEADER JACKS TO SLAB – HTT5 5/8"x7" BOLT

OTHER CONNECTORS MAY BE CALLED OUT ON FLOOR, STRUCTURAL OR TRUSS SHEETS
OTHER SAME/SIMILAR USE TYPE CONNECTORS OF EQUAL OR GREATER STRENGTHS ARE ACCEPTABLE SUBSTITUTES

UNITED STATES COPYRIGHT OFFICE
FOR WORKS SECURING FEDERAL STATUTORY PROTECTION FOR THE FIRST TIME ON OR AFTER JANUARY 1, 1978, WORKS OF AUTHORSHIP FIXED IN TANGIBLE FORM

WORKS CREATED ON OR AFTER JANUARY 1, 1978 THE LAW AUTOMATICALLY PROTECTS A WORK THAT IS CREATED AND FIXED IN A TANGIBLE FORM FOR THE FIRST TIME ON OR AFTER JANUARY 1, 1978, FROM THE MOMENT OF ITS CREATION AND PERSISTS FOR THE TERM CONSISTING OF THE AUTHOR'S LIFE PLUS AN ADDITIONAL 70 YEARS.

FOR WORKS MADE FOR HIRE AND ANONYMOUS AND PSEUDONYMOUS WORKS THE DURATION IS 95 YEARS FROM FIRST PUBLICATION OR 120 YEARS FROM CREATION, WHICHEVER IS SHORTER, UNLESS THE AUTHORS IDENTITY IS REVEALED BEFORE THAT TERM EXPIRES IN RECORDS, IN WHICH CASE THE TERM BECOMES THE AUTHORS LIFE PLUS 70 YEARS.

CORY A BROCKETT, PE
LICENSE #74677
2939 NW 39th PLACE
GAINESVILLE, FL 32605
352-359-1982

THE TRILEGACY GROUP
UNIT 2
2401 LESLIE ST., FLAGLER BCH

THE TRILEGACY GROUP

JOB NUMBER
3748

PLAN DATE
4/21/24

"PLANS CONFORM TO"
2023 FLORIDA BUILDING CODE
2020 NATIONAL ELEC CODE
2018 WFCM DESIGN CRITERIA
2014 ASCE24 FLOOD DESIGN
STRUCTURALLY ADEQUATE FOR
ALTERATION LEVEL: N/A
RISK CATEGORY: 2
WIND VELOCITY (MPH): 140
EXPOSURE CATEGORY: C
INTERNAL PRESSURE: ±8
CONSTRUCTION TYPE: VB

LOT:
2401 LESLIE ST
FLAGLER BEACH
FLORIDA

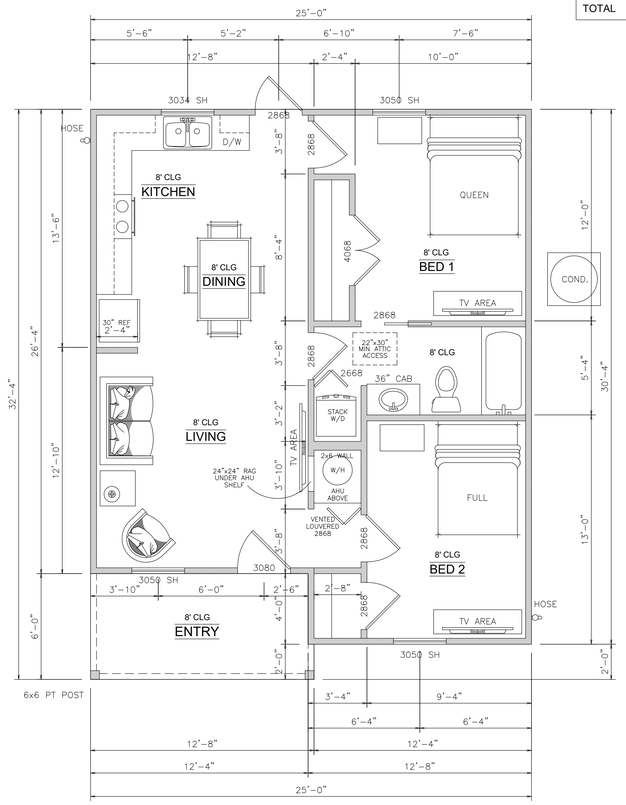
FLOOR ELEV

SHEET
A-03

FLOOR PLAN

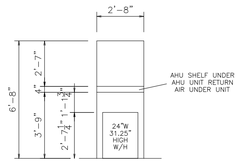
SCALE: 1/4" = 1'-0"

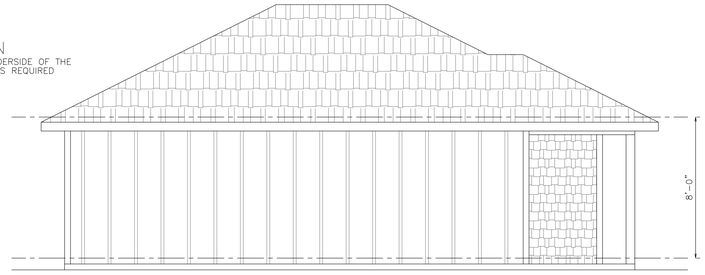
LIVING	709 sf
ENTRY	75 sf
TOTAL	784 sf



LIVING AREA
ROOF VENTILATION
SPRAY FOAM INSULATION BLOWN IN ON THE UNDERSIDE OF THE ROOF SHEATHING, NO ROOF OR SOFFIT VENTS REQUIRED

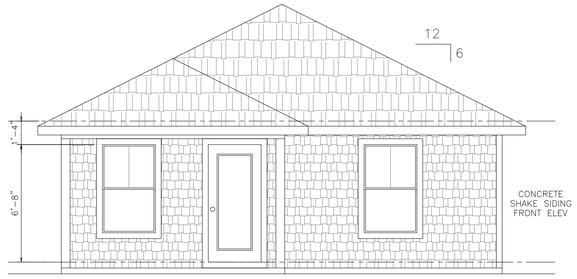
ENTRY
SOFFIT VENTS ONLY
R806.2 MINIMUM VENT AREA
THE MINIMUM NET FREE VENTILATING AREA SHALL BE 1/150 OF THE AREA OF THE VENTED SPACE.





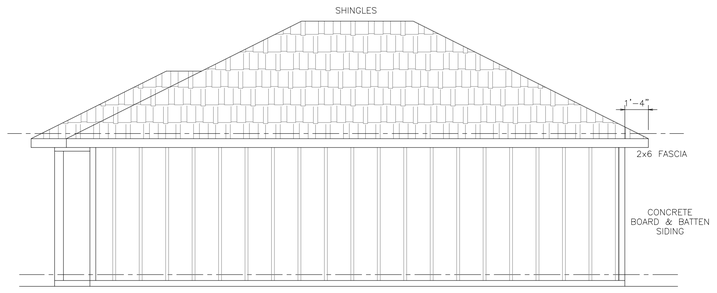
LEFT ELEVATION

SCALE: 1/4" = 1'-0"



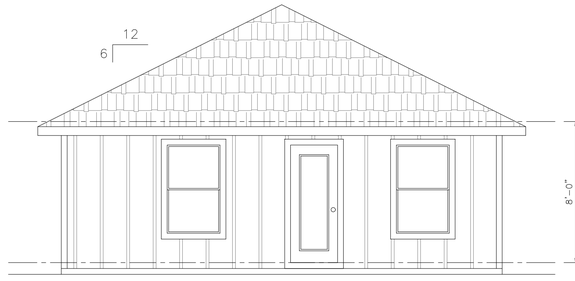
FRONT ELEVATION

SCALE: 1/4" = 1'-0"



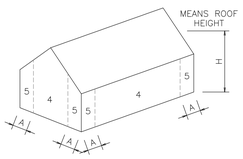
RIGHT ELEVATION

SCALE: 1/4" = 1'-0"



REAR ELEVATION

SCALE: 1/4" = 1'-0"



COMPONENTS AND CLADDING
WALLS
Structures less than or equal to 60 ft

COMPONENT PRESSURES:

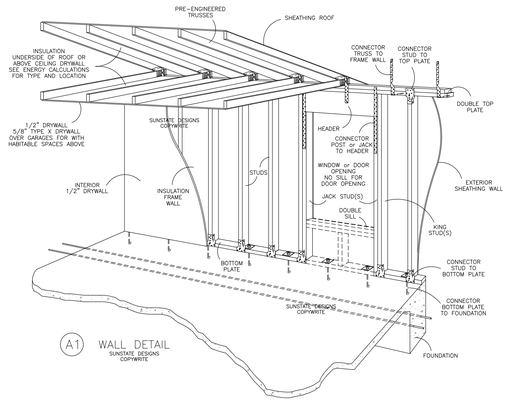
AREA	PRESSURE (psf)
4	MAX = 25.45
4	MIN = −27.61
5	MAX = 25.45
5	MIN = −34.08

Dimension a = 5.60 ft

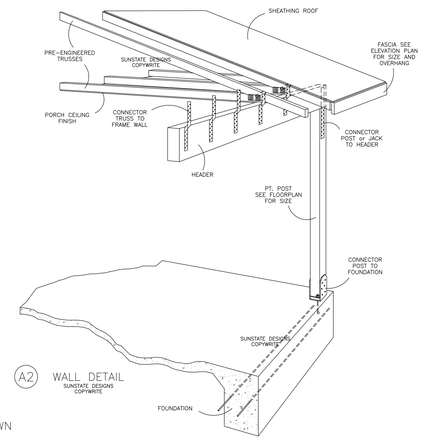
TRUSS COMPANY NOTES:

DO NOT START TRUSS DESIGN UNLESS TRUSS COMPANY ACCEPTS ALL TRUSS NOTES

1. LOAD BEARING WALLS AND HEIGHTS ARE PROVIDED ON THE PLAN: PLEASE DO NOT ADD OR CHANGE LOAD BEARING WALLS WITHOUT CALLING THE DESIGNER OF RECORD THE REQUESTED CHANGE, NEVER EXPECT CHANGES TO BE FOUND ON THE TRUSS LAYOUT
2. LEDGER BOARDS: ARE NEVER TO BE USED ON ANY 10 STORY HOUSES MASONRY OR FRAME WALLS
3. ALL AREAS OF FLOOR AND ROOF TRUSS SYSTEM ARE TO BE PROVIDED BY TRUSS COMPANY, NO AREAS ARE TO BE PROVIDED BY OTHERS
4. BALCONY FLOOR TRUSSES: 6" STEP DOWN TO BALCONY. BALCONY IS ROOF OVER AREA BLOW, MIN 1/2" IN 12" DOWN SLOPE TO ALL OUTER EDGES OF THE BALCONY
5. LAMINATE BEAMS: CALLED OUT ON PLANS ARE TO BE PROVIDED BY TRUSS CO, THANKS



A1 WALL DETAIL
SUNSTATE DESIGNS COPYWRITE



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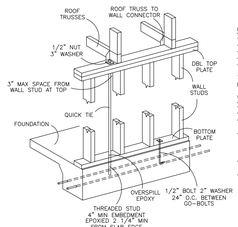
QUICK TIE AIRCRAFT WIRE ROPE ROD TIE DOWNS



QUICK TIE WALL LOCATION
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- 1 QUICK TIE WITHIN 3" OF ALL CORNER STUDS.
- 1 QUICK TIE EACH SIDE OF ALL HEADERS.
- 1 QUICK TIE NEXT TO ALL GIRDER POSTS.
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- BOTTOM PLATE TO SLAB OR MASONRY WALL 1/2" BOLTS 24" O.C. MAX SPACE BETWEEN QUICK TIE
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QUICK TIE SPACING TABLE			
TRUSS UPLIFT PER TRUSS 24" O.C.	QUICK TIE SPACING FT. & IN.	TRUSS UPLIFT PER TRUSS 24" O.C.	QUICK TIE SPACING FT. & IN.
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ROOFING & SOFFIT STANDARD SHEATHING

ROOF SHEATHING, EXPOSURE B MIN 7/16", EXPOSURE C MIN 15/32", EXPOSURE D MIN 19/32"
ROOF SHEATHING, MIN 19/32 FOR ALL FLAT OR BARREL TILE ROOF
ROOF SHEATHING (SP) SPECIFIC GRAVITY, PLYWOOD 0.57, OSB 0.62
UNDERLAYMENT TYPE II
WOOD or CONCRETE SOLID SOFFITS 3/8" THICK, 6d NAILS (2 x 0.099 x HEAD DIAMETER) GALVANIZED NAILS 6" O.C. of STAINLESS STEEL NAILS 4" O.C.

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ZIP WALL SHEATHING = 7/16" THICK PANELS WITH GREEN SURFACE EXTERIOR OUTSIDE.
ZIP ROOF SHEATHING = 1/2" THICK PANELS WITH RED SURFACE UP. USE STANDARD
FLASHING FOR ROOF VALLEYS AND WHERE ROOF SURFACES MEET GABLE & WALL SURFACES.
SEE ELEVATIONS FOR ROOFING TYPE, EXAMPLES: SHINGLE, METAL OR TILE ROOFING.
SHINGLE ROOF = APPLY DIRECTLY TO ROOF SHEATHING ADD ONE LAYER 15lb FELT FOR ROOF PITCH FROM 2/12 TO LESS SHAN 4/12
METAL ROOF = APPLY DIRECTLY TO ROOF SHEATHING
TILE ROOF = USE 5/8" THICK PANELS ADD ONE LAYER OF MIN 30lb FELT
1 LAYER OF SELF ADHERING SYNTHETIC UNDERLAYMENT CAN REPLACE ALL FELT REQUIREMENTS AND CAN BE ADDED TO ALL ROOFS EVEN WHERE FELT IS NOT REQUIRED

FRAME WALLS

SHEATHING WALL – 7/16" SHEATHING ON EXTERIOR SIDE OF WALL
USE PRESSURE TREATED LUMBER or VAPOR BARRIER WHERE FRAMING IS IN CONTACT WITH CONCRETE
STUDS – 2x4 MIN STUDS UNLESS OTHERWISE SPECIFIED ON PLAN = SPF#2 or SYP#2, 16" O.C.
TOP PLATE – (2) 2x4 OVERLAP ENDS 2' LOAD BEARING WALLS (2) 10d NAILS EA END 6" BETWEEN
BOTTOM PLATE – SAME SIZE AS STUDS = SYP#2 PT TO CONCRETE FLOOR & SPF#2 TO WOOD FLOOR

2x12 HEADERS SYP#2

30lb LIVE LOAD, 10lb DEAD LOAD, DEFLECTION L/240, ALL FRAME HEADERS MIN (2) 2x12 UNLESS OTHERWISE SPECIFIED
HEADER TABLE (PLF) DOWNLOAD POUNDS PER LINEAR FOOT (TOTAL) TOTAL MAX DOWNLOAD POUNDS

NUMBER OF 2x12's	4' SPAN		6' SPAN		8' SPAN		10' SPAN		12' SPAN		14' SPAN		16' SPAN		18' SPAN	
	PLF	TOTAL	PLF	TOTAL	PLF	TOTAL	PLF	TOTAL	PLF	TOTAL	PLF	TOTAL	PLF	TOTAL	PLF	TOTAL
(2) PLY 2x12	2020	8080	853	5718	545	4360	349	3490	242	2904	176	2464	133	2128	104	1872
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HEADERS MAX DOWNLOAD NUMBER JACKS & KINGS

1350 LBS DOWNLOAD PER STUD / HDR = HEADER, J = JACK K, = KING / KING & JACK STUD POSTS = SPF#2 or SYP#2						
NUMBER KINGS & JACKS EA SIDE OF HDR	(1)J (1)K	(1)J (2)K	(2)J (2)K	(2)J (3)K	(3)J (3)K	(3)J (4)K	(4)J (4)K
TOTAL STUDS UNDER EACH SIDE OF HDR	(4) STUDS	(6) STUDS	(8) STUDS	(10) STUDS	(12) STUDS	(14) STUDS	(16) STUDS
HEADER MAX LBS, POUNDS DOWNLOAD	5,400	8,100	10,800	13,500	16,200	18,900	21,600

SIMPSON HURRICANE TIE DOWN CONNECTORS

TRUSS TO CONCRETE WALL – HETA16 or LONGER
TRUSS TO FRAME WALL – MTS12 or LONGER
STUD TO TOP PLATE – SP2 or SP4,6,8
STUD TO BOTTOM PLATE – SP1 or SP4,6,8
BOTTOM PLATE TO SLAB – 1/2" BOLT & 2" WASHER 21" O.C. 6" EMBEDMENT EPOXIED OR J-BOLT 2" MIN DIST FROM EDGE OF SLAB
4x4 POST TO SLAB – ABU44 5/8"x7" BOLT
6x6 POST TO SLAB – ABU66 5/8"x7" BOLT

8x8 POST TO SLAB – ABU88 (2) 5/8"x7" BOLTS
JACK/POST to HEADER SPAN 0" to 48" – (1) LSTA24 ea SIDE
JACK/POST to HEADER SPAN 49" to 73" – (2) LSTA24 ea SIDE
JACK/POST to HEADER SPAN 73" to 97" – (2) LSTA30 ea SIDE
JACK/POST to HEADER SPAN 97" & UP – (1) MST27 ea SIDE
(1) HEADER JACK TO BOTTOM PLATE – SP1
(2) HEADER JACKS TO SLAB – LTT20B 1/2"x6" BOLT
(3) HEADER JACKS TO SLAB – HTT4 5/8"x7" BOLT
(4) HEADER JACKS TO SLAB – HTT5 5/8"x7" BOLT

OTHER CONNECTORS MAY BE CALLED OUT ON FLOOR, STRUCTURAL OR TRUSS SHEETS
OTHER SAME/SIMILAR USE TYPE CONNECTORS OF EQUAL OR GREATER STRENGTHS ARE ACCEPTABLE SUBSTITUTES

CORY A BROCKETT, PE
LICENSE #74677
2939 NW 39th PLACE
GAINESVILLE, FL 32605
352-359-1982

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FOR WORKS MADE FOR HIRE AND ANONYMOUS AND PSEUDONYMOUS WORKS: THE TERM IS 95 YEARS FROM FIRST PUBLICATION OR 120 YEARS FROM CREATION, WHICHEVER IS SHORTER, UNLESS THE AUTHORS IDENTITY IS REVEALED BEFORE THAT TERM EXPIRES IN RECORDS, IN WHICH CASE THE TERM BECOMES THE AUTHORS LIFE PLUS 70 YEARS.

THE TRILEGACY GROUP
UNIT 3
2401 LESLIE ST., FLAGLER BCH

THE TRILEGACY GROUP

JOB NUMBER
3749
PLAN DATE
4/21/24

"PLANS CONFORM TO"
2023 FLORIDA BUILDING CODE
2020 NATIONAL ELEC CODE
2018 WFCM DESIGN CRITERIA
2014 ASCE24 FLOOD DESIGN
STRUCTURALLY ADEQUATE FOR
ALTERATION LEVEL: N/A
RISK CATEGORY: 2
WIND VELOCITY (MPH): 140
EXPOSURE CATEGORY: C
INTERNAL PRESSURE: ±8
CONSTRUCTION TYPE: VB

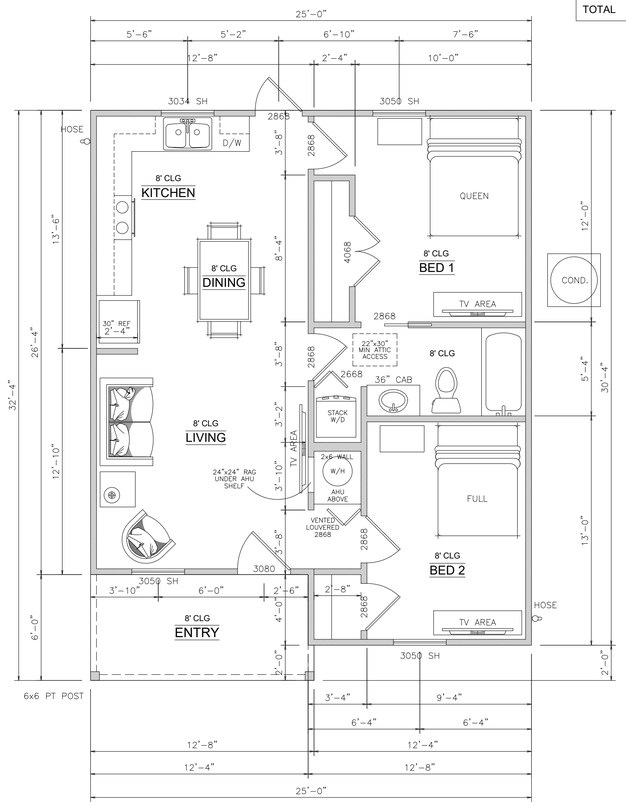
LOT:
2401 LESLIE ST
FLAGLER BEACH
FLORIDA

FLOOR ELEV

SHEET
A-04

FLOOR PLAN

SCALE: 1/4" = 1'-0"



LIVING	709 sf
ENTRY	75 sf
TOTAL	784 sf

LIVING AREA ROOF VENTILATION

SPRAY FOAM INSULATION BLOWN IN ON THE UNDERSIDE OF THE ROOF SHEATHING, NO ROOF OR SOFFIT VENTS REQUIRED

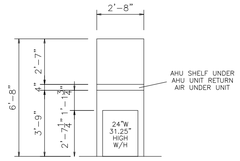
ENTRY ROOF VENTILATION

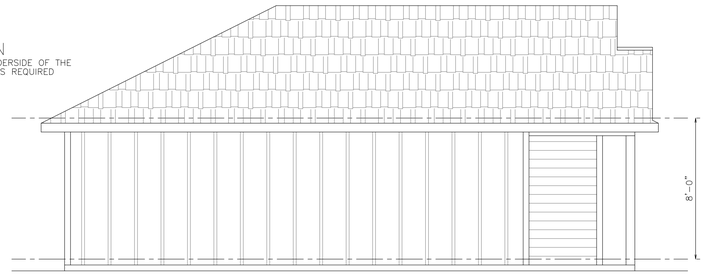
THE 1/300th RULE EQUATED TO 1 sq.ft. OF ATTIC VENTILATION FOR EVERY 300 sq.ft. OF ATTIC FLOOR SPACE AND THEN SPLIT THE VENTILATION # BETWEEN THE SOFFITS AND RIDGE OR HIGH LOW APPLICATIONS WHERE SOFFIT VENTS ARE ELIMINATED

METAL ROOF =	1' OF RIDGE VENT =	75	sq.ft. OF ATTIC FLOOR SPACE
SHINGLE ROOF =	1' OF RIDGE VENT =	75	sq.ft. OF ATTIC FLOOR SPACE
SHINGLE ROOF =	4' OFF RIDGE VENT =	1000	sq.ft. OF ATTIC FLOOR SPACE
TILE ROOF =	"S" VENT =	406	sq.ft. OF ATTIC FLOOR SPACE
TILE ROOF =	FLAT VENT =	411	sq.ft. OF ATTIC FLOOR SPACE
SOFFIT =	1' sq.ft. OF VENT =	102	sq.ft. OF ATTIC FLOOR SPACE

EXAMPLE:

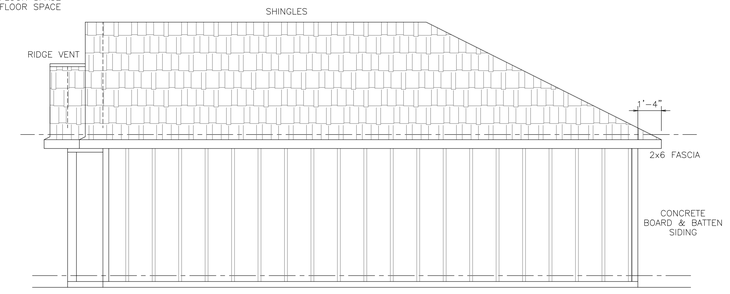
ATTIC FLOOR SPACE	3000 sq.ft.
1' OF RIDGE VENT	÷ 75 sq.ft.
TOTAL RIDGE VENT	40 feet





LEFT ELEVATION

SCALE: 1/4" = 1'-0"

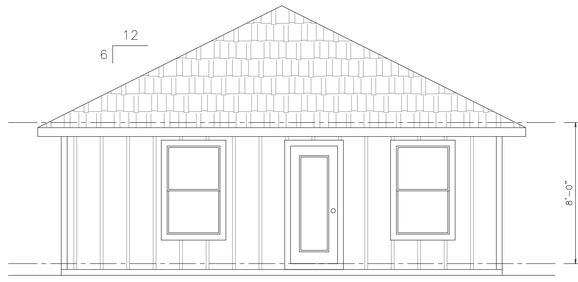


RIGHT ELEVATION

SCALE: 1/4" = 1'-0"

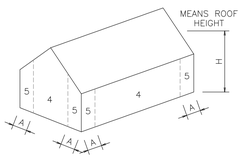
FRONT ELEVATION

SCALE: 1/4" = 1'-0"



REAR ELEVATION

SCALE: 1/4" = 1'-0"



COMPONENTS AND CLADDING
WALLS
Structures less than or equal to 60 ft

COMPONENT PRESSURES:

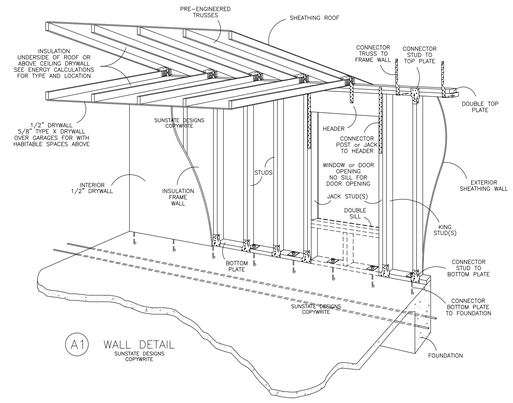
AREA	PRESSURE (psf)
4	MAX = 25.45
4	MIN = −27.61
5	MAX = 25.45
5	MIN = −34.08

Dimension a = 5.60 ft

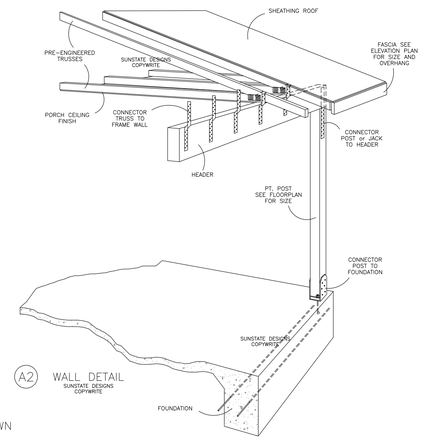
TRUSS COMPANY NOTES:

DO NOT START TRUSS DESIGN UNLESS TRUSS COMPANY ACCEPTS ALL TRUSS NOTES

1. LOAD BEARING WALLS AND HEIGHTS ARE PROVIDED ON THE PLAN: PLEASE DO NOT ADD OR CHANGE LOAD BEARING WALLS WITHOUT CALLING THE DESIGNER OF RECORD THE REQUESTED CHANGE, NEVER EXPECT CHANGES TO BE FOUND ON THE TRUSS LAYOUT
2. LEDGER BOARDS: ARE NEVER TO BE USED ON ANY 10 STORY HOUSES MASONRY OR FRAME WALLS
3. ALL AREAS OF FLOOR AND ROOF TRUSS SYSTEM ARE TO BE PROVIDED BY TRUSS COMPANY, NO AREAS ARE TO BE PROVIDED BY OTHERS
4. BALCONY FLOOR TRUSSES: 6" STEP DOWN TO BALCONY. BALCONY IS ROOF OVER AREA BLOW, MIN ½" IN 12" DOWN SLOPE TO ALL OUTER EDGES OF THE BALCONY
5. LAMINATE BEAMS: CALLED OUT ON PLANS ARE TO BE PROVIDED BY TRUSS CO, THANKS



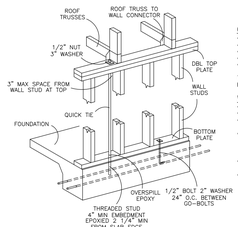
A1 WALL DETAIL
SUNSTATE DESIGNS COPYWRITE



A2 WALL DETAIL
SUNSTATE DESIGNS COPYWRITE

ALTERNATIVE TIE DOWN FOR FRAME WALLS

QUICK TIE AIRCRAFT WIRE ROPE ROD TIE DOWNS



QUICK TIE WALL LOCATION

- ALL QUICK TIE'S 3" FROM WALL STUDS AT TOP.
- 1 QUICK TIE WITHIN 3" OF ALL CORNER STUDS.
- 1 QUICK TIE EACH SIDE OF ALL HEADERS.
- 1 QUICK TIE NEXT TO ALL GIRDER POSTS.
- QUICK TIE SPACE TABLE FOR WALL SECTIONS.

THREADED STUDS SHALL HAVE MIN. 2 1/4" DISTANCE FROM EDGE OF SLAB & 4" MIN EMBEDMENT EPOXIED.

WALL CONNECTORS REQUIRED

- ROOF TRUSS TO WALL CONNECTORS.
- ROOF TRUSS CONNECTORS CONNECTS TO HEADERS
- SIMPSON CS16-32" HEADERS TO JACKS WHERE HEADER IS WIDER THAN QUICK TIE SPACING
- INTERIOR WALLS: (1) SIMPSON SPH TOP PLATE TO STUD WITH QUICK TIE SPACING 3' TO 5'. (2) SIMPSON SPH TOP PLATE TO STUD WITH QUICK TIE SPACING 5' TO 8'.
- BOTTOM PLATE TO SLAB OR MASONRY WALL 1/2" BOLTS 24" O.C. MAX SPACE BETWEEN QUICK TIE
- FLOOR TRUSSES TO MASONRY WALLS STILL REQUIRE 1 HETA20 EACH

QUICK TIE SPACING TABLE			
TRUSS UPLIFT PER TRUSS 24" O.C.	QUICK TIE SPACING FT. & IN.	TRUSS UPLIFT PER TRUSS 24" O.C.	QUICK TIE SPACING FT. & IN.
0-400	8'-0"	1161	4'-0"
522	7'-0"	1547	3'-0"
711	6'-0"	2321	2'-0"
928	5'-0"		

WALL SECTION NOTES:

GENERAL

ROOF/WALL SHEATHING 15/32" OR LESS (2 3/8"x.1137) RING SHANK NAILS 6" O.C. EDGE & FIELD
ROOF/WALL SHEATHING GREATER THAN 15/32" (2.5"x.131") RING SHANK NAILS 6" O.C. EDGE & FIELD
ROOF SHINGLE AND TILE ROOF 20 PSF LIVE LOAD & 15 PSF DEAD LOAD

FOUNDATION

SEE FOUNDATION PLAN AND FOOTER DETAILS FOR INFORMATION.
BOTH MONOLITHIC AND OR STEMWALL FOUNDATIONS CAN BE USED FOR ALL WALL DETAILS.
ALL FOUNDATION AND WALL REBAR IS TO BE MINIMUM GRADE SCHEDULE 40 KSI.

PORCH CEILINGS

CEILING FINISH CAN BE MOISTURE RESISTANT DRYWALL, DENZBOARD STUCCO, CONCRETE PANELS, VINYL BEADBOARD, 1x6 T&G OR ANYOTHER STATE APPROVED EXTERIOR CEILING PRODUCTS

FLOORS AND SEALED DECKS

3/4" SHEATHING = T&G GLUED AND NAILED 10d SCREW OR RING SHANK 6" O.C. EDGES 6" O.C. FIELD

EXTERIOR FINISH

SEE ELEVATIONS FOR EXTERIOR FINISH (EXAMPLES: LAP SIDING OR TEXTURED FINISH).
MASONRY WALLS = ADD 1x2 PT FURRING HORIZ. OR VERT. 24" MAX. O.C. FOR LAP OR PANEL SIDING.
FRAME WALLS AND GABLES = 1 LAYER HOUSE WRAP, TEXTURED FINISH ADD PAPER BACK WIRE LATH.
TEXTURED FINISH = STUCCO OR EXTERIOR PORLAND CEMENT PLASTER. 3-COAT WORK OVER METAL
PLASTER BASE THICKNESS 0.875 MINIMUM. 2-COAT WORK OVER MASONRY UNIT THICKNESS 0.5 MINIMUM. 2-COAT WORK OVER CAST-IN-PLACE OR PRECAST CONCRETE THICKNESS 0.375 MINIMUM.

ROOFING & SOFFIT STANDARD SHEATHING

ROOF SHEATHING, EXPOSURE B MIN 7/16", EXPOSURE C MIN 15/32", EXPOSURE D MIN 19/32"
ROOF SHEATHING, MIN 19/32 FOR ALL FLAT OR BARREL TILE ROOF
ROOF SHEATHING (SP) SPECIFIC GRAVITY, PLYWOOD 0.57, OSB 0.62
UNDERLAYMENT TYPE II
WOOD or CONCRETE SOLID SOFFITS 3/8" THICK, 6d NAILS (2 x 0.099 x HEAD DIAMETER) GALVANIZED NAILS 6" O.C. of STAINLESS STEEL NAILS 4" O.C.

ZIP SYSTEM ROOF AND WALL SHEATHING

ZIP SYSTEM STRUCTURAL SHEATHING WITH WATER-RESISTIVE BARRIER DOES NOT REQUIRE HOUSE WRAP OR FELT DRY IN UNLESS MENTIONED IN THE NOTES BELOW. ZIP SYSTEM TAPE ALL SEAMS.
ZIP WALL SHEATHING = 7/16" THICK PANELS WITH GREEN SURFACE EXTERIOR OUTSIDE.
ZIP ROOF SHEATHING = 1/2" THICK PANELS WITH RED SURFACE UP. USE STANDARD FLASHING FOR ROOF VALLEYS AND WHERE ROOF SURFACES MEET GABLE & WALL SURFACES. SEE ELEVATIONS FOR ROOFING TYPE, EXAMPLES: SHINGLE, METAL OR TILE ROOFING.
SHINGLE ROOF = APPLY DIRECTLY TO ROOF SHEATHING ADD ONE LAYER 15lb FELT FOR ROOF PITCH FROM 2/12 TO LESS SHAN 4/12
METAL ROOF = APPLY DIRECTLY TO ROOF SHEATHING
TILE ROOF = USE 5/8" THICK PANELS ADD ONE LAYER OF MIN 30lb FELT
1 LAYER OF SELF ADHERING SYNTHETIC UNDERLAYMENT CAN REPLACE ALL FELT REQUIREMENTS AND CAN BE ADDED TO ALL ROOFS EVEN WHERE FELT IS NOT REQUIRED

FRAME WALLS

SHEATHING WALL – 7/16" SHEATHING ON EXTERIOR SIDE OF WALL
USE PRESSURE TREATED LUMBER or VAPOR BARRIER WHERE FRAMING IS IN CONTACT WITH CONCRETE
STUDS – 2x4 MIN STUDS UNLESS OTHERWISE SPECIFIED ON PLAN = SPF#2 or SYP#2, 16" O.C.
TOP PLATE – (2) 2x4 OVERLAP ENDS 2' LOAD BEARING WALLS (2) 10d NAILS EA END 6" BETWEEN
BOTTOM PLATE – SAME SIZE AS STUDS = SYP#2 PT TO CONCRETE FLOOR & SPF#2 TO WOOD FLOOR

2x12 HEADERS SYP#2

30lb LIVE LOAD, 10lb DEAD LOAD, DEFLECTION L/240, ALL FRAME HEADERS MIN (2) 2x12 UNLESS OTHERWISE SPECIFIED
HEADER TABLE (PLF) DOWNLOAD POUNDS PER LINEAR FOOT (TOTAL) TOTAL MAX DOWNLOAD POUNDS

NUMBER OF 2x12's	4' SPAN		6' SPAN		8' SPAN		10' SPAN		12' SPAN		14' SPAN		16' SPAN		18' SPAN	
	PLF	TOTAL	PLF	TOTAL	PLF	TOTAL	PLF	TOTAL	PLF	TOTAL	PLF	TOTAL	PLF	TOTAL	PLF	TOTAL
(2) PLY 2x12	2020	8080	853	5718	545	4360	349	3490	242	2904	176	2464	133	2128	104	1872
(3) PLY 2x12	3425	13700	1633	9798	937	7496	603	6030	418	5016	305	4270	231	3696	180	2880
(4) PLY 2x12	4566	18264	2178	13068	1250	10000	804	8040	557	6684	406	5684	308	4928	241	4338

HEADERS MAX DOWNLOAD NUMBER JACKS & KINGS

1350 LBS DOWNLOAD PER STUD / HDR = HEADER, J = JACK K, = KING / KING & JACK STUD POSTS = SPF#2 or SYP#2							
NUMBER KINGS & JACKS EA SIDE OF HDR	(1)J (1)K	(1)J (2)K	(2)J (2)K	(2)J (3)K	(3)J (3)K	(3)J (4)K	(4)J (4)K
TOTAL STUDS UNDER EACH SIDE OF HDR	(4) STUDS	(6) STUDS	(8) STUDS	(10) STUDS	(12) STUDS	(14) STUDS	(16) STUDS
HEADER MAX LBS, POUNDS DOWNLOAD	5,400	8,100	10,800	13,500	16,200	18,900	21,600

SIMPSON HURRICANE TIE DOWN CONNECTORS

TRUSS TO CONCRETE WALL – HETA16 or LONGER
TRUSS TO FRAME WALL – MTS12 or LONGER
STUD TO TOP PLATE – SP2 or SP4,6,8
STUD TO BOTTOM PLATE – SP1 or SP4,6,8
BOTTOM PLATE TO SLAB – 1/2" BOLT & 2" WASHER 21" O.C. 6" EMBEDMENT EPOXIED OR J-BOLT 2" MIN DIST FROM EDGE OF SLAB
4x4 POST TO SLAB – ABU44 5/8"x7" BOLT
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JACK/POST to HEADER SPAN 49" to 73" – (2) LSTA24 ea SIDE
JACK/POST to HEADER SPAN 73" to 97" – (2) LSTA30 ea SIDE
JACK/POST to HEADER SPAN 97" & UP – (1) MST27 ea SIDE
(1) HEADER JACK TO BOTTOM PLATE – SP1
(2) HEADER JACKS TO SLAB – LTT20B 1/2"x6" BOLT
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EXPOSURE CATEGORY: C
INTERNAL PRESSURE: ±8
CONSTRUCTION TYPE: VB

LOT:
2401 LESLIE ST
FLAGLER BEACH
FLORIDA

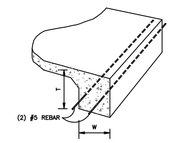
FLOOR ELEV

SHEET
A-05

MONOLITHIC FRAME 1, 2, 3 STORY	(W) WIDTH 16" MIN	(T) THICKNESS 20" MIN
MONOLITHIC MASONRY 1 & 2 STORY	(W) WIDTH 16" MIN	(T) THICKNESS 20" MIN
MONOLITHIC MASONRY 3 STORY	(W) WIDTH 25" MIN	(T) THICKNESS 20" MIN

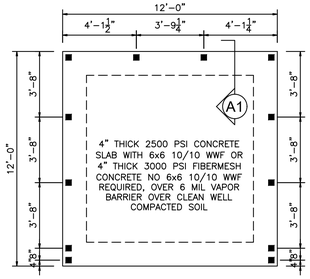
1. BOTTOM OF ALL FOOTERS MIN 12" BELOW GRADE BELOW THE FROST LINE
2. MONOLITHIC FOOTERS MIN 20" HIGH BOTTOM MIN 12" BELOW GRADE THE FROST LINE, TOP OF ALL SLABS 8" ABOVE GRADE,
3. MONOLITHIC FOOTERS MAX 32" HIGH WITH (2) #5 REBAR
4. MONOLITHIC FOOTERS 33" TO 48" HIGH USE FOOTER DETAIL H1 TO REPLACE M1, USE FOOTER DETAIL H2 TO REPLACE M2
5. PORCH AND GARAGE SLAB SLOPE MIN $\frac{1}{4}$" IN 12"

M1 EXTERIOR MONOLITHIC FOOTER



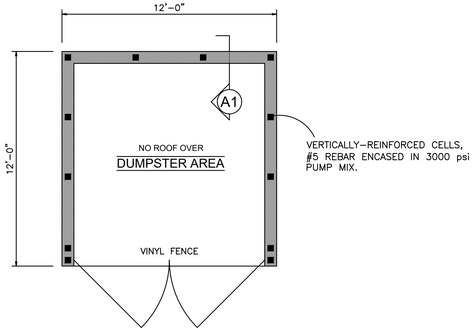
FOUNDATION

SCALE: 1/4" = 1'-0"

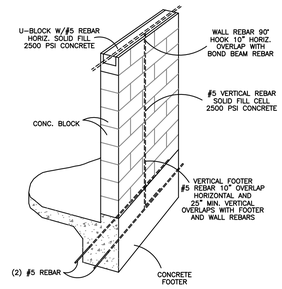


FLOOR PLAN

SCALE: 1/4" = 1'-0"



DUMPSTER	144 sf



A1 PRIVACY WALL DETAIL

WALL SECTION NOTES:

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ROOF/WALL SHEATHING 15/32" OR LESS (2 3/8"x.113") RING SHANK NAILS 6" O.C. EDGE & FIELD
ROOF/WALL SHEATHING GREATER THAN 15/32" (2.5"x.131") RING SHANK NAILS 6" O.C. EDGE & FIELD
ROOF SHINGLE AND TILE ROOF 20 PSF LIVE LOAD & 15 PSF DEAD LOAD

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TEXTURED FINISH = STUCCO OR EXTERIOR PORTLAND CEMENT PLASTER. 3-COAT WORK OVER METAL PLASTER BASE THICKNESS 0.875 MINIMUM. 2-COAT WORK OVER MASONRY UNIT THICKNESS 0.5 MINIMUM. 2-COAT WORK OVER CAST-IN-PLACE OR PRECAST CONCRETE THICKNESS 0.375 MINIMUM.

MASONRY BLOCK WALLS

CONCRETE = SHALL HAVE A MINIMUM SPECIFIED COMPRESSIVE STRENGTH OF 3000 PSI AT 28 DAYS.
BLOCK WALL = STANDARD 8" WIDE WALL. HEIGHT AND LENGTH OF EACH BLOCK CAN VARY
BLOCK COLUMN = SIZE, SHAPE AND HEIGHT MAY PER PLAN CAN VARY, W/(1) #5 REBAR MIN. VERTICAL SOLID FILLED CONCRETE. SEE FLOOR PLAN or STRUCTURAL PLAN FOR NUMBER OF REBAR
BOND BEAM = HORIZ COURSE U-BLOCK WITH (1)#5 REBAR HORIZONTAL SOLID CONCRETE FILLED
REBAR CONTINUOUS OVERLAP = #5 REBAR OVERLAP MIN 25" CONTINUOUS HORIZ OR VERT
REBAR 90° HOOK = (1)#5 REBAR 10" OVERLAP REBAR HORIZ. AND 25" OVERLAP REBAR VERTICAL.
VERTICAL REINFORCED CELL = (1)#5 REBAR VERTICAL SOLID FILLED CONCRETE

LEFT ELEVATION

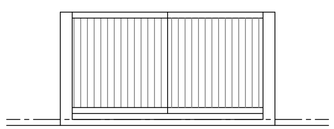
SCALE: 1/4" = 1'-0"

REAR ELEVATION

SCALE: 1/4" = 1'-0"

RIGHT ELEVATION

SCALE: 1/4" = 1'-0"



FRONT ELEVATION

SCALE: 1/4" = 1'-0"

UNITED STATES COPYRIGHT OFFICE
FOR WORKS SECURING FEDERAL STATUTORY PROTECTION FOR THE FIRST TIME ON OR AFTER JANUARY 1, 1978, WORKS OF THIS KIND FALL INTO TWO CATEGORIES.
WORKS CREATED ON OR AFTER JANUARY 1, 1978 THAT ARE FIXED IN A TANGIBLE MEDIUM OF EXPRESSION ON OR AFTER THAT DATE ARE PROTECTED FROM THE MOMENT OF CREATION AND GIVEN A TERM LASTING FOR THE AUTHOR'S LIFE PLUS AN ADDITIONAL 70 YEARS.
FOR WORKS MADE FOR HIRE AND ANONYMOUS AND PSEUDONYMOUS WORKS, THE DURATION OF COPYRIGHT IS 95 YEARS FROM PUBLICATION OR 120 YEARS FROM THE YEAR OF CREATION, WHICHEVER IS SHORTER. UNLESS THE AUTHORS IDENTITY IS REVEALED OR CAN BE ASCERTAINED BEFORE THAT TERM ENDS, IN WHICH CASE THE TERM BECOMES THE AUTHOR'S LIFE PLUS 70 YEARS.

THE TRILEGACY GROUP
DUMPSTER
2401 LESLIE ST., FLAGLER BCH

THE TRILEGACY GROUP

JOB NUMBER
3814

PLAN DATE
10/19/24

"PLANS CONFORM TO"
2023 FLORIDA BUILDING CODE
2020 NATIONAL ELEC CODE
2018 WFCM DESIGN CRITERIA
2014 ASCE24 FLOOD DESIGN
STRUCTURALLY ADEQUATE FOR
ALTERATION LEVEL: N/A
RISK CATEGORY: 2
WIND VELOCITY (MPH): 140
EXPOSURE CATEGORY: C
INTERNAL PRESSURE: .18
CONSTRUCTION TYPE: VB

LOT:
2401 LESLIE ST
FLAGLER BEACH
FLORIDA

SHEET
A-06

PLANNING AND ARCHITECTURAL REVIEW BOARD MEETING MINUTES

Tuesday, December 03, 2024 at 5:30 PM

City Commission Chambers – 105 S. 2ND Street, Flagler Beach, FL 32136

---

1. **Call the meeting to order**

   Chairman Joseph Pozzuoli called the meeting to order at 5:30pm.

2. **Pledge of Allegiance**

   Paul Chestnut led the Pledge of Allegiance.

3. **Roll Call / Determination of Quorum**

   Present: Chairman Joseph Pozzuoli, Vice-Chairman Marshall Shupe, Brenda Wotherspoon, Lisa Smith, Joann Soman, Scott Chappuis, Paul Chestnut

   Absent: None

   Staff Present: City Attorney Drew Smith, City Planner Lupita McClenning and Secretary Michele Ficocello

4. **Approval of Meeting Minutes**

   a. November 12, 2024

      Joann Soman motioned to approve minutes; Lisa Smith seconded. Motion passed unanimously.

5. **Deletions and changes to the agenda**

   Item 7c. tabled until next meeting.

6. **Old Business**

   None

7. **New Business**

   a. Application PSPE25-0001: Special Exception – request for a special exception use to utilize the building at 2501 Moody Blvd. Unit A as a church in the Highway Commercial Zoning District as provided for in the Land Development Regulations Section 2.04.02.8, Zoning Schedule One Land Use Controls.
   Parcel ID No.: 11-12-31-2500-00010-0010
   FLUM: Commercial
   Zoning District: Highway Commercial (HC)
   Owner: Young & Patel II, Inc., 1515 Hwy N., Eagle Lake, FL 33839
   Applicant: Coastal Community Church d/b/a Coastal Family Church, 208 S. 6th Street, Flagler Beach, FL 32136; Representative: Patrick Jordan Farrell, 701, N. Ocean Shore Blvd., Flagler Beach, FL 32136

   City Planner Lupita McClenning presented the item and staff report to the Board. Staff findings are that the Planning and Architectural Review Board recommend to the City Commission to approve the special use to allow for a church in the Highway Commercial zoning district in accordance with Section 2.06.01 (1 through 7); and that the use meets the applicable regulations governing the Highway Commercial district where the proposed church is to be located. The applicant, Pastor Roderick

Palmer, was present and spoke before the Board. Board comments included inquiry about the plans for the existing location of the Church, inquiry about planned renovations to proposed new location, commercial property tax and sales tax revenue impact concerns, inquiry about proposed new location being available to the community for various activities and inquiry about the approval status from condo association at proposed new location. Applicant comments included plans to open proposed new location to the community for multi-use activities, no contact with condo association at proposed new location, no set plans for existing location and no set plans for renovations at proposed new location. No public comment was received. No further discussion by the Board. Joann Soman motioned to recommend approval of item 7a., Paul Chestnut seconded. The motion passed unanimously.

b. **Application PFS24-0001**: Final Site Plan Approval - Legacy Pointe Cottages
Parcel ID No.: 11-12-31-0650-000D0-0050
FLUM: Medium Density Residential (MDR)
Zoning District: General Commercial (GC)
Owner: ALT Homes LLC, T.J. McNitt - 3371 N State St, Unit 1, Bunnell, FL 32110
Applicant: ALT Homes LLC , Katie Crooke, Representative - 3371 N State St, Unit 1, Bunnell, FL 32110

Brenda Wotherspoon disclosed she reached out to the applicant due to not being able to find the location of the mailboxes on the plans. City Planner Lupita McClenning presented the item and staff report to the Board. Staff findings are, per the technical review of the Legacy Pointe Final Site Plan, the City's Engineering and Planning staff recommend that the Planning and Architectural Review Board (PARB) forward to the City Commission to recommend approval of the Final Site Plan with the following condition:

Improve Joyce Street to the 50' wide per standard R-2 of City of Flagler Beach standard drawings as noted on page 20 of the applicants Final Site Plan Submittal.
Joyce Street is unimproved, dirt road. The project requires receiving stormwater and water utilities within the right of way. Joyce St. currently has a 40' right of way width and not in compliance with city standards. Joyce Street will be receiving stormwater and water utilities within the right of way. The minimum width will be required to be 50' wide per standard R-2 of Flagler Beach's standard drawings. This may be accomplished by obtaining 10' of utility easements along Joyce Street, either 5' on each side of Joyce Street, or 10' on one side of Joyce St.; and be continuous from John Anderson Rd. to the eastern property line of Legacy Pointe Apts.

Board discussion ensued and comments included clarification on future land use designation, single family vs. multi-family, number of fire hydrants, speed limit on plans, traffic safety concerns and safety fence around perimeter missing from civil engineering plans. The applicant's representative, Katie Crooke, was present and spoke before the Board. Ms. Crooke's responses to the Board's comments included revising civil engineering plans to include the safety fence around the perimeter. Public comment was opened. Jane Mealy, Flagler Beach, commented about resolution of wetland concerns and Staff indicated the concerns have been resolved. Public comment was closed. Lisa Smith made a motion to recommend approval of item 7b. including the condition of improvements to Joyce Street set forth in the staff report, Joann Soman seconded. Chairman Pozzuoli indicated the need to include the safety fence being reflected in the conditions of approval recommendation. The City Attorney advised it is more of a clarification, but can be included in the motion. Lisa Smith amended her motion to include the applicant submit revised plans before this item goes to the City Commission to identify the location of the safety fence. Roll Call: Paul Chestnut, Yea; Brenda Wotherspoon, Yea; Vice-Chairman Marshall Shupe, Yea; Lisa Smith, Yea; Joann Soman, Yea; Scott Chappuis, Yea; Chairman Joseph Pozzuoli, Yea. Motion passed unanimously.

c. **Nominations to elect Chairman and Vice-Chairman for the Planning & Architectural Review Board.**

Item tabled until next meeting.

8. Other Business

None

9. City Planner Report

a. **Discussion regarding amendments to floodplain regulations - communities that amend their local floodplain regulations must submit draft ordinances to the Office Floodplain Management (OFM) 30 days before presenting proposal to planning boards or elected officials. Floodplain Management include Articles IV, V, VI, VIII, and IX.**

Ms. McClenning presented the item and explained process moving forward.

b. **Gridics Update**

Ms. McClenning presented the item. Progress with the software is continuing and the Board will have access to test the platform soon.

c. **End of Year Report of Accomplishments**

Ms. McClenning presented the item. Comments included the River to Sea Board and a workshop offered she can forward to the Board, on-boarding of new code enforcement officer and professional development of staff.

10. Board Comments

Board comments included clarification that all city streets are now 20 mph and inquiry about the status of the Old Johnny D's property to which Ms. McClenning provided an update to include Magistrate Orders to run daily fines and status of submitted demolition permit.

11. Adjournment

Motion to adjourn meeting made by Joann Soman, seconded by Vice-Chairman Shupe.

Motion passed unanimously.

Chairman Joseph Pozzuoli adjourned the meeting at 6:38pm.

Michele Ficocello

From: Bill Freeman
Sent: Tuesday, November 26, 2024 11:38 AM
To: Michele Ficocello
Cc: Lupita McClenning
Subject: revised

Michele,
I reviewed the latest submittal for Legacy Point Cottages and have the following comment:

1. The plans indicate the requested improvement to Joyce street, which includes paving per city standard R-2, as depicted on page 20 of the submitted plans. Joyce St. currently only has a 40' right of way width and is not in compliance with city standards. Joyce Street will be receiving both stormwater and water utilities within the right of way. The minimum width will be required to be updated to 50' wide per standard R-2 of Flagler Beach's standard drawings. This may be accomplished by obtaining 10' of utility easements along Joyce Street. This may either be 5' on each side of Joyce street or 10' on one side of Joyce St. This will need to be continuous from John Anderson Rd. to the eastern property line of Legacy Pointe Apts.

If you have any questions, please do not hesitate to call me.

Bill Freeman P.E.
City Engineer
800 S. Daytona
City of Flagler Beach
800 S. Daytona
Office: 386-517-2000 Ext 230
Cell: 386-276-1007
Bfreeman@cityofflaglerbeach.com

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Belle Terre Elementary School

Sara Novak
Assistant Principal of the Year
Matanzas High School

Allison Kucharski
Teacher of the Year
Rymfire Elementary School

Jimmy Sorrentino
Employee of the Year
Buddy Taylor Middle School

LaShakia Moore
Superintendent

November 13, 2024

Terry M. Mcnitt Jr
ALT Homes LLC
P.O. Box 503
Bunnell, FL 32110

RE: Legacy Pointe Cottages (Project # 24-016)

Dear Mr. Mcnitt:

We received your request for a letter of School Capacity Reservation on November 12, 2024. After careful review we find that the proposed development must file for a proportionate share mitigation agreement as set forth in the Flagler County Interlocal Agreement (ILA) adopted in October 2022.

Attached you will find the requested capacity analysis for your development. Your proposed development (Legacy Pointe Cottages) would be required to enter into a proportionate share mitigation agreement in the amount identified in our analysis. Should you wish to proceed forward to the next step, please file the appropriate application indicating your desire to apply for and complete the proportionate share mitigation agreement.

In closing, I hope this letter has been useful and informative. Should you have any additional questions please contact myself at (386) 437-7526, ext 1180.

Sincerely,

David W. Freeman
Chief / Operational Services

Copy: Lupita McClenning, City of Flagler Beach
Katie Crooke, ALT Homes LLC

Project ID: 24-016

Report Date: **November 14, 2024** Expires: **May 13, 2025**

Project Name: **Legacy Pointe Cottages** Jurisdiction: **Flagler Beach**

Number of Units:	
Single Family:	0
Multi Family:	22
Mobile Home:	0

Concurrency

School Level	Elementary	Middle	High
MSID:	0201	0011	0091
School:	Old Kings	Buddy Taylor	Flagler Palm Coast
Adopted LOS	100%	100%	100%
Existing & Reserved Capacity Analysis			
Permanent Capacity	1,272	1,630	2,503
Enrollment	989	1,326	2,568
Actual Utilization	77.8%	81.3%	102.6%
Available Permanent Seats	283	304	-65
Reserved Capacity	143	500	748
Utilization	89.0%	112.0%	132.5%
Available Seats	140	(196)	(813)
Impact of Proposed Development			
Students Generated	1	1	1
Adjusted Utilization	89.1%	112.1%	132.5%
Adjusted Available Seats	139	(197)	(814)
Initial Results: Permanent FISH	UNDER CAPACITY	OVER CAPACITY	OVER CAPACITY
Portable Capacity Impact Adjustment			
Total School Capacity	1,290	1,749	2,612
Adjusted Utilization	87.8%	104.5%	127.0%
Adjusted Available Seats	139	(197)	(814)
Number of Seats to Mitigate	0	1	1
Final Results: Total Capacity	UNDER CAPACITY	OVER CAPACITY	OVER CAPACITY

Adjacency (If Required)

School Level	Elementary	Middle	High
MSID:	0051	0011	0091
Adjacent School(s):	Rymfire	Buddy Taylor	Flagler Palm Coast
Existing & Reserved Capacity Analysis			
Permanent Capacity	1,545	1,630	2,503
Enrollment	924	1,326	2,568
Adopted LOS	100%	100%	100%
Available Permanent Seats	621	304	-65
Reserved Capacity	138	500	748
Utilization	68.7%	112.0%	132.5%
Available Seats ***	483	(196)	(813)
Impact of Proposed Development			
Students Generated	1	1	1
Adjusted Utilization	68.8%	112.1%	132.5%
Adjusted Available Seats ***	482	(197)	(814)
Initial Results: Permanent Capacity	UNDER CAPACITY	OVER CAPACITY	OVER CAPACITY
Portable / Capacity Impact Adjustment			
Total School Capacity	1,545	1,749	2,612
Adjusted Utilization	68.8%	104.5%	127.0%
Adjusted Available Seats ***	482	(78)	(705)
Number of Seats to Mitigate	0	1	1
Final Results: Total Capacity	UNDER CAPACITY	OVER CAPACITY	OVER CAPACITY

Notes

TOTAL ELEMENTARY	*770*
TOTAL MIDDLE SCHOOL	*-280*
TOTAL HIGH SCHOOL	*-833*

Legacy Pointe Cottages	ES:				MS:				HS:				TOTAL PROPORTIONATE SHARE
CMTT: Proportionate Share Calculator	ES Single Family	ES Multifamily	ES Mobile Home	ES Total	MS Single Family	MS Multifamily	MS Mobile Home	MS Total	HS Single Family	HS Multifamily	HS Mobile Home	HS Total	
Project Overview	UNDER CAPACITY				OVER CAPACITY				OVER CAPACITY				
Housing Units Proposed	0	22	0	22	0	22	0	22	0	22	0	22	
(x) Generation Rate	0.084	0.037	0.059		0.049	0.017	0.031		0.079	0.025	0.051		
(=) Development Impact (Total # Students Generated)	0	1	0	1	0	1	0	1	0	1	0	1	3
(-) Available Seats				771				0				0	
(=) Net Dev. Impact (# Student Stations to Mitigate)				0				1				1	2
(x) Total Cost (per Student Stations)				$ 28,491				$ 30,767				$ 39,964	
(=) Proportionate Share				$ -				$ 30,767				$ 39,964	$ 70,731

Impact Fee Credit Calculation	Single Family	Multi Family	Mobile Home	Total
Total Residential Units	0	22	0	22
(x) Impact Fee Rate	5,450	1,360	2,150	
(=) Impact Fee Credit Maximum	0	29,920	0	29,920
Total Impact Fees	0	29,920	0	29,920

Proportionate Share Summary			Prop Share
(=) Proportionate Share Total			$ 29,920
Maximum Impact Fee Credit (Included in Proportionate Share)			$ 29,920

(Proportionate share total not to exceed Max Impact Fee Credits)
(Impact Fee Credits may be applied in the form of Vouchers)
5/2024 Generation Rates Utilized
DOE 8/2024 Student Station Cost Factors
10/1/2022 Impact Fee Rate
Nov 2024 Student Station Costs

Student station costs change monthly

TYPE	TOTAL SGR
Single Family	0.212
Multi Family	0.079
Mobile Home	0.141

PAYMENT SUMMARY

Total Fiscal Impact of Project
$ 70,731

Proportionate Share
$ 29,920

Estimated Total Impact Fees*
$ 29,920

Maximum Impact Fee Credit
$ 29,920

Based on current adopted impact fee rate. Impact fees are subject to change.

Voucher Credit Schedule

				Prepaid Voucher Credits		
Installment	TOTAL	Amount SF	SF	Amount MF	MF	MH
1st 30%	$ 8,976.00	$ -		$ 8,976.00	6	
2nd 30%	$ 8,976.00	$ -		$ 8,976.00	6	
3rd 30%	$ 8,976.00	$ -		$ 8,976.00	6	
Final 10%	$ 2,992.00	$ -		$ 2,992.00	2	
Total (100%)	$ 29,920.00	$ -	0	$ 29,920.00	20	0
		Uncovered Units	0		2	0

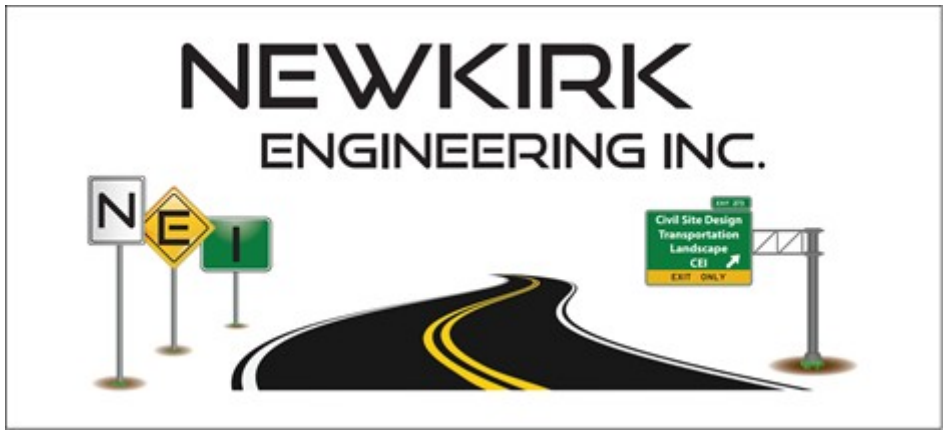
Vouchers are not issued for the final 10%, these units are coverd by full payment of the respective impact fees.

STORMWATER REPORT

LEGACY POINTE COTTAGES

LESLIE STREET,
FLAGLER BEACH, FL 32174

FEBRUARY 2023
REVISED OCTOBER 2024



Civil Engineering—Transportation—CEI
1230 North US Highway 1, Suite 3
Ormond Beach, FL 32174
(386) 872-7794
www.Newkirk-Engineering.com

PROFESSIONAL ENGINEER CERTIFICATE

I hereby certify that I am a registered professional engineer in the State of Florida practicing with Newkirk Engineering Inc., a corporation authorized as an engineering business, Certificate of Authorization No. 30209, by the State of Florida, Department of Professional Regulation and Board of Professional Engineers. I have reviewed or approved the evaluation, findings, opinions, and conclusions as reported for:

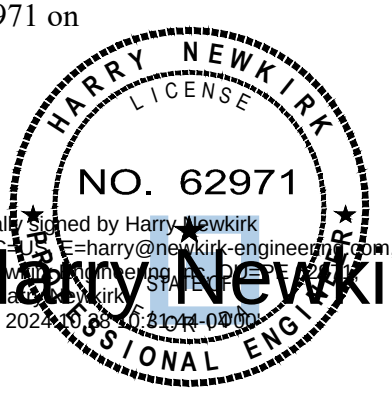
Project: **"LEGACY POINTE COTTAGES"**

Location: **LESLIE STREET,**
FLAGLER BEACH, FL 32174

Client: **ALT HOMES LLC**

I acknowledge that the procedures and references used to develop the results are standard to the professional practice of civil engineering as applied through design standards and criteria set forth by the federal, state and local regulatory agencies as well as professional judgment and experience.

This report has been digitally signed and sealed by Harry Newkirk, PE #62971 on



Printed copies of this document are not considered signed and sealed and the signature must be verified on any electronic copies.

Name: Harry Newkirk,
PE License No: 62971
Address: 1230 North US Highway 1
Suite 3
Ormond Beach, FL 32174

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4	Positive Outfall
4	ICPR 4 Model & Overall System Summary
5	Water Quality
5	Erosion and Sediment Control
5	Assumptions and References Used
6	Summary of Results

Appendix A Maps

- Aerial Location Map
- Site Location Map
- Soils Map
- FIRM Map

Appendix B Pre-Development Calculations

Appendix C Post-Development Calculations

Appendix D Stormwater Recovery

INTRODUCTION

The site consists of a vacant wooded parcel on an existing pond in Flagler Beach, Florida, Section 11, Township 12 S, Range 31 E. The project is located at the termination of Leslie Street and Joyce Street on the west side of John Anderson Highway. See **Appendix A** for site location and aerial map.

Propose the development of 22 multifamily units with an associated stormwater management facility. Stormwater management is provided by interconnected exfiltration areas as well as a series of dry retention areas that provide treatment and attenuation for the site. Stormwater calculations are designed for two drainage basins which both have positive outfall to the existing pond on site.

PROJECT SITE DESCRIPTION

Land Coverage

The current land coverage of the site consists of a wooded site with a small portion of paved roadway. The site consists of a pre-development land coverage of mesic flatwoods and post development land coverage of multi-family residential.

Topography

Elevations undulate between EL 6.2 and EL 19.4 across the site. Site runoff drains to the pond on site which is a former borrow pit.

Flood Zone

The property is located within Zone "X", per FEMA Map Panel No. 12035C0232 E dated June 6th, 2018. See FEMA FIRM map in Appendix A.

Soils

The predominant soil on the project site is (11) Myakka Myakka, wet, fine sands – 0 to 2% slopes. Pre and Post-development flood routing was calculated with a Hydrologic Soil Group rating of C and B respectively. See **Appendix A** for soils map. Seasonal High Groundwater Table was estimated to be at elevation 7.0 based on the Geotechnical Report provided by Universal Engineering Sciences dated 1/14/19.

EXISTING SITE CONDITIONS

The pre-development conditions are broken into two drainage basins based on existing flow patterns from the east and west of the existing pond. The PRE-1 basin drains from the east side of the existing pond and consists of a 2.054-acre drainage basin with 0.060 acres impervious surface, and Time of Concentration of 22.0 minutes. The PRE-2 drainage basin consists of the 0.153-acre portion of the site that drains to the existing pond from the west. The existing site naturally drains to the existing pond where it is then discharged towards the south through a drainage ditch. Runoff flows to the existing pond by a combination of sheet flow and overland flow.

PROPOSED STORMWATER SYSTEM

The subject site is a 3.159-acre parcel that proposes 22 multi-family buildings as well as paving, site grading, and utilities. The stormwater system provides water quality (treatment volume) for 1.766 acre drainage basin with 1.092 acres of impervious surface. The system is designed to treat all runoff with dry retention before discharging to the wet detention area. The required treatment volume for the dry retention and exfiltration system is 0.281 Ac-Ft and 0.281 Ac-Ft is provided. All stormwater runoff will sheet flow to a series of inlets that connect directly to the exfiltration system. The runoff from the exfiltration system is then delivered to a dry retention area with positive outfall to the existing pond. When the stormwater levels in the dry retention areas stage to the elevation of 10.20, the runoff will overtop two (2) 4.5-foot V-Notch weirs and discharge into the existing pond (OFF) to maintain positive outfall.

POSITIVE OUTFALL

Discharge from the stormwater treatment system flows to existing pond on site which was used as a former borrow pit. The runoff then flows south through the drainage ditch and is piped under the adjacent existing apartment complex. The stormwater then flows to the south where it reaches the headwaters of Bulow Creek and discharges to the Halifax River, and eventually the Atlantic Ocean.

ICPR 4 MODEL & OVERALL SYSTEM SUMMARY

The pre-development site conditions consist of two drainage basins, PRE-1 & PRE-2, which both have positive outfall to the existing pond (OFF). The pre-development drainage basins are modeled as a hydrographs and discharge offsite via sheet and overland flows. The PRE-1 drainage basin consists of 2.054 acres with an impervious percentage of 2.9% and a time of concentration of 22.0 minutes and drains to the existing pond and discharges at Node (OFF). The PRE-2 basin consists of 0.153 acres with no impervious surface and is modeled as a hydrograph with a minimum time of concentration of 10.0 minutes discharging to the existing pond.

The post-development flood routing model is comprised of two drainage basins POST-1 and POST-2. The POST-1 basin represents the eastern portion of the site where the impervious improvements will take place. The POST-1 basin drains to the exfiltration chambers and dry pond for treatment. The POST-2 drainage basin consists of 0.153 acres that discharges directly to the receiving pond. Development withing the POST-2 basin is limited to a 5’ sidewalk and picnic benches, no pavement or other vehicle facilities are proposed. The system maintains positive outfall through a drop structure link (CS-01) with all discharge flowing to the existing pond (OFF).

The design storms are the Mean Annual and 25-year 24-hour storm events utilizing SCSIII-24 FLMOD rainfall distribution. During the design storms the post-development peak discharge rate cannot exceed the pre-development peak discharge rate. The system shall be designed to provide for the appropriate treatment volume of stormwater runoff within 72 hours following a storm event assuming average antecedent moisture conditions with a safety factor of 2.

WATER QUALITY

Water Quality Treatment volume is provided for the post-development basin using dry retention as pre-treatment and exfiltration pursuant to the requirements of SJRWMD as outlined in Chapter 40C-4 and pursuant to the City of Flagler Beach requirements. Treatment volume for the site was governed by OFW requirements and an additional 50% of the required treatment volume was accounted for. The project meets the treatment requirements for discharge to an impaired waterbody and the system is designed to improve water quality before discharge. Appendix C of this report provides the Post-Development Basin Map and the Post-Development stormwater calculations.

EROSION AND SEDIMENT CONTROL PLANS

All pervious surfaces will be planted with trees, shrubs and sodded solid to prevent erosion. All pond slopes and other pervious areas of the property will be sodded solid or seeded and mulched to prevent erosion. A temporary gravel construction entrance will be provided to prevent fines and sands from leaving the site and contaminating adjacent roadways. Silt fence will be installed around the entire site and around inlets during construction to retain sediment on-site and assure that any discharges from the site do not cause or contribute to a violation of state water quality standards.

MAINTENANCE AND OPERATION

Alt Homes LLC will operate and maintain the entire stormwater management system. All roads, drainage, stormwater and utilities located on-site are private ownership and will be maintained and operated by Alt Homes LLC. Stormwater maintenance will include routine mowing of sod within retention ponds and pond side slopes and removal of sediment and debris from inlets and control structures.

ASSUMPTIONS AND REFERENCES USED

A. S.C.S. Unit Hydrograph Method
B. SCS III Rainfall Distribution
C. Universal Engineering Sciences Geotechnical Report
D. AutoCAD Civil 3D
E. ICPR 4.07.08
F. Other references and assumptions listed in the drainage calculations.

SUMMARY OF RESULTS

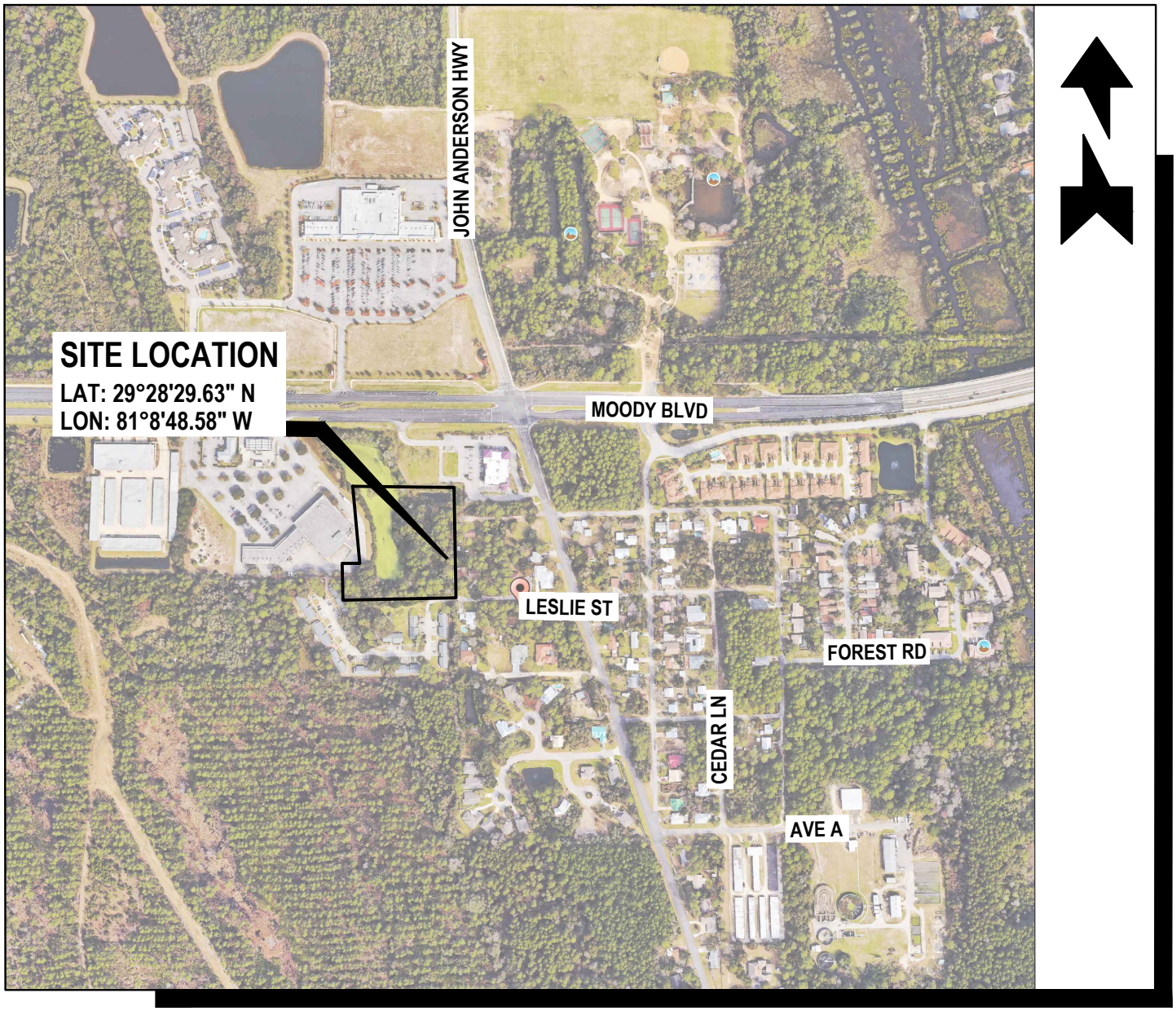
Calculations indicate that the proposed stormwater treatment system meets the requirements for pollution abatement volume per St. Johns River Water Management, Florida Department of Environmental Protection and City of Flagler Beach Land Development Code. All stormwater runoff is directed into the stormwater treatment system by the conveyance of pavement grades and collection pipe system. The dry retention area treatment volume recovery (EL 10.20) occurs in 24 hours. The post development hydrograph shows that the site discharges less runoff than the pre-development conditions during the mean annual and 25-year, 24-hour storm events. The reduction in stormwater discharge rate and volume ensures that there will be no adverse impacts to surrounding areas. The following conclusions can be made based on the results:

- The Stormwater System is designed to provide treatment and attenuation for OFW requirements.
- Net decreases in discharge rates and volumes are seen for each storm event.
- The calculations indicate that the proposed stormwater treatment system meets the requirements for pollution abatement volume per St. Johns River Water Management, Florida Department of Environmental Protection and City of Flagler Beach Land Development Code.

Design Storm		Rainfall (inches)	Discharge Rate (cfs)	Outflow Volume (ft^3)	Peak Stage (ft)
Mean Annual, 24-Hour	PRE	4.5	2.53	16,223	10.39
	POST		0.17	4,909	
25 Year, 24-Hour	PRE	8.9	7.07	44,888	10.98
	POST		6.36	31,300	

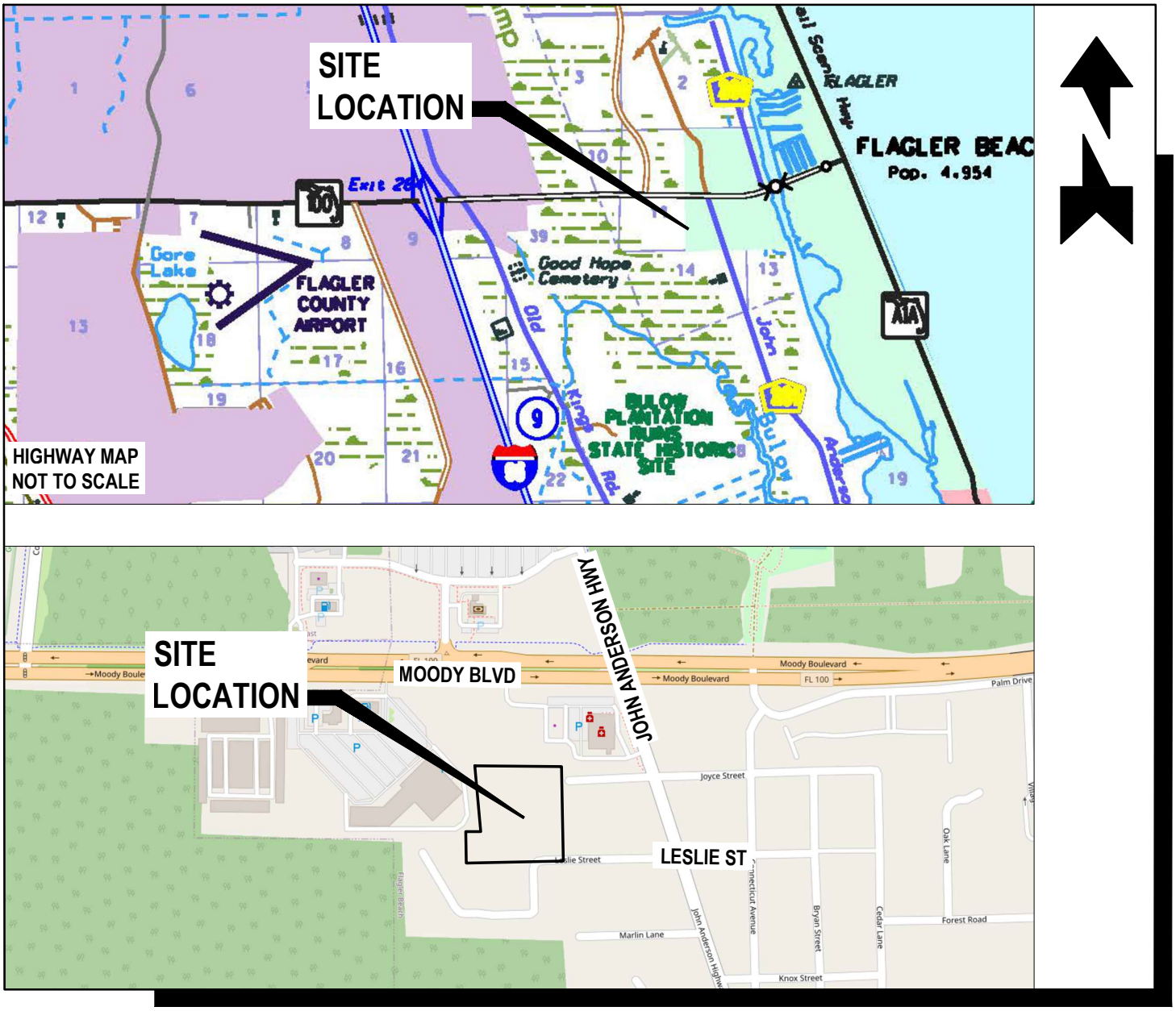
APPENDIX A

MAPS



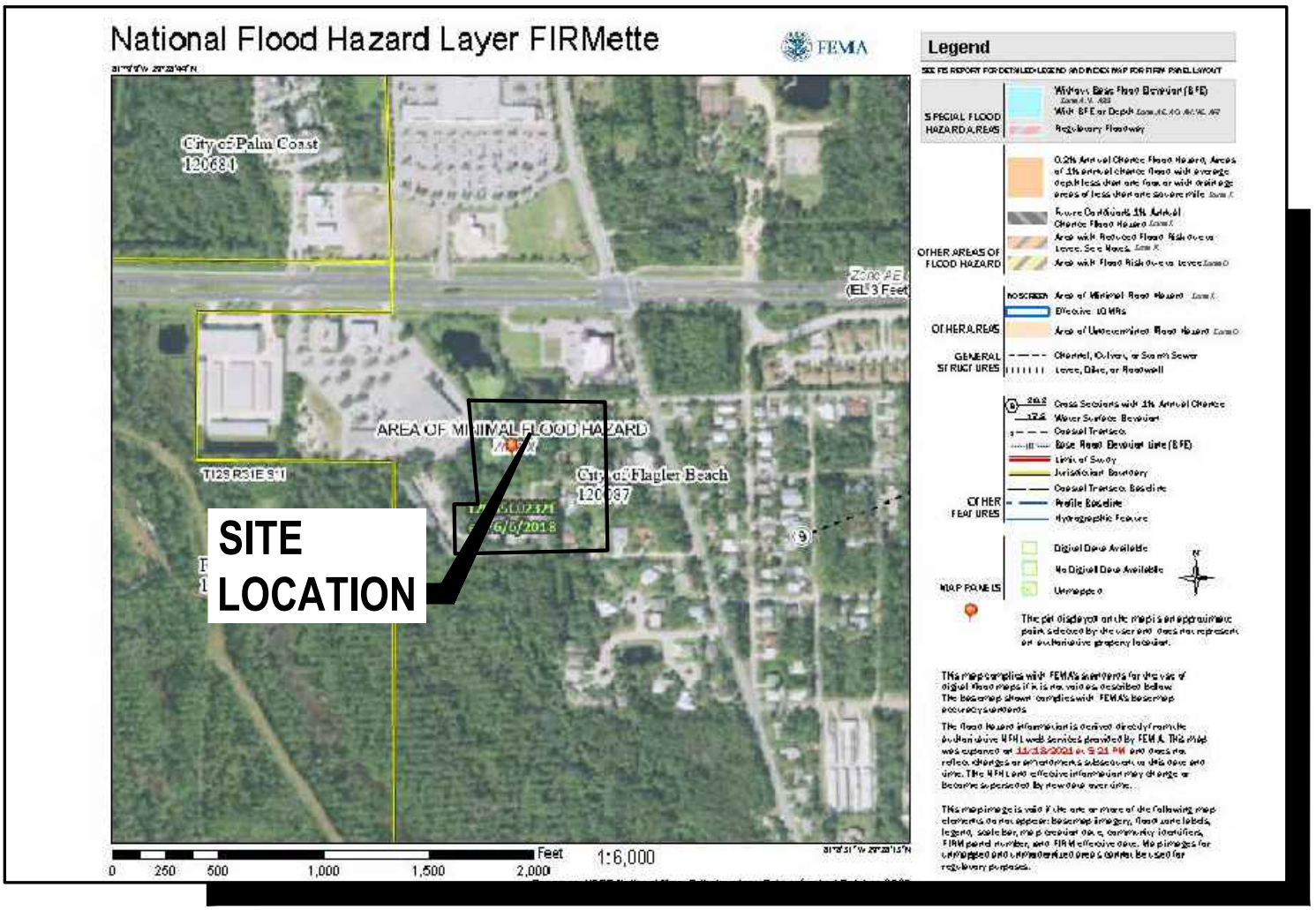
AERIAL MAP

SCALE: 1" = 600'



LOCATION MAP

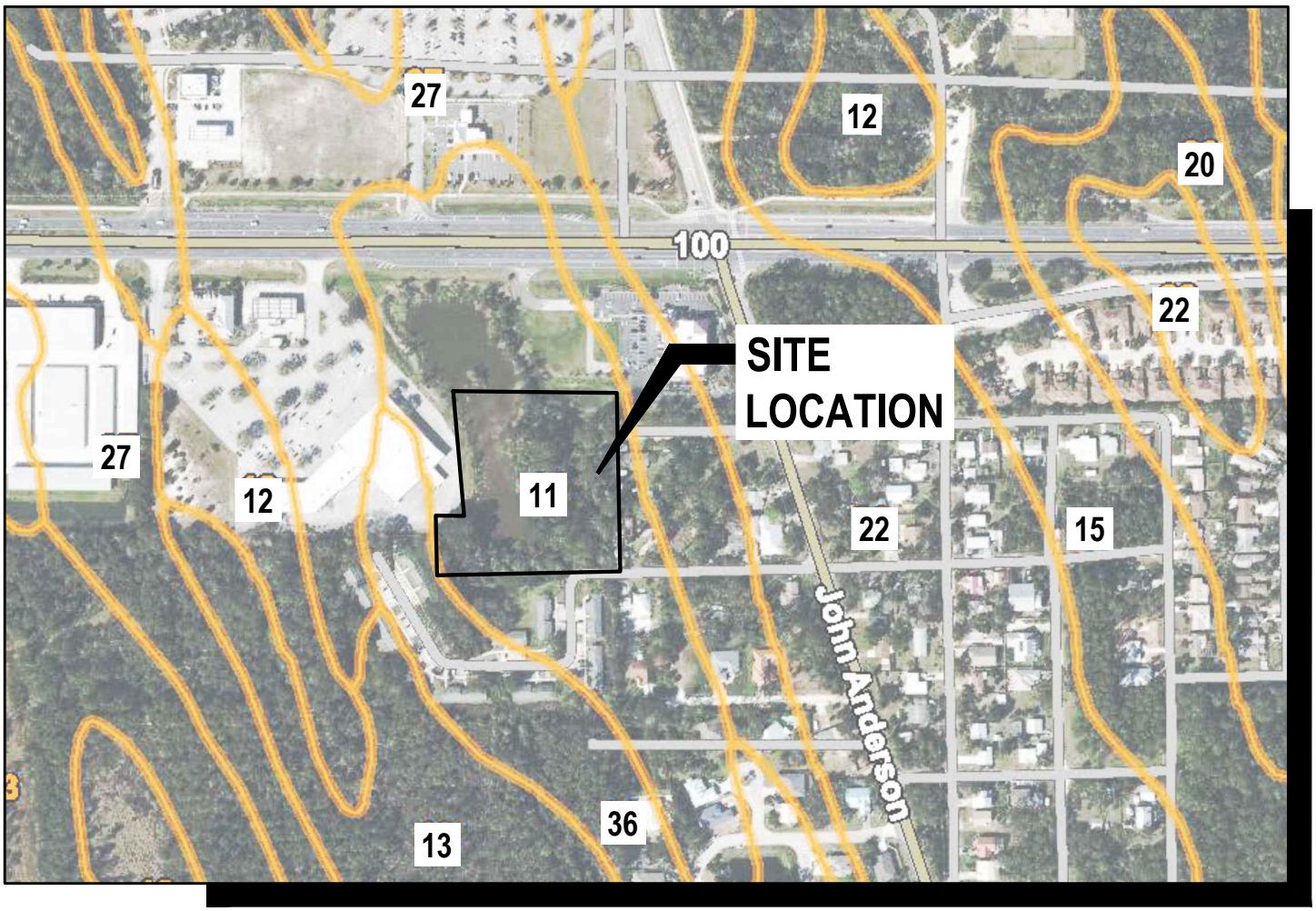
SCALE: 1" = 700'



FLOOD ZONE MAP

PANEL NO. 12035C0232 E
FLOOD ZONE "X"

SCALE: 1" = 600'



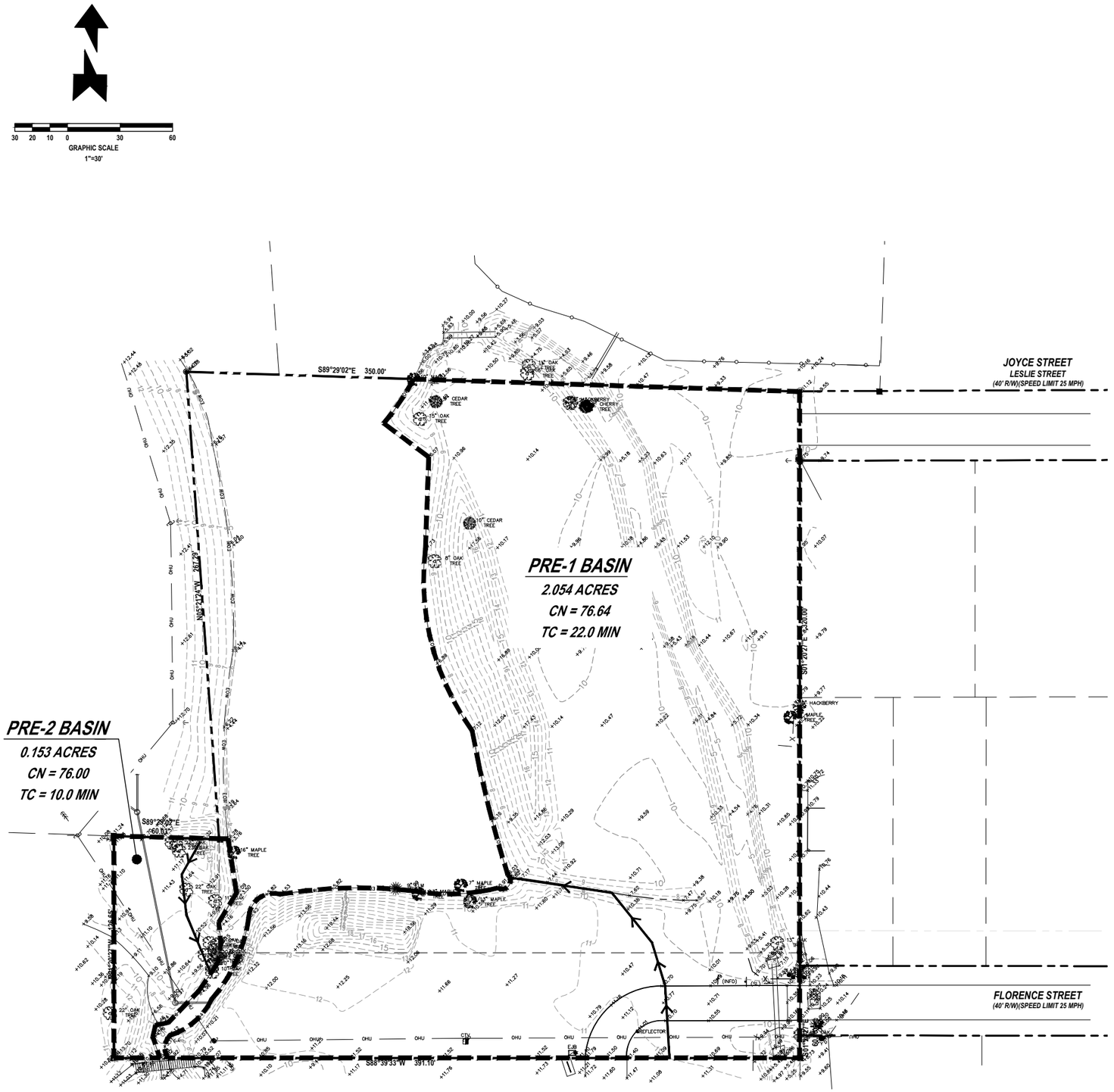
SOILS MAP

SOIL TYPES: (11)MYAKKA-MYAKKA, WET, FINE SANDS, 0 TO 2 PERCENT SLOPES

SCALE: 1" = 500'

APPENDIX B

PRE-DEVELOPMENT CALCULATIONS



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L.C. # 26000384
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Civil Engineering,
Transportation, CEI &
Landscape Architecture
NEWKIRK ENGINEERING INC.

PRE DEVELOPMENT BASIN MAP

LEGACY APARTMENTS

LESLIE STREET
FLAGLER BEACH, FL 32136

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PROJECT No:	2023-17
DATE:	MARCH 2023
DESIGN BY:	HHN
DRAWN BY:	NWS
CHECKED BY:	HHN
SCALE:	1" = 30'

DRAWING NUMBER

PRE

NEWKIRK ENGINEERING, INC.
CIVIL ENGINEERING - TRANSPORTATION - CEI - LANDSCAPE ARCHITECTURE
1230 N US HWY 1, SUITE 3, ORMOND BEACH, FLORIDA 32174 386-872-7794

PRE-DEVELOPMENT

TIME OF CONCENTRATION CALCULATIONS

BASIN: PRE-1

Sheet Flow

Tt = Travel time (min)				
s = slope	s =	0.00980	ft/ft	$s = \frac{EL_2 - EL_1}{L}$
L = Flow length (ft)	L =	100	ft	
n = Manning's Roughness Coefficien	n =	0.4	Woods (Light Underbrush)	
P2 = 2-year/24-hour rainfall (in)	P2 =	5.5	in	
	EL 2 =	11.04	Upsteam Invert	
	EL 1 =	10.06	Downstream Invert	
	Tt =	**21.8**	**min**	$Tt = \frac{(.0007(nL)^{0.8}(60))}{(\sqrt{P2} * s^{0.4})}$

Overland Flow

Tt = Travel time (min)				
s = slope	s =	0.07190	ft/ft	$V_{Paved} = 20.3282s^{.5}$
L = Flow length (ft)	L =	63	ft	
V = Velocity (ft/s)	V =	4.33	ft/s Unpaved	
	EL 2 =	10.06	Upsteam Invert	
	EL 1 =	5.53	Downstream Invert	
	Tt =	**0.2**	**min**	$Tt = \frac{L}{60V}$

Open Channel Flow

Tt = Travel time (min)				
s = slope (ft/ft)	s =		ft/ft	
L = Flow length (ft)	L =	0	ft	
n = Manning's Roughness Coefficien	n =	0	0	
a = Area	a =	0	sf	
p = Wetted perimeter	p =	0	ft	
R = Hydraulic radius (a/p)	R =	0.00	ft	
V = Velocity (ft/s)	V =	0.00	ft/s	$V = \frac{1.486\, R^{\frac{2}{3}} s^{.5}}{n}$
	EL 2 =	0.0	Upsteam Invert	
	EL 1 =	0.0	Downstream Invert	
	Tt =	**0.0**	**min**	$Tt = \frac{L}{60V}$
	Tc =	**22.0**	**min**	

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BASIN: PRE-2

Sheet Flow

Tt = Travel time (min)				
s = slope	s =	0.15562	ft/ft	$s = \frac{EL_2 - EL_1}{L}$
L = Flow length (ft)	L =	73	ft	
n = Manning's Roughness Coefficient	n =	0.40	Woods (Light Underbrush)	
P2 = 2-year/24-hour rainfall (in)	P2 =	5.5	in	
	EL 2 =	16.32	Upsteam Invert	
	EL 1 =	4.96	Downstream Invert	
	Tt =	**5.6**	**min**	$Tt = \frac{(.0007(nL)^{0.8}(60))}{(\sqrt{P2} * s^{0.4})}$

Overland Flow

Tt = Travel time (min)				
s = slope	s =		ft/ft	
L = Flow length (ft)	L =	0	ft	
V = Velocity (ft/s)	V =	0.00	ft/s Unpaved	$V_{Paved} = 20.3282s^{.5}$ $V_{Unpaved} = 16.1345s^{.5}$
	EL 2 =	0.00	Upsteam Invert	
	EL 1 =	0.00	Downstream Invert	
	Tt =	**0.0**	**min**	$Tt = \frac{L}{60V}$

Open Channel Flow

Tt = Travel time (min)				$V = \frac{1.486\, R^{\frac{2}{3}} s^{.5}}{n}$
s = slope (ft/ft)	s =		ft/ft	
L = Flow length (ft)	L =	0	ft	
n = Manning's Roughness Coefficient	n =	0	0	
a = Area	a =	0	sf	
p = Wetted perimeter	p =	0	ft	
R = Hydraulic radius (a/p)	R =		ft	
V = Velocity (ft/s)	V =	0.00	ft/s	
	EL 2 =	0.0	Upsteam Invert	
	EL 1 =	0.0	Downstream Invert	
	Tt =	**0.0**	**min**	$Tt = \frac{L}{60V}$
	Tc =	**5.6**	**min**	

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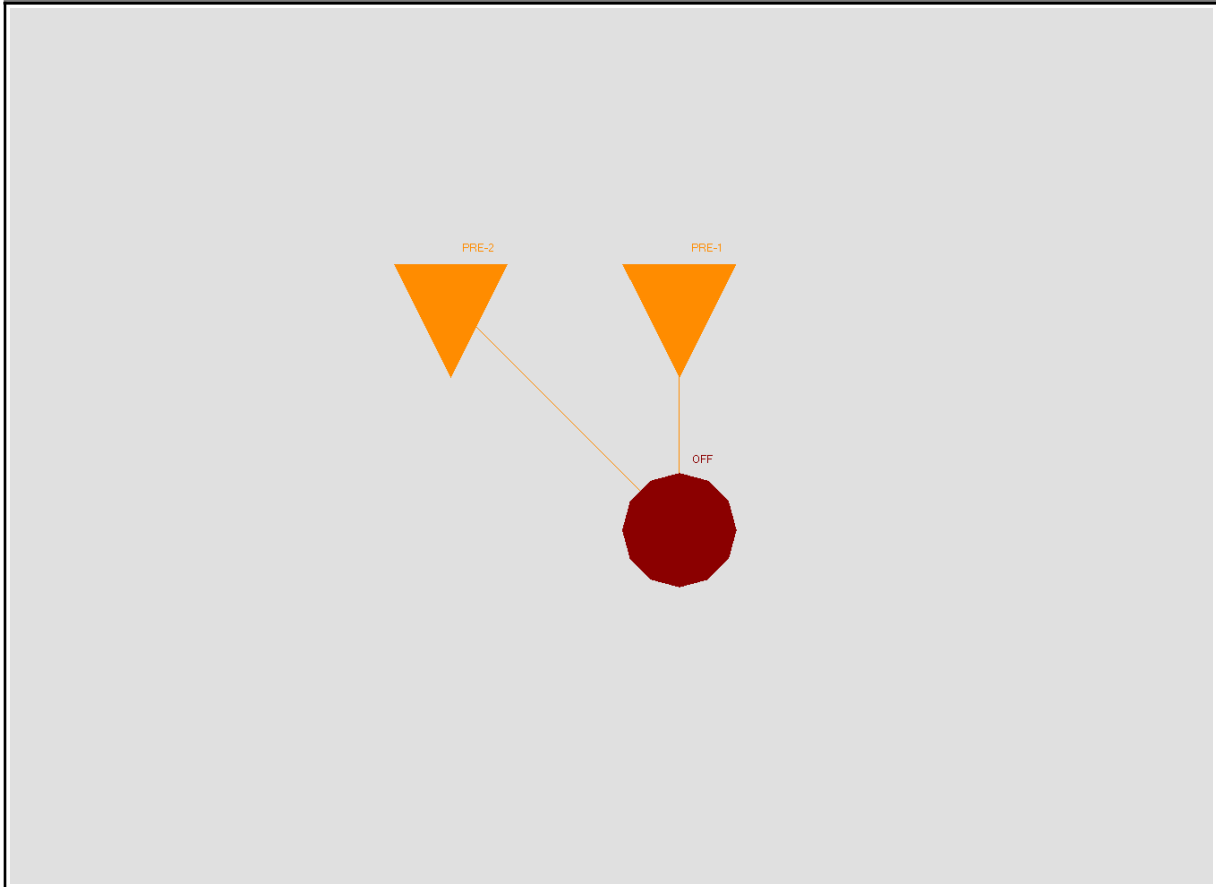
PRE-DEVELOPMENT HYDROGRAPH WORKSHEET

BASIN NAME	BASIN ACRES	PERVIOUS		DCIA IMPERVIOUS		NON DCIA IMPERVIOUS		WET POND NWL		WETLAND		COMPOSITE CN	NON DCIA CN
		ACRES	CN	ACRES	CN	ACRES	CN	ACRES	CN	ACRES	CN		
PRE-1	2.054	1.994	76.00		98.0	0.060	98.0		100.0		93.0	76.64	76.64
PRE-2	0.153	0.153	76.00		98.0		98.0		100.0		93.0	76.00	76.00
TOTAL	2.207	2.147	76.00		98.0	0.060	98.0		100.0		93.0	76.60	76.60

PRE-DEVELOPMENT						
BASIN NAME	SOIL TYPE	DESCRIPTION	CONDITION	HYDRAULIC GROUP	AREA (AC)	CN
PRE-1	11 MYAKKA-MYAKKA, WET, FINE SANDS, 0	WOODS-GRASS	FAIR	C	2.054	76
	11 MYAKKA-MYAKKA, WET, FINE SANDS, 0	WOODS-GRASS	FAIR	C	0.153	76
				TOTAL	2.207	76.00

SOURCES: SCS SOILS SURVEY FOR FLAGLER COUNTY, FLORIDA
SCS TR 55, Agricultural Lands, Woods

Background Image: PRE



Simple Basin: PRE-1

Scenario:	Scenario1
Node:	OFF
Hydrograph Method:	NRCS Unit Hydrograph
Infiltration Method:	Curve Number
Time of Concentration:	22.0000 min
Max Allowable Q:	0.00 cfs
Time Shift:	0.0000 hr
Unit Hydrograph:	UH323
Peaking Factor:	323.0
Area:	2.0540 ac
Curve Number:	76.0
% Impervious:	2.90
% DCIA:	0.00
% Direct:	0.00
Rainfall Name:	

Comment:

Simple Basin Runoff Summary [Scenario1]

Basin Name	Sim Name	Max Flow [cfs]	Time to Max Flow [hrs]	Total Rainfall [in]	Total Runoff [in]	Area [ac]	Equivalent Curve Number	% Imperv	% DCIA
PRE-1	01_MA_24H	2.51	12.1833	4.50	2.16	2.0540	76.5	2.90	0.00
PRE-1	02_25Y_24H	7.01	12.1667	8.85	5.98	2.0540	76.5	2.90	0.00

Simple Basin Mass Balance Summary [Scenario1]

Basin Name	Sim Name	Total Rainfall	Total Irrigation	Total Runoff	Total ET	Total Initial Abst	Total Recharge	Change Soil Storage
PRE-1 [in]	01_MA_24H	4.50	0.00	2.16	0.00	0.00	0.00	2.34
PRE-1 [ft3]	01_MA_24H	33552	0	16109	0	0	0	17443
PRE-1 [ac-ft]	01_MA_24H	0.77	0.00	0.37	0.00	0.00	0.00	0.40
PRE-1 [in]	02_25Y_24H	8.85	0.00	5.98	0.00	0.00	0.00	2.87
PRE-1 [ft3]	02_25Y_24H	65986	0	44568	0	0	0	21418
PRE-1 [ac-ft]	02_25Y_24H	1.51	0.00	1.02	0.00	0.00	0.00	0.49

Simple Basin: PRE-2

Scenario:	Scenario1
Node:	OFF
Hydrograph Method:	NRCS Unit Hydrograph
Infiltration Method:	Curve Number
Time of Concentration:	10.0000 min
Max Allowable Q:	0.00 cfs
Time Shift:	0.0000 hr
Unit Hydrograph:	UH323
Peaking Factor:	323.0
Area:	0.0153 ac
Curve Number:	76.0
% Impervious:	0.00
% DCIA:	0.00
% Direct:	0.00
Rainfall Name:	

Comment:

Simple Basin Runoff Summary [Scenario1]

Basin Name	Sim Name	Max Flow [cfs]	Time to Max Flow [hrs]	Total Rainfall [in]	Total Runoff [in]	Area [ac]	Equivalent Curve Number	% Imperv	% DCIA
PRE-2	01_MA_24H	0.03	12.0500	4.50	2.13	0.0153	76.0	0.00	0.00
PRE-2	02_25Y_24H	0.07	12.0333	8.85	5.93	0.0153	76.0	0.00	0.00

Simple Basin Mass Balance Summary [Scenario1]

Basin Name	Sim Name	Total Rainfall	Total Irrigation	Total Runoff	Total ET	Total Initial Abst	Total Recharge	Change Soil Storage
PRE-2 [in]	01_MA_24H	4.50	0.00	2.13	0.00	0.00	0.00	2.37
PRE-2 [ft3]	01_MA_24H	250	0	118	0	0	0	132
PRE-2 [ac-ft]	01_MA_24H	0.01	0.00	0.00	0.00	0.00	0.00	0.00
PRE-2 [in]	02_25Y_24H	8.85	0.00	5.93	0.00	0.00	0.00	2.92
PRE-2 [ft3]	02_25Y_24H	492	0	330	0	0	0	162
PRE-2 [ac-ft]	02_25Y_24H	0.01	0.00	0.01	0.00	0.00	0.00	0.00

Node: OFF

Scenario: Scenario1
Type: Time/Stage
Base Flow: 0.00 cfs
Initial Stage: 6.20 ft
Warning Stage: 0.00 ft
Boundary Stage:

Comment:

Node Max Conditions [Scenario1]

Node Name	Sim Name	Warning Stage [ft]	Max Stage [ft]	Min/Max Delta Stage [ft]	Max Total Inflow [cfs]	Max Total Outflow [cfs]	Max Surface Area [ft2]
OFF	01_MA_24H	0.00	6.20	0.0000	2.53	0.00	0
OFF	02_25Y_24H	0.00	6.20	0.0000	7.07	0.00	0

Node Mass Balance Condensed [Scenario1]

Node Name	Sim Name	Total Inflow [ft3]	Total Outflow [ft3]	Stored Volume (Flow Based) [ft3]
OFF	01_MA_24H	16223	0	16223
OFF	02_25Y_24H	44888	0	44888

Simulation: 01_MA_24H

Scenario: Scenario1
Run Date/Time: 2/1/2023 1:18:14 PM
Program Version: ICPR4 4.07.08

General

Run Mode: Normal

	Year	Month	Day	Hour [hr]
Start Time:	0	0	0	0.0000
End Time:	0	0	0	24.0000

	Hydrology [sec]	Surface Hydraulics [sec]
Min Calculation Time:	60.0000	0.1000
Max Calculation Time:		30.0000

Output Time Increments

Hydrology

Year	Month	Day	Hour [hr]	Time Increment [min]
0	0	0	0.0000	15.0000

Surface Hydraulics

Year	Month	Day	Hour [hr]	Time Increment [min]
0	0	0	0.0000	15.0000

Restart File

Save Restart: False

Resources & Lookup Tables

Resources

Rainfall Folder:
Unit Hydrograph Folder:

Lookup Tables

Boundary Stage Set:
Extern Hydrograph Set:
Curve Number Set:
Green-Ampt Set:
Vertical Layers Set:
Impervious Set:

Tolerances & Options

Time Marching: SAOR
Max Iterations: 6
Over-Relax Weight Fact: 0.5 dec
dZ Tolerance: 0.0010 ft

IA Recovery Time: 24.0000 hr
Smp/Man Basin Rain: Global

		Opt:	
Max dZ:	1.0000 ft		
Link Optimizer Tol:	0.0001 ft	Rainfall Name:	~FLMOD
		Rainfall Amount:	4.50 in
Edge Length Option:	Automatic	Storm Duration:	24.0000 hr
		Dflt Damping (1D):	0.0050 ft
		Min Node Srf Area (1D):	100 ft2
		Energy Switch (1D):	Energy

Comment:

Simulation: 02_25Y_24H

Scenario: Scenario1
Run Date/Time: 2/1/2023 1:18:19 PM
Program Version: ICPR4 4.07.08

General

Run Mode: Normal

	Year	Month	Day	Hour [hr]
Start Time:	0	0	0	0.0000
End Time:	0	0	0	24.0000

	Hydrology [sec]	Surface Hydraulics [sec]
Min Calculation Time:	60.0000	0.1000
Max Calculation Time:		30.0000

Output Time Increments

Hydrology

Year	Month	Day	Hour [hr]	Time Increment [min]
0	0	0	0.0000	15.0000

Surface Hydraulics

Year	Month	Day	Hour [hr]	Time Increment [min]
0	0	0	0.0000	15.0000

Restart File

Save Restart: False

Resources & Lookup Tables

Resources

Rainfall Folder:
Unit Hydrograph Folder:

Lookup Tables

Boundary Stage Set:
Extern Hydrograph Set:
Curve Number Set:
Green-Ampt Set:
Vertical Layers Set:
Impervious Set:

Tolerances & Options

Time Marching: SAOR
Max Iterations: 6
Over-Relax Weight Fact: 0.5 dec
dZ Tolerance: 0.0010 ft

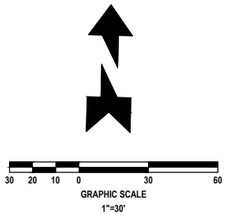
IA Recovery Time: 24.0000 hr
Smp/Man Basin Rain: Global

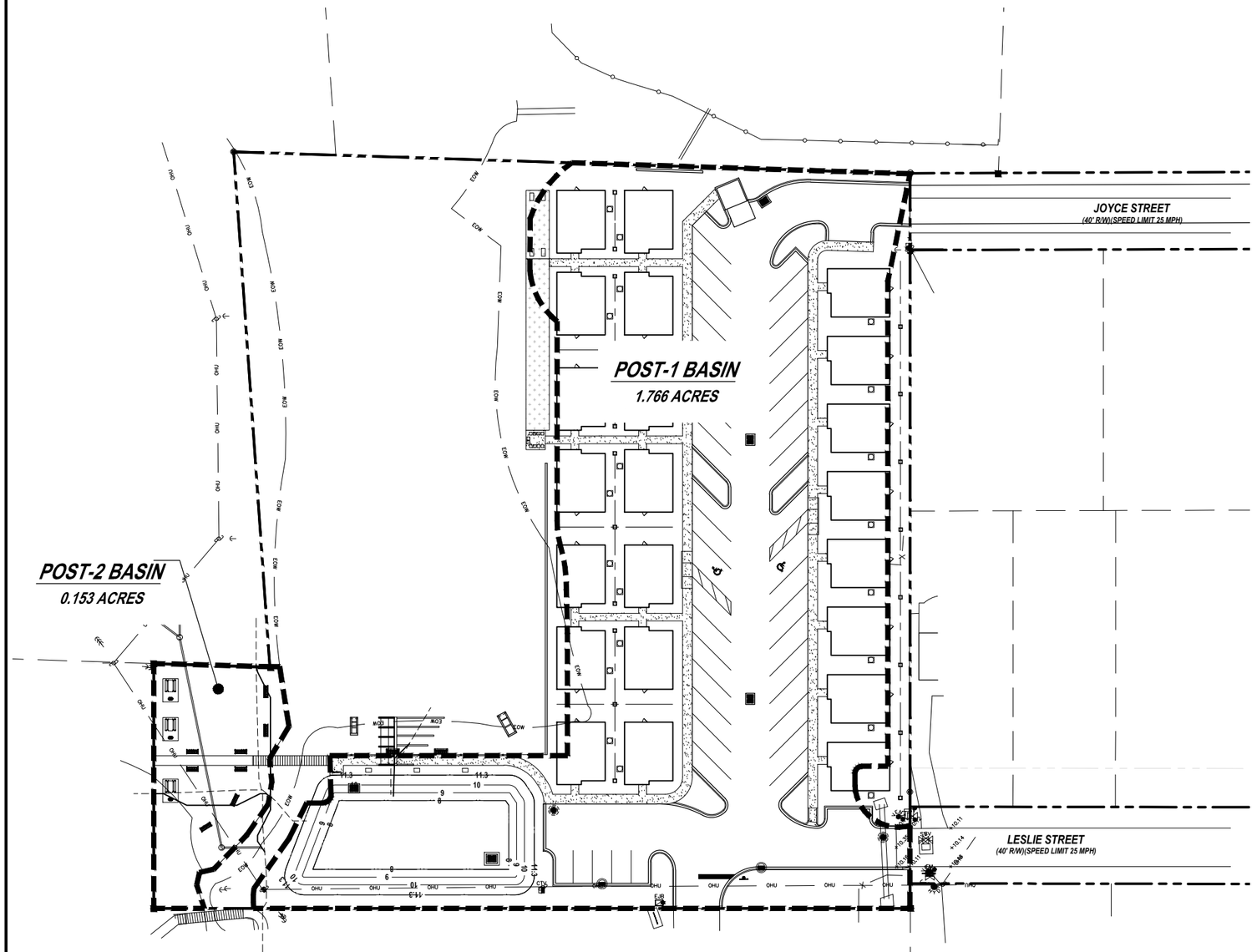
		Opt:	
Max dZ:	1.0000 ft		
Link Optimizer Tol:	0.0001 ft	Rainfall Name:	~FLMOD
		Rainfall Amount:	8.85 in
Edge Length Option:	Automatic	Storm Duration:	24.0000 hr
		Dflt Damping (1D):	0.0050 ft
		Min Node Srf Area (1D):	100 ft2
		Energy Switch (1D):	Energy

Comment:

APPENDIX C

POST-DEVELOPMENT CALCULATIONS





LEGEND

- BASIN LINE
- PARCEL LINE

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POST DEVELOPMENT BASIN MAP

LEGACY APARTMENTS

LESLIE STREET
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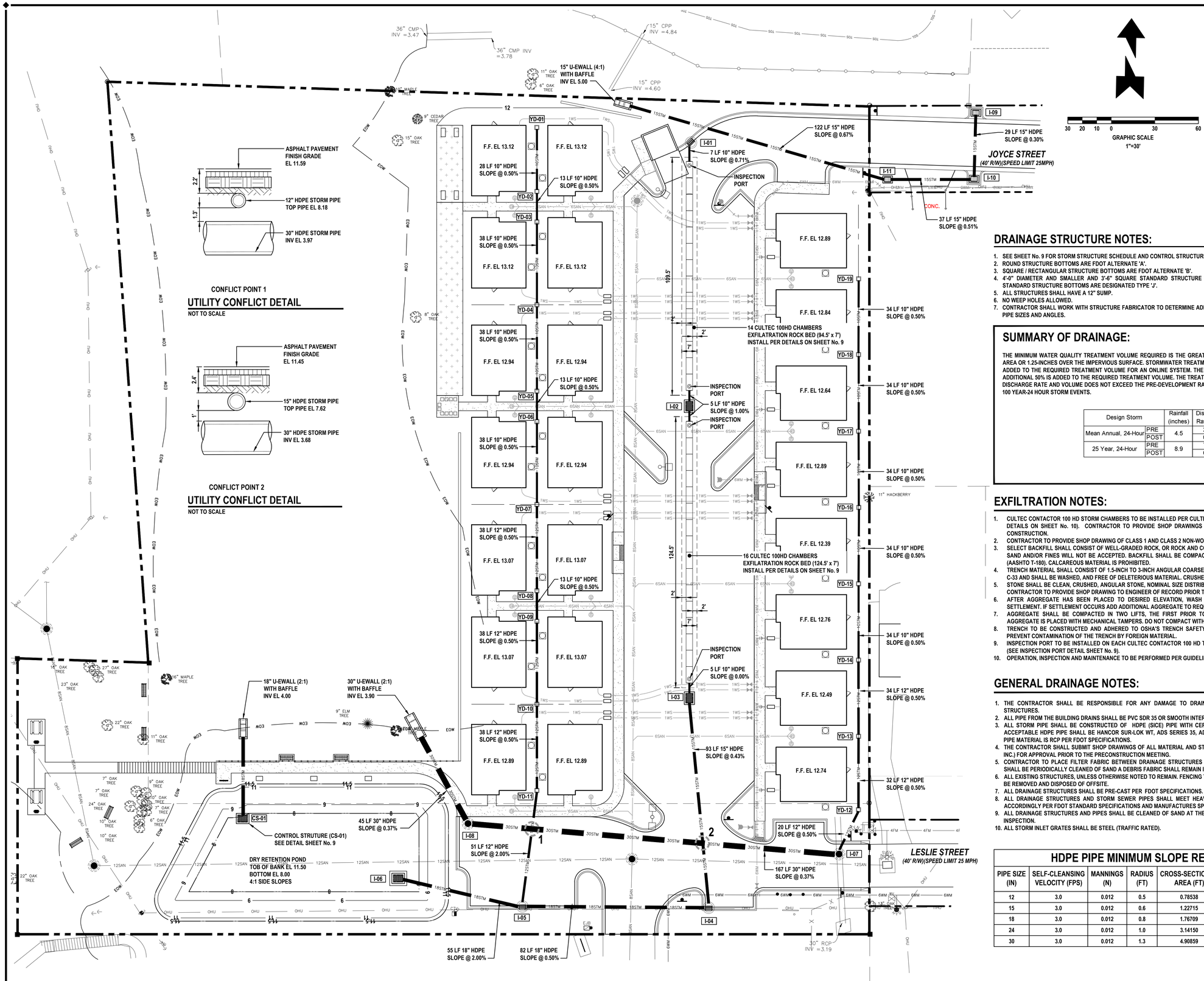
PROJECT No:	2023-17
DATE:	MARCH 2023
DESIGN BY:	HHN
DRAWN BY:	NWS
CHECKED BY:	HHN
SCALE:	1" = 30'

DRAWING NUMBER

POST



DRAINAGE STRUCTURE NOTES:

1. SEE SHEET No. 9 FOR STORM STRUCTURE SCHEDULE AND CONTROL STRUCTURE DETAIL.
2. ROUND STRUCTURE BOTTOMS ARE FDOT ALTERNATE 'A'.
3. SQUARE / RECTANGULAR STRUCTURE BOTTOMS ARE FDOT ALTERNATE 'B'.
4. 4'-0" DIAMETER AND SMALLER AND 3'-6" SQUARE STANDARD STRUCTURE BOTTOMS ARE FDOT TYPE DESIGNATED 'P' LARGER STANDARD STRUCTURE BOTTOMS ARE DESIGNATED TYPE 'J'.
5. ALL STRUCTURES SHALL HAVE A 12" SUMP.
6. NO WEEP HOLES ALLOWED.
7. CONTRACTOR SHALL WORK WITH STRUCTURE FABRICATOR TO DETERMINE ADEQUATE STRUCTURE BOTTOM SIZE FOR THE PROPOSED PIPE SIZES AND ANGLES.

SUMMARY OF DRAINAGE:

THE MINIMUM WATER QUALITY TREATMENT VOLUME REQUIRED IS THE GREATER OF 0.5-INCHES OF RUNOFF OVER THE DRAINAGE RETENTION AREA OR 1.25-INCHES OVER THE IMPERVIOUS SURFACE. STORMWATER TREATMENT IS PROVIDED BY DRY RETENTION. AN ADDITIONAL 0.5-INCH IS ADDED TO THE REQUIRED TREATMENT VOLUME FOR AN ONLINE SYSTEM. THE STORMWATER SYSTEM DISCHRAGES TO AN OFW, THREFORE AN ADDITIONAL 50% IS ADDED TO THE REQUIRED TREATMENT VOLUME. THE TREATMENT SYSTEM IS DESIGNED TO ENSURE THE POST DEVELOPMENT DISCHARGE RATE AND VOLUME DOES NOT EXCEED THE PRE-DEVELOPMENT RATE AND VOLUME FOR THE MEAN ANNUAL, 25 YEAR-24 HOUR, AND 100 YEAR-24 HOUR STORM EVENTS.

Design Storm		Rainfall (inches)	Discharge Rate (cfs)	Outflow Volume (ft³)	Peak Stage (ft)
Mean Annual, 24-Hour	PRE	4.5	2.53	16,223	10.39
	POST		0.17	4,909	
25 Year, 24-Hour	PRE	8.9	7.07	44,888	10.98
	POST		6.36	31,300	

EXFILTRATION NOTES:

1. CULTEC CONTACTOR 100 HD STORM CHAMBERS TO BE INSTALLED PER CULTEC DETAILS AND MANUFACTURER SPECIFICATIONS (SEE DETAILS ON SHEET No. 10). CONTRACTOR TO PROVIDE SHOP DRAWINGS FOR APPROVAL BY ENGINEER OF RECORD PRIOR TO CONSTRUCTION.
2. CONTRACTOR TO PROVIDE SHOP DRAWING OF CLASS 1 AND CLASS 2 NON-WOVEN FILTER FABRIC.
3. SELECT BACKFILL SHALL CONSIST OF WELL-GRADED ROCK, OR ROCK AND COARSE SAND FILL. FILL HAVING A HIGH PROPORTION OF SAND AND/OR FINES WILL NOT BE ACCEPTED. BACKFILL SHALL BE COMPACTED BY MECHANICAL TAMPERS TO 98% MAX. DENSITY (AASHTO T-180). CALCAREOUS MATERIAL IS PROHIBITED.
4. TRENCH MATERIAL SHALL CONSIST OF 1.5-INCH TO 3-INCH ANGULAR COARSE AGGREGATE MEETING F.D.O.T. SECTION 901 AND ASTM C-33 AND SHALL BE WASHED, AND FREE OF DELETERIOUS MATERIAL. CRUSHED RECYCLED CONCRETE IS ACCEPTABLE.
5. STONE SHALL BE CLEAN, CRUSHED, ANGULAR STONE, NOMINAL SIZE DISTRIBUTION 1.5-INCHES TO 3-INCHES WITH A 50% VOID RATIO. CONTRACTOR TO PROVIDE SHOP DRAWING TO ENGINEER OF RECORD PRIOR TO CONSTRUCTION..
6. AFTER AGGREGATE HAS BEEN PLACED TO DESIRED ELEVATION, WASH DOWN WITH CLEAR WATER TO ALLOW FOR INITIAL SETTLEMENT. IF SETTLEMENT OCCURS ADD ADDITIONAL AGGREGATE TO REQUIRED ELEVATION.
7. AGGREGATE SHALL BE COMPACTED IN TWO LIFTS, THE FIRST PRIOR TO PLACING PIPE, AND THE SECOND AFTER THE TOP AGGREGATE IS PLACED WITH MECHANICAL TAMPERS. DO NOT COMPACT WITH VIBRATORY ROLLERS.
8. TRENCH TO BE CONSTRUCTED AND ADHERED TO OSHA'S TRENCH SAFETY CODE. CONTRACTOR SHALL TAKE PRECAUTIONS TO PREVENT CONTAMINATION OF THE TRENCH BY FOREIGN MATERIAL.
9. INSPECTION PORT TO BE INSTALLED ON EACH CULTEC CONTACTOR 100 HD TERMINAL END CAP AND MIDDLE POINT ON LONG RUNS. (SEE INSPECTION PORT DETAIL SHEET No. 9).
10. OPERATION, INSPECTION AND MAINTENANCE TO BE PERFORMED PER GUIDELINES PROVIDED ON SHEET No. 10.

GENERAL DRAINAGE NOTES:

1. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY DAMAGE TO DRAINAGE SYSTEM AND SHALL RESTORE ANY DAMAGED STRUCTURES.
2. ALL PIPE FROM THE BUILDING DRAINS SHALL BE PVC SDR 35 OR SMOOTH INTERIOR HDPE.
3. ALL STORM PIPE SHALL BE CONSTRUCTED OF HDPE (SICE) PIPE WITH CERTIFIED WATERTIGHT JOINTS BY THE MANUFACTURER. ACCEPTABLE HDPE PIPE SHALL BE HANCOR SUR-LOK WT, ADS SERIES 35, ADS N-12 WITH WT JOINT OR EQUAL. ALTERNATE STORM PIPE MATERIAL IS RCP PER FDOT SPECIFICATIONS.
4. THE CONTRACTOR SHALL SUBMIT SHOP DRAWINGS OF ALL MATERIAL AND STRUCTURES TO THE ENGINEER (NEWKIRK ENGINEERING, INC.) FOR APPROVAL PRIOR TO THE PRECONSTRUCTION MEETING.
5. CONTRACTOR TO PLACE FILTER FABRIC BETWEEN DRAINAGE STRUCTURES AND TOPS TO PREVENT SOIL INTRUSION. THE FABRIC SHALL BE PERIODICALLY CLEANED OF SAND A DEBRIS FABRIC SHALL REMAIN IN PLACE UNTIL PAVING IS COMPLETE.
6. ALL EXISTING STRUCTURES, UNLESS OTHERWISE NOTED TO REMAIN. FENCING TREES, & ETC., WITHIN THE CONSTRUCTION AREA SHALL BE REMOVED AND DISPOSED OF OFFSITE.
7. ALL DRAINAGE STRUCTURES SHALL BE PRE-CAST PER FDOT SPECIFICATIONS.
8. ALL DRAINAGE STRUCTURES AND STORM SEWER PIPES SHALL MEET HEAVY DUTY TRAFFIC (H20) LOADING AND BE INSTALLED ACCORDINGLY PER FDOT STANDARD SPECIFICATIONS AND MANUFACTURES SPECIFICATIONS RESPECTIVELY.
9. ALL DRAINAGE STRUCTURES AND PIPES SHALL BE CLEANED OF SAND AT THE LAST STAGE OF CONSTRUCTION PRIOR TO THE FINAL INSPECTION.
10. ALL STORM INLET GRATES SHALL BE STEEL (TRAFFIC RATED).

HDPE PIPE MINIMUM SLOPE REQUIREMENTS

PIPE SIZE (IN)	SELF-CLEANSING VELOCITY (FPS)	MANNINGS (N)	RADIUS (FT)	CROSS-SECTIONAL AREA (FT)	WETTED PERIMETER (FT)	MINIMUM SLOPE (FT/FT)
12	3.0	0.012	0.5	0.78538	1.1415	0.0036
15	3.0	0.012	0.6	1.22715	3.9269	0.0027
18	3.0	0.012	0.8	1.76709	4.7123	0.0021
24	3.0	0.012	1.0	3.14150	6.2830	0.0015
30	3.0	0.012	1.3	4.90859	7.8538	0.0011

REVISIONS

DATE	DESCRIPTION
.	

1230 North US1, Suite 3
Ormond Beach, Florida 32174
Phone (386) 672-7794
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C.A. # 30209
L.C. # 26000584
C 2013
Civil Engineering
Transportation, CEI &
Landscape Architecture
NEWKIRK ENGINEERING INC.

DRAINAGE PLAN
LEGACY POINTE COTTAGES
LESLIE STREET
FLAGLER BEACH, FL 32136

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PROJECT No:	2023-17
DATE:	OCTOBER 2024
DESIGN BY:	HHN
DRAWN BY:	NWS
CHECKED BY:	HHN
SCALE:	1" = 20'

DRAWING NUMBER

8

NEWKIRK ENGINEERING, INC.
CIVIL ENGINEERING - TRANSPORTATION - CEI - LANDSCAPE ARCHITECTURE
1230 N US HWY 1, SUITE 3, ORMOND BEACH, FLORIDA 32174 386-872-7794

POST-DEVELOPMENT CALCULATIONS

BASIN	BASIN ACRES	PERVIOUS		DCIA IMPERVIOUS		NON DCIA IMPERVIOUS		WET POND NWL / WETLAND		COMPOSITE CN	NON DCIA CN
		ACRES	CN	ACRES	CN	ACRES	CN	ACRES	CN		
POST-1	1.766	0.674	61.00	0.569	98.00	0.523	98.00		100.00	83.89	77.18
POST-2	0.153	0.141	61.00			0.012	98.00		100.00	64.01	64.01
TOTAL	1.919	0.674	61.00	0.569	98.00	0.523	98.00		100.00	77.19	68.41

POST-DEVELOPMENT						
BASIN NAME	SOIL TYPE	DESCRIPTION	CONDITION	HYDRAULIC GROUP	AREA (AC)	CN
POST	11 MYAKKA-MYAKKA, WET, F	URBAN OPEN S	GOOD	B	2.054	61.00
	11 MYAKKA-MYAKKA, WET, F	URBAN OPEN S	GOOD	B	0.166	61.00
				TOTAL	2.220	61.00

DCIA IMP	DIRECT	IMP
%	%	%
32.2%		61.9%

Treatment Volume Calculations		
SJRWMD Dry Retention Pond		
A. 0.5"	of runoff over drainage basin	**0.074 Ac-Ft**
B. Impervious area x	1.25" (excluding pond)	**0.114 Ac-Ft**
	+ Additional 0.5" Over Site Area	**0.187 Ac-Ft**
C. + 50% required treatment volume for OFW		**0.281 Ac-Ft**
D. Total Required Treatment Volume		**0.281**

Dry Retention & Exfiltration

Stage (MSL)	Area (SF)	Area (Ac)	Volume (Ac-ft)	Volume (CF)	Notes
8.00	4,298	0.099	0.000	0	
9.00	5,535	0.127	0.113	4,922	
10.00	6,750	0.155	0.254	11,064	
11.00	7,174	0.165	0.414	18,034	
11.50	7,705	0.177	0.500	21,758	Top of Bank

	Stage (Ft)	Area (Ac)	Volume (Ac-Ft)
Control Elevation	10.20	0.157	0.286
1/2 Treatment Volume	9.20	0.132	0.141
Treatment Volume	10.17	0.157	0.281

Check for Skimmer

Impervious Area Overall = 1.104 Ac / 1.766 Ac = 62.51% > 50% Skimmer Required

Dry Retention Pond

Stage (MSL)	Area (SF)	Area (Ac)	Volume (Ac-ft)	Volume (CF)	Notes
8.00	3,446	0.079	0.000	0	
9.00	4,580	0.105	0.092	4,008	
10.00	5,827	0.134	0.212	9,213	
11.00	7,174	0.165	0.361	15,725	
11.50	7,705	0.177	0.447	19,450	Top of Bank

CULTEC, Inc.
P.O. Box 280
Brookfield, CT 06804

Phone: 203-775-4416
Fax: 203-775-1462
www.cultec.com
custservice@cultec.com

Project Information: **Date:**

Number of Rows-	2	units
Total number of chambers -	30	units
HVLV SFCx2 Feed Connectors -	0	units
Stone Void -	50	%
Stone Base -	6	inches
Stone Above Units -	6	inches
Area -	1636.00	ft^2
Base of Stone Elevation-	8.00	ft

Click for Metric

957.57 Min. Area Required

Note: Min. Area required is based on 12" around the system and typ. spacing

CULTEC Contactor 100HD Incremental Storage Volumes

Height of System	Chamber Volume	HVLV SFCx2 Feed Connector Volume	Stone Volume	Cumulative Storage Volume	Total Cumulative Storage Volume	Elevation
in	ft^3	ft^3	ft^3	ft^3	ft^3	ft
24.5	0.000	0.000	68.17	68.17	1882.65	10.04
23.5	0.000	0.000	68.17	68.17	1814.48	9.96
22.5	0.000	0.000	68.17	68.17	1746.31	9.88
21.5	0.000	0.000	68.17	68.17	1678.15	9.79
20.5	0.000	0.000	68.17	68.17	1609.98	9.71
19.5	0.000	0.000	68.17	68.17	1541.81	9.63
18.5	0.023	0.000	34.07	34.09	1473.65	9.54
18	5.424	0.000	65.45	70.88	1439.55	9.50
17	15.142	0.000	60.60	75.74	1368.67	9.42
16	24.860	0.000	55.74	80.60	1292.94	9.33
15	31.414	0.000	52.46	83.87	1212.34	9.25
14	35.934	0.000	50.20	86.13	1128.47	9.17
13	39.324	0.000	48.50	87.83	1042.33	9.08
12	41.584	0.000	47.37	88.96	954.50	9.00
11	43.392	0.000	46.47	89.86	865.55	8.92
10	45.878	0.000	45.23	91.11	775.68	8.83
9	45.878	0.000	45.23	91.11	684.58	8.75
8	45.878	0.000	45.23	91.11	593.47	8.67
7	50.398	0.000	42.97	93.37	502.37	8.58
6	0.000	0.000	68.17	68.17	409.00	8.50
5	0.000	0.000	68.17	68.17	340.83	8.42
4	0.000	0.000	68.17	68.17	272.67	8.33
3	0.000	0.000	68.17	68.17	204.50	8.25
2	0.000	0.000	68.17	68.17	136.33	8.17
1	0.000	0.000	68.17	68.17	68.17	8.08

Created on: 10/7/2024

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1230 N US HWY 1, SUITE 3, ORMOND BEACH, FLORIDA 32174 386-872-7794

POND BORING ANALYSIS

Boring	Boring Top Elevation (ft)	Depth to Water (ft)	Seasonal High Water Elevation (ft)
B-1	10.6	4.5	7.1
B-2	10.1	4.0	7.1
B-3	10.2	4.0	7.2
B-4	10.0	4.0	7.0
B-5	10.7	4.5	7.2
B-6	12.5	7.5	6.0
P-1	11.2	5.0	7.2
P-2	9.5	3.0	7.5
Average			7.0

Test Location	Vertical Percolation (ft/day)	Horizontal Percolation (ft/day)	Aquifer Base (EL)
P-1	8.78	20.19	-4.4
P-2	12.60	9.87	-4.9
Average	10.69	15.03	-4.7
FOS = 2	5.35	7.52	
Soil Porosity	25%		

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Weighted Vertical Percolation Calculations

$$P\text{-}1 = \frac{0.30 \text{ ft } (12.6 \text{ fpd}) + 1.7 \text{ ft } (8.1 \text{ fpd})}{2.0 \text{ ft}} = 8.78 \text{ fpd}$$

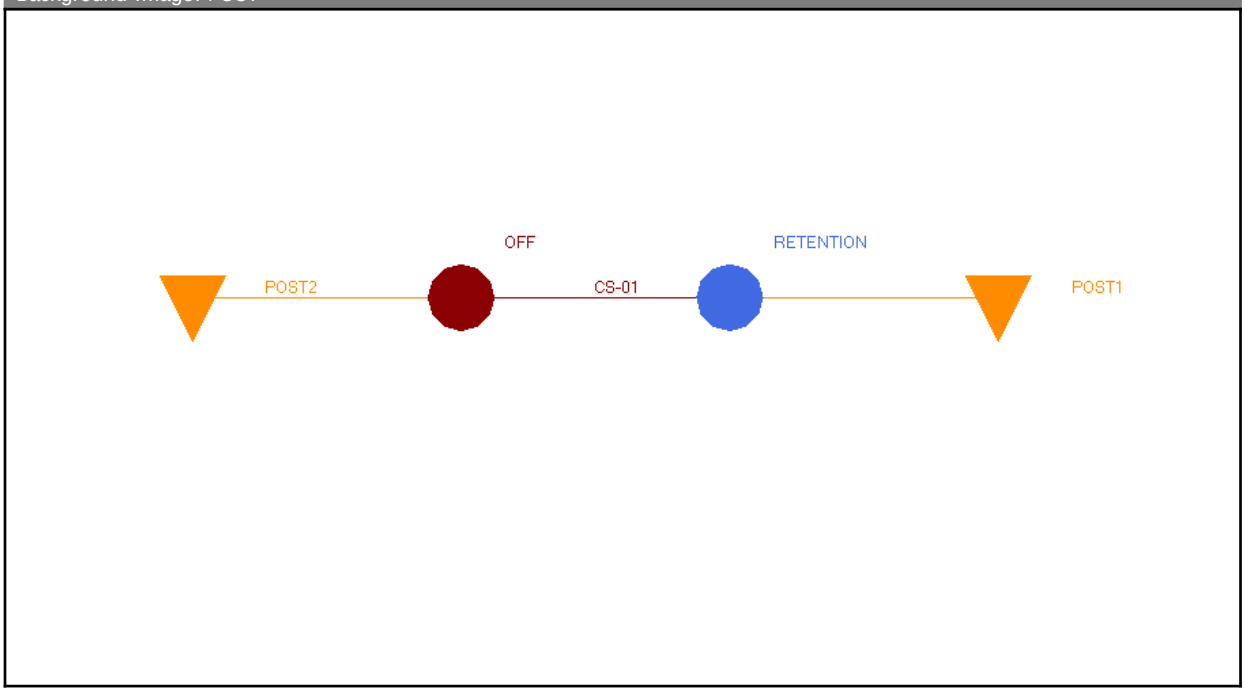
$$P\text{-}2 = \frac{2.0 \text{ ft } (12.6 \text{ fpd})}{2.0 \text{ ft}} = 12.6 \text{ fpd}$$

Weighted Horizontal Percolation Calculations

$$P\text{-}1 = \frac{1.59 \text{ ft } (25.2 \text{ fpd}) + 2.5 \text{ ft } (12.15 \text{ fpd}) + 5.0 \text{ ft } (18.9 \text{ fpd}) + 5.0 \text{ ft } (25.2 \text{ fpd}) + 5.0 \text{ ft } (18.9 \text{ fpd})}{19.09 \text{ ft}} = 20.19 \text{ fpd}$$

$$P\text{-}1 = \frac{3.79 \text{ ft } (25.2 \text{ fpd}) + 17 \text{ ft } (6.45 \text{ fpd})}{20.79 \text{ ft}} = 9.87 \text{ fpd}$$

Background Image: POST



Node Max Conditions [Scenario1]

Node Name	Sim Name	Warning Stage [ft]	Alert Stage [ft]	Max Stage [ft]	Min/Max Delta Stage [ft]	Max Total Inflow [cfs]	Max Total Outflow [cfs]	Max Surface Area [ft2]
OFF	01_MA_24HR	0.00	0.00	6.20	0.0000	0.17	0.00	0
OFF	02_25Y_24H	0.00	0.00	6.20	0.0000	6.36	0.00	0

Node Mass Balance Condensed [Scenario1]

Node Name	Sim Name	Total Inflow [ft3]	Total Outflow [ft3]	Stored Volume (Flow Based) [ft3]
OFF	01_MA_24HR	4909	0	4909
OFF	02_25Y_24H	31300	0	31300

Node Max Conditions [Scenario1]

Node Name	Sim Name	Warning Stage [ft]	Alert Stage [ft]	Max Stage [ft]	Min/Max Delta Stage [ft]	Max Total Inflow [cfs]	Max Total Outflow [cfs]	Max Surface Area [ft2]
RETENTION	01_MA_24HR	11.50	0.00	10.39	0.0010	3.47	0.17	6920
RETENTION	02_25Y_24H	11.50	0.00	10.98	0.0010	8.54	6.00	7179

Node: OFF

Scenario: Scenario1
Type: Time/Stage
Base Flow: 0.00 cfs
Initial Stage: 6.20 ft
Warning Stage: 0.00 ft
Alert Stage: 0.00 ft
Boundary Stage:

Comment:

Node: RETENTION

Scenario: Scenario1
Type: Stage/Area
Base Flow: 0.00 cfs
Initial Stage: 8.00 ft
Warning Stage: 11.50 ft
Alert Stage: 0.00 ft

Stage [ft]	Area [ac]	Area [ft2]
8.00	0.0990	4312
9.00	0.1270	5532
10.00	0.1550	6752
11.00	0.1650	7187
11.50	0.1770	7710

Comment:

Drop Structure Link: CS-01

Scenario: Scenario1
From Node: RETENTION
To Node: OFF
Link Count: 1

Upstream Pipe	Downstream Pipe
Invert: 4.50 ft	Invert: 4.00 ft
Manning's N: 0.0120	Manning's N: 0.0120
Geometry: Circular	Geometry: Circular
Max Depth: 1.50 ft	Max Depth: 1.50 ft

POST 3

Pipe Flow Direction:	Both
Solution:	Combine
Increments:	0
Pipe Count:	1
Damping:	0.0000 ft
Length:	27.00 ft
FHWA Code:	0
Entr Loss Coef:	0.00
Exit Loss Coef:	0.00
Bend Loss Coef:	0.00
Bend Location:	0.00 dec
Energy Switch:	Energy

Bottom Clip			
Default:	0.00 ft	Default:	0.00 ft
Op Table:		Op Table:	
Ref Node:		Ref Node:	
Manning's N:	0.0000	Manning's N:	0.0000
Top Clip			
Default:	0.00 ft	Default:	0.00 ft
Op Table:		Op Table:	
Ref Node:		Ref Node:	
Manning's N:	0.0000	Manning's N:	0.0000

Pipe Comment:

Weir Component

Weir:	1
Weir Count:	2
Weir Flow Direction:	Both
Damping:	0.0000 ft
Weir Type:	Sharp Crested Vertical
Geometry Type:	V-Notch Up
Invert:	10.20 ft
Control Elevation:	10.20 ft
Max Depth:	1.03 ft
Max Width:	4.50 ft

Bottom Clip	
Default:	0.00 ft
Op Table:	
Ref Node:	
Top Clip	
Default:	0.00 ft
Op Table:	
Ref Node:	
Discharge Coefficients	
Weir Default:	3.200
Weir Table:	
Orifice Default:	0.600
Orifice Table:	

Weir Comment: TYPE E

Weir Component

Weir:	2
Weir Count:	1
Weir Flow Direction:	Both
Damping:	0.0000 ft
Weir Type:	Horizontal
Geometry Type:	Rectangular
Invert:	11.40 ft
Control Elevation:	11.40 ft
Max Depth:	13.50 ft
Max Width:	15.00 ft
Fillet:	0.00 ft

Bottom Clip	
Default:	0.00 ft
Op Table:	
Ref Node:	
Top Clip	
Default:	0.00 ft
Op Table:	
Ref Node:	
Discharge Coefficients	
Weir Default:	3.200
Weir Table:	
Orifice Default:	0.600
Orifice Table:	

Weir Comment: TYPE E GRATE

Drop Structure Comment:

Simple Basin: POST1

Scenario:	Scenario1
Node:	RETENTION
Hydrograph Method:	NRCS Unit Hydrograph
Infiltration Method:	Curve Number
Time of Concentration:	10.0000 min
Max Allowable Q:	0.00 cfs
Time Shift:	0.0000 hr
Unit Hydrograph:	UH323
Peaking Factor:	323.0
Area:	1.7660 ac
Curve Number:	61.0
Ia/S:	0.00
% Impervious:	61.86
% DCIA:	32.23
% Direct:	0.00
Rainfall Name:	

Comment:

Simple Basin: POST2

Scenario:	Scenario1
Node:	OFF
Hydrograph Method:	NRCS Unit Hydrograph
Infiltration Method:	Curve Number
Time of Concentration:	10.0000 min
Max Allowable Q:	0.00 cfs
Time Shift:	0.0000 hr
Unit Hydrograph:	UH323
Peaking Factor:	323.0
Area:	0.1530 ac
Curve Number:	61.0
Ia/S:	0.00
% Impervious:	0.71
% DCIA:	0.00
% Direct:	0.00
Rainfall Name:	

Comment:

Simulation: 01_MA_24HR

Scenario:	Scenario1
Run Date/Time:	10/7/2024 10:36:06 AM
Program Version:	StormWise 4.08.03

General

Run Mode: Normal

	Year	Month	Day	Hour [hr]
Start Time:	0	0	0	0.0000
End Time:	0	0	0	24.0000

	Hydrology [sec]	Surface Hydraulics [sec]
Min Calculation Time:	60.0000	0.1000
Max Calculation Time:		30.0000

Output Time Increments

Hydrology

Year	Month	Day	Hour [hr]	Time Increment [min]
0	0	0	0.0000	15.0000

Surface Hydraulics

Year	Month	Day	Hour [hr]	Time Increment [min]
0	0	0	0.0000	15.0000

Restart File

Save Restart: False

Resources & Lookup Tables

Resources

Rainfall Folder:

Unit Hydrograph Folder:

Lookup Tables

Boundary Stage Set:
Extern Hydrograph Set:
Curve Number Set:
Green-Ampt Set:
Vertical Layers Set:
Impervious Set:

Tolerances & Options

Time Marching: SAOR
Max Iterations: 6
Over-Relax Weight Fact: 0.5 dec
dZ Tolerance: 0.0010 ft
Max dZ: 1.0000 ft
Link Optimizer Tol: 0.0001 ft

IA Recovery Time: 24.0000 hr
Ia/S: 0.20 dec
Smp/Man Basin Rain Opt: Global
Rainfall Name: ~FLMOD
Rainfall Amount: 4.50 in

Storm Duration:	24.0000 hr
Dflt Damping (1D):	0.0050 ft
Min Node Srf Area (1D):	100 ft2
Energy Switch (1D):	Energy

Comment:

Simulation: 02_25Y_24H

Scenario: Scenario1
Run Date/Time: 10/7/2024 10:36:09 AM
Program Version: StormWise 4.08.03

General

Run Mode: Normal

	Year	Month	Day	Hour [hr]
Start Time:	0	0	0	0.0000
End Time:	0	0	0	24.0000

	Hydrology [sec]	Surface Hydraulics [sec]
Min Calculation Time:	60.0000	0.1000
Max Calculation Time:		30.0000

Output Time Increments

Hydrology

Year	Month	Day	Hour [hr]	Time Increment [min]
0	0	0	0.0000	15.0000

Surface Hydraulics

Year	Month	Day	Hour [hr]	Time Increment [min]
0	0	0	0.0000	15.0000

Restart File

Save Restart: False

Resources & Lookup Tables

Resources

Rainfall Folder:
Unit Hydrograph Folder:

Lookup Tables

Boundary Stage Set:
Extern Hydrograph Set:
Curve Number Set:

Green-Ampt Set:	
Vertical Layers Set:	
Impervious Set:	

Tolerances & Options

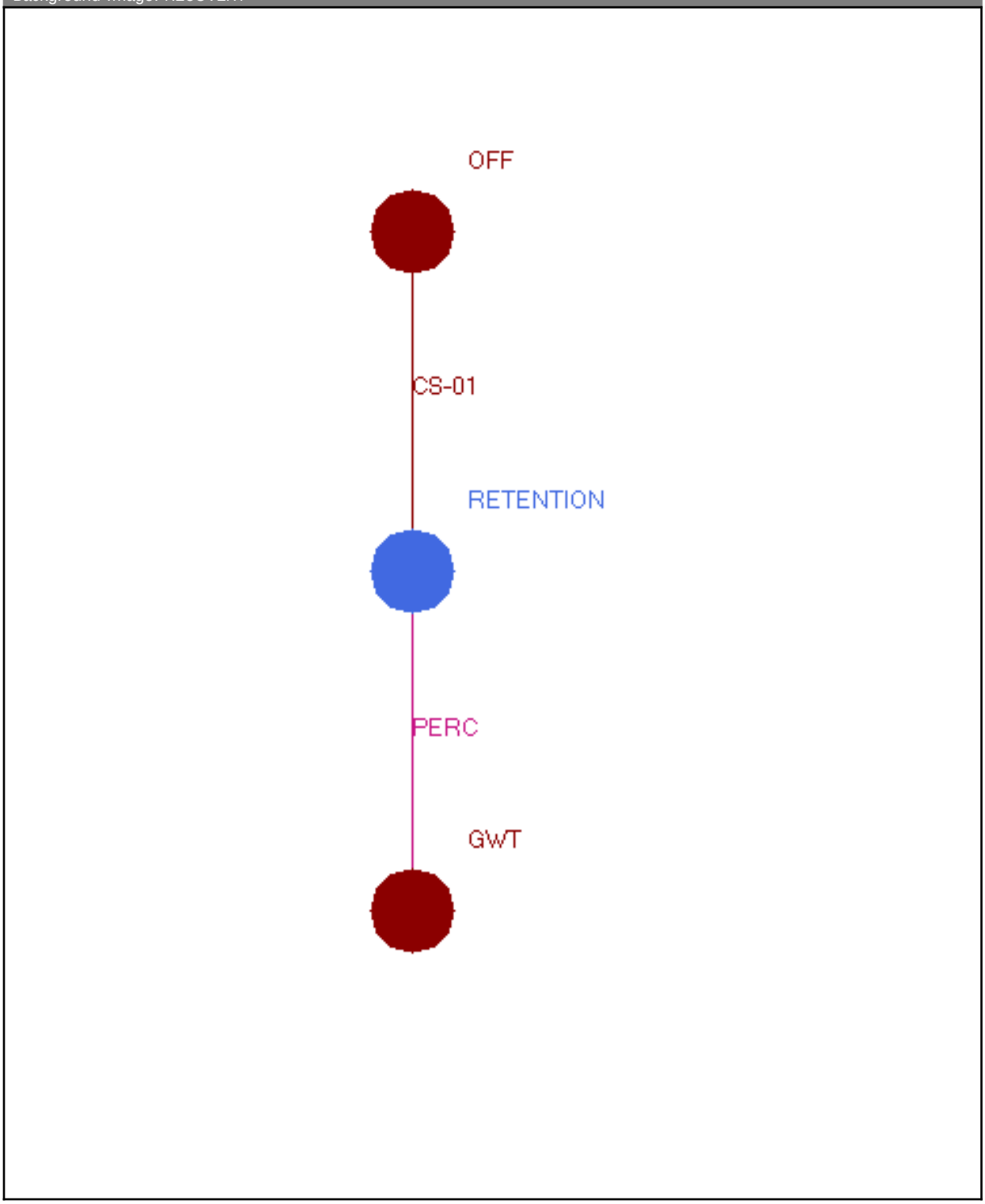
Time Marching:	SAOR	IA Recovery Time:	24.0000 hr
Max Iterations:	6		
Over-Relax Weight Fact:	0.5 dec	Ia/S:	0.20 dec
dZ Tolerance:	0.0010 ft		
Max dZ:	1.0000 ft	Smp/Man Basin Rain Opt:	Global
Link Optimizer Tol:	0.0001 ft		
		Rainfall Name:	~FLMOD
		Rainfall Amount:	8.85 in
		Storm Duration:	24.0000 hr
		Dflt Damping (1D):	0.0050 ft
		Min Node Srf Area (1D):	100 ft2
		Energy Switch (1D):	Energy

Comment:

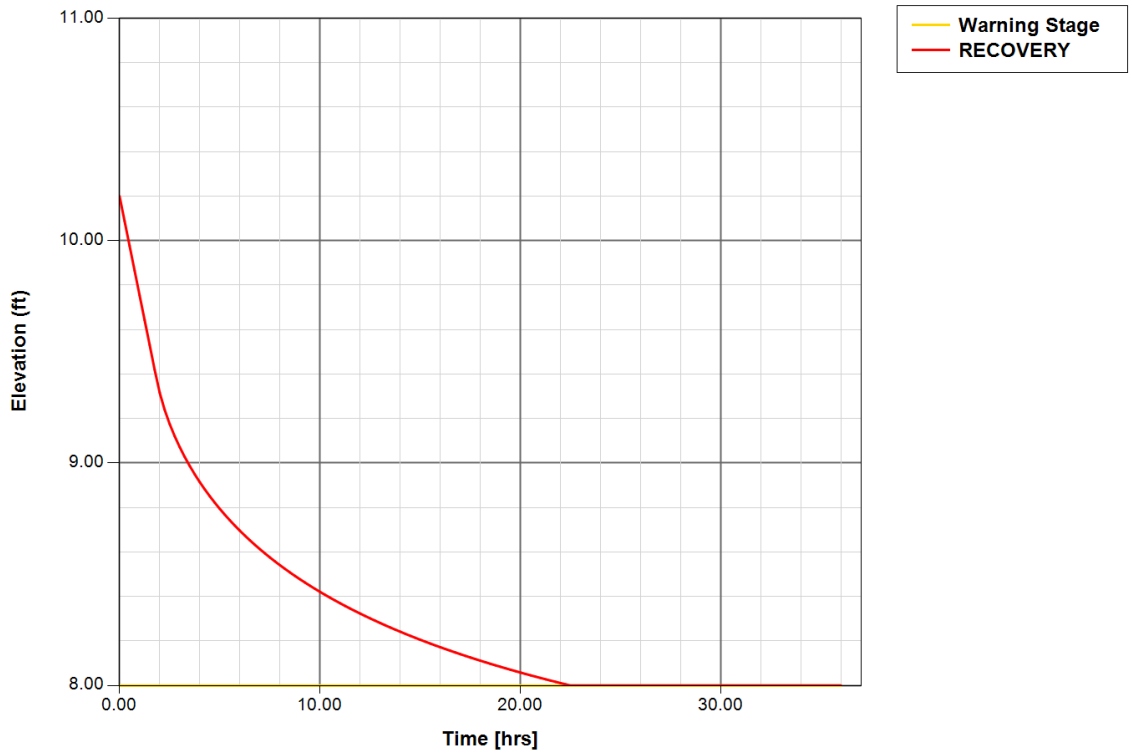
APPENDIX D

RECOVERY

Background Image: RECOVERY



Node Stage w/Warning and Alert Stage: RETENTION [Scenario1]



Node: GWT

Scenario: Scenario1
Type: Time/Stage
Base Flow: 0.00 cfs
Initial Stage: 7.00 ft
Warning Stage: 0.00 ft
Alert Stage: 0.00 ft
Boundary Stage:

Year	Month	Day	Hour	Stage [ft]
0	0	0	0.0000	7.00
0	0	0	36.0000	7.00

Comment:

Node: OFF

Scenario: Scenario1

Type: Time/Stage
Base Flow: 0.00 cfs
Initial Stage: 6.20 ft
Warning Stage: 0.00 ft
Alert Stage: 0.00 ft
Boundary Stage:

Comment:

Node: RETENTION

Scenario: Scenario1
Type: Stage/Area
Base Flow: 0.00 cfs
Initial Stage: 10.20 ft
Warning Stage: 8.00 ft
Alert Stage: 0.00 ft

Stage [ft]	Area [ac]	Area [ft2]
8.00	0.0990	4312
9.00	0.1270	5532
10.00	0.1550	6752
11.00	0.1650	7187
11.50	0.1770	7710

Comment:

Drop Structure Link: CS-01

Scenario: Scenario1
From Node: RETENTION
To Node: OFF
Link Count: 1
Pipe Flow Direction: Both
Solution: Combine
Increments: 0
Pipe Count: 1
Damping: 0.0000 ft
Length: 27.00 ft
FHWA Code: 0
Entr Loss Coef: 0.00
Exit Loss Coef: 0.00
Bend Loss Coef: 0.00
Bend Location: 0.00 dec
Energy Switch: Energy

Upstream Pipe		Downstream Pipe	
Invert:	4.50 ft	Invert:	4.00 ft
Manning's N:	0.0120	Manning's N:	0.0120
Geometry: Circular		Geometry: Circular	
Max Depth:	1.50 ft	Max Depth:	1.50 ft
Bottom Clip			
Default:	0.00 ft	Default:	0.00 ft
Op Table:		Op Table:	
Ref Node:		Ref Node:	
Manning's N:	0.0000	Manning's N:	0.0000
Top Clip			
Default:	0.00 ft	Default:	0.00 ft
Op Table:		Op Table:	
Ref Node:		Ref Node:	
Manning's N:	0.0000	Manning's N:	0.0000

Pipe Comment:

Weir Component		Bottom Clip	
Weir:	1	Default:	0.00 ft
Weir Count:	2	Op Table:	
Weir Flow Direction:	Both	Ref Node:	
Damping:	0.0000 ft	**Top Clip**	
Weir Type:	Sharp Crested Vertical	Default:	0.00 ft
Geometry Type:	V-Notch Up	Op Table:	
Invert:	10.20 ft	Ref Node:	
Control Elevation:	10.20 ft	**Discharge Coefficients**	
Max Depth:	1.03 ft	Weir Default:	3.200
Max Width:	4.50 ft	Weir Table:	
		Orifice Default:	0.600
		Orifice Table:	

Weir Comment: TYPE E

Weir Component		Bottom Clip	
Weir:	2	Default:	0.00 ft
Weir Count:	1	Op Table:	
Weir Flow Direction:	Both	Ref Node:	
Damping:	0.0000 ft	**Top Clip**	
Weir Type:	Horizontal	Default:	0.00 ft
Geometry Type:	Rectangular	Op Table:	
Invert:	11.40 ft	Ref Node:	
Control Elevation:	11.40 ft	**Discharge Coefficients**	
Max Depth:	13.50 ft	Weir Default:	3.200
Max Width:	15.00 ft	Weir Table:	
Fillet:	0.00 ft	Orifice Default:	0.600
		Orifice Table:	

Weir Comment: TYPE E GRATE

Drop Structure Comment:

Percolation Link: PERC			
Scenario:	Scenario1	Surface Area Option:	Vary Based on Stage/Area Table
From Node:	RETENTION		
To Node:	GWT	Vertical Flow Termination:	Horizontal Flow Algorithm
Link Count:	1	Perimeter 1:	950.00 ft
Flow Direction:	Both	Perimeter 2:	1545.00 ft
Aquifer Base Elevation:	-4.70 ft	Perimeter 3:	4711.00 ft
Water Table Elevation:	7.00 ft	Distance P1 to P2:	50.00 ft
Annual Recharge Rate:	0 ipy	Distance P2 to P3:	450.00 ft
Horizontal Conductivity:	15.030 fpd	# of Cells P1 to P2:	10
Vertical Conductivity:	10.690 fpd	# of Cells P2 to P3:	45
Fillable Porosity:	0.250		

Layer Thickness: 1.00 ft

Comment:

Simulation: RECOVERY

Scenario: Scenario1
Run Date/Time: 10/7/2024 10:46:49 AM
Program Version: StormWise 4.08.03

General

Run Mode: Normal

	Year	Month	Day	Hour [hr]
Start Time:	0	0	0	0.0000
End Time:	0	0	0	36.0000

	Hydrology [sec]	Surface Hydraulics [sec]
Min Calculation Time:	60.0000	0.1000
Max Calculation Time:		30.0000

Output Time Increments

Hydrology

Year	Month	Day	Hour [hr]	Time Increment [min]
0	0	0	0.0000	15.0000

Surface Hydraulics

Year	Month	Day	Hour [hr]	Time Increment [min]
0	0	0	0.0000	15.0000

Restart File

Save Restart: False

Resources & Lookup Tables

Resources

Rainfall Folder:

Unit Hydrograph Folder:

Lookup Tables

Boundary Stage Set:
Extern Hydrograph Set:
Curve Number Set:
Green-Ampt Set:
Vertical Layers Set:
Impervious Set:

Tolerances & Options

Time Marching:	SAOR	IA Recovery Time:	24.0000 hr
Max Iterations:	6		
Over-Relax Weight Fact:	0.5 dec	Ia/S:	0.20 dec
dZ Tolerance:	0.0010 ft		
Max dZ:	1.0000 ft	Smp/Man Basin Rain Opt:	Global
Link Optimizer Tol:	0.0001 ft		
		Rainfall Name:	~FLMOD
		Rainfall Amount:	0.00 in
		Storm Duration:	36.0000 hr
		Dflt Damping (1D):	0.0050 ft
		Min Node Srf Area (1D):	100 ft2
		Energy Switch (1D):	Energy

Comment:

UNIVERSAL
ENGINEERING SCIENCES

GEOTECHNICAL EVALUATION

Proposed Sunset Lake Apartments
Flagler Beach, Florida

UES Project No. 0430.1800287.0000
UES Report No. 134233

January 14, 2019

Prepared for:

Mr. Sami El-Behiri
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Prepared by:

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- Tampa
- West Palm Beach

January 14, 2019

Mr. Sami El-Behiri
Urban Comfort, PLC
1862 Arlington Court
Longwood, FL 32779

Reference: **GEOTECHNICAL EVALUATION**
Proposed Sunset Lake Apartments
Flagler Beach, Florida
UES Project No. 0430.1800287.0000 and UES Report No. 134233

Dear Mr. Speaks:

Universal Engineering Sciences, Inc. has completed the geotechnical evaluation for the subject project. This report contains the results of our evaluation, an engineering interpretation of these with respect to the project characteristics described to us, and recommendations for foundation, pavement support, stormwater management design and site preparation

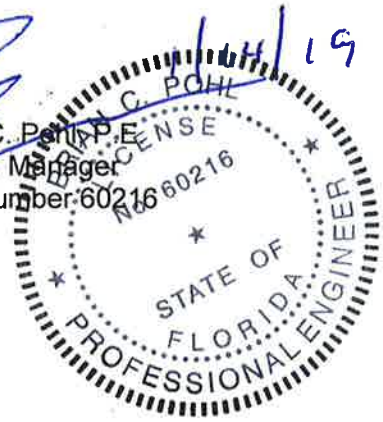
We appreciate the opportunity to have worked with you on this project and look forward to a continued association. Please do not hesitate to contact us if you should have any questions, or if we may further assist you as your plans proceed.

Respectfully submitted,

UNIVERSAL ENGINEERING SCIENCES

Michael Mohney
Project Engineer

Brian C. Pohl, P.E.
Branch Manager
P.E. Number 60216



Cc: Mr. Jack Speaks
Mr. Brett Markovitz – CPH, Inc.

Attachments

PC/BCP/cme

1.0 INTRODUCTION

1.1 GENERAL

In this report we present the results of the subsurface evaluation for the proposed construction in Flagler Beach, Florida. We have divided this report into the following sections:

- SECTION 2.0 - SCOPE OF SERVICES
- SECTION 3.0 - FINDINGS
- SECTION 4.0 - FOUNDATION AREA RECOMMENDATIONS
- SECTION 5.0 - PAVEMENT AREA RECOMMENDATIONS
- SECTION 6.0 - STORMWATER DESIGN RECOMMENDATIONS
- SECTION 7.0 - CONSTRUCTION RELATED SERVICE
- SECTION 8.0 - LIMITATIONS

2.0 SCOPE OF SERVICES

2.1 PROJECT DESCRIPTION

Project information has been provided to us by Mr. Brett Markovitz with CPH, Inc. We understand that the proposed project will consist of constructing two (2) three-story apartment buildings with associated stormwater management facilities and flexible asphalt pavement areas. We assume the column and wall loads will not exceed 75 kips and 8 kips/foot, respectively. We anticipate that approximately no greater than one to three feet of fill be placed within the roadway and building areas

Our recommendations are based upon the above considerations. If any of this information is incorrect, or if you anticipate any changes, inform Universal Engineering Sciences so that we may review our recommendations.

2.2 PURPOSE

The purposes of this investigation were:

- to investigate the general subsurface conditions at the site;
- to interpret and review the subsurface conditions with respect to the proposed construction;
- to provide geotechnical engineering recommendations for site preparation, pavement and foundation support; and
- to provide recommendations for stormwater facility design.

This report presents an evaluation of site conditions on the basis of traditional geotechnical procedures for site characterization. The recovered samples were not examined, either visually or analytically, for chemical composition or environmental hazards. Universal Engineering Sciences would be pleased to perform these services, at your request.

Our investigation was confined to the zone of soil likely to be influenced by the proposed construction. Our work did not address the potential for surface expression of deep geological conditions, such as sinkhole development related to karst activity. A deep geological evaluation requires a more extensive range of field services than performed in this study.

2.3 FIELD INVESTIGATION

2.3.1 Borings

Due to the presence of several deep intersecting canals/ditches, we were unable to traverse to all the proposed boring locations with our all terrain vehicle (ATV) drilling equipment. Instead, hand auger borings (designated B-2, B-3, B-4, and P-2) were performed in-place of these borings. It should be noted that the hand auger borings could not be drilled past 6 feet below existing grade due to the presence of dense soil conditions.

The subsurface conditions within the proposed structure areas were investigated with one (1) Standard Penetration Test (SPT) borings (designated B-1) advanced to a depth of approximately 25 feet below existing grade and three (3) auger borings (designated B-2 through B-4) advanced to a depth of approximately 5 feet below existing grade. In addition, one (1) Dynamic Cone Penetration (DCP) test was performed at boring location B-4. In the proposed stormwater area, we performed two (2) auger borings (designated P-1 and P-2) advanced to approximately 20 and 6 feet below existing grade. In the proposed pavement areas, we performed two (2) SPT borings (designated B-5 and B-6) advanced to approximately 10 feet each below existing grade. We performed the Standard Penetration Tests and auger borings according to the procedures of ASTM D-1586 and ASTM D-1452, respectively

The borings were located by our field personnel using taped measurements, and should be considered accurate only to the degree implied by the method of measurement used. The approximate locations and elevations of the borings are presented on the attached Boring Location Plan and Subsurface Profiles in Appendix A.

Samples obtained from the borings were transported to our laboratory for further evaluation. Samples of the soils encountered will be held in our laboratory for your inspection for 60 days unless we are notified otherwise.

2.4 LABORATORY INVESTIGATION

2.4.1 Index Testing

The soil samples recovered from the soil borings were returned to our laboratory and then a UES Engineer visually examined and reviewed the field descriptions. The soils were classified in accordance with the Unified Soil Classification System (USCS). Tests consisting of percent passing a No. 200 sieve and natural moisture content determinations were performed to aide in classification of the soils.

3.0 FINDINGS

3.1 SUBSURFACE CONDITIONS

The boring locations and detailed subsurface conditions are illustrated in Appendix A: Boring Location Plan and Subsurface Profiles. The classifications and descriptions shown on the profiles are based upon visual characterizations of the recovered soil samples. Also, see Appendix A: Key to Boring Log, for further explanation of the symbols and placement of data on the Subsurface Profiles. The following discussion summarizes the soil conditions encountered.

The results of the SPT borings generally indicate the presence of intermittent layers of very loose to very dense fine sand (SP), fine sand with silt (SP-SM) and sandy shell to the deepest borings' termination depth of approximately 25 feet below existing grade. As an exception loose to medium dense silty fine sand (SM) was encountered from approximately 3 to 6 feet below existing grade at boring location B-1 and very dense sandy shell with some pieces of cemented shell (COQUINA) was encountered from approximately 6 to 8 feet below existing grade at boring location B-5.

The results of the auger borings generally indicated the presence of fine sand (SP) and fine sand with silt (SP-SM) to the deepest borings' termination depth of approximately 20 feet below existing grade.

3.2 GROUNDWATER

We recorded groundwater subsequent to drilling, at depths varying between 4.0 and 7.5 feet below the ground surface. Based on available published literature, existing site features, and the results of the borings, we estimate the normal seasonal high groundwater level to be approximately one feet above the measured levels. It should be noted that the water table is being drawdown at some boring locations due to multiple adjacent wet retention ponds and drainage canals. Our estimated seasonal high water level does not provide any assurance groundwater level will not exceed these estimated levels during any given year in the future. Should impediments to surface water drainage be present, or should rainfall intensity and duration, or total rainfall quantities, exceed the normally anticipated rainfall quantities, groundwater levels might once again exceed our seasonal high estimates. The depths of the groundwater levels encountered at the boring locations are presented on the Subsurface Profiles.

We recommend positive drainage be established and maintained on the site during construction. We further recommend permanent measures be constructed to maintain positive drainage from the site throughout the life of the project.

4.0 FOUNDATION AREA RECOMMENDATIONS

4.1 GENERAL

The following recommendations are made based upon a review of the attached soil test data, our understanding of the proposed construction, and experience with similar projects and subsurface conditions. If the structural loadings, construction locations, or grading information changes from those discussed previously, we request the opportunity to review and possibly amend our recommendations with respect to those changes.

Additionally, if subsurface conditions are encountered during construction which was not encountered in the borings, report those conditions immediately to us for observation and recommendations.

Based on the results of our exploration, and the understood fill heights, it is our opinion that the subsurface conditions at the project site are acceptable for support of the proposed structures on a properly designed and constructed conventional shallow foundation system, provided the site preparation and earthwork construction recommendations outlined in Section 4.3 of this report are performed. Provided the improvements and specific site preparation procedures are carefully followed, the parameters outlined below may be used for foundation design.

4.2 STRUCTURE FOUNDATIONS

4.2.1 Bearing Pressure

The maximum allowable net soil bearing pressure for shallow foundations should not exceed 3,000 pounds per square foot (psf). Net bearing pressure is defined as the soil bearing pressure at the base of the foundation in excess of the natural overburden pressure. The foundations should be designed based upon the maximum load that could be imposed by all loading conditions.

4.2.2 Foundation Size

The minimum widths recommended for any isolated column footing and continuous wall footings are 24 inches and 18 inches, respectively. Even though the maximum allowable soil bearing pressure may not be achieved, these width recommendations should control the size of the foundations.

4.2.3 Bearing Depth

The exterior foundations should bear at a depth of at least 12 inches below the exterior final grades and the interior footings should bear at a depth of at least 12 inches below the finish floor elevation to provide confinement to the bearing level soils. We recommend stormwater and surface water be diverted away from the building exterior, both during and after construction, to reduce the possibility of erosion beneath the exterior footings.

4.2.4 Bearing Material

The foundations may bear on either the compacted suitable natural soils or compacted structural fill. The bearing level soils, after compaction, should exhibit densities of at least 95 percent of the maximum dry density of the bearing soils as determined by ASTM D-1557 (Modified Proctor), to the depth described subsequently in the Site Preparation section of the report. In addition to compaction, the bearing soils must exhibit stability and be free of “pumping” conditions.

4.2.5 Settlement Estimates

Post-construction settlement of the structures will be influenced by several interrelated factors, such as (1) subsurface stratification and strength/compressibility characteristics of the bearing soils; (2) footing size, bearing level, applied loads, and resulting bearing pressures beneath the foundations; (3) site preparation and earthwork construction techniques used by the contractor, and (4) external factors, including but not limited to

vibration from offsite sources and groundwater fluctuations beyond those normally anticipated for the naturally-occurring site and soil conditions which are present.

Our settlement estimates for the structures are based upon the use of successful adherence to the site preparation recommendations presented later in this report. Any deviation from these recommendations could result in an increase in the estimated post-construction settlement of the structures.

Due to the nature of the surficial soils, following the compaction operations, we expect a significant portion of settlement to be elastic in nature. This settlement is expected to occur relatively quickly, upon application of the loads, during and immediately following construction. Using the recommended maximum bearing pressure, the assumed maximum structural loads, and the field test data which we have correlated to the strength and compressibility characteristics of the subsurface soils, we estimate the total settlements of the structures to be less than one inch.

Differential settlement results from differences in applied bearing pressures and the variations in the compressibility characteristics of the subsurface soils. Based on the subsurface conditions as determined by our borings, it is anticipated that differential settlements will be within tolerable limits.

4.3 SITE PREPARATION FOR SHALLOW FOUNDATIONS

We recommend the following site preparation procedures for the structure areas:

1. Prior to construction, the location of existing underground utility lines within the construction area should be established. Provisions should then be made to relocate interfering utilities to appropriate locations. It should be noted that if underground pipes are not properly removed or plugged, they may serve as conduits for subsurface erosion which may subsequently lead to excessive settlement of the overlying structures.

2. Strip the proposed construction limits of all grass, roots, topsoil, and other deleterious materials within and 5 feet beyond the perimeter of the proposed structures. Expect initial clearing and grubbing to depths of approximately 6 to 12 inches. In addition, we recommend any necessary excavation of cemented shell (COQUINA) to maintain an approximate 1 foot separation from the proposed building foundation bearing level and the tops of coquina. We recommend replacing any excavated soils with fill consisting of “clean”, fine sand with less than 5 percent soil fines to achieve this separation. Likely this separation will be achieved with the addition of fill soils.

3. Based on the ground water levels and anticipated fill, dewatering for foundation excavation and compaction may be required. We recommend implementing temporary groundwater control measures if the groundwater is within two feet of the required depth of excavation at the time of construction. Dewatering measures should be the responsibility of the contractor. We recommend the groundwater control measures remain in-place until compaction of the existing soils is completed and backfilling has reached a height of 2 feet above the groundwater level at the time of construction. The site should be graded to direct surface water runoff from the construction area.

4. Compact the exposed surface using tracked dozer or vibratory equipment. We recommend that vibratory equipment be operated in static mode within 75 feet of any existing structures. The upper two feet of soils below the exposed surface within the building area should be improved to achieve a minimum compaction requirement of 95% of the Modified Proctor Test (ASTM D-1557). We recommend the compacted soils exhibit moisture content within 2 percent of the soils optimum moisture content as determined by the Modified Proctor Test (ASTM D-1557). Should the soils experience pumping and soil strength loss during the compaction operations, compaction work should be immediately terminated and (1) the disturbed soils removed and backfilled with dry structural fill soils which are then compacted, or (2) the excess moisture content within the disturbed soils allowed to dissipate before recompacting.

5. Test the compacted surface for compliance at a minimum of one location per 2,500 square feet within the building area, or at a minimum of four locations per building area.

6. Place fill material, as required. The fill should consist of "clean," fine sand with less than 5 percent soil fines. You may use fill materials with soil fines between 5 percent and 10 percent, but strict moisture control may be required. Place fill in uniform 8 to 12-inch loose lifts and compact each lift to a minimum density of 95 percent of the Modified Proctor maximum dry density. We recommend the compacted soils exhibit moisture content within 2 percent of the soils optimum moisture content as determined by the Modified Proctor Test (ASTM D-1557). If light compaction equipment is used, we recommend the lift thickness be reduced to 8 inch thick lifts.

7. Perform compliance tests within the backfill and fill soils at a minimum of one location per 2,500 square feet per lift (minimum four locations per building area).

8. Compact and test footing cuts for compaction to a depth of one foot below bearing level. We recommend that you test one out of every four (25 percent) column footings and perform one test per every 50 linear feet of wall footing. Compaction operations in confined areas, such as footing excavations, can best be performed with a lightweight vibratory sled or other hand-held compaction equipment.

5.0 PAVEMENT AREA RECOMMENDATIONS

5.1 GENERAL

As discussed, it is anticipated a flexible asphaltic pavement section may be utilized for the subject project.

5.2 FLEXIBLE ASPHALTIC PAVEMENT

Because traffic loadings are commonly unavailable, we have generalized our pavement design into two groups. The group descriptions and the recommended component thicknesses are presented in Table 1 below.

Table 1: Pavement Component Recommendations			
Traffic Group	**Component Thickness (Inches)**		
	Stabilized Subgrade	**Base Course**	**Surface Course**
Roadway - light duty	12	6	1.5
Roadway - heavy duty	12	8	2.0

5.3 STABILIZED SUBGRADE

We recommend that subgrade materials be compacted in place according to the requirements in the "Site Preparation" section of this report. Further, stabilize the subgrade materials to a minimum Limerock Bearing Ratio (LBR) of 40 percent as specified by Florida Department of Transportation (FDOT) requirements for Type B Stabilized Subgrade.

Further, the stabilized subgrade can be imported material or a blend of on-site soils and imported materials. If a blend is proposed, we recommend that the contractor perform a mix design to find the optimum mix proportions.

The primary function of stabilized subgrade beneath the base course is to provide a stable and firm subgrade so that the base course can be properly placed and compacted. Depending upon the soil type, the subgrade material may have sufficient stability to provide the needed support without additional stabilizing material. Generally speaking, sands with silt or clay typically have sufficient stability and may not require additional stabilizing material. Conversely, relatively "clean" sands may not provide sufficient stability in order to adequately construct the base course.

5.4 BASE COURSE

We recommend that the base course consist of either limerock or graded crushed aggregate (crushed concrete).

5.4.1 Limerock

Limerock should have a minimum LBR of 100 percent and should be mined from an FDOT approved source. Place limerock in maximum 6-inch lifts and compact each lift to a minimum density of 98 percent of the Modified Proctor maximum dry density.

5.4.2 Crushed Concrete Base

Crushed concrete should be supplied by an approved plant with quality control procedures. The crushed concrete stockpiled should be free of sandy pockets, foreign materials, and uncrushed particles. We recommend the following specifications be enforced.

a) Crushed concrete shall not contain lumps, balls or pockets of sand or clay sized material in sufficient quantity as to be detrimental to the proper binding, finishing or strength of the crushed concrete base.

b) Samples of base course materials shall be supplied to the engineer prior to use in the work. Additional samples shall be furnished during construction, as necessary.

c) At least 97 percent (by weight) of the material shall pass a 3-1/2 inch sieve and the material shall be graded uniformly down to dust. The fine material shall consist entirely of dust or fracture. All crushing or breaking-up which might be necessary in order to meet such size requirements shall be done before the material is placed on the road.

d) The base shall be bladed and shaped to conform to the typical sections as shown on the plans. Then the base shall be compacted by rolling with a combination of steel wheel and rubber tired rollers until an average density of 98 percent of the maximum density obtainable under AASHTO Method T-180 is reached. The base shall have an average LBR of not less than 130. The LBR value of material produced at a particular source shall be determined in accordance with an approved quality control procedure.

Testing shall be performed at the following frequency:

1) Perform in-place density tests on crushed concrete base at a frequency of 2 tests per pavement area or 1 test per 300 linear feet whichever is greater

2) Perform Limerock Bearing Ratio tests at a frequency of 1 test per visual change in material and a minimum of 1 test per pavement area or every 15,000 square feet whichever is greater.

3) Engineer should perform a final visual base inspection prior to placement of prime or tack coat and paving.

5.5 SURFACE COURSE

In light duty areas where there is occasional truck traffic, but primarily passenger cars, we recommend using an asphaltic concrete, FDOT Type SP 9.5. In heavy duty areas where truck traffic is predominant, we recommend using an asphaltic concrete, FDOT Type SP 12.5.

It should be noted if a more aesthetically pleasing asphalt surface (finer aggregate) is required a layer of FC-9.5 or FC-12.5 asphalt can be placed. A ½ inch of FC asphalt can be placed above the SP asphaltic concrete. However this may result in increased costs.

Asphaltic concrete mixes should be a current FDOT approved design of the materials actually used. Samples of the materials delivered to the project should be tested to verify that the aggregate gradation and asphalt content satisfies the mix design requirements. Compact the asphalt to a minimum of 90 percent of the Gmm (maximum voidless specific gravity).

After placement and field compaction, core the wearing surface to evaluate material thickness and to perform laboratory densities. Obtain cores at frequencies of at least one core per 3,000 square feet of placed pavement or a minimum of two cores per day's production.

In parking lots, for extended life expectancy of the surface course, we recommend applying a coal tar emulsion sealer at least six months after placement of the surface course. The seal coat will help to patch cracks and voids, and protect the surface from damaging ultraviolet light and automobile liquid spillage. Please note that applying the seal coat prior to six

months after placement may hinder the "curing" of the surface course, leading to its early deterioration.

5.6 CURBING

We recommend that curbing around landscaped sections adjacent to the parking lots and driveways be constructed with full-depth curb sections. Using extruded curb sections which lie directly on top of the final asphalt level, or eliminating the curbing entirely, may not significantly impede the migration of irrigation water from the landscape areas to the interface between the asphalt and the base. This migration often causes separation of the wearing surface from the base and subsequent rippling and pavement deterioration. It is recommended that the subgrade below the curbing be stabilized to a minimum LBR of 40.

5.7 CONSTRUCTION TRAFFIC

Light duty roadways and incomplete pavement sections will not perform satisfactorily under construction traffic loadings. We recommend that construction traffic (construction equipment, concrete trucks, sod trucks, garbage trucks, dump trucks, etc.) be re-routed away from these roadways or that the pavement section be designed for these loadings.

5.8 EFFECTS OF GROUNDWATER

We recommend that all pavement sections analyses incorporate the seasonal high groundwater conditions. We recommend that the groundwater table be maintained, by permanent dewatering means if necessary, below the bottom of the base course of any pavement construction per the following table:

Table 2
Recommended Minimum Clearance Between Pavement Base and Wet Season Water Table

Type of Base	Separation (inches)
Limerock	18
Crushed Concrete	12

One of the most critical influences on the pavement performance in Central Florida is the relationship between the pavement subgrade and the seasonal high groundwater level. Many roadways and parking areas have been destroyed as a result of deterioration of the base and the base/surface course bond resulting from a high water table. **Regardless of the type of base selected, we recommend that the seasonal high groundwater and the bottom of the base course be separated by at least the amount presented in Table 2 above.**

5.9 SITE PREPARATION FOR PAVEMENTS

We recommend the following site preparation procedures:

1. Strip the proposed construction limits of all grass, roots, topsoil and other deleterious materials within, and 3 feet beyond, the proposed pavement limits. Expect initial clearing and grubbing to depths of approximately 6 to12-inches.

2. Proof-compact the exposed surface with the light to medium roller until you maintain density of at least 95 percent of the Modified Proctor maximum dry density (ASTM D-1557) to a depth of two feet below the exposed surface, with the exception that

densities of at least 98 percent should be obtained in the upper 12 inches below base course. We recommend the compacted soils exhibit moisture content within 2 percent of the soils optimum moisture content as determined by the Modified Proctor Test (ASTM D-1557). In addition, we recommend any necessary excavation of surficial sands containing cemented coquina (COQUINA) to maintain an approximate 2 feet separation from the proposed roadway foundation and the tops of these soil layers. We recommend replacing any excavated soils with fill consisting of “clean”, fine sand with less than 5 percent soil fines to achieve this separation. **Vibratory equipment should be operated in static mode within 100 feet of adjacent structures.**

3. Should the soils experience pumping and soil strength loss during the compaction operations, compaction work should be immediately terminated and (1) the disturbed soils removed and backfilled with dry structural fill soils which are then compacted, or (2) the excess moisture content within the disturbed soils allowed to dissipate before recompacting.

4. Test the compacted surface for density at a frequency of not less than one test per 300 linear feet of roadway area (minimum three locations per pavement area).

5. Place and compact backfill and fill material, as required. The fill should consist of "clean," fine sand with less than 5 percent soil fines. You may use fill materials with soil fines between 5 percent and 10 percent, but strict moisture control may be required. Place fill in uniform 10 to 12-inch loose lifts and compact each lift to a minimum density of 95 percent of the Modified Proctor maximum dry density with the exception that densities of at least 98 percent should be obtained within the upper one foot below base course. We recommend the compacted soils exhibit moisture content within 2 percent of the soils optimum moisture content as determined by the Modified Proctor Test (ASTM D-1557).

6. Perform compliance tests within each lift of fill at a frequency of not less than one test per 300 linear feet of roadway area.

6.0 STORMWATER DESIGN RECOMMENDATIONS

6.1 GENERAL

For a dry bottom retention facility, performance will be significantly influenced by the soil permeability and the vertical separation between the bottom and the seasonal high groundwater level. A wet retention facility should be excavated to a depth necessary to obtain a sufficient water depth to limit growth of aquatic vegetation.

If requested, UES can assist in evaluating the facility design exfiltration rates, underdrains and/or groundwater baseflow as pond geometry and stormwater volume requirements become available.

6.2 SOIL PERMABILITY

Three (3) Laboratory Falling-head Saturated Vertical Permeability Test were performed on a relatively undisturbed soil sample. The samples were obtained using thin-walled tube sampling techniques (Shelby Tube). The results of the tests, in feet per day, describe the coefficient of hydraulic conductivity (Permeability) of the soils and are presented on the

attached Subsurface Profiles. The measured permeability rates should not be construed to represent the actual pond exfiltration rates.

Upon evaluation of regional and local geology, we have evaluated that the characteristics of the soils within the vicinity of this project are comprised of sedimentary soils which often exhibit thin, alternating layers. Generally, in relatively homogeneous natural deposits where stratification may result from particle orientation, the Permeability in the Horizontal direction can be somewhat greater than that in the Vertical direction. Based on our experience, the estimated coefficient of Horizontal Permeability typically is on the order of 1.5 and 2 times greater than the Vertical Permeability for SP-SM and SP soil types, respectively. The results of the permeability test are located in Appendix A.

6.3 BORROW SUITABILITY

The stromwater borings were performed, in part, to provide an indication of the suitability of excavated soils from the proposed borrow areas for use as structural fill soil. Based on the boring results and classification of the soil samples, the fine sand (SP) and the fine sand with silt (SP-SM) as encountered at the boring locations, are suitable for use as structural fill soil. Because the fine sand with silt (SP-SM) significantly retains moisture, strict moisture control may be required during placement and compaction operations to avoid moisture related instability

It should be anticipated the soils in the proposed borrow pit area that are below the groundwater level will have moisture contents in excess of the Modified Proctor optimum moisture content and will require stockpiling or spreading to bring the moisture content within 2 percent of the soil's optimum moisture content corresponding to the required degree of compaction.

7.0 CONSTRUCTION RELATED SERVICES

We recommend the owner retain Universal Engineering Sciences to perform construction materials tests and observations on this project. Field tests and observations include verification of foundation subgrades by monitoring filling operations and performing quality assurance tests on the placement of compacted natural soils and structural fill. We can also perform concrete testing, pavement section testing, structural steel testing and other construction materials testing services.

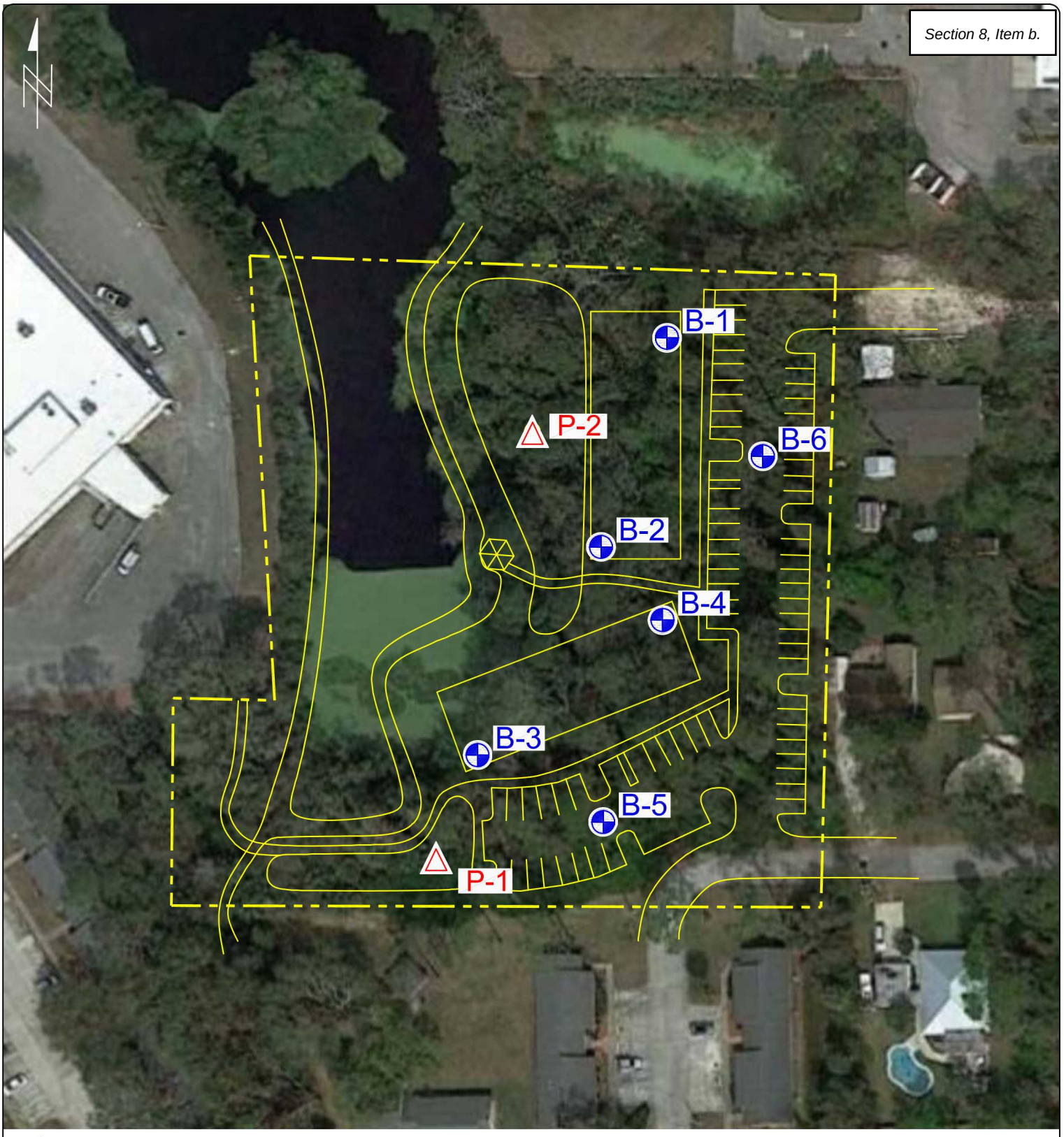
The geotechnical engineering design does not end with the advertisement of the construction documents. The design is an on-going process throughout construction. Because of our familiarity with the site conditions and the intent of the engineering design, we are most qualified to address problems that might arise during construction in a timely and cost-effective manner.

8.0 LIMITATIONS

During the early stages of most construction projects, geotechnical issues not addressed in this report may arise. Because of the natural limitations inherent in working with the subsurface, it is not possible for a geotechnical engineer to predict and address all possible problems. An Association of Engineering Firms Practicing in the Geosciences (ASFE) publication, "Important Information about Your Geotechnical Engineering Report" appears in Appendix C, and will help explain the nature of geotechnical issues. Further, we present documents in Appendix C: Constraints and Restrictions, to bring to your attention the potential concerns and the basic limitations of a typical geotechnical report.

APPENDIX A

BORING LOCATION PLAN
SUBSURFACE PROFILES
SOILS CLASSIFICATION CHART



LEGEND

△ APPROXIMATE LOCATION OF AUGER BORING

APPROXIMATE LOCATION OF STANDARD PENETRATION TEST (SPT) BORING

GRAPHIC SCALE

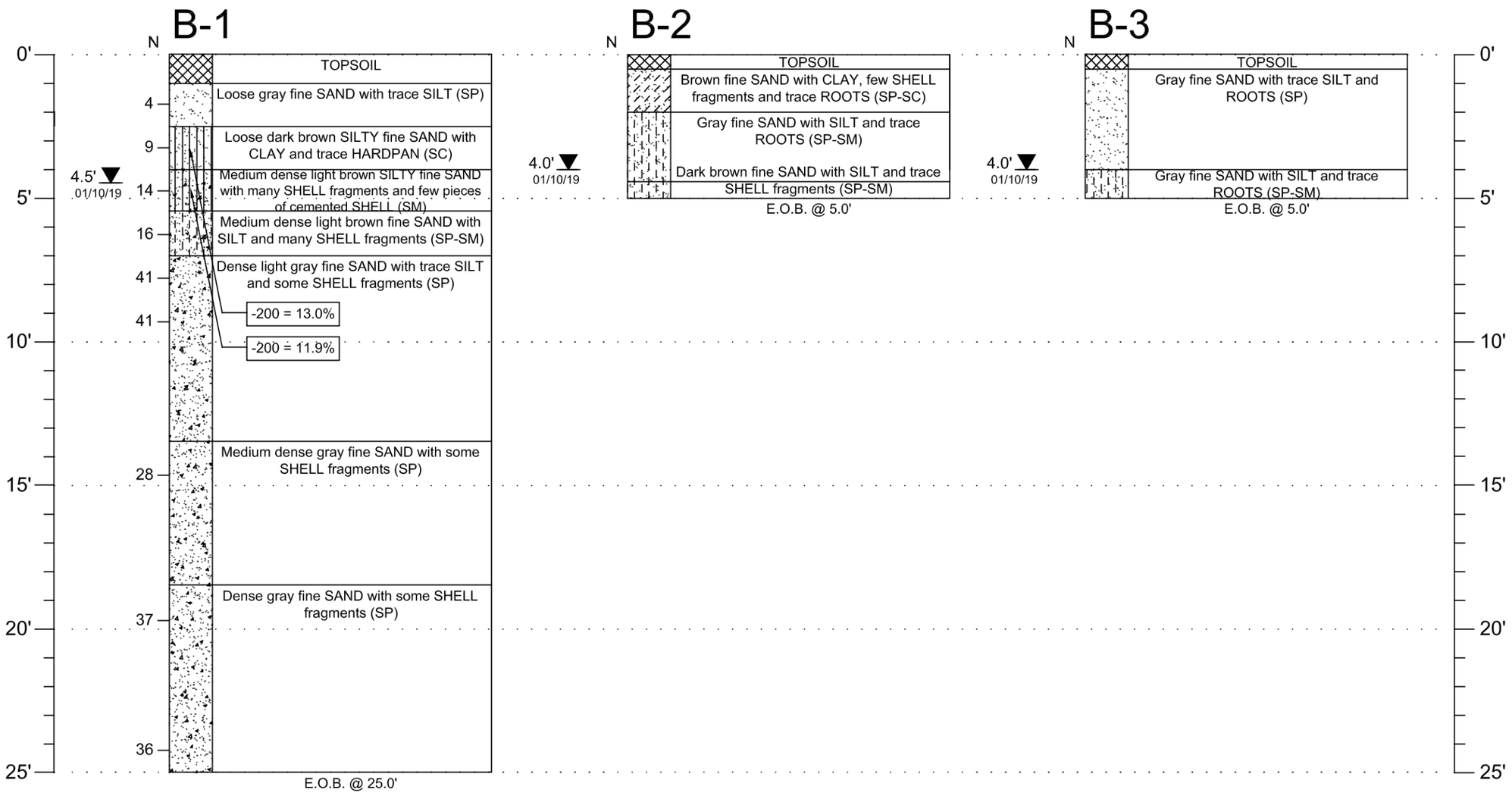
0 40 80

(IN FEET)

1 INCH ≈ 80 ft.

UNIVERSAL ENGINEERING SCIENCES

TITLE: BORING LOCATION PLAN			SCALE: 1" ≈ 80'
PROJECT: GEOTECHNICAL EVALUATION SUNSET LAKES FLAGLER BEACH, FLORIDA			PAGE/FIG. NO.: A-1
DRAWN BY: MKL	DATE: 01/12/19	PROJECT NO.: 0430.1800287.0000	580
CHECKED BY: BP	DATE: 01/12/19	REPORT NO.: 134233	



Fine SAND (SP)

Fine SAND with some to many SHELL fragments (SP)

SHELL

Fine SAND with SILT (SP-SM)

SILTY fine SAND (SM)

Fine SAND with CLAY (SP-SC)

CLAYEY fine SAND (SC)

CLAY (CH)

TOPSOIL

NOTES:

▼ Measured Groundwater Level 24 (+) Hours Subsequent to Time of Drilling

(SP) Unified Soil Classification System

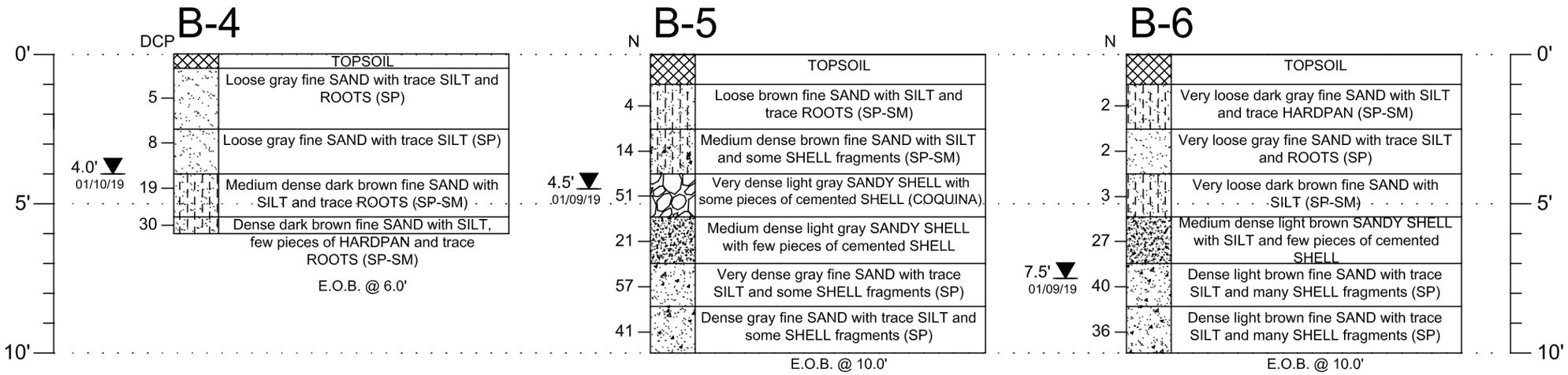
EOB End of Boring

N Penetr. Resistance, Blows/ft.

-200 % Passing No. 200 Sieve

UNIVERSAL ENGINEERING SCIENCES

PROJECT: GEOTECHNICAL EVALUATION SUNSET LAKES FLAGLER BEACH, FLORIDA				TITLE: SUBSURFACE PROFILES	
DRAWN BY: MKL	DATE: 01/14/19	PROJECT NO.: 0430.1800287.0000		SCALE: NA (in feet)	PAGE/FIG. NO.: A-2
CHECKED BY: BP	DATE: 01/14/19	REPORT NO.: 134233			



Fine SAND (SP)

Fine SAND with some to many SHELL fragments (SP)

SHELL

Fine SAND with SILT (SP-SM)

SILTY fine SAND (SM)

Fine SAND with CLAY (SP-SC)

CLAYEY fine SAND (SC)

CLAY (CH)

TOPSOIL

COQUINA

NOTES:

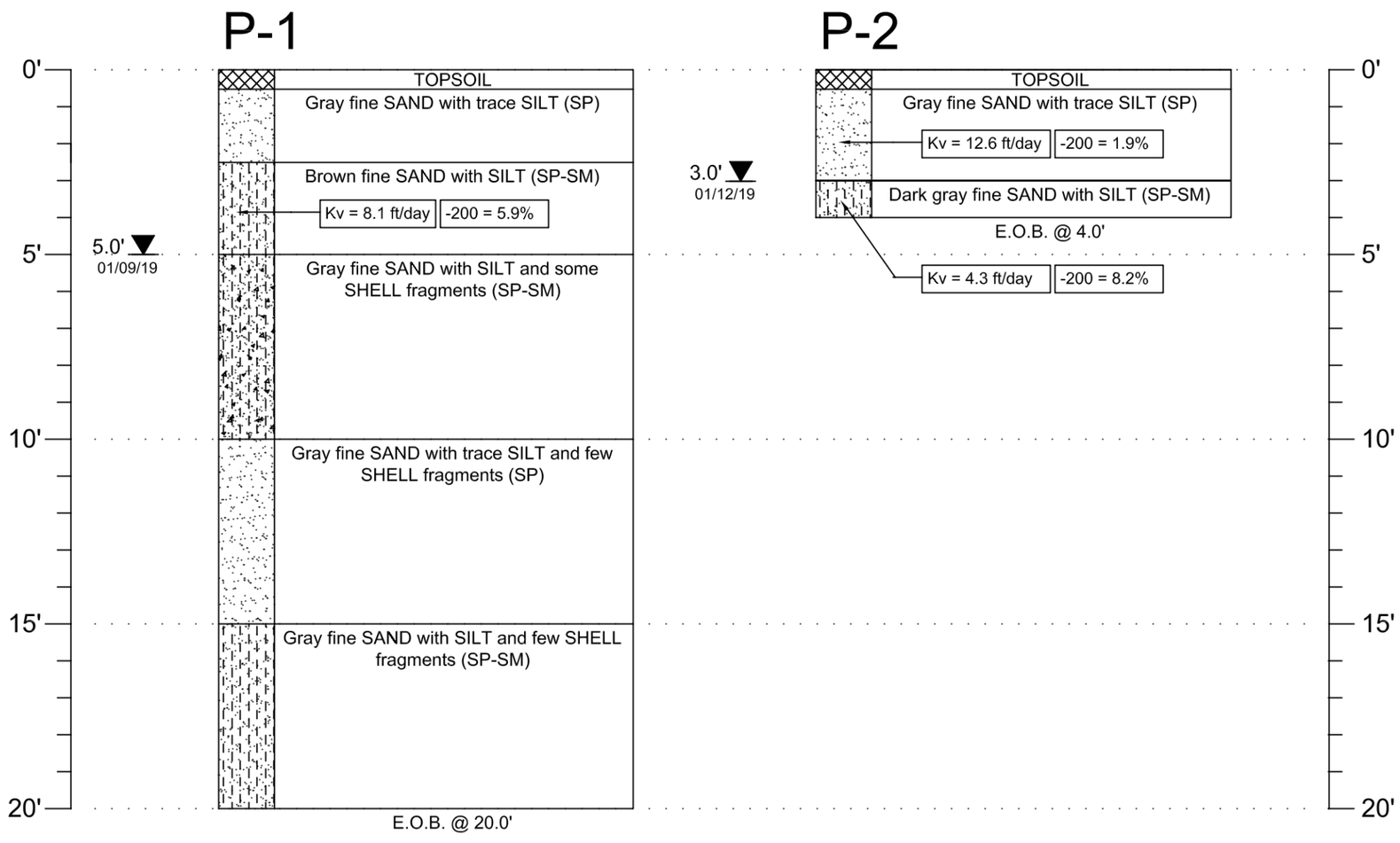
▼	Measured Groundwater Level 24 (+) Hours Subsequent to Time of Drilling
(SP)	Unified Soil Classification System
EOB	End of Boring
N	Penetr. Resistance, Blows/ft.
DCP	Dynamic Cone Penetrometer
-200	% Passing No. 200 Sieve

UNIVERSAL ENGINEERING SCIENCES

PROJECT:
GEOTECHNICAL EVALUATION
SUNSET LAKES
FLAGLER BEACH, FLORIDA

TITLE:
SUBSURFACE PROFILES

DRAWN BY:	MKL	DATE:	01/14/19	PROJECT NO.:	0430.1800287.0000	SCALE: NA (in feet)	PAGE/FIG. NO.: A-3
CHECKED BY:	BP	DATE:	01/14/19	REPORT NO.:	134233		



Fine SAND (SP)

Fine SAND with some to many SHELL fragments (SP)

Fine SAND with SILT (SP-SM)

TOPSOIL

NOTES:

▼	Measured Groundwater Level 24 (+) Hours Subsequent to Time of Drilling
(SP)	Unified Soil Classification System
EOB	End of Boring
N	Penetr. Resistance, Blows/ft.
Kv	Coefficient of Permeability, (ft/day)
-200	% Passing No. 200 Sieve

UNIVERSAL ENGINEERING SCIENCES

PROJECT: GEOTECHNICAL EVALUATION SUNSET LAKES FLAGLER BEACH, FLORIDA						TITLE: SUBSURFACE PROFILES	
DRAWN BY: MKL	DATE: 01/14/19	PROJECT NO.: 0430.1800287.0000		SCALE: NA (in feet)		PAGE/FIG. NO.: A-4	
CHECKED BY: BP	DATE: 01/14/19	REPORT NO.: 134233					

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KEY TO BORING LOGS

SYMBOLS

SYMBOL	DESCRIPTION
N	No. of blows of a 140-lb weight falling 30 inches required to drive standard spoon 1 foot.
WOR	Weight of Drill Rods
WOH	Weight of Drill Rods and Hammer
% REC	Percent Core Recovery from Rock Core Drilling
RQD	Rock Quality Designation
EOB	End Of Boring
BT	Boring Terminated
-200	Fines Content or % Passing NO. 200 Sieve
MC	Moisture Content
LL	Liquid Limit
PI	Plasticity Index
K	Coefficient of Permeability
O.C.	Organic Content
▽	Estimated seasonal high groundwater level
▼	Measured groundwater level at time of drilling

UNIFIED CLASSIFICATION SYSTEM

MAJOR DIVISIONS			GROUP SYMBOLS	TYPICAL NAMES
COARSE-GRAINED SOILS More than 50% retained on No. 200 sieve*	GRAVELS 50% or more of coarse fraction retained on No. 4 sieve	CLEAN GRAVELS	GW	Well-graded gravels and gravel-sand mixtures, little or no fines
			GP	Well-graded gravels and gravel-sand mixtures, little or no fines
		GRAVELS WITH FINES	GM	Silty gravels, gravel-sand-silt mixtures
			GC	Clayey gravels, gravel-sand-clay mixtures
	SANDS More than 50% of coarse fraction passes No. 4 sieve	CLEAN SANDS	SW**	Well-graded sands and gravelly sands, little or no fines
			SP**	Well-graded sands and gravelly sands, little or no fines
		SANDS WITH FINES	SM**	Silty sands, sand-silt mixtures
			SC**	Clayey sands, sand-clay mixtures
FINE-GRAINED SOILS 50% or more passes No. 200 sieve*	SILTS AND CLAYS Liquid limit 50% or less		ML	Inorganic silts, very fine sands, rock flour, silty or clayey fine sands
			CL	Inorganic clays of low to medium plasticity, gravelly clays, sandy clays, silty clays, lean clays
			OL	Organic silts and organic silty clays of low plasticity
	SILTS AND CLAYS Liquid limit greater than 50%		MH	Inorganic silts, micaceous or diatomaceous fine sands or silts, elastic silts
			CH	Organic clays or high plasticity, fat clays
			OH	Organic clays of medium to high plasticity
			PT	Peat, muck and other highly organic soils

* Based on the material passing the 3-in. (75 mm) sieve.
** Use dual symbol (such as, SP-SM and SP-SC) for soil with more than 5% but less than 12% passing through No. 200 sieve.

RELATIVE DENSITY
(sand-silt)

Very Loose - Less Than 4 Blows/Ft.
Loose - 4 to 10 Blows/Ft.
Medium - 11 to 30 Blows/Ft.
Dense - 31 to 50 Blows/Ft.
Very Dense - More Than 50 Blows/Ft.

CONSISTENCY
(clay)

Very Soft - Less than 2 Blows/Ft.
Soft - 2 to 4 Blows/Ft.
Medium - 5 to 8 Blows/Ft.
Stiff - 9 to 15 Blows/Ft.
Very Stiff - 16 to 30 Blows/Ft.
Hard - More Than 30 Blows/Ft.

RELATIVE HARDNESS
(Limestone)

Soft - 100 Blows for more than 2"
Hard - 100 Blows for less than 2"

MODIFIERS

These modifiers provide our estimate of the amount of minor constituents (SILT or CLAY sized particles) in the soil sample.
Trace - 5% or less
With SILT or with CLAY - 6% to 11%
SILTY or CLAYEY - 12% to 30%
Very SILTY or Very CLAYEY - 31% to 50%

These modifiers provide our estimate of the amount of organic components in the soil sample.
Trace - 1% to 2%
Few - 3% to 4%
Some - 5% to 8%
Many - Greater than 8%

These modifiers provide our estimate of the amount of other components (Shell, Gravel, Etc.) in the soil sample
Trace - 5% or less
Few - 6% to 12%
Some - 13% to 30%
Many - 31% to 50%

APPENDIX B

LABORATORY TESTING PROCEDURES

DESCRIPTION OF LABORATORY TESTING PROCEDURES

LABORATORY PERMEABILITY TEST

The laboratory permeability test is a Falling Head Test that is performed on soil samples recovered from this site. The data recovered from this test are used to calculate Darcy's Coefficient of Permeability (k) of the soil.

WASH 200 TEST

The Wash 200 test is performed by passing a representative soil sample over a No. 200 sieve and rinsing with water. The percentage of the soil grains passing this sieve is then calculated.

ORGANIC CONTENT TESTS

The organic content test is performed by weighing a sample before and after placing in a high temperature oven which burns the organic material in the sample. The percent of organic material by weight is then calculated.

MOISTURE CONTENT DETERMINATION ASTM D-2216

Moisture content is the ratio of the weight of water to the dry weight of soil. Moisture content is measured by drying a sample at 105 degrees Celsius. The moisture content is expressed as a percent of the oven dried soil mass.

ATTERBERG LIMITS

The Atterberg Limits consist of the Liquid Limit (LL) and the Plastic Limit (PL). The LL and PL were determined in general accordance with the latest revision of ASTM D-4318. The LL is the water content of the material denoting the boundary between the liquid and plastic states. The PL is the water content denoting the boundary between the plastic and semi-solid states. The Plasticity Index (PI) is the range of water content over which a soil behaves plastically and is denoted numerically by as the difference between the LL and the PL. The water content of the sample tested was determined in general accordance with the latest revision of ASTM D-2216. The water content is defined as the ratio of "pore" or "free" water in a given mass of material to the mass of solid material particles.

CONSOLIDATION TESTING

A single selected portion of the undisturbed sample was extruded from the 3-inch diameter sample tube for consolidation testing. The selected sample was trimmed and confined into a stainless steel disc having a diameter of 2.5 inches and a height of 1 inch. The disc was then "sandwiched" between 2 porous stones, saturated and subjected to incrementally increasing loads. The resulting deformation of the sample within the steel disc was measured using a micrometer gauge.

APPENDIX C

GENERAL CONDITIONS
CONSTRAINTS AND RESTRICTIONS AND
IMPORTANT INFORMATION ABOUT YOUR
GEOTECHNICAL ENGINEERING REPORT

Universal Engineering Sciences, Inc.
GENERAL CONDITIONS

SECTION 1: RESPONSIBILITIES

1.1 *Universal Engineering Sciences, Inc*., ("UES"), has the responsibility for providing the services described under the Scope of Services section. The work is to be performed according to accepted standards of care and is to be completed in a timely manner. The term "UES" as used herein includes all of *Universal Engineering Sciences, Inc's* agents, employees, professional staff, and subcontractors.

1.2 The Client or a duly authorized representative is responsible for providing UES with a clear understanding of the project nature and scope. The Client shall supply UES with sufficient and adequate information, including, but not limited to, maps, site plans, reports, surveys and designs, to allow UES to properly complete the specified services. The Client shall also communicate changes in the nature and scope of the project as soon as possible during performance of the work so that the changes can be incorporated into the work product.

1.3 The Client acknowledges that UES's responsibilities in providing the services described under the Scope of Services section is limited to those services described therein, and the Client hereby assumes any collateral or affiliated duties necessitated by or for those services. Such duties may include, but are not limited to, reporting requirements imposed by any third party such as federal, state, or local entities, the provision of any required notices to any third party, or the securing of necessary permits or permissions from any third parties required for UES's provision of the services so described, unless otherwise agreed upon by both parties.

1.4 Universal will not be responsible for scheduling our services and will not be responsible for tests or inspections that are not performed due to a failure to schedule our services on the project or any resulting damages.

1.5 **PURSUANT TO FLORIDA STATUTES §558.0035, ANY INDIVIDUAL EMPLOYEE OR AGENT OF UES MAY NOT BE HELD INDIVIDUALLY LIABLE FOR NEGLIGENCE.**

SECTION 2: STANDARD OF CARE

2.1 Services performed by UES under this Agreement will be conducted in a manner consistent with the level of care and skill ordinarily exercised by members of UES's profession practicing contemporaneously under similar conditions in the locality of the project. No other warranty, express or implied, is made.

2.2 The Client recognizes that subsurface conditions may vary from those observed at locations where borings, surveys, or other explorations are made, and that site conditions may change with time. Data, interpretations, and recommendations by UES will be based solely on information available to UES at the time of service. UES is responsible for those data, interpretations, and recommendations, but will not be responsible for other parties' interpretations or use of the information developed.

2.3 Execution of this document by UES is not a representation that UES has visited the site, become generally familiar with local conditions under which the services are to be performed, or correlated personal observations with the requirements of the Scope of Services. It is the Client's responsibility to provide UES with all information necessary for UES to provide the services described under the Scope of Services, and the Client assumes all liability for information not provided to UES that may affect the quality or sufficiency of the services so described.

2.4 Should UES be retained to provide threshold inspection services under Florida Statutes §553.79, Client acknowledges that UES's services thereunder do not constitute a guarantee that the construction in question has been properly designed or constructed, and UES's services do not replace any of the obligations or liabilities associated with any architect, contractor, or structural engineer. Therefore it is explicitly agreed that the Client will not hold UES responsible for the proper performance of service by any architect, contractor, structural engineer or any other entity associated with the project.

SECTION 3: SITE ACCESS AND SITE CONDITIONS

3.1 Client will grant or obtain free access to the site for all equipment and personnel necessary for UES to perform the work set forth in this Agreement. The Client will notify any and all possessors of the project site that Client has granted UES free access to the site. UES will take reasonable precautions to minimize damage to the site, but it is understood by Client that, in the normal course of work, some damage may occur, and the correction of such damage is not part of this Agreement unless so specified in the Proposal.

3.2 The Client is responsible for the accuracy of locations for all subterranean structures and utilities. UES will take reasonable precautions to avoid known subterranean structures, and the Client waives any claim against UES, and agrees to defend, indemnify, and hold UES harmless from any claim or liability for injury or loss, including costs of defense, arising from damage done to subterranean structures and utilities not identified or accurately located. In addition, Client agrees to compensate UES for any time spent or expenses incurred by UES in defense of any such claim with compensation to be based upon UES's prevailing fee schedule and expense reimbursement policy.

SECTION 4: SAMPLE OWNERSHIP AND DISPOSAL

4.1 Soil or water samples obtained from the project during performance of the work shall remain the property of the Client.

4.2 UES will dispose of or return to Client all remaining soils and rock samples 60 days after submission of report covering those samples. Further storage or transfer of samples can be made at Client's expense upon Client's prior written request.

4.3 Samples which are contaminated by petroleum products or other chemical waste will be returned to Client for treatment or disposal, consistent with all appropriate federal, state, or local regulations.

SECTION 5: BILLING AND PAYMENT

5.1 UES will submit invoices to Client monthly or upon completion of services. Invoices will show charges for different personnel and expense classifications.

5.2 Payment is due 30 days after presentation of invoice and is past due 31 days from invoice date. Client agrees to pay a finance charge of one and one-half percent (1 ½ %) per month, or the maximum rate allowed by law, on past due accounts.

5.3 If UES incurs any expenses to collect overdue billings on invoices, the sums paid by UES for reasonable attorneys' fees, court costs, UES's time, UES's expenses, and interest will be due and owing by the Client.

SECTION 6: OWNERSHIP AND USE OF DOCUMENTS

6.1 All reports, boring logs, field data, field notes, laboratory test data, calculations, estimates, and other documents prepared by UES, as instruments of service, shall remain the property of UES.

6.2 Client agrees that all reports and other work furnished to the Client or his agents, which are not paid for, will be returned upon demand and will not be used by the Client for any purpose.

6.3 UES will retain all pertinent records relating to the services performed for a period of five years following submission of the report, during which period the records will be made available to the Client at all reasonable times.

6.4 All reports, boring logs, field data, field notes, laboratory test data, calculations, estimates, and other documents prepared by UES, are prepared for the sole and exclusive use of Client, and may not be given to any other party or used or relied upon by any such party without the express written consent of UES.

SECTION 7: DISCOVERY OF UNANTICIPATED HAZARDOUS MATERIALS

7.1 Client warrants that a reasonable effort has been made to inform UES of known or suspected hazardous materials on or near the project site.

7.2 Under this agreement, the term hazardous materials include hazardous materials (40 CFR 172.01), hazardous wastes (40 CFR 261.2), hazardous substances (40 CFR 300.6), petroleum products, polychlorinated biphenyls, and asbestos.

7.3 Hazardous materials may exist at a site where there is no reason to believe they could or should be present. UES and Client agree that the discovery of unanticipated hazardous materials constitutes a changed condition mandating a renegotiation of the scope of work. UES and Client also agree that the discovery of unanticipated hazardous materials may make it necessary for UES to take immediate measures to protect health and safety. Client agrees to compensate UES for any equipment decontamination or other costs incident to the discovery of unanticipated hazardous waste.

7.4 UES agrees to notify Client when unanticipated hazardous materials or suspected hazardous materials are encountered. Client agrees to make any disclosures required by law to the appropriate governing agencies. Client also agrees to hold UES harmless for any and all consequences of disclosures made by UES which are required by governing law. In the event the project site is not owned by Client, Client recognizes that it is the Client's responsibility to inform the property owner of the discovery of unanticipated hazardous materials or suspected hazardous materials.

7.5 Notwithstanding any other provision of the Agreement, Client waives any claim against UES, and to the maximum extent permitted by law, agrees to defend, indemnify, and save UES harmless from any claim, liability, and/or defense costs for injury or loss arising from UES's discovery of unanticipated hazardous materials or suspected hazardous materials including any costs created by delay of the project and any cost associated with possible reduction of the property's value. Client will be responsible for ultimate disposal of any samples secured by UES which are found to be contaminated.

SECTION 8: RISK ALLOCATION

8.1 Client agrees that UES's liability for any damage on account of any breach of contract, error, omission or other professional negligence will be limited to a sum not to exceed $50,000 or UES's fee, whichever is greater. If Client prefers to have higher limits on contractual or professional liability, UES agrees to increase the limits up to a maximum of $1,000,000.00 upon Client's written request at the time of accepting our proposal provided that Client agrees to pay an additional consideration of four percent of the total fee, or $400.00, whichever is greater. The additional charge for the higher liability limits is because of the greater risk assumed and is not strictly a charge for additional professional liability insurance.

SECTION 9: INSURANCE

9.1 UES represents and warrants that it and its agents, staff and consultants employed by it, is and are protected by worker's compensation insurance and that UES has such coverage under public liability and property damage insurance policies which UES deems to be adequate. Certificates for all such policies of insurance shall be provided to Client upon request in writing. Within the limits and conditions of such insurance, UES agrees to indemnify and save Client harmless from and against loss, damage, or liability arising from negligent acts by UES, its agents, staff, and consultants employed by it. UES shall not be responsible for any loss, damage or liability beyond the amounts, limits, and conditions of such insurance or the limits described in Section 8, whichever is less. The Client agrees to defend, indemnify and save UES harmless for loss, damage or liability arising from acts by Client, Client's agent, staff, and other UESs employed by Client.

SECTION 10: DISPUTE RESOLUTION

10.1 All claims, disputes, and other matters in controversy between UES and Client arising out of or in any way related to this Agreement will be submitted to alternative dispute resolution (ADR) such as mediation or arbitration, before and as a condition precedent to other remedies provided by law, including the commencement of litigation.

10.2 If a dispute arises related to the services provided under this Agreement and that dispute requires litigation instead of ADR as provided above, then:

(a) the claim will be brought and tried in judicial jurisdiction of the court of the county where UES's principal place of business is located and Client waives the right to remove the action to any other county or judicial jurisdiction, and

(b) The prevailing party will be entitled to recovery of all reasonable costs incurred, including staff time, court costs, attorneys' fees, and other claim related expenses.

SECTION 11: TERMINATION

11.1 This agreement may be terminated by either party upon seven (7) days written notice in the event of substantial failure by the other party to perform in accordance with the terms hereof. Such termination shall not be effective if that substantial failure has been remedied before expiration of the period specified in the written notice. In the event of termination, UES shall be paid for services performed to the termination notice date plus reasonable termination expenses.

11.2 In the event of termination, or suspension for more than three (3) months, prior to completion of all reports contemplated by the Agreement, UES may complete such analyses and records as are necessary to complete its files and may also complete a report on the services performed to the date of notice of termination or suspension. The expense of termination or suspension shall include all direct costs of UES in completing such analyses, records and reports.

SECTION 12: ASSIGNS

12.1 Neither the Client nor UES may delegate, assign, sublet or transfer their duties or interest in this Agreement without the written consent of the other party.

SECTION 13. GOVERNING LAW AND SURVIVAL

13.1 The laws of the State of Florida will govern the validity of these Terms, their interpretation and performance.

13.2 If any of the provisions contained in this Agreement are held illegal, invalid, or unenforceable, the enforceability of the remaining provisions will not be impaired. Limitations of liability and indemnities will survive termination of this Agreement for any cause.

SECTION 14. INTEGRATION CLAUSE

14.1 This Agreement represents and contains the entire and only agreement and understanding among the parties with respect to the subject matter of this Agreement, and supersedes any and all prior and contemporaneous oral and written agreements, understandings, representations, inducements, promises, warranties, and conditions among the parties. No agreement, understanding, representation, inducement, promise, warranty, or condition of any kind with respect to the subject matter of this Agreement shall be relied upon by the parties unless expressly incorporated herein.

14.2 This Agreement may not be amended or modified except by an agreement in writing signed by the party against whom the enforcement of any modification or amendment is sought.

CONSTRAINTS AND RESTRICTIONS

WARRANTY
Universal Engineering Sciences has prepared this report for our client for his exclusive use, in accordance with generally accepted soil and foundation engineering practices, and makes no other warranty either expressed or implied as to the professional advice provided in the report.

UNANTICIPATED SOIL CONDITIONS
The analysis and recommendations submitted in this report are based upon the data obtained from soil borings performed at the locations indicated on the Boring Location Plan. This report does not reflect any variations which may occur between these borings.

The nature and extent of variations between borings may not become known until excavation begins. If variations appear, we may have to re-evaluate our recommendations after performing on-site observations and noting the characteristics of any variations.

CHANGED CONDITIONS
We recommend that the specifications for the project require that the contractor immediately notify Universal Engineering Sciences, as well as the owner, when subsurface conditions are encountered that are different from those present in this report.

No claim by the contractor for any conditions differing from those anticipated in the plans, specifications, and those found in this report, should be allowed unless the contractor notifies the owner and Universal Engineering Sciences of such changed conditions. Further, we recommend that all foundation work and site improvements be observed by a representative of Universal Engineering Sciences to monitor field conditions and changes, to verify design assumptions and to evaluate and recommend any appropriate modifications to this report.

MISINTERPRETATION OF SOIL ENGINEERING REPORT
Universal Engineering Sciences is responsible for the conclusions and opinions contained within this report based upon the data relating only to the specific project and location discussed herein. If the conclusions or recommendations based upon the data presented are made by others, those conclusions or recommendations are not the responsibility of Universal Engineering Sciences.

CHANGED STRUCTURE OR LOCATION
This report was prepared in order to aid in the evaluation of this project and to assist the architect or engineer in the design of this project. If any changes in the design or location of the structure as outlined in this report are planned, or if any structures are included or added that are not discussed in the report, the conclusions and recommendations contained in this report shall not be considered valid unless the changes are reviewed and the conclusions modified or approved by Universal Engineering Sciences.

USE OF REPORT BY BIDDERS
Bidders who are examining the report prior to submission of a bid are cautioned that this report was prepared as an aid to the designers of the project and it may affect actual construction operations.

Bidders are urged to make their own soil borings, test pits, test caissons or other investigations to determine those conditions that may affect construction operations. Universal Engineering Sciences cannot be responsible for any interpretations made from this report or the attached boring logs with regard to their adequacy in reflecting subsurface conditions which will affect construction operations.

STRATA CHANGES
Strata changes are indicated by a definite line on the boring logs which accompany this report. However, the actual change in the ground may be more gradual. Where changes occur between soil samples, the location of the change must necessarily be estimated using all available information and may not be shown at the exact depth.

OBSERVATIONS DURING DRILLING
Attempts are made to detect and/or identify occurrences during drilling and sampling, such as: water level, boulders, zones of lost circulation, relative ease or resistance to drilling progress, unusual sample recovery, variation of driving resistance, obstructions, etc.; however, lack of mention does not preclude their presence.

WATER LEVELS
Water level readings have been made in the drill holes during drilling and they indicate normally occurring conditions. Water levels may not have been stabilized at the last reading. This data has been reviewed and interpretations made in this report. However, it must be noted that fluctuations in the level of the groundwater may occur due to variations in rainfall, temperature, tides, and other factors not evident at the time measurements were made and reported. Since the probability of such variations is anticipated, design drawings and specifications should accommodate such possibilities and construction planning should be based upon such assumptions of variations.

LOCATION OF BURIED OBJECTS
All users of this report are cautioned that there was no requirement for Universal Engineering Sciences to attempt to locate any man-made buried objects during the course of this exploration and that no attempt was made by Universal Engineering Sciences to locate any such buried objects. Universal Engineering Sciences cannot be responsible for any buried man-made objects which are subsequently encountered during construction that are not discussed within the text of this report.

TIME
This report reflects the soil conditions at the time of investigation. If the report is not used in a reasonable amount of time, significant changes to the site may occur and additional reviews may be required.

Important Information about This

Geotechnical-Engineering Report

Subsurface problems are a principal cause of construction delays, cost overruns, claims, and disputes.

While you cannot eliminate all such risks, you can manage them. The following information is provided to help.

Geotechnical Services Are Performed for Specific Purposes, Persons, and Projects

Geotechnical engineers structure their services to meet the specific needs of their clients. A geotechnical-engineering study conducted for a civil engineer may not fulfill the needs of a constructor — a construction contractor — or even another civil engineer. Because each geotechnical- engineering study is unique, each geotechnical-engineering report is unique, prepared *solely* for the client. No one except you should rely on this geotechnical-engineering report without first conferring with the geotechnical engineer who prepared it. *And no one — not even you* — should apply this report for any purpose or project except the one originally contemplated.

Read the Full Report

Serious problems have occurred because those relying on a geotechnical-engineering report did not read it all. Do not rely on an executive summary. Do not read selected elements only.

Geotechnical Engineers Base Each Report on a Unique Set of Project-Specific Factors

Geotechnical engineers consider many unique, project-specific factors when establishing the scope of a study. Typical factors include: the client's goals, objectives, and risk-management preferences; the general nature of the structure involved, its size, and configuration; the location of the structure on the site; and other planned or existing site improvements, such as access roads, parking lots, and underground utilities. Unless the geotechnical engineer who conducted the study specifically indicates otherwise, do not rely on a geotechnical-engineering report that was:

- not prepared for you;
- not prepared for your project;
- not prepared for the specific site explored; or
- completed before important project changes were made.

Typical changes that can erode the reliability of an existing geotechnical-engineering report include those that affect:

- the function of the proposed structure, as when it's changed from a parking garage to an office building, or from a light-industrial plant to a refrigerated warehouse;
- the elevation, configuration, location, orientation, or weight of the proposed structure;
- the composition of the design team; or
- project ownership.

As a general rule, *always* inform your geotechnical engineer of project changes—even minor ones—and request an assessment of their impact. *Geotechnical engineers cannot accept responsibility or liability for problems that occur because their reports do not consider developments of which they were not informed.*

Subsurface Conditions Can Change

A geotechnical-engineering report is based on conditions that existed at the time the geotechnical engineer performed the study. *Do not rely on a geotechnical-engineering report whose adequacy may have been affected by*: the passage of time; man-made events, such as construction on or adjacent to the site; or natural events, such as floods, droughts, earthquakes, or groundwater fluctuations. *Contact the geotechnical engineer before applying this report to determine if it is still reliable.* A minor amount of additional testing or analysis could prevent major problems.

Most Geotechnical Findings Are Professional Opinions

Site exploration identifies subsurface conditions only at those points where subsurface tests are conducted or samples are taken. Geotechnical engineers review field and laboratory data and then apply their professional judgment to render an opinion about subsurface conditions throughout the site. Actual subsurface conditions may differ — sometimes significantly — from those indicated in your report. Retaining the geotechnical engineer who developed your report to provide geotechnical-construction observation is the most effective method of managing the risks associated with unanticipated conditions.

A Report's Recommendations Are Not Final

Do not overrely on the confirmation-dependent recommendations included in your report. *Confirmation-dependent recommendations are not final,* because geotechnical engineers develop them principally from judgment and opinion. Geotechnical engineers can finalize their recommendations *only* by observing actual subsurface conditions revealed during construction. *The geotechnical engineer who developed your report cannot assume responsibility or liability for the report's confirmation-dependent recommendations if that engineer does not perform the geotechnical-construction observation required to confirm the recommendations' applicability.*

A Geotechnical-Engineering Report Is Subject to Misinterpretation

Other design-team members' misinterpretation of geotechnical-engineering reports has resulted in costly

problems. Confront that risk by having your geotechnical engineer confer with appropriate members of the design team after submitting the report. Also retain your geotechnical engineer to review pertinent elements of the design team's plans and specifications. Constructors can also misinterpret a geotechnical-engineering report. Confront that risk by having your geotechnical engineer participate in prebid and preconstruction conferences, and by providing geotechnical construction observation.

Do Not Redraw the Engineer's Logs

Geotechnical engineers prepare final boring and testing logs based upon their interpretation of field logs and laboratory data. To prevent errors or omissions, the logs included in a geotechnical-engineering report should *never* be redrawn for inclusion in architectural or other design drawings. Only photographic or electronic reproduction is acceptable, *but recognize that separating logs from the report can elevate risk.*

Give Constructors a Complete Report and Guidance

Some owners and design professionals mistakenly believe they can make constructors liable for unanticipated subsurface conditions by limiting what they provide for bid preparation. To help prevent costly problems, give constructors the complete geotechnical-engineering report, *but* preface it with a clearly written letter of transmittal. In that letter, advise constructors that the report was not prepared for purposes of bid development and that the report's accuracy is limited; encourage them to confer with the geotechnical engineer who prepared the report (a modest fee may be required) and/or to conduct additional study to obtain the specific types of information they need or prefer. A prebid conference can also be valuable. *Be sure constructors have sufficient time* to perform additional study. Only then might you be in a position to give constructors the best information available to you, while requiring them to at least share some of the financial responsibilities stemming from unanticipated conditions.

Read Responsibility Provisions Closely

Some clients, design professionals, and constructors fail to recognize that geotechnical engineering is far less exact than other engineering disciplines. This lack of understanding has created unrealistic expectations that have led to disappointments, claims, and disputes. To help reduce the risk of such outcomes, geotechnical engineers commonly include a variety of explanatory provisions in their reports. Sometimes labeled "limitations," many of these provisions indicate where geotechnical engineers' responsibilities begin and end, to help others recognize their own responsibilities and risks. *Read these provisions closely.* Ask questions. Your geotechnical engineer should respond fully and frankly.

Environmental Concerns Are Not Covered

The equipment, techniques, and personnel used to perform an *environmental* study differ significantly from those used to perform a *geotechnical* study. For that reason, a geotechnical-engineering report does not usually relate any environmental findings, conclusions, or recommendations; e.g., about the likelihood of encountering underground storage tanks or regulated contaminants. *Unanticipated environmental problems have led to numerous project failures.* If you have not yet obtained your own environmental information, ask your geotechnical consultant for risk-management guidance. *Do not rely on an environmental report prepared for someone else.*

Obtain Professional Assistance To Deal with Mold

Diverse strategies can be applied during building design, construction, operation, and maintenance to prevent significant amounts of mold from growing on indoor surfaces. To be effective, all such strategies should be devised for the *express purpose* of mold prevention, integrated into a comprehensive plan, and executed with diligent oversight by a professional mold-prevention consultant. Because just a small amount of water or moisture can lead to the development of severe mold infestations, many mold- prevention strategies focus on keeping building surfaces dry. While groundwater, water infiltration, and similar issues may have been addressed as part of the geotechnical- engineering study whose findings are conveyed in this report, the geotechnical engineer in charge of this project is not a mold prevention consultant; *none of the services performed in connection with the geotechnical engineer's study were designed or conducted for the purpose of mold prevention. Proper implementation of the recommendations conveyed in this report will not of itself be sufficient to prevent mold from growing in or on the structure involved.*

Rely, on Your GBC-Member Geotechnical Engineer for Additional Assistance

Membership in the Geotechnical Business Council of the Geoprofessional Business Association exposes geotechnical engineers to a wide array of risk-confrontation techniques that can be of genuine benefit for everyone involved with a construction project. Confer with you GBC-Member geotechnical engineer for more information.

GEOTECHNICAL BUSINESS COUNCIL
of the Geoprofessional Business Association

8811 Colesville Road/Suite G106, Silver Spring, MD 20910
Telephone: 301/565-2733 Facsimile: 301/589-2017
e-mail: info@geoprofessional.org www.geoprofessional.org

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NEWKIRK ENGINEERING, INC.
CIVIL ENGINEERING - TRANSPORTATION - CEI - LANDSCAPE ARCHITECTURE
1230 N US HWY 1, SUITE 3, ORMOND BEACH, FLORIDA 32174 386-872-7794

October 28, 2024

Lupita McClenning, City Planner
Planning
Flagler Beach
800 S. Daytona Avenue
Flagler Beach, FL 32136
(386) 517-2000

Re: Legacy Pointe Cottages
Traffic Impact Statement

Dear Ms. McClenning:

The proposed Legacy Pointe Cottages project consists of 22 units. Site access is provided by existing paved road on Leslie Street connected to John Anderson Highway. Joyce Street will provide exist from sites one (1) way drive to John Anderson Highway.

The trip generation calculations shows that the total project generated trip to external roadway network is 146 Daily Trips, 11 AM (2 In, 9 Out and 0 Pass-By) and 14 PM Peak Hour (9 In, 5 Out and 0 Pass-By). The Daily Traffic Trips does not exceed 500 Daily Trips and is considered minimal traffic impact to John Anderson Highway, State Road 100, A1A and surrounding local road network. Florida Department of Transportation does not require full traffic studies for projects generating less than 500 Daily Trips as this traffic as these projects are considered minimal impact.

The 11 AM (2 In, 9 Out and 0 Pass-By) Peak Hour (7:00 AM – 9:00 AM) trips will not impact the adopted level of service of John Anderson Highway, State Road 100, A1A and surrounding local road network as maximum trips in any direction is less than 20. Trip distribution is as follows:

- SR 100 (In Bound): 1 east bound and 1 west bound to John Anderson Drive (minimal impact)
- SR 100 (Out Bound): 5 east bound and 4 west bound from John Anderson Drive (minimal impact)

The 14 PM (9 In, 5 Out and 0 Pass-By) Peak Hour (4:00 PM – 6:00 PM) trips will not impact the adopted level of service of John Anderson Highway, State Road 100, A1A and surrounding local road network as maximum trips in any direction is less than 20. Trip distribution is as follows:

- SR 100 (In Bound): 6 east bound and 3 west bound to John Anderson Drive (minimal impact)
- SR 100 (Out Bound): 3 east bound and 2 west bound from John Anderson Drive (minimal impact)

See pages 2 and 3 for ITE Trip Generation Rate Spreadsheet.

If you have any questions or need additional information, please feel free to call or email me at Harry@Newkirk-Engineering.com.

Sincerely,

NEWKIRK ENGINEERING, INC.

Digitally signed by Harry Newkirk
DN: C=US, E=harry@newkirk-engineering.com, O=Newkirk Engineering Inc, OU=PE 62971, CN=Harry Newkirk
Date: 2024.10.22 10:16:05-04'00'

Harry Newkirk, PE No. 62971
President/CEO of Newkirk Engineering, Inc.

Description/ITE Code	Units	ITE Vehicle Trip Generation Rates (peak hours are for peak hour of adjacent street traffic unless highlighted								Expected Units	Total Generated Trips			Total Distribution of Generated Tri					
		Weekday	AM	PM	Pass-By	AM In	AM Out	PM In	PM Out		Daily	AM Hour	PM Hour	AM In	AM Out	Pass-By	PM In	PM Out	Pass-By
Waterport/Marine Terminal 010	Acres	11.93	NA	NA		NA	NA	NA	NA		0	NA	NA	NA	NA	0	NA	NA	0
Waterport/Marine Terminal 010	Berths	171.52	NA	NA		NA	NA	NA	NA		0	NA	NA	NA	NA	0	NA	NA	0
Commercial Airport 021	Employees	13.40	0.82	0.80		55%	45%	54%	46%		0	0	0	0	0	0	0	0	0
Commercial Airport 021	Avg Flights/Day	104.73	5.40	5.75		54%	46%	45%	55%		0	0	0	0	0	0	0	0	0
Commercial Airport 021	Com. Flights/Day	122.21	6.43	6.88		55%	45%	54%	46%		0	0	0	0	0	0	0	0	0
General Aviation Airport 022	Employees	14.24	0.69	1.03		83%	17%	45%	55%		0	0	0	0	0	0	0	0	0
General Aviation Airport 022	Avg. Flights/Day	1.97	0.24	0.30		NA	NA	NA	NA		0	0	0	NA	NA	0	NA	NA	0
General Aviation Airport 022	Based Aircraft	5.00	0.24	0.37		83%	17%	45%	55%		0	0	0	0	0	0	0	0	0
Truck Terminal 030	Acres	81.90	7.28	6.55		41%	59%	43%	57%		0	0	0	0	0	0	0	0	0
Truck Terminal 030	Employees	6.99	0.66	0.55		40%	60%	47%	53%		0	0	0	0	0	0	0	0	0
Park&Ride w/ Bus Service 090	Parking Spaces	4.50	0.72	0.62		81%	19%	23%	77%		0	0	0	0	0	0	0	0	0
Park&Ride w/ Bus Service 090	Acres	372.32	48.81	43.75		NA	NA	NA	NA		0	0	0	NA	NA	0	NA	NA	0
Park&Ride w/ Bus Service 090	Occ. Spaces	9.62	1.26	0.81		69%	31%	28%	72%		0	0	0	0	0	0	0	0	0
Light Rail Station w/ Park. 093	Parking Space	2.51	1.07	1.24		80%	20%	58%	42%		0	0	0	0	0	0	0	0	0
Light Rail Station w/ Park. 093	Occ. Spaces	3.91	1.14	1.33		80%	20%	58%	42%		0	0	0	0	0	0	0	0	0
General Light Industrial 110	KSF^2	6.97	0.92	0.97		88%	12%	12%	88%		0	0	0	0	0	0	0	0	0
General Light Industrial 110	Acres	51.80	7.51	7.26		83%	17%	22%	78%		0	0	0	0	0	0	0	0	0
General Light Industrial 110	Employees	3.02	0.44	0.42		83%	17%	21%	79%		0	0	0	0	0	0	0	0	0
General Heavy Industrial 120	KSF^2	1.50	0.51	0.19		NA	NA	NA	NA		0	0	0	NA	NA	0	NA	NA	0
General Heavy Industrial 120	Acres	6.75	1.98	2.16		NA	NA	NA	NA		0	0	0	NA	NA	0	NA	NA	0
General Heavy Industrial 120	Employees	0.82	0.51	0.88		NA	NA	NA	NA		0	0	0	NA	NA	0	NA	NA	0
Industrial Park 130	KSF^2	6.96	0.84	0.86		82%	18%	21%	79%		0	0	0	0	0	0	0	0	0
Industrial Park 130	Acres	63.11	8.55	8.84		83%	17%	21%	79%		0	0	0	0	0	0	0	0	0
Industrial Park 130	Employees	3.34	0.47	0.46		86%	14%	20%	80%		0	0	0	0	0	0	0	0	0
Manufacturing 140	KSF^2	3.82	0.73	0.73		78%	22%	36%	64%		0	0	0	0	0	0	0	0	0
Manufacturing 140	Acres	38.88	7.44	8.35		93%	7%	53%	47%		0	0	0	0	0	0	0	0	0
Manufacturing 140	Employees	2.13	0.40	0.36		73%	27%	44%	56%		0	0	0	0	0	0	0	0	0
Warehousing 150	KSF^2	3.56	0.30	0.32		79%	21%	25%	75%		0	0	0	0	0	0	0	0	0
Warehousing 150	Acres	57.23	10.03	8.69		72%	28%	35%	65%		0	0	0	0	0	0	0	0	0
Warehousing 150	Employees	3.89	0.51	0.59		72%	28%	35%	65%		0	0	0	0	0	0	0	0	0
Mini Warehouse 151	KSF^2	2.50	0.15	0.26		59%	41%	51%	49%		0	0	0	0	0	0	0	0	0
Mini Warehouse 151	Storage Units	0.25	0.02	0.02		67%	33%	NA	NA		0	0	0	0	0	0	NA	NA	0
Mini Warehouse 151	Acres	35.43	2.62	3.45		NA	NA	52%	48%		0	0	0	NA	NA	0	0	0	0
Mini Warehouse 151	Employees	61.90	5.26	6.04		67%	33%	52%	48%		0	0	0	0	0	0	0	0	0
High-Cube Warehouse 152	KSF^2	1.44	0.09	0.10		65%	35%	33%	67%		0	0	0	0	0	0	0	0	0
Utilities 170	KSF^2	NA	0.80	0.76		NA	NA	45%	55%		0	0	0	NA	NA	0	0	0	0
Utilities 170	Employees	NA	0.76	0.76		90%	10%	15%	85%		0	0	0	0	0	0	0	0	0
Single Family Homes 210	DU	9.57	0.75	1.01		25%	75%	63%	37%		0	0	0	0	0	0	0	0	0
Single Family Homes 210	Acres	26.04	2.06	2.74		31%	69%	66%	34%		0	0	0	0	0	0	0	0	0
Single Family Homes 210	Persons	2.55	0.21	0.28		31%	69%	66%	34%		0	0	0	0	0	0	0	0	0
Single Family Homes 210	Vehicles	6.02	0.51	0.67		31%	69%	66%	34%		0	0	0	0	0	0	0	0	0
Apartment 220	DU	6.65	0.51	0.62		20%	80%	65%	35%	22.0	146	11	14	2	9	0	9	5	0
Apartment 220	Persons	3.31	0.28	0.40		NA	NA	NA	NA		0	0	0	NA	NA	0	NA	NA	0
Apartment 220	Vehicles	5.10	0.46	0.60		NA	NA	NA	NA		0	0	0	NA	NA	0	NA	NA	0
Low Rise Apartment 221	Occ.DU	6.59	0.46	0.58		21%	79%	65%	35%		0	0	0	0	0	0	0	0	0
High Rise Apartment 222	DU	4.20	0.30	0.35		25%	75%	61%	39%		0	0	0	0	0	0	0	0	0
Mid-Rise Apartment 223	DU	NA	0.30	0.39		31%	69%	58%	42%		0	0	0	0	0	0	0	0	0
Rental Townhouse 224	DU	NA	0.70	0.72		33%	67%	51%	49%		0	0	0	0	0	0	0	0	0
Resd. Condo/Townhouse 230	DU	5.81	0.44	0.52		17%	83%	67%	33%		0	0	0	0	0	0	0	0	0
Resd. Condo/Townhouse 230	Persons	2.49	0.19	0.24		16%	84%	67%	33%		0	0	0	0	0	0	0	0	0
Resd. Condo/Townhouse 230	Vehicles	3.34	0.24	0.32		16%	84%	66%	34%		0	0	0	0	0	0	0	0	0
Low Rise Resd. Condo 231	DU	NA	0.67	0.78		25%	75%	58%	42%		0	0	0	0	0	0	0	0	0
High Rise Resd. Condo 232	DU	4.18	0.34	0.38		19%	81%	62%	38%		0	0	0	0	0	0	0	0	0
Luxury Condo/Townhouse 233	Occ. DU	NA	0.56	0.55		23%	77%	63%	37%		0	0	0	0	0	0	0	0	0
Mobile Home Park 240	Occ. DU	4.99	0.44	0.59		20%	80%	62%	38%		0	0	0	0	0	0	0	0	0

Description/ITE Code	Units	ITE Vehicle Trip Generation Rates (peak hours are for peak hour of adjacent street traffic unless highlighted)								Expected Units	Total Generated Trips			Total Distribution of Generated Tri					
		Weekday	AM	PM	Pass-By	AM In	AM Out	PM In	PM Out		Daily	AM Hour	PM Hour	AM In	AM Out	Pass-By	PM In	PM Out	Pass-By
Fast Food w/o Drive Thru 933	Seats	42.12	NA	2.13		NA	NA	64%	36%		0	NA	0	NA	NA	0	0	0	0
Fast Food with Drive Thru 934	KSF²	496.12	49.35	33.48	50%	51%	49%	52%	48%		0	0	0	0	0	0	0	0	0
Fast Food with Drive Thru 934	Seats	19.52	1.32	0.94	50%	53%	47%	53%	47%		0	0	0	0	0	0	0	0	0
Fast Food Drive Thru Only 935	KSF²	NA	NA	153.85	89%	NA	NA	54%	46%		0	NA	0	NA	NA	0	0	0	0
Coffee/Donut Shop w/o Drive Thru 936	KSF²	NA	117.23	40.75		51%	49%	50%	50%		0	0	0	0	0	0	0	0	0
Coffee/Donut Shop w/ Drive Thru 937	KSF²	818.58	110.75	42.93		51%	49%	50%	50%		0	0	0	0	0	0	0	0	0
Coffee/Donut Drive Thru Only 938	KSF²	1800.00	303.33	75.00	89%	50%	50%	50%	50%		0	0	0	0	0	0	0	0	0
Bread/Bagel Shop w/o Drive Thru 939	KSF²	NA	70.22	28.00		47%	53%	50%	50%		0	0	0	0	0	0	0	0	0
Bread/Bagel Shop w/ Drive Thru 940	KSF²	NA	36.92	19.56		50%	50%	50%	50%		0	0	0	0	0	0	0	0	0
Quick Lube Vehicle Shop 941	Service Bays	40.00	3.00	5.19		67%	33%	55%	45%		0	0	0	0	0	0	0	0	0
Automobile Care Center 942	Service Bays	12.48	1.52	2.17		68%	32%	NA	NA		0	0	0	0	0	0	NA	NA	0
Automobile Care Center 942	KSF²	15.86	2.94	3.38		65%	35%	50%	50%		0	0	0	0	0	0	0	0	0
Automobile Parts & Service Center 943	KSF²	NA	NA	4.46		NA	NA	42%	58%				0	NA	NA	0	0	0	0
Gasoline/Service Station 944	Fuel. Position	168.56	12.16	13.87	42%	51%	49%	50%	50%		0	0	0	0	0	0	0	0	0
Serv.Station w/ Conven.Mkt 945	Fuel Position	162.78	10.16	13.38	56%	50%	50%	50%	50%		0	0	0	0	0	0	0	0	0
Serv.Stat.w/Conv.Mkt.&Carwash 946	Fuel Position	152.84	11.93	13.94		51%	49%	51%	49%		0	0	0	0	0	0	0	0	0
Self-Service Carwash 947	Stalls	108.00	8.00	5.54		50%	50%	51%	49%		0	0	0	0	0	0	0	0	0
Automated Car Wash 948	KSF²	NA	NA	14.12		NA	NA	51%	49%		0	NA	0	NA	NA	0	0	0	0
											146	11	14	2	9	0	9	5	0

RED Rates = CAUTION - Use Carefully - Small Sample Size
Green Rates = Peak Hour of Generator - (no peak rate for the rush hour of adjacent street traffic)
Blue Rates = Saturday Daily total - (no weekday daily rate)

***Pass-By % are Rates from Weekay PM Peak Period**
***The Total Pass-By Trips will be Distributed: 50% IN / 50 % OUT**

NA = Not Available
DU = Dwelling Unit
Occ.Room = Occupied Room
KSF² = Units of 1,000 square feet
Fuel Position = the number of vehicles that could be fueled simultaneously

28-Oct-24

April 21, 2023

T.J. McNitt
Verdego Landscape
3335 North State Street, PO Box 789
Bunnell, FL 32110

Re: Leslie Street Parcel
Flagler County, FL
Listed Species Report
ECS Project No. 844.06.23

Dear T.J.:

On April 21, 2023, a listed species survey was conducted on the Leslie Street Parcel project site. The property is located immediately north of Leslie Street, west of Joyce Street, south of Moody Boulevard., and east of Badcock Home Furniture & More store in Flagler Beach, Florida. More specifically, the property is located within Sections 11 Township 12 South and Range 31 East of Flagler County, Florida.

The project site consists of upland hardwood forests, a burrow pit, and a ditch system.

A survey of the project boundaries was conducted to assess the potential occurrence of flora and fauna listed as threatened or endangered by the United States Fish and Wildlife Service (USFWS), Florida Fish and Wildlife Conservation Commission (FWC), and the Florida Department of Agriculture (FDA). Tables 1 and 2 provide a listing of the species known to occur within Flagler County and their expected occurrence of the project site. The findings and conclusions of the survey are reported in this letter.

The survey was conducted by Ecological Consulting Solutions Inc (ECS) for the purpose of evaluating the site for the presence or absence of wetland habitat and protected flora and fauna or their habitat. The survey was conducted by means of pedestrian transects in the early morning to assure the potential of observing listed fauna as recommended by the FWC and the USFWS.

The following resources were used for supporting information during the site assessment and letter preparation:

- Color aerial photographs (1" = 300), 2022, Google Earth, Flagler County, Florida.
- National Wetlands Inventory – U.S. Fish and Wildlife Service.
- United States Geological Survey (USGS) 7.5-minute quadrangle map, Flagler County, Florida, (ArcGIS).
- Official Lists of Endangered and Potentially Endangered Fauna and Flora in Florida (USFWS and FWC).

Pedestrian and vehicular surveys of the project site were conducted to qualitatively document the existing vegetation and to assess the present land use patterns according to the Florida Land Use, Cover and Forms Classification System, Department of Transportation (FLUCFCS; DOT 1999). Four (04) land use types are present (Figure 2). A brief description of each FLUCFCS community is provided below.

420– Upland Hardwood Forest

Found in the eastern and southern portion of the project site. This upland habitat is dominated by mature live oak (*Quercus virginiana*), red cedar (*Juniperus virginiana*), laurel oak (*Quercus laurifolia),* sugar hackberry (*Celtis laevigata*), cabbage palms (*Sabal palmetto*), slash pine (*Pinus elliottii*), Chinese tallow (*Triadica sebifera),* and water oak (*Quercus nigra*). Brazilian pepper (*Schinus terebinthifolia*), wax myrtle (*Myrica cerifera*), Hercules club (*Zanthoxylum clava-herculis*), and American beautyberry (*Callicarpa americana*) are present in the shrub layer. Groundcover vegetation consisted of bracken fern (*Pteridium aquilinum*), coontie (*Zamia integrigolia*), greenbrier (*Smilax rotundifolia*), and grapevine (*Vitis spp.),* bahia grass (*Paspalum notatum*), dog fennel (*Eupatorium capillifolium*), St. Augustine grass (*Stenotaphrum secundatum*), common beggars ticks (*Bidens alba*), and lantana (*Lantana camara*).

742 – Borrow Areas

It is the opinion of ECS biologists that along the northwestern portion of the project site is a borrow pit that predates 1995 aerial imagery. ECS performed a permit search of St. Johns River Water Management District (SJRWMD) and found no existing permits for this surface water system. The burrow pit contains an open water center covered with common duckweed (*Lemna minor*) and water hyacinth (*Pontederia crassipes*). Vegetation along the top of the bank consists of red maple (*Acer rubrum*), wax myrtle, dahoon holly (*Ilex cassine*), water oak, red bay (*Persea borbonia*), marsh pennywort (*Hydrocotyle umbellata*), cinnamon fern (*Osmundastrum cinnamomeum*), grape vine, and greenbrier.

513 – Ditch

There is a ditch system located near the eastern boundary and runs offsite on both the northern and southern border of the property site, appears manmade and has steep sided slopes. Vegetation along the top of the bank consists of cabbage palm, dahoon holly, laurel oak, scattered cinnamon fern, green briar, with dense leaf litter as ground cover and human litter within the ditch. At the time of the site visit, there was flowing water in the ditch system.

814 – Roads and Highways

On the southeastern corner of the project boundary is Leslie Street. There is a culvert system that runs under Leslie Street that allows the surface water in the manmade ditch to continue south offsite.

Listed Species Survey

A survey was conducted using pedestrian transects throughout the site to assess the occurrence, or potential for occurrence, of flora and fauna listed as threatened, endangered, or as species of special concern (SSC) by the Florida Fish and Wildlife Conservation Commission (FWC), United States Fish and Wildlife Service (USFWS), and Florida Department of Agriculture (FDA). In addition, the presence of designated critical habitat and/or vegetative communities and land uses with the potential to support listed species was evaluated prior to any field surveys.

On January 11, 2017, the FWC State listing status changes, originally proposed back in 2010, became official after the approval of Florida's Imperiled Species Management Plan by FWC Commissioners.

• 15 species were removed from Florida's Endangered and Threatened Species List: Eastern chipmunk, Florida mouse, brown pelican, limpkin, snowy egret, white ibis, peninsula ribbon snake (Lower Keys population), red rat snake Lower Keys population), striped mud turtle (Lower Keys population), Suwannee cooter, gopher frog, Pine Barrens tree frog, Lake Eustis pupfish, mangrove rivulus, and Florida tree snail.

• 23 species changed from State-designated Species of Special Concern to State-designated Threatened species: Sherman's short-tailed shrew, Sanibel rice rat, little blue heron, tricolored heron, reddish egret, roseate spoonbill, American oystercatcher, black skimmer, Florida burrowing owl, Marian's marsh wren, Worthington's Marsh wren, Scott's seaside sparrow, Wakulla seaside sparrow, Barbour's map turtle, Florida Keys mole skink, Florida pine snake, Georgia blind salamander, Florida bog frog, bluenose shiner, saltmarsh top minnow, Southern tessellated darter, Santa Fe crayfish, and Black Creek crayfish.

• 14 species keep their State-designated Threatened status: Everglade's mink, Big Cypress fox squirrel, Florida sandhill crane, snowy plover, least tern, white-crowned pigeon, Southeastern American kestrel, Florida brown snake (Lower Keys population), Key ringneck snake, short-tailed snake, rim rock crowned snake, Key silverside, blackmouth shiner, and crystal darter.

• Five species listed as State-designated Species of Special Concern: (list species): Homosassa shrew, Sherman's fox squirrel, osprey (Monroe County population), alligator snapping turtle, and harlequin darter.

On December 23, 2018, the State listing status changes that were proposed in 2011 as part of the newly implemented imperiled species management system became official after the approval of Florida's Imperiled Species Management Plan by FWC Commissioners.

• Four species were removed from Florida's Endangered and Threatened Species List as State Species of Special Concern: Harlequin darter, Osprey (Monroe County population), Homosassa shrew, and Sherman's fox squirrel.

• The Alligator snapping turtle was taxonomically reclassified into three subspecies. The Suwannee alligator snapping turtle was listed as a State-designated Threatened species.

• Two species were listed as Federally designated Threatened species: Giant manta ray and Nassau grouper.

• Four species had changes in their scientific names: Short tailed snake, Bluetail mole skink, Florida Keys mole skink, and sand skink.

Birds

Approximately 35 species (and sub-species) of birds found in Florida are protected by the FWC and/or the USFWS. For Flagler County, the USFWS federally lists three bird species. No listed birds were observed at this site (Table 1).

Florida scrub jays (*Aphelocoma c. coerulescens)* were not observed on the project site. This species is listed as threatened at the state and federal levels. The property does not contain scrub habitat. The guidelines outlined in the *Ecology & Development-Related Habitat Requirements of the Florida Scrub Jay (April 1991)* were reviewed prior to the site visit. No scrub jays were observed, or vocalizations heard.

Red-cockaded woodpeckers (*Picoides borealis*) are endangered (USFWS) and endangered (FWC). No red-cockaded woodpeckers were observed, and the upland habitat type is not suitable. There were no open pine flatwoods with old-growth pines that characterize RCW nesting and foraging habitat.

Listed wading birds such as limpkin (*Aramus guarauna),* snowy egret (*Egretta thula),* tricolored heron (*Egretta tricolor)* white ibis (*Eudocimus albus)* and the wood stork *(Mycteria americana)* were not observed. The onsite surface waters contain marginal habitat for wading birds, no nests or birds were observed onsite.

Bald eagles (*Haliaeetus leucocephalus*) or their nests were not observed on the site. Bald eagles are protected under the Bald and Golden Eagle Protection Act and the Migratory Bird Treaty Act. The USFWS has established a 660-foot protection zone around a bald eagle nest.

ECS searched the FWC website, as well as the Audubon Society Eagle Watch website, to determine if any documented bald eagle nests are within 660 feet of the site. There are no bald eagle nests near the proposed project site. Therefore, the project site is well outside of the 660-foot eagle nest protection zone and the development will not affect any bald eagle nests.

No other listed raptors such as Southeastern American kestrels (*Falco sparverius paulus*) or Arctic peregrine falcons (*Falco peregrinus tundrius*) were observed on or around the site. There is no foraging habitat for kestrels. No birds were observed on or offsite at the time of the survey.

Florida sandhill cranes (*Grus canadensis pratensis*), a Threatened Species, were not observed within the project boundaries.

Amphibians and Reptiles

About thirty (30) species of Florida's amphibians and reptiles are protected. For Flagler County, the USFWS federally lists four (4) reptile species. No listed reptile or amphibian species were observed within the project boundaries.

The sand skink (*Neoseps reynoldsi*) is listed as threatened by both FWS and FWC. The sand skink is primarily found in rosemary scrub, sand pine and oak scrub.

The known range of the sand skink now includes Highlands, Lake, Marion, Orange, Osceola, Polk, and Putnam Counties with principal populations along the Lake Wales Ridge, the Winter Haven Ridge, and the Mount Dora Ridge.

The subject property is outside of the known limits of the sand skink.

Gopher Tortoise

A cursory survey was conducted throughout the property for gopher tortoises (*Gopherus polyphemus)*, a species listed by the FWC as a Threatened. No gopher tortoise burrows were observed throughout the property.

Several commensal species associated with gopher tortoise burrows, including the gopher frog (*Rana areolata aesopus)* and eastern indigo snake (*Drymarchon corais couperi)* also receive protection, but were not observed.

Eastern Indigo Snake

Concerning the eastern indigo snake, ECS conducted survey transects to identify potential aboveground and underground refugia, which eastern indigo snakes may inhabit. Underground refugia includes active or inactive gopher tortoise burrows, mammal burrows, hollows at the base of trees and other similar formations. Above ground refugia includes thick shrub formations, stumps, the base of thick palmetto, ground litter, brush piles, trash piles, and abandoned structures, and crevices of rock-lined ditch walls and other similar refugia.

Surveys for eastern indigo snakes are recommended by the USFWS during the time of October 1st through April 30th. There was little suitable refugia for the eastern indigo snake onsite. No eastern indigo snakes were observed.

The USFWS has established a new programmatic effect determination key (Key) as part of the eastern indigo snake management. The Key allows the USFWS to require mitigation for eastern indigo snake habitat if 25 or more acres of suitable habitat will be impacted for development.

The USFWS has established a fund that a developer can pay for mitigation.

A developer can pay up front and then no surveys for the eastern indigo snakes are required. The survey is a minimum 5-day survey. To save time and monies associated with the surveys, the developer can pay a fee and expedite the permitting process.

To determine if the site has an eastern indigo snake habitat will be up to the USFWS reviewer assigned to the project.

The USFWS requires the developer to notify the local field office via email at least **30 days prior** to any clearing/land alteration activities.

The notification has to include an eastern indigo snake protection/education plan. This notification can occur via email with the protection/education plan attached.

As long as the signatory of the e-mail certifies compliance with the protection/education plan (including use of the USFWS informational poster and brochure), no further written confirmation or "approval" from the USFWS is needed and the applicant may move forward with the project.

Mammals

Thirty-three (33) mammals are currently protected in Florida. For Flagler County, the USFWS federally lists one mammal species. None were observed on this site.

We focused our search on fox squirrels (*Sciurus niger niger)* and the Florida mouse (*Podomys floridanus)* and their possible den or nest sites. We did not observe any listed mammals or their potential den sites.

Listed Plants

There was one protected plant species, coontie (*Zamia integrigolia*), found on the project site (Table 2). *Zamia* species. belongs to the order of cycads and are native to Florida, they are classified as state threatened. No other protected plants are expected to occur on the project sites due to historical site disturbance and due to competition with exotic plant species. Currently, there are no technical reports available by the state or federal agencies mentioned in this letter report for the survey of the nearly 400 protected plant species. None of the agencies require relocation or mitigation for protected plant species.

The Department of Agriculture and Consumer Services (DACS) designates and regulates plants listed as "endangered", "commercially exploited" and "threatened". There is no statutory prohibition against a landowner from harvesting an endangered or threatened plant from his property.

However, it is unlawful for an individual to harvest an endangered or threatened species from the private land of another or any public land without first obtaining written permission of that landowner and a permit from DACS. Additionally, harvesting three or more commercially exploited plants from the private land of another or any public land will also require a DACS permit.

Summary

In summary, one listed species, the coontie (*Zamia* spp.), was observed within the property boundaries. There is no statutory prohibition against a landowner from harvesting an endangered or threatened plant from his/her property.

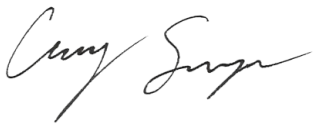
There is a burrow pit and ditch system present onsite. Both the burrow pit and ditch have extensions that lead offsite and connect to larger wetland systems.

The USFWS must be notified at least 30 days prior to any land clearing with a protection/education plan concerning eastern indigo snakes.

Ecological Consulting Solutions Inc. appreciates the opportunity to provide you with our services. Should you have any questions or require additional information, please do not hesitate to contact me.

Sincerely,

ECOLOGICAL CONSULTING SOLUTIONS INC



Crissy Seckinger

Attachments

Pictures

Typical view of upland hardwood forest

View of Burrow pit

View of manmade ditch system

FIGURES

LEGEND

Project Boundary (± 3.16 Acres)

www.ecologicalcs.com

Ecological Consulting Solutions, Inc.

LESLIE STREET PARCEL
FLAGLER COUNTY, FL
LOCATION MAP

PROJECT #: 844.06.23 **DATE: 4/20/23** **FIGURE #: 1**

0 512.5 1,025 2,050 Feet

N

410 North Street #130
Longwood, Florida 32750
Office: (407) 869-9434 Fax: (407) 869-9436
CSeckinger@ecsfl.cc

607

LEGEND

Project Boundary (± 3.16 Acres)	
742	Burrow Area
420	Upland Hardwood Forests
513	Ditch
814	Roads and Highways

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Ecological Consulting Solutions, Inc.

LESLIE STREET PARCEL
FLAGLER COUNTY, FL
FLUCFCS MAP

PROJECT #: 844.06.23 DATE: 4/24/23 FIGURE #: 2

0 32.5 65 130 Feet

N

410 North Street #130
Longwood, Florida 32750
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608

TABLES

TABLE 1: PROTECTED FAUNA FOUND IN FLAGLER COUNTY, FLORIDA AND THEIR EXPECTED OCCURRENCE ON THE LESLIE STREET PARCEL PROPERTY.

SPECIES	FWC STATUS (1)	USFWS STATUS (2)	PREFERRED HABITAT (3)	PROBABILITY OF OCCURRENCE (4)
REPTILES				
Drymarchon corais couperi Eastern indigo snake	T	T	Dry habitats bordered by water; often occupy *G. polyphemus* burrows	Low: limited habitat available, none observed
Gopherus polyphemus Gopher tortoise	SSC	_	Well drained soil; xeric pine-oak hammocks and scrub; pine flatwoods	Low: habitat unavailable, dense vegetation, no burrows observed
Neoseps reynoldsii Sand Skink	T	T	Well drained sandy soil, open areas, sand pine-rosemary scrub	Low: habitat not available, none sighted, outside of known range
Pituophis melanoleucus mugitus Florida pine snake	SSC	_	Dry, sandy barrens in xeric oak and pine-wooded sandhills	Low: habitat not present, none observed
Stilosoma extenuatum Short-tailed snake	T	_	Sandy upland ridges; xeric oak pine woods; xeric oak hammocks	Low: habitat not present, none sighted
AMPHIBIANS				
Rana areolata aesopus Florida gopher frog	SSC	-	Dry, xeric habitats with wetlands such as isolated permanent ponds and cypress domes	Low: limited habitat available, no gopher tortoise burrows observed
BIRDS				
Aphelocoma coerulescens Florida scrub jay	T	T	Level, sterile, white sand with low, xeric oak scrub	Low: scrub not available on site, none sighted
Aramus guarauna Limpkin	SSC	_	Densely vegetated swamps, lakeshores and slow streams	Low: open water habitat available on site, none sighted
Egretta caerulea Little blue heron	SSC	_	Lake littorus; shallow ponds and marshes	Low: foraging habitat available, no birds sighted
Egretta thula Snowy egret	SSC	_	Lake littorus; shallow ponds and marshes	Low: foraging habitat available, no birds sighted

TABLE 1: PROTECTED FAUNA FOUND IN FLAGLER COUNTY, FLORIDA AND THEIR EXPECTED OCCURRENCE ON THE LESLIE STREET PARCEL PROPERTY.

SPECIES	FWC STATUS (1)	USFWS STATUS (2)	PREFERRED HABITAT (3)	PROBABILITY OF OCCURRENCE (4)
BIRDS (cont..)				
Egretta tricolor Tricolored heron	SSC	_	Lake littorus; shallow ponds and marshes	Low: foraging habitat available, none sighted
Eudocimus albus White ibis	SSC	-	Beaches, mudflats, wet fields and prairies, forested wetlands and marshes	Low: limited habitat available, none sighted
Falco peregrinus tundrius Peregrine falcon	E	_	Coastal beaches, prairies, and marshes	Low: no habitat available, none sighted.
Falco sparverius paulus Southeastern American kestrel	T	_	Forest edges, and clearings; nests in mature pines	Low: habitat unavailable, none sighted
Grus canadensis pratensis Florida sandhill crane	T	_	Marshes, wet prairies, pastures, and open herbaceous rangeland	Low: limited habitat available, no birds sighted
Haliaeetus leucocephalus Bald eagle	T	T	Open (<60% canopy cover), mature pine forests < 2 km from expansive open waters	Low: limited habitat available, no nests or birds sighted
Mycteria americana Wood stork	E	E	Nests is cypress swamps; forage sites range from shallow marshes to roadway borrow pits	Low: foraging habitat available, none sighted
Picoides borealis Red-cockaded Woodpecker	E	E	Old-growth pine flatwoods with regular fire occurrence are required for nesting	Low: habitat not available, none sighted
MAMMALS				
Podomys floridanus Florida mouse	SSC	_	Sand pine scrub; xeric oak-pine flatwoods; often associated with *G. polyphemus* burrows	Low: habitat not present, none sighted
Sciurus niger niger Southern fox squirrel	-	_	Mature flatwoods of sandhills; occasional in tall cypress-bay forests	Low: no habitat not available, none sighted
Ursus americanus floridanus Florida black bear	T	_	Nearly-impenetrable wooded thickets and swamps	Low: limited habitat available, none sighted

Footnotes to Table 1

1 FWC - Florida Fish and Wildlife Conservation Commission, formerly the Florida Game and Fresh Water Fish Commission; Official Lists of Florida's Endangered Species, Threatened Species and Species of Special Concern, published August 1997.

2 USFWS – United States Fish and Wildlife Service; List obtained from FWC's Florida's Endangered Species, Threatened Species and Species of Special Concern, published August 1997.

(E-endangered, T-threatened, SSC-species of special concern, CE-commercially exploited). C1 (candidate for federal listing, with enough substantial information on biological vulnerability and threats to support proposals for listing) and C2 (candidate for listing, with some evidence of vulnerability, but for which not enough data exists to support listing) are no longer official categories.

3 Habitats described by:

Ashton, R.E. and P.S. Ashton. 1985 Handbook of Reptiles and Amphibians of Florida (3 vols.). Windward Publ. Inc. Miami.
Conant, R. 1975 A Field Guide to Reptiles and Amphibians of Eastern/Central North America (2nd ed.). Houghton Mifflin Co. Boston 430 pp.
Kale, H.W. 1978. Volume Two; Birds. In P.C.H. Pritchard (ed.), Rare and Endangered Biota of Florida. University Presses of Florida. Gainesville. 121 pp.
Kale, H.W. and D.S. Maehr. 1990. Florida's Birds: A Handbook and Reference. Pineapple Press. Sarasota. 288 pp.
Layne, L.N. 1978 Volume One: Mammals. In P.C.H. Pritchard (ed.), Rare and Endangered Biota of Florida. University Presses of Florida. Gainesville, 52 pp.
McLane, W.M. 1985. The Fishes of the St. Johns River, Florida. Ph.D. diss. University of Florida, Gainesville. 361 pp.
Peterson, R.T. 1980. A Field Guide to the Birds of East of the Rockies (4th ed.). Houghton Mifflin Co. Boston. 384 pp.

4 Likelihood of occurrence: Low, Moderate or High, based on the best available data and selective field observations.

TABLE 2: PROTECTED FLORA FOUND IN FLAGLER COUNTY, FLORIDA AND THEIR EXPECTED OCCURRENCE ON THE LESLIE STREET PARCEL PROPERTY.

SPECIES	FDA STATUS (1)	USFWS STATUS (2)	PREFERRED HABITAT (3)	PROBABILITY OF OCCURRENCE (4)
Calopogon barbatus Bearded grass pink	T	_	Damp pinelands	Low: habitat not present, none found
Calopogon multiflorus Many-flowed grass pink	E	_	Open, damp, occasionally recently burned pinelands and meadows	Low: habitat not available, none found
Deerinfothamnus rugelii Rugel's pawpaw	E	E	Mesic flatwoods	Low: habitat not available, none found
Encyclia tampensis Butterfly orchid	CE	_	Cypress swamps, hardwood swamps and hammocks	Low: habitat not available, none found
Epidendrum conopseum Greenfly orchid	CE	_	Cypress swamps, hardwood swamps and hammocks	Low: habitat not available, none found
Hartwrightia floridiana Florida Hartwrightia	T	_	Wet, open areas, moist grasslands, and sphagnum bogs	Low: no habitat available, none found
Lilium catesbaei Southern red lily	T	_	Mesic flatwoods, wet prairies, usually in graminoid systems	Low: no habitat available, none found
Listera australis Southern tway blade	T	_	Hammocks, low moist woods in deep humus, ravines, shady stream banks, sphagnum	Low: habitat not available, none found
Nemastylis floridana Fall-flowering ixia	E	_	Marshes; grassy openings of wet hammocks moist flatwoods	Low: no habitat available, none found
Platanthera blephariglottis Large white fringed orchid	T	_	Inhabits sphagnum bogs, meadows, damp fields and woods	Low: no habitat available, none found
Platanthera cristata Golden fringed orchid	T	_	Low moist meadows and damp pine woods	Low: habitat not available, none found
Platanthera flava Southern tubercled orchid	T	_	Very wet habitats such as swamps, bogs and wet forests with thick, black mud	Low: limited not available, none found

TABLE 2: PROTECTED FLORA FOUND IN FLAGLER COUNTY, FLORIDA AND THEIR EXPECTED OCCURRENCE ON THE LESLIE STREET PARCEL PROPERTY.

SPECIES	FDA STATUS (1)	USFWS STATUS (2)	PREFERRED HABITAT (3)	PROBABILITY OF OCCURRENCE (4)
Platanthera integra Southern yellow fringeless orchid	E		Marshes and wet pine flatwoods	Low: habitat not available, none found
Platanthera nivea Snowy orchid	T	_	Open bogs and sunny, wet meadows	Low: habitat not available, none found
Pogonia ophioglossoides Rose pogonia	T	_	Open, wet meadows and sphagnum bogs, poorly drained roadside ditches	Low: habitat available, none found
Polygala lewtonii Scrub (Lewton's) milkwort	E	E	Dry oak woodlands and scrub	Low: habitat available, none found.
Rhapidophyluum hystrix Needle palm	CE	_	Wet to mesic woods and hammocks; spring fed stream bottoms	Low: habitat not available, none found
Spiranthes brevilabris floridana Florida Ladies' tresses	E	_	Open meadows and damp pinelands, road shoulders, ditches	Low: habitat available, none found
Spiranthes laciniata Lace-tip ladies' tresses	T	_	Marshes and cypress swamps; road banks and ditches	Low: habitat available, none found
Spiranthes longilabris Long-tip ladies' tresses	T	_	Marshes and wet prairies	Low: habitat not available, none found
Stenorrhynchos lanceolatus var. lanceolatus Leafless beaked orchid	T	_	Vacant lots, open pastures, pine flatwoods and mowed roadsides	Low: habitat unavailable, none found
Tillandsia fasciculata Common wild pine	E	_	Cypress swamps and hammocks	Low: habitat not available, none found
Tillandsia utriculata Giant wild pine	E	_	Hammocks and cypress swamps	Low: habitat not available, none found
Zamia spp. Coontie	-	T	Dry, well drained soils	High: habitat available, sighted onsite
Zephyranthes simpsonii Simpson zephyr lily	T	_	Dome swamps, wet flatwoods, ditches, wet pastures, often burned-over areas	Low: habitat not available, none found

Table 2 Footnotes

1 FDA – Florida Department of Agriculture and Consumer Services; List obtained from FWC's Florida's Endangered Species, Threatened Species and Species of Special Concern, published August 1997. Supporting information from FNAI - Florida Natural Inventory; Matrix of habitats and distribution by county of rare/endangered fauna and flora in Florida, published April 1990.

2 USFWS – United States Fish and Wildlife Service; List obtained from FWC's Florida's Endangered Species, Threatened Species and Species of Special Concern, published August 1997.

[E-endangered, T-threatened, SSC- species of special concern, CE-commercially exploited.] C1 (candidate for federal listing, with enough substantial information on biological vulnerability and threats to support for listing) and C2 (candidate for listing with some evidence of vulnerability, but for which not enough data exist to support listing) are no longer official categories.

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FNAI - Florida Natural Inventory; Matrix of Habitats and Distribution by County of Rare/Endangered Species in Florida, published April 1990.
Godfrey, R.K. 1988. Trees, Shrubs, and Woody Vines of Northern Florida, and Adjacent Georgia and Alabama. University Georgia Press. Athens, GA 734 pp.
Ward, D.B. (publ. date not listed). Volume Five,. Plants, in P.C.H. Pritchard (ed.), Rare and Endangered Biota of Florida. University Presses of Florida, Gainesville. 175 pp.
Wunderlin, R.P. 1982. Guide to Vascular Plants of Florida. University Presses of Florida, Gainesville, FL. 472 pp.

4 Likelihood of occurrence: Low, Moderate, or High, based on the best available data and selective field observations.