CONCEPTUAL DRAINAGE/POND SITING REPORT

SW 10TH STREET CONNECTOR
PD&E STUDY

FPID 439891-1-22-02

DECEMBER 2020

RS&H

CONCEPTUAL DRAINAGE/POND SITING REPORT

SR 869/SW 10th Street from west of SR 845/Powerline Road to west of Military Trail

Financial Project No.: 439891-1-22-02

Prepared by RS&H, Inc. for the Florida Department of Transportation (FDOT), District 4

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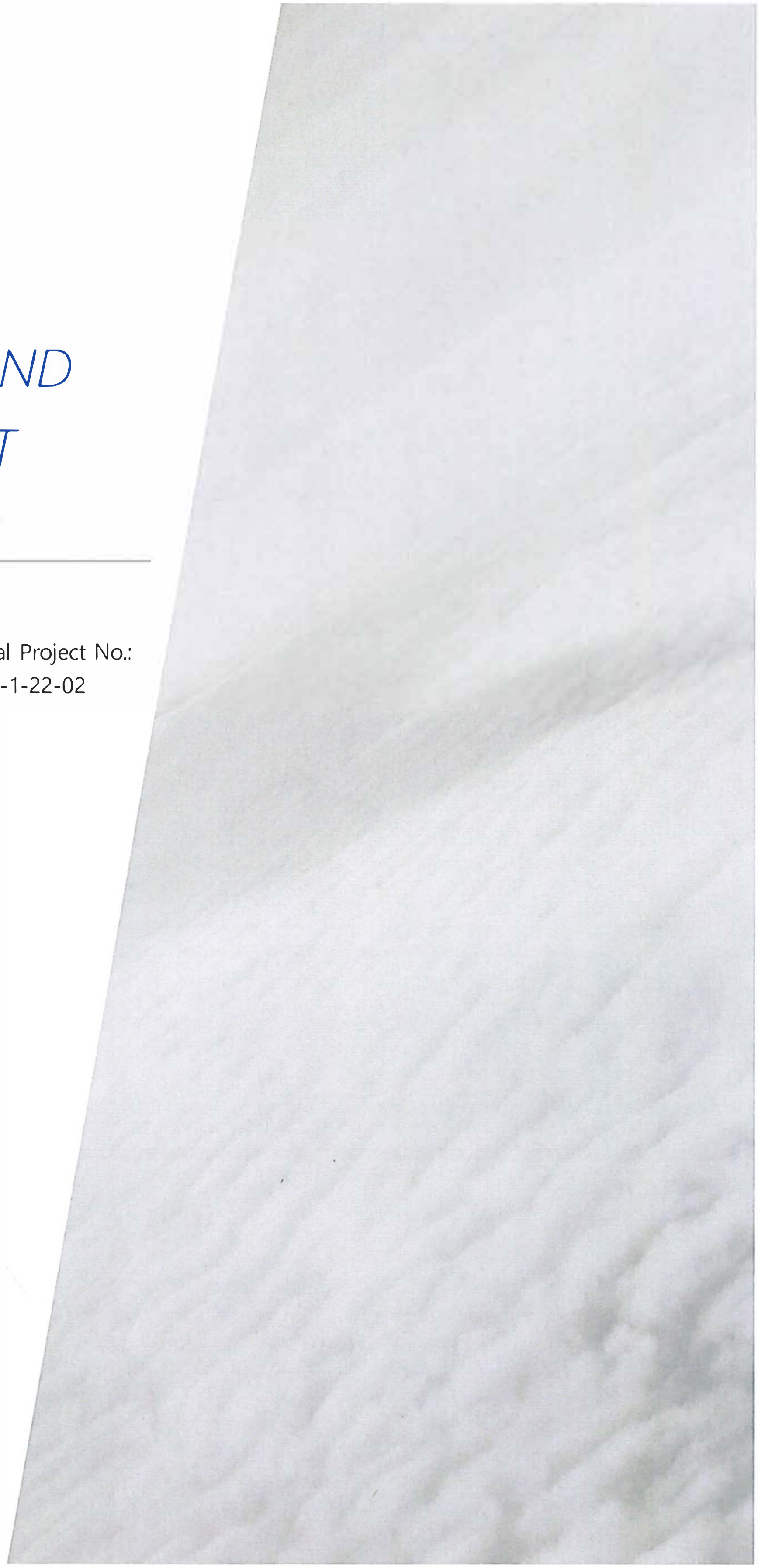
RS&H



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EXECUTIVE SUMMARY

This Conceptual Drainage/Pond Siting Report is part of the Preliminary Engineering Report for the Project Development and Environment (PD&E) study for SR 869/SW 10th Street in Broward County, Florida.

This report describes the existing roadway and drainage features of the study corridor, identifies key drainage and permitting criteria for the proposed improvements, provides a conceptual drainage design with minimum required pond sizes, evaluates alternative parcels for ponds, and provides a final recommendation.

The project is located along SR 869/SW 10th Street from west of Powerline Road to west of Military Trail. The roadway corridor within the PD&E study limits consists of a four-lane divided suburban principal arterial, widening to a six-lane divided urban principal arterial at the eastern and western limits of the project. The proposed improvements include widening to provide for a limited-access connector facility along the SR 869/SW 10th Street corridor. The existing drainage within the PD&E study limits consist primarily of an open swale system that collects and retains roadway runoff, with overflow discharges to the Broward County Water Control District (BCWCD) #2 C-3 and C-2 canals. The drainage system is divided into two distinct basins (the C-3 Basin and the C-2 Basin), which are then subdivided into several sub-basins based on existing collection and conveyance systems, interconnected stormwater management facilities, and outfalls. The proposed drainage design consists of a closed drainage system with drainage structures, pipes, and pumps, for collection and conveyance of stormwater runoff.

The project falls within the jurisdictional boundary of the South Florida Water Management District (SFWMD) and the Broward County Environmental Protection and Growth Management Department (BCEPGMD). SFWMD has established several criteria for water quality, water quantity, and floodplain compensation. The conventional approach for offsite stormwater management facility selection and design are identification of pond site alternatives located adjacent to or close to the project corridor which receive untreated stormwater runoff via piping from the roadway corridor and then contain control structures which discharge the treated runoff into the receiving waters. However, the BCWCD #2 basins are different, as they are designated as a "water quality basin" which provides storage, treatment, and groundwater control for the entire basin draining to it and, in the case of the C-2 Basin, is controlled by one structure (S-4) at the north end of the C-2 Canal which discharges to the SFWMD Hillsboro Canal. Therefore, in lieu of new stormwater management facilities within the basin, any of the existing stormwater management facilities within the entire basin could be expanded/modified as needed to provide the required water quality, water quantity, and floodplain compensation volume for the project. After discussions, both SFWMD and BCEPGMD have agreed that the stormwater quantity criteria for the project will be based on providing an expansion of the waterbodies within the BCWCD #2 C-2 Basin that offsets existing storage proposed to be filled by the project and which offsets the additional runoff volume created by the project. Additionally, SFWMD has requested a regional stormwater model and application for a master permit for the C-2 basin to ensure that the proposed improvements do not increase stages or discharges.

Based on the conceptual drainage design evaluation for the proposed roadway improvements, the minimum pond size required to meet FDOT drainage criteria, as well as BCEPGMD and SFWMD permit criteria for the C-3 Basin is 5.14 acres, which can be accommodated with expansion of the existing stormwater management facilities within the SR 869/Sawgrass Expressway and Florida's Turnpike Interchange. For the C-2 Basin, the minimum pond size required to meet the criteria is 11.18 acres, which can be accommodated with an offsite wet detention pond requiring right-of-way acquisition.

During the initial pond siting evaluation process, seven pond site alternatives were identified: three conventional pond sites and four non-conventional (water quality basin) pond sites. The three conventional pond sites are within developed commercial/industrial land use properties located off frontage just south of SW 10th Street, east of Powerline Road, and would require permanent easements for drainage conveyance inflow and outflow. These three conventional pond site alternatives avoid residential relocations but impact and displace existing commercial/industrial businesses. The four non-conventional pond site alternatives are located north of SW 10th Street, within the vacated golf course property in the Century Village community. Since the initial evaluation of pond site alternatives, one of these four non-conventional pond sites has been developed and a portion of another is now being used for the developed site's drainage needs. Further, Century Village representatives have expressed that any pond sites within the community should be spread out over the remaining vacant areas and be incorporated with the proposed Century Village park system. The three remaining non-conventional pond sites would avoid displacement of commercial/industrial properties being considered for the conventional pond site locations south of SW 10th Street, while enabling the Department to meet all drainage and permit criteria through expansion of the waterbodies within the C-2 Basin. As such, no formal ranking associated with these sites will be conducted and these three pond sites will be considered the preferred alternative, contingent upon the ability to reach a mutual agreement with Century Village. If a mutual agreement with Century Village cannot be executed, however, the three conventional pond sites have been ranked and pond site Alternative 3 is the recommended pond site location of the conventional alternatives. Refer to **Appendix I** for further details on the pond siting evaluation.

1.0 INTRODUCTION

The Florida Department of Transportation (Department) is currently conducting a Project Development and Environment (PD&E) study that is evaluating potential roadway improvements to SR 869/SW 10th Street within the City of Deerfield Beach in Broward County, Florida. The major improvements being considered under the PD&E Study will address local and limited access transportation needs for SR 869/SW 10th Street, address safety and operational issues, enhance emergency response and evacuation, and improve system linkages and connectivity between I-95, Florida's Turnpike, and SR 869/SW 10th Street. The improved system connectivity and capacity will be achieved by widening to provide for a limited-access connector facility along the SR 869/SW 10th Street corridor.

The purpose of this report is to define the conceptual drainage design, evaluate minimum offsite pond requirements, and identify the recommended stormwater management facility locations, in support of the PD&E study, consistent with Federal, State, and local objectives. This report identifies the existing drainage systems within the proposed limits of work, FDOT drainage criteria and environmental permitting agency requirements that govern the final design, and the stormwater management facility options available to meet such criteria. Additionally, the report identifies the outfall locations and preliminary sizes (volume and area) of required stormwater management facilities and provides conclusions and recommendations for the proposed drainage systems.

This report was prepared in accordance with the FDOT PD&E Manual, Part 1, Chapter 12, and Part 2, Chapters 3, 9, and 11, dated June 14, 2017.

2.0 LOCATION AND DESCRIPTION OF PROJECT

The SW 10th Street Connector PD&E study is located in the City of Deerfield Beach, Florida, and the limits extend from west of SR 845/Powerline Road to west of Military Trail within the existing SW 10th Street right-of-way, approximately from milepost 21.077 to milepost 21.835 (Roadway ID 86472000) and from milepost 0.000 to milepost 1.400 (Roadway ID 86012000). The project falls within Sections 2, 3, 4, 9, 10 and 11 of Township 48 South and Range 42 East. For the graphical limits of this PD&E study, please refer to **Figure 1** of **Appendix A** for the Project Location Map and **Figure 5** of **Appendix A** for the USGS Quadrangle Map.

The project is located within the jurisdictional boundary of the South Florida Water Management District (SFWMD) and the Broward County Environmental Protection and Growth Management Department (BCEPGMD). The project lies within the SFWMD Hillsboro Canal Drainage Basin and the Broward County Water Control District (BCWCD #2) C-3 and C-2 Canal Basins. Refer to **Figure 8** of **Appendix A** for the SFWMD Drainage Basin Map and **Figure 12** of **Appendix A** for the FDOT District 4 Local Water Control District Map for Broward County which depict the BCWCD #2 basin limits.

The adjacent land use along SW 10th Street is recreational on the north side of SW 10th Street west of Powerline Road, commercial and residential on the south side of SW 10th Street west of Powerline Road, industrial from Powerline Road to SW 30th Avenue, multi-family residential on the north side of SW 10th Street from just west of SW 30th Avenue to Military Trail and on the south side of SW 10th Street from SW 30th Avenue to SW 28th Avenue, single family residential on the south side of SW 10th Street from SW 28th Avenue to SW 24th Avenue, and commercial on the south side of SW 10th Street from SW 24th Avenue to Military Trail.

The project involves the addition of four new lanes on SW 10th Street from west of Powerline Road to Military Trail. The ending project limits will be located at the begin bridge limits for the proposed SW 10th Street bridge over Military Trail included under the adjacent I-95 PD&E study from SW 10th Street to Hillsboro Boulevard.

3.0 TYPICAL SECTIONS

3.1 EXISTING TYPICAL SECTION

Within the PD&E study limits, the existing typical section along SR 869/SW 10th Street consists of a four-lane divided suburban principal arterial, with raised curbed median, 12-foot travel lanes, 5-foot paved outside shoulders, and sidewalk along the south side. The existing typical section widens to a six-lane divided urban roadway at the eastern and western study limits, adjacent to connections with Powerline Road and Military Trail.

3.2 PROPOSED TYPICAL SECTION

The proposed typical section for SR 869/SW 10th Street within the PD&E study limits provides a four-lane divided urban principal arterial for the general purpose lanes, with raised curbed median, 11-foot travel lanes, 5-foot paved shoulders, and sidewalk along the south side. In the eastbound direction, 7-foot bicycle lanes are proposed from Waterways Boulevard to the end project limits. In the westbound direction, the bicycle lanes are shared use with the outside shoulder from Powerline Road to the end project limits. The proposed typical section widens to a six-lane divided urban roadway at the eastern and western study limits, adjacent to connections with Powerline Road and Military Trail as in the existing condition.

The proposed express lanes provide 100.5 feet of new impervious width, consisting of four 12-foot express lanes, two 12-foot inside shoulders, two 12-foot outside shoulders, a two-foot median concrete barrier wall, and two 1.25-foot barrier walls on the outside.

4.0 STORMWATER MANAGEMENT SYSTEMS

4.1 EXISTING DRAINAGE SYSTEM

The existing drainage within the SW 10th Street PD&E study limits consist primarily of an open swale system that collects and retains roadway runoff, with overflow discharges to the Broward County Water Control District (BCWCD) #2 C-3 and C-2 canals. The existing drainage within the project limits can be divided into two distinct systems, which are then subdivided into several sub-basins based on existing collection and conveyance systems, interconnected stormwater management facilities, and outfalls. Refer to **Appendix B** for pre-development drainage maps. The existing drainage systems have been delineated as follows:

4.1.1 Existing Drainage System: C-3 Basin

The C-3 Basin for the PD&E study is defined as the segment of SR 869/SW 10th Street from the begin project limits to the centerline of Powerline Road. The receiving waterbody within this basin is the BCWCD #2 C-3 Canal which crosses SW 10th Street via two 60-inch pipes. The C-3 Canal receives runoff from the entire BCWCD #2 C-3 Basin, which consists of the watershed area bounded by the Hillsboro Canal to the north, Powerline Road to the east, SR 834/Sample Road to the south and Florida's Turnpike to the west.

The C-3 Canal then flows north along the west side of Powerline Road and through the Deer Pointe, Villages of Hillsboro, and Villa Portofino communities and ultimately discharges to the SFWMD Hillsboro Canal via the S-1 control structure. The S-1 structure regulates the C-3 Basin control elevation to EL. 10.00-feet NGVD (8.42-feet NAVD) via four vertical lift gates and two 15,000 gallons per minute (GPM) pumps with two 72-inch outfall pipes. The C-3 Basin has been subdivided into five sub-basins. Within this basin, runoff from SW 10th Street eastbound is primarily retained within grassed swales and conveyed to the grassed swales along the westbound corridor, while runoff from SW 10th Street westbound is accommodated in wide grassed swales before overtopping into the C-3 Canal.

4.1.2 Existing Drainage System: C-2 Basin

The C-2 Basin is defined as the segment of SW 10th Street from Powerline Road to the end project limits. The receiving waterbody within this basin is the BCWCD #2 C-2 Canal which crosses SW 10th Street via a 72-inch pipe. The C-2 Canal receives runoff from the entire C-2 Basin, which consists of the watershed area bounded by the Hillsboro Canal to the north, Military Trail to the east, SR 834/Sample Road to the south and Powerline Road to the west.

The C-2 Canal meanders through the Century Village and Deer Creek communities and ultimately discharges to the SFWMD Hillsboro Canal via the S-4 control structure. The S-4 structure regulates the C-2 Basin control elevation to EL. 10.00-feet NGVD (8.42-feet NAVD) via three vertical lift gates and three 9,000 gallons per minute (GPM) pumps with two 66-inch outfall pipes. The outfall pipes discharge through a reach of the Hillsboro Canal located just upstream of the SFWMD G-56 structure, which controls the canal at an optimum stage of 7.70-feet NGVD (6.12-feet NAVD). This reach of the Hillsboro Canal has a basin allowable offsite discharge rate of 35 cubic feet per second per square mile (CSM). Refer to **Appendix F** for

SFWMD drainage and permit documentation; **Appendix G** for Broward County drainage and permit documentation.

The C-2 Basin has been subdivided into 23 sub-basins, including three offsite sub-basins. Runoff from SW 10^{th} Street eastbound is accommodated within linear dry retention ponds. Runoff from SW 10^{th} Street westbound is accommodated in narrow swales with overtopping into the adjacent Century Village parking lots during larger storm events, with a limited number of inlets and pipes within the SW 10^{th} Street corridor, located mainly along the turn lanes and curb returns.

4.2 PROPOSED DRAINAGE SYSTEM

The proposed drainage design consists of a closed drainage system, consisting of drainage structures, pipes, and pumps, for collection and conveyance of runoff to stormwater management facilities for treatment and attenuation of stormwater runoff for the controlling design storm events. The proposed stormwater management facilities, consisting of either wet detention pond(s), dry detention pond(s), dry retention pond(s), or some combination thereof, has been determined based on an analysis of various factors which is discussed later in Section 7.0 of this report. The proposed stormwater management facility type is based on the facility type that provides the most practical, cost-effective solution for the Department to achieve the treatment and attenuation permitting requirements associated with the proposed improvements, while also minimizing impacts to the public.

For the C-3 Canal Basin, offsite right-of-way acquisition will not be necessary for stormwater management purposes, since there is ample opportunity to expand the existing stormwater management facilities within the SR 869/Sawgrass Expressway and Florida’s Turnpike Interchange, and still accommodate future improvements along the Florida's Turnpike and Sawgrass Expressway, as confirmed with Florida Turnpike Enterprise (FTE) consultants, Corradino and HDR, during a Drainage Coordination Meeting conducted on 10/4/18. Refer to **Appendix J** for drainage coordination meeting minutes. Refer to **Appendix K** for the FTE Drainage Map illustrating proposed stormwater management basins and facilities, including additional areas available to accommodate stormwater management.

For the C-2 Canal Basin, offsite right-of-way acquisition will be necessary for stormwater management purposes, and is discussed in detail in Sections 8, 9, and 10 of this report.

There is no history of flooding within the existing facilities and the additional runoff from the proposed roadway improvements will be attenuated with additional compensation volume within the proposed stormwater facilities. Refer to **Appendix D** for Pre-Development and Post-Development Land Use Tables, Water Quality Calculations and Discharge/System Summary Table. The recommended drainage design and stormwater management facility type is discussed later in Section 8.4 of this report.

5.0 GEOTECHNICAL CHARACTERISTICS

A Geotechnical Report was prepared by GCME, Inc. as a part of this PD&E study. The report included review of all existing geotechnical information in connection with the project and completed six SPT borings at the project site. Refer to **Appendix H** for the Geotechnical Report.

5.1 SOILS INFORMATION

Based upon review of the United States Department of Agriculture (USDA) Natural Resources Conservation Service (NRCS / SCS) Soils Map for Broward County, as well as the project's Geotechnical Report, the project area is underlain by Udorthents, Margate Fine Sand, Immokalee Fine Sand, Pomello Fine Sand, and Pompano Fine Sand. See **Figure 4** in **Appendix A** for the USDA NRCS Soil Map of the project and **Appendix H** for the Geotechnical Report.

6.0 STORMWATER MANAGEMENT PERMITTING

The agencies having stormwater permitting jurisdiction over the proposed improvements include:

- South Florida Water Management District (SFWMD)
- Broward County Environmental Protection and Growth Management Department (BCEPGMD)

By Florida statute, the Department is exempt from local permitting for projects located along the State Highway System. However, the Department is not exempt for projects which require improvements within the local canal right-of-way, or which result in increased discharges to local receiving waters. As such, and as confirmed with both agencies at the FDOT-BCEPGMD and FDOT-SFWMD Drainage-Permitting Coordination Meetings conducted on 02/21/18 and 02/15/18, respectively, both agencies will have jurisdiction over the stormwater permitting for the project. Refer to **Appendix F** for SFWMD drainage and permit coordination meeting minutes and **Appendix G** for BCEPGMD drainage and permit coordination meeting minutes. The most recent SFWMD permit criteria are established in the SFWMD Environmental Resource Permit Information Manual 2014, with Applicant's Handbook Volume I dated 2013 and Applicant's Handbook Volume II dated 2016.

6.1 STORMWATER QUALITY CRITERIA

6.1.1 South Florida Water Management District

The SFWMD requires that all projects meet state water quality standards, as set forth in Chapter 17-302, Florida Administrative Code (FAC). According to the SFWMD Applicant's Handbook, Volume II, all projects must meet the following volumetric retention/detention requirements:

1. For wet detention systems, the first inch of runoff from the project or the total runoff from 2.5 inches times the percent of imperviousness, whichever is greater, must be detained on site. A wet

detention system is a system that maintains the control elevation at the seasonal high groundwater elevation and does not bleed down more than one-half inch of detention volume in 24 hours;

2. Dry detention systems must provide 75 percent (75%) of the required wet detention volume. Dry detention systems must maintain the control elevation at or above one foot above the seasonal high groundwater elevation;

3. Retention systems must provide 50 percent (50%) of the wet detention volume; and

4. For projects with more than 50 percent (50%) of imperviousness, discharge to the receiving water bodies must be made through baffles, skimmers, or other mechanisms suitable from preventing oil and grease from discharging to or from the retention/detention areas.

Projects having greater than 40% impervious area and which discharge directly to water bodies within a District permitted public water supply wellfield cone of depression, as defined by Broward County Wellfield Protection Ordinance contour for Zone 3 which are not a separated from the aquifer by strata at least ten feet thick and having an average saturated hydraulic conductivity of less than 0.1 feet per day, shall provide at least one half inch of dry detention or retention pretreatment as part of the required retention/detention, as confirmed with SFWMD on 02/15/18, however, no pretreatment is required for this project since none of the alternative stormwater management facilities actually fall within the limits of a permitted public water supply wellfield cone of depression. See **Appendix F** for further details on SFWMD coordination.

6.1.2 Broward County Environmental Protection and Growth Management

Since the project falls within the BCWCD #2 C-3 Basin and C-2 Basin, designated water quality basins, expansion of the existing stormwater management facilities to treat the additional development is an accepted practice, confirmed by BCEPGMD and SFWMD. Based on review of the Broward County Wet Season Water Table Maps, the SHGWT elevation in the study area ranges from approximately 8.00 – 10.00 feet NGVD (6.50 - 8.50 feet NAVD), with an average SHGWT elevation of 9.00-feet NGVD (7.50-feet NAVD). Input from Carl Archie, BCWCD #2, indicates that Broward County pumps in accordance with a SFWMD Diversion and Impoundment permit to maintain the entire basin between 9.50 - 10.00 feet NGVD (8.00 – 8.50 feet NAVD).

Accordingly, the BCWCD #2 S-4 control structure is providing approximately 0.50 – 1.00 feet of wet retention depth for the C-2 Basin. As such the proposed expansion should provide 50 percent (50%) of the required wet detention volume, i.e. the first inch of runoff from the project or the total runoff from 2.5 inches times the percent of imperviousness, whichever is greater.

Please refer to **Appendix G** for correspondence with BCEPGMD; refer to **Figure 12** and **Figure 13** in **Appendix A** for FDOT District 4 Local Water Control District Map for Broward County and Broward County Wellfield Map, respectively.

6.2 STORMWATER QUANTITY CRITERIA

SFWMD criteria govern peak discharge rate attenuation and attenuation volume by limiting the post-development peak discharge rate to the pre-development peak discharge rate for the 25-year – 72-hour design rainfall event using SFWMD 72-hour rainfall distribution. SFWMD requires that offsite discharge rates be limited to rates not causing adverse impacts to existing off-site properties, and:

- Historic discharge rates,
- Rates determined in previous SFWMD permit action, or
- Basin allowable discharge rates.

SFWMD also requires that provisions be made to replace or otherwise mitigate the loss of historical basin storage provided by the project.

However, since the project falls within the BCWCD #2 water quality basin, with regulated discharge to the SFWMD Hillsboro Canal via the S-4 control structure, both SFWMD and BCEPGMD have agreed that the stormwater quantity criteria for the project will be based on providing an expansion of the waterbodies within the BCWCD #2 basin that offsets existing storage proposed to be filled by the project and which offsets the additional runoff volume created by the project. Additionally, SFWMD has requested a regional stormwater model and application for a master permit for the C-2 basin to ensure that the proposed improvements do not increase stages or discharges. Refer to **Appendix F** and **Appendix G** for coordination with both SFWMD and BCEPGMD.

6.3 FLOODPLAIN ENCROACHMENT

The project corridor lies within Federal Emergency Management Administration (FEMA) FIRM Panel 12011C0167, with much of the project area located within Floodplain Zone AH (EL. 14.00-feet NAVD / 15.58-feet NGVD). Zone AH is a special flood hazard area, subject to inundation by the 100-year flood that experiences flood depths of 1 to 3 feet (which are usually areas of ponding) with determined base flood elevations. Refer to **Figure 7** in **Appendix A** for the FEMA Map FIRMETTES and FEMA Flood Zone Map, which identifies most of the roadway right-of-way, located south of the existing roadway, between west of Powerline Road and SW 24th Avenue in Zone AH.

In accordance with Executive Order 11988m “Floodplain Management”, USDOT Order 5650.2, “Floodplain Management Protection”, and Federal-Aid Policy Guide 23 CFR 650A, floodplains must be protected. The intent of these regulations is to avoid or minimize highway encroachments within the base floodplains, and to avoid supporting land use development incompatible with floodplain values. Encroachments resulting from the construction of the project will be fully compensated within the proposed stormwater management facilities to ensure there will be no increase or significant change to flood elevations and/or limits.

Minimal encroachments on a floodplain occur when there is a floodplain involvement but the impacts on human life, transportation facilities, and natural and beneficial floodplain values are not significant and can be resolved with minimal efforts. Normally, these minimal efforts to address the impacts will consist of applying the Department's drainage design standards and following the Water Management District's procedures to achieve results that will not increase or significantly change the flood elevations and/or limits. Projects with minimal encroachments may include, but are not limited to, projects which will not involve replacement or modification of existing drainage structures, projects which will involve replacement or modification of existing structures but are not expected to result in significant impacts, or projects involving replacement of drainage structures in heavily urbanized areas.

Based on these criteria, this project results in minimal floodplain encroachments. For the proposed improvements, in the C-3 Canal Basin, there is a floodplain encroachment volume of approximately 5,727 CY, which is compensated for within the proposed Pond 1. In the C-2 Canal Basin, there is a total floodplain encroachment volume of approximately 27,540 CY, which is compensated for within the proposed Pond 2. See **Floodplain Calculations** in **Appendix D** and Section 8.3.3 for further details.

6.4 ROADWAY BASE PROTECTION

FDOT has established the following criterion for base protection of roads:

- Freeways and Rural Multilane facilities shall provide a 3-foot clearance for the roadway base course above the base clearance water elevation (i.e. seasonal high ground water table, SHGWT). Using a base clearance water elevation (SHGWT) of 9.00-feet NGVD (7.50-feet NAVD), the minimum roadway base elevation allowable for the project along the SW 10th Street mainline is 12.00-feet NGVD (10.50-feet NAVD).

- Ramps shall provide a 2-foot clearance for the roadway base course above the base clearance water elevation (SHGWT). Using a base clearance water elevation (SHGWT) of 9.00-feet NGVD (7.50-feet NAVD), the minimum roadway base elevation allowable for the ramps is 11.00-feet NGVD (9.50-feet NAVD).

- All other facilities shall provide a 1-foot clearance for the roadway base course above the base clearance water elevation (SHGWT). Using a base clearance water elevation (SHGWT) of 9.00-feet NGVD (7.50-feet NAVD), the minimum roadway base elevation allowable for all other facilities is 10.00 ft. NGVD (8.50-feet NAVD).

Refer to **Figure 11** in **Appendix A** for the FDOT Criteria for Grade Datum.

7.0 STORMWATER MANAGEMENT FACILITIES EVALUATION

Several types of stormwater management facilities alternatives are commonly used on roadway projects. The more commonly used alternatives in South Florida, particularly for roadway projects, include wet/dry detention ponds, wet/dry retention ponds, and French drains (exfiltration trenches). However, each of these stormwater management facility types has different design criteria and applications. Since the stormwater criteria of the two applicable stakeholder agencies must be met, the controlling criterion for the proposed facilities is the most stringent.

For this project, stormwater management facilities alternatives have only been evaluated for the C-2 Canal Basin since the required treatment and attenuation for the C-3 Canal Basin can be fully accommodated via modification and expansion of the existing stormwater treatment facilities within the SR 869/Sawgrass Expressway and Florida's Turnpike Interchange.

However, based on the proposed improvements, available right-of-way, and impacts to existing stormwater management facilities, new offsite stormwater management facilities are required to accommodate for additional water quality treatment, discharge attenuation, and floodplain compensation within the C-2 Basin.

The use of exfiltration trenches can be ruled out for this project given the short operation life for exfiltration systems (5-10 years), the well-known maintainability issues, and discouraged use by FDOT when other options are available. Furthermore, the use of dry retention/detention ponds can be ruled out for this project due to the high groundwater table elevation and relatively poor permeability of the existing soils.

Considering these constraints, the only acceptable option for the project is the use of wet detention ponds. We considered both conventional stormwater management wet detention ponds and the alternative method of expansion of the existing stormwater management facilities within the BCWCD #2 water quality basin to provide for treatment and attenuation. This was previously discussed in Section 6.2. Additional design criteria for wet detention ponds is provided below.

7.1 WET DETENTION PONDS

A detention pond is a storage area designed to temporarily hold back or store a defined quantity of stormwater runoff to control the rate of discharge into receiving waters through an outlet control structure. A wet detention pond is a detention pond with bottom elevation lower than one foot above the SHGWT, providing for a "permanent pool volume".

Size Requirements:

- Per SFWMD Applicant's Handbook Volume II, the minimum area of the detention pond measured at the control elevation is 0.5 acres, with a minimum width of 100 feet for linear areas more than

200 feet length. Irregular shaped areas may have narrower reaches but shall average at least 100 feet.

Maintenance Berms:

- Per FDOT Drainage Manual, design ponds to provide a minimum 20 feet of horizontal clearance between the top edge of the control elevation and the right-of-way line. Provide at least 15 feet adjacent to the pond at a slope of 1:8 or flatter. Create the inside edge of the maintenance berm to have a minimum radius of 30 feet and be a minimum of one foot above the maximum design stage elevation. Sod the berm area.

Slopes:

- Per FDOT, pond slopes shall be sodded to the control elevation of the pond.
- Per SFWMD, for purposes of public safety, water quality enhancement and maintenance, all wet retention /detention areas shall be designed with side slopes no steeper than 4:1 (horizontal: vertical) from top of bank out to a minimum depth of two feet below the control elevation (SHGWT). Side slopes shall be top soiled and stabilized through seeding or planting from 2 feet below to 1 foot above the control elevation to promote vegetative growth.

Freeboard:

- Per FDOT, as a safety factor for hydrologic inaccuracies, grading irregularities, control structure clogging, and downstream stage uncertainties, at least 1 foot of freeboard is required above the maximum stage of the pond. The freeboard is the vertical distance between the maximum design stage elevation of the pond and the inside edge of the berm. For linear treatment swales, the minimum freeboard is 0.50 foot.

Discharge Structures:

- Per SFWMD, gravity control devices shall be sized based upon a maximum design discharge of ½ inch of the detention volume in 24 hours. The devices shall incorporate dimensions no smaller than 6 square inches of cross-sectional area, two inches minimum dimension, and 20 degrees for "V" notches. Gravity control devices shall be of a "V" or circular shaped configuration whenever possible, to increase detention time during minor events.

Maintaining Agency:

- FDOT will be the maintaining agency of all stormwater management facilities within the SR 869/SW 10th Street right-of-way. The Florida Turnpike Enterprise will be the maintaining agency of all stormwater management facilities within the Sawgrass Expressway and Florida's Turnpike right-of-way. Offsite ponds acquired by FDOT will be maintained by FDOT unless a maintenance agreement is executed with Broward County.

8.0 STORMWATER MANAGEMENT SYSTEM DESIGN

8.1 PROJECT DATUM

The vertical datum referenced in this report and calculations varies between NGVD 29 and NAVD 88. The datum shift was determined using the SFWMD Vertical Datum Conversion Application and is summarized in Table 1 below. Refer to **Figure 11** in **Appendix A** for the Vertical Datum Conversion from SFWMD.

Table 1 – Datum Conversion from NGVD 29 to NAVD 88

Location	Latitude	Longitude	Shift (ft.)
SR 869/SW 10th Street	26° 19′ 04.45″ N	80° 08′ 23.33″ W	(-)1.58

8.2 CONTROL ELEVATIONS

8.2.1 Tailwater Elevations

Existing SFWMD permit documentation was referenced to determine the tailwater elevations of the canals. Based on existing permits and Hillsboro Canal Basin Structures Design Criteria for the project limits, the tailwater elevation is constant for the project. The tailwater elevation of the C-3 Canal, C-2 Canal, and Hillsboro Canal was determined to be 9.00-feet NGVD (7.50-feet NAVD). Refer to **Appendix F** for the SFWMD permit documentation.

8.2.2 Seasonal High Groundwater Table

Prior to receipt of the geotechnical results, preliminary research was performed to determine the seasonal high groundwater table elevation (SHGWT) within the study limits. Specifically, the average high water data for the adjacent C-3 Canal and C-2 Canal, which controls and influences groundwater table elevations throughout the project area, was used to determine the assumed SHGWT elevation of 9.00-feet NGVD (7.50-feet NAVD). The SHGWT elevation is consistent with existing permits for the various drainage systems within the project limits, as well as existing permits for adjacent properties.

Groundwater monitoring wells were placed at two locations within the project corridor, and piezometer readings were taken on eight different dates from the two locations. The results from the piezometer readings in the geotechnical report show an average groundwater table elevation of 7.23-feet NAVD, which is consistent with the assumed SHGWT of 7.50-feet NAVD taken from the average high water data for the C-2 and C-3 canals. Refer to **Appendix F** for the SFWMD permit documentation and **Appendix H** for the Geotechnical Report.

8.3 STORAGE VOLUMES REQUIRED

The storage volumes required as part of the proposed stormwater management facilities must be the greater of the volumes required per water quality, water quantity, and floodplain compensation permit criteria.

8.3.1 Water Quality Permit Requirements

- The proposed improvements increase the impervious area in the C-3 Canal Basin from 9.95 to 20.02 acres resulting in a net increase of **10.07 acres** of impervious area.
- The proposed improvements increase the impervious area in the C-2 Canal Basin from 24.90 to 49.57 acres resulting in a net increase of **24.67 acres** of impervious area.

The storage volumes required for the water quality permit requirements based on wet detention requirements are as follows:

Table 2 – Water Quality Treatment Requirements

Basin	Wet Detention Treatment Required
C-3 Canal	4.17 acre-feet
C-2 Canal	8.78 acre-feet

8.3.2 Water Quantity Permit Requirements

A pre-development vs. post-development analysis was completed to determine the storage volume required to maintain the allowable discharge while also providing the required water quality storage volume, 1 feet of freeboard clearance during the 25-year – 72-hour design storm event, and 2 feet of freeboard clearance during the 10-year – 24-hour design storm event. Given these design parameters and site characteristics, wet detention ponds were analyzed to determine the storage areas and weir elevations required to accommodate the water quality and water quantity permit criteria. See **Summary Tables** in **Appendix D**.

For this project, the pre-development vs. post-development discharge for the 25-year – 72-hour design storm, along with the requirement to provide 2 feet of freeboard clearance for the 10-year – 24-hour design storm were the controlling variables when maximizing the pond design size. Based off these controlling variables, below are the proposed pond sizes for each basin. Refer to the Summary Tables in Appendix D for further details:

Table 3 – Pond Size Requirements

Basin	Wet Detention Pond Size Required (at berm elevation of 13.50-feet NGVD)
C-3 Canal	5.14 acres
C-2 Canal	11.18 acres

8.3.3 Floodplain Compensation Requirements

As previously mentioned in Section 6.3, the project will result only in minimal encroachments to floodplains. Encroachments resulting from the construction of the preferred alternative will be fully compensated within the proposed stormwater management facilities to insure there will be no increase in flood elevations and/or limits. Based on the proposed improvements, in the C-3 Canal Basin, a minimum pond volume of 5,727 CY (3.6 acre-feet) is required to offset 100-year floodplain encroachment volume. Proposed Pond 1 in the C-3 Canal Basin provides 44,835 CY (27.79 acre-feet) of compensation volume, with a surplus compensation volume of 39,107 CY. In the C-2 Canal Basin, a minimum pond volume of 27,540 CY (17.1 acre-feet) is required to offset the 100-year floodplain encroachment volume. Proposed Pond 2 in the C-2 Canal Basin provides 100,769 CY (62.46 acre-feet) of compensation volume, with a surplus compensation volume of 73,229 CY. Refer to **Appendix D** for **Floodplain Calculations**.

8.3.4 Pre-Development Model

The pre-development and post-development models were developed using Advanced Integrated Channel and Pond Routing (AdICPR). Most of the input used to model existing features was acquired from topographic survey and existing drainage information obtained by existing plans and permits. In areas where topographic survey data was insufficient, other sources such as existing plans or permit documents were used to generate the input.

For the pre-development models, swales and ponds were modeled as separate stage-storage nodes in AdICPR, with assigned basins delineated for each node based on their direct contributing runoff area. Elevation contours were created for the swales and ponds in Microstation using the DTM feature of Geopak. These areas were measured at half foot contours and input into AdICPR as stage-storage nodes. Boundary conditions were modeled as static time-stage nodes with elevations based on SFWMD and BCEPGMD drainage and permit documentation.

Nodes are interconnected by links consisting of pipes or culverts, weirs, or drop structures. Pipe and culvert links have been input based on survey information, and review of existing plans and permit. Weirs and drop structures have also been modeled based on survey information, and review of existing plans and permit, depending on intended type of flow simulation and downstream conveyance and node type.

The calculations, AdICPR flood routing input, and results for pre-development conditions are found in **Appendix D**.

The rainfall depths for the various design storms simulated in the pre-development and post-development AdICPR models developed for this study include:

- 3-year, 24-hour: 6.45”
- 10-year, 24-hour: 10.50”
- 25-year, 72-hour: 16.00”
- 100-year, 72-hour: 22.00”

Refer to **Figure 9** of **Appendix A** for the SFWMD Rainfall Maps.

8.3.5 Post-Development Model

For the post-development models, the C-3 Canal system was modeled as one stage-area node in AdICPR depicting the proposed Pond 1, with an assigned basin delineated for the node, based on overall contributing runoff area. The C-2 Canal system was modeled as one stage-area node in AdICPR depicting the proposed Pond 2, with an assigned basin delineated for the overall contributing onsite runoff area, and three separate stage-area nodes with assigned basins delineated for each of the three offsite contributing runoff areas. Elevation contours were created for Pond 1 and Pond 2 in Microstation, measured at half foot contours and input into AdICPR as stage-area nodes. These models were developed based on the conventional approach of collecting and conveying all roadway runoff directly to the proposed pond (stage-area node) and then discharging from the pond through a control structure (link) to the receiving waterbody (time-stage node). Additional (regional) modeling is required to address SFWMD needs associated with expansion of the BCWCD #2 system to accommodate the project. See the **Summary Tables** in **Appendix D** for a Pre-Post Summary of the Stormwater Management Systems that were analyzed as part of this evaluation. See **Appendix C** for the Post-Development Drainage Map, **Appendix D** for the Post-Development Calculations and Post-Development Nodal Diagram, Input Data, and Node Maximum Conditions Report.

8.4 DRAINAGE CONCEPT RECOMMENDATION

Evaluation of the various drainage concept alternatives and post-development models allow for the following conclusions:

Based on the proposed improvements, there will be an increase in impervious area and elimination of storage within existing swales. However, for the C-3 Basin, the existing stormwater management facilities within the SR 869/Sawgrass Expressway and Florida’s Turnpike interchange can be expanded to accommodate the increased runoff from the roadway, as well as to mitigate for any loss of existing storage, as needed to meet BCEPGMD, FDOT, and SFWMD water quality treatment and discharge attenuation criteria. For the C-2 Basin, a new offsite wet detention stormwater management facility is required to accommodate the increased runoff from the roadway, as well as any loss of existing storage, either through conventional methods with conveyance from the roadway corridor and discharge to the receiving waters, or through the alternative method of expansion of the existing stormwater management facilities to meet water quality, water quantity, and floodplain compensation criteria.

The proposed stormwater management facilities meet FDOT drainage criteria, as well as BCEPGMD and SFWMD permit (water quality, water quantity, and floodplain) criteria. Refer to **Appendix C** for the Post-Development Drainage Maps for the proposed roadway design. Refer to the Post-Development Land-Use Tables included in **Appendix D** for each basin, as well as pre-development and post-development curve number calculations and area breakdowns. The peak discharge rates and peak stages for the 10-year – 24-hour, 25-year – 72-hour, and 100-year – 72-hour design storms are shown in the Drainage System Summary Tables, included in **Appendix D** for each basin.

9.0 POND SITING ANALYSIS

9.1 INITIAL SELECTION OF PARCELS FOR PROPOSED PONDS

For this project, pond siting analysis was performed for the C-2 Basin only, as this is the only basin requiring right-of-way acquisition for an offsite stormwater management facility to meet BCEPGMD, FDOT, and SFWMD water quality, water quantity, and floodplain criteria. From the preliminary pond siting selection process, seven pond site alternatives meeting the 11.18-acre minimum pond area requirement (at top of bank) were selected to be further evaluated by the multi-disciplinary pond siting team.

The first factor to look for when selecting alternatives would be any undeveloped property. No undeveloped or even partially developed areas exist within the C-2 Basin directly north or south of the SW 10th Street project limits. However, a few undeveloped and partially developed areas exist north of the SW 10th Street project limits and within the C-2 Basin, including parcels as part of an abandoned golf course within the Century Village Community, owned by Fairway Investors, LLC. Such parcels are all adjacent and/or hydraulically connected to the C-2 Canal, and could feasibly be expanded to provide treatment, attenuation, and floodplain compensation for the project since the C-2 Canal is a water quality basin per BCEPGMD.

The first three pond site alternatives, conventional pond site Alternatives 1 through 3, are each located south of the SW 10th Street project limits, east of Powerline Road, within industrial zoned sites with functioning businesses. While an initial pond siting screening would typically avoid developed properties, these three pond site alternatives avoid impacts to residential communities and displacement/relocation of residents, sparing the residential and commercial parcels south of SW 10th Street. Use of any of these three pond site alternatives allows the Department to conventionally collect and convey roadway runoff to the pond sites to be treated and attenuated before discharging through a control structure and outfall pipe to the C-2 Canal. Alternative 1 consists of a combination of eight different parcels for the pond construction totaling 12.82 acres, along with three additional parcels requiring easements for outflow. Alternative 2 consists of a combination of four different parcels totaling 12.07 acres, along with three additional parcels requiring easements for outflow. Alternative 3 consists of a combination of two different parcels totaling 13.54 acres, along with two additional parcels requiring easements for inflow. Refer to **Appendix I** for the Pond Site Alternatives Exhibit.

The next four pond site alternatives, non-conventional pond site Alternatives 4 through 7, are each located north of the SW 10th Street project limits, within the vacated golf course (owned by Fairway Investors, LLC) inside of the Century Village community. These four pond site alternatives avoid impacts to residential communities and displacement/relocation of residents, sparing the residential and commercial parcels north of SW 10th Street. Use of any of these four pond site alternatives allows the Department to make use of the opportunity to meet all drainage and permit criteria through expansion of the waterbodies within the C-2 Basin. Alternative 4 consists of the most westerly (19.26 acre) parcel contiguous with the C-2 Canal and SR 810 / Hillsboro Boulevard. Alternative 5, located just east of the C-2 Canal and Alternative 4, and west of the Century Village Clubhouse, consists of a 19.18-acre parcel. Alternative 6, located just east of the Century Village Golf Course, consists of a 17.11-acre parcel. Alternative 7, located just east of Alternative 6 and west of Military Trail, consists of a 22.78-acre parcel. It should be noted that since the initial identification of these four alternatives, the Alternative 7 parcel has been developed into a residential community and will utilize a portion of the Alternative 6 parcel for its drainage. The remaining parcels that make up Alternatives 4, 5, and a portion of Alternative 6 will continue to be evaluated as the project moves forward but as a potential shared use pond alternative in close coordination with Century Village, who now owns these remaining parcels and wishes to incorporate a park system within these parcels that can work with a pond management system.

9.2 EVALUATION OF POTENTIAL POND SITES

The non-conventional pond site Alternatives 4, 5, and 6 provide an overall better alternative for the project since they are undeveloped and proximate to the corridor. If the Department can come to a mutual agreement with Century Village on the potential shared use of these non-conventional pond site Alternatives, they will become the preferred alternative. However, if an agreement cannot be reached, use of the conventional pond site Alternatives 1, 2, and 3 will be required. As such these conventional alternatives have been evaluated with a multi-disciplinary team consisting of representatives from right-of-way, roadway design, drainage design, environmental management, construction, and maintenance, based on several factors, including:

- Right-of-Way – cost, land use, zoning, easement considerations
- Drainage – hydrology, hydraulics
- Flood Zone (FEMA)
- Contamination and Hazardous Materials Risk
- Utilities Involvement
- Threatened and Endangered Species Involvement
- Wetlands and Protected Uplands Involvement
- Cultural Resources Involvement
- Section 4(f) Involvement
- Public Wellfield Impacts
- Constructability – cost, access, methodology
- Maintainability – cost, access
- Community Impact – public opinion, aesthetics

Each of these factors were assigned a weight based off how important that factor is to the overall pond siting evaluation process for this project. That weight is then multiplied by the score given to each pond site alternative for each factor to get the total score. The higher the weight and the higher the score, the more preferential the pond site alternative is.

Beginning with the right-of-way factors, including parcel costs, zoning, and land use, these constraints played a significant part of the evaluation process. As previously stated, the targeted parcels had to be large enough to meet the required pond sizes. In addition, priority was given to parcels that front the corridor or have existing drainage easements or public right-of-way that allow for connection from the proposed drainage system. The three conventional pond site alternatives are all developed sites within the industrial area of the SW 10th Street corridor. Although these alternatives avoid impacts to residential properties, there are still impacts to the functioning businesses within these parcels.

For the drainage and flood zone evaluation factors, preference was given to parcels located adjacent to or within access to an outfall and to parcels centrally located within the designated drainage basin. Sites centrally located within a drainage basin result in a more cost-effective storm drain design. Evaluation of the FEMA Flood Zone impacts showed that Alternative 1 ranked lowest, as it is located almost entirely within the 100-year floodplain, and Alternative 3 is partially located within the 100-year floodplain. Alternative 2 is located outside of the 100-year floodplain so it was scored highest since construction within this site would help to offset for floodplain encroachment from the roadway improvements.

Contamination is also a concern since the parcels included within the conventional pond site alternatives fall within or adjacent to industrial sites, which typically contain petroleum-based contaminants. Since all the pond site alternatives have contamination concerns, the scores across alternatives were similar.

Utilities evaluation at this preliminary level involves identifying locations within pond site alternatives or within the flowage easements of pond site alternatives with existing utilities and determining potential relocation costs associated with these utilities. The conventional pond site alternatives all scored lower for this factor, as they are located within developed or partially developed parcels and the flowage easements associated with these alternatives are located within side streets where public utilities may exist.

The environmental factors, including threatened and endangered species (TES), wetlands and protected uplands, cultural resources, and Section 4(f) were generally consistent with all pond site alternatives. Evaluating threatened and endangered species involves identification of any TES as threatened, endangered, or significant within the pond site alternatives. There were no TES identified on any of the pond site alternatives, so the scoring was essentially equal across all seven alternatives. Evaluating wetlands and protected uplands involves identifying any wetland habitats or historic presence. Lower weight should be given to parcels with known habitats or historic presence. Medium weight should be given to relatively undisturbed, natural, or stable habitat types. Higher weight should be given to disturbed low quality habitats. There were no wetlands or protected uplands identified on any of the pond site alternatives, as they are either developed sites or golf course property, so the scoring was equal across all seven alternatives. Cultural resource evaluation involves identification of the presence of cultural resources within the pond site alternatives, including archeological and historical resources which could affect the suitability of the site in question. Alternatives 1 and 2 are partially developed industrial sites with structures that are over 50 years old and need to be evaluated for National Register eligibility, so they scored lower in preference. Alternative 3 scored higher as there are no identified cultural resources. Section 4(f) evaluation involves identifying any Section 4(f) properties within the project area and proposed pond site alternatives (i.e. public park, recreation area, wildlife refuge, and/or a public or private historic site) which could affect the suitability of the pond site. There were no Section 4(f) properties identified, so no score was given to the three conventional alternatives.

Public wellfield evaluation involves identification of wellfield sites within the project area. All pond site alternatives are outside of the 500-foot wellfield protection zone, so the scores had equal preference.

Construction evaluation involves considering the access to the parcel for pond construction and associated impacts which may affect construction costs, such as amount of drainage piping required to reach pond and irregularly shaped ponds. Maintenance evaluation involves considering the access to the parcel for pond maintenance and the costs of maintaining a facility at this parcel location, including control structures and inflow/outflow pipes. Alternatives 1, 2, and 3 all scored relatively low due to the construction and maintenance costs associated with conventional conveyance to and from the pond site from the roadway corridor to the outfall.

Community impacts evaluation involves both public opinion and aesthetics. For evaluating public opinion, the evaluator must consider possible impacts to the current or proposed land use of the parcels within or adjacent to the pond site alternatives (i.e. will the pond be well received by the community or adjacent residents). Aesthetics evaluation considers the need for landscape buffers or variable pond shapes in residential or commercial areas, as well as fencing adjacent to schools, etc. The conventional pond sites scored high in this category, as pond construction would improve the aesthetics in these industrial/commercial areas.

See **Appendix I** for the Pond Site Alternatives Exhibit, Evaluation Matrix and Pond Siting Meeting Minutes.

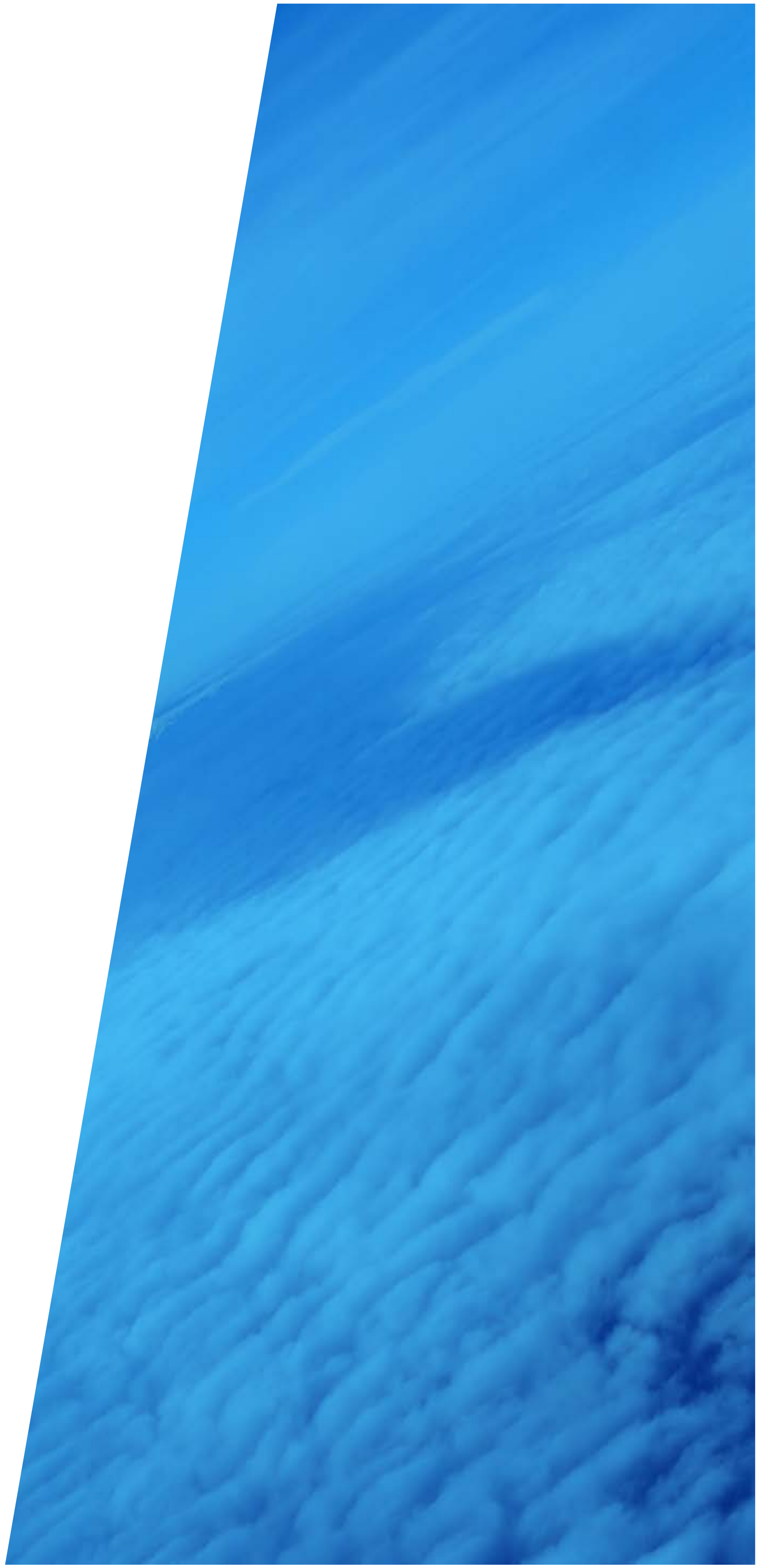
As noted earlier, since the initial identification of pond site alternatives, conditions have changed and Alternative 7 has been developed as well as a portion of Alternative 6. The remaining Alternatives 4-6 parcels are now under the ownership of Century Village which controls the large residential community surrounding these non-conventional pond site alternatives. The Department considers these alternatives to be best accommodation of drainage for the project due to their undeveloped nature and proximity to the corridor. The Department will consider the shared use of these alternatives through a mutual agreement with Century Village regarding how these parcels will be shared with the park system they envision that includes bicycle and pedestrian facilities. Refer to **Appendix J** for coordination meeting minutes.

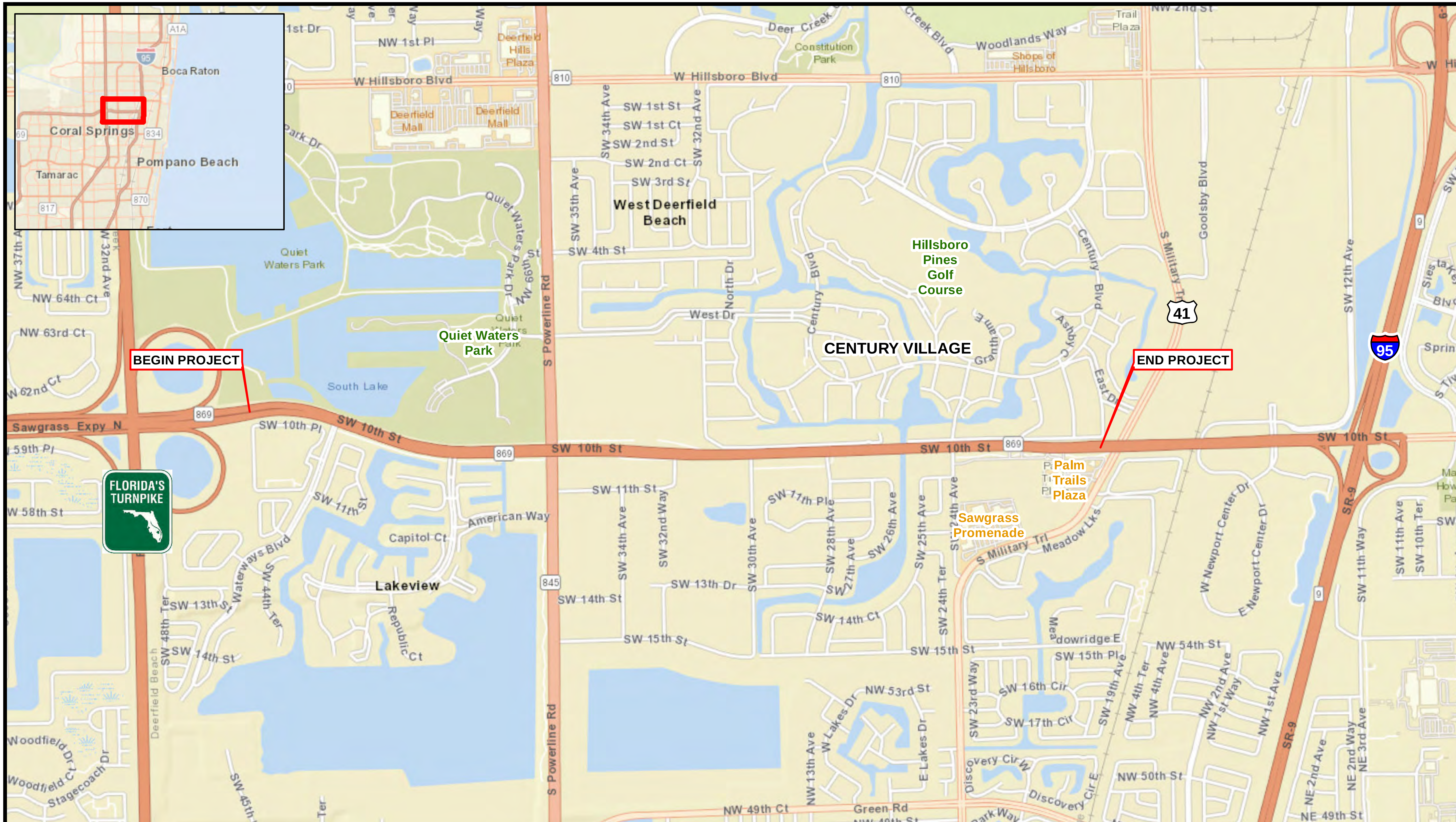
10.0 POND SITING SUMMARY AND FINAL RECOMMENDATIONS

Based on the comprehensive pond siting evaluation performed for this project, portions of Alternatives 4-6 are recommended for accommodation of drainage within the C-2 Basin, if a shared use agreement can be executed in the future with Century Village to spread and meander the required drainage pond(s) throughout these western three pond site alternatives. These parcels are hydraulically connected with the C-2 Canal and could feasibly be expanded to provide treatment, attenuation, and floodplain compensation for the project since the C-2 Canal is a water quality basin. As requested by SFWMD, the regional stormwater modeling and "master" permit application packages should be completed and submitted as soon as possible. If a mutual agreement with Century Village cannot be executed, the three conventional pond sites have been ranked with pond site Alternative 3 being the recommended pond site location. Refer to **Appendix I** for further details on pond site alternative location and evaluation results.

APPENDIX A

DESIGN AIDS





Florida Department of Transportation
SW 10th Street Connector PD&E Study
from West of Powerline Road to West of Military Trail
FM # 439891-1-22-02
Broward County, Florida

0 500 1,000 2,000 Feet

Figure 1
Project Location Map

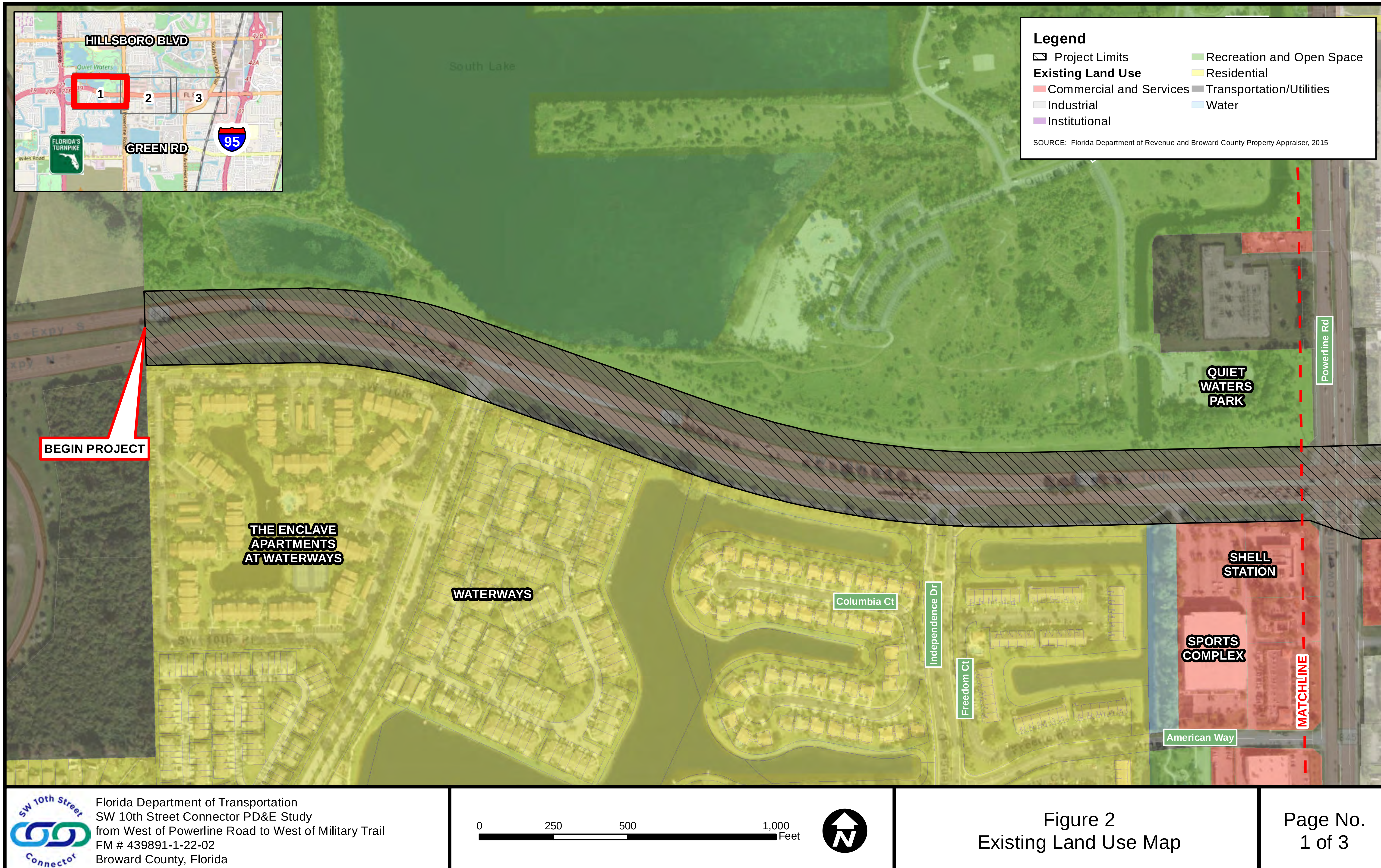


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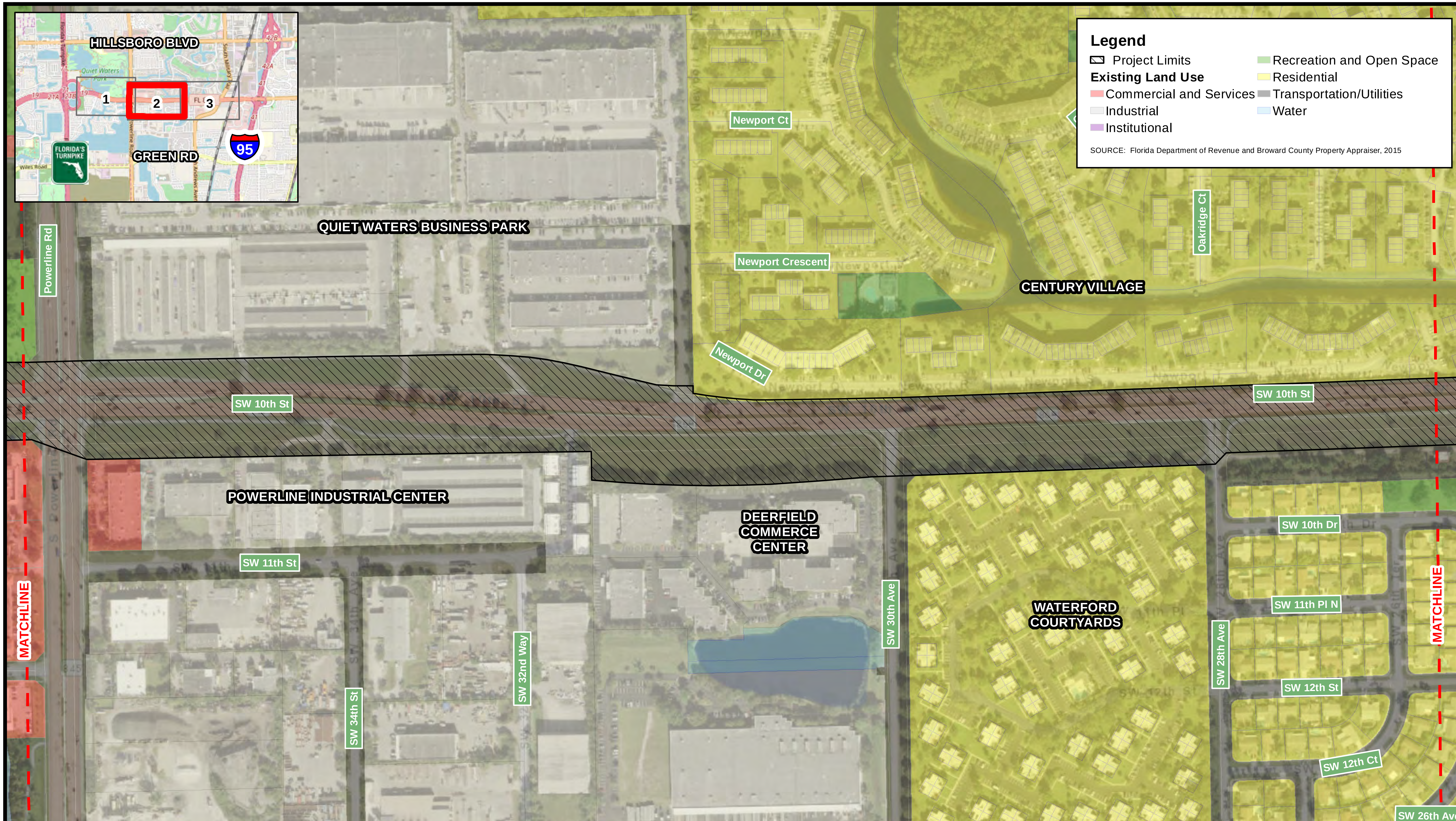
Figure 2
Existing Land Use Map



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Broward County, Florida

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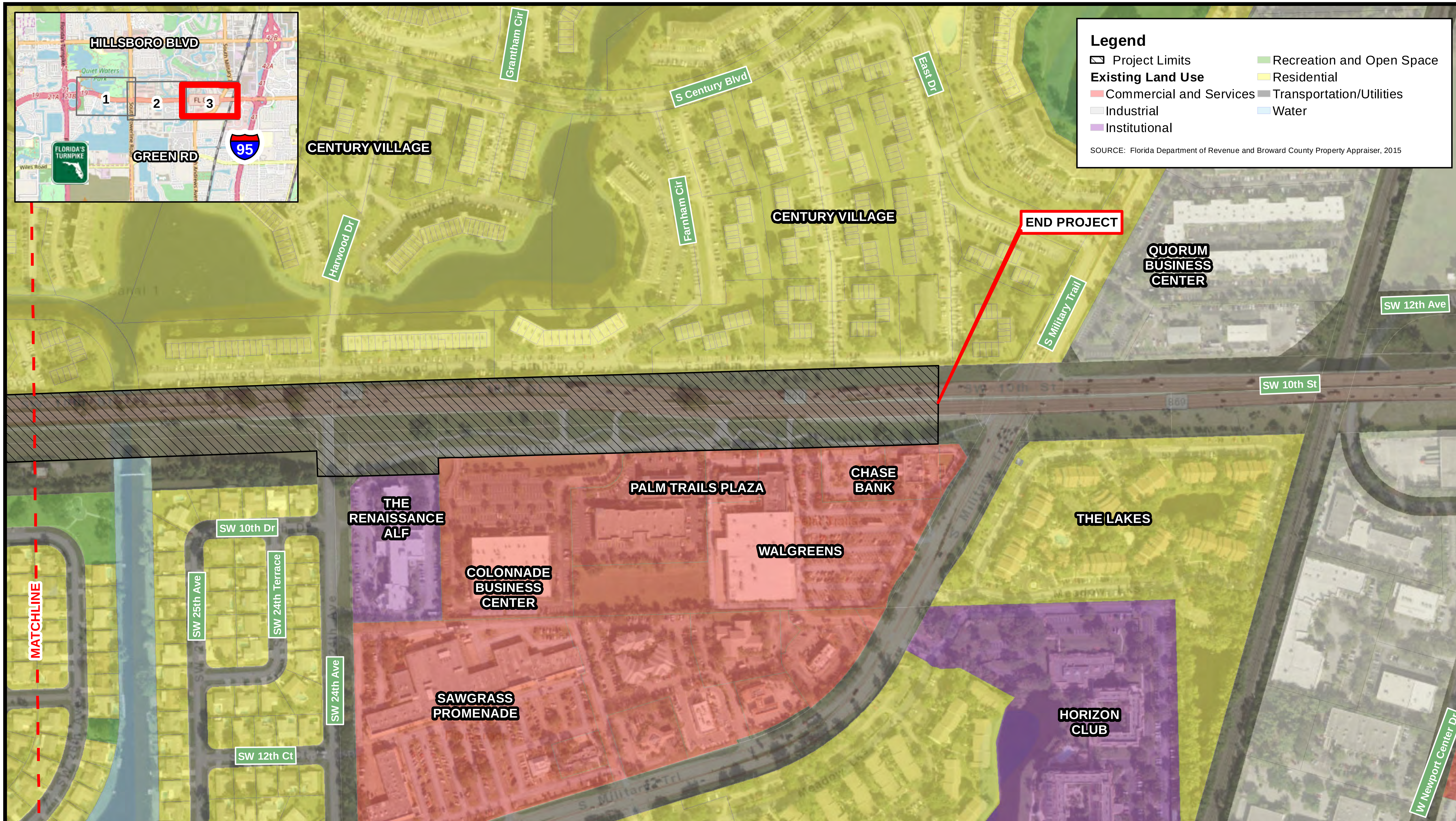
Figure 2
Existing Land Use Map



SW 10th Street Connector

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Broward County, Florida

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Existing Land Use Map

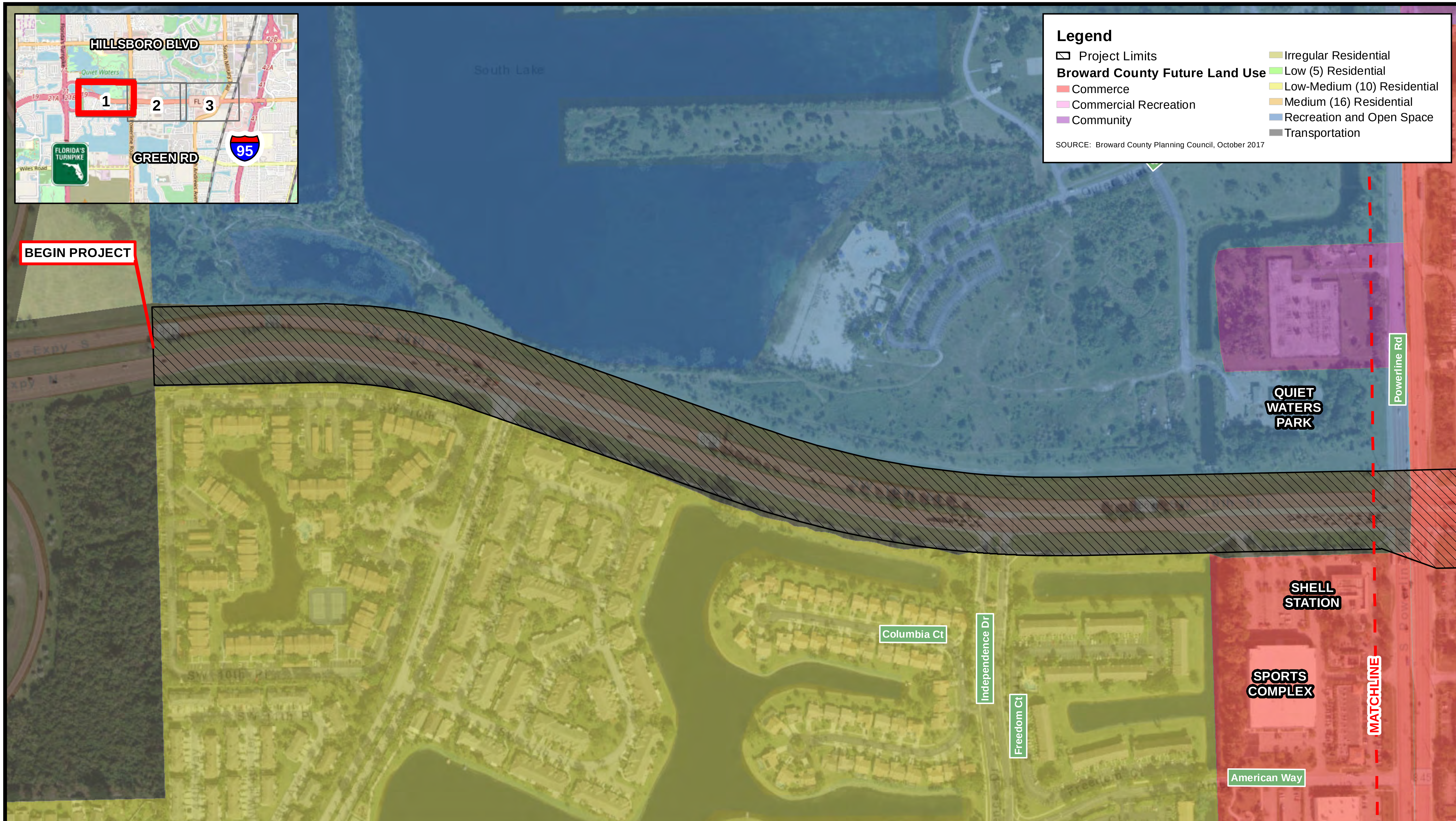

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Figure 3
Future Land Use Map

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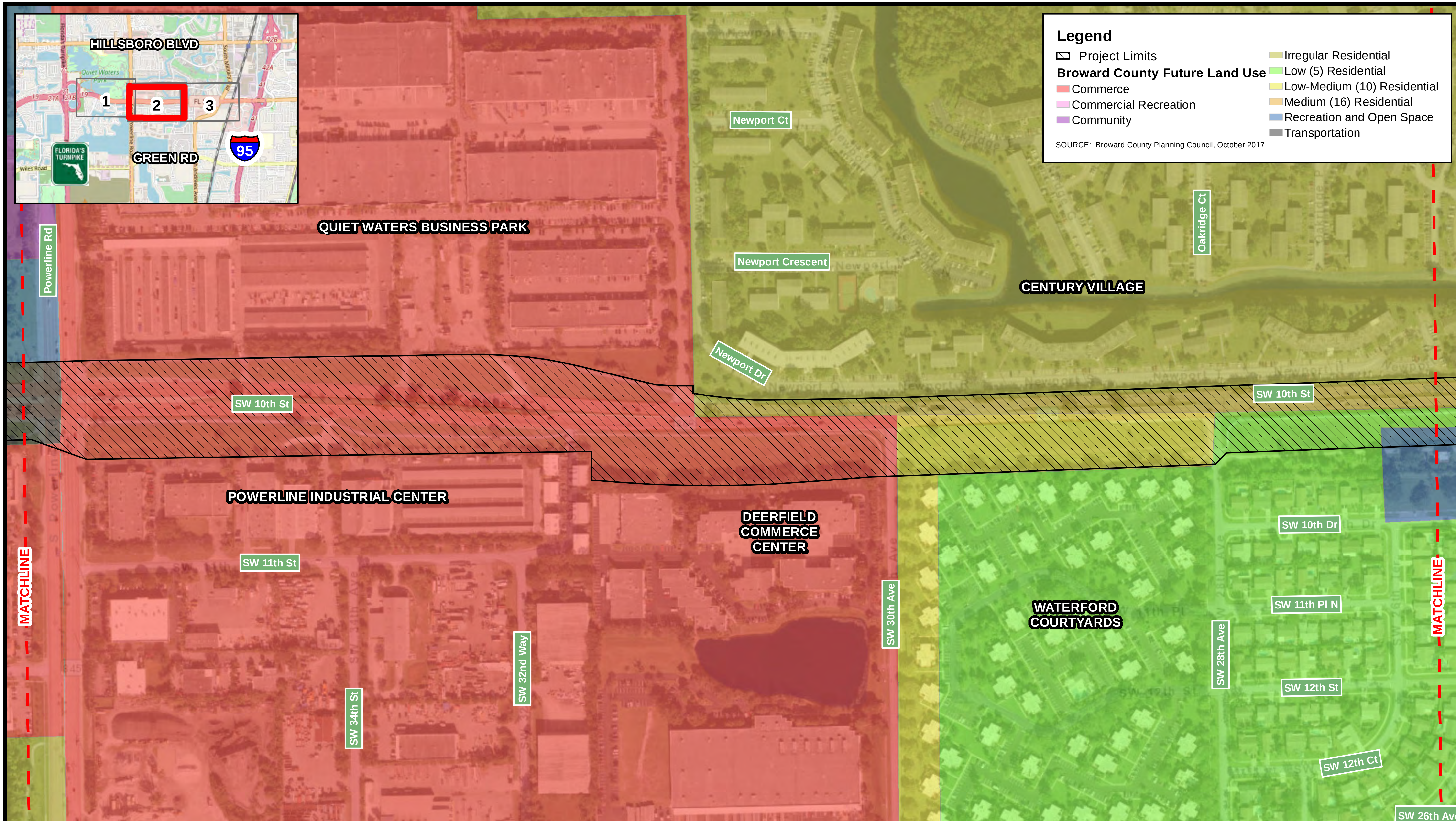
1 of 3



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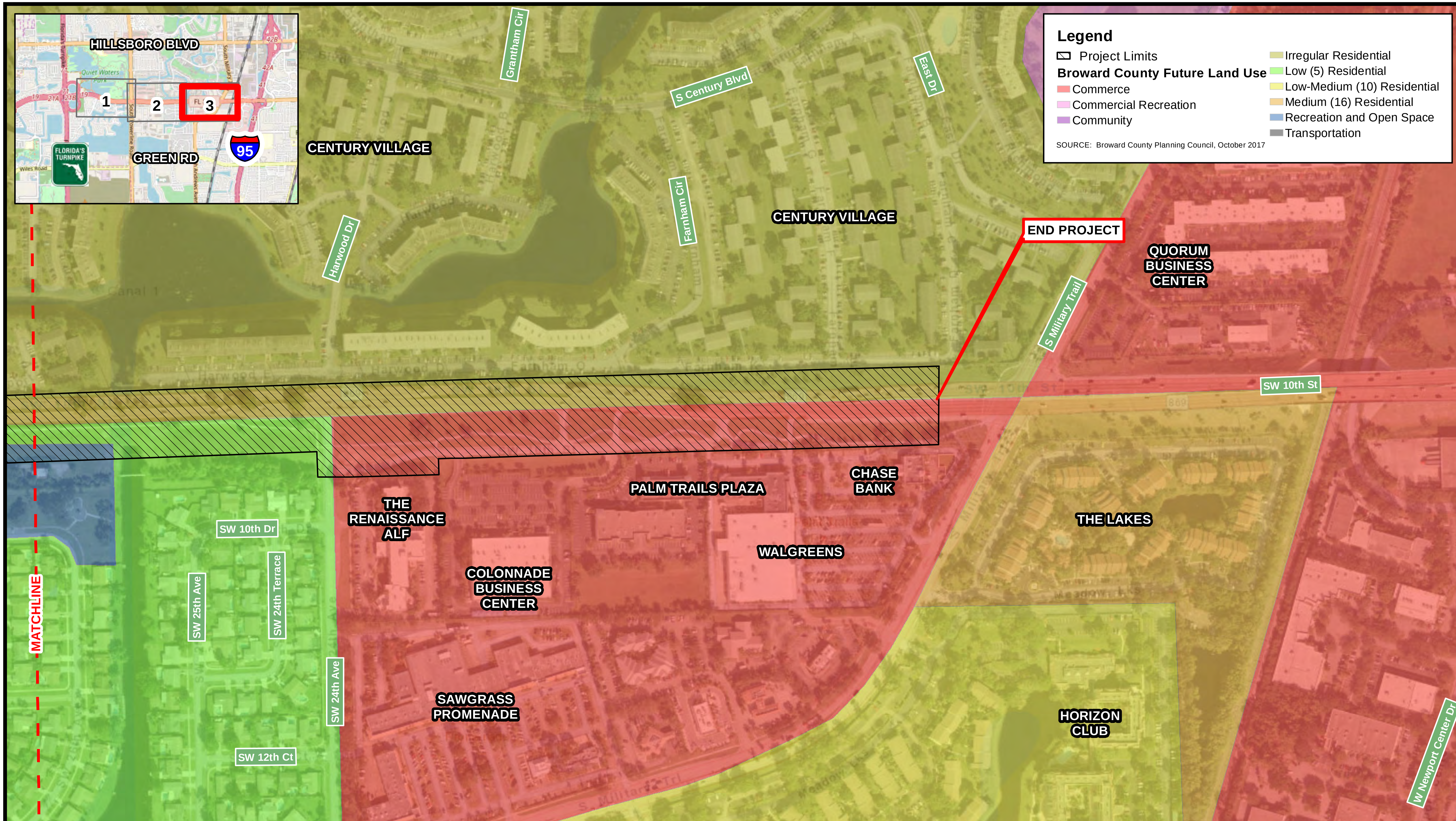

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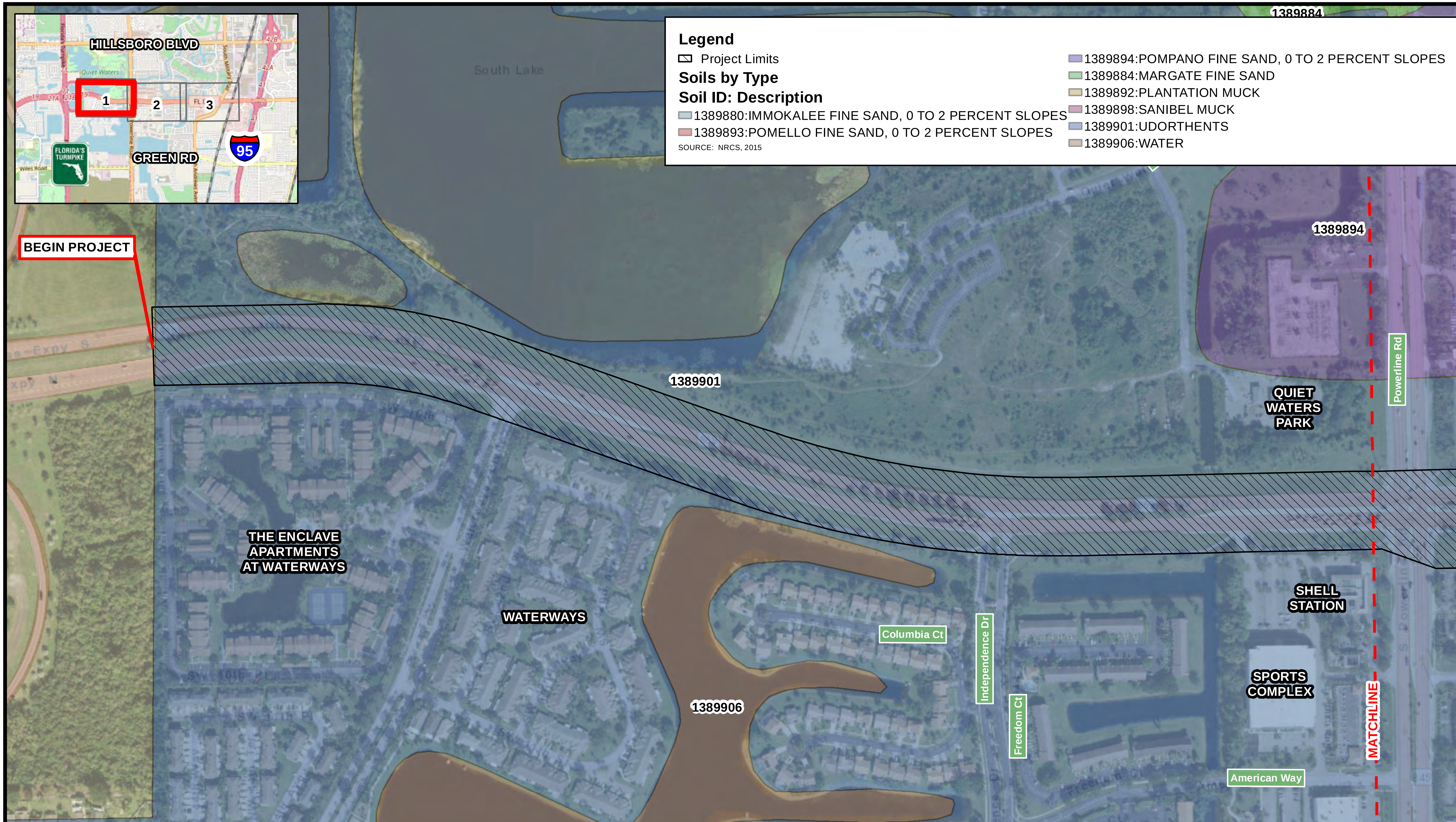

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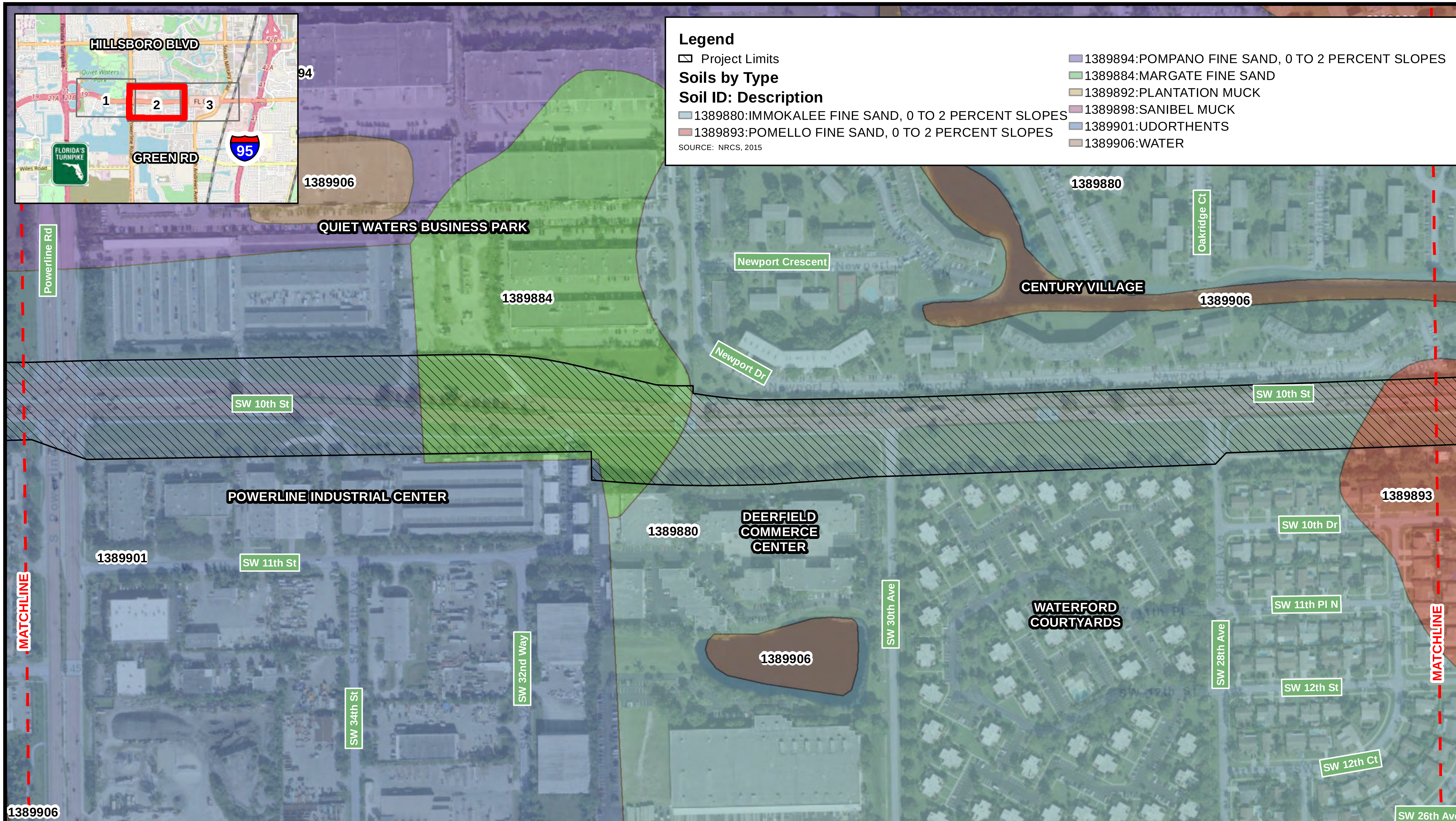
Figure 4
Soils Map



Legend

Project Limits

Soils by Type

Soil ID: Description

- 1389880:IMMOKALEE FINE SAND, 0 TO 2 PERCENT SLOPES
- 1389893:POMELLO FINE SAND, 0 TO 2 PERCENT SLOPES
- 1389894:POMPANO FINE SAND, 0 TO 2 PERCENT SLOPES
- 1389884:MARGATE FINE SAND
- 1389892:PLANTATION MUCK
- 1389898:SANIBEL MUCK
- 1389901:UDORTHENTS
- 1389906:WATER

SOURCE: NRCS, 2015

0 250 500 1,000 Feet

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Broward County, Florida

Figure 4
Soils Map

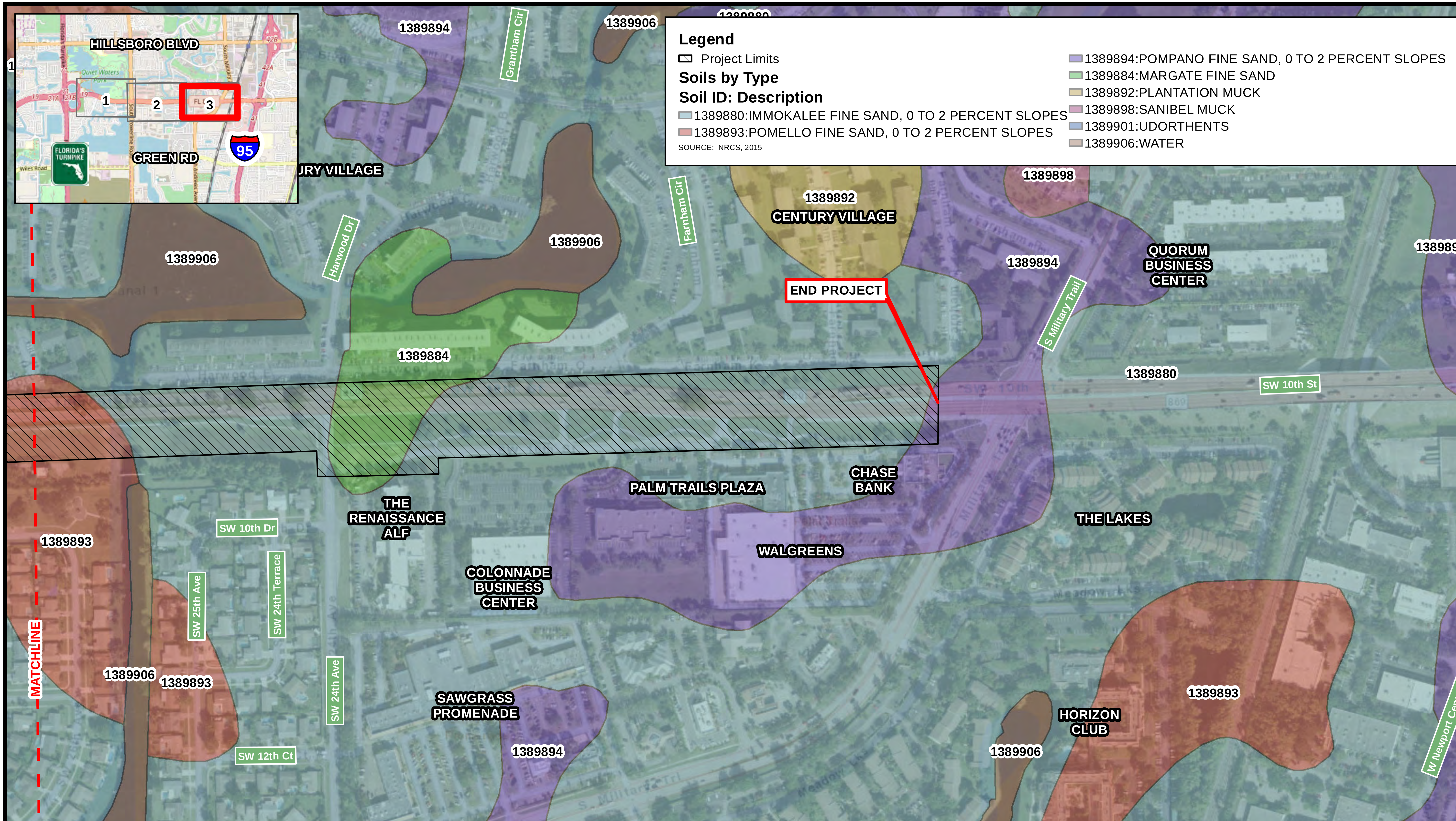

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Figure 4
Soils Map

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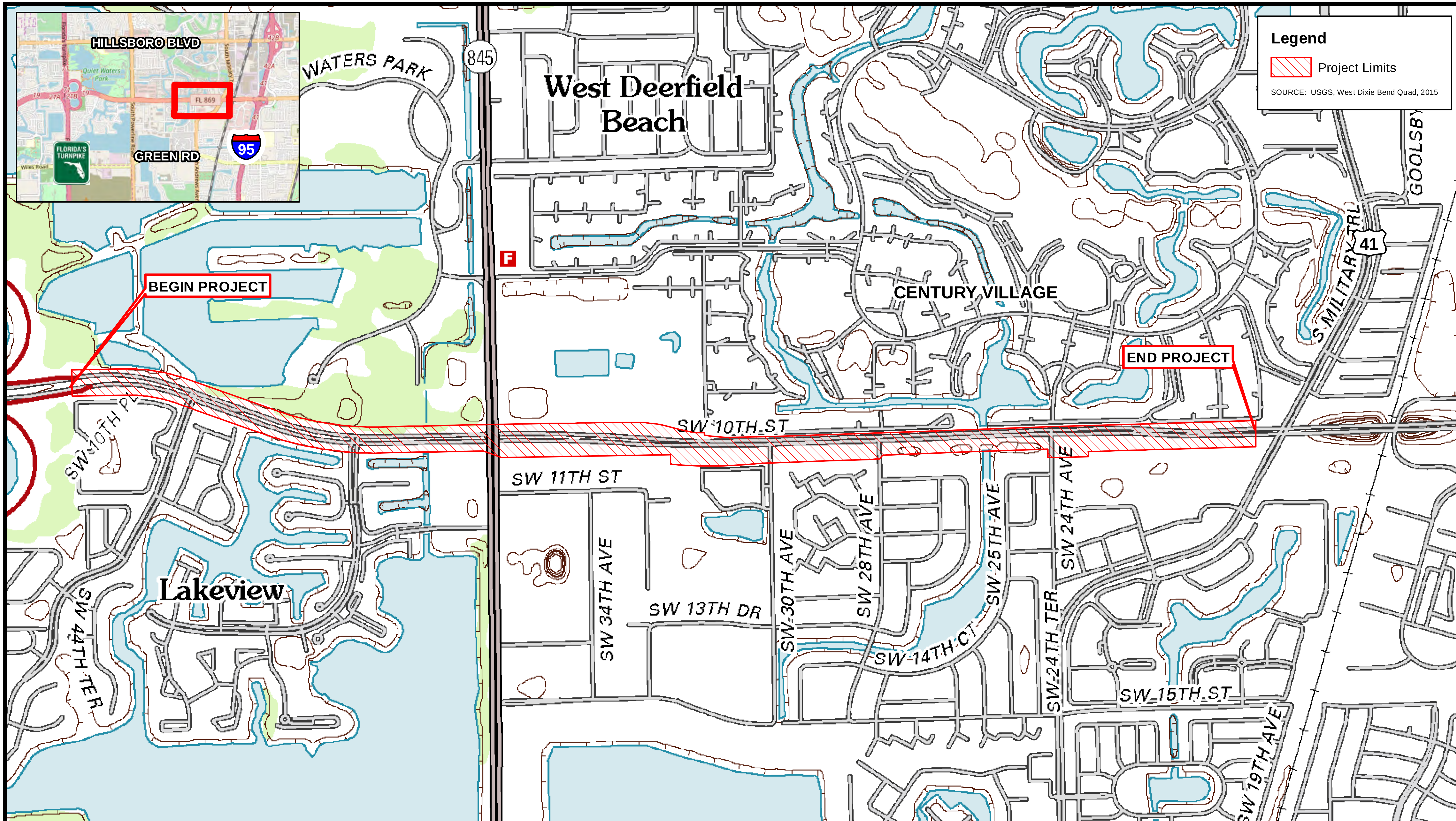
3 of 3



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Broward County, Florida

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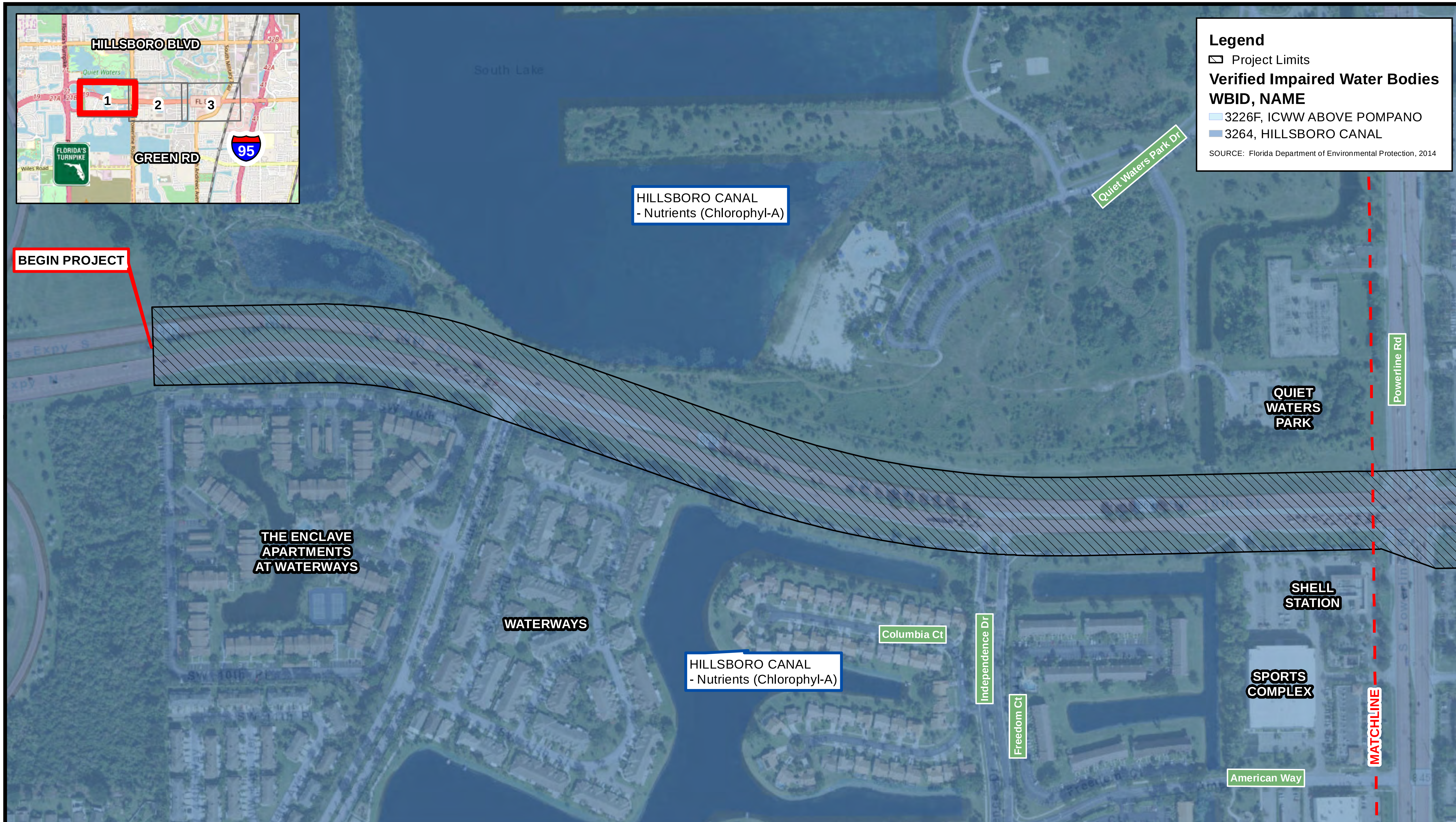
Figure 5
USGS Quadrangle Map



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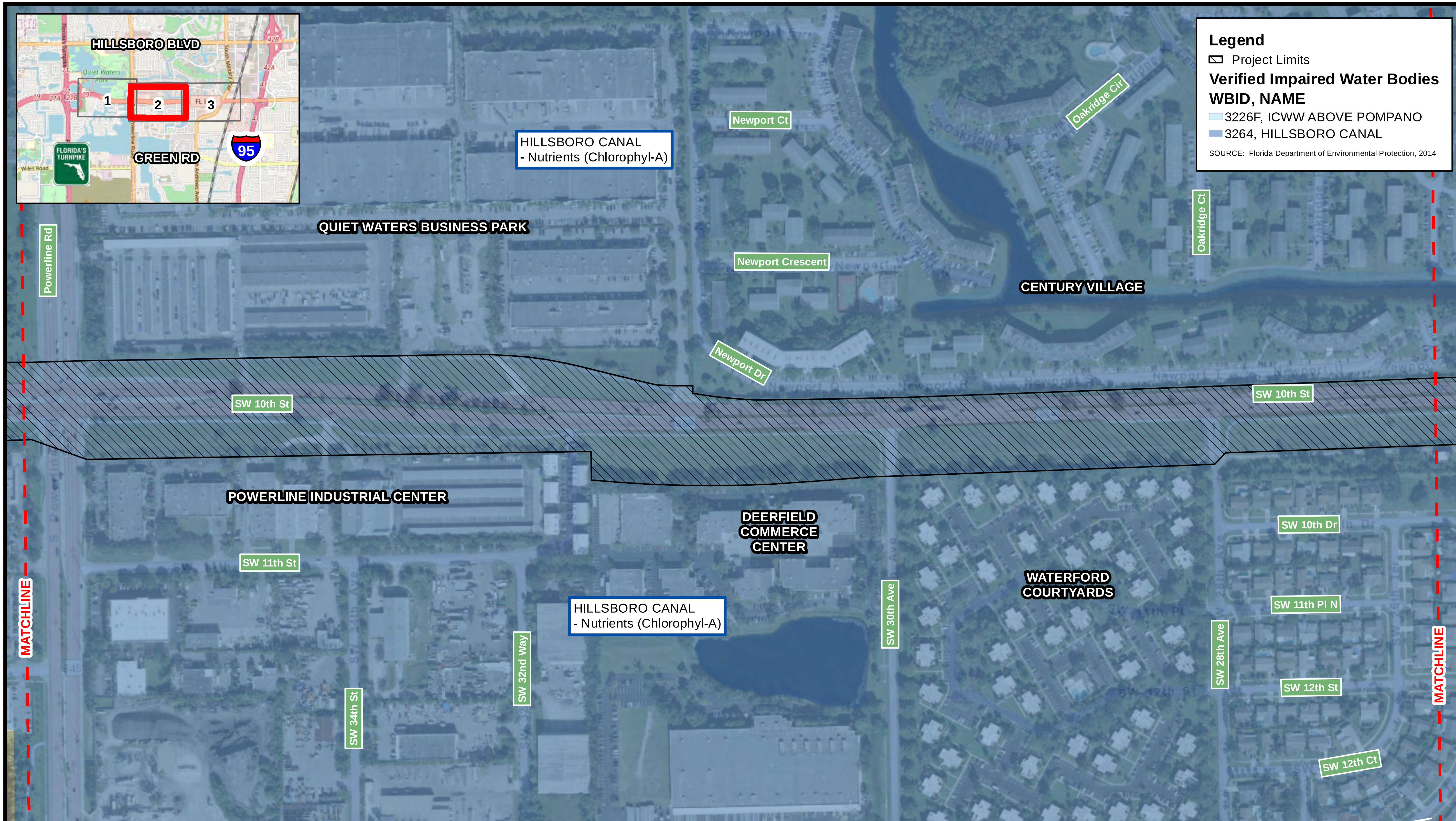
Broward County, Florida

Figure 6
Impaired Water Bodies Map



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SW 10th Street Connector PD&E Study
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FM # 439891-1-22-02
Broward County, Florida

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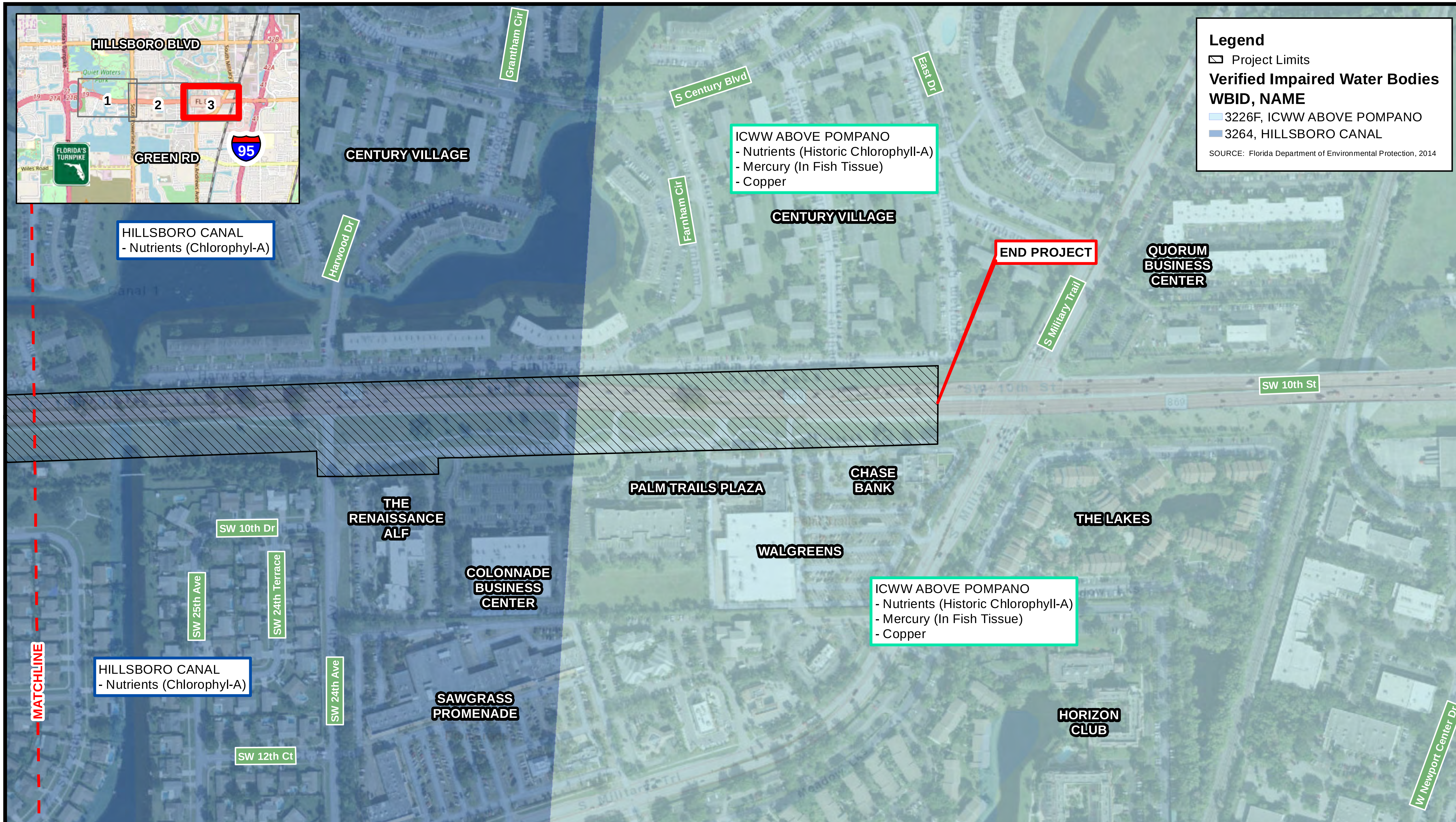
Figure 6
Impaired Water Bodies Map



SW 10th Street Connector

Florida Department of Transportation
SW 10th Street Connector PD&E Study
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FM # 439891-1-22-02
Broward County, Florida

Figure 6
Impaired Water Bodies Map

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Broward County, Florida

LEGEND

Project Limits

Flood Zone

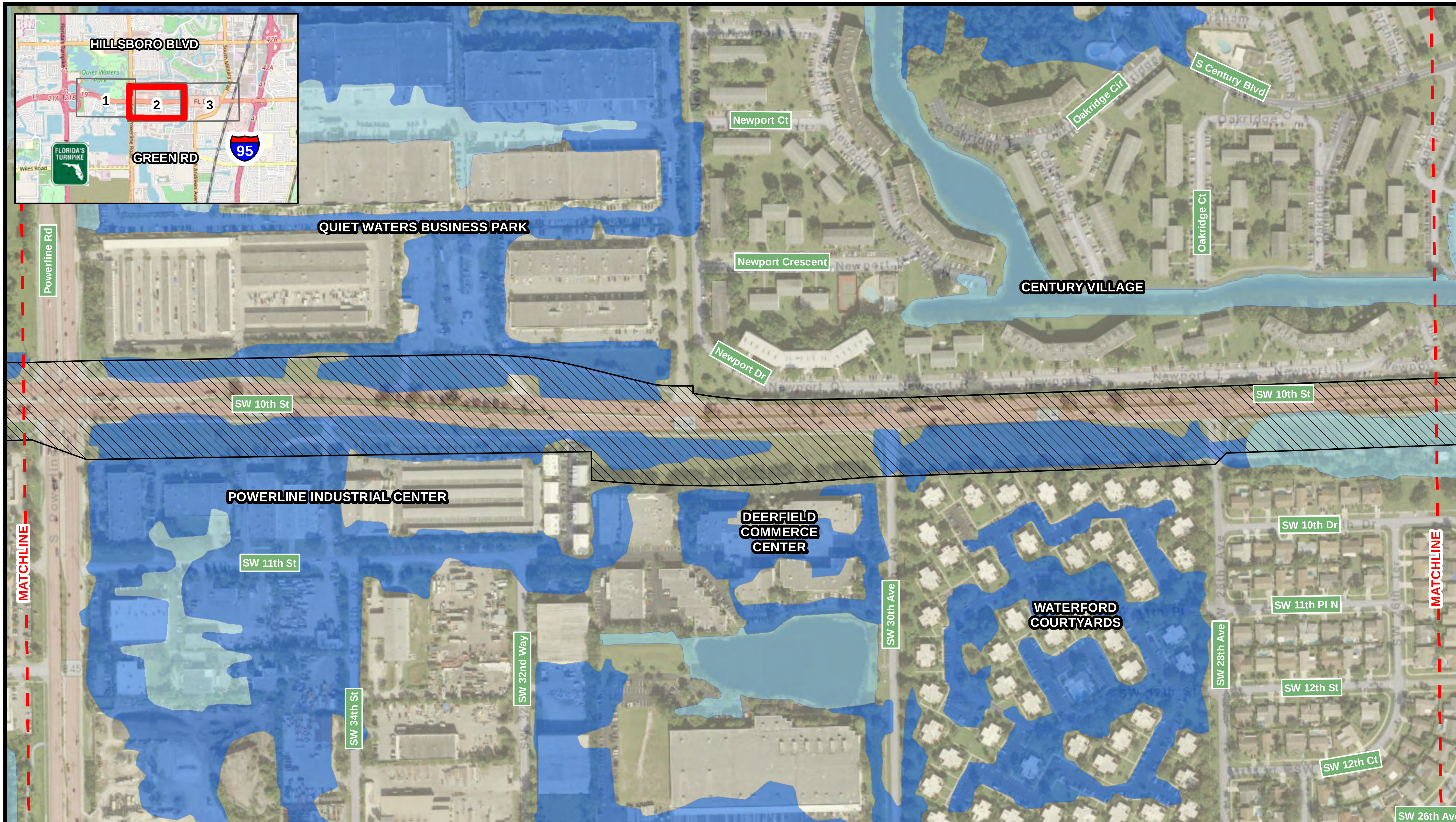
AE

AH

0 250 500 1,000 Feet

Figure 7
FEMA Flood Zone Map

Page No.
1 of 3



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FM # 439891-1-22-02
Broward County, Florida

LEGEND
Project Limits
Flood Zone
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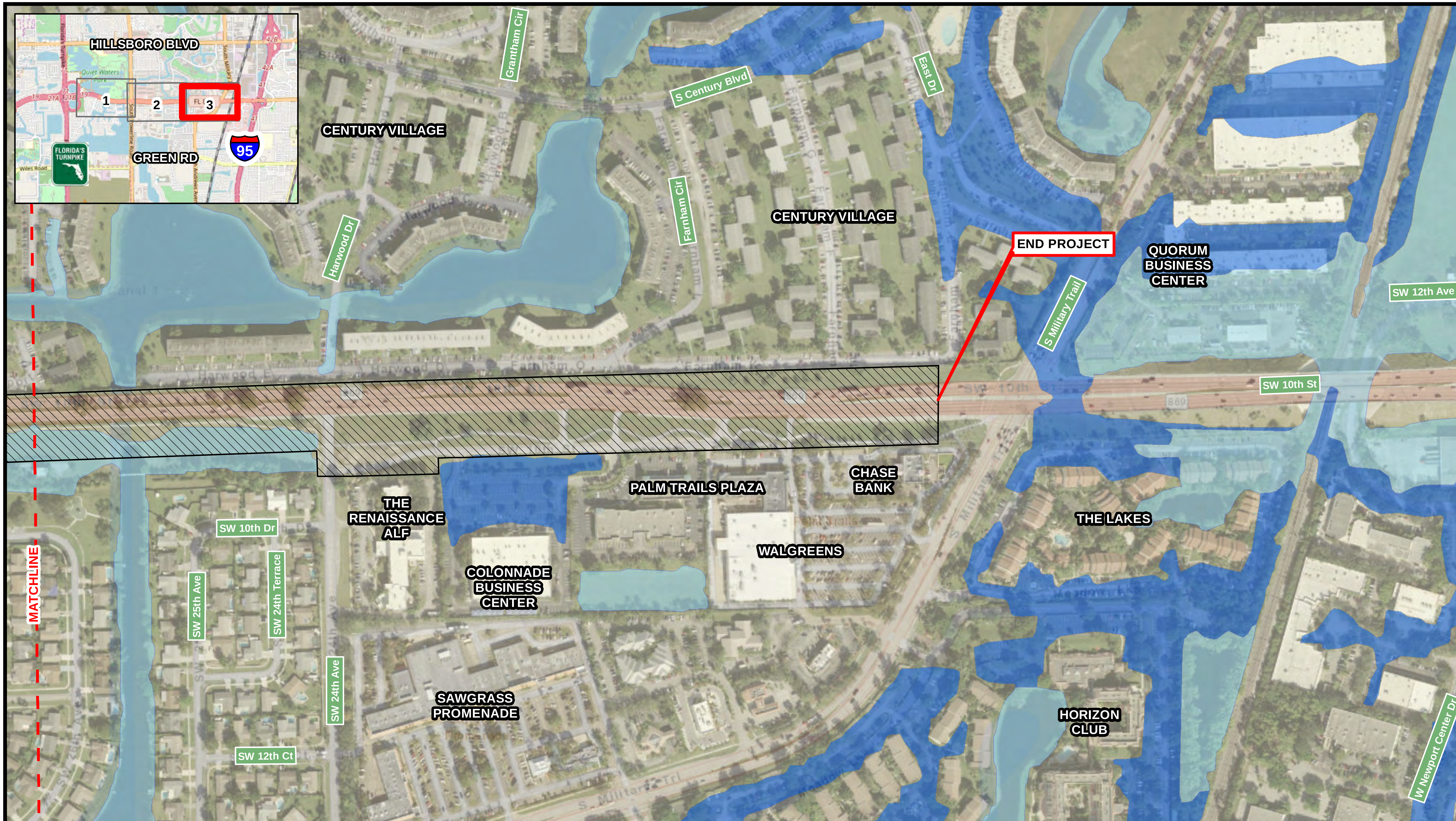
AH

0 250 500 1,000 Feet

Figure 7
FEMA Flood Zone Map



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Broward County, Florida

LEGEND

Project Limits

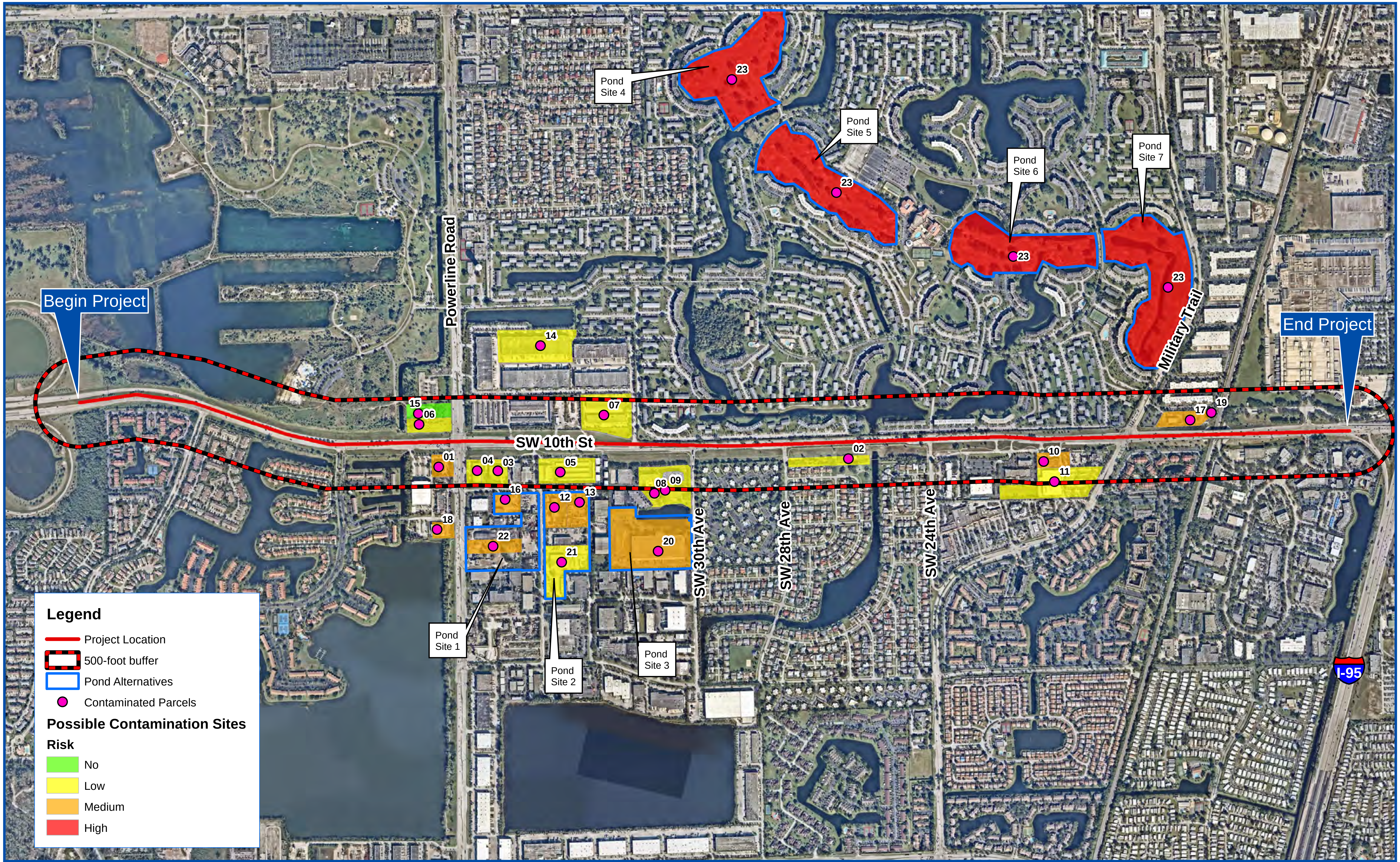
Flood Zone

AE

AH

0 250 500 1,000 Feet

Figure 7
FEMA Flood Zone Map



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from West of Powerline Road to West of Military Trail
FM # 439891-1-22-02
Broward County, Florida

Figure 8
Contaminated Sites Map

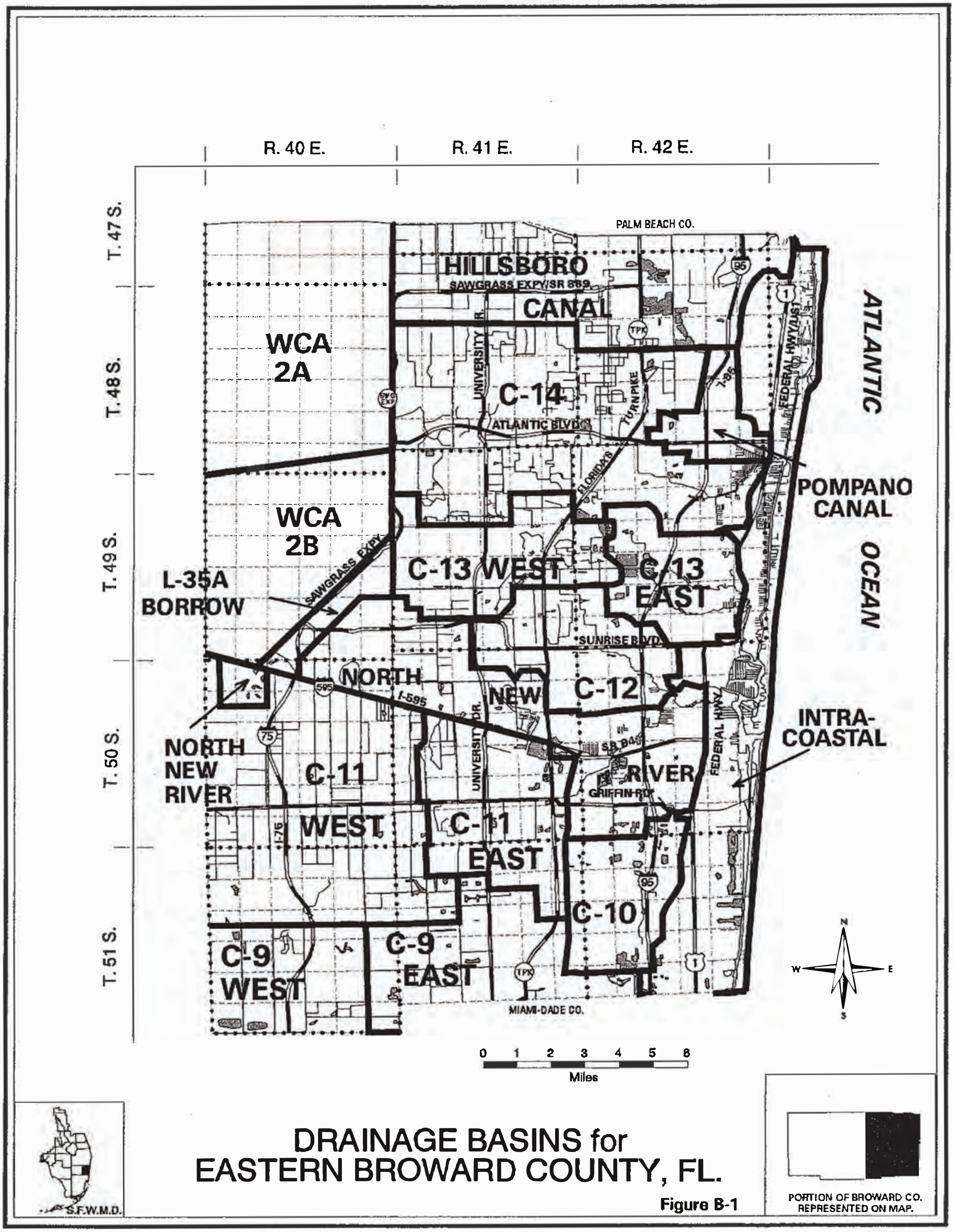


Figure 9 - SFWMD Drainage Basin Map

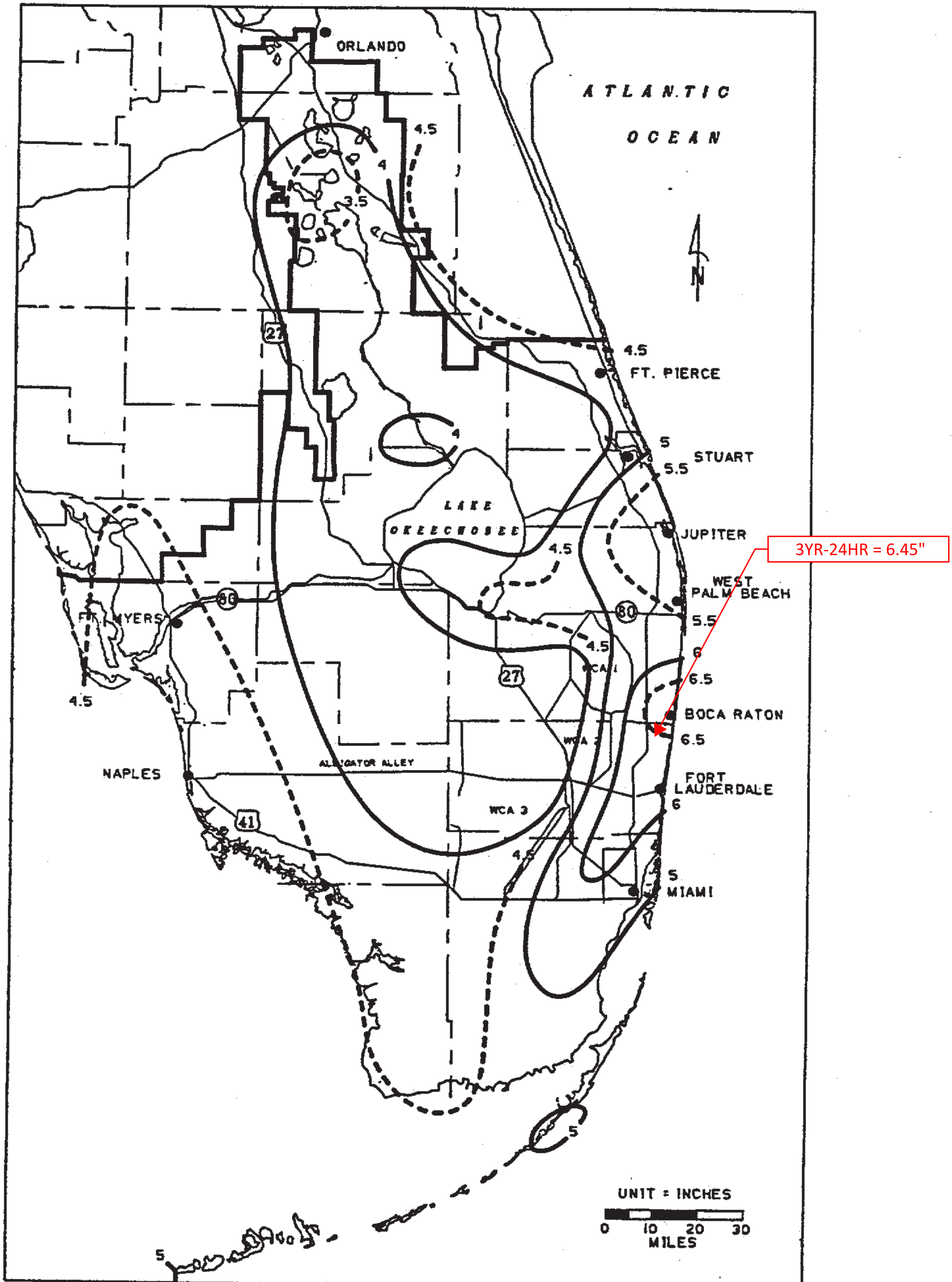


FIGURE C-2. 1-DAY RAINFALL: 3-YEAR RETURN PERIOD

Figure 10 - SFWMD Rainfall Maps

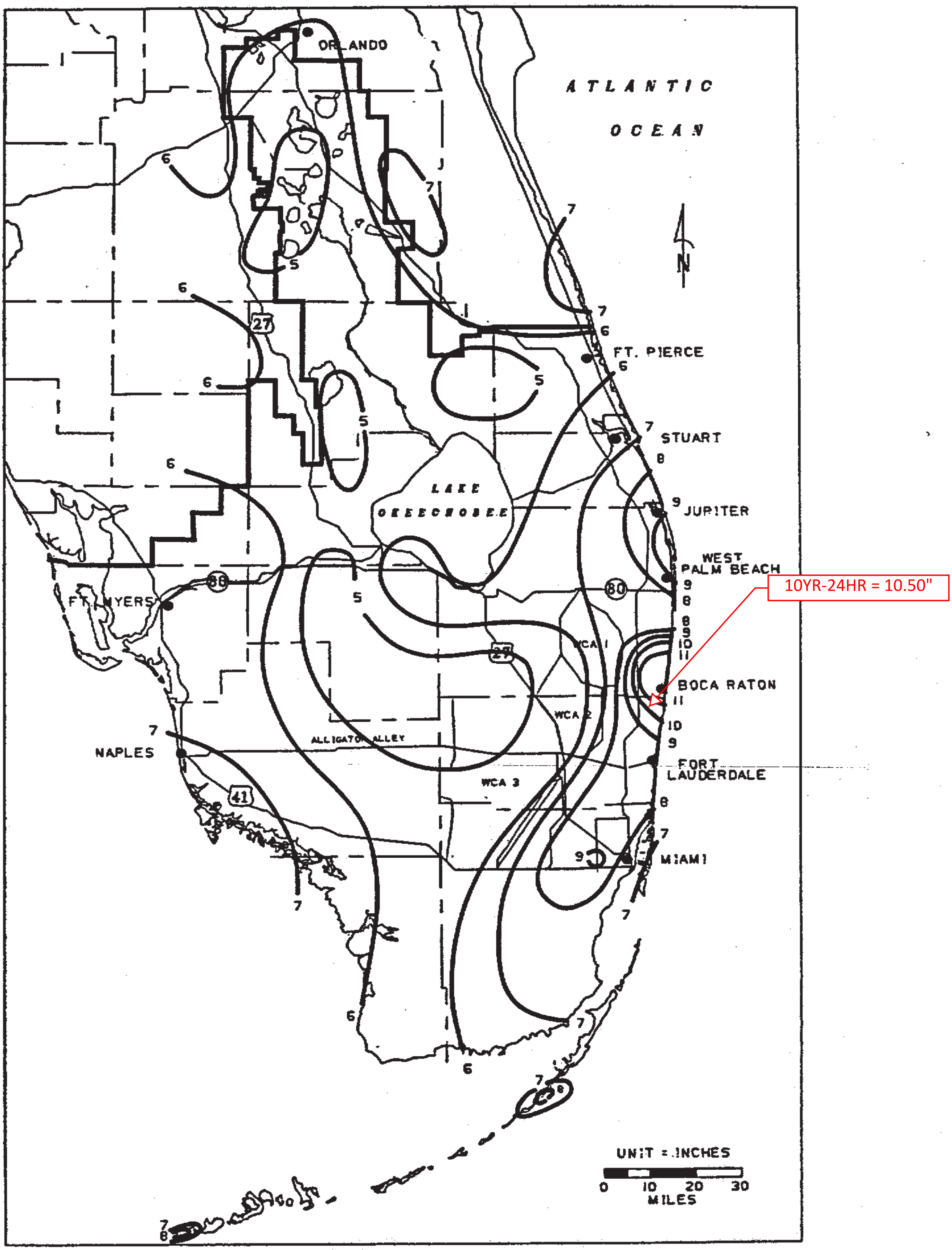


FIGURE C-4. 1-DAY RAINFALL: 10-YEAR RETURN PERIOD

Figure 10 - SFWMD Rainfall Maps

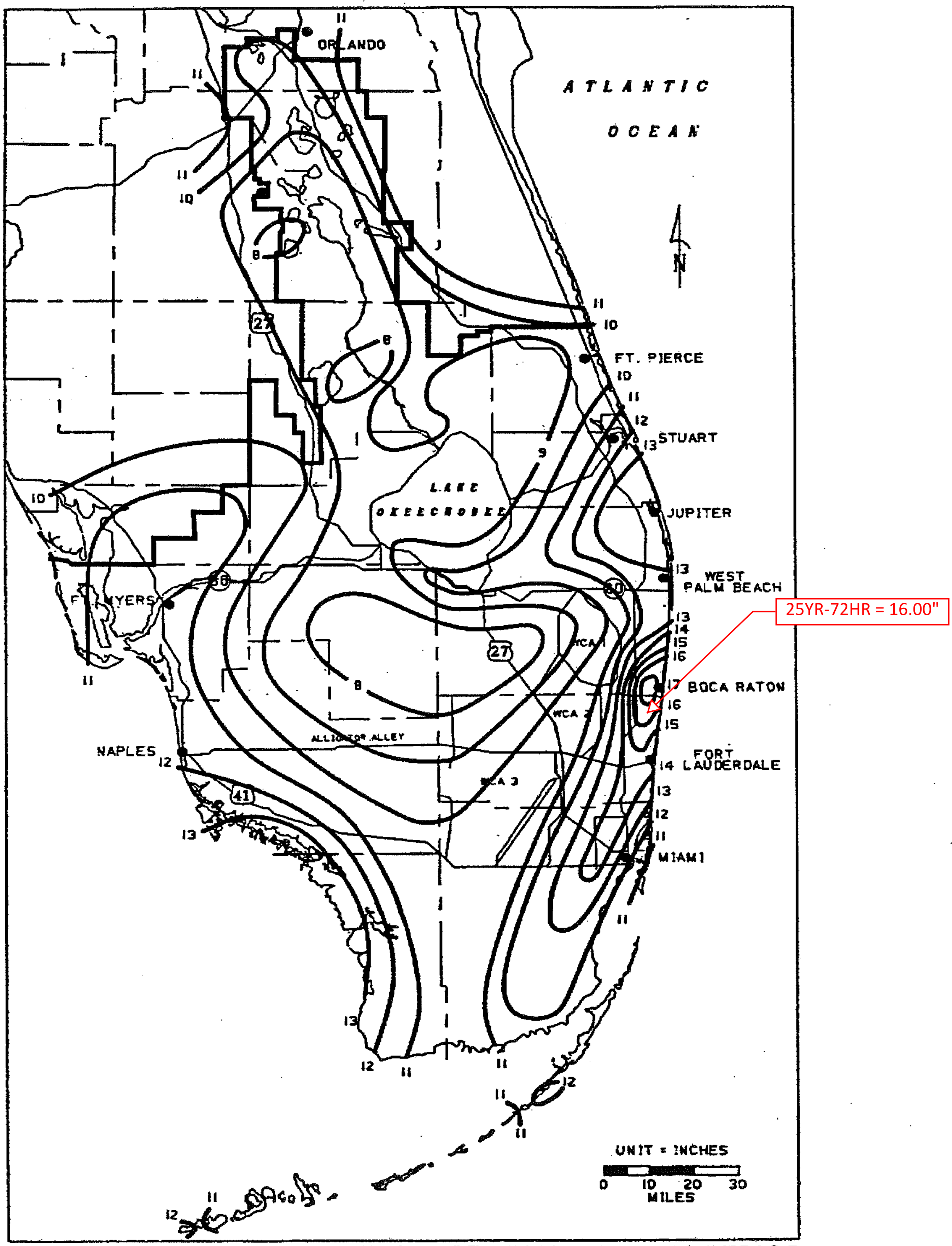


FIGURE C-8. 3-DAY RAINFALL: 25-YEAR RETURN PERIOD

Figure 10 - SFWMD Rainfall Maps

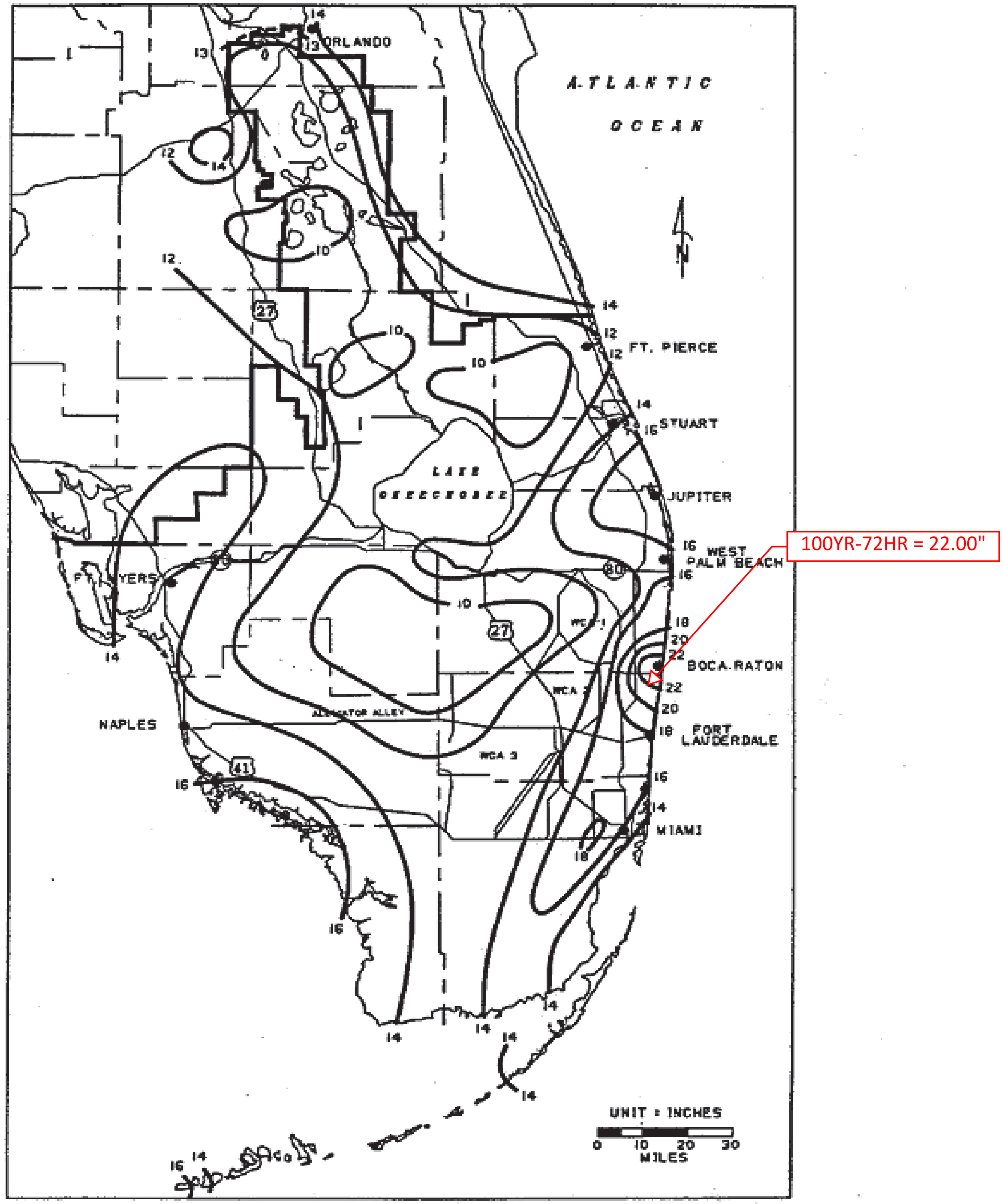


FIGURE C-9. 3-DAY RAINFALL: 100-YEAR RETURN PERIOD

Figure 10 - SFWMD Rainfall Maps

Table 2.6.3 Criteria for Grade Datum

CLEARANCE FOR THE ROADWAY BASE COURSE ABOVE THE BASE CLEARANCE WATER ELEVATION	
TYPE FACILITY	**REQUIRED CLEARANCE**
Freeways and Rural Multilane Mainline	3 ft.
Ramps (proper)	2 ft. [1]
Low Point on Ramps at Cross Roads	1 ft. [1]
Rural Two-lane with Design Year ADT Greater than 1500 VPD	2 ft. [1]
All Other Facilities Including Urban	1 ft. [1]

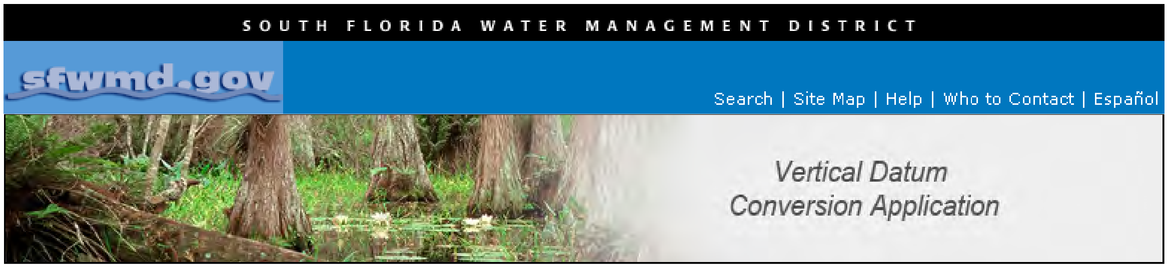
1. This clearance requires a reduction in the design resilient modulus (see the ***Flexible Pavement Design Manual***). Notify the Pavement Design Engineer that the clearance is less than 3 feet.

Table 2.6.4 Grade Criteria for Curb and Gutter Sections

GRADES ON CURB AND GUTTER SECTIONS	
Minimum Distance Required between VPI's	250 ft.
Minimum Grade (%)	0.3 %

(See ***Table 2.6.1*** for Maximum Grades)

Figure 11 - FDOT Criteria for Grade Datum



SFWMD Home

VDCA Features

Point Conversion

Block File Conversion

Time Series File Conversion

Administer Constants

Vertical Datum Home

Help / Home / Logout

Point Conversion

Inputs:

Name (Optional)

Valid Latitude & Longitude formats are:

- Degrees.XXXX
- Degrees Minutes.XXXX
- Degrees Minutes Seconds.XXXX
- XXXX represents a fractional part of the preceding unit

Latitude/Y	26.190445
Longitude/X	80.082333
Latitude/Longitude or Y/X	Lat/Long Y/X
Height (Optional)	
Unit of Measure	US Feet
Input Datum	NGVD 29
Conversion Method	Default

Convert

Results:

Date/Time	Fri Nov 11 16:26:08 EST 2016
Name (Optional)	
Latitude/Y	26.190445
Longitude/X	80.082333
Datum Offset	-1.5839
Output Datum	NAVD 88
Adjusted Height	
Unit of Measure	FEET
Conversion Method Applied	Force Vertcon 05
Order/Class	
Surveyed Point Name	None
Surveyed Point Lat	
Surveyed Point Long	
Print	

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Figure 12 - Vertical Datum Conversion

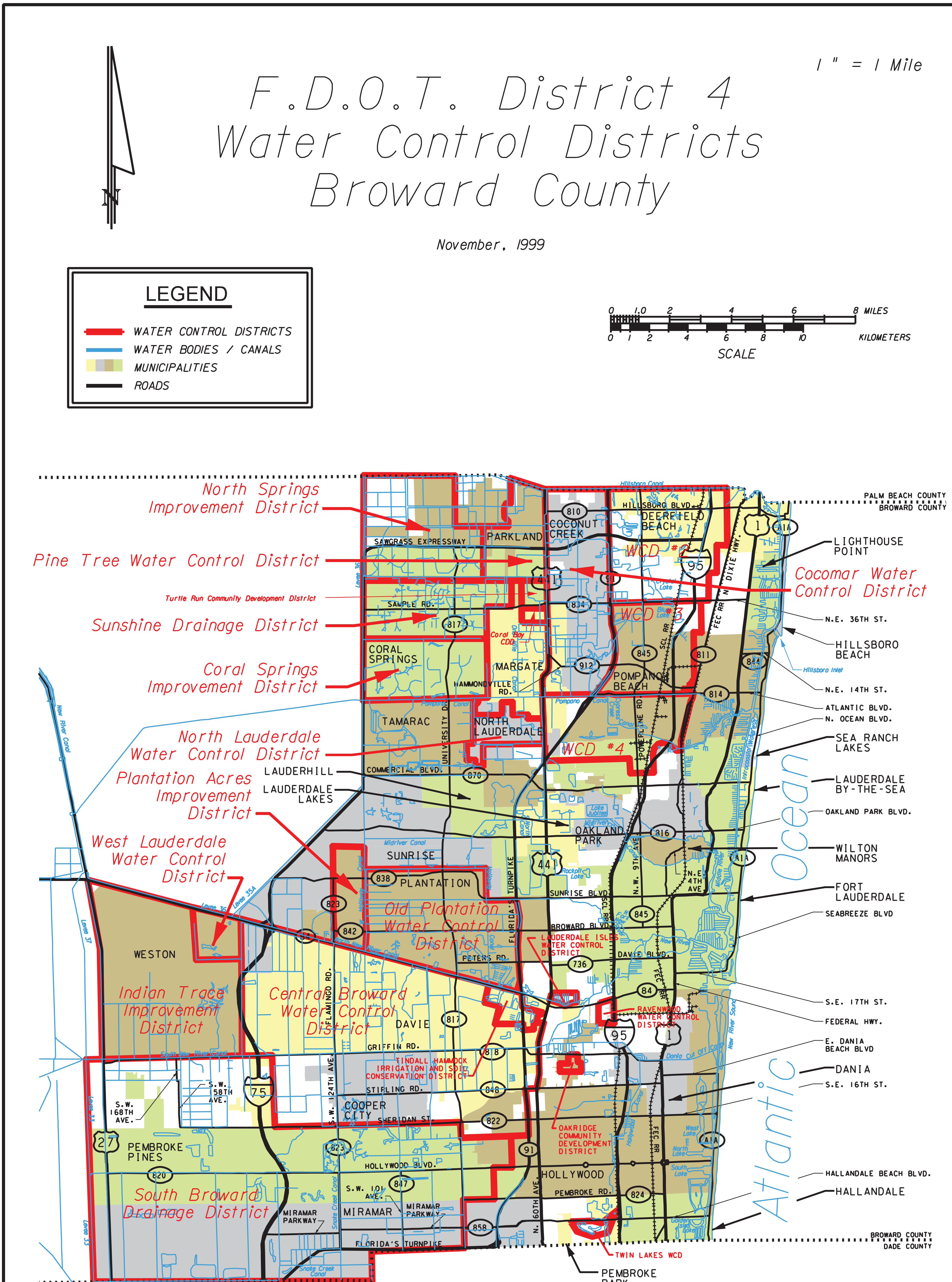


Figure 13 - FDOT District 4 Local Water Control District Map for Broward County

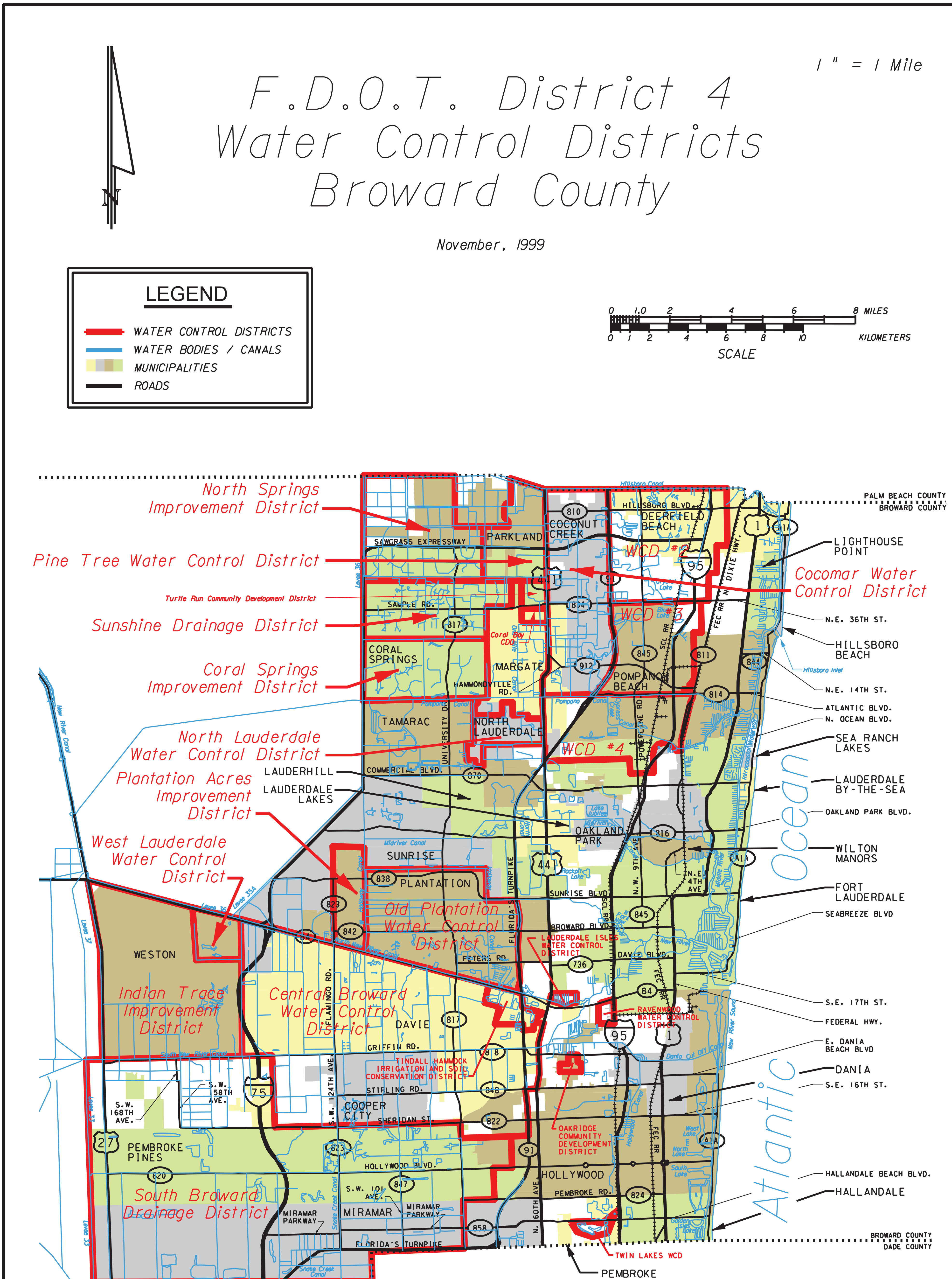
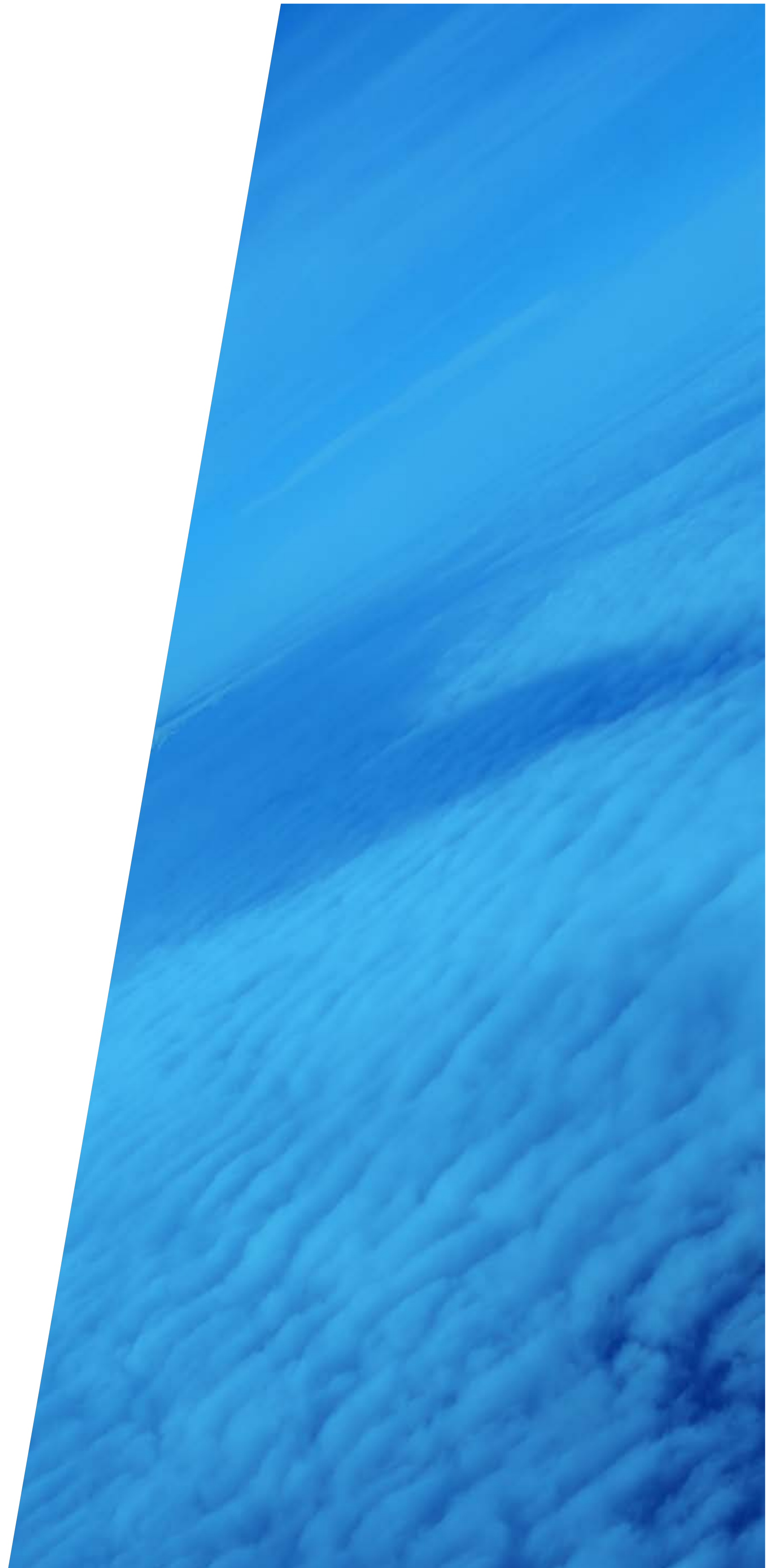


Figure 13 - FDOT District 4 Local Water Control District Map for Broward County

APPENDIX B

PRE-DEVELOPMENT DRAINAGE MAPS



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Christian B. Jackson, P.E. No. 61898

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
869	BROWARD	439891-1-52-01

PRE-DEVELOPMENT
DRAINAGE MAPS

SHEET NO.
1

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PRE-DEVELOPMENT DRAINAGE MAPS

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PRE-DEVELOPMENT DRAINAGE MAPS

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PRE-DEVELOPMENT DRAINAGE MAPS

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PRE-DEVELOPMENT DRAINAGE MAPS

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PRE-DEVELOPMENT DRAINAGE MAPS

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PRE-DEVELOPMENT DRAINAGE MAPS

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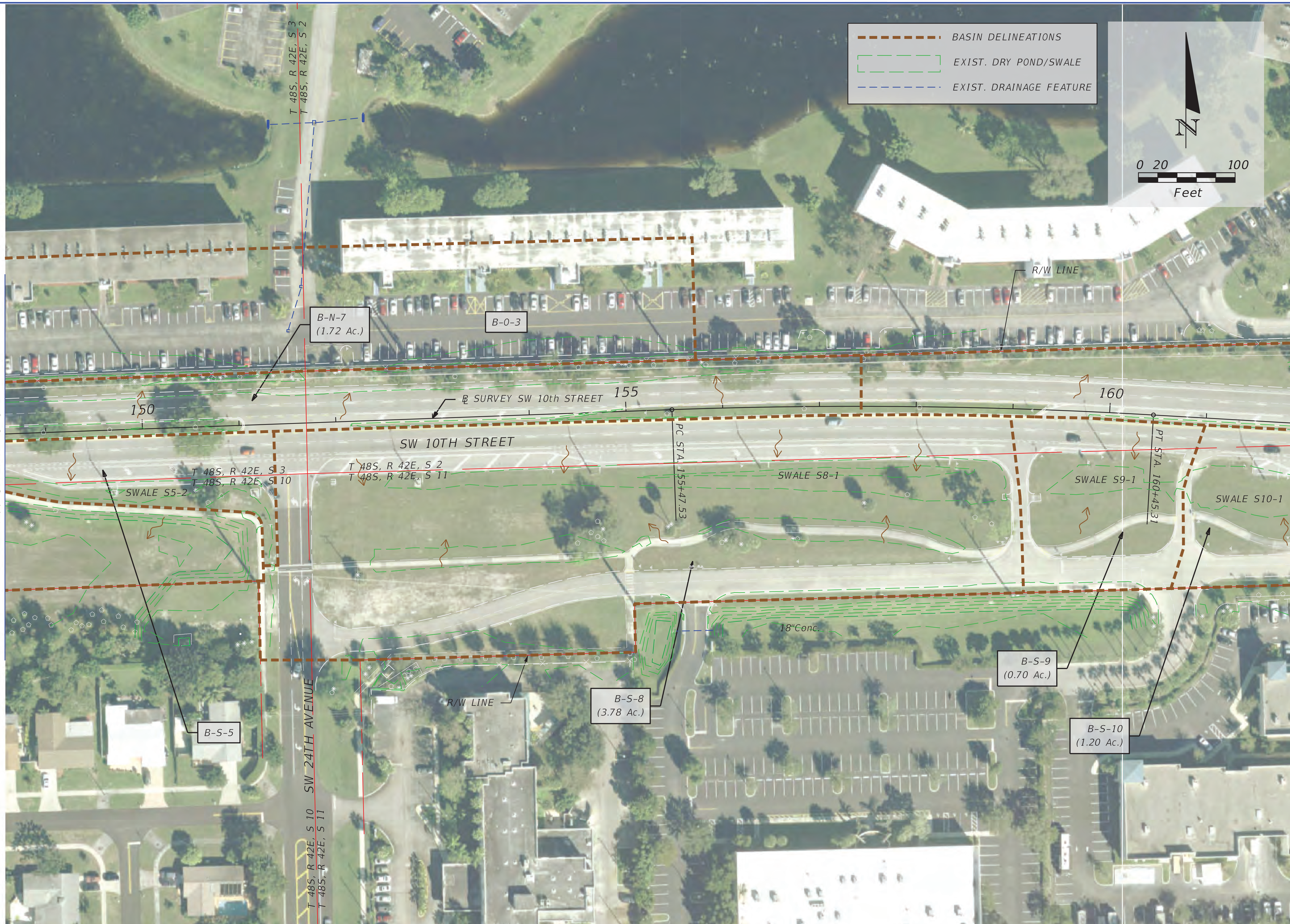

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PRE-DEVELOPMENT DRAINAGE MAPS

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PRE-DEVELOPMENT DRAINAGE MAPS

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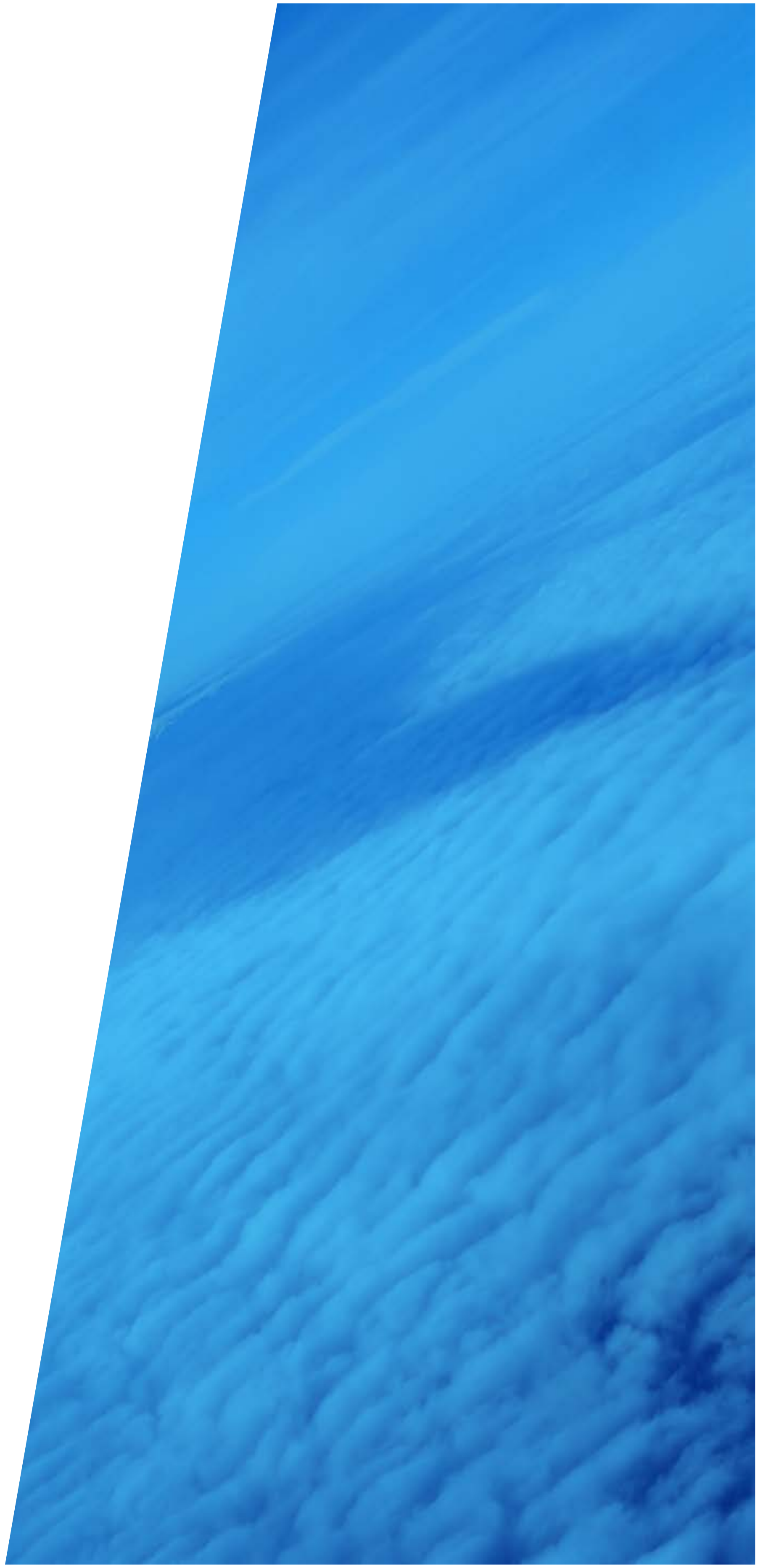
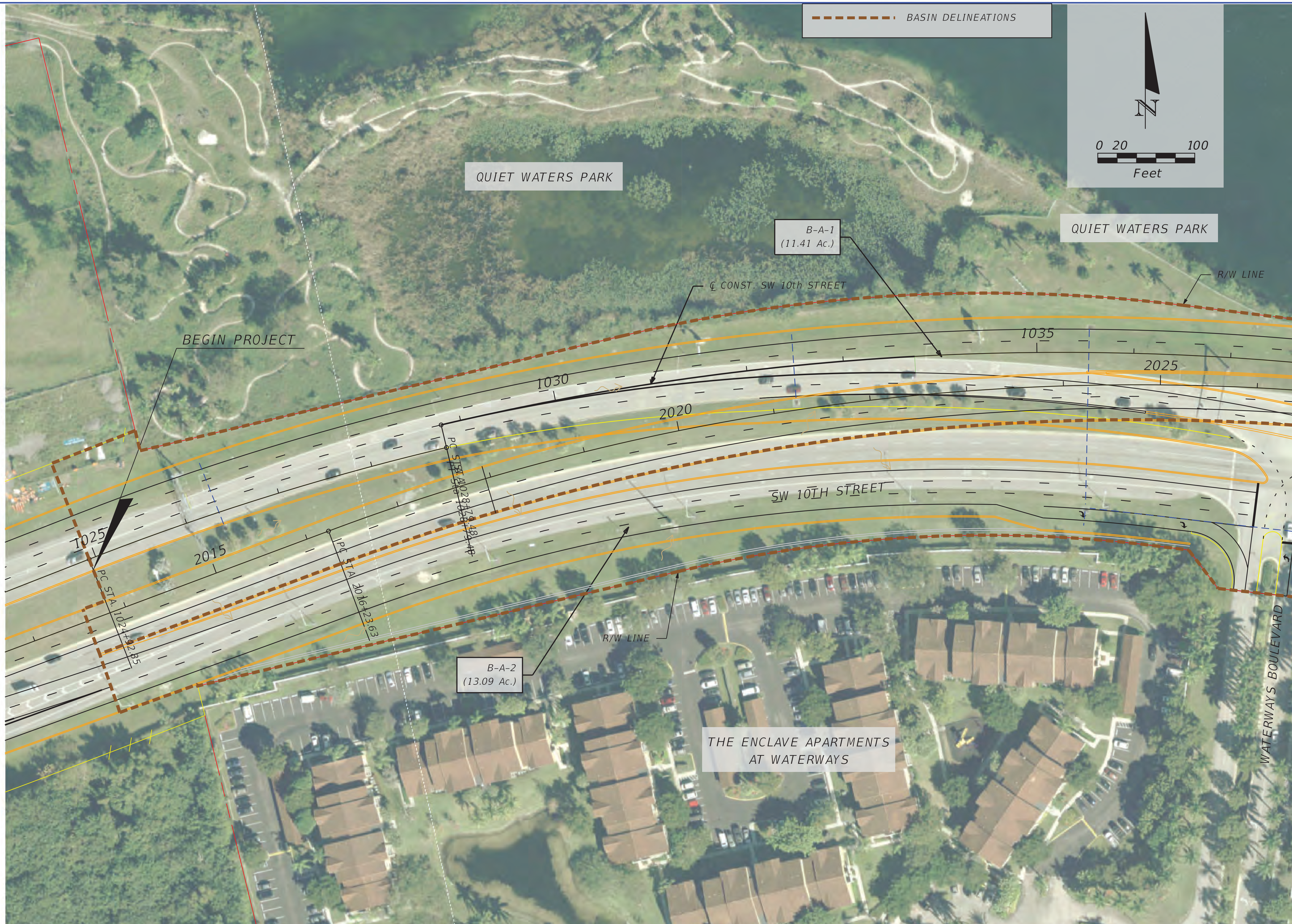
APPENDIX C

POST-DEVELOPMENT
DRAINAGE MAPS





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POST-DEVELOPMENT DRAINAGE MAPS

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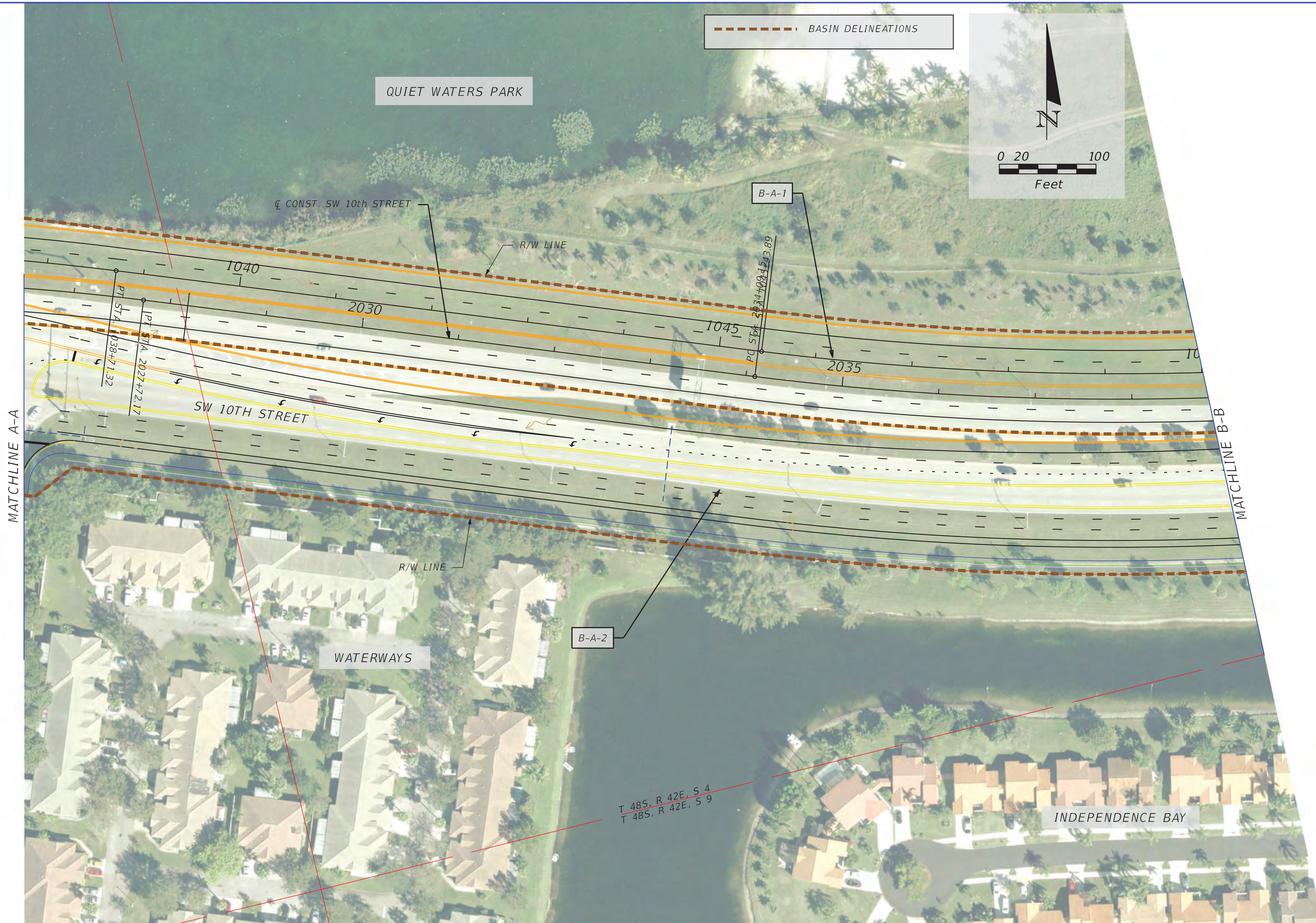

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POST-DEVELOPMENT DRAINAGE MAPS

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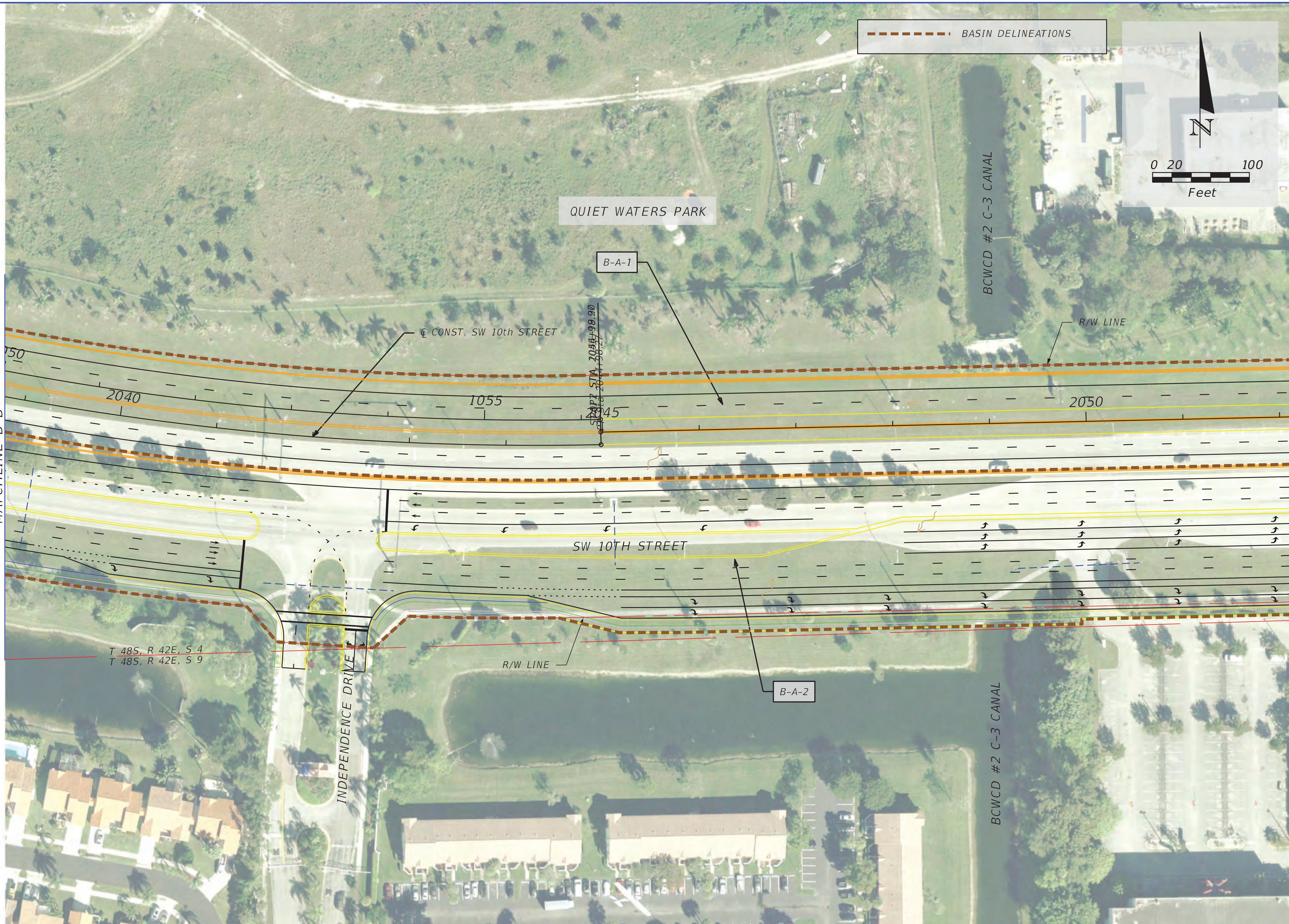

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POST-DEVELOPMENT DRAINAGE MAPS

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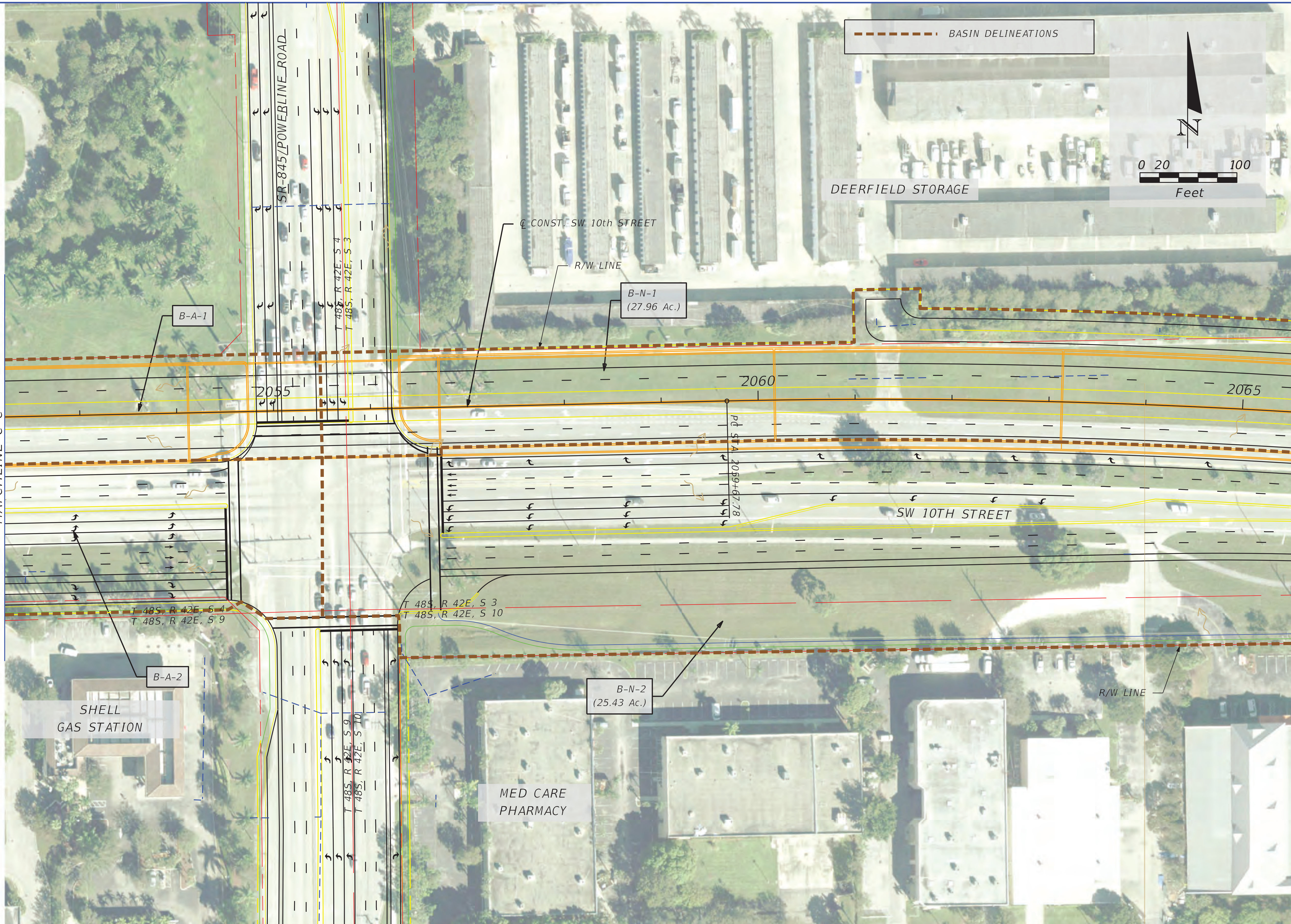

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POST-DEVELOPMENT DRAINAGE MAPS

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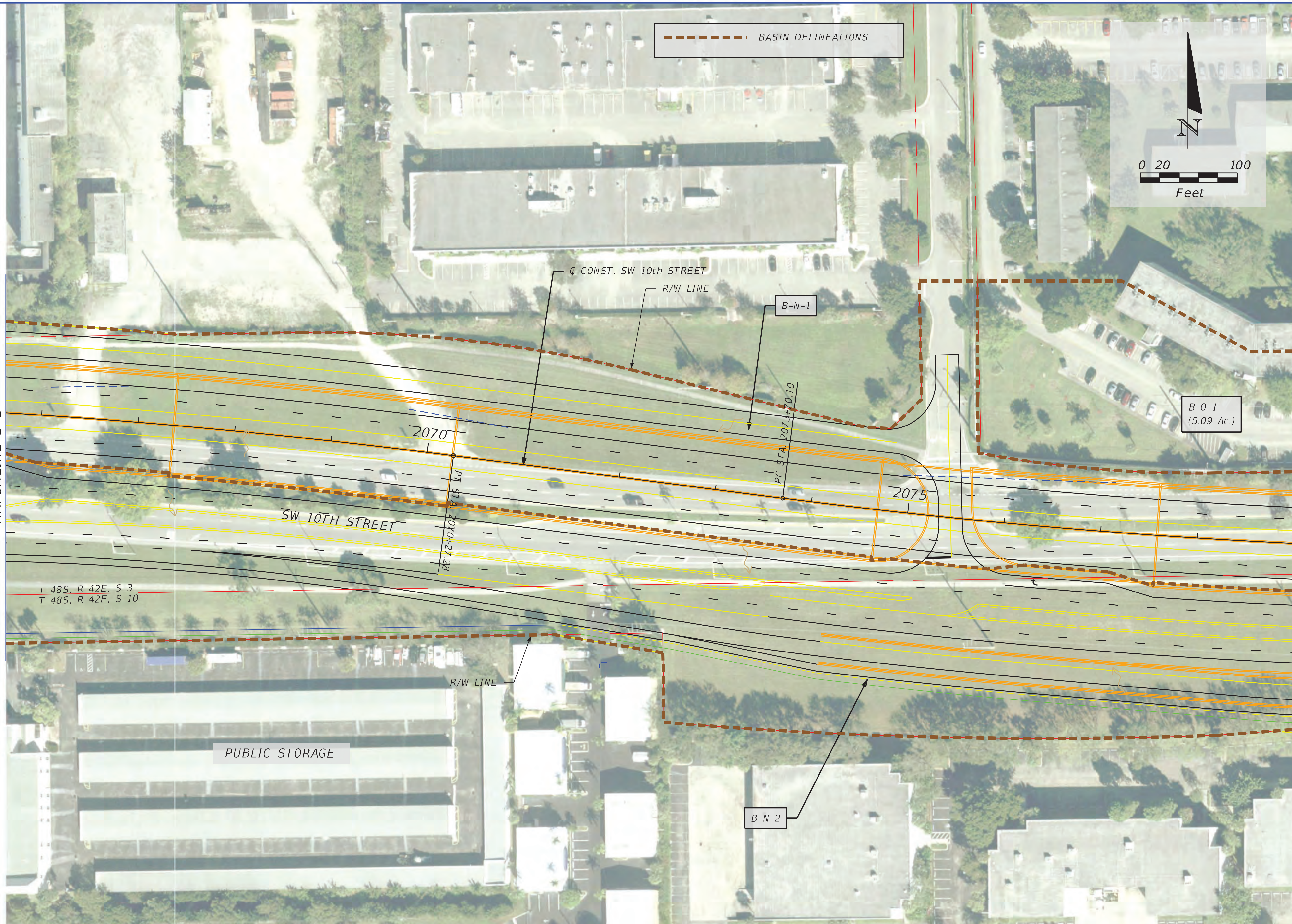

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POST-DEVELOPMENT DRAINAGE MAPS

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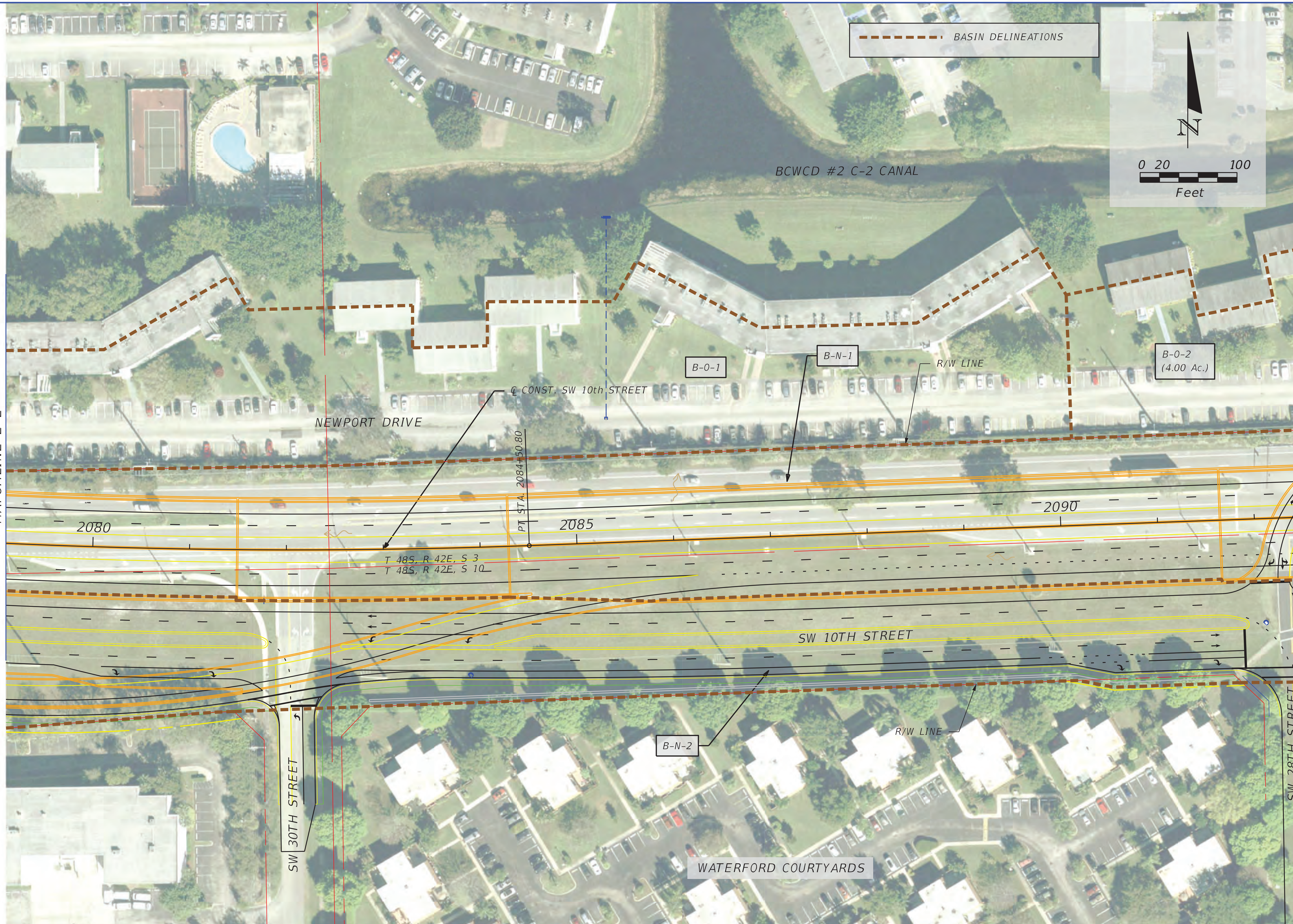

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POST-DEVELOPMENT
DRAINAGE MAPS

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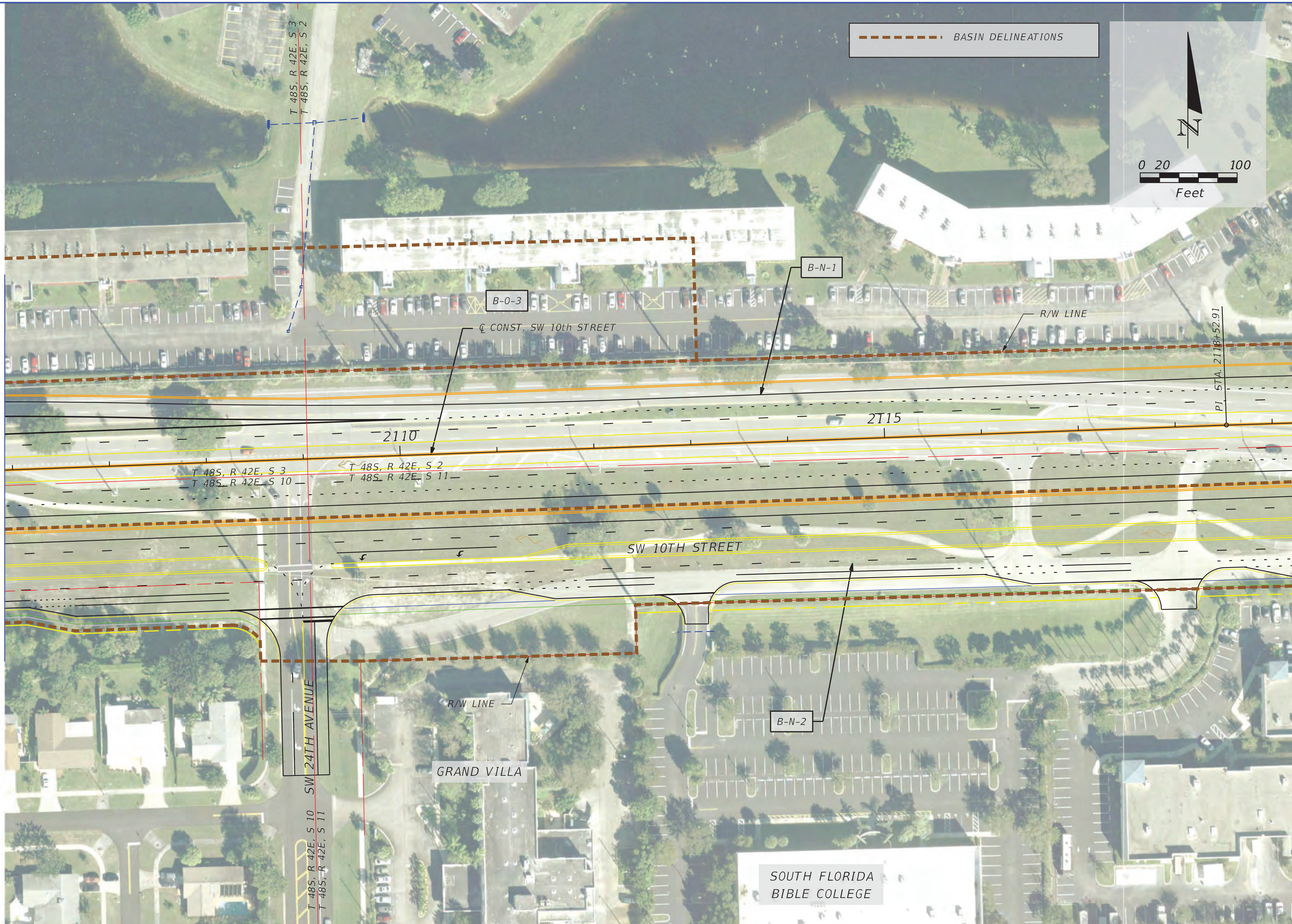

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POST-DEVELOPMENT DRAINAGE MAPS

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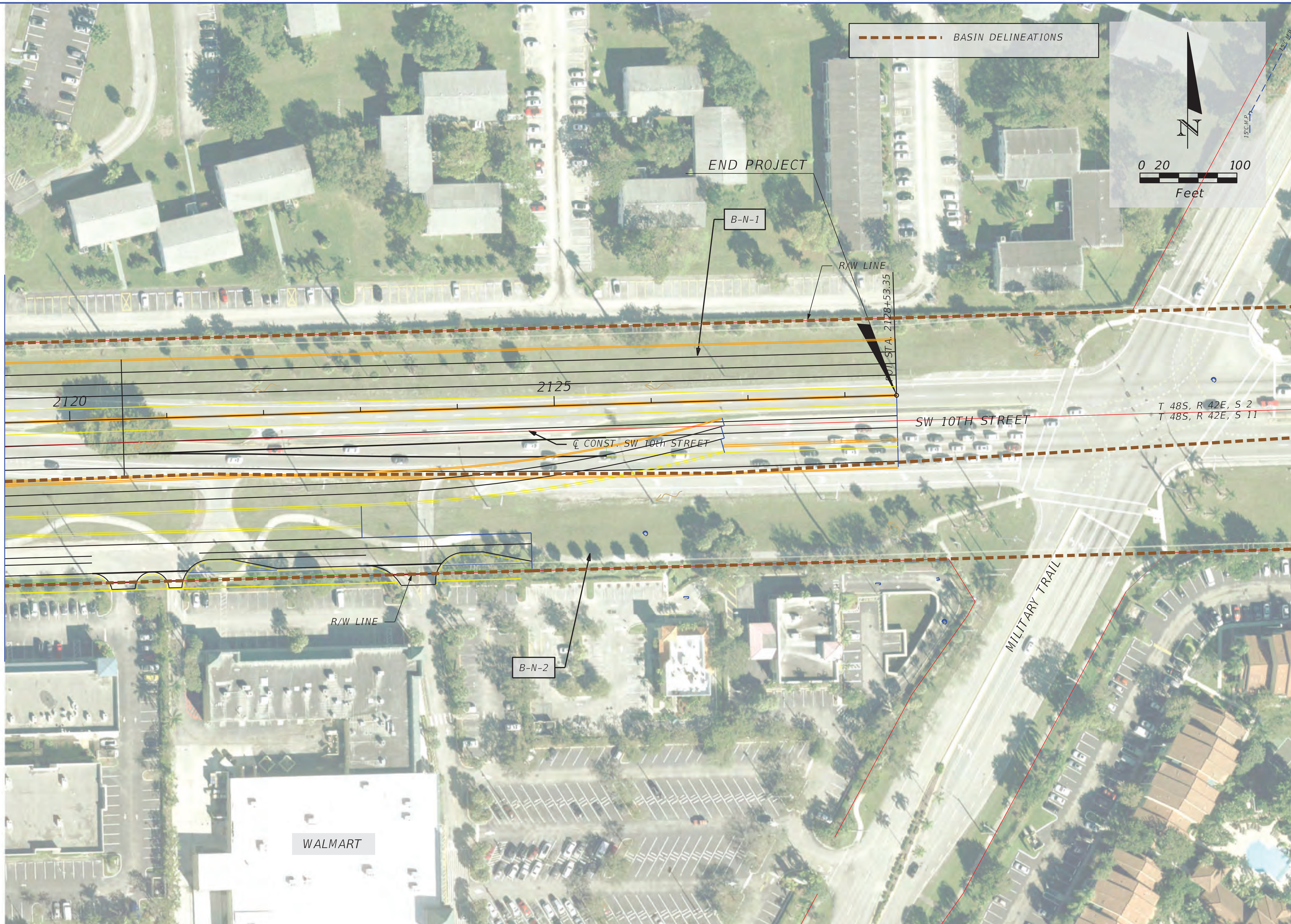

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POST-DEVELOPMENT DRAINAGE MAPS

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POST-DEVELOPMENT DRAINAGE MAPS

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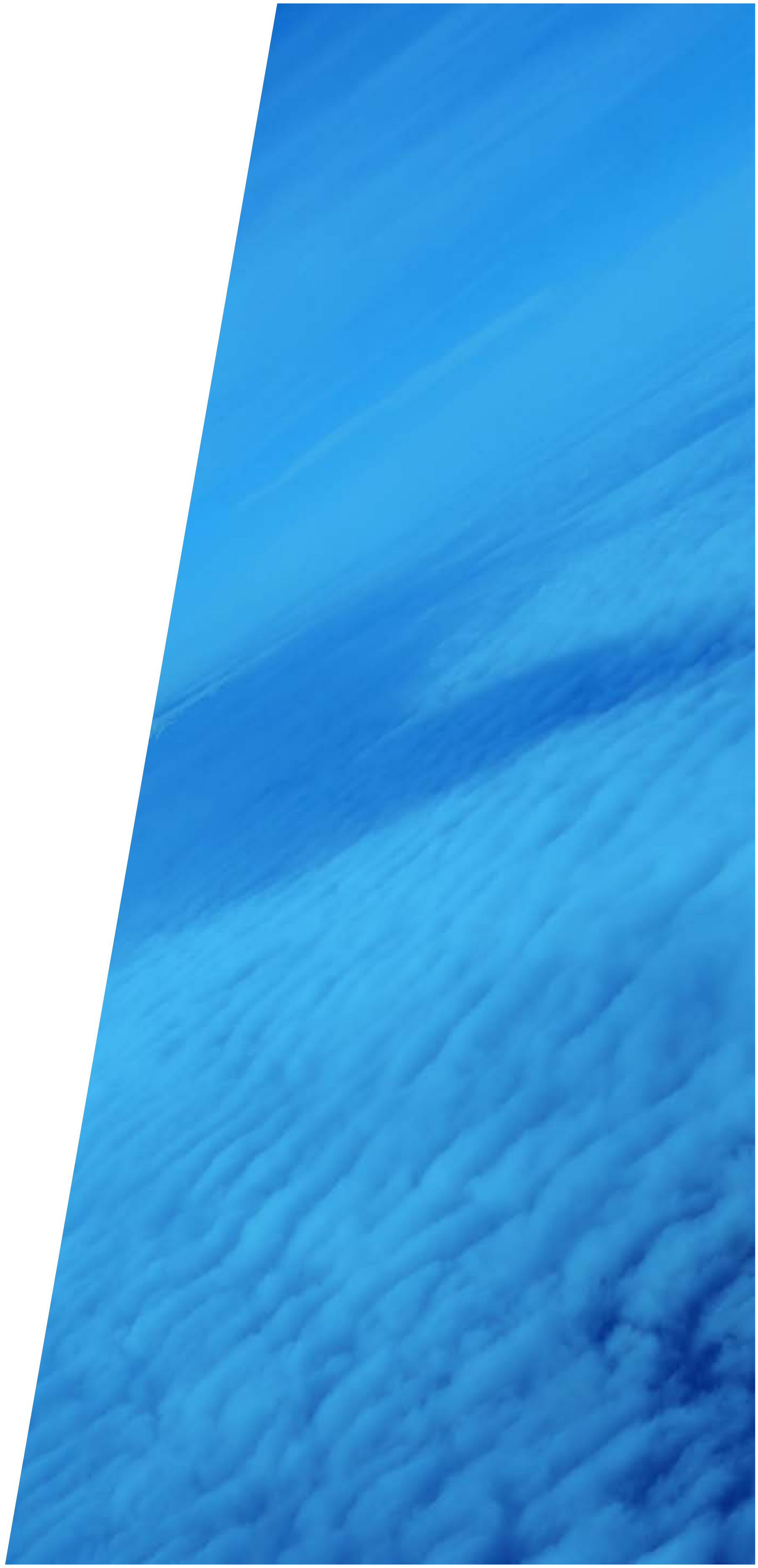
APPENDIX D

DRAINAGE ANALYSIS DOCUMENTATION



SW 10th STREET PD&E STUDY - DRAINAGE CALCULATIONS

Pre-Development Land Use Table

SHGWT EL. (ft-NAVD): 7.5

Basin	Sub-Basin	Time of Conc. t_c (min.)	Total Area (Ac.)	Total Onsite Area (Ac.)	Onsite Impervious Area (Ac.)	Onsite Water Surface Area (Ac.)	Onsite Pervious Area (Ac.)	Total Offsite Area (Ac.)	Offsite Impervious Area (Ac.)	Offsite Water Surface Area (Ac.)	Offsite Pervious Area (Ac.)	Average Ground Elev. (ft. NAVD)	Average Depth to SHGWT (ft.)	Compacted Soil Storage, S_o (in)	CN
C-3 Canal	B-A-1	10	11.43	11.43	4.00	0.00	7.43	0.00	0.00	0.00	0.00	13.50	6.00	8.18	65.29
	B-A-2	10	3.12	3.12	1.69	0.00	1.43	0.00	0.00	0.00	0.00	12.50	5.00	8.18	72.77
	B-A-3	10	4.95	4.95	2.22	0.00	2.73	0.00	0.00	0.00	0.00	12.50	5.00	8.18	68.90
	B-A-4	10	2.40	2.40	1.06	0.00	1.34	0.00	0.00	0.00	0.00	12.50	5.00	8.18	68.65
	B-A-5	10	1.52	1.52	0.98	0.00	0.54	0.00	0.00	0.00	0.00	12.50	5.00	8.18	77.48
SUB TOTAL			23.42	23.42	9.95	0.00	13.47	0.00	0.00	0.00	0.00				
C-2 Canal	B-N-1	10	1.62	1.62	1.01	0.00	0.61	0.00	0.00	0.00	0.00	13.00	6.00	8.18	76.45
	B-N-2	10	1.49	1.49	0.59	0.00	0.90	0.00	0.00	0.00	0.00	13.00	5.50	8.18	66.93
	B-N-3	10	1.22	1.22	0.45	0.00	0.77	0.00	0.00	0.00	0.00	13.00	5.50	8.18	65.95
	B-N-4	10	2.17	2.17	0.99	0.00	1.18	0.00	0.00	0.00	0.00	13.50	6.00	8.18	69.23
	B-N-5	10	1.85	1.85	1.07	0.00	0.78	0.00	0.00	0.00	0.00	13.50	6.00	8.18	74.34
	B-N-6	10	1.42	1.42	0.85	0.00	0.57	0.00	0.00	0.00	0.00	13.50	6.00	8.18	75.28
	B-N-7	10	1.72	1.72	1.01	0.00	0.71	0.00	0.00	0.00	0.00	13.50	6.00	8.18	74.76
	B-N-8	10	3.55	3.55	1.45	0.00	2.10	0.00	0.00	0.00	0.00	12.50	5.00	8.18	67.39
	B-O-1	10	5.09	0.00	0.00	0.00	0.00	5.09	2.85	0.00	2.24	12.50	5.00	8.18	73.51
	B-O-2	10	4.00	0.00	0.00	0.00	0.00	4.00	2.38	0.00	1.62	12.50	5.00	8.18	75.08
	B-O-3	10	2.92	0.00	0.00	0.00	0.00	2.92	2.19	0.00	0.73	12.50	5.00	8.18	82.98
	B-S-1	10	3.46	3.46	1.04	0.00	2.42	0.00	0.00	0.00	0.00	13.50	6.00	8.18	63.61
	B-S-2	10	2.82	2.82	1.01	0.00	1.81	0.00	0.00	0.00	0.00	13.50	6.00	8.18	65.57
	B-S-3	10	5.06	5.06	1.23	0.00	3.83	0.00	0.00	0.00	0.00	13.00	5.50	8.18	61.76
	B-S-4	10	4.53	4.53	1.12	0.00	3.41	0.00	0.00	0.00	0.00	11.50	4.00	8.18	61.89
	B-S-5	10	2.14	2.14	1.30	0.00	0.84	0.00	0.00	0.00	0.00	12.50	5.00	8.18	75.70
	B-S-6	10	2.36	2.36	0.16	0.03	2.17	0.00	0.00	0.00	0.00	11.00	3.50	6.57	62.36
	B-S-7	10	1.30	1.30	0.09	0.02	1.19	0.00	0.00	0.00	0.00	11.00	3.50	6.57	62.46
	B-S-8	10	3.78	3.78	1.60	0.00	2.18	0.00	0.00	0.00	0.00	13.00	5.50	8.18	67.95
	B-S-9	10	0.70	0.70	0.33	0.00	0.37	0.00	0.00	0.00	0.00	13.00	5.50	8.18	69.81
	B-S-10	10	1.20	1.20	0.66	0.00	0.54	0.00	0.00	0.00	0.00	12.50	5.00	8.18	72.93
	B-S-11	10	0.70	0.70	0.33	0.00	0.37	0.00	0.00	0.00	0.00	12.50	5.00	8.18	69.81
	B-S-12	10	2.08	2.08	1.20	0.00	0.88	0.00	0.00	0.00	0.00	12.00	4.50	8.18	74.29
SUB TOTAL			57.18	45.17	17.49	0.05	27.63	12.01	7.41	0.00	4.60				
SYSTEM TOTAL			80.60	68.59	27.44	0.05	41.10	12.01	7.41	0.00	4.60				

SW 10th STREET PD&E STUDY - DRAINAGE CALCULATIONS

Post-Development Land Use Table

SHGWT EL. (ft-NAVD): 7.5

Basin	Sub-Basin	Time of Conc. t_c (min.)	Total Area (Ac.)	Total Onsite Area (Ac.)	Onsite Impervious Area (Ac.)	Onsite Water Surface Area (Ac.)	Onsite Pervious Area (Ac.)	Total Offsite Area (Ac.)	Offsite Impervious Area (Ac.)	Offsite Water Surface Area (Ac.)	Offsite Pervious Area (Ac.)	Average Ground Elev. (ft. NAVD)	Average Depth to SHGWT (ft.)	Compacted Soil Storage, S_o (in)	CN
C-3 Canal	**Pond 1**	10	11.41	11.41	10.01	0.00	1.40	0.00	0.00	0.00	0.00	13.00	6.00	8.18	**90.91**
		10	13.27	13.27	10.00	0.00	3.26	0.00	0.00	0.00	0.00	13.00	6.00	8.18	**83.25**
SUB TOTAL			**24.67**	**24.67**	**20.02**	**0.00**	**4.66**	**0.00**	**0.00**	**0.00**	**0.00**				
C-2 Canal	**Pond 2**	10	27.96	27.96	21.99	0.00	5.96	0.00	0.00	0.00	0.00	13.00	6.00	8.18	**85.14**
		10	25.43	25.43	20.17	0.00	5.26	0.00	0.00	0.00	0.00	12.50	5.00	8.18	**85.52**
	B-O-1	10	5.09	0.00	0.00	0.00	0.00	5.09	2.85	0.00	2.24	12.50	5.00	8.18	**73.51**
	B-O-2	10	4.00	0.00	0.00	0.00	0.00	4.00	2.38	0.00	1.62	12.50	5.00	8.18	**75.08**
	B-O-3	10	2.92	0.00	0.00	0.00	0.00	2.92	2.19	0.00	0.73	12.50	5.00	8.18	**82.98**
SUB TOTAL			**65.40**	**53.39**	**42.16**	**0.00**	**11.23**	**12.01**	**7.41**	**0.00**	**4.60**				
SYSTEM TOTAL			**90.07**	**78.06**	**62.18**	**0.00**	**15.88**	**12.01**	**7.41**	**0.00**	**4.60**				

SW 10th STREET PD&E STUDY - DRAINAGE CALCULATIONS

Water Quality

Sub-Basin	SHGWT EL. (ft. NAVD)	Total Onsite Area (Ac.) *[POST-DEV.]*	Onsite Impervious Area (Ac.) *[POST-DEV.]*	Onsite Pervious Area (Ac.) *[POST-DEV.]*	Total Offsite Area (Ac.)	Offsite Impervious Area (Ac.)	Offsite Water Surface Area (Ac.)	Offsite Pervious Area (Ac.)	1" over Total Onsite Area (Ac-ft)	2.5" over Impervious Area (Ac-ft)	[1]Water Quality Treatment Required (Ac-ft)	DRY-DETENTION TREATMENT VOLUME PROVIDED (Ac-ft)	WET-DETENTION TREATMENT VOLUME PROVIDED (Ac-ft)	DRY- / WET-RETENTION TREATMENT VOLUME PROVIDED (Ac-ft)	FRENCH DRAIN TREATMENT VOLUME PROVIDED (Ac-ft)	[2]TOTAL TREATMENT VOLUME PROVIDED (Ac-ft)	SURPLUS TREATMENT VOLUME PROVIDED (Ac-ft)
Pond 1	7.50	11.41	10.01	1.40	0.00	0.00	0.00	0.00	0.95	2.09	**2.09**	0.00	4.22	0.00	0.00	**4.22**	**0.05**
	7.50	13.27	10.00	3.26	0.00	0.00	0.00	0.00	1.11	2.08	**2.08**						
SUB TOTAL		**24.67**	**20.02**	**4.66**	**0.00**	**0.00**	**0.00**	**0.00**	**2.06**	**4.17**	**4.17**	**0.00**	**4.22**	**0.00**	**0.00**	**4.22**	**0.05**
Pond 2	7.50	27.96	21.99	5.96	0.00	0.00	0.00	0.00	2.33	4.58	4.58	0.00	9.79	0.00	0.00	**9.79**	**1.00**
	7.50	25.43	20.17	5.26	0.00	0.00	0.00	0.00	2.12	4.20	4.20						
B-O-1	7.50	0.00	0.00	0.00	5.09	2.85	0.00	2.24	0.00	0.00	0.00	0.00	0.00	0.00	0.00	**0.00**	**0.00**
B-O-2	7.50	0.00	0.00	0.00	4.00	2.38	0.00	1.62	0.00	0.00	0.00	0.00	0.00	0.00	0.00	**0.00**	**0.00**
B-O-3	7.50	0.00	0.00	0.00	2.92	2.19	0.00	0.73	0.00	0.00	0.00	0.00	0.00	0.00	0.00	**0.00**	**0.00**
SUB TOTAL		**53.39**	**42.16**	**11.23**	**12.01**	**7.41**	**0.00**	**4.60**	**4.45**	**8.78**	**8.78**	**0.00**	**9.79**	**0.00**	**0.00**	**9.79**	**1.00**
SYSTEM TOTAL		**78.06**	**62.18**	**15.88**	**12.01**	**7.41**	**0.00**	**4.60**	**6.51**	**12.95**	**12.95**	**0.00**	**14.00**	**0.00**	**0.00**	**14.00**	**1.05**

[1]Greater of 1" over Total Onsite Area and 2.5" over Onsite Impervious Area; Volume based on wet detention requirements.
[2]Sum of all treatment provided; Retention and Dry Detention volumes divided by 0.50 and 0.75, respectively to account for 50% and 25% credits.

POND 1			**POND 2**		
TYPE:	**WET DETENTION**		**TYPE:**	**WET DETENTION**	
STAGE (ft-NAVD)	**AREA (Ac.)**	**VOLUME (Ac-ft)**	**STAGE (ft-NAVD)**	**AREA (Ac.)**	**VOLUME (Ac-ft)**
7.50	4.14	--	7.50	9.66	--
8.50	4.30	4.22	8.50	9.91	9.79
9.50	4.46	8.60	9.50	10.16	19.82
10.50	4.63	13.14	10.50	10.41	30.10
11.50	4.80	17.85	11.50	10.66	40.63
12.50	4.97	22.73	12.50	10.92	51.42
13.50	5.14	27.79	13.50	11.18	62.46

TOTALS (POND 1)	STAGE-AREA RELATIONSHIP			REQUIRED WATER QUALITY TREATMENT VOLUME	MINIMUM WEIR ELEVATION FOR FULL WATER QUALITY TREATMENT	PROVIDED WATER QUALITY TREATMENT		
	TYPE:	WET DETENTION						
	STAGE (ft-NAVD)	AREA (Ac.)	VOLUME (Ac-ft)	VOLUME (Ac-ft)	ELEVATION (ft-NAVD)	WEIR ELEVATION (ft-NAVD)	VOLUME PROVIDED (Ac-ft)	SURPLUS VOLUME (Ac-ft)
	7.50	4.14	-	WET DETENTION	WET DETENTION			
	8.50	4.30	4.22	4.17	8.49	8.50	4.22	0.05
	9.50	4.46	8.60					
	10.50	4.63	13.14					
	11.50	4.80	17.85					
	12.50	4.97	22.73					
	13.50	5.14	27.79					

TOTALS (POND 2)	STAGE-AREA RELATIONSHIP			REQUIRED WATER QUALITY TREATMENT VOLUME	MINIMUM WEIR ELEVATION FOR FULL WATER QUALITY TREATMENT	PROVIDED WATER QUALITY TREATMENT		
	TYPE:	WET DETENTION						
	STAGE (ft-NAVD)	AREA (Ac.)	VOLUME (Ac-ft)	VOLUME (Ac-ft)	ELEVATION (ft-NAVD)	WEIR ELEVATION (ft-NAVD)	VOLUME PROVIDED (Ac-ft)	SURPLUS VOLUME (Ac-ft)
	7.50	9.66	-	WET DETENTION	WET DETENTION			
	8.50	9.91	9.79	8.78	8.40	8.50	9.79	1.00
	9.50	10.16	19.82					
	10.50	10.41	30.10					
	11.50	10.66	40.63					
	12.50	10.92	51.42					
	13.50	11.18	62.46					

SW 10th STREET PD&E STUDY - DRAINAGE CALCULATIONS

Bleeder Sizing/Design

Drainage System:

Pond/Swale Name:	**Pond 1**
Control Structure No.:	**PrCS Pond 1**
Contributing Area (Ac.):	**24.67**
Detention Volume, 1" x Total Area (Ac-ft):	2.06
Bleed-Down Volume, V_{DET} (1/2 Detention Vol.) (Ac-ft):	1.03
Bleed-Down Time (hrs):	24.00
Bleed-Down Time (sec):	86400
Average Discharge Rate, Q (cfs):	0.52
Weir Elevation (ft-NAVD):	**8.50**
Bleeder Invert EL. [SHGWT EL.] (ft-NAVD):	**7.50**
Head, H (ft)	1.00
Weir Coefficient:	0.60

V-Notch Sizing

Minimum V-Notch Angle = 20°

Number of V-Notches Proposed:	**1**
Bleed-Down Volume per V-Notch, V_{DET} (Ac-ft):	1.03
Maximum V-Notch Angle, θ, (rad):	0.94
Maximum V-Notch Angle, θ, (deg):	**53.66**

$$\theta = 2\tan^{-1}[0.492\frac{V_{DET}}{H^{2.5}}]$$

Proposed V-Notch(s) Angle (deg):	**53**
Proposed V-Notch Angle (rad):	0.93
V-Notch Height [= H] (ft):	1.00
V-Notch Top Width (ft):	1.00
V-Notch Sideslope [horz./vert.]:	0.4986

Circular Orifice Sizing

Minimum Orifice Diameter = 3"

Number of Circular Orifices Proposed:	**0**
Average Discharge per Orifice, Q (cfs):	--

$$Q = 4.8A\sqrt{h}, A = \pi r^2, h = H - r$$

Select Orifice Diameter with Discharge nearest to but less than Q

Orifice Diameter (in)	Orifice Radius, r (ft)	Area, A (ft^2)	h (ft)	Discharge Rate (cfs)
3.0	0.125	0.049	0.875	**0.22**
4.0	0.167	0.087	0.833	**0.38**
5.0	0.208	0.136	0.792	**0.58**
6.0	0.250	0.196	0.750	**0.82**

Proposed Orifice(s) Diameter (in):

SW 10th STREET PD&E STUDY - DRAINAGE CALCULATIONS

Bleeder Sizing/Design

Drainage System:

Pond/Swale Name:	**Pond 2**
Control Structure No.:	**PrCS Pond 2**
Contributing Area (Ac.):	**53.39**
Detention Volume, 1" x Total Area (Ac-ft):	4.45
Bleed-Down Volume, V_{DET} (1/2 Detention Vol.) (Ac-ft):	2.22
Bleed-Down Time (hrs):	24.00
Bleed-Down Time (sec):	86400
Average Discharge Rate, Q (cfs):	1.12
Weir Elevation (ft-NAVD):	**8.50**
Bleeder Invert EL. [SHGWT EL.] (ft-NAVD):	**7.50**
Head, H (ft)	1.00
Weir Coefficient:	0.60

V-Notch Sizing

Minimum V-Notch Angle = 20°

Number of V-Notches Proposed:	**2**
Bleed-Down Volume per V-Notch, V_{DET} (Ac-ft):	1.11
Maximum V-Notch Angle, θ, (rad):	1.00
Maximum V-Notch Angle, θ, (deg):	**57.38**

$$\theta = 2\tan^{-1}[0.492\frac{V_{DET}}{H^{2.5}}]$$

Proposed V-Notch(s) Angle (deg):	**57**
Proposed V-Notch Angle (rad):	0.99
V-Notch Height [= H] (ft):	1.00
V-Notch Top Width (ft):	1.09
V-Notch Sideslope [horz./vert.]:	0.5430

Circular Orifice Sizing

Minimum Orifice Diameter = 3"

Number of Circular Orifices Proposed:	**0**
Average Discharge per Orifice, Q (cfs):	--

$$Q = 4.8A\sqrt{h}, A = \pi r^2, h = H - r$$

Select Orifice Diameter with Discharge nearest to but less than Q

Orifice Diameter (in)	Orifice Radius, r (ft)	Area, A (ft^2)	h (ft)	Discharge Rate (cfs)
3.0	0.125	0.049	0.875	**0.22**
4.0	0.167	0.087	0.833	**0.38**
5.0	0.208	0.136	0.792	**0.58**
6.0	0.250	0.196	0.750	**0.82**

Proposed Orifice(s) Diameter (in):	

SW 10th STREET PD&E STUDY - DRAINAGE CALCULATIONS

System Summary Tables - Summary of Peak Discharges

RECEIVING WATERBODY:	PRE-DEVELOPMENT			POST-DEVELOPMENT			Pre-Post 25yr-72hr Peak Discharge Reduction (cfs):
	10yr-24hr Peak Flow Rate (cfs)	25yr-72hr Peak Flow Rate (cfs)	100yr-72hr Peak Flow Rate (cfs)	10yr-24hr Peak Flow Rate (cfs)	25yr-72hr Peak Flow Rate (cfs)	100yr-72hr Peak Flow Rate (cfs)	
C-2 Canal	49.62	**64.35**	185.41	57.38	**61.78**	65.84	**2.57**
C-3 Canal	31.84	**74.26**	106.56	39.23	**44.02**	50.04	**30.24**

System Summary Tables - Summary of Outfalls/Control Structures

Receiving Waterbody:	C-2 Canal				
PRE-DEVELOPMENT					
ICPR Link/Basin:	Outfall Pipe / Weir Description:	Weir Type / Geometry	Weir Elevation (ft - NAVD)	Bleeder Type / Geometry	Bleeder Invert Elevation (ft-NAVD)
P_O-1_C-2	24" Pipe	--	--	--	--
P_O-2_C-2	24" Pipe	--	--	--	--
P_O-3_C-2	24" Pipe	--	--	--	--
W_S-6_C-2	Weir	Broad Crested Vertical	12.00	--	--
W_S-7_C-2	Weir	Broad Crested Vertical	12.00	--	--

POST-DEVELOPMENT					
ICPR Link/Basin:	Outfall Pipe / Weir Description:	Weir Type / Geometry	Weir Elevation (ft - NAVD)	Bleeder Type / Geometry	Bleeder Invert Elevation (ft-NAVD)
PrCS Pond 2	Drop Structure	Raised Type C Ditch Bottom Inlet	8.50	V-Notch (2-57°)	7.50

Receiving Waterbody:	C-3 Canal				
PRE-DEVELOPMENT					
ICPR Link/Basin:	Outfall Pipe / Weir Description:	Weir Type / Geometry	Weir Elevation (ft - NAVD)	Bleeder Type / Geometry	Bleeder Invert Elevation (ft-NAVD)
W_A-1_C-3	Weir	Broad Crested Vertical	12.25	--	--

POST-DEVELOPMENT					
ICPR Link/Basin:	Outfall Pipe / Weir Description:	Weir Type / Geometry	Weir Elevation (ft - NAVD)	Bleeder Type / Geometry	Bleeder Invert Elevation (ft-NAVD)
PrCS Pond 1	Drop Structure	Raised Type H Ditch Bottom Inlet	8.50	V-Notch (1-53°)	7.50

SW 10th STREET PD&E STUDY - DRAINAGE CALCULATIONS

System Summary Tables

Summary of Peak Stages										
Pond/Swale (PRE)	Pond/Swale (POST)	Type: [Wet/Dry, Det./Ret., FD]	Disposition [Exist./ Prop./ Modified]	Warning EL. [Min. Berm/ Min. EOP] (ft-NAVD)	PRE-DEVELOPMENT			POST-DEVELOPMENT		
					Max 10yr-24hr Stage (ft-NAVD)	Max 25yr-72hr Stage (ft-NAVD)	Max 100yr-72hr Stage (ft-NAVD)	Max 10yr-24hr Stage (ft-NAVD)	Max 25yr-72hr Stage (ft-NAVD)	Max 100yr-72hr Stage (ft-NAVD)
Swale A1-1	Pond 1	Wet Detention	Proposed	13.5 (Berm) 12.0 (Min EOP)	12.50	12.68	12.79	9.75	10.33	11.16
Swale A2-1					12.56	12.87	13.09			
Swale A3-1					12.62	13.07	13.38			
Swale A4-1					12.72	13.26	13.62			
Swale A5-1					12.78	13.35	13.73			
Swale N1-1	Pond 2	Wet Detention	Proposed	13.5 (Berm) 12.5 (Min EOP)	13.50	13.84	14.38	10.47	11.84	13.43
Swale N2-1_N2-2					13.50	13.83	14.32			
Swale N3-1					13.50	13.77	14.16			
Swale N4-1					13.50	13.66	13.83			
B-N-5					12.54	12.54	12.67			
B-N-6					12.53	12.53	12.54			
B-N-7					12.64	12.65	12.86			
Swale N8-1					13.26	13.63	13.81			
Swale S1-1_S1-2					13.01	13.15	13.33			
Swale S2-1_S2-2					13.01	13.15	13.32			
Swale S3-1					12.62	13.07	13.28			
Swale S4-1					12.45	13.07	13.28			
Swale S5-1_S5-2					13.02	13.05	13.09			
Swale S6-1					11.39	12.14	12.64			
Swale S7-1					10.87	12.10	12.43			
Swale S8-1					13.02	13.07	13.19			
Swale S9-1					13.04	13.15	13.25			
Swale S10-1					13.04	13.16	13.25			
Swale S11-1					13.03	13.16	13.26			
Swale S12-1					13.03	13.17	13.26			

SR 869/SW 10th Street Connector PD&E Study Drainage Calculations

Floodplain Calculations

Zone 1 - Turnpike/Sawgrass Expressway to Powerline Road			
Floodplain Zone AH - Floodplain Elevation =		**13.00**	ft. NAVD
Existing Average Ground Elevation =		**12.00**	ft. NAVD
Average Depth (FT)	**Depth (YD)**	**Encroachment Area (SY)**	**Encroachment Volume (CY)**
1.00	0.33	17,182.00	**5,727.33**

Proposed Pond				
Compensation Volume (Ponds)		**Compensation Volume (French Drain)**		**Total Compensation Volume**
Ac-ft	**CY**	**Ac-ft**	**CY**	**CY**
27.79	**44,834.53**	-	-	**44,834.53**

Zone 2 - Powerline Road to SW 30th Street			
Floodplain Zone AH - Floodplain Elevation =		**14.00**	ft. NAVD
Existing Average Ground Elevation =		**12.50**	ft. NAVD
Average Depth (FT)	**Depth (YD)**	**Encroachment Area (SY)**	**Encroachment Volume (CY)**
1.50	0.50	39,107.20	**19,553.60**

Proposed Pond				
Compensation Volume (Ponds)		**Compensation Volume (French Drain)**		**Total Compensation Volume**
Ac-ft	**CY**	**Ac-ft**	**CY**	**CY**
62.46	**100,768.80**	-	-	**100,768.80**

Zone 3 - SW 30th Street to Military Trail			
Floodplain Zone AH - Floodplain Elevation =		**14.00**	ft. NAVD
Existing Average Ground Elevation =		**12.50**	ft. NAVD
Average Depth (FT)	**Depth (YD)**	**Encroachment Area (SY)**	**Encroachment Volume (CY)**
1.50	0.50	15,972.00	**7,986.00**

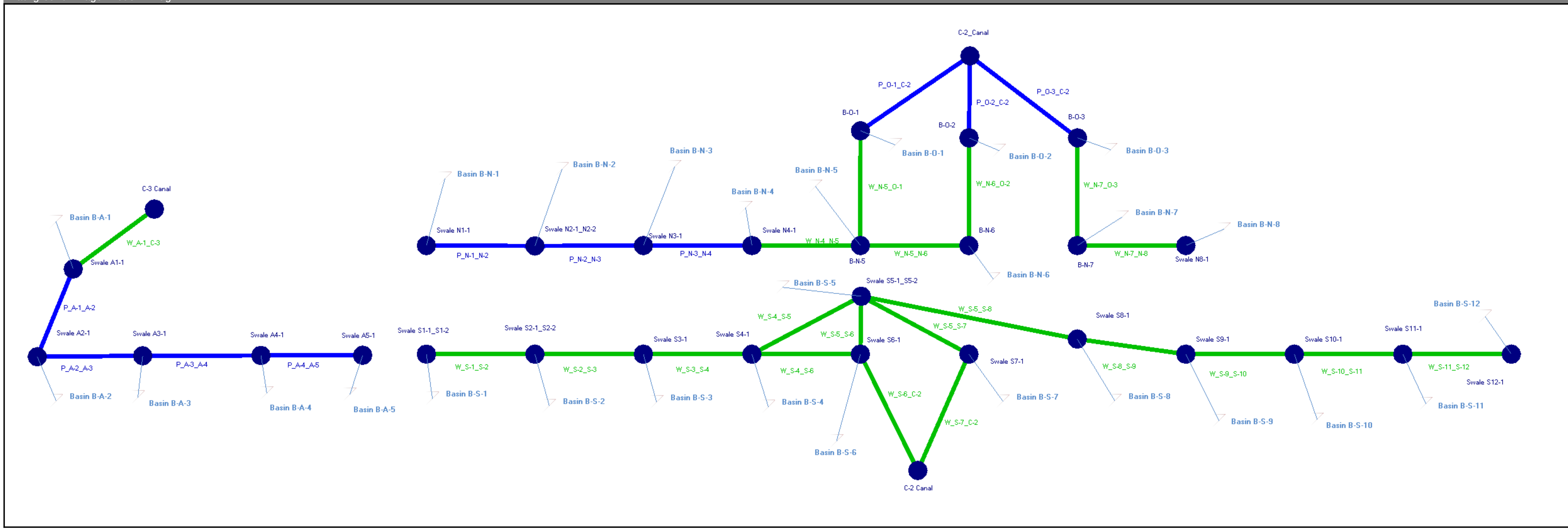
Total Encroachment Volume (CY) - Floodplain Zone AH =	**33,267**

Total Compensation Volume (CY) - Ponds =	**145,603**

* Refer to Appendix C - FEMA Floodplain Encroachment Map in the Location Hydraulics Memorandum

Compensation > Encroachment	=	**yes**
Surplus Compensation (CY)	=	**112,336**

Background Image: Node-link dgrm



Manual Basin: Basin B-A-1

Scenario:	Pre-Development
Node:	Swale A1-1
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:	UH256
Peaking Factor:	256.0

Area [ac]	Land Cover Zone	Soil Zone	Rainfall Name	Crop Coeficient Zone	Reference ET Station
11.4300	B-A-1	B-A-1			

Comment:

Manual Basin: Basin B-A-2

Scenario:	Pre-Development
Node:	Swale A2-1
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:	UH256
Peaking Factor:	256.0

Area [ac]	Land Cover Zone	Soil Zone	Rainfall Name	Crop Coeficient Zone	Reference ET Station
3.1200	B-A-2	B-A-2			

Comment:

Manual Basin: Basin B-A-3

Scenario:	Pre-Development
Node:	Swale A3-1
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:	UH256
Peaking Factor:	256.0

Area [ac]	Land Cover Zone	Soil Zone	Rainfall Name	Crop Coeficient Zone	Reference ET Station
4.9500	B-A-3	B-A-3			

Comment:

Manual Basin: Basin B-A-4

Scenario: Pre-Development
Node: Swale A4-1
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: UH256
Peaking Factor: 256.0

Area [ac]	Land Cover Zone	Soil Zone	Rainfall Name	Crop Coeficient Zone	Reference ET Station
2.4000	B-A-4	B-A-4			

Comment:

Manual Basin: Basin B-A-5

Scenario: Pre-Development
Node: Swale A5-1
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: UH256
Peaking Factor: 256.0

Area [ac]	Land Cover Zone	Soil Zone	Rainfall Name	Crop Coeficient Zone	Reference ET Station
1.5200	B-A-5	B-A-5			

Comment:

Manual Basin: Basin B-N-1

Scenario: Pre-Development
Node: Swale N1-1

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: UH256
Peaking Factor: 256.0

Area [ac]	Land Cover Zone	Soil Zone	Rainfall Name	Crop Coeficient Zone	Reference ET Station
1.6200	B-N-1	B-N-1			

Comment:

Manual Basin: Basin B-N-2

Scenario: Pre-Development
Node: Swale N2-1_N2-2
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: UH256
Peaking Factor: 256.0

Area [ac]	Land Cover Zone	Soil Zone	Rainfall Name	Crop Coeficient Zone	Reference ET Station
1.4900	B-N-2	B-N-2			

Comment:

Manual Basin: Basin B-N-3

Scenario: Pre-Development
Node: Swale N3-1
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: UH256
Peaking Factor: 256.0

Area [ac]	Land Cover Zone	Soil Zone	Rainfall Name	Crop Coeficient Zone	Reference ET Station
1.2200	B-N-3	B-N-3			

Comment:

Manual Basin: Basin B-N-4

Scenario: Pre-Development
Node: Swale N4-1
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: UH256
Peaking Factor: 256.0

Area [ac]	Land Cover Zone	Soil Zone	Rainfall Name	Crop Coeficient Zone	Reference ET Station
2.1700	B-N-4	B-N-4			

Comment:

Manual Basin: Basin B-N-5

Scenario: Pre-Development
Node: B-N-5
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: UH256
Peaking Factor: 256.0

Area [ac]	Land Cover Zone	Soil Zone	Rainfall Name	Crop Coeficient Zone	Reference ET Station
1.8500	B-N-5	B-N-5			

Comment:

Manual Basin: Basin B-N-6

Scenario: Pre-Development
Node: B-N-6
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: UH256
Peaking Factor: 256.0

Area [ac]	Land Cover Zone	Soil Zone	Rainfall Name	Crop Coeficient Zone	Reference ET Station
1.4200	B-N-6	B-N-6			

Comment:

Manual Basin: Basin B-N-7

Scenario: Pre-Development
Node: B-N-7
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: UH256
Peaking Factor: 256.0

Area [ac]	Land Cover Zone	Soil Zone	Rainfall Name	Crop Coeficient Zone	Reference ET Station
1.7200	B-N-7	B-N-7			

Comment:

Manual Basin: Basin B-N-8

Scenario: Pre-Development
Node: Swale N8-1
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: UH256
Peaking Factor: 256.0

Area [ac]	Land Cover Zone	Soil Zone	Rainfall Name	Crop Coeficient Zone	Reference ET Station
3.5500	B-N-8	B-N-8			

Comment:

Manual Basin: Basin B-O-1

Scenario: Pre-Development
Node: B-O-1

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: UH256
Peaking Factor: 256.0

Area [ac]	Land Cover Zone	Soil Zone	Rainfall Name	Crop Coeficient Zone	Reference ET Station
5.0900	B-O-1	B-O-1			

Comment:

Manual Basin: Basin B-O-2

Scenario: Pre-Development
Node: B-O-2
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: UH256
Peaking Factor: 256.0

Area [ac]	Land Cover Zone	Soil Zone	Rainfall Name	Crop Coeficient Zone	Reference ET Station
4.0000	B-O-2	B-O-2			

Comment:

Manual Basin: Basin B-O-3

Scenario: Pre-Development
Node: B-O-3
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: UH256
Peaking Factor: 256.0

Area [ac]	Land Cover Zone	Soil Zone	Rainfall Name	Crop Coeficient Zone	Reference ET Station
2.9200	B-O-3	B-O-3			

Comment:

Manual Basin: Basin B-S-1

Scenario: Pre-Development
Node: Swale S1-1_S1-2
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: UH256
Peaking Factor: 256.0

Area [ac]	Land Cover Zone	Soil Zone	Rainfall Name	Crop Coeficient Zone	Reference ET Station
3.4600	B-S-1	B-S-1			

Comment:

Manual Basin: Basin B-S-10

Scenario: Pre-Development
Node: Swale S10-1
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: UH256
Peaking Factor: 256.0

Area [ac]	Land Cover Zone	Soil Zone	Rainfall Name	Crop Coeficient Zone	Reference ET Station
1.2000	B-S-10	B-S-10			

Comment:

Manual Basin: Basin B-S-11

Scenario: Pre-Development
Node: Swale S11-1
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: UH256
Peaking Factor: 256.0

Area [ac]	Land Cover Zone	Soil Zone	Rainfall Name	Crop Coeficient Zone	Reference ET Station
0.7000	B-S-11	B-S-11			

Comment:

Manual Basin: Basin B-S-12

Scenario: Pre-Development
Node: Swale S12-1
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: UH256
Peaking Factor: 256.0

Area [ac]	Land Cover Zone	Soil Zone	Rainfall Name	Crop Coeficient Zone	Reference ET Station
2.0800	B-S-12	B-S-12			

Comment:

Manual Basin: Basin B-S-2

Scenario: Pre-Development
Node: Swale S2-1_S2-2
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: UH256
Peaking Factor: 256.0

Area [ac]	Land Cover Zone	Soil Zone	Rainfall Name	Crop Coeficient Zone	Reference ET Station
2.8200	B-S-2	B-S-2			

Comment:

Manual Basin: Basin B-S-3

Scenario: Pre-Development
Node: Swale S3-1

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: UH256
Peaking Factor: 256.0

Area [ac]	Land Cover Zone	Soil Zone	Rainfall Name	Crop Coeficient Zone	Reference ET Station
5.0600	B-S-3	B-S-3			

Comment:

Manual Basin: Basin B-S-4

Scenario: Pre-Development
Node: Swale S4-1
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: UH256
Peaking Factor: 256.0

Area [ac]	Land Cover Zone	Soil Zone	Rainfall Name	Crop Coeficient Zone	Reference ET Station
4.5300	B-S-4	B-S-4			

Comment:

Manual Basin: Basin B-S-5

Scenario: Pre-Development
Node: Swale S5-1_S5-2
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: UH256
Peaking Factor: 256.0

Area [ac]	Land Cover Zone	Soil Zone	Rainfall Name	Crop Coeficient Zone	Reference ET Station
2.1400	B-S-5	B-S-5			

Comment:

Manual Basin: Basin B-S-6

Scenario: Pre-Development
Node: Swale S6-1
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: UH256
Peaking Factor: 256.0

Area [ac]	Land Cover Zone	Soil Zone	Rainfall Name	Crop Coeficient Zone	Reference ET Station
2.3600	B-S-6	B-S-6			

Comment:

Manual Basin: Basin B-S-7

Scenario: Pre-Development
Node: Swale S7-1
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: UH256
Peaking Factor: 256.0

Area [ac]	Land Cover Zone	Soil Zone	Rainfall Name	Crop Coeficient Zone	Reference ET Station
1.3000	B-S-7	B-S-7			

Comment:

Manual Basin: Basin B-S-8

Scenario: Pre-Development
Node: Swale S8-1
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: UH256
Peaking Factor: 256.0

Area [ac]	Land Cover Zone	Soil Zone	Rainfall Name	Crop Coeficient Zone	Reference ET Station
3.7800	B-S-8	B-S-8			

Comment:

Manual Basin: Basin B-S-9

Scenario: Pre-Development
Node: Swale S9-1
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: UH256
Peaking Factor: 256.0

Area [ac]	Land Cover Zone	Soil Zone	Rainfall Name	Crop Coeficient Zone	Reference ET Station
0.7000	B-S-9	B-S-9			

Comment:

Curve Number: Soil Storage-SFWMD [Set]

Land Cover Zone	Soil Zone	Curve Number [dec]
B-A-1	B-A-1	65.3
B-A-2	B-A-2	72.8
B-A-3	B-A-3	68.9
B-A-4	B-A-4	68.7
B-A-5	B-A-5	77.5
B-N-1	B-N-1	76.5
B-N-2	B-N-2	66.9
B-N-3	B-N-3	66.0
B-N-4	B-N-4	69.2
B-N-5	B-N-5	74.3
B-N-6	B-N-6	75.3
B-N-7	B-N-7	74.8
B-N-8	B-N-8	67.4
B-O-1	B-O-1	73.5
B-O-2	B-O-2	75.1
B-O-3	B-O-3	83.0
B-S-1	B-S-1	63.6
B-S-10	B-S-10	72.9
B-S-11	B-S-11	69.8

Land Cover Zone	Soil Zone	Curve Number [dec]
B-S-12	B-S-12	74.3
B-S-2	B-S-2	65.6
B-S-3	B-S-3	61.8
B-S-4	B-S-4	61.9
B-S-5	B-S-5	75.7
B-S-6	B-S-6	62.4
B-S-7	B-S-7	62.5
B-S-8	B-S-8	68.0
B-S-9	B-S-9	69.8

Node: B-N-5

Scenario: Pre-Development
Type: Stage/Area
Base Flow: 0.00 cfs
Initial Stage: 7.50 ft
Warning Stage: 12.50 ft

Stage [ft]	Area [ac]	Area [ft2]
12.50	0.0224	976
13.00	0.7203	31376
13.50	1.3209	57538
14.00	2.2400	97574
7.50	0.0001	4
12.49	0.0001	4

Comment: Surface storage for Basin B-N-5.
Warning stage = R/W or EOP elev., whichever is lower

Node: B-N-6

Scenario: Pre-Development
Type: Stage/Area
Base Flow: 0.00 cfs
Initial Stage: 7.50 ft
Warning Stage: 12.50 ft

Stage [ft]	Area [ac]	Area [ft2]
12.50	0.1836	7998
13.00	0.4516	19672
13.50	0.9385	40881
14.00	1.1943	52024
7.50	0.0001	4
12.49	0.0001	4

Comment: Surface storage for Basin B-N-6.
Warning stage = R/W or EOP elev., whichever is lower

Node: B-N-7

Scenario: Pre-Development
Type: Stage/Area
Base Flow: 0.00 cfs
Initial Stage: 7.50 ft
Warning Stage: 12.50 ft

Stage [ft]	Area [ac]	Area [ft2]
12.50	0.0909	3960
13.00	0.5187	22595
13.50	1.1900	51836
14.00	1.5400	67082
7.50	0.0001	4
12.49	0.0001	4

Comment: Surface storage for Basin B-N-7.
Warning stage = R/W or EOP elev., whichever is lower

Node: B-O-1

Scenario: Pre-Development
Type: Stage/Area
Base Flow: 0.00 cfs
Initial Stage: 7.50 ft
Warning Stage: 12.00 ft

Stage [ft]	Area [ac]	Area [ft2]
4.04	0.0001	4
10.74	0.0001	4
12.00	2.0900	91040
13.00	3.6000	156816
14.00	4.8000	209088

Comment:

Node: B-O-2

Scenario: Pre-Development
Type: Stage/Area
Base Flow: 0.00 cfs

Initial Stage: 7.50 ft
Warning Stage: 12.00 ft

Stage [ft]	Area [ac]	Area [ft2]
4.98	0.0001	4
11.28	0.0001	4
12.00	1.8000	78408
13.00	3.0600	133294
14.00	3.7500	163350

Comment:

Node: B-O-3

Scenario: Pre-Development
Type: Stage/Area
Base Flow: 0.00 cfs
Initial Stage: 7.50 ft
Warning Stage: 12.00 ft

Stage [ft]	Area [ac]	Area [ft2]
4.00	0.0001	4
11.99	0.0001	4
12.00	1.6500	71874
13.00	1.8400	80150
14.00	2.3000	100188

Comment:

Node: C-2 Canal

Scenario: Pre-Development
Type: Time/Stage
Base Flow: 0.00 cfs
Initial Stage: 7.50 ft
Warning Stage: 7.50 ft
Boundary Stage:

Year	Month	Day	Hour	Stage [ft]
0	0	0	0.0000	7.50
0	0	0	999.0000	7.50

Comment: Boundary

Node: C-2_Canal

Scenario: Pre-Development
Type: Time/Stage
Base Flow: 0.00 cfs
Initial Stage: 7.50 ft
Warning Stage: 7.50 ft
Boundary Stage:

Year	Month	Day	Hour	Stage [ft]
0	0	0	0.0000	7.50
0	0	0	999.0000	7.50

Comment: Boundary

Node: C-3 Canal

Scenario: Pre-Development
Type: Time/Stage
Base Flow: 0.00 cfs
Initial Stage: 7.50 ft
Warning Stage: 7.50 ft
Boundary Stage:

Year	Month	Day	Hour	Stage [ft]
0	0	0	0.0000	7.50
0	0	0	999.0000	7.50

Comment: Boundary

Node: Swale A1-1

Scenario: Pre-Development
Type: Stage/Area
Base Flow: 0.00 cfs
Initial Stage: 7.50 ft
Warning Stage: 11.75 ft

Stage [ft]	Area [ac]	Area [ft2]
4.09	0.0001	4
10.49	0.0001	4
10.50	0.0073	318
11.00	0.3006	13094
11.25	0.6983	30418
12.00	2.4694	107567
12.25	3.0205	131573
12.50	3.8924	169553

Stage [ft]	Area [ac]	Area [ft2]
13.00	5.0376	219438
14.00	8.3509	363765

Comment: Stage/area includes surface storage within basin.
Warning stage = EOP elev.

Node: Swale A2-1

Scenario: Pre-Development
Type: Stage/Area
Base Flow: 0.00 cfs
Initial Stage: 7.50 ft
Warning Stage: 12.75 ft

Stage [ft]	Area [ac]	Area [ft2]
3.98	0.0001	4
10.24	0.0001	4
10.25	0.0355	1546
10.50	0.0979	4265
10.75	0.1577	6869
11.00	0.2403	10467
11.25	0.3234	14087
11.50	0.4593	20007
11.75	0.6011	26184
12.00	0.7721	33633
13.00	1.8313	79771
14.00	2.8421	123802

Comment: Stage/area includes surface storage within basin.
Warning stage = EOP elev.

Node: Swale A3-1

Scenario: Pre-Development
Type: Stage/Area
Base Flow: 0.00 cfs
Initial Stage: 7.50 ft
Warning Stage: 12.50 ft

Stage [ft]	Area [ac]	Area [ft2]
5.43	0.0001	4
11.24	0.0001	4
11.25	0.0748	3258
11.50	0.2868	12493
12.00	0.6853	29852

Stage [ft]	Area [ac]	Area [ft2]
13.00	1.5841	69003
14.00	3.0031	130815

Comment: Stage/area includes surface storage within basin.
Warning stage = sidewalk elev.

Node: Swale A4-1

Scenario: Pre-Development
Type: Stage/Area
Base Flow: 0.00 cfs
Initial Stage: 7.50 ft
Warning Stage: 11.75 ft

Stage [ft]	Area [ac]	Area [ft2]
7.50	0.0001	4
11.49	0.0001	4
11.50	0.0983	4282
11.75	0.3983	17350
12.00	0.5554	24193
12.50	0.7246	31564
13.00	0.9896	43107
13.50	1.2936	56349
14.00	1.7045	74248

Comment: Stage/area includes surface storage within basin.
Warning stage = sidewalk elev.

Node: Swale A5-1

Scenario: Pre-Development
Type: Stage/Area
Base Flow: 0.00 cfs
Initial Stage: 7.50 ft
Warning Stage: 12.00 ft

Stage [ft]	Area [ac]	Area [ft2]
7.50	0.0001	4
10.99	0.0001	4
11.00	0.0416	1812
11.25	0.1032	4495
11.50	0.1707	7436
11.75	0.2190	9540
12.00	0.2672	11639
12.25	0.3355	14614

Stage [ft]	Area [ac]	Area [ft2]
12.50	0.4040	17598
13.00	0.5663	24668
14.00	0.9657	42066

Comment: Stage/area includes surface storage within basin.
Warning stage = sidewalk elev.

Node: Swale N1-1

Scenario: Pre-Development
Type: Stage/Area
Base Flow: 0.00 cfs
Initial Stage: 7.50 ft
Warning Stage: 13.00 ft

Stage [ft]	Area [ac]	Area [ft2]
11.50	0.0062	270
12.00	0.1361	5929
13.00	0.4362	19001
14.00	0.9129	39766
7.50	0.0001	4
11.49	0.0001	4

Comment: Warning stage = R/W or EOP elev., whichever is lower.

Node: Swale N2-1_N2-2

Scenario: Pre-Development
Type: Stage/Area
Base Flow: 0.00 cfs
Initial Stage: 7.50 ft
Warning Stage: 13.50 ft

Stage [ft]	Area [ac]	Area [ft2]
11.50	0.1496	6517
12.00	0.2810	12240
13.00	0.6326	27556
13.50	1.0367	45159
14.00	1.2662	55156
7.50	0.0001	4
11.49	0.0001	4

Comment: Stage/Area for Swale N2-1 and Swale N2-2 included in this node.
Warning stage = R/W or EOP elev., whichever is lower.

Node: Swale N3-1

Scenario: Pre-Development
Type: Stage/Area
Base Flow: 0.00 cfs
Initial Stage: 7.50 ft
Warning Stage: 13.00 ft

Stage [ft]	Area [ac]	Area [ft2]
11.50	0.0556	2422
12.00	0.3362	14645
13.00	0.6818	29699
13.50	0.8819	38416
7.50	0.0001	4
11.49	0.0001	4

Comment: Warning stage = R/W or EOP elev., whichever is lower.

Node: Swale N4-1

Scenario: Pre-Development
Type: Stage/Area
Base Flow: 0.00 cfs
Initial Stage: 7.50 ft
Warning Stage: 12.50 ft

Stage [ft]	Area [ac]	Area [ft2]
11.50	0.0298	1298
12.00	0.2073	9030
13.00	0.7321	31890
14.00	1.4474	63049
7.50	0.0001	4
11.49	0.0001	4

Comment: Warning stage = R/W or EOP elev., whichever is lower.

Node: Swale N8-1

Scenario: Pre-Development
Type: Stage/Area
Base Flow: 0.00 cfs
Initial Stage: 7.50 ft
Warning Stage: 12.50 ft

Stage [ft]	Area [ac]	Area [ft2]
11.00	0.0394	1716
11.50	0.4146	18060

Stage [ft]	Area [ac]	Area [ft2]
12.50	0.8366	36442
13.00	1.7187	74867
13.50	2.3464	102209
14.00	3.1063	135310
7.50	0.0001	4
10.99	0.0001	4

Comment: Warning stage = R/W or EOP elev., whichever is lower.

Node: Swale S1-1_S1-2

Scenario: Pre-Development
Type: Stage/Area
Base Flow: 0.00 cfs
Initial Stage: 7.50 ft
Warning Stage: 14.00 ft

Stage [ft]	Area [ac]	Area [ft2]
11.00	0.0854	3720
11.50	0.3725	16226
12.00	0.8607	37492
13.00	1.8849	82106
14.00	2.6761	116571
14.50	2.9600	128938
7.50	0.0001	4
10.99	0.0001	4

Comment: Stage/Area for Swale S1-1 and Swale S1-2 included in this node.
Warning stage = R/W or EOP elev., whichever is lower.

Node: Swale S10-1

Scenario: Pre-Development
Type: Stage/Area
Base Flow: 0.00 cfs
Initial Stage: 7.50 ft
Warning Stage: 12.50 ft

Stage [ft]	Area [ac]	Area [ft2]
11.50	0.0564	2457
12.00	0.1495	6512
12.50	0.3001	13072
13.50	1.0972	47794
7.50	0.0001	4
11.49	0.0001	4

Comment: Warning stage = R/W or EOP elev., whichever is lower.

Node: Swale S11-1

Scenario: Pre-Development
Type: Stage/Area
Base Flow: 0.00 cfs
Initial Stage: 7.50 ft
Warning Stage: 13.00 ft

Stage [ft]	Area [ac]	Area [ft2]
12.00	0.0298	1298
12.50	0.1625	7079
13.00	0.3059	13325
13.50	0.5249	22865
7.50	0.0001	4
11.99	0.0001	4

Comment: Warning stage = R/W or EOP elev., whichever is lower.

Node: Swale S12-1

Scenario: Pre-Development
Type: Stage/Area
Base Flow: 0.00 cfs
Initial Stage: 7.50 ft
Warning Stage: 12.00 ft

Stage [ft]	Area [ac]	Area [ft2]
9.50	0.0424	1847
10.00	0.1448	6307
11.00	0.2712	11813
12.00	0.4437	19328
13.00	0.9284	40441
13.50	1.2681	55238
7.50	0.0001	4
9.49	0.0001	4

Comment: Warning stage = R/W or EOP elev., whichever is lower.

Node: Swale S2-1_S2-2

Scenario: Pre-Development

Type: Stage/Area
Base Flow: 0.00 cfs
Initial Stage: 7.50 ft
Warning Stage: 12.00 ft

Stage [ft]	Area [ac]	Area [ft2]
11.50	0.2102	9156
12.00	0.5120	22303
12.50	1.0091	43956
13.00	1.7300	75359
13.50	1.9459	84763
7.50	0.0001	4
11.49	0.0001	4

Comment: Stage/Area for Swale S2-1 and Swale S2-2 included in this node.
Warning stage = R/W or EOP elev., whichever is lower.

Node: Swale S3-1

Scenario: Pre-Development
Type: Stage/Area
Base Flow: 0.00 cfs
Initial Stage: 7.50 ft
Warning Stage: 13.00 ft

Stage [ft]	Area [ac]	Area [ft2]
11.50	0.2595	11304
12.00	0.6659	29007
13.00	2.7234	118631
14.00	4.4377	193306
7.50	0.0001	4
11.49	0.0001	4

Comment: Warning stage = R/W or EOP elev., whichever is lower.

Node: Swale S4-1

Scenario: Pre-Development
Type: Stage/Area
Base Flow: 0.00 cfs
Initial Stage: 7.50 ft
Warning Stage: 12.50 ft

Stage [ft]	Area [ac]	Area [ft2]
10.00	0.1510	6578
10.50	0.4696	20456

Stage [ft]	Area [ac]	Area [ft2]
11.00	1.0492	45703
11.50	1.7613	76722
12.00	2.7020	117699
13.00	3.7973	165410
7.50	0.0001	4
9.99	0.0001	4

Comment: Warning stage = R/W or EOP elev., whichever is lower.

Node: Swale S5-1_S5-2

Scenario: Pre-Development
Type: Stage/Area
Base Flow: 0.00 cfs
Initial Stage: 7.50 ft
Warning Stage: 12.50 ft

Stage [ft]	Area [ac]	Area [ft2]
11.50	0.0420	1830
12.00	0.3363	14649
12.50	0.6806	29647
13.00	1.3211	57547
7.50	0.0001	4
11.49	0.0001	4

Comment: Stage/Area for Swale S5-1 and Swale S5-2 included in this node.
Warning stage = R/W or EOP elev., whichever is lower.

Node: Swale S6-1

Scenario: Pre-Development
Type: Stage/Area
Base Flow: 0.00 cfs
Initial Stage: 7.50 ft
Warning Stage: 11.50 ft

Stage [ft]	Area [ac]	Area [ft2]
9.50	0.5862	25535
10.00	1.0450	45520
10.50	1.2788	55705
11.50	1.6625	72419
12.00	1.8070	78713
7.50	0.0001	4
9.49	0.0001	4

Comment: Warning stage = R/W or EOP elev., whichever is lower.

Node: Swale S7-1

Scenario: Pre-Development
Type: Stage/Area
Base Flow: 0.00 cfs
Initial Stage: 7.50 ft
Warning Stage: 12.50 ft

Stage [ft]	Area [ac]	Area [ft2]
9.00	0.4540	19776
10.00	0.7703	33554
11.00	0.8591	37422
11.50	0.9090	39596
12.00	1.0253	44662
7.50	0.0001	4
8.99	0.0001	4

Comment: Warning stage = R/W or EOP elev., whichever is lower.

Node: Swale S8-1

Scenario: Pre-Development
Type: Stage/Area
Base Flow: 0.00 cfs
Initial Stage: 7.50 ft
Warning Stage: 12.00 ft

Stage [ft]	Area [ac]	Area [ft2]
11.00	0.0464	2021
11.50	0.1782	7762
12.00	0.3957	17237
12.50	0.7372	32112
13.00	1.4658	63850
13.50	2.2245	96899
7.50	0.0001	4
10.99	0.0001	4

Comment: Warning stage = R/W or EOP elev., whichever is lower.

Node: Swale S9-1

Scenario: Pre-Development

Type:	Stage/Area
Base Flow:	0.00 cfs
Initial Stage:	7.50 ft
Warning Stage:	12.50 ft

Stage [ft]	Area [ac]	Area [ft2]
12.00	0.0621	2705
12.50	0.1994	8686
13.00	0.3697	16104
13.50	0.5633	24537
7.50	0.0001	4
11.99	0.0001	4

Comment: Warning stage = R/W or EOP elev., whichever is lower.

Pipe Link: P_A-1_A-2		Upstream		Downstream	
Scenario:	Pre-Development	Invert:	4.09 ft	Invert:	3.98 ft
From Node:	Swale A1-1	Manning's N:	0.0220	Manning's N:	0.0220
To Node:	Swale A2-1	Geometry: Circular		Geometry: Circular	
Link Count:	1	Max Depth:	4.00 ft	Max Depth:	4.00 ft
Flow Direction:	Both	Bottom Clip			
Damping:	0.0000 ft	Default:	0.00 ft	Default:	0.00 ft
Length:	181.00 ft	Op Table:		Op Table:	
FHWA Code:	0	Ref Node:		Ref Node:	
Entr Loss Coef:	0.70	Manning's N:	0.0000	Manning's N:	0.0000
Exit Loss Coef:	0.00	Top Clip			
Bend Loss Coef:	0.00	Default:	0.00 ft	Default:	0.00 ft
Bend Location:	0.00 ft	Op Table:		Op Table:	
Energy Switch:	Energy	Ref Node:		Ref Node:	
		Manning's N:	0.0000	Manning's N:	0.0000

Comment:

Pipe Link: P_A-2_A-3		Upstream		Downstream	
Scenario:	Pre-Development	Invert:	5.95 ft	Invert:	5.43 ft
From Node:	Swale A3-1	Manning's N:	0.0120	Manning's N:	0.0120
To Node:	Swale A2-1	Geometry: Circular		Geometry: Circular	
Link Count:	1	Max Depth:	3.00 ft	Max Depth:	3.00 ft
Flow Direction:	Both	Bottom Clip			
Damping:	0.0000 ft	Default:	0.00 ft	Default:	0.00 ft
Length:	281.00 ft	Op Table:		Op Table:	
FHWA Code:	1	Ref Node:		Ref Node:	
Entr Loss Coef:	0.50	Manning's N:	0.0000	Manning's N:	0.0000
Exit Loss Coef:	0.00	Top Clip			
Bend Loss Coef:	0.00	Default:	0.00 ft	Default:	0.00 ft

Bend Location:	0.00 ft	Op Table:		Op Table:	
Energy Switch:	Energy	Ref Node:		Ref Node:	
		Manning's N:	0.0000	Manning's N:	0.0000

Comment:

Pipe Link: P_A-3_A-4		Upstream		Downstream	
Scenario:	Pre-Development	Invert:	10.65 ft	Invert:	10.54 ft
From Node:	Swale A4-1	Manning's N:	0.0220	Manning's N:	0.0220
To Node:	Swale A3-1	Geometry: Circular		Geometry: Circular	
Link Count:	2	Max Depth:	1.50 ft	Max Depth:	1.50 ft
Flow Direction:	Both	Bottom Clip			
Damping:	0.0000 ft	Default:	0.00 ft	Default:	0.00 ft
Length:	135.00 ft	Op Table:		Op Table:	
FHWA Code:	0	Ref Node:		Ref Node:	
Entr Loss Coef:	0.70	Manning's N:	0.0000	Manning's N:	0.0000
Exit Loss Coef:	0.00	Top Clip			
Bend Loss Coef:	0.00	Default:	0.00 ft	Default:	0.00 ft
Bend Location:	0.00 ft	Op Table:		Op Table:	
Energy Switch:	Energy	Ref Node:		Ref Node:	
		Manning's N:	0.0000	Manning's N:	0.0000

Comment:

Pipe Link: P_A-4_A-5		Upstream		Downstream	
Scenario:	Pre-Development	Invert:	8.09 ft	Invert:	7.96 ft
From Node:	Swale A4-1	Manning's N:	0.0120	Manning's N:	0.0120
To Node:	Swale A5-1	Geometry: Circular		Geometry: Circular	
Link Count:	1	Max Depth:	1.25 ft	Max Depth:	1.25 ft
Flow Direction:	Both	Bottom Clip			
Damping:	0.0000 ft	Default:	0.00 ft	Default:	0.00 ft
Length:	126.00 ft	Op Table:		Op Table:	
FHWA Code:	1	Ref Node:		Ref Node:	
Entr Loss Coef:	0.50	Manning's N:	0.0000	Manning's N:	0.0000
Exit Loss Coef:	0.00	Top Clip			
Bend Loss Coef:	0.00	Default:	0.00 ft	Default:	0.00 ft
Bend Location:	0.00 ft	Op Table:		Op Table:	
Energy Switch:	Energy	Ref Node:		Ref Node:	
		Manning's N:	0.0000	Manning's N:	0.0000

Comment:

Pipe Link: P_N-1_N-2		Upstream		Downstream	
Scenario:	Pre-Development	Invert:	10.51 ft	Invert:	10.64 ft

From Node:	Swale N1-1	Manning's N:	0.0240	Manning's N:	0.0240
		Geometry: Circular		Geometry: Circular	
To Node:	Swale N2-1_N2-2				
Link Count:	1	Max Depth:	1.50 ft	Max Depth:	1.50 ft
		Bottom Clip			
Flow Direction:	Both				
Damping:	0.0000 ft	Default:	0.00 ft	Default:	0.00 ft
Length:	82.00 ft	Op Table:		Op Table:	
FHWA Code:	5	Ref Node:		Ref Node:	
Entr Loss Coef:	0.50	Manning's N:	0.0000	Manning's N:	0.0000
		Top Clip			
Exit Loss Coef:	0.00				
Bend Loss Coef:	0.00	Default:	0.00 ft	Default:	0.00 ft
Bend Location:	0.00 ft	Op Table:		Op Table:	
Energy Switch:	Energy	Ref Node:		Ref Node:	
		Manning's N:	0.0000	Manning's N:	0.0000

Comment:

Pipe Link: P_N-2_N-3		Upstream		Downstream	
Scenario:	Pre-Development	Invert:	10.82 ft	Invert:	10.93 ft
From Node:	Swale N2-1_N2-2	Manning's N:	0.0240	Manning's N:	0.0240
		Geometry: Circular		Geometry: Circular	
To Node:	Swale N3-1				
Link Count:	1	Max Depth:	1.50 ft	Max Depth:	1.50 ft
		Bottom Clip			
Flow Direction:	Both				
Damping:	0.0000 ft	Default:	0.00 ft	Default:	0.00 ft
Length:	82.00 ft	Op Table:		Op Table:	
FHWA Code:	5	Ref Node:		Ref Node:	
Entr Loss Coef:	0.50	Manning's N:	0.0000	Manning's N:	0.0000
		Top Clip			
Exit Loss Coef:	0.00				
Bend Loss Coef:	0.00	Default:	0.00 ft	Default:	0.00 ft
Bend Location:	0.00 ft	Op Table:		Op Table:	
Energy Switch:	Energy	Ref Node:		Ref Node:	
		Manning's N:	0.0000	Manning's N:	0.0000

Comment:

Pipe Link: P_N-3_N-4		Upstream		Downstream	
Scenario:	Pre-Development	Invert:	10.51 ft	Invert:	10.84 ft
From Node:	Swale N3-1	Manning's N:	0.0240	Manning's N:	0.0240
		Geometry: Circular		Geometry: Circular	
To Node:	Swale N4-1				
Link Count:	1	Max Depth:	1.50 ft	Max Depth:	1.50 ft
		Bottom Clip			
Flow Direction:	Both				
Damping:	0.0000 ft	Default:	0.00 ft	Default:	0.00 ft
Length:	106.00 ft	Op Table:		Op Table:	
FHWA Code:	5	Ref Node:		Ref Node:	
Entr Loss Coef:	0.50	Manning's N:	0.0000	Manning's N:	0.0000
		Top Clip			
Exit Loss Coef:	0.00				
Bend Loss Coef:	0.00	Default:	0.00 ft	Default:	0.00 ft

Bend Location:	0.00 ft	Op Table:		Op Table:	
Energy Switch:	Energy	Ref Node:		Ref Node:	
		Manning's N:	0.0000	Manning's N:	0.0000

Comment:

Pipe Link: P_O-1_C-2		Upstream		Downstream	
Scenario:	Pre-Development	Invert:	4.04 ft	Invert:	3.50 ft
From Node:	B-O-1	Manning's N:	0.0240	Manning's N:	0.0240
To Node:	C-2_Canal	Geometry: Circular		Geometry: Circular	
Link Count:	1	Max Depth:	2.00 ft	Max Depth:	2.00 ft
Flow Direction:	Both	Bottom Clip			
Damping:	0.0000 ft	Default:	0.00 ft	Default:	0.00 ft
Length:	200.00 ft	Op Table:		Op Table:	
FHWA Code:	5	Ref Node:		Ref Node:	
Entr Loss Coef:	0.50	Manning's N:	0.0000	Manning's N:	0.0000
Exit Loss Coef:	0.00	Top Clip			
Bend Loss Coef:	0.00	Default:	0.00 ft	Default:	0.00 ft
Bend Location:	0.00 ft	Op Table:		Op Table:	
Energy Switch:	Energy	Ref Node:		Ref Node:	
		Manning's N:	0.0000	Manning's N:	0.0000

Comment:

Pipe Link: P_O-2_C-2		Upstream		Downstream	
Scenario:	Pre-Development	Invert:	4.98 ft	Invert:	3.50 ft
From Node:	B-O-2	Manning's N:	0.0240	Manning's N:	0.0240
To Node:	C-2_Canal	Geometry: Circular		Geometry: Circular	
Link Count:	1	Max Depth:	2.00 ft	Max Depth:	2.00 ft
Flow Direction:	Both	Bottom Clip			
Damping:	0.0000 ft	Default:	0.00 ft	Default:	0.00 ft
Length:	223.00 ft	Op Table:		Op Table:	
FHWA Code:	5	Ref Node:		Ref Node:	
Entr Loss Coef:	0.50	Manning's N:	0.0000	Manning's N:	0.0000
Exit Loss Coef:	0.00	Top Clip			
Bend Loss Coef:	0.00	Default:	0.00 ft	Default:	0.00 ft
Bend Location:	0.00 ft	Op Table:		Op Table:	
Energy Switch:	Energy	Ref Node:		Ref Node:	
		Manning's N:	0.0000	Manning's N:	0.0000

Comment:

Pipe Link: P_O-3_C-2		Upstream		Downstream	
Scenario:	Pre-Development	Invert:	4.00 ft	Invert:	3.50 ft

From Node:	B-O-3	Manning's N:	0.0240	Manning's N:	0.0240
To Node:	C-2_Canal	Geometry: Circular		Geometry: Circular	
Link Count:	1	Max Depth:	2.00 ft	Max Depth:	2.00 ft
Flow Direction:	Both	Bottom Clip			
Damping:	0.0000 ft	Default:	0.00 ft	Default:	0.00 ft
Length:	258.00 ft	Op Table:		Op Table:	
FHWA Code:	5	Ref Node:		Ref Node:	
Entr Loss Coef:	0.50	Manning's N:	0.0000	Manning's N:	0.0000
Exit Loss Coef:	0.00	Top Clip			
Bend Loss Coef:	0.00	Default:	0.00 ft	Default:	0.00 ft
Bend Location:	0.00 ft	Op Table:		Op Table:	
Energy Switch:	Energy	Ref Node:		Ref Node:	
		Manning's N:	0.0000	Manning's N:	0.0000

Comment:

Weir Link: W_A-1_C-3

Scenario:	Pre-Development	Bottom Clip	
From Node:	Swale A1-1	Default:	0.00 ft
To Node:	C-3 Canal	Op Table:	
Link Count:	1	Ref Node:	
Flow Direction:	Both	Top Clip	
Damping:	0.0000 ft	Default:	0.00 ft
Weir Type:	Broad Crested Vertical	Op Table:	
Geometry Type:	Irregular	Ref Node:	
Invert:	12.25 ft	Discharge Coefficients	
Control Elevation:	12.25 ft	Weir Default:	2.800
Cross Section:	X_A-1_C-3	Weir Table:	
		Orifice Default:	0.600
		Orifice Table:	

Comment:

Weir Link: W_N-4_N-5

Scenario:	Pre-Development	Bottom Clip	
From Node:	Swale N4-1	Default:	0.00 ft
To Node:	B-N-5	Op Table:	
Link Count:	1	Ref Node:	
Flow Direction:	Both	Top Clip	
Damping:	0.0000 ft	Default:	0.00 ft
Weir Type:	Paved Road Vertical	Op Table:	
Geometry Type:	Irregular	Ref Node:	
Invert:	13.50 ft	Discharge Coefficients	
Control Elevation:	13.50 ft	Weir Default:	2.800
Cross Section:	X-N-4_N-5	Weir Table:	
		Orifice Default:	0.600

		Orifice Table:	

Comment:

Weir Link: W_N-5_N-6			
Scenario:	Pre-Development	Bottom Clip	
From Node:	B-N-5	Default:	0.00 ft
To Node:	B-N-6	Op Table:	
Link Count:	1	Ref Node:	
Flow Direction:	Both	Top Clip	
Damping:	0.0000 ft	Default:	0.00 ft
Weir Type:	Paved Road Vertical	Op Table:	
Geometry Type:	Irregular	Ref Node:	
Invert:	13.00 ft	Discharge Coefficients	
Control Elevation:	13.00 ft	Weir Default:	2.800
Cross Section:	X-N-5_N-6	Weir Table:	
		Orifice Default:	0.600
		Orifice Table:	

Comment:

Weir Link: W_N-5_O-1			
Scenario:	Pre-Development	Bottom Clip	
From Node:	B-N-5	Default:	0.00 ft
To Node:	B-O-1	Op Table:	
Link Count:	1	Ref Node:	
Flow Direction:	Both	Top Clip	
Damping:	0.0000 ft	Default:	0.00 ft
Weir Type:	Gravel Road Vertical	Op Table:	
Geometry Type:	Irregular	Ref Node:	
Invert:	12.50 ft	Discharge Coefficients	
Control Elevation:	12.50 ft	Weir Default:	2.800
Cross Section:	X_N-5_O-1	Weir Table:	
		Orifice Default:	0.600
		Orifice Table:	

Comment:

Weir Link: W_N-6_O-2			
Scenario:	Pre-Development	Bottom Clip	
From Node:	B-N-6	Default:	0.00 ft
To Node:	B-O-2	Op Table:	
Link Count:	1	Ref Node:	

Flow Direction:	Both		
Damping:	0.0000 ft	**Top Clip**	
Weir Type:	Gravel Road Vertical	Default:	0.00 ft
Geometry Type:	Irregular	Op Table:	
Invert:	12.50 ft	Ref Node:	
Control Elevation:	12.50 ft	**Discharge Coefficients**	
Cross Section:	X_N-6_O-2	Weir Default:	2.800
		Weir Table:	
		Orifice Default:	0.600
		Orifice Table:	

Comment:

Weir Link: W_N-7_N-8

Scenario:	Pre-Development	**Bottom Clip**	
From Node:	B-N-7	Default:	0.00 ft
To Node:	Swale N8-1	Op Table:	
Link Count:	1	Ref Node:	
Flow Direction:	Both	**Top Clip**	
Damping:	0.0000 ft	Default:	0.00 ft
Weir Type:	Paved Road Vertical	Op Table:	
Geometry Type:	Irregular	Ref Node:	
Invert:	13.50 ft	**Discharge Coefficients**	
Control Elevation:	13.50 ft	Weir Default:	2.800
Cross Section:	X-N-7_N-8	Weir Table:	
		Orifice Default:	0.600
		Orifice Table:	

Comment:

Weir Link: W_N-7_O-3

Scenario:	Pre-Development	**Bottom Clip**	
From Node:	B-N-7	Default:	0.00 ft
To Node:	B-O-3	Op Table:	
Link Count:	1	Ref Node:	
Flow Direction:	Both	**Top Clip**	
Damping:	0.0000 ft	Default:	0.00 ft
Weir Type:	Gravel Road Vertical	Op Table:	
Geometry Type:	Irregular	Ref Node:	
Invert:	12.50 ft	**Discharge Coefficients**	
Control Elevation:	12.50 ft	Weir Default:	2.800
Cross Section:	X_N-7_O-3	Weir Table:	
		Orifice Default:	0.600
		Orifice Table:	

Comment:

Weir Link: W_S-10_S-11			
Scenario:	Pre-Development	**Bottom Clip**	
From Node:	Swale S10-1	Default:	0.00 ft
To Node:	Swale S11-1	Op Table:	
Link Count:	1	Ref Node:	
Flow Direction:	Both	**Top Clip**	
Damping:	0.0000 ft	Default:	0.00 ft
Weir Type:	Paved Road Vertical	Op Table:	
Geometry Type:	Irregular	Ref Node:	
Invert:	13.00 ft	**Discharge Coefficients**	
Control Elevation:	13.00 ft	Weir Default:	2.800
Cross Section:	X-S-10_S-11	Weir Table:	
		Orifice Default:	0.600
		Orifice Table:	

Comment:

Weir Link: W_S-11_S-12			
Scenario:	Pre-Development	**Bottom Clip**	
From Node:	Swale S11-1	Default:	0.00 ft
To Node:	Swale S12-1	Op Table:	
Link Count:	1	Ref Node:	
Flow Direction:	Both	**Top Clip**	
Damping:	0.0000 ft	Default:	0.00 ft
Weir Type:	Paved Road Vertical	Op Table:	
Geometry Type:	Irregular	Ref Node:	
Invert:	13.00 ft	**Discharge Coefficients**	
Control Elevation:	13.00 ft	Weir Default:	2.800
Cross Section:	X-S-11_S-12	Weir Table:	
		Orifice Default:	0.600
		Orifice Table:	

Comment:

Weir Link: W_S-1_S-2			
Scenario:	Pre-Development	**Bottom Clip**	
From Node:	Swale S1-1_S1-2	Default:	0.00 ft
To Node:	Swale S2-1_S2-2	Op Table:	
Link Count:	1	Ref Node:	
Flow Direction:	Both	**Top Clip**	
Damping:	0.0000 ft	Default:	0.00 ft
Weir Type:	Paved Road Vertical	Op Table:	
Geometry Type:	Irregular	Ref Node:	
Invert:	12.60 ft	**Discharge Coefficients**	
Control Elevation:	12.60 ft	Weir Default:	2.800
Cross Section:	X-S-1_S-2	Weir Table:	

		Orifice Default:	0.600
		Orifice Table:	

Comment:

Weir Link: W_S-2_S-3

Scenario:	Pre-Development	**Bottom Clip**	
From Node:	Swale S2-1_S2-2	Default:	0.00 ft
To Node:	Swale S3-1	Op Table:	
Link Count:	1	Ref Node:	
Flow Direction:	Both	**Top Clip**	
Damping:	0.0000 ft	Default:	0.00 ft
Weir Type:	Paved Road Vertical	Op Table:	
Geometry Type:	Irregular	Ref Node:	
Invert:	13.00 ft	**Discharge Coefficients**	
Control Elevation:	13.00 ft	Weir Default:	2.800
Cross Section:	X-S-2_S-3	Weir Table:	
		Orifice Default:	0.600
		Orifice Table:	

Comment:

Weir Link: W_S-3_S-4

Scenario:	Pre-Development	**Bottom Clip**	
From Node:	Swale S3-1	Default:	0.00 ft
To Node:	Swale S4-1	Op Table:	
Link Count:	1	Ref Node:	
Flow Direction:	Both	**Top Clip**	
Damping:	0.0000 ft	Default:	0.00 ft
Weir Type:	Paved Road Vertical	Op Table:	
Geometry Type:	Irregular	Ref Node:	
Invert:	12.50 ft	**Discharge Coefficients**	
Control Elevation:	12.50 ft	Weir Default:	2.800
Cross Section:	X-S-3_S-4	Weir Table:	
		Orifice Default:	0.600
		Orifice Table:	

Comment:

Weir Link: W_S-4_S-5

Scenario:	Pre-Development	**Bottom Clip**	
From Node:	Swale S4-1	Default:	0.00 ft
To Node:	Swale S5-1_S5-2	Op Table:	

Link Count:	1		
Flow Direction:	Both	Ref Node:	
		Top Clip	
Damping:	0.0000 ft		
Weir Type:	Paved Road Vertical	Default:	0.00 ft
Geometry Type:	Irregular	Op Table:	
Invert:	13.00 ft	Ref Node:	
		Discharge Coefficients	
Control Elevation:	13.00 ft		
Cross Section:	X-S-4_S-5	Weir Default:	2.800
		Weir Table:	
		Orifice Default:	0.600
		Orifice Table:	

Comment:

Weir Link: W_S-4_S-6

Scenario:	Pre-Development	**Bottom Clip**	
From Node:	Swale S4-1	Default:	0.00 ft
To Node:	Swale S6-1	Op Table:	
Link Count:	1	Ref Node:	
Flow Direction:	Both	**Top Clip**	
Damping:	0.0000 ft	Default:	0.00 ft
Weir Type:	Paved Road Vertical	Op Table:	
Geometry Type:	Irregular	Ref Node:	
Invert:	13.00 ft	**Discharge Coefficients**	
Control Elevation:	13.00 ft	Weir Default:	2.800
Cross Section:	X-S-4_S-6	Weir Table:	
		Orifice Default:	0.600
		Orifice Table:	

Comment:

Weir Link: W_S-5_S-6

Scenario:	Pre-Development	**Bottom Clip**	
From Node:	Swale S5-1_S5-2	Default:	0.00 ft
To Node:	Swale S6-1	Op Table:	
Link Count:	1	Ref Node:	
Flow Direction:	Both	**Top Clip**	
Damping:	0.0000 ft	Default:	0.00 ft
Weir Type:	Paved Road Vertical	Op Table:	
Geometry Type:	Irregular	Ref Node:	
Invert:	13.00 ft	**Discharge Coefficients**	
Control Elevation:	13.00 ft	Weir Default:	2.800
Cross Section:	X-S-5_S-6	Weir Table:	
		Orifice Default:	0.600
		Orifice Table:	

Comment:

Weir Link: W_S-5_S-7			
Scenario:	Pre-Development	Bottom Clip	
From Node:	Swale S5-1_S5-2	Default:	0.00 ft
To Node:	Swale S7-1	Op Table:	
Link Count:	1	Ref Node:	
Flow Direction:	Both	Top Clip	
Damping:	0.0000 ft	Default:	0.00 ft
Weir Type:	Paved Road Vertical	Op Table:	
Geometry Type:	Irregular	Ref Node:	
Invert:	13.00 ft	Discharge Coefficients	
Control Elevation:	13.00 ft	Weir Default:	2.800
Cross Section:	X-S-5_S-7	Weir Table:	
		Orifice Default:	0.600
		Orifice Table:	
Comment:			

Weir Link: W_S-5_S-8			
Scenario:	Pre-Development	Bottom Clip	
From Node:	Swale S5-1_S5-2	Default:	0.00 ft
To Node:	Swale S8-1	Op Table:	
Link Count:	1	Ref Node:	
Flow Direction:	Both	Top Clip	
Damping:	0.0000 ft	Default:	0.00 ft
Weir Type:	Paved Road Vertical	Op Table:	
Geometry Type:	Irregular	Ref Node:	
Invert:	12.70 ft	Discharge Coefficients	
Control Elevation:	12.70 ft	Weir Default:	2.800
Cross Section:	X-S-5_S-8	Weir Table:	
		Orifice Default:	0.600
		Orifice Table:	
Comment:			

Weir Link: W_S-6_C-2			
Scenario:	Pre-Development	Bottom Clip	
From Node:	Swale S6-1	Default:	0.00 ft
To Node:	C-2 Canal	Op Table:	
Link Count:	1	Ref Node:	
Flow Direction:	Both	Top Clip	
Damping:	0.0000 ft	Default:	0.00 ft
Weir Type:	Broad Crested Vertical	Op Table:	
Geometry Type:	Irregular	Ref Node:	
Invert:	12.00 ft	Discharge Coefficients	
Control Elevation:	12.00 ft	Weir Default:	2.800
Cross Section:	X_S-6_C-2	Weir Table:	

Orifice Default:	0.600
Orifice Table:	

Comment:

Weir Link: W_S-7_C-2

Scenario:	Pre-Development	Bottom Clip		
From Node:	Swale S7-1		Default:	0.00 ft
To Node:	C-2 Canal		Op Table:	
Link Count:	1		Ref Node:	
Flow Direction:	Both	Top Clip		
Damping:	0.0000 ft		Default:	0.00 ft
Weir Type:	Broad Crested Vertical		Op Table:	
Geometry Type:	Irregular		Ref Node:	
Invert:	12.00 ft	Discharge Coefficients		
Control Elevation:	12.00 ft		Weir Default:	2.800
Cross Section:	X_S-7_C-2		Weir Table:	
			Orifice Default:	0.600
			Orifice Table:	

Comment:

Weir Link: W_S-8_S-9

Scenario:	Pre-Development	Bottom Clip		
From Node:	Swale S8-1		Default:	0.00 ft
To Node:	Swale S9-1		Op Table:	
Link Count:	1		Ref Node:	
Flow Direction:	Both	Top Clip		
Damping:	0.0000 ft		Default:	0.00 ft
Weir Type:	Paved Road Vertical		Op Table:	
Geometry Type:	Irregular		Ref Node:	
Invert:	13.00 ft	Discharge Coefficients		
Control Elevation:	13.00 ft		Weir Default:	2.800
Cross Section:	X-S-8_S-9		Weir Table:	
			Orifice Default:	0.600
			Orifice Table:	

Comment:

Weir Link: W_S-9_S-10

Scenario:	Pre-Development	Bottom Clip		
From Node:	Swale S9-1		Default:	0.00 ft
To Node:	Swale S10-1		Op Table:	

Link Count:	1		
Flow Direction:	Both	Ref Node:	
		Top Clip	
Damping:	0.0000 ft	Default:	0.00 ft
Weir Type:	Paved Road Vertical	Op Table:	
Geometry Type:	Irregular	Ref Node:	
		Discharge Coefficients	
Invert:	12.00 ft	Weir Default:	2.800
Control Elevation:	12.00 ft	Weir Table:	
Cross Section:	X-S-9_S-10	Orifice Default:	0.600
		Orifice Table:	

Comment:

Weir Cross Section: X-N-4_N-5

Scenario: Pre-Development
Lid: No

Bottom Point Table

Order	Station [ft]	Elevation [ft]
0	0.00	14.00
1	14.00	13.50
2	41.00	13.50
3	45.00	14.00

Comment: Basin B-N-4 to B-N-5

Weir Cross Section: X-N-5_N-6

Scenario: Pre-Development
Lid: No

Bottom Point Table

Order	Station [ft]	Elevation [ft]
0	0.00	13.00
1	60.00	13.60

Comment: Basin B-N-5 to B-N-6

Weir Cross Section: X-N-7_N-8

Scenario: Pre-Development
Lid: No

Bottom Point Table

Order	Station [ft]	Elevation [ft]
0	0.00	13.80
1	61.00	13.50

Comment: Basin B-N-7 to B-N-8

Weir Cross Section: X-S-10_S-11

Scenario: Pre-Development
Lid: No

Bottom Point Table

Order	Station [ft]	Elevation [ft]
0	0.00	14.00
1	41.60	13.00
2	109.00	13.00
3	141.50	13.20

Comment: Basin B-S-10 to B-S-11

Weir Cross Section: X-S-11_S-12

Scenario: Pre-Development
Lid: No

Bottom Point Table

Order	Station [ft]	Elevation [ft]
0	0.00	14.00
1	31.40	13.00
2	101.30	13.00
3	139.70	13.50

Comment: Basin B-S-11 to B-S-12

Weir Cross Section: X-S-1_S-2

Scenario: Pre-Development
Lid: No

Bottom Point Table

Order	Station [ft]	Elevation [ft]
0	0.00	14.60
1	77.00	13.00

Order	Station [ft]	Elevation [ft]
2	193.00	12.60

Comment: Basin B-S-1 to B-S-2

Weir Cross Section: X-S-2_S-3

Scenario: Pre-Development
Lid: No

Bottom Point Table

Order	Station [ft]	Elevation [ft]
0	0.00	14.00
1	34.00	14.00
2	77.00	13.00
3	152.00	13.00

Comment: Basin B-S-2 to B-S-3

Weir Cross Section: X-S-3_S-4

Scenario: Pre-Development
Lid: No

Bottom Point Table

Order	Station [ft]	Elevation [ft]
0	0.00	14.00
1	26.00	13.00
2	47.00	12.60
3	199.00	12.50

Comment: Basin B-S-3 to B-S-4

Weir Cross Section: X-S-4_S-5

Scenario: Pre-Development
Lid: No

Bottom Point Table

Order	Station [ft]	Elevation [ft]
0	0.00	14.00
1	22.50	13.00
2	149.00	13.00

Comment: Basin B-S-4 to B-S-5

Weir Cross Section: X-S-4_S-6

Scenario: Pre-Development
Lid: No

Bottom Point Table

Order	Station [ft]	Elevation [ft]
0	0.00	13.20
1	50.00	13.00

Comment: Basin B-S-4 to B-S-6

Weir Cross Section: X-S-5_S-6

Scenario: Pre-Development
Lid: No

Bottom Point Table

Order	Station [ft]	Elevation [ft]
0	0.00	13.00
1	1075.50	13.00

Comment: Basin B-S-5 to B-S-6

Weir Cross Section: X-S-5_S-7

Scenario: Pre-Development
Lid: No

Bottom Point Table

Order	Station [ft]	Elevation [ft]
0	0.00	13.00
1	652.00	13.00

Comment: Basin B-S-5 to B-S-7

Weir Cross Section: X-S-5_S-8

Scenario: Pre-Development
Lid: No

Bottom Point Table

Order	Station [ft]	Elevation [ft]
0	0.00	13.30
1	16.50	13.00
2	138.00	12.70

Comment: Basin B-S-5 to B-S-8

Weir Cross Section: X-S-8_S-9

Scenario: Pre-Development
Lid: No

Bottom Point Table

Order	Station [ft]	Elevation [ft]
0	0.00	14.00
1	16.00	13.00
2	126.00	13.00
3	182.00	14.00

Comment: Basin B-S-8 to B-S-9

Weir Cross Section: X-S-9_S-10

Scenario: Pre-Development
Lid: No

Bottom Point Table

Order	Station [ft]	Elevation [ft]
0	0.00	14.00
1	19.00	13.00
2	53.00	12.00
3	70.00	12.00
4	146.00	13.00
5	174.00	14.00

Comment: Basin B-S-9 to B-S-10

Weir Cross Section: X_A-1_C-3

Scenario: Pre-Development
Lid: No

Bottom Point Table

Order	Station [ft]	Elevation [ft]
0	0.00	12.25
1	96.00	12.25

Comment:

Weir Cross Section: X_N-5_O-1

Scenario: Pre-Development
Lid: No

Bottom Point Table

Order	Station [ft]	Elevation [ft]
0	0.00	13.50
2	407.00	12.50
3	1022.00	12.50
4	1032.00	13.00
5	1388.00	13.00

Comment:

Weir Cross Section: X_N-6_O-2

Scenario: Pre-Development
Lid: No

Bottom Point Table

Order	Station [ft]	Elevation [ft]
0	0.00	13.00
1	63.00	12.50
2	780.00	12.50

Comment:

Weir Cross Section: X_N-7_O-3

Scenario: Pre-Development
Lid: No

Bottom Point Table

Order	Station [ft]	Elevation [ft]
0	0.00	12.50
1	596.00	13.00
2	1012.00	13.00

Comment:

Weir Cross Section: X_S-6_C-2

Scenario: Pre-Development
Lid: No

Bottom Point Table

Order	Station [ft]	Elevation [ft]
0	0.00	12.00
1	60.00	12.00

Comment:

Weir Cross Section: X_S-7_C-2

Scenario: Pre-Development
Lid: No

Bottom Point Table

Order	Station [ft]	Elevation [ft]
0	0.00	12.00
1	60.00	12.00

Comment:

Simulation: 100YR-72HR

Scenario: Pre-Development
Run Date/Time: 04/10/18 5:42:48 PM
Program Version: ICPR4 4.03.02.00

General

Run Mode: Normal

	Year	Month	Day	Hour [hr]
Start Time:	0	0	0	0.0000
End Time:	0	0	0	96.0000

	Hydrology [sec]	Surface Hydraulics [sec]	Groundwater [sec]
Min Calculation Time:	30.0000	0.0500	900.0000
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

Groundwater

Year	Month	Day	Hour [hr]	Time Increment [min]
0	0	0	0.0000	360.0000

Restart File

Save Restart: False

Resources & Lookup Tables

Resources

Rainfall Folder:
Reference ET Folder:
Unit Hydrograph Folder:

Lookup Tables

Boundary Stage Set:
Extern Hydrograph Set:
Curve Number Set: Soil Storage-SFWMD
Green-Ampt Set:
Vertical Layers Set:
Impervious Set: Soil Storage-SFWMD
Roughness Set:
Crop Coef Set:
Fillable Porosity Set:
Conductivity Set:
Leakage 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
Edge Length Option: Automatic

IA Recovery Time: 24.0000 hr
ET for Manual Basins: False
Manual Basin Rain Opt: Global
OF Region Rain Opt: Global
Rainfall Name: ~SFWMD-72
Rainfall Amount: 22.00 in
Storm Duration: 72.0000 hr

Dflt Damping (2D):	0.0050 ft	Dflt Damping (1D):	0.0050 ft
Min Node Srf Area (2D):	100 ft2	Min Node Srf Area (1D):	100 ft2
Energy Switch (2D):	Energy	Energy Switch (1D):	Energy

Comment:

Simulation: 10YR-24HR

Scenario: Pre-Development
Run Date/Time: 04/10/18 5:46:15 PM
Program Version: ICPR4 4.03.02.00

General

Run Mode: Normal

	Year	Month	Day	Hour [hr]
Start Time:	0	0	0	0.0000
End Time:	0	0	0	48.0000

	Hydrology [sec]	Surface Hydraulics [sec]	Groundwater [sec]
Min Calculation Time:	30.0000	0.0500	900.0000
Max Calculation Time:		30.0000	

Output Time Increments

Hydrology

Year	Month	Day	Hour [hr]	Time Increment [min]
0	0	0	0.0000	5.0000

Surface Hydraulics

Year	Month	Day	Hour [hr]	Time Increment [min]
0	0	0	0.0000	5.0000

Groundwater

Year	Month	Day	Hour [hr]	Time Increment [min]
0	0	0	0.0000	360.0000

Restart File

Save Restart: False

Resources & Lookup Tables

Resources	
Rainfall Folder:	
Reference ET Folder:	
Unit Hydrograph Folder:	

Lookup Tables	
Boundary Stage Set:	
Extern Hydrograph Set:	
Curve Number Set:	Soil Storage-SFWMD
Green-Ampt Set:	
Vertical Layers Set:	
Impervious Set:	Soil Storage-SFWMD
Roughness Set:	
Crop Coef Set:	
Fillable Porosity Set:	
Conductivity Set:	
Leakage Set:	

Tolerances & Options

Time Marching:	SAOR	IA Recovery Time:	24.0000 hr
Max Iterations:	6	ET for Manual Basins:	False
Over-Relax Weight Fact:	0.5 dec		
dZ Tolerance:	0.0010 ft	Manual Basin Rain Opt:	Global
Max dZ:	1.0000 ft	OF Region Rain Opt:	Global
Link Optimizer Tol:	0.0001 ft	Rainfall Name:	~SCSIII-24
		Rainfall Amount:	10.50 in
Edge Length Option:	Automatic	Storm Duration:	24.0000 hr
Dflt Damping (2D):	0.0050 ft	Dflt Damping (1D):	0.0050 ft
Min Node Srf Area (2D):	100 ft2	Min Node Srf Area (1D):	100 ft2
Energy Switch (2D):	Energy	Energy Switch (1D):	Energy

Comment:

Simulation: 25YR-72HR

Scenario:	Pre-Development
Run Date/Time:	04/10/18 5:50:54 PM
Program Version:	ICPR4 4.03.02.00

General

Run Mode: Normal

	Year	Month	Day	Hour [hr]
Start Time:	0	0	0	0.0000
End Time:	0	0	0	96.0000

Hydrology [sec]	Surface Hydraulics	Groundwater [sec]

		[sec]	
Min Calculation Time:	30.0000	0.0500	900.0000
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

Groundwater

Year	Month	Day	Hour [hr]	Time Increment [min]
0	0	0	0.0000	360.0000

Restart File

Save Restart: False

Resources & Lookup Tables

Resources

Rainfall Folder:
Reference ET Folder:
Unit Hydrograph Folder:

Lookup Tables

Boundary Stage Set:
Extern Hydrograph Set:
Curve Number Set: Soil Storage-SFWMD
Green-Ampt Set:
Vertical Layers Set:
Impervious Set: Soil Storage-SFWMD
Roughness Set:
Crop Coef Set:
Fillable Porosity Set:
Conductivity Set:
Leakage 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
ET for Manual Basins: False
Manual Basin Rain Opt: Global
OF Region Rain Opt: Global
Rainfall Name: ~SFWMD-72

		Rainfall Amount:	16.00 in
Edge Length Option:	Automatic	Storm Duration:	72.0000 hr
Dflt Damping (2D):	0.0050 ft	Dflt Damping (1D):	0.0050 ft
Min Node Srf Area (2D):	100 ft2	Min Node Srf Area (1D):	100 ft2
Energy Switch (2D):	Energy	Energy Switch (1D):	Energy

Comment:

Simulation: 3YR-24HR

Scenario: Pre-Development
Run Date/Time: 04/10/18 5:53:54 PM
Program Version: ICPR4 4.03.02.00

General

Run Mode: Normal

	Year	Month	Day	Hour [hr]
Start Time:	0	0	0	0.0000
End Time:	0	0	0	48.0000

	Hydrology [sec]	Surface Hydraulics [sec]	Groundwater [sec]
Min Calculation Time:	30.0000	0.0500	900.0000
Max Calculation Time:		30.0000	

Output Time Increments

Hydrology

Year	Month	Day	Hour [hr]	Time Increment [min]
0	0	0	0.0000	5.0000

Surface Hydraulics

Year	Month	Day	Hour [hr]	Time Increment [min]
0	0	0	0.0000	5.0000

Groundwater

Year	Month	Day	Hour [hr]	Time Increment [min]
0	0	0	0.0000	360.0000

Restart File

Save Restart: False

Resources & Lookup Tables

Resources		Lookup Tables	
Rainfall Folder:		Boundary Stage Set:	
Reference ET Folder:		Extern Hydrograph Set:	
Unit Hydrograph Folder:		Curve Number Set:	Soil Storage-SFWMD
		Green-Ampt Set:	
		Vertical Layers Set:	
		Impervious Set:	Soil Storage-SFWMD
		Roughness Set:	
		Crop Coef Set:	
		Fillable Porosity Set:	
		Conductivity Set:	
		Leakage Set:	

Tolerances & Options

Time Marching:	SAOR	IA Recovery Time:	24.0000 hr
Max Iterations:	6	ET for Manual Basins:	False
Over-Relax Weight Fact:	0.5 dec		
dZ Tolerance:	0.0010 ft	Manual Basin Rain Opt:	Global
Max dZ:	1.0000 ft	OF Region Rain Opt:	Global
Link Optimizer Tol:	0.0001 ft	Rainfall Name:	~SCSIII-24
		Rainfall Amount:	6.45 in
Edge Length Option:	Automatic	Storm Duration:	24.0000 hr
Dflt Damping (2D):	0.0050 ft	Dflt Damping (1D):	0.0050 ft
Min Node Srf Area (2D):	100 ft2	Min Node Srf Area (1D):	100 ft2
Energy Switch (2D):	Energy	Energy Switch (1D):	Energy

Comment:

Node Max Conditions [Pre-Development]

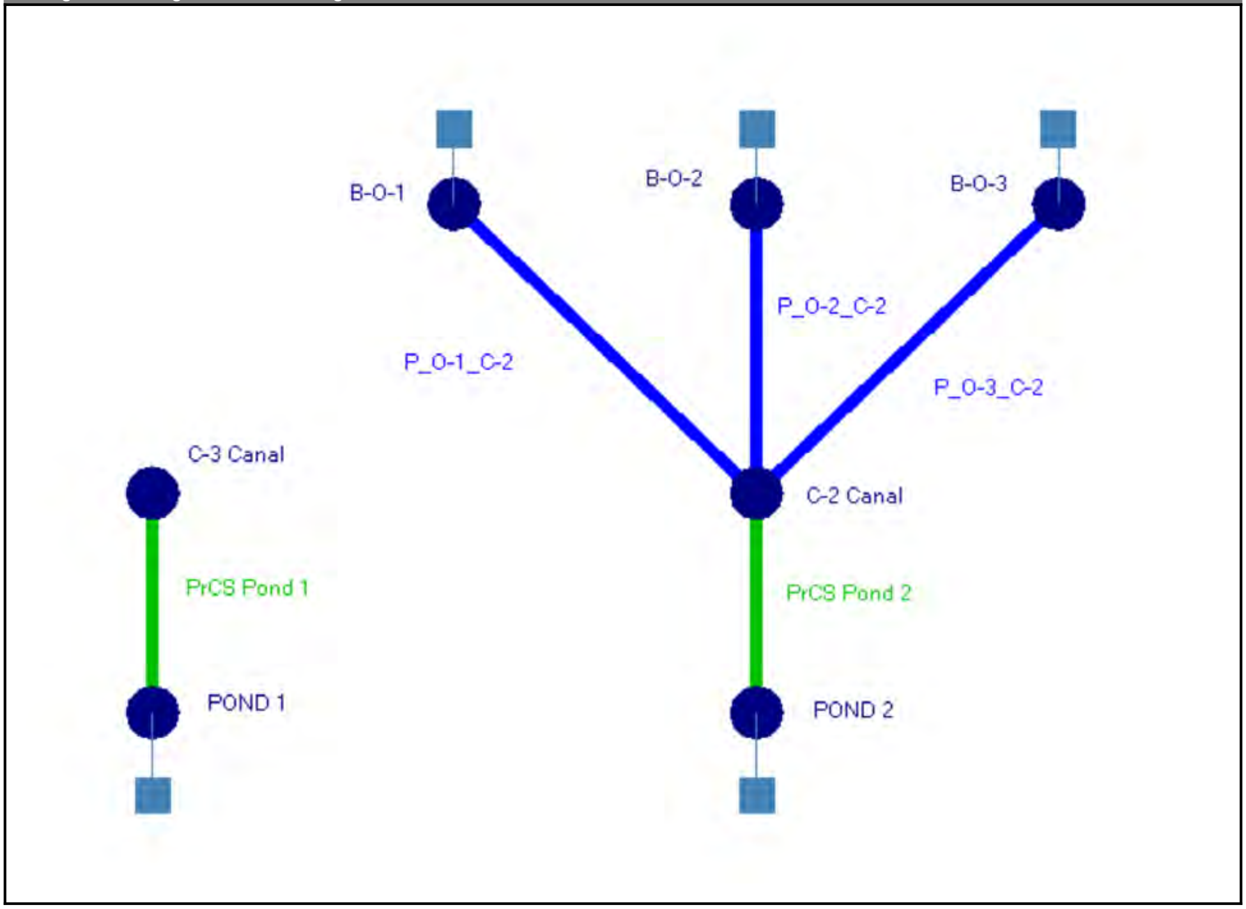
Node Name	Sim Name	Warning Stage [ft]	Max Stage [ft]	Min/Max Delta Stage [ft]	Max Total Inflow [cfs]	Max Total Outflow [cfs]	Max Surface Area [ft2]
B-N-5	100YR-72HR	12.50	12.67	0.0010	32.09	32.09	11204
B-N-6	100YR-72HR	12.50	12.54	0.0009	13.28	13.28	8937
B-N-7	100YR-72HR	12.50	12.86	0.0009	19.63	19.62	17347
B-O-1	100YR-72HR	12.00	12.67	0.0046	78.79	19.14	134840
B-O-2	100YR-72HR	12.00	12.35	0.0059	50.67	17.60	97449
B-O-3	100YR-72HR	12.00	12.86	0.0056	46.28	17.27	78977
C-2 Canal	100YR-72HR	7.50	7.50	0.0000	131.47	0.00	0
C-2_Canal	100YR-72HR	7.50	7.50	0.0000	53.94	0.03	0
C-3 Canal	100YR-72HR	7.50	7.50	0.0000	106.56	0.00	0
Swale A1-1	100YR-72HR	11.75	12.79	0.0010	125.37	106.56	198956
Swale A2-1	100YR-72HR	12.75	13.09	0.0010	45.98	34.41	83896
Swale A3-1	100YR-72HR	12.50	13.38	0.0010	47.60	21.47	92685
Swale A4-1	100YR-72HR	11.75	13.62	0.0010	23.30	7.86	60639
Swale A5-1	100YR-72HR	12.00	13.73	0.0010	14.32	2.93	37300
Swale N1-1	100YR-72HR	13.00	14.38	0.0009	15.22	2.23	39767
Swale N2-1_N2-2	100YR-72HR	13.50	14.32	0.0010	15.43	2.59	55158
Swale N3-1	100YR-72HR	13.00	14.16	0.0010	11.62	3.68	38418
Swale N4-1	100YR-72HR	12.50	13.83	0.0010	21.18	16.63	57822
Swale N8-1	100YR-72HR	12.50	13.81	0.0008	32.04	12.39	122927
Swale S1-1_S1-2	100YR-72HR	14.00	13.33	0.0009	30.51	22.18	93328
Swale S10-1	100YR-72HR	12.50	13.25	0.0007	33.70	59.47	39049
Swale S11-1	100YR-72HR	13.00	13.26	0.0010	23.48	23.06	18230
Swale S12-1	100YR-72HR	12.00	13.26	0.0009	19.38	17.36	48188
Swale S2-1_S2-2	100YR-72HR	12.00	13.32	0.0010	45.06	40.47	81437
Swale S3-1	100YR-72HR	13.00	13.28	0.0010	79.99	49.01	139564
Swale S4-1	100YR-72HR	12.50	13.28	0.0009	72.39	62.25	165410
Swale S5-1_S5-2	100YR-72HR	12.50	13.09	0.0010	113.05	113.01	57547
Swale S6-1	100YR-72HR	11.50	12.64	0.0010	90.48	85.17	78713
Swale S7-1	100YR-72HR	12.50	12.43	0.0010	49.64	46.65	44662
Swale S8-1	100YR-72HR	12.00	13.19	0.0010	71.27	68.58	76116
Swale S9-1	100YR-72HR	12.50	13.25	0.0010	63.88	38.52	20246
B-N-5	10YR-24HR	12.50	12.54	0.0009	9.44	9.44	3170
B-N-6	10YR-24HR	12.50	12.53	0.0009	7.35	7.34	8669
B-N-7	10YR-24HR	12.50	12.64	0.0009	8.83	8.81	9107
B-O-1	10YR-24HR	12.00	11.59	0.0053	35.09	17.02	61235
B-O-2	10YR-24HR	12.00	11.78	0.0052	27.98	16.55	54611
B-O-3	10YR-24HR	12.00	12.14	0.0050	25.37	16.06	73017
C-2 Canal	10YR-24HR	7.50	7.50	0.0000	0.00	0.00	0
C-2_Canal	10YR-24HR	7.50	7.50	0.0000	49.62	0.02	0
C-3 Canal	10YR-24HR	7.50	7.50	0.0000	31.84	0.00	0
Swale A1-1	10YR-24HR	11.75	12.50	0.0010	53.69	31.84	168981

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]
Swale A2-1	10YR-24HR	12.75	12.56	0.0010	22.08	14.51	59468
Swale A3-1	10YR-24HR	12.50	12.62	0.0010	23.63	9.69	54265
Swale A4-1	10YR-24HR	11.75	12.72	0.0010	12.42	3.97	36692
Swale A5-1	10YR-24HR	12.00	12.78	0.0010	8.11	1.53	21518
Swale N1-1	10YR-24HR	13.00	13.50	0.0009	8.52	2.29	29381
Swale N2-1_N2-2	10YR-24HR	13.50	13.50	0.0010	8.93	1.19	45135
Swale N3-1	10YR-24HR	13.00	13.50	0.0010	8.05	0.06	38407
Swale N4-1	10YR-24HR	12.50	13.50	0.0010	10.18	1.53	47448
Swale N8-1	10YR-24HR	12.50	13.26	0.0009	16.09	0.00	88929
Swale S1-1_S1-2	10YR-24HR	14.00	13.01	0.0010	14.50	0.04	82460
Swale S10-1	10YR-24HR	12.50	13.04	0.0009	5.99	1.23	31692
Swale S11-1	10YR-24HR	13.00	13.03	0.0010	3.32	1.73	13979
Swale S12-1	10YR-24HR	12.00	13.03	0.0010	10.61	0.29	41252
Swale S2-1_S2-2	10YR-24HR	12.00	13.01	0.0010	12.32	1.85	75545
Swale S3-1	10YR-24HR	13.00	12.62	0.0010	20.31	8.56	84927
Swale S4-1	10YR-24HR	12.50	12.45	0.0010	18.24	0.00	139085
Swale S5-1_S5-2	10YR-24HR	12.50	13.02	0.0010	13.18	8.80	57547
Swale S6-1	10YR-24HR	11.50	11.39	0.0010	9.61	0.00	70555
Swale S7-1	10YR-24HR	12.50	10.87	0.0010	5.31	0.00	36934
Swale S8-1	10YR-24HR	12.00	13.02	0.0010	17.32	5.97	65278
Swale S9-1	10YR-24HR	12.50	13.04	0.0010	3.40	1.64	16702
B-N-5	25YR-72HR	12.50	12.54	0.0009	12.17	12.17	3519
B-N-6	25YR-72HR	12.50	12.53	0.0008	9.40	9.39	8767
B-N-7	25YR-72HR	12.50	12.65	0.0009	11.35	11.32	9682
B-O-1	25YR-72HR	12.00	11.94	0.0046	45.48	17.75	86940
B-O-2	25YR-72HR	12.00	12.00	0.0058	35.83	16.96	77982
B-O-3	25YR-72HR	12.00	12.28	0.0056	31.35	16.30	74169
C-2 Canal	25YR-72HR	7.50	7.50	0.0000	13.42	0.00	0
C-2_Canal	25YR-72HR	7.50	7.50	0.0000	50.93	0.02	0
C-3 Canal	25YR-72HR	7.50	7.50	0.0000	74.26	0.00	0
Swale A1-1	25YR-72HR	11.75	12.68	0.0010	88.99	74.26	187437
Swale A2-1	25YR-72HR	12.75	12.87	0.0010	34.26	27.13	73977
Swale A3-1	25YR-72HR	12.50	13.07	0.0010	33.66	17.25	73110
Swale A4-1	25YR-72HR	11.75	13.26	0.0010	16.53	6.49	49939
Swale A5-1	25YR-72HR	12.00	13.35	0.0010	10.18	2.42	30702
Swale N1-1	25YR-72HR	13.00	13.84	0.0009	10.79	2.02	36529
Swale N2-1_N2-2	25YR-72HR	13.50	13.83	0.0010	11.17	1.47	51689
Swale N3-1	25YR-72HR	13.00	13.77	0.0010	9.32	2.05	38418
Swale N4-1	25YR-72HR	12.50	13.66	0.0010	13.77	4.99	52455
Swale N8-1	25YR-72HR	12.50	13.63	0.0007	22.18	1.18	110521
Swale	25YR-72HR	14.00	13.15	0.0010	25.61	6.76	87441

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]
S1-1_S1-2							
Swale S10-1	25YR-72HR	12.50	13.16	0.0006	16.63	24.54	35865
Swale S11-1	25YR-72HR	13.00	13.16	0.0010	11.49	11.05	16447
Swale S12-1	25YR-72HR	12.00	13.17	0.0010	19.84	8.34	45401
Swale S2-1_S2-2	25YR-72HR	12.00	13.15	0.0010	18.19	12.35	78236
Swale S3-1	25YR-72HR	13.00	13.07	0.0010	29.90	28.01	124221
Swale S4-1	25YR-72HR	12.50	13.07	0.0010	57.33	6.64	165410
Swale S5-1_S5-2	25YR-72HR	12.50	13.05	0.0010	47.20	47.16	57547
Swale S6-1	25YR-72HR	11.50	12.14	0.0010	40.99	8.68	78713
Swale S7-1	25YR-72HR	12.50	12.10	0.0010	24.09	4.94	44662
Swale S8-1	25YR-72HR	12.00	13.07	0.0008	35.65	35.24	68761
Swale S9-1	25YR-72HR	12.50	13.15	0.0010	25.79	18.40	18708
B-N-5	3YR-24HR	12.50	12.52	0.0009	4.81	4.80	2485
B-N-6	3YR-24HR	12.50	12.52	0.0009	3.78	3.78	8470
B-N-7	3YR-24HR	12.50	12.61	0.0009	4.52	4.50	7915
B-O-1	3YR-24HR	12.00	10.92	0.0021	17.73	15.57	12906
B-O-2	3YR-24HR	12.00	10.72	0.0010	14.37	14.34	100
B-O-3	3YR-24HR	12.00	10.87	0.0010	13.72	13.69	100
C-2 Canal	3YR-24HR	7.50	7.50	0.0000	0.00	0.00	0
C-2_Canal	3YR-24HR	7.50	7.50	0.0000	43.53	0.01	0
C-3 Canal	3YR-24HR	7.50	7.50	0.0000	3.32	0.00	0
Swale A1-1	3YR-24HR	11.75	12.31	0.0010	26.74	3.32	140460
Swale A2-1	3YR-24HR	12.75	12.31	0.0010	12.94	4.33	48007
Swale A3-1	3YR-24HR	12.50	12.31	0.0010	12.25	5.30	42162
Swale A4-1	3YR-24HR	11.75	12.32	0.0010	6.46	2.71	28888
Swale A5-1	3YR-24HR	12.00	12.32	0.0010	4.27	1.22	15468
Swale N1-1	3YR-24HR	13.00	12.85	0.0009	4.44	1.79	17056
Swale N2-1_N2-2	3YR-24HR	13.50	12.85	0.0010	4.87	0.87	25271
Swale N3-1	3YR-24HR	13.00	12.85	0.0010	4.59	0.07	27453
Swale N4-1	3YR-24HR	12.50	12.85	0.0010	4.86	1.28	28479
Swale N8-1	3YR-24HR	12.50	12.62	0.0009	7.49	0.00	45709
Swale S1-1_S1-2	3YR-24HR	14.00	12.30	0.0010	6.38	0.00	50887
Swale S10-1	3YR-24HR	12.50	12.89	0.0006	3.12	0.16	26676
Swale S11-1	3YR-24HR	13.00	13.01	0.0010	1.60	0.04	13462
Swale S12-1	3YR-24HR	12.00	12.02	0.0010	5.40	0.00	19763
Swale S2-1_S2-2	3YR-24HR	12.00	12.57	0.0010	5.59	0.00	48230
Swale S3-1	3YR-24HR	13.00	12.56	0.0010	8.66	0.27	78960
Swale S4-1	3YR-24HR	12.50	11.34	0.0009	7.80	0.00	67097
Swale S5-1_S5-2	3YR-24HR	12.50	12.89	0.0010	5.76	0.00	51187
Swale S6-1	3YR-24HR	11.50	10.06	0.0005	4.14	0.00	46746

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]
Swale S7-1	3YR-24HR	12.50	9.49	0.0009	2.29	0.00	26499
Swale S8-1	3YR-24HR	12.00	12.89	0.0010	8.13	0.43	56621
Swale S9-1	3YR-24HR	12.50	12.89	0.0010	1.74	0.97	14499

Background Image: NodeLink Diagram



Manual Basin: B-O-1

Scenario:	Post-Development
Node:	B-O-1
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:	UH256
Peaking Factor:	256.0

Area [ac]	Land Cover Zone	Soil Zone	Rainfall Name	Crop Coeficient Zone	Reference ET Station
5.0900	B-O-1	B-O-1			

Comment:

Manual Basin: B-O-2

Scenario:	Post-Development
Node:	B-O-2
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:	UH256
Peaking Factor:	256.0

Area [ac]	Land Cover Zone	Soil Zone	Rainfall Name	Crop Coeficient Zone	Reference ET Station
4.0000	B-O-2	B-O-2			

Comment:

Manual Basin: B-O-3

Scenario:	Post-Development
Node:	B-O-3
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:	UH256
Peaking Factor:	256.0

Area [ac]	Land Cover Zone	Soil Zone	Rainfall Name	Crop Coeficient Zone	Reference ET Station
2.9200	B-O-3	B-O-3			

Comment:

Manual Basin: POND 1

Scenario: Post-Development
Node: POND 1
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: UH256
Peaking Factor: 256.0

Area [ac]	Land Cover Zone	Soil Zone	Rainfall Name	Crop Coeficient Zone	Reference ET Station
24.6700	POND 1	POND 1			

Comment:

Manual Basin: POND 2

Scenario: Post-Development
Node: POND 2
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: UH256
Peaking Factor: 256.0

Area [ac]	Land Cover Zone	Soil Zone	Rainfall Name	Crop Coeficient Zone	Reference ET Station
53.3900	POND 2	POND 2			

Comment:

Node: B-O-1

Scenario: Post-Development
Type: Stage/Area
Base Flow: 0.00 cfs
Initial Stage: 7.50 ft
Warning Stage: 12.50 ft

Stage [ft]	Area [ac]	Area [ft2]
4.04	0.0001	4
10.74	0.0001	4
12.00	2.0900	91040
13.00	3.6000	156816
14.00	4.8000	209088

Comment:

Node: B-O-2

Scenario: Post-Development
Type: Stage/Area
Base Flow: 0.00 cfs
Initial Stage: 7.50 ft
Warning Stage: 12.00 ft

Stage [ft]	Area [ac]	Area [ft2]
4.98	0.0010	44
11.28	0.0010	44
12.00	1.8000	78408
13.00	3.0600	133294
14.00	3.7500	163350

Comment:

Node: B-O-3

Scenario: Post-Development
Type: Stage/Area
Base Flow: 0.00 cfs
Initial Stage: 7.50 ft
Warning Stage: 12.00 ft

Stage [ft]	Area [ac]	Area [ft2]
4.00	0.0010	44
11.99	0.0010	44
12.00	1.6500	71874
13.00	1.8400	80150
14.00	2.3000	100188

Comment:

Node: C-2 Canal

Scenario: Post-Development
Type: Time/Stage
Base Flow: 0.00 cfs
Initial Stage: 7.50 ft
Warning Stage: 7.50 ft
Boundary Stage:

Year	Month	Day	Hour	Stage [ft]
0	0	0	0.0000	7.50
0	0	0	999.0000	7.50

Comment: Boundary

Node: C-3 Canal

Scenario: Post-Development
Type: Time/Stage
Base Flow: 0.00 cfs
Initial Stage: 7.50 ft
Warning Stage: 7.50 ft
Boundary Stage:

Year	Month	Day	Hour	Stage [ft]
0	0	0	0.0000	7.50
0	0	0	999.0000	7.50

Comment: Boundary

Node: POND 1

Scenario: Post-Development
Type: Stage/Area
Base Flow: 0.00 cfs
Initial Stage: 7.50 ft
Warning Stage: 12.50 ft

Stage [ft]	Area [ac]	Area [ft2]
7.50	4.1362	180173
8.50	4.2968	187169
9.50	4.4603	194291
10.50	4.6268	201543
11.50	4.7962	208922
12.50	4.9685	216428
13.50	5.1437	224060

Comment:

Node: POND 2

Scenario:	Post-Development
Type:	Stage/Area
Base Flow:	0.00 cfs
Initial Stage:	7.50 ft
Warning Stage:	12.50 ft

Stage [ft]	Area [ac]	Area [ft2]
7.50	9.6635	420942
8.50	9.9081	431597
9.50	10.1556	442378
10.50	10.4061	453290
11.50	10.6596	464332
12.50	10.9159	475497
13.50	11.1753	486796

Comment:

Pipe Link: P_O-1_C-2

		Upstream		Downstream	
Scenario:	Post-Development	Invert:	4.04 ft	Invert:	3.50 ft
From Node:	B-O-1	Manning's N:	0.0240	Manning's N:	0.0240
To Node:	C-2 Canal	Geometry: Circular		Geometry: Circular	
Link Count:	1	Max Depth:	2.00 ft	Max Depth:	2.00 ft
Flow Direction:	Both	Bottom Clip			
Damping:	0.0000 ft	Default:	0.00 ft	Default:	0.00 ft
Length:	200.00 ft	Op Table:		Op Table:	
FHWA Code:	5	Ref Node:		Ref Node:	
Entr Loss Coef:	0.50	Manning's N:	0.0000	Manning's N:	0.0000
Exit Loss Coef:	0.00	Top Clip			
Bend Loss Coef:	0.00	Default:	0.00 ft	Default:	0.00 ft
Bend Location:	0.00 ft	Op Table:		Op Table:	
Energy Switch:	Energy	Ref Node:		Ref Node:	
		Manning's N:	0.0000	Manning's N:	0.0000

Comment:

Pipe Link: P_O-2_C-2

		Upstream		Downstream	
Scenario:	Post-Development	Invert:	4.98 ft	Invert:	3.50 ft
From Node:	B-O-2	Manning's N:	0.0240	Manning's N:	0.0240
To Node:	C-2 Canal	Geometry: Circular		Geometry: Circular	
Link Count:	1	Max Depth:	2.00 ft	Max Depth:	2.00 ft
Flow Direction:	Both	Bottom Clip			
Damping:	0.0000 ft	Default:	0.00 ft	Default:	0.00 ft
Length:	223.00 ft	Op Table:		Op Table:	
FHWA Code:	5	Ref Node:		Ref Node:	
Entr Loss Coef:	0.50	Manning's N:	0.0000	Manning's N:	0.0000

Exit Loss Coef:	0.00	Top Clip			
Bend Loss Coef:	0.00	Default:	0.00 ft	Default:	0.00 ft
Bend Location:	0.00 ft	Op Table:		Op Table:	
Energy Switch:	Energy	Ref Node:		Ref Node:	
		Manning's N:	0.0000	Manning's N:	0.0000

Comment:

Pipe Link: P_O-3_C-2		Upstream		Downstream	
Scenario:	Post-Development	Invert:	4.00 ft	Invert:	3.50 ft
From Node:	B-O-3	Manning's N:	0.0240	Manning's N:	0.0240
To Node:	C-2 Canal	Geometry: Circular		Geometry: Circular	
Link Count:	1	Max Depth:	2.00 ft	Max Depth:	2.00 ft
Flow Direction:	Both	Bottom Clip			
Damping:	0.0000 ft	Default:	0.00 ft	Default:	0.00 ft
Length:	258.00 ft	Op Table:		Op Table:	
FHWA Code:	5	Ref Node:		Ref Node:	
Entr Loss Coef:	0.50	Manning's N:	0.0000	Manning's N:	0.0000
Exit Loss Coef:	0.00	Top Clip			
Bend Loss Coef:	0.00	Default:	0.00 ft	Default:	0.00 ft
Bend Location:	0.00 ft	Op Table:		Op Table:	
Energy Switch:	Energy	Ref Node:		Ref Node:	
		Manning's N:	0.0000	Manning's N:	0.0000

Comment:

Drop Structure Link: PrCS Pond 1		Upstream Pipe		Downstream Pipe	
Scenario:	Post-Development	Invert:	3.20 ft	Invert:	3.20 ft
From Node:	POND 1	Manning's N:	0.0120	Manning's N:	0.0120
To Node:	C-3 Canal	Geometry: Circular		Geometry: Circular	
Link Count:	1	Max Depth:	4.00 ft	Max Depth:	4.00 ft
Flow Direction:	Both	Bottom Clip			
Solution:	Combine	Default:	0.00 ft	Default:	0.00 ft
Increments:	10	Op Table:		Op Table:	
Pipe Count:	1	Ref Node:		Ref Node:	
Damping:	0.0000 ft	Manning's N:	0.0000	Manning's N:	0.0000
Length:	4200.00 ft	Top Clip			
FHWA Code:	0	Default:	0.00 ft	Default:	0.00 ft
Entr Loss Coef:	0.50	Op Table:		Op Table:	
Exit Loss Coef:	1.00	Ref Node:		Ref Node:	
Bend Loss Coef:	0.00	Manning's N:	0.0000	Manning's N:	0.0000
Bend Location:	0.00 ft				
Energy Switch:	Energy				

Pipe Comment:

Weir Component		
Weir:	1	Bottom Clip

Weir Count:	1		
Weir Flow Direction:	Both	Default:	0.00 ft
Damping:	0.0000 ft	Op Table:	
Weir Type:	Horizontal	Ref Node:	
Geometry Type:	Rectangular	**Top Clip**	
Invert:	8.50 ft	Default:	0.00 ft
Control Elevation:	8.50 ft	Op Table:	
Max Depth:	6.58 ft	Ref Node:	
Max Width:	3.00 ft	**Discharge Coefficients**	
Fillet:	0.00 ft	Weir Default:	3.200
		Weir Table:	
		Orifice Default:	0.600
		Orifice Table:	

Weir Comment:

Weir Component			
Weir:	2	**Bottom Clip**	
Weir Count:	1	Default:	0.00 ft
Weir Flow Direction:	Both	Op Table:	
Damping:	0.0000 ft	Ref Node:	
Weir Type:	Sharp Crested Vertical	**Top Clip**	
Geometry Type:	Trapezoidal	Default:	0.00 ft
Invert:	7.50 ft	Op Table:	
Control Elevation:	7.50 ft	Ref Node:	
Max Depth:	1.00 ft	**Discharge Coefficients**	
Extrapolation Method:	Normal Projection	Weir Default:	3.200
Bottom Width:	0.00 ft	Weir Table:	
Left Slope:	0.499 (h:v)	Orifice Default:	0.600
Right Slope:	0.499 (h:v)	Orifice Table:	

Weir Comment:

Drop Structure Comment:

Drop Structure Link: PrCS Pond 2		Upstream Pipe		Downstream Pipe	
Scenario:	Post-Development	Invert:	3.80 ft	Invert:	3.80 ft
From Node:	POND 2	Manning's N:	0.0120	Manning's N:	0.0120
To Node:	C-2 Canal	**Geometry: Circular**		**Geometry: Circular**	
Link Count:	1	Max Depth:	2.00 ft	Max Depth:	2.00 ft
Flow Direction:	Both	**Bottom Clip**			
Solution:	Combine	Default:	0.00 ft	Default:	0.00 ft
Increments:	10	Op Table:		Op Table:	
Pipe Count:	1	Ref Node:		Ref Node:	
Damping:	0.0000 ft	Manning's N:	0.0000	Manning's N:	0.0000
Length:	3500.00 ft	**Top Clip**			
FHWA Code:	0	Default:	0.00 ft	Default:	0.00 ft
Entr Loss Coef:	0.50	Op Table:		Op Table:	
Exit Loss Coef:	1.00	Ref Node:		Ref Node:	

Bend Loss Coef:	0.00	Manning's N:	0.0000	Manning's N:	0.0000
Bend Location:	0.00 ft				
Energy Switch:	Energy				

Pipe Comment:

Weir Component			
Weir:	1	**Bottom Clip**	
Weir Count:	1	Default:	0.00 ft
Weir Flow Direction:	Both	Op Table:	
Damping:	0.0000 ft	Ref Node:	
Weir Type:	Horizontal	**Top Clip**	
Geometry Type:	Rectangular	Default:	0.00 ft
Invert:	8.50 ft	Op Table:	
Control Elevation:	8.50 ft	Ref Node:	
Max Depth:	3.08 ft	**Discharge Coefficients**	
Max Width:	2.00 ft	Weir Default:	3.200
Fillet:	0.00 ft	Weir Table:	
		Orifice Default:	0.600
		Orifice Table:	

Weir Comment:

Weir Component			
Weir:	2	**Bottom Clip**	
Weir Count:	2	Default:	0.00 ft
Weir Flow Direction:	Both	Op Table:	
Damping:	0.0000 ft	Ref Node:	
Weir Type:	Sharp Crested Vertical	**Top Clip**	
Geometry Type:	Trapezoidal	Default:	0.00 ft
Invert:	7.50 ft	Op Table:	
Control Elevation:	7.50 ft	Ref Node:	
Max Depth:	1.00 ft	**Discharge Coefficients**	
Extrapolation Method:	Normal Projection	Weir Default:	3.200
Bottom Width:	0.00 ft	Weir Table:	
Left Slope:	0.543 (h:v)	Orifice Default:	0.600
Right Slope:	0.543 (h:v)	Orifice Table:	

Weir Comment:

Drop Structure Comment:

Simulation: 100YR-72HR

Scenario:	Post-Development
Run Date/Time:	7/23/2018 9:55:00 AM
Program Version:	ICPR4 4.03.02.00

General

Run Mode:	Normal

	Year	Month	Day	Hour [hr]
Start Time:	0	0	0	0.0000
End Time:	0	0	0	96.0000

	Hydrology [sec]	Surface Hydraulics [sec]	Groundwater [sec]
Min Calculation Time:	60.0000	0.0500	900.0000
Max Calculation Time:		60.0000	

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

Groundwater

Year	Month	Day	Hour [hr]	Time Increment [min]
0	0	0	0.0000	360.0000

Restart File

Save Restart: False

Resources & Lookup Tables

Resources

Rainfall Folder:
Reference ET Folder:
Unit Hydrograph Folder:

Lookup Tables

Boundary Stage Set:
Extern Hydrograph Set:
Curve Number Set: Soil Storage-SFWMD
Green-Ampt Set:
Vertical Layers Set:
Impervious Set: Soil Storage-SFWMD
Roughness Set:
Crop Coef Set:
Fillable Porosity Set:
Conductivity Set:
Leakage Set:

Tolerances & Options

Time Marching: SAOR
Max Iterations: 6
Over-Relax Weight 0.5 dec

IA Recovery Time: 24.0000 hr
ET for Manual Basins: False

Fact:			
dZ Tolerance:	0.0010 ft	Manual Basin Rain Opt:	Global
Max dZ:	1.0000 ft	OF Region Rain Opt:	Global
Link Optimizer Tol:	0.0001 ft	Rainfall Name:	~SFWMD-72
		Rainfall Amount:	22.00 in
Edge Length Option:	Automatic	Storm Duration:	72.0000 hr
Dflt Damping (2D):	0.0050 ft	Dflt Damping (1D):	0.0050 ft
Min Node Srf Area (2D):	100 ft2	Min Node Srf Area (1D):	100 ft2
Energy Switch (2D):	Energy	Energy Switch (1D):	Energy

Comment:

Simulation: 10YR-24HR

Scenario: Post-Development
Run Date/Time: 7/23/2018 10:23:59 AM
Program Version: ICPR4 4.03.02.00

General

Run Mode: Normal

	Year	Month	Day	Hour [hr]
Start Time:	0	0	0	0.0000
End Time:	0	0	0	48.0000

	Hydrology [sec]	Surface Hydraulics [sec]	Groundwater [sec]
Min Calculation Time:	60.0000	0.0500	900.0000
Max Calculation Time:		60.0000	

Output Time Increments

Hydrology

Year	Month	Day	Hour [hr]	Time Increment [min]
0	0	0	0.0000	5.0000

Surface Hydraulics

Year	Month	Day	Hour [hr]	Time Increment [min]
0	0	0	0.0000	5.0000

Groundwater

Year	Month	Day	Hour [hr]	Time Increment [min]
0	0	0	0.0000	360.0000

Restart File

Save Restart:	False

Resources & Lookup Tables

Resources

Rainfall Folder:	
Reference ET Folder:	
Unit Hydrograph Folder:	

Lookup Tables

Boundary Stage Set:	
Extern Hydrograph Set:	
Curve Number Set:	Soil Storage-SFWMD
Green-Ampt Set:	
Vertical Layers Set:	
Impervious Set:	Soil Storage-SFWMD
Roughness Set:	
Crop Coef Set:	
Fillable Porosity Set:	
Conductivity Set:	
Leakage Set:	

Tolerances & Options

Time Marching:	SAOR	IA Recovery Time:	24.0000 hr
Max Iterations:	6	ET for Manual Basins:	False
Over-Relax Weight Fact:	0.5 dec		
dZ Tolerance:	0.0010 ft	Manual Basin Rain Opt:	Global
Max dZ:	1.0000 ft	OF Region Rain Opt:	Global
Link Optimizer Tol:	0.0001 ft	Rainfall Name:	~SCSIII-24
		Rainfall Amount:	10.50 in
Edge Length Option:	Automatic	Storm Duration:	24.0000 hr
Dflt Damping (2D):	0.0050 ft	Dflt Damping (1D):	0.0050 ft
Min Node Srf Area (2D):	100 ft2	Min Node Srf Area (1D):	100 ft2
Energy Switch (2D):	Energy	Energy Switch (1D):	Energy

Comment:

Simulation: 25YR-72HR

Scenario:	Post-Development
Run Date/Time:	7/23/2018 11:06:25 AM
Program Version:	ICPR4 4.03.02.00

General

Run Mode:	Normal

	Year	Month	Day	Hour [hr]
Start Time:	0	0	0	0.0000
End Time:	0	0	0	96.0000

	Hydrology [sec]	Surface Hydraulics [sec]	Groundwater [sec]
Min Calculation Time:	60.0000	0.0500	900.0000
Max Calculation Time:		60.0000	

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

Groundwater

Year	Month	Day	Hour [hr]	Time Increment [min]
0	0	0	0.0000	360.0000

Restart File

Save Restart: False

Resources & Lookup Tables

Resources

Rainfall Folder:
Reference ET Folder:
Unit Hydrograph Folder:

Lookup Tables

Boundary Stage Set:
Extern Hydrograph Set:
Curve Number Set: Soil Storage-SFWMD
Green-Ampt Set:
Vertical Layers Set:
Impervious Set: Soil Storage-SFWMD
Roughness Set:
Crop Coef Set:
Fillable Porosity Set:
Conductivity Set:
Leakage Set:

Tolerances & Options

Time Marching: SAOR
Max Iterations: 6
Over-Relax Weight 0.5 dec

IA Recovery Time: 24.0000 hr
ET for Manual Basins: False

Fact:			
dZ Tolerance:	0.0010 ft	Manual Basin Rain Opt:	Global
Max dZ:	1.0000 ft	OF Region Rain Opt:	Global
Link Optimizer Tol:	0.0001 ft	Rainfall Name:	~SFWMD-72
		Rainfall Amount:	16.00 in
Edge Length Option:	Automatic	Storm Duration:	72.0000 hr
Dflt Damping (2D):	0.0050 ft	Dflt Damping (1D):	0.0050 ft
Min Node Srf Area (2D):	100 ft2	Min Node Srf Area (1D):	100 ft2
Energy Switch (2D):	Energy	Energy Switch (1D):	Energy

Comment:

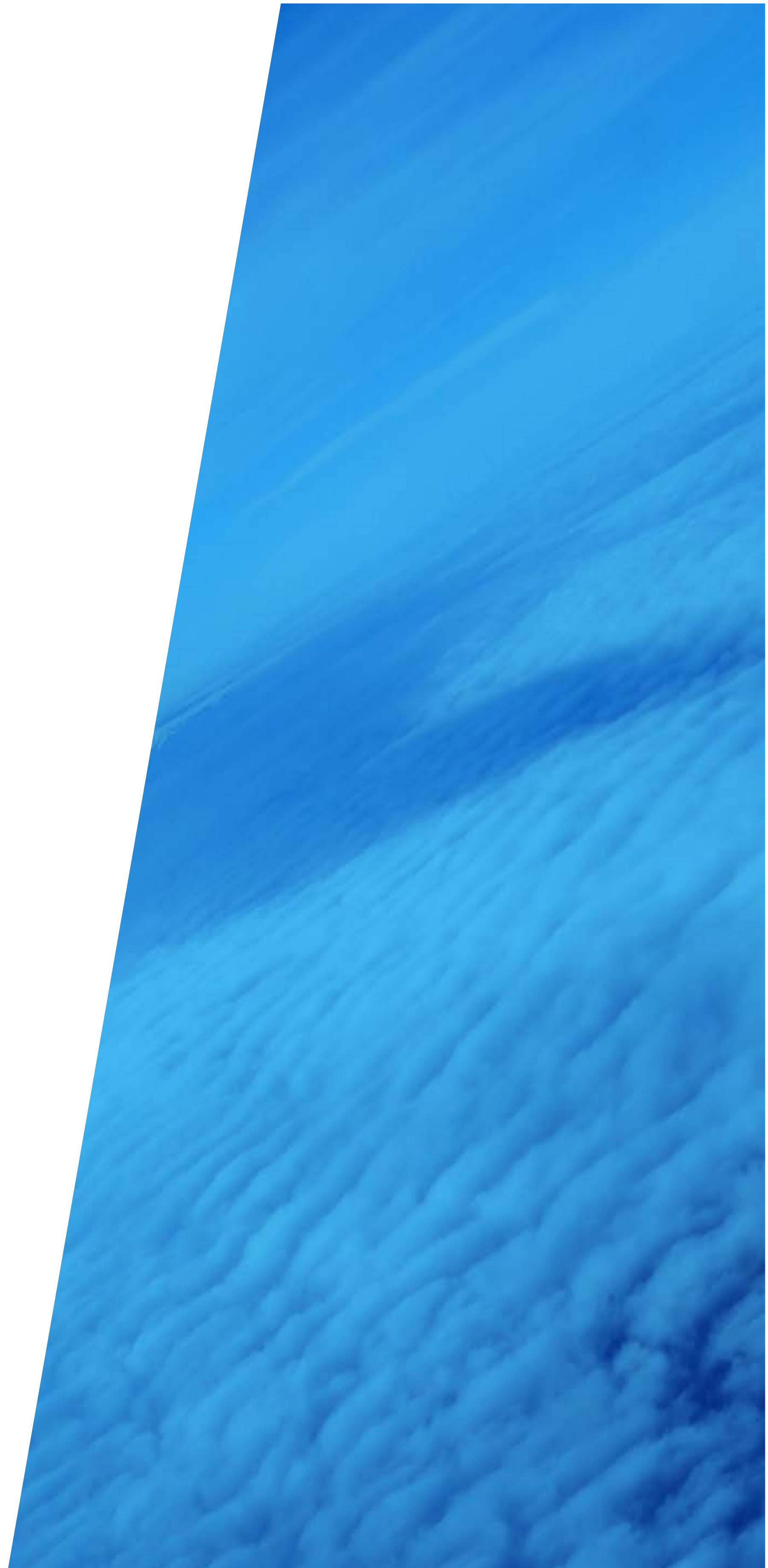
Node Max Conditions [Post-Development]

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]
B-O-1	100YR-72HR	12.50	11.93	0.0056	47.30	17.72	85827
B-O-2	100YR-72HR	12.00	12.03	0.0058	37.39	17.03	80318
B-O-3	100YR-72HR	12.00	12.20	0.0056	27.93	16.17	73510
C-2 Canal	100YR-72HR	7.50	7.50	0.0000	65.84	0.01	0
C-3 Canal	100YR-72HR	7.50	7.50	0.0000	50.04	0.00	0
POND 1	100YR-72HR	12.50	11.16	0.0010	237.78	50.04	206420
POND 2	100YR-72HR	12.50	13.43	0.0010	513.08	16.16	486061
B-O-1	10YR-24HR	12.50	11.27	0.0047	25.65	16.36	38666
B-O-2	10YR-24HR	12.00	11.54	0.0033	20.63	16.07	28244
B-O-3	10YR-24HR	12.00	12.00	0.0012	16.59	15.82	58977
C-2 Canal	10YR-24HR	7.50	7.50	0.0000	57.38	0.01	0
C-3 Canal	10YR-24HR	7.50	7.50	0.0000	39.23	0.00	0
POND 1	10YR-24HR	12.50	9.75	0.0010	145.38	39.23	196104
POND 2	10YR-24HR	12.50	10.47	0.0010	310.05	11.42	452920
B-O-1	25YR-72HR	12.50	11.54	0.0054	33.31	16.93	58079
B-O-2	25YR-72HR	12.00	11.74	0.0051	26.43	16.47	50451
B-O-3	25YR-72HR	12.00	12.04	0.0033	20.05	15.89	72213
C-2 Canal	25YR-72HR	7.50	7.50	0.0000	61.78	0.03	0
C-3 Canal	25YR-72HR	7.50	7.50	0.0000	44.02	0.00	0
POND 1	25YR-72HR	12.50	10.33	0.0010	171.64	44.02	200332
POND 2	25YR-72HR	12.50	11.84	0.0010	369.54	13.82	468137

APPENDIX E

AS-BUILT PLANS:

FPID 424655-1-52-01



CONSTRUCTION CONTRACT NO. E4M96

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

FINAL "AS BUILT" PLANS

FINANCIAL PROJECT ID 424665-1-52-01 A

BROWARD COUNTY (86012)

STATE ROAD NO. SR-869

½ mile west

COMPONENTS OF CONTRACT PLANS SET

ROADWAY PLANS
SIGNING AND PAVEMENT MARKING PLANS
SIGNALIZATION PLANS
LANDSCAPING PLANS

A DETAILED INDEX APPEARS ON THE KEY SHEET OF EACH COMPONENT

INDEX OF ROADWAY PLANS

SHEET NO.	SHEET DESCRIPTION
1	KEY SHEET
2 - 3	SUMMARY OF PAY ITEMS
4 - 6	TYPICAL SECTIONS
7 - 9	SUMMARY OF QUANTITIES
10	GENERAL NOTES AND PAY ITEM NOTES
11 - 24	PLAN
25 - 27	STORMWATER POLLUTION PREVENTION PLAN
28	TRAFFIC CONTROL GENERAL NOTES
29 - 30	TRAFFIC CONTROL PLAN
31 - 44	TRAFFIC CONTROL PLAN PHASE I
CTL-1 - CTL-3	PROJECT SURVEY CONTROL
UTV-1	SUMMARY OF VERIFIED UTILITIES

INDEX OF FINAL PLANS
COMPUTATION BOOK (1)
FIELD BOOK (1)

SHOP DRAWINGS (2 SET)
SIGNS: EDMS # 671352
SIGNALIZATION: EDMS #'S: 667153 & 667154
LANDSCAPE: EDMS # 683943
IRRIGATION: EDMS # 683939

AS-BUILT SIGNALIZATION & LIGTHING

GOVERNING STANDARDS AND SPECIFICATIONS: FLORIDA DEPARTMENT OF TRANSPORTATION, DESIGN STANDARDS DATED 2010, AND STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION DATED 2010, AS AMENDED BY CONTRACT DOCUMENTS.

APPLICABLE DESIGN STANDARDS MODIFICATIONS: 01-01-2012
For Design Standards Modifications click on "Design Standards" of the following web site:
http://www.dot.state.fl.us/rddesign/

REVISIONS:
Roadway sheets 1, 2, 3, 7, 18, 21, 41 (revised 8/27/12)
△ Signing and Pavement Markings sheets S-3, S-14 (revised 8/27/12)
△ Signalization sheets T-2, T-6, T-7, T-8 (revised 11/26/12)
△ Roadway sheets 1, 3 (revised 11/26/12)
△ Landscaping sheet LD-20 (revised 02/01/13)
△ Roadway sheet 1 (revised 02/01/13)
4 Concrete As-Builts Sheets 11 & 20

2/4/13

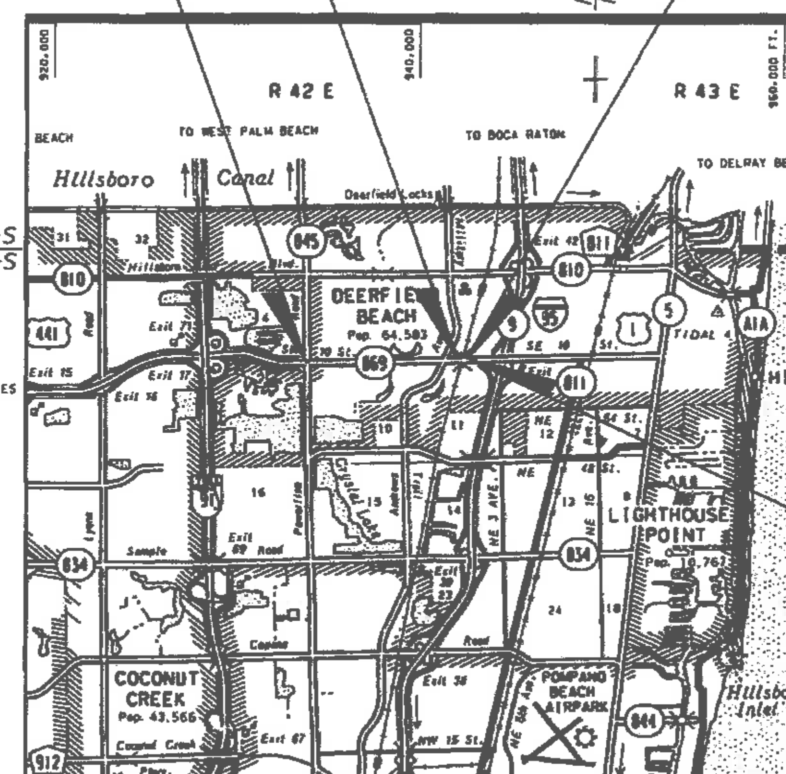
BEGIN BRIDGE
STA. 182+73.63
MP 1.598

BEGIN PROJECT
STA. 99+00.00
MP 0.012

AT WATERWAYS

END BRIDGE
STA. 185+59.23
MP 1.652

END PROJECT
STA. 195+60.00
MP 1.829



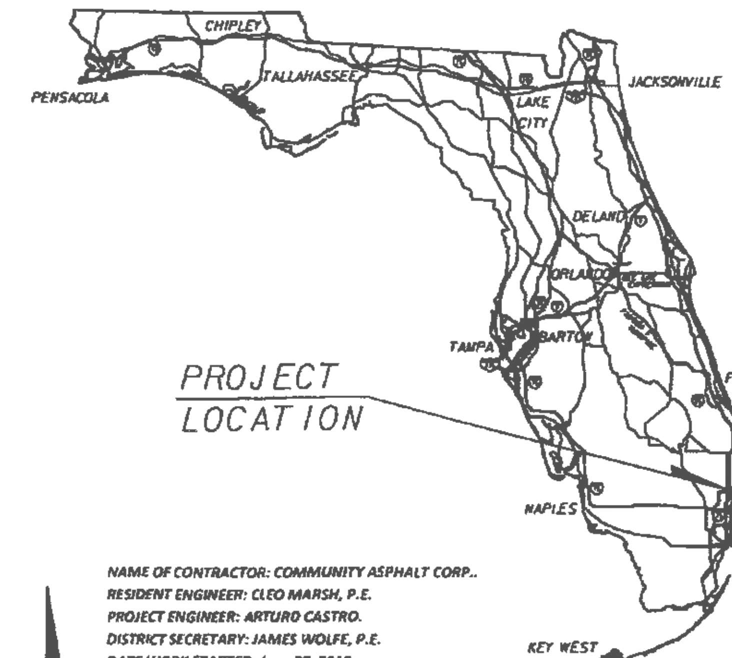
0 1 2 Miles

N

PROJECT LENGTH IS BASED ON ℄ OF SURVEY

LENGTH OF PROJECT	LINEAR FEET	MILES
ROADWAY	9374	1.775
BRIDGES	286	0.054
NET LENGTH OF PROJECT	9660	1.829
EXCEPTIONS	N/A	N/A
GROSS LENGTH OF PROJECT	9660	1.829

FDOT PROJECT MANAGER: SCOTT J. PETERSON, P.E.



PROJECT LOCATION

NAME OF CONTRACTOR: COMMUNITY ASPHALT CORP..
RESIDENT ENGINEER: CLEO MARSH, P.E.
PROJECT ENGINEER: ARTURO CASTRO.
DISTRICT SECRETARY: JAMES WOLFE, P.E.
DATE WORK STARTED: June 22, 2012
DATE WORK FINAL ACCEPTANCE: March 22, 2013

ROADWAY SHOP DRAWINGS TO BE SUBMITTED TO:

MORAYMA OCHOA
DISTRICT 4 STRUCTURES OFFICE
3400 WEST COMMERCIAL BLVD.
FORT LAUDERDALE, FL. 33309-3421

PLANS PREPARED BY:

HUMBERTO ARRIETA, E.I.
INES SHAFFER
DISTRICT 4 IN-HOUSE DESIGN SECTION 2
3400 WEST COMMERCIAL BLVD.
FORT LAUDERDALE, FL. 33309-3421

NOTE: THE SCALE OF THESE PLANS MAY HAVE CHANGED DUE TO REPRODUCTION.

THIS PROJECT WAS CONSTRUCTED IN SUBSTANCIAL COMPLIANCE WITH THESE PLANS AS PROVIDED BY THE ENGINEER OF RECORD. IF CHANGES WERE MADE, THOSE CHANGES ARE INDICATED BY BLACK INK REVISION AND BEAR THE SEAL, SIGNATURE AND DATE OF THE RESPONSIBLE ENGINEER.

RESIDENT ENGINEER — DATE 4-18-13

KEY SHEET REVISIONS	
DATE	DESCRIPTION

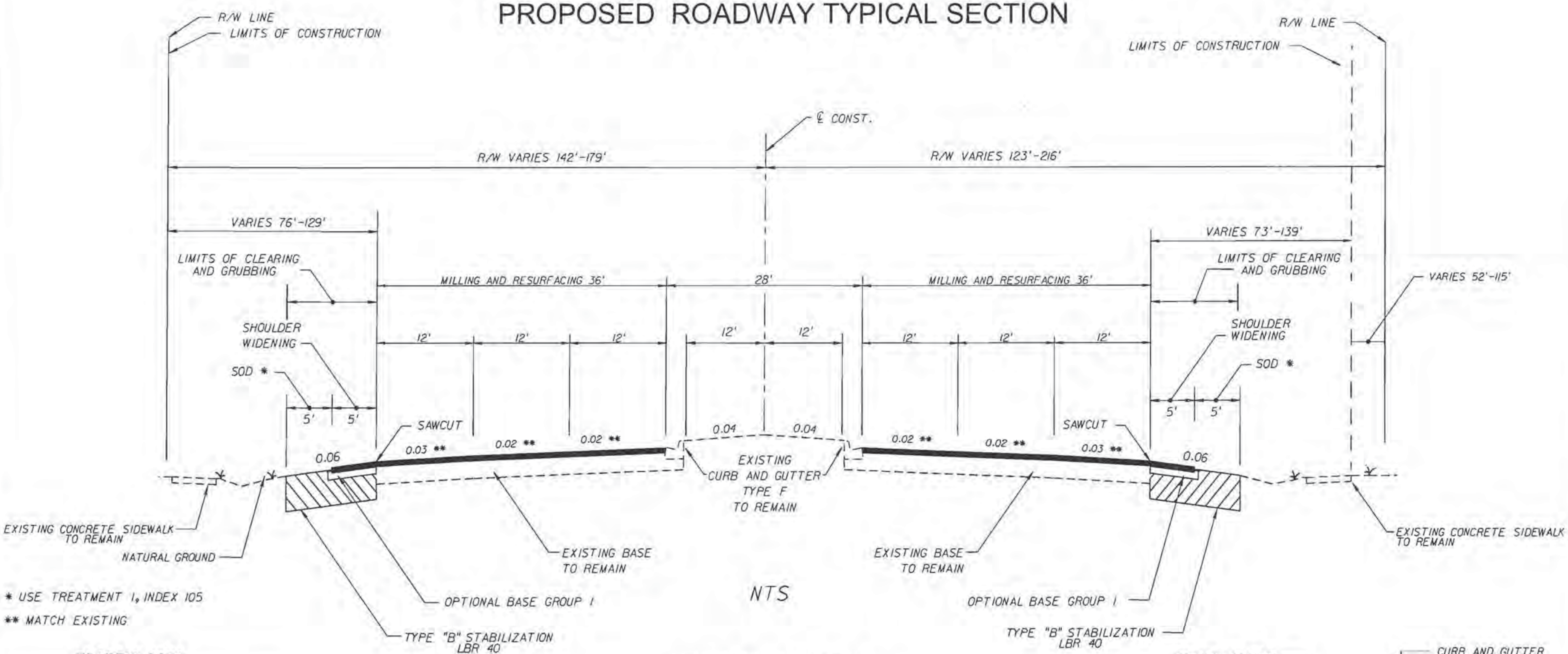
ROADWAY PLANS
ENGINEER OF RECORD: SCOTT J. PETERSON, P.E.

P.E. NO.: 52740

FISCAL YEAR	SHEET NO.
12	1

NOTICE: THE OFFICIAL RECORD OF THIS SHEET IS THE ELECTRONIC FILE SIGNED AND SEALED UNDER RULE 61G15-23.003, F.A.C.

PROPOSED ROADWAY TYPICAL SECTION



* USE TREATMENT 1, INDEX 105

** MATCH EXISTING

TYPICAL SECTION
SR 869 (S.W. 10th STREET)
STA. 99+00.00 TO STA. 118+00.00

TRAFFIC DATA

CURRENT YEAR = 2009 AADT = 40500
ESTIMATED OPENING YEAR = 2014 AADT = 47000
ESTIMATED DESIGN YEAR = 2034 AADT = 58300
K = 8.63% D = 55.75% T = 5.15% (24 HOUR)
DESIGN HOUR T = 1%
DESIGN SPEED = 45 MPH

MILLING

MILL EXISTING ASPHALT PAVEMENT (1" AVG. DEPTH)

RESURFACING

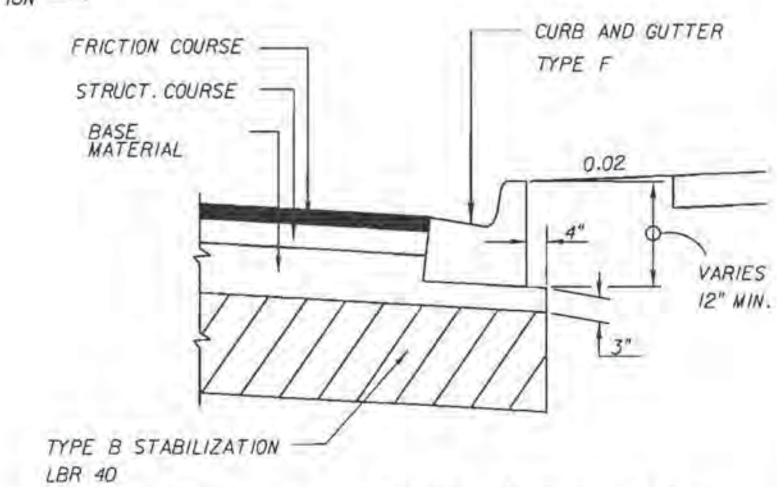
FRICTION COURSE FC-9.5 (TRAFFIC C)(1")(RUBBER)

SHOULDER WIDENING

OPTIONAL BASE GROUP 1 (TYPE B-12.5)
FRICTION COURSE FC-9.5 (TRAFFIC C)(1")(RUBBER)

ROADWAY WIDENING

OPTIONAL BASE GROUP 15 (TYPE B-12.5)
SP (TRAFFIC C)(2")
FRICTION COURSE FC-9.5 (TRAFFIC C)(1")(RUBBER)



DETAIL OF BASE CURB PAD

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REVISIONS			
DATE	DESCRIPTION	DATE	DESCRIPTION

ENGINEER OF RECORD
SCOTT PETERSON, P.E.
P.E. NO. 52740
3400 WEST COMMERCIAL BLVD
FORT LAUDERDALE, FL 33309

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

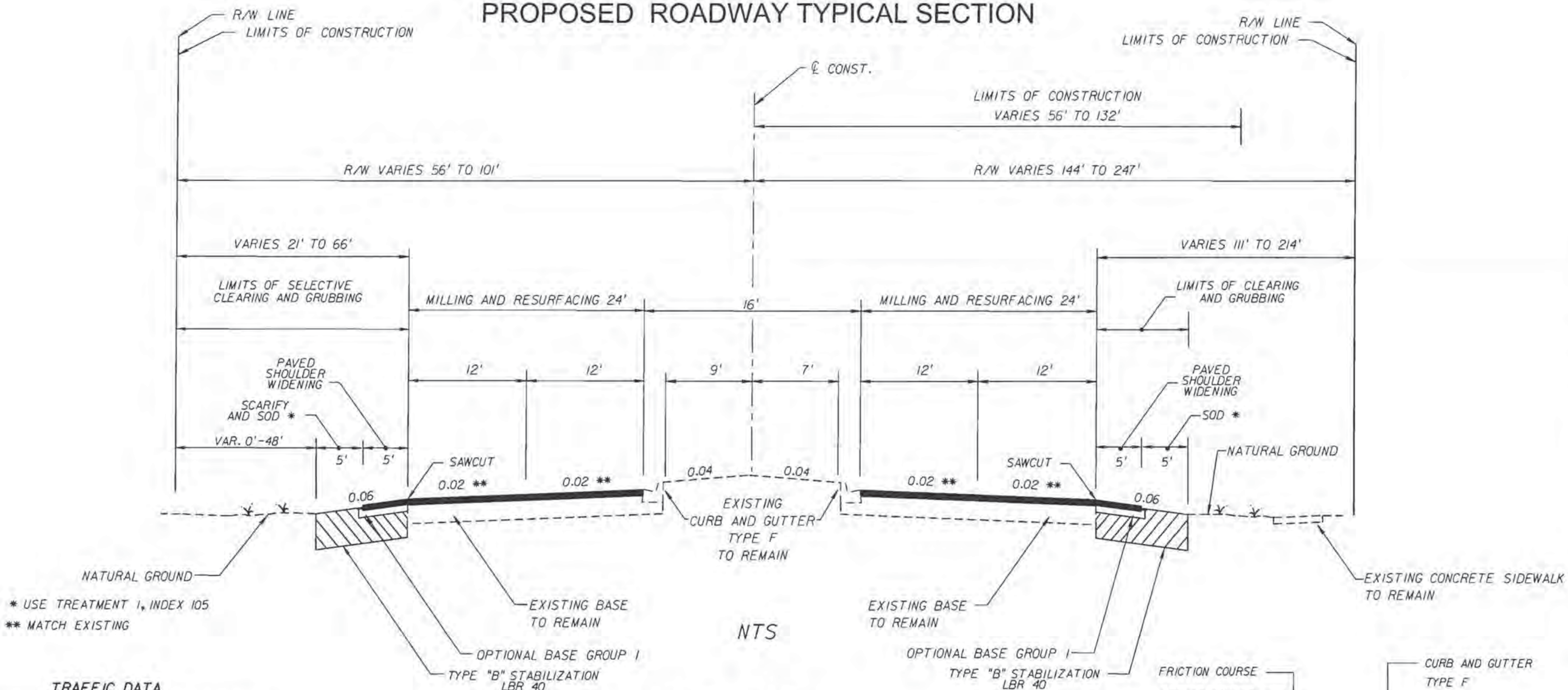
ROAD NO.	COUNTY	FINANCIAL PROJECT ID
869	BROWARD	424665-1-52-01

TYPICAL SECTIONS

SHEET NO. 4

rd452te 12/29/2011 11:34:30 AM C:\O_Projects\424665\5201\roadway\TYPSRD01.DGN

PROPOSED ROADWAY TYPICAL SECTION



TYPICAL SECTION
SR 869 (S.W. 10th STREET)
STA. 118+00.00 TO STA. 175+00.00

TRAFFIC DATA

CURRENT YEAR = 2009 AADT = 40500
ESTIMATED OPENING YEAR = 2014 AADT = 47000
ESTIMATED DESIGN YEAR = 2034 AADT = 58300
K = 8.63% D = 55.75% T = 5.15% (24 HOUR)
DESIGN HOUR T = 1%
DESIGN SPEED = 45 MPH

MILLING

MILL EXISTING ASPHALT PAVEMENT (1" AVG. DEPTH)

RESURFACING

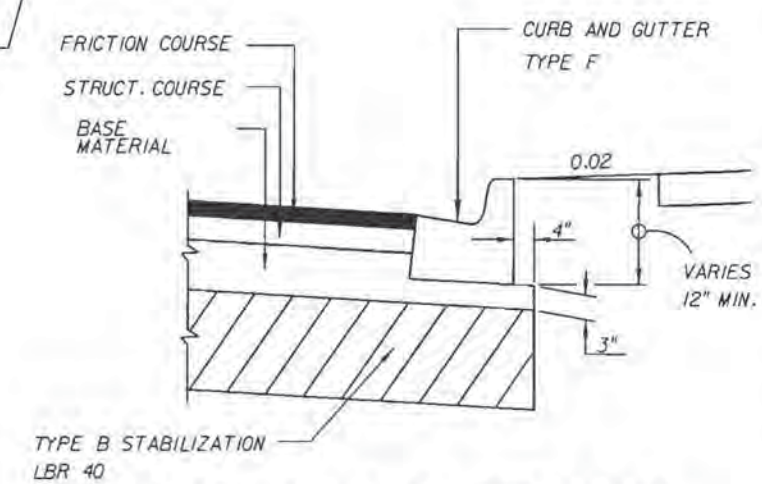
FRICTION COURSE FC-9.5 (TRAFFIC C)(1")(RUBBER)

SHOULDER WIDENING

OPTIONAL BASE GROUP 1(TYPE B-12.5)✓
FRICTION COURSE FC-9.5 (TRAFFIC C)(1")(RUBBER)

ROADWAY WIDENING

OPTIONAL BASE GROUP 15 (TYPE B-12.5)✓
SP (TRAFFIC C)(2")
FRICTION COURSE FC-9.5 (TRAFFIC C)(1")(RUBBER)

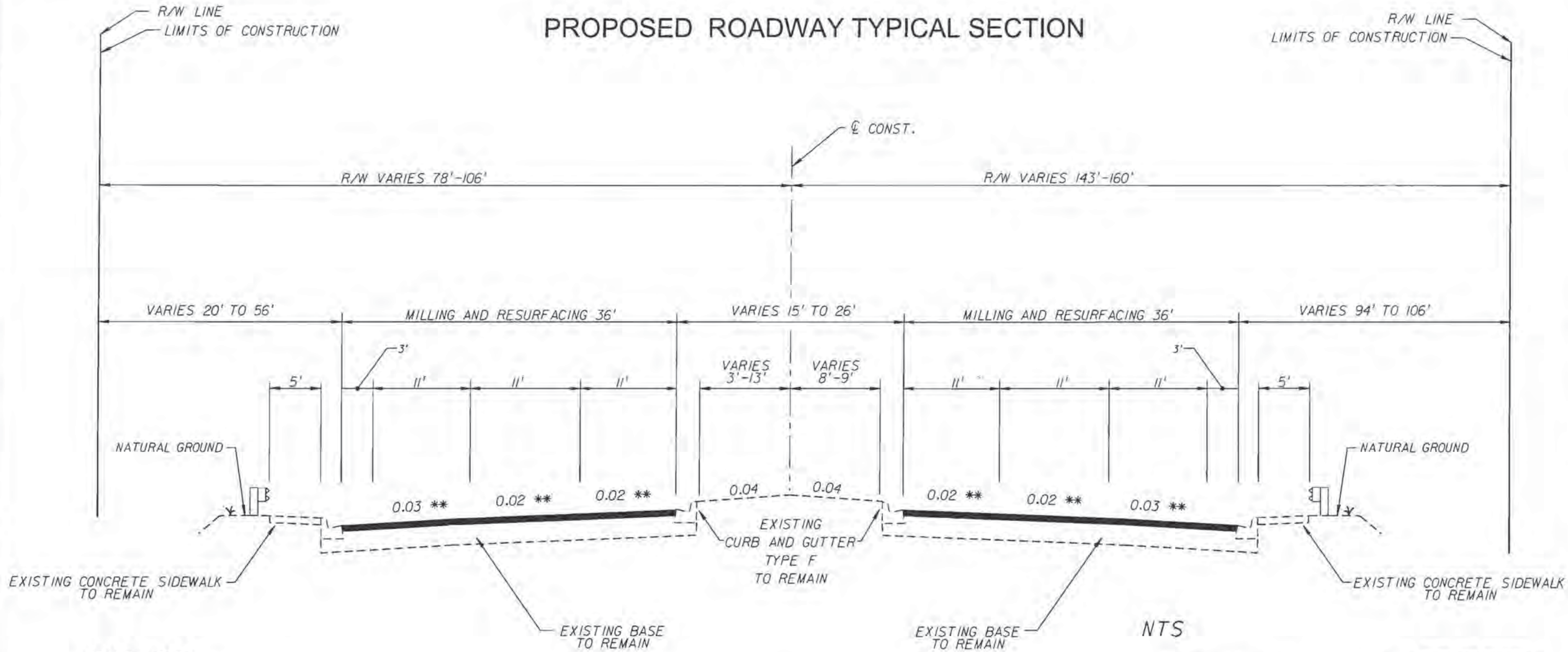


DETAIL OF BASE CURB PAD

REVISIONS				ENGINEER OF RECORD	STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION			TYPICAL SECTIONS	SHEET NO.
DATE	DESCRIPTION	DATE	DESCRIPTION	SCOTT PETERSON, P.E. P.E. NO. 52740 3400 WEST COMMERCIAL BLVD FORT LAUDERDALE, FL 33309	ROAD NO.	COUNTY	FINANCIAL PROJECT ID		
					869	BROWARD	424665-1-52-01		5

rd4521e 12/29/2011 11:34:30 AM C:\0_Projects\424665\5201\roadway\TYPSRD01.DGN

PROPOSED ROADWAY TYPICAL SECTION

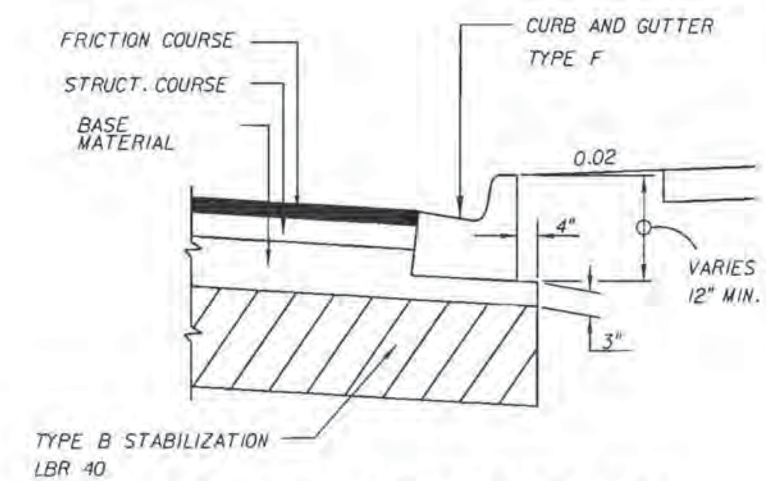


NTS

TRAFFIC DATA

CURRENT YEAR = 2009 AADT = 40500
ESTIMATED OPENING YEAR = 2014 AADT = 47000
ESTIMATED DESIGN YEAR = 2034 AADT = 58300
K = 8.63% D = 55.75% T = 5.15% (24 HOUR)
DESIGN HOUR T = 1%
DESIGN SPEED = 45 MPH

TYPICAL SECTION
SR 869 (S.W. 10th STREET)
STA. 175+00.00 TO STA. 195+60.00



DETAIL OF BASE CURB PAD

MILLING

MILL EXISTING ASPHALT PAVEMENT (1" AVG. DEPTH)

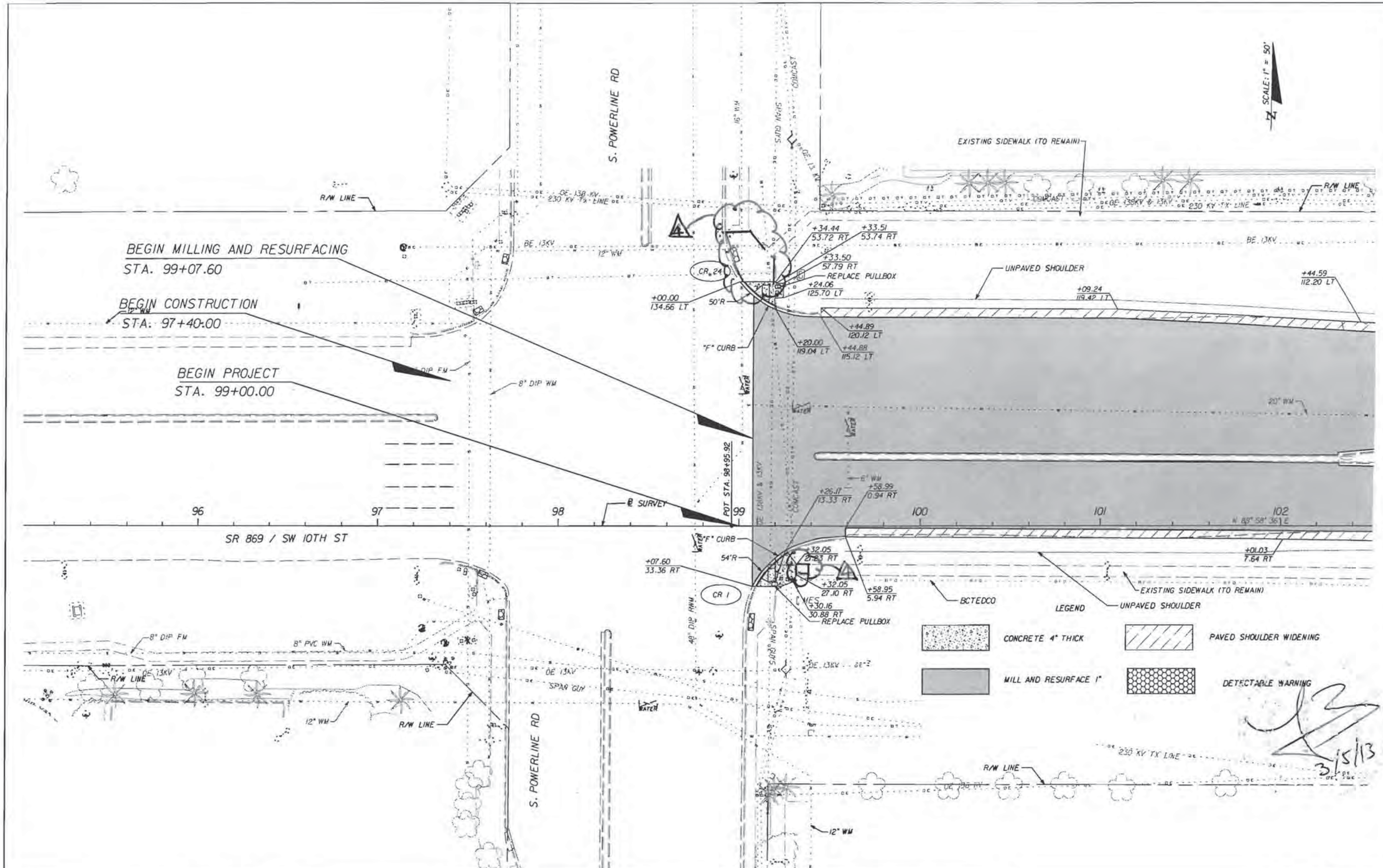
RESURFACING

FRICTION COURSE FC-9.5 (TRAFFIC C)(1")(RUBBER)

ROADWAY WIDENING

OPTIONAL BASE GROUP 15 (TYPE B-12.5)
SP (TRAFFIC C)(2")
FRICTION COURSE FC-9.5 (TRAFFIC C)(1")(RUBBER)

REVISIONS				ENGINEER OF RECORD	STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION				SHEET NO.
DATE	DESCRIPTION	DATE	DESCRIPTION	SCOTT PETERSON, P.E. P.E. NO. 52740 3400 WEST COMMERCIAL BLVD FORT LAUDERDALE, FL 33309	ROAD NO.	COUNTY	FINANCIAL PROJECT ID	TYPICAL SECTIONS	
					869	BROWARD	424665-1-52-01		6



REVISIONS			
DATE	DESCRIPTION	DATE	DESCRIPTION
3/5/13	Cracked & damaged sidewalk. Concrete change		

ENGINEER OF RECORD
SCOTT PETERSON, P.E.
P.E. NO. 52740
3400 WEST COMMERCIAL BLVD
FORT LAUDERDALE, FL 33309

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
869	BROWARD	424665-1-52-01

PLAN

SHEET NO. 11

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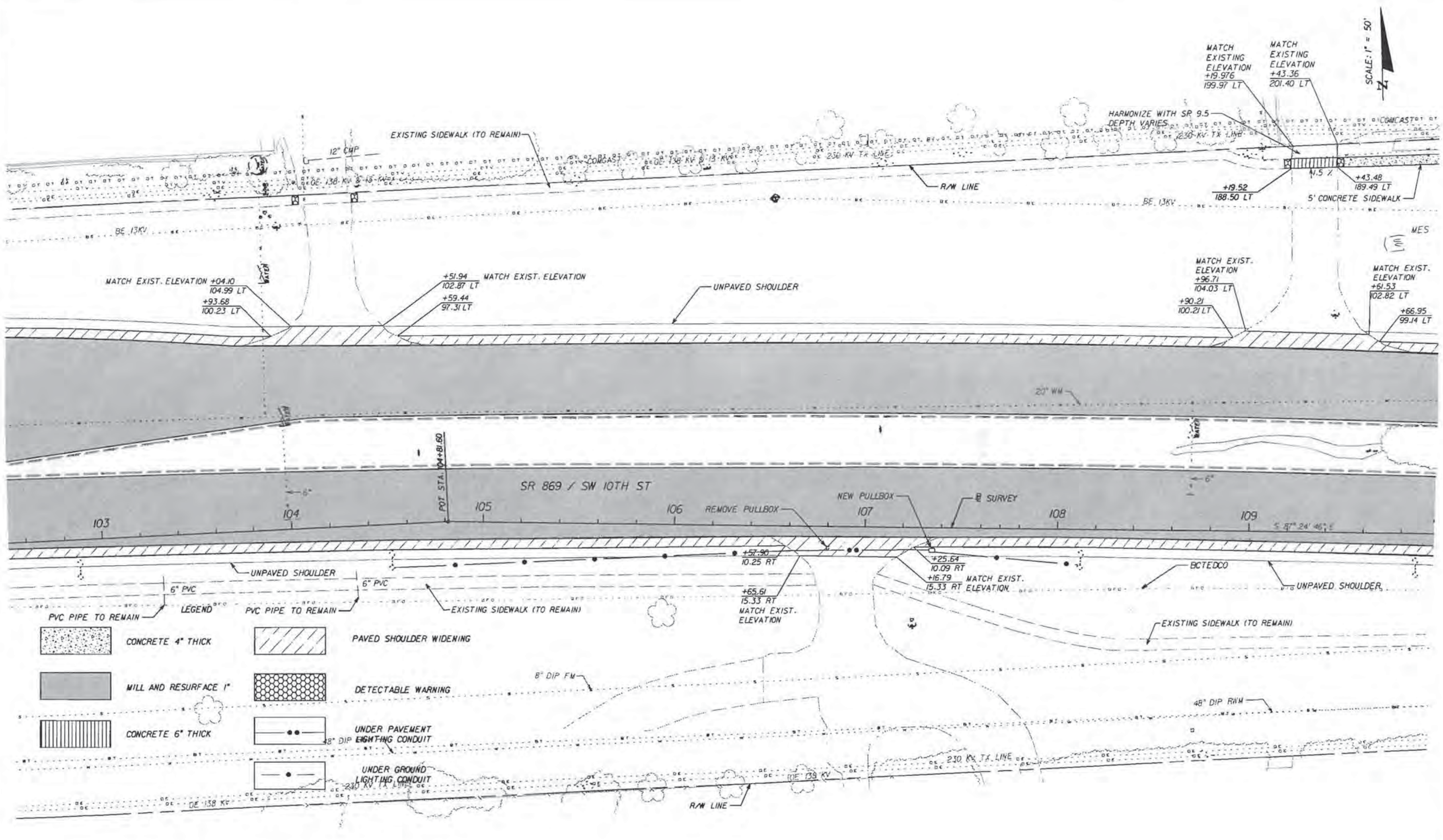

REVISIONS			
DATE	DESCRIPTION	DATE	DESCRIPTION

ENGINEER OF RECORD

SCOTT PETERSON, P.E.
P.E. NO. 52740
3400 WEST COMMERCIAL BLVD
FORT LAUDERDALE, FL 33309

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
869	BROWARD	424665-1-52-01

PLAN

SHEET NO.
12

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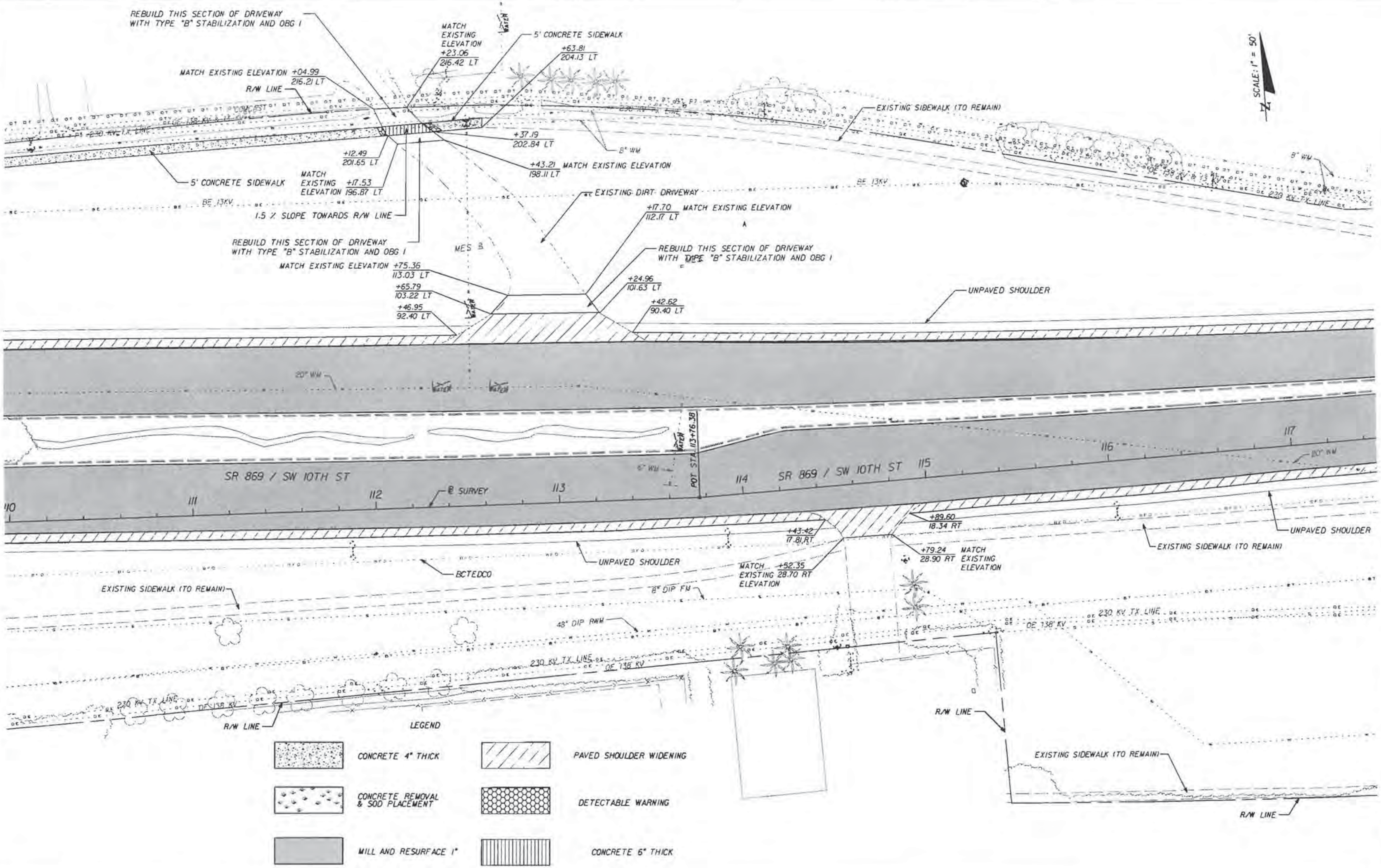


REVISIONS			
DATE	DESCRIPTION	DATE	DESCRIPTION

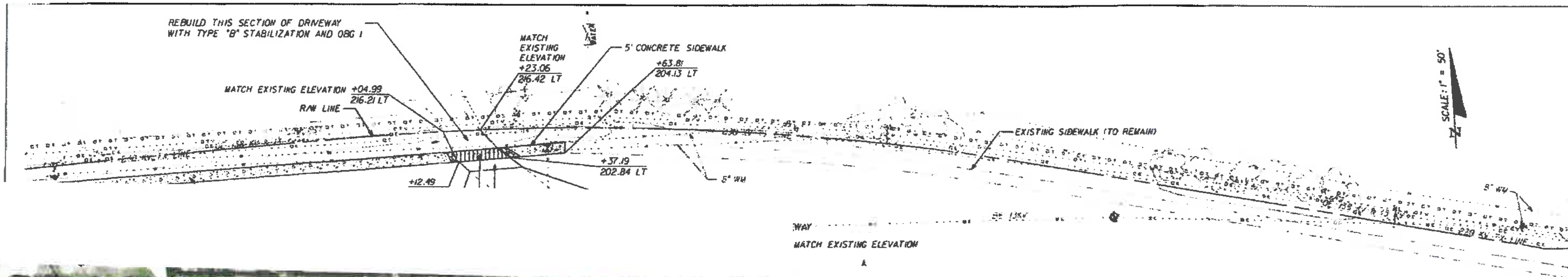
ENGINEER OF RECORD
SCOTT PETERSON, P.E.
P.E. NO. 52740
3400 WEST COMMERCIAL BLVD
FORT LAUDERDALE, FL 33309

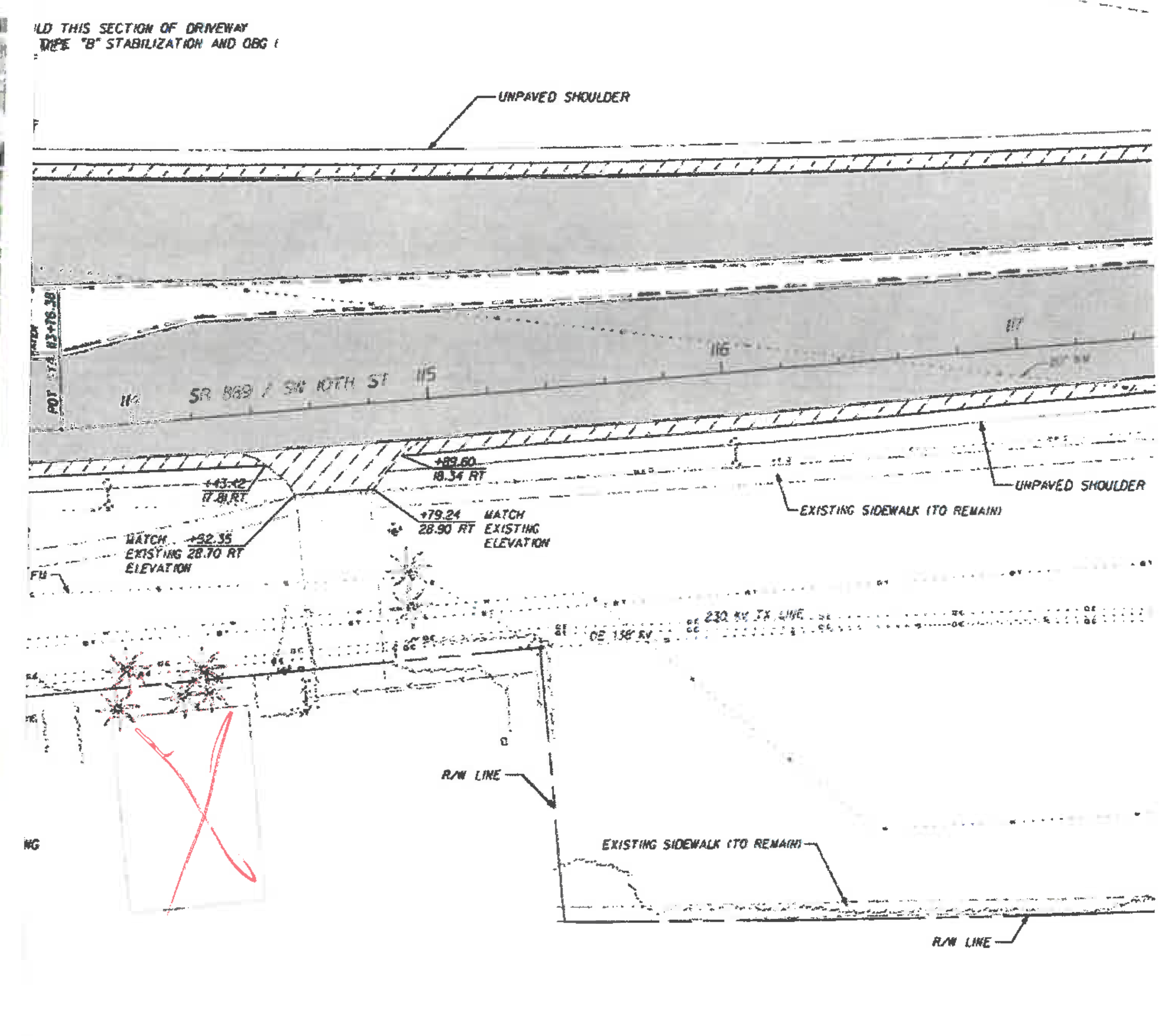
STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
869	BROWARD	424665-1-52-01

PLAN

SHEET NO. 13





HYPOTH. POND SITE FOR R/W COST ESTIMATE ONLY

STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION			PLAN	SHEET NO.
ROAD NO.	COUNTY	FINANCIAL PROJECT ID		
869	BROWARD	424665-1-52-01		13

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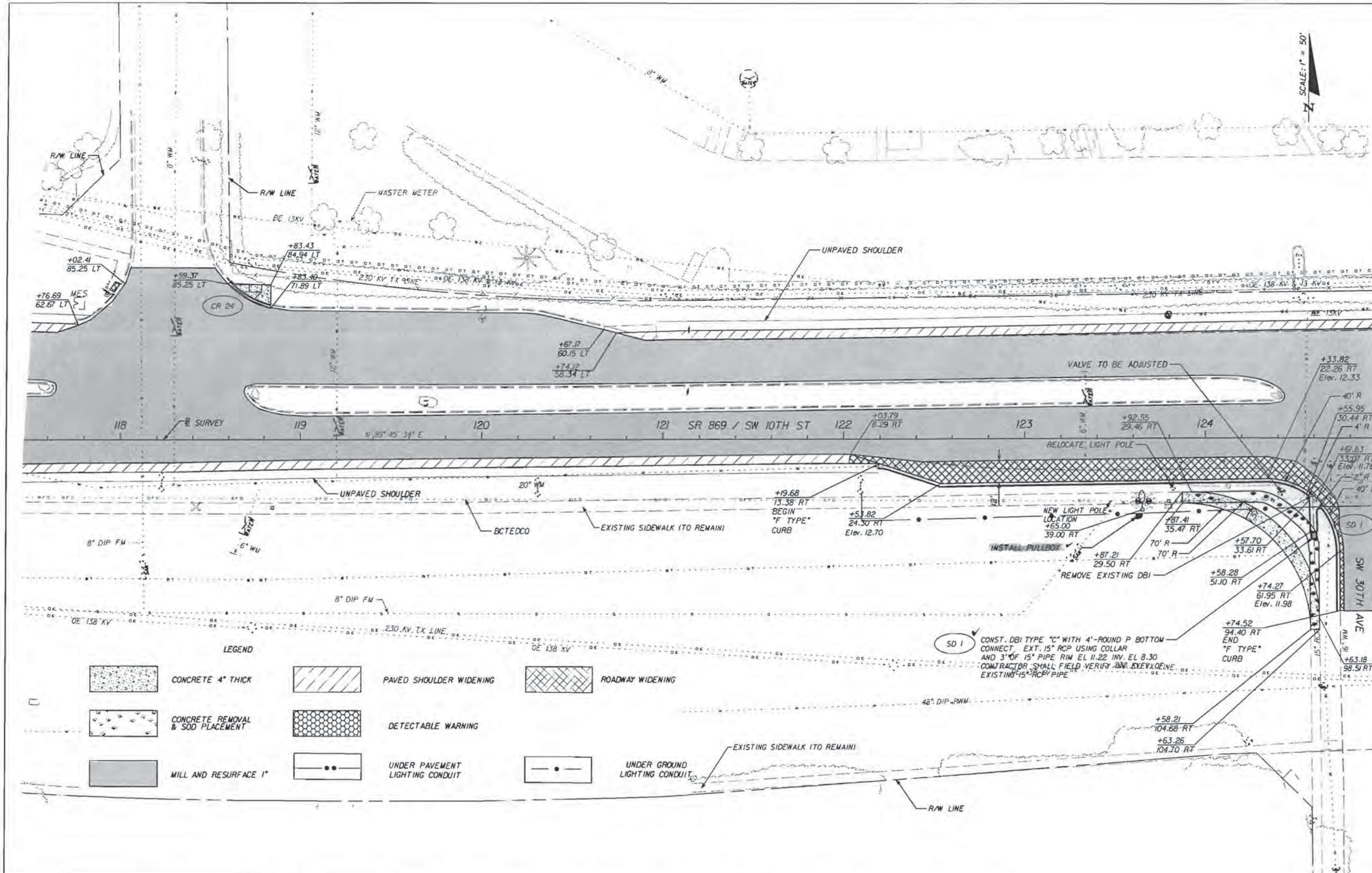

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REVISIONS			
DATE	DESCRIPTION	DATE	DESCRIPTION

ENGINEER OF RECORD

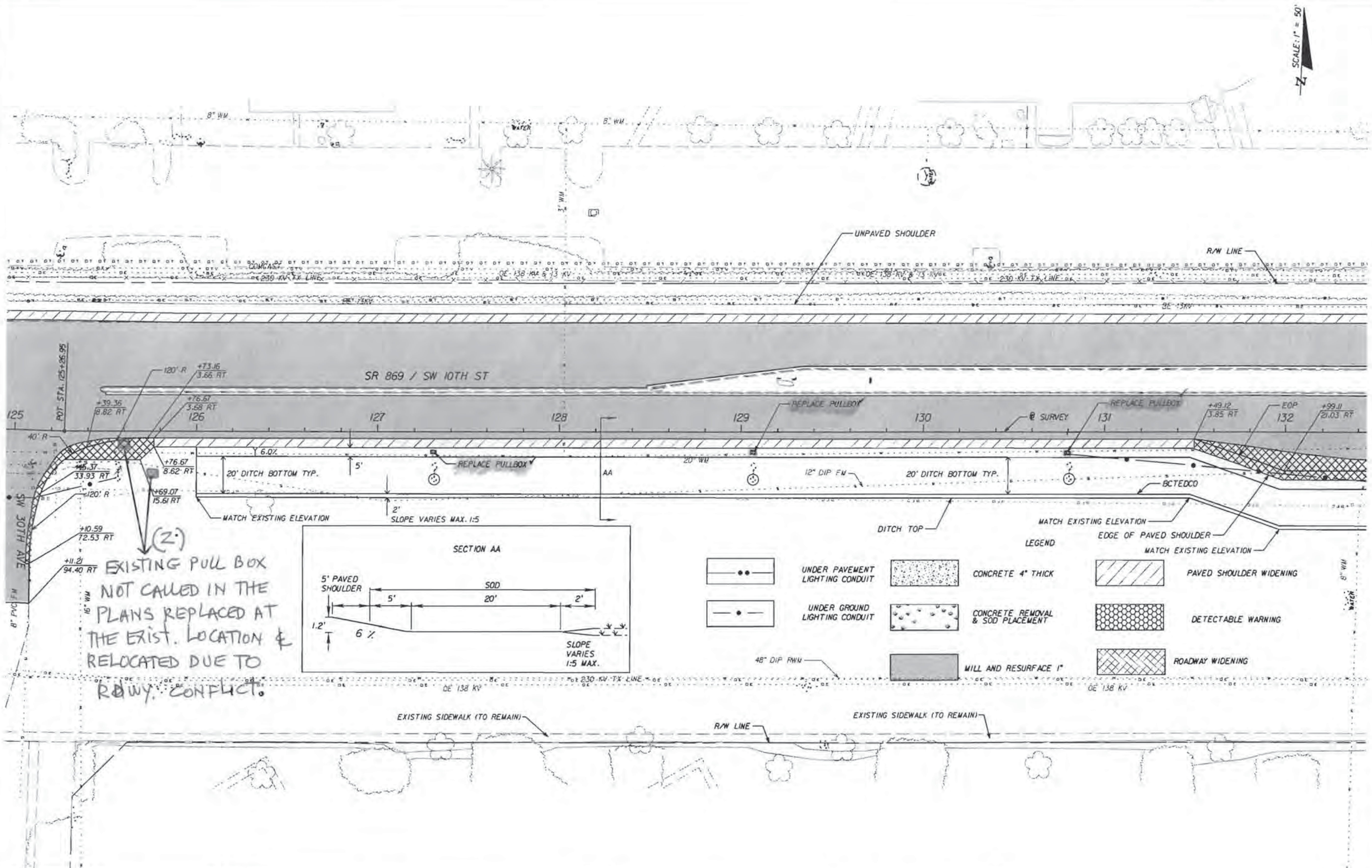
SCOTT PETERSON, P.E.
P.E. NO. 52740
3400 WEST COMMERCIAL BLVD
FORT LAUDERDALE, FL 33309

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
869	BROWARD	424665-1-52-01

PLAN

SHEET NO. 14



REVISIONS			
DATE	DESCRIPTION	DATE	DESCRIPTION

ENGINEER OF RECORD
SCOTT PETERSON, P.E.
P.E. NO. 52740
3400 WEST COMMERCIAL BLVD
FORT LAUDERDALE, FL 33309

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
869	BROWARD	424665-1-52-01

PLAN

SHEET NO. 15

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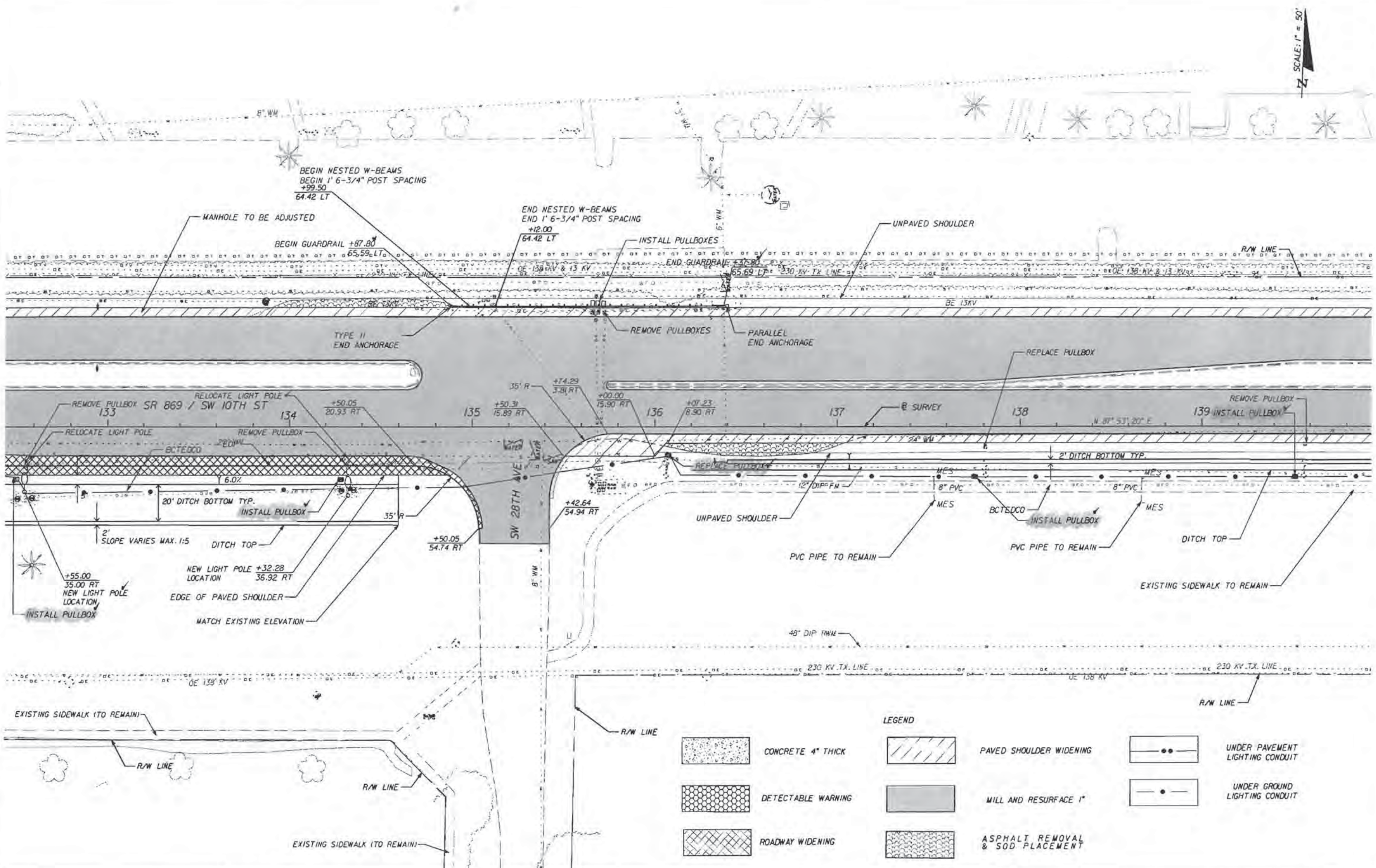

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ENGINEER OF RECORD
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P.E. NO. 52740
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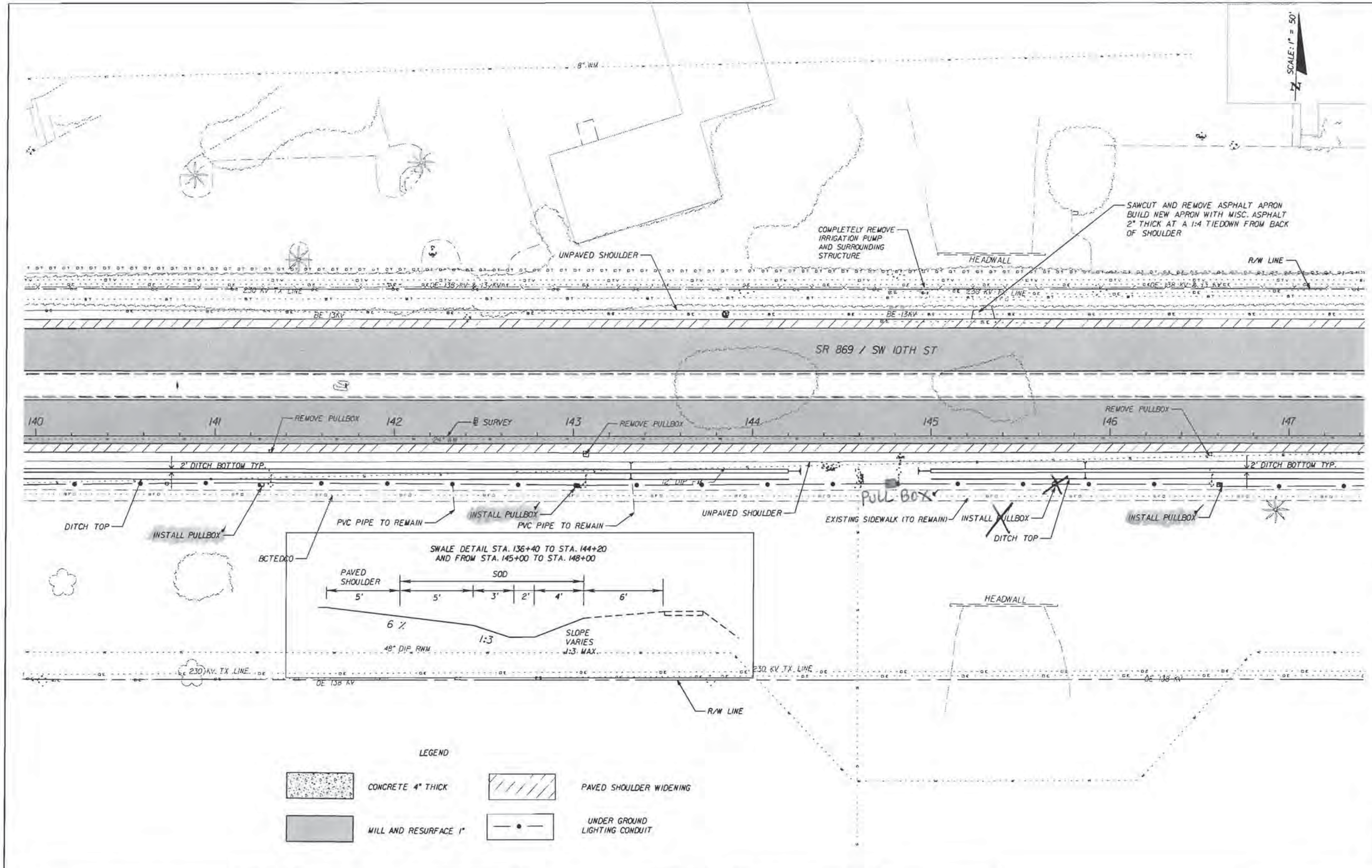
FORT LAUDERDALE, FL 33309

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
869	BROWARD	424665-1-52-01

PLAN

SHEET NO. 16



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REVISIONS

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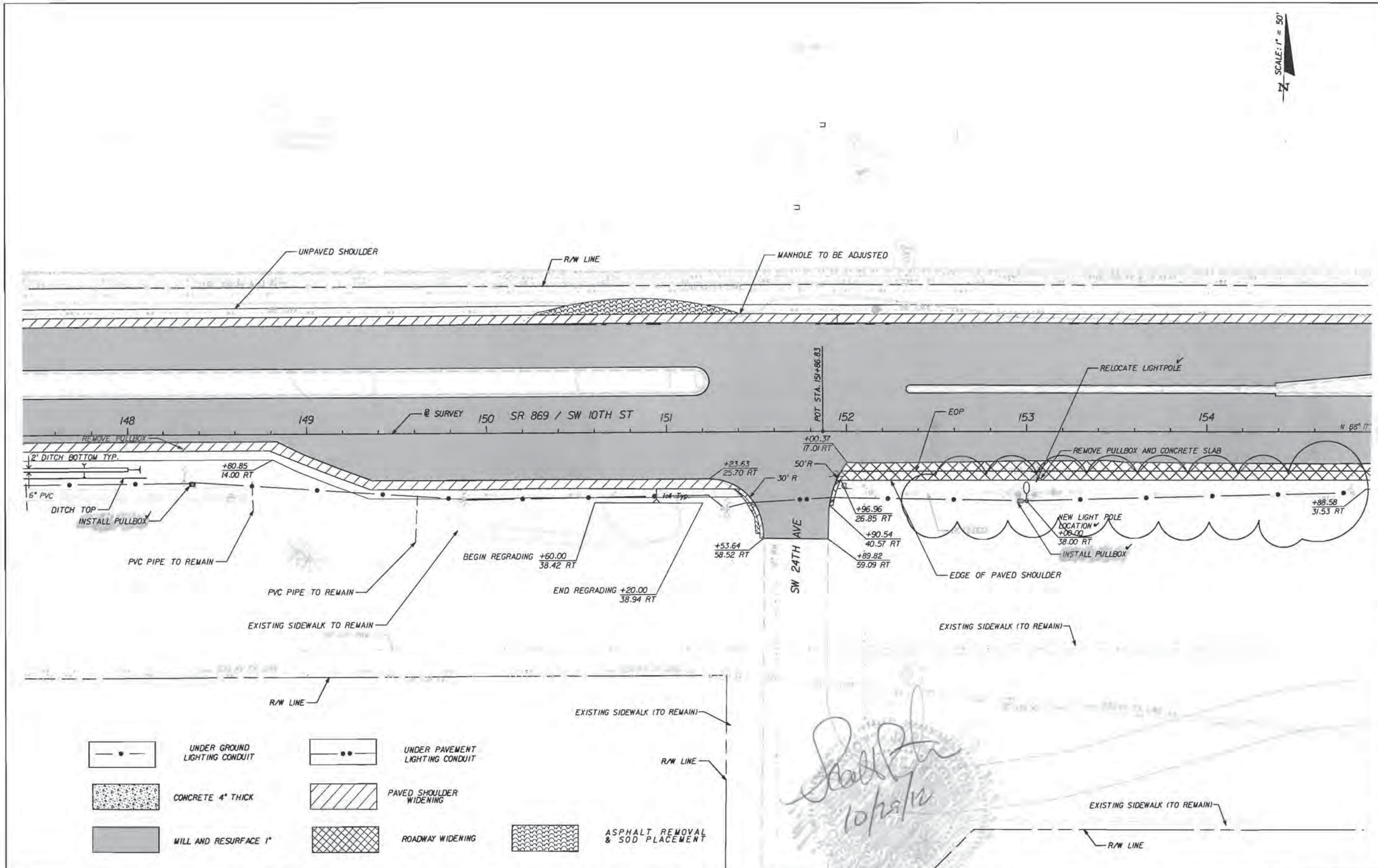
STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
869	BROWARD	424665-1-52-01

PLAN

SHEET NO.
17



REVISIONS			
DATE	DESCRIPTION	DATE	DESCRIPTION
8/27/12	Unpaved shoulder line deleted		

ENGINEER OF RECORD

SCOTT PETERSON, P.E.
P.E. NO. 52740
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FORT LAUDERDALE, FL 33309

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
869	BROWARD	424665-1-52-01

PLAN

SHEET NO. 18

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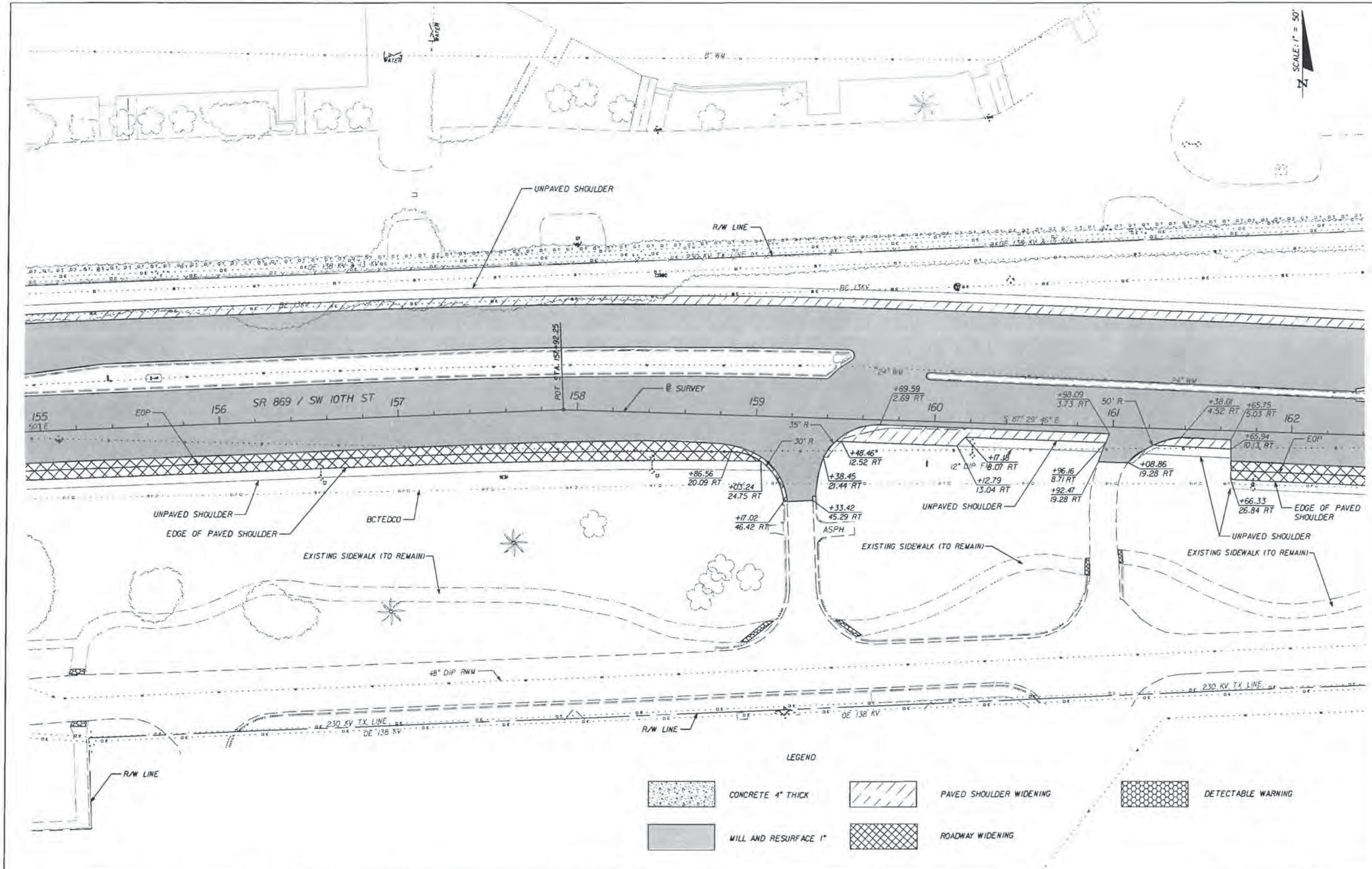

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REVISIONS			
DATE	DESCRIPTION	DATE	DESCRIPTION

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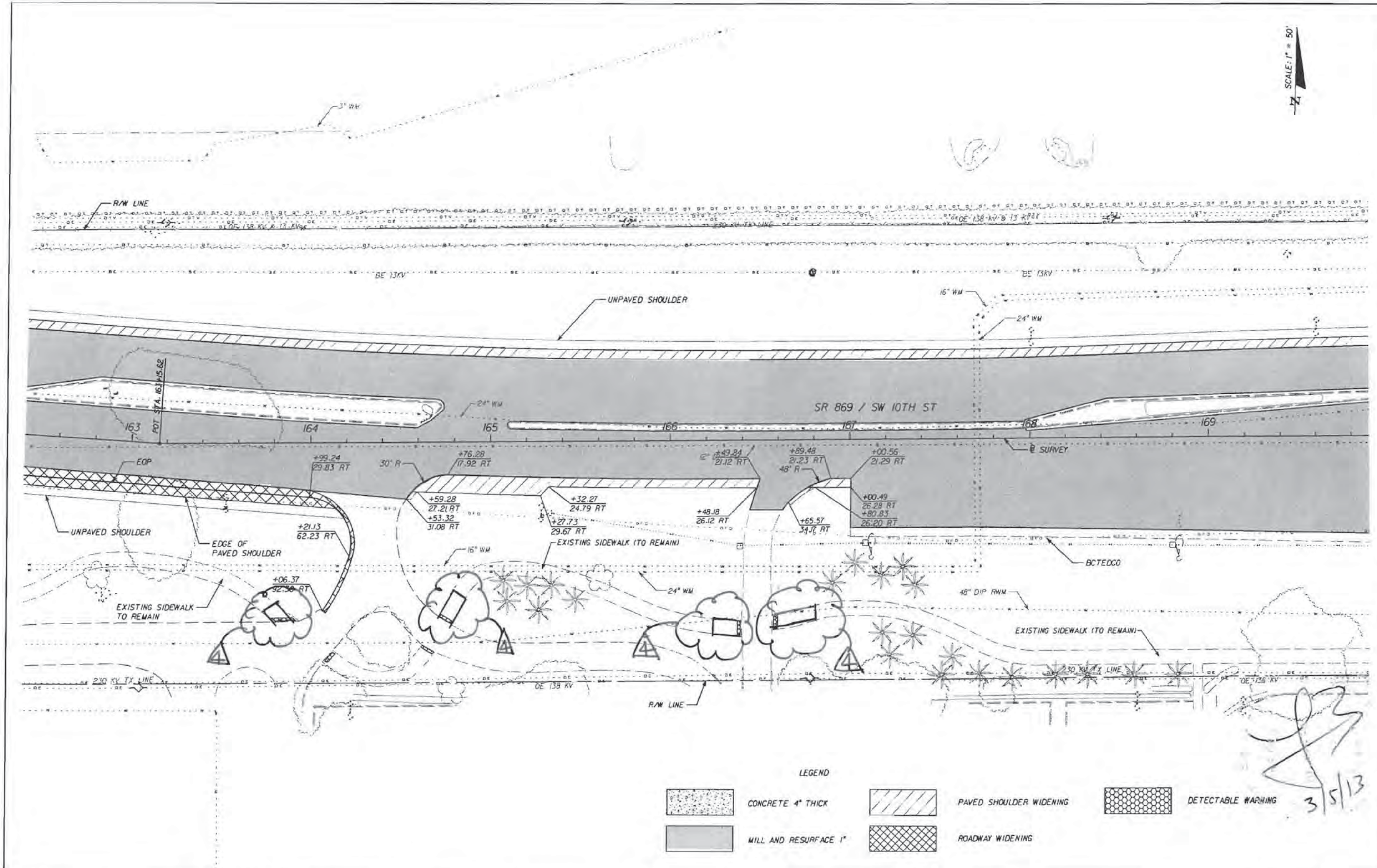
SCOTT PETERSON, P.E.
P.E. NO. 52740
3400 WEST COMMERCIAL BLVD
FORT LAUDERDALE, FL 33309

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
869	BROWARD	424665-1-52-01

PLAN

SHEET NO. 19



REVISIONS				ENGINEER OF RECORD	STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION				SHEET NO.
DATE	DESCRIPTION	DATE	DESCRIPTION	SCOTT PETERSON, P.E. P.E. NO. 52740 3400 WEST COMMERCIAL BLVD FORT LAUDERDALE, FL 33309	ROAD NO.	COUNTY	FINANCIAL PROJECT ID	PLAN	20
3/5/13	4 Cracked Sidewalk Concrete change				869	BROWARD	424665-1-52-01		

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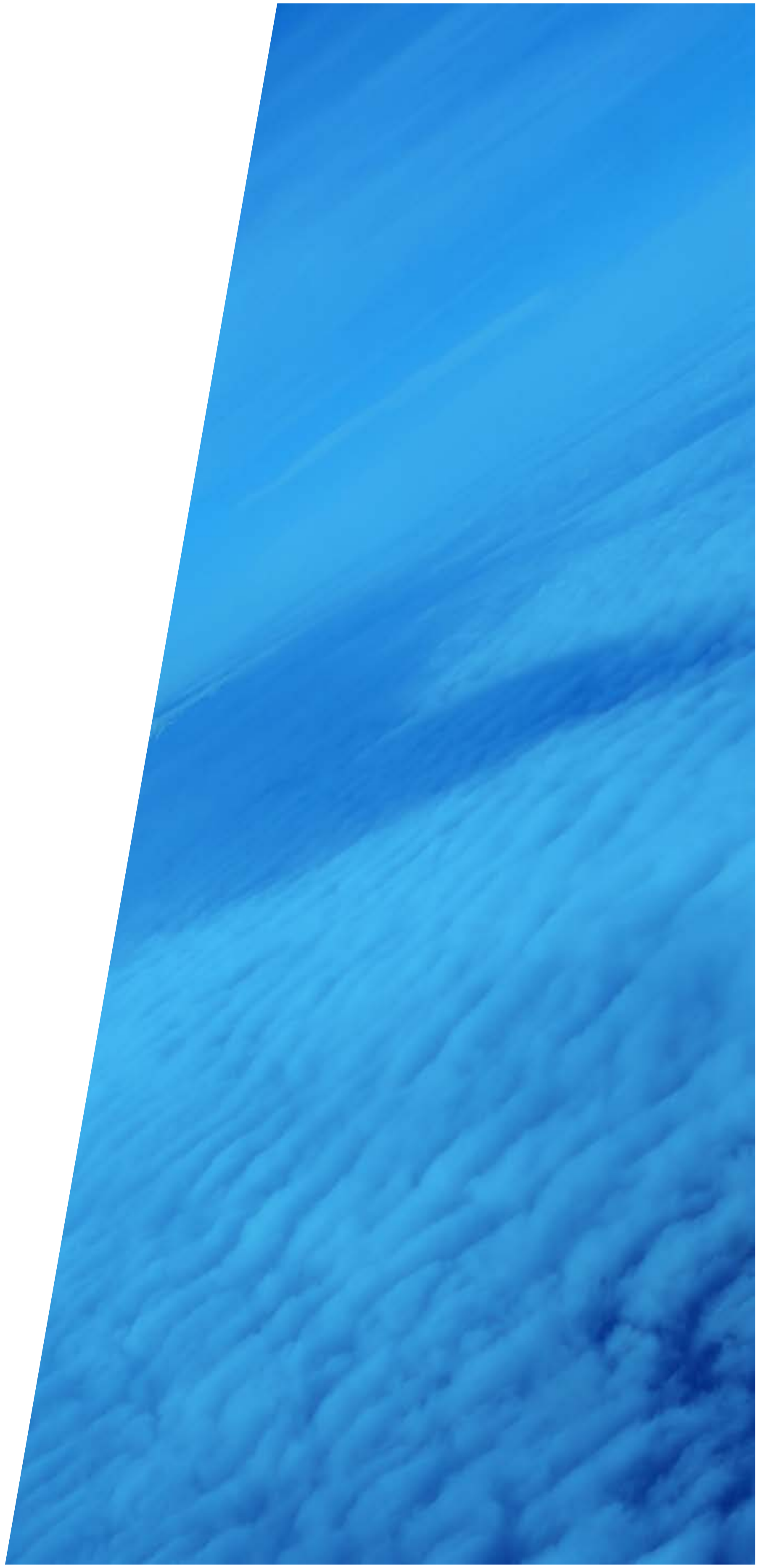
APPENDIX F

SFWMD DRAINAGE AND PERMIT DOCUMENTATION



TECHNICAL MEMORANDUM

AN ATLAS OF EASTERN BROWARD COUNTY SURFACE WATER MANAGEMENT BASINS

By

Richard M. Cooper
Jim Lane

DRE 231

November 1987

Water Resources Division
Resource Planning Department
South Florida Water Management District

HILLSBORO CANAL BASIN

Description of the Basin

The Hillsboro Canal basin has an area of approximately 102 square miles and is located in northeastern Broward County (40 square miles, Figure 2) and southeastern Palm Beach County (62 square miles). The basin boundary in Broward County relative to local roads and landmarks is shown on Map A. A schematic map showing the basin boundary, canals, and control structures is given in Figure 3.

The Project canals and control structures in the Hillsboro Canal basin have five functions: (1) to provide flood protection and drainage for the basin, (2) to supply water to the basin during periods of low natural flow, (3) to convey excess water from Water Conservation Area (WCA) 1 to tidewater, (4) to intercept and control seepage from WCA 2A, and (5) to maintain a groundwater surface elevation west of Deerfield Lock adequate to prevent saltwater intrusion into local groundwater. Excess water in the basin is discharged to tidewater by way of the Hillsboro Canal and Deerfield Lock. Excess water in WCA 1 is discharged to the Hillsboro Canal by way of S-39 and subsequently to tidewater by way of Deerfield Lock. Deerfield Lock also regulates water surface elevations in the Hillsboro Canal. Water supply to the basin is from WCA 1 by way of S-39, from WCA 2A by way of seepage to the L-36 borrow canal, and from local rainfall. The seepage rate to the L-36 borrow canal is regulated by the stage held in the canal by S-39A and S-38B.

There are two Project canals in the Hillsboro Canal basin: the Hillsboro Canal and the section of the L-36 borrow canal between the Hillsboro Canal and S-38B.

The Hillsboro Canal connects Lake Okeechobee to the Atlantic Ocean. It enters the basin through S-39 at the intersection of L-36 and L-40. Within the Hillsboro Canal basin, the Hillsboro Canal is aligned parallel to and just north of State Road 827 west of State Road 7 and parallel to and one-half mile north of State Road 810 east of State Road 7. Direction of flow in the canal is normally to the east with discharge to the Intracoastal Waterway just west of the intersection of A1A and State Road 810.

The L-36 borrow canal is aligned north-south along the western boundary of the basin and south of the Hillsboro Canal. The canal intercepts seepage from WCA 2A and is tributary to the Hillsboro Canal. Direction of flow in the canal is to the north to the Hillsboro Canal.

There are four Project control structures regulating flow in the Hillsboro Canal basin: S-38B, S-39, S-39A, and Deerfield Locks (G-56). Design criteria for these structures are given in Table 1.

S-38B is a gated culvert located in the alignment of the L-36 borrow canal just north of Wiles Road at the North Springs Improvement District pump station. The structure is always closed and acts as a divide between the Hillsboro Canal basin and the C-14 basin. The pump station discharges up to 110 cfs of water to either side of S-38B. This water is drainage from the southeast corner of the Hillsboro Canal basin.

S-39 is a gated spillway located in the alignment of the Hillsboro Canal at the intersection of L-39 and L-40. This structure regulates discharges from WCA 1 to the

Hillsboro Canal basin. During normal operation S-39 is opened to supply water to the Hillsboro Canal basin as required to maintain the optimum stage at Deerfield Lock. When WCA 1 is over schedule the structure may be opened to discharge excess water in the WCA to tidewater, by way of the Hillsboro Canal, provided two conditions are met: (1) the water is not needed in WCA 2 or WCA 3 and (2) the Hillsboro Canal is not flowing to capacity (i.e., the tailwater stage at S-39 does not exceed 9.0 ft NGVD).

S-39A is a gated culvert located in the alignment in the L-36 borrow canal just south of the Hillsboro Canal. Together with S-38B this structure controls the seepage rate from WCA 2A to the L-36 borrow canal by regulating the water level in the borrow canal. Normally a stage of 7.0 to 7.5 ft NGVD is maintained in the canal. Runoff, pumped drainage, and seepage to the canal are discharged to the Hillsboro Canal by S-39A.

Deerfield Lock (G-56) is a flashboard controlled five-bay spillway and lock structure. A gated spillway has been constructed within the lock. Deerfield Lock is located in the alignment of the Hillsboro Canal about three-quarters of a mile west of I-95. It controls water surface elevations in the upper reach of the Hillsboro Canal, and it controls discharges to tidewater. In so far as is possible the headwater stage at Deerfield Lock is maintained at 7.7 ft NGVD. This is usually adequate to prevent saltwater intrusion into local groundwater.

Comments on Design and Historic Operation

There is no design storm for the Hillsboro Canal. It was built prior to the Project. The District assumed responsibility for the canal and Deerfield Lock from the Everglades Drainage District.

The Hillsboro Canal above Deerfield Lock will pass approximately 1600 cfs without any flooding occurring in the basin. This provides flood protection of approximately three-quarters of an inch of runoff per day; however, allowable runoff into the canal above Deerfield Lock is 1.3 inches of runoff per day (35 cfs per square mile). The total allowable inflow to the canal upstream of Deerfield Lock varies from 2500 to 2700 cfs depending on the drainage area assumed. A hydraulic analysis made in 1974 indicated that if all culverts and pumps discharging into the canal were operated at the allowable runoff discharge, the tailwater stage at S-39 would be approximately 11 ft NGVD. Stages above 9 ft NGVD cause flooding in pasturelands in the southwestern portion of the basin.

To pass the allowable discharge at a stage no higher than 9.0 ft NGVD would require enlarging the Hillsboro Canal from Powerline Road to the west end at S-39. It would also require a new structure (to replace the spillway at Deerfield Lock) capable of passing approximately 3000 cfs at a difference between headwater and tailwater stages of 0.5 feet.

Most inflows to the Hillsboro Canal are from Lake Worth Drainage District canals in Palm Beach County. Because some of the north-south flowing LWDD canals do not have divide structures between the Hillsboro Canal basin and the C-15 basin (nor between the C-15 basin and the C-16 basin), some interbasin transfer of water may occur. This is especially true in the western portions of the C-15 and C-16 basins. Land in the C-15 and C-16 basins between L-40 and the Florida Turnpike may, under some conditions, drain to the Hillsboro Canal by way of LWDD canal E-1.

The stage held in the LWDD canals determines to some extent whether runoff in the basin enters the Hillsboro Canal upstream or downstream of Deerfield Lock. The drainage area upstream of Deerfield Lock may vary by as much as several square miles as the stages in the LWDD canals, especially E-3, vary. E-3 flows to the south one-half mile to the west of and parallel to Military Trail. It enters the Hillsboro Canal just downstream of Deerfield Lock. LWDD typically operates E-3 at a stage of 10 ft NGVD. At this stage, E-3 drains lands as far west as the Florida Turnpike, subtracting considerably from land that would otherwise drain to the upstream side of Deerfield Lock.

During severe storms the Hillsboro Canal develops flows to the east and to the west. The westward flow usually starts at U. S. Highway 441 and moves west to LWDD canal E1/2W approximately three miles west of U. S. Highway 441. The westward flow has a duration of 36 to 48 hours and causes flooding of pasturelands in the southwestern portion of the basin. The peak stage of the westward flow probably occurs one-half to three-quarters of a mile west of U. S. Highway 441. Owners of new developments in the southwestern portion of the basin are required to hold all of the runoff from their property for 48 hours. If the tailwater stage at S-39 exceeds 12.5 ft NGVD, the developers must also accept inflows of water from outside their property and hold it in their reservoirs.

Peak discharges and headwater stages in the basin occurred during the April 25, 1979 storm. The peak discharge at Deerfield Lock was 3700 cfs with an average flow for the day of 3030 cfs. Discharges above 3000 cfs cause flooding in the Boca Raton area and in the area west of U. S. Highway 441. The peak headwater stage at Deerfield Lock was 10.86 ft NGVD with an average for the day of 8.79 ft NGVD. The average tailwater stage on April 25 was 5.51 ft NGVD, and on April 26, it was 6.95 ft NGVD.

Peak tailwater stages occurred during the October 15, 1965 storm. Peak stage at the west end of the Hillsboro Canal at S-39 was 12.39 ft NGVD. At Deerfield Lock, the peak tailwater stage was 9.2 ft NGVD.

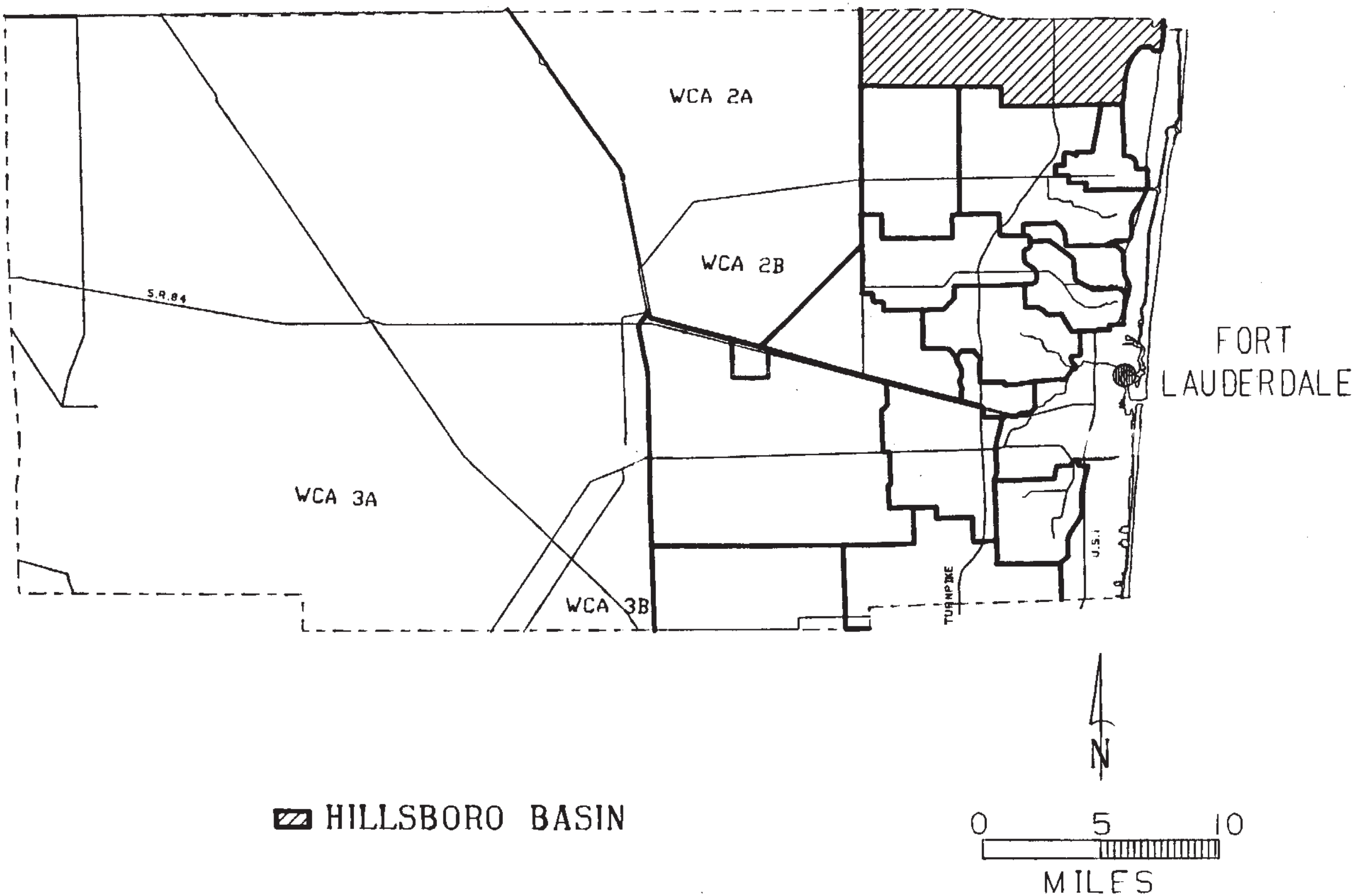


FIGURE 2 HILLSBORO CANAL BASIN LOCATION MAP

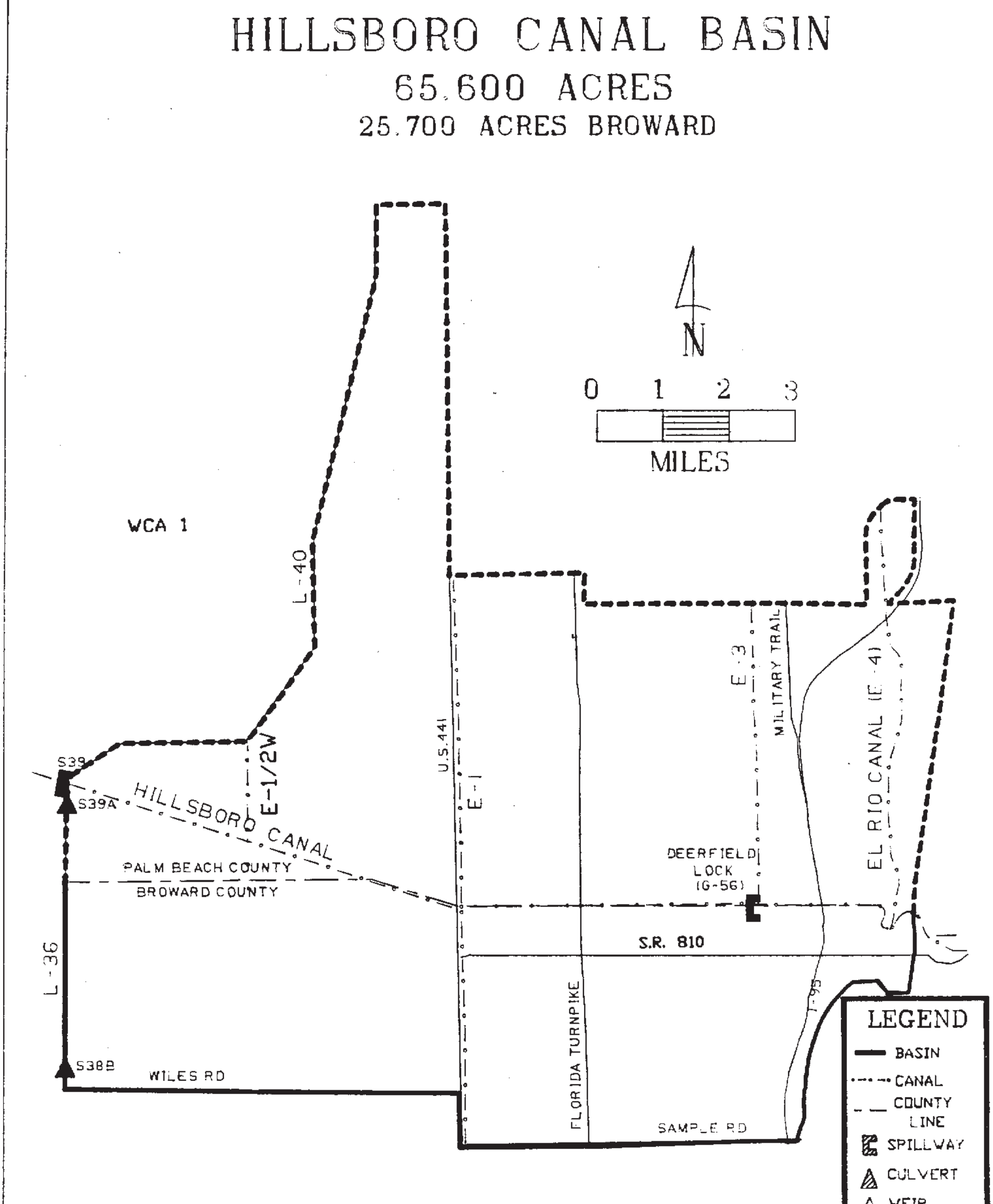


FIGURE 3 HILLSBORO CANAL BASIN MAP

TABLE 1. Hillsboro Canal Basin Structures - Design Criteria

Structure	Type	Design HW Stage (ft NGVD)	Design TW Stage (ft NGVD)	Optimum Stage (ft NGVD)	Design Q (cfs)	Peak Stage (ft NGVD) and Q (cfs)	Date of Peak Occurrence
Deerfield Lock (G-56) Stage divide	Weir with flashboards 5-bays, 12ft each Crest lgth = 60ft Crest elev = 1.0ft NGVD Gated spillway Crest lgth = 25 ft Crest elev = -4.5ft NGVD	4.0	3.5	HW = 7.7	1600	HW = 10.86 TW = 9.2 Q = 3700	4/25/79 10/15/65 4/25/79
S-39 Water supply, regulatory releases to Hillsboro Canal from WCA-1	Spillway Taintor Gate 16 ft x 9.2 ft Weir lgth = 15 ft. Crest elev = 2.5ft NGVD	11.0	9.0	TW = 9.0 max. HW = WCA 1 Regulation schedule	800	TW = 12.39	10/15/65
S-39A Stage divide	Culvert with riser and stop logs 3-72 in x 54 ft. CMP			HW = 7.0-7.5			
S-38B Divide C-14 and Hillsboro basins	Gated Culvert 1-66in x 72ft CMP Invert elev = 0ft NGVD	9.0	7.65				

in = inches
ft = feet
elev = elevation
lgth = Length
TW = Tail water
Q = discharge in cfs
CMP = Corrugated metal pipe
RCP = Reinforced concrete pipe
ft NGVD = Feet relative to National Geodetic Vertical Datum
HW = Head water
CFS = Cubic feet per second
ds = downstream
ups = upstream

Appendix A: SFWMD - ALLOWABLE DISCHARGE FORMULAS

Canal	**Allowable Runoff**	**Design Frequency**
C-1	$Q = \left(\frac{112}{\sqrt{A}} + 31\right) A$	10 year
C-2	Essentially unlimited inflow by gravity connections southeast of Sunset Drive: 54 CSM northwest of Sunset Drive	200 year +
C-4	Essentially unlimited inflow by gravity connections east of S.W. 87th Avenue	200 year +
C-6	Essentially unlimited inflow by gravity connections east of FEC Railroad	200 year +
C-7	Essentially unlimited inflow by gravity connection	100 year +
C-8	Essentially unlimited inflow by gravity connection	200 year +
C-9	Essentially unlimited inflow by gravity connection east of Red Road; 20 CSM pumped, unlimited gravity with development limitations west of Red Road or Flamingo Blvd.	100 year +
C-10	--	200 year +
C-11	20 CSM west of 13A;40 CSM east of 13A	------------
C-12	90.6 CSM	25 year
C-13	75.9 CSM	25 year
C-14	69.2 CSM	25 year
C-15	70.0 CSM	25 year
C-16	62.6 CSM	25 year
C-17	62.7 CSM	25 year
C-18	41.6 CSM	25 year
C-19	57.8 CSM	------------
C-23	31.5 CSM	10 year
C-24	30.25 CSM	10 year
C-25	$Q = \left(\frac{47}{\sqrt{A}} + 28\right) A$ (Under Review)	10 year
C-38	31.1 CSM (subject to restrictions of Basin Rule)	10 year
C-40, 41, 41A	35.4 CSM	10 year
Hillsboro Canal (east of S-39)	35 CSM	25 year
North New River (east of S-34)	70.8 CSM	25 year
Everglades Ag. Area (all canals)	20 CSM	5 year
L-28	11.8 CSM	-----------
C-51	35 CSM east of Turnpike; 27 CSM west of Turnpike (subject to restrictions of Basin Rule)	10 year
C-100, 100A, 100B, 100C, 100D:	$Q = \left(\frac{104}{\sqrt{A}} + 43\right) A$	10 year
C-102	$Q = \left(\frac{119}{\sqrt{A}} + 25\right) A$	10 year
C-103N, C103-S	$Q = \left(\frac{107}{} + 39\right) A$	10 year

FLORIDA DEPARTMENT OF TRANSPORTATION
DISTRICT IV INTERAGENCY MEETING MINUTES

TO: Hui Shi, Florida Department of Transportation (FDOT) District 4
FROM: Justin Freedman, E Sciences, Incorporated
MEETING DATE: February 15, 2018
LOCATION: South Florida Water Management District (SFWMD)
3301 Gun Club Road, West Palm Beach, Florida
SUBJECT: FDOT Interagency Meeting Minutes

Meeting started at 9:10 AM: FM 436894-2-52-01; 436894-3-52-01; 436894-4-52-01; and 436894-5-52-01

Attendees:

Name	Organization	Email Address
Coriann Salas	WGI	coriann.salas@wginc.com
Will Lorentzen	WGI	william.lorentzen@wginc.com
Greg Griffith	WGI	greg.griffith@wginc.com
Claudia Calvo	FDOT D4	claudia.calvo@dot.state.fl.us
Hui Shi	FDOT D4	hui.shi@dot.state.fl.us
Garrett O'Brady	FDOT D4	garrett.obrady@dot.state.fl.us
Margaret Rushmore	FDOT D4	margaret.rushmore@dot.state.fl.us
Carlos de Rojas	SFWMD	cderojas@sfwmd.gov
Barbara Conmy	SFWMD	bconmy@sfwmd.gov
Kenson Coupet	SFWMD	kcoupet@sfwmd.gov
Jennifer Schull	NOAA NMFS	jennifer.schull@noaa.gov
Justin Freedman	E Sciences	jfreedman@esciencesinc.com

District: Four
FPID/FM Number: 436894-2-52-01; 436894-3-52-01; 436894-4-52-01; and 436894-5-52-01
FDOT Project Manager: Maria Formoso, PE, PMP
Consultant/Company Name: WGI
SR/Local Name: El Clair Ranch Road; New England Boulevard; Seminole Drive; and Sandalfoot Boulevard
Project Limits: El Clair Ranch Road/L-30 Canal; New England Boulevard/E-1 Canal; Seminole Drive/L-16 Canal; and Sandalfoot Boulevard/E-1E Canal
General Scope: Bridge replacements
Requested Attendees: SFWMD (ERP and SWM), USACE
Discussion Items:

- Greg Griffith and Coriann Salas (WGI) provided a brief project overview:
  - Four separate bridges in Palm Beach County (on Palm Beach County roads).
  - All over Lake Worth Drainage District (LWDD) Canals (non-tidal).
  - All in kind replacements – no widening proposed.
  - Not a capacity improvements – bridges will be widened to add bigger shoulders and ADA sidewalks (5-foot bike lanes and 6-foot shoulders to be added to each side of road at each bridge).
  - Only bridge with protected resources present is Seminole Drive – tapegrass present at this location.

  - Project team has coordinated with LWDD to ensure cross canal sections will be maintained in designs.
  - Regarding USACE permitting, Seminole Drive bridge should qualify for a Nationwide Permit 14 (NWP 14) without pre-construction notification (PCN); the other bridges should qualify for NWP 14 but will require PCNs.
- Carlos de Rojas (SFWMD) stated that the project (four bridges) appears to qualify for a general permit; Coriann added that four separate ERP applications will be submitted to SFWMD for the four bridge projects. Carlos added that Palm Beach County should be co-applicants on the permit applications.
- Barbara Conmy (SFWMD) stated that the presence of tape grass should not push the project beyond the SFWMD general permit criteria, as the proposed impacts are below 0.5 acres. Barb added that fill impacts to tapegrass should be documented in the general permit application.

Meeting started at 9:20 AM: FM 437847-1-52-01

Attendees:

Name	Organization	Email Address
Claudia Calvo	FDOT D4	claudia.calvo@dot.state.fl.us
Hui Shi	FDOT D4	hui.shi@dot.state.fl.us
Garrett O'Brady	FDOT D4	garrett.obrady@dot.state.fl.us
Margaret Rushmore	FDOT D4	margaret.rushmore@dot.state.fl.us
Carlos de Rojas	SFWMD	cderojas@sfwmd.gov
Barbara Conmy	SFWMD	bconmy@sfwmd.gov
Kenson Coupet	SFWMD	kcoupet@sfwmd.gov
Jennifer Schull	NOAA NMFS	jennifer.schull@noaa.gov
Justin Freedman	E Sciences	jfreedman@esciencesinc.com

District: Four
FPID/FM Number: 437847-1-52-01
FDOT Project Manager: Brad Salisbury, PE
Consultant/Company Name: In-house FDOT
SR/Local Name: SR A1A/Dania Beach Boulevard
Project Limits: From Ocean Drive to Gulfstream Road
General Scope: Design Phase. Project will construct a sidewalk on the south side, widening for bike lanes on both sides of the roadway.
Requested Attendees: SFWMD (ERP and SWM)
Discussion Items:

- Garrett O'Brady and Margaret Rushmore (FDOT) provided a brief project overview:
  - Total project length is 1.27 miles.
  - Widening ±3 feet for bike lanes on northbound side or road, widening ±5 feet for sidewalks on southbound side of road.
  - Encroaching into the existing median by 2 feet.
  - All work is proposed within existing FDOT ROW.
  - There are wetlands adjacent to the project limits, but proposed improvements will not encroach into wetlands.
  - Existing SFWMD ERP for west end of project.
- Carlos de Rojas (SFWMD) stated the project could qualify for an ERP exemption for "minor roadway safety improvements"; ERP application should not be required.

Meeting started at 9:30 AM: FM 439891-1-22-02

Attendees:

Name	Organization	Email Address
Claudia Calvo	FDOT D4	claudia.calvo@dot.state.fl.us
Hui Shi	FDOT D4	hui.shi@dot.state.fl.us
Garrett O'Brady	FDOT D4	garrett.obrady@dot.state.fl.us
Margaret Rushmore	FDOT D4	margaret.rushmore@dot.state.fl.us
Chris Jackson	RS&H	chris.jackson@rsandh.com
Vanessa Caycedo	RS&H	vanessa.caycedo@rsandh.com
Cassie Piche	RS&H	cassie.piche@rsandh.com
Denise Palmatier	Kimley Horn	denise.palmatier@kimley-horn.com
Morgan Reins	SFWMD	mreins@sfwmd.gov
Carlos de Rojas	SFWMD	cderojas@sfwmd.gov
Barbara Conmy	SFWMD	bconmy@sfwmd.gov
Kenson Coupet	SFWMD	kcoupet@sfwmd.gov
Jennifer Schull	NOAA NMFS	jennifer.schull@noaa.gov
Justin Freedman	E Sciences	jfreedman@esciencesinc.com

District: Four
FPID/FM Number: 439891-1-22-02
FDOT Project Manager: Anson Sonnett, PE
Consultant/Company Name: RS&H
SR/Local Name: SR 869/SW 10th Street
Project Limits: From west of Powerline Road to west of Military Trail
General Scope: PD&E Study to develop and evaluate viable alternatives that increase capacity and eliminate various existing operational and safety deficiencies along SR 869/SW 10th Street between Powerline Road and Military Trail while providing improved connectivity to the regional transportation network. All engineering, environmental, social, physical and natural impacts will be evaluated and compared, resulting in a single preferred alternative. All alternatives will be developed in collaboration with and be compatible with the concepts developed with two adjacent studies, FM 437153.1.22.01 and FM 436964.1.22.02.
Requested Attendees: SFWMD (SWM)
Discussion Items:

- See attached meeting minutes prepared by RS&H

Meeting started at 9:55 AM: 437836-1

Attendees:

Name	Organization	Email Address
Damaris Williams	FDOT D4	damaris.williams@dot.state.fl.us
Claudia Calvo	FDOT D4	claudia.calvo@dot.state.fl.us
Hui Shi	FDOT D4	hui.shi@dot.state.fl.us
Garrett O'Brady	FDOT D4	garrett.obrady@dot.state.fl.us
Margaret Rushmore	FDOT D4	margaret.rushmore@dot.state.fl.us
Carlos de Rojas	SFWMD	cderojas@sfwmd.gov
Barbara Conmy	SFWMD	bconmy@sfwmd.gov
Kenson Coupet	SFWMD	kcoupet@sfwmd.gov
Jennifer Schull	NOAA NMFS	jennifer.schull@noaa.gov
Justin Freedman	E Sciences	jfreedman@esciencesinc.com

District: Four
FPID/FM Number: 437836-1
FDOT Project Manager: Mauricio Micolta
Consultant/Company Name: In-house FDOT
SR/Local Name: SR-7/US-441
Project Limits: From SR-806/Atlantic Ave to SR-804/Boynton Beach Boulevard
General Scope: Milling and resurfacing, adding sidewalk on the northbound, and minor widening to accommodate buffer bike lanes at both sides. Regrade the swale on the east side.
Requested Attendees: SFWMD (SWM)
Discussion Items:

- Damaris Williams (FDOT) provided a brief project overview:
  - Reiterated general scope items noted above.
  - Proposed widening is for bike lanes and 5-foot wide sidewalk; no additional capacity is proposed; widening will include filling of dry swales.
  - Filling in ditch adjacent to guard rail; ditch had excess storage capacity which will accommodate additional impervious areas associated with this project.
  - No protected natural resources are present.
  - No dewatering is anticipated in association with construction.
- Hui Sui (FDOT) stated that there is an existing SFWMD permit form Glades Road to Boynton Beach Boulevard. This permit documented that the project area had extra 3.63 acre feet of treatment volume. The proposed project reduce this excess treatment volume by 0.85 acre-feet in association with proposed swale filling.
- Carlos de Rojas (SFWMD) pointed out that original ERP permit may have included extra storage capacity in preparation for the eventual expansion of the roadway section from four to six lanes (only a portion is six lanes at present). Hui commented that FDOT will take this into consideration when modifying the roadway permit for the eventual expansion to six lanes
- Carlos added that the project will not qualify for an exemption since there is an existing permit. Rather, this project should qualify for a minor ERP modification.

Meeting started at 10:05 AM: 436869-1-52-01

Attendees:

Name	Organization	Email Address
Wilord Metellus	FDOT D4	wilord.metellus@dot.state.fl.us
May Cheng	FDOT D4	may.cheng@dot.state.fl.us
Claudia Calvo	FDOT D4	claudia.calvo@dot.state.fl.us
Hui Shi	FDOT D4	hui.shi@dot.state.fl.us
Margaret Rushmore	FDOT D4	margaret.rushmore@dot.state.fl.us
Carlos de Rojas	SFWMD	cderojas@sfwmd.gov
Barbara Conmy	SFWMD	bconmy@sfwmd.gov
Kenson Coupet	SFWMD	kcoupet@sfwmd.gov
Jennifer Schull	NOAA NMFS	jennifer.schull@noaa.gov
Justin Freedman	E Sciences	jfreedman@esciencesinc.com

District: Four
FPID/FM Number: 436869-1-52-01
FDOT Project Manager: May Cheng
Consultant/Company Name: APCTE
SR/Local Name: SR A1A/NE Ocean Boulevard
Project Limits: From 300 feet east of Lyons Bridge to 300 feet north of SR 732/Jensen Beach Boulevard
General Scope: Design Phase to provide decorative pedestrian lighting along the corridor and filling in sidewalk gaps on the west side.
Requested Attendees: SFWMD, USACE
Discussion Items:

- Hui Sui and Margaret Rushmore (FDOT) provided a brief project overview and summary of resource impacts:
  - Project includes 6-foot sidewalk, ADA curb ramps, pedestrian lighting, and pavement markings.
  - Project as designed will incur 0.138 acres of direct impacts to mangrove trees outside tidal areas; project team has not explored secondary wetland impacts at this time.
- Barb Conmy (SFWMD) provided permitting feedback:
  - Stated that there is a SFWMD General Permit (62-330.447) for FDOT minor improvement projects within existing ROWs or easements that should apply for this project; this permit covers roadway safety activities that incur no more than 0.5 acres of wetland impacts. As such, the proposed project may qualify for this permit and would not require mitigation for wetland impacts.
  - Recommended sediment and erosion control measures incorporated and clearly depicted on the project plans, along with all lighting details.
  - Barb stated that SFWMD can issue the General ERP within 30 days assuming all necessary information is included in the application; Barb added that SFWMD can review a draft submittal and provide feedback on completeness prior to receiving the final application – she stated the draft submittal can be emailed to her.
- Jennifer Schull (NOAA NMFS) asked if the project contains Essential Fish Habitat (EFH); Margaret stated that the presence of EFH has not been confirmed at this time, but will be verified as part of the permitting process through USACE. Jennifer stated that NMFS will

review the wetland evaluation report to determine if the mangrove impact area is considered EFH, and will look to see if avoidance and minimization measures are proposed for potential EFH impacts; Jennifer added that the wetland evaluation report can be submitted directly to her before the USACE application is submitted to expedite her EFH review.

Name	Company	email
Project 1 - 4 bridges		
Coriann Salas	WGI	coriann.salas@wginc.com
Will Lorentzen	WGI	william.lorentzen@wginc.com
Greg Griffith	WGI	greg.griffith@wginc.com
Barb Conmy	SFWMD	bconmy@sfwmd.gov
Carlos de Rojas	SFWMD	cderojas@sfwmd.gov
KENSON COUPET	SFWMD	Kcoupet@SFWMD.gov
Hui Shi	FDOT	Hui.Shi@dot.state.fl.us
Claudia Calvo	FDOT	claudia.calvo@dot.state.fl.us
Margaret Rushmore	FDOT	margaret.rushmore@dot.state.fl.us
Garrett O'Brady	FDOT	garrett.obrady@dot.state.fl.us
Jennifer Schull	NOAA/NMFS	jennifer.schull@noaa.gov

Project 2 437847-1

Name	Company	email
KENSON COUPET	SFWMD	Kcoupet@SFWMD.gov
Hui Shi	FDOT	Hui.Shi@dot.state.fl.us
Margaret Rushmore	FDOT	margaret.rushmore@dot.state.fl.us
Claudia Calvo	FDOT	claudia.calvo@dot.state.fl.u
Garrett O'Brady	FDOT	garrett.obrady@dot.state.fl.u
Jennifer Schull	NOAA/NMFS	jennifer.schull@noaa.gov
Barb Conmy	SFWMD	bconmy@sfwmd.gov
Carlos de Rojas	SFWMD	cderojas@sfwmd.gov

~~FM 43389?-1~~

FM 437836-1

Name	Company	email
KENSON COUPET	SFWMD	Kcoupet@SFWMD.gov
Hui Shi	FDOT	Hui-Shi@dot.state.fl.us
claudia calvo	FDOT	claudia.calvo@dot.state.fl.us
Margaret Rushmore	FDOT	margaret.rushmore@dot.n
Garrett O'Brady	FDOT	garrett.obrady@dot.state.fl.us
Jennifer Schull	NOAA/NMFS	jennifer.schull@noaa.gov
Barb Conmy	SFWMD	bconmy@sfwmd.gov
Carlos deRojas	SFWMD	cderojas@sfwmd.gov

FM 436869-1

Name	Company	email
KENSON COUPET	SFWMD	Kcoupet@SFWMD.gov
Claudia calvo	FDOT	claudia.calvo@dot.state.fl.us
Margaret Rushmore	FDOT	margaret.rushmore@dot.state.fl.us
Hui Shi	FDOT	Hui.shi@dot.state.fl.us
Jennifer. Schull	NOAA/NMFS	jennifer.schull@noaa.gov
Barb Conmy	SFWMD	bconmy@sfwmd.gov
Carlos deRojas	SFWMD	cderojas@sfwmd.gov

MEETING MINUTES

Project:	SW 10th Street Connector PD&E Study	**FPID No:** **Contract No.:**	439891-1-22-02 C9V60
Meeting Place:	SFWMD Headquarters 3300 Gun Club Road West Palm Beach, FL	**Meeting Date:** **Meeting Time:**	2/15/18 9:45 a.m.
Participants:	See sign-in sheet for attendees		
Purpose:	FDOT – SFWMD Drainage Coordination Meeting		

Introductions

Project Overview

1. Cassie Piche, RS&H Project Manager, provided a brief overview of the project, preliminary alignment alternatives, and schedule. She indicated that the project will be procured through a design-build contract, which is currently funded in 2025. She noted, however, that funding is anticipated to be available sooner.

Drainage Overview

2. Chris Jackson, RS&H Senior Drainage Engineer, indicated that the project is located within the South Florida Water Management District (SFWMD) Hillsboro Canal Drainage Basin and Broward County Water Control District (BCWCD) C-2 Basin. He added that the project falls under the regulatory jurisdiction of the SFWMD and BCWCD #2.
3. Chris provided an overview of the existing drainage. He indicated that portions of the project fall within the FEMA 100-year floodplain, the City of Deerfield Beach Wellfield zone of influence, and within a drainage basin designated by BCWCD as a “water quality basin” which is regulated by the BCWCD control structure (S-4) and outfall to the SFWMD Hillsboro Canal. Therefore, in lieu of new stormwater management facilities within the basin, any of the existing stormwater management facilities within the entire basin could be expanded/modified as needed to provide the required water quality, water quantity, and floodplain compensation volume for the project. He explained this provides additional flexibility from the conventional approach of collecting and conveying project runoff to an adjacent, isolated offsite stormwater management facility for treatment and attenuation prior to discharge to receiving waters.
4. Carlos de Rojas, SFWMD, agreed with the “water quality basin” designation but noted that the BCWCD basin and infrastructure was not covered under any existing SFWMD Environmental Resource Permit (ERP). As such, he noted that an ERP application would also need to be submitted by BCWCD for the basin.
5. Chris stated that the proposed improvements do not physically impact existing wellfield infrastructure but that dry retention pretreatment may be required for wellfield protection. Carlos clarified that dry pretreatment retention would only be required if the proposed stormwater management facilities were physically located within the respective zone of influence.

6. Chris provided an overview of the potential stormwater management options. He indicated that the flexibility provided by the designation of the basin as a "water quality basin" allows for modification/expansion of the existing stormwater management facilities within the vacant golf course at Century Village and within the Deer Creek Golf Course, north of Hillsboro Boulevard. He noted the possibility of shared use drainage, similar to I-595 with the Lago Mar and Pine Island Ridge golf courses. In the event that these golf courses cannot be modified/expanded to accommodate the project, then FDOT would be required to acquire offsite parcels, most likely industrial parcels along the south side of the project. Chris noted that French drain was not a viable option for this project.
7. Chris indicated that the proposed Express Lanes depressed section would impact the existing cross drains serving the BCWCD C-2 and C-3 canals. He noted that pump stations or inverted siphons would be required to maintain these conveyances. He also noted that a pump station would be required to collect and convey the roadway runoff from the Express Lanes depressed section.
8. Carlos De Rojas inquired about the depth of the Express Lanes depressed section and the associated dewatering activities. Cassie stated the cuts would be 56' deep with the roadbed sitting 18'-20' below grade. Carlos noted that groundwater modeling / calculations would be needed to demonstrate that the proposed Express Lanes depressed section and associated dewatering activities do not adversely impact the wellfield.

Permit Requirements

9. Chris indicated that there are no existing ERPs for the project area. He added that there is only a Water Use Permit for the City of Deerfield Beach wellfield.
10. Chris indicated that there were no wetlands or listed species impacts, however, dredging activities will be required in other surface waters, including the BCWCD C-2 and C-3 canals.
11. Chris identified the anticipated environmental permits as follows: SFWMD Environmental Resource Permit, SFWMD Consumptive Use (Dewatering Modification), and USACE Section 404 Dredge & Fill Permit. In addition, a Surface Water Management License and a Natural Resource License may be required from the Broward County Environmental Protection & Growth Management Department (BCEPGMD) for proposed activities outside of the State Highway System limits.
12. Chris indicated that FDOT would be meeting with BCEPGMD on 2/21/18 to discuss the project and to determine any additional requirements and permit criteria.

Meeting Sign-In Sheet

SW 10th Street PD&E Study
FDOT-SFWMD Drainage-Permit Coordination Meeting

February 15, 2018 @ 9.45 am
Meeting Location: SFWMD, 3300 Gun Club Road, West Palm Beach, FL

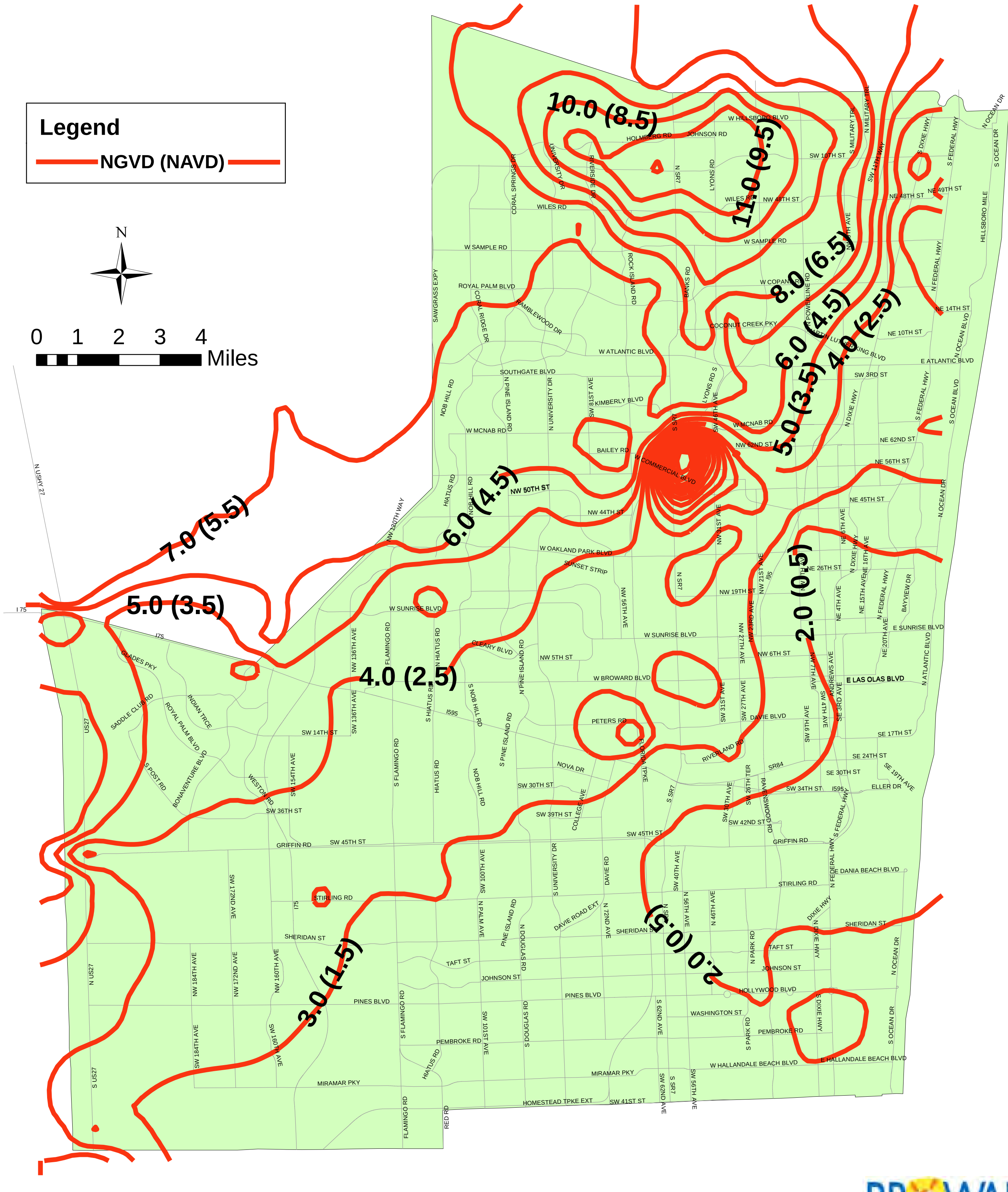
	Name	Company	Phone	e-mail
	~~Anson Sonnett~~	~~FDOT~~	~~954-777-4474~~	~~anson.sonnett@dot.state.fl.us~~
C.C	Claudia Calvo	FDOT	954-777-4476	claudia.calvo@dot.state.fl.us
✔	Cassie Piche	RS&H	954-236-7365	cassie.piche@rsandh.com
CBJ	Chris Jackson	RS&H	954-236-7375	chris.jackson@rsandh.com
VC	Vanessa Caycedo	RS&H	954-236-7360	vanessa.caycedo@rsandh.com
	~~Jason Lee~~	~~KHA~~		~~Jason.Lee@kimley-horn.com~~
✔	Carlos deRojas	SFWMD		cderojas@sfwmd.gov
	Morgan Reiss			mreiss@sfwmd.gov
	Barb Conmy	SFWMD		bconmy@sfwmd.gov
	Justin Freedman	E Sciences		jfreedman@escienceslinc.com
	Kenson Couper	SFWMD	561-682-2661	kcouper@SFWMD.gov
	Denise Palmateer	Kimley-Horn	561-723-0402	denise.palmateer@kimley-horn.com
	Hui Shi	FDOT	954-777-4557	Hui.Shi@dot.state.fl.us
	Margaret Rushmore	FDOT	954-777-4339	margaret.rushmore@dot.state.fl.us
	Garrett O'Brady	FDOT	954-777-4390	garrett.obrady@dot.state.fl.us

APPENDIX G

BROWARD COUNTY DRAINAGE AND PERMIT DOCUMENTATION

WATER TABLE MAP

Average Wet Season



This map provided for informational purposes only
Not for legal boundary determination
Elevations Converted from NGVD to NAVD using the FEMA approved conversion factor for Broward County of (-)1.5

BROWARD COUNTY FLORIDA

Jackson, Chris

From: Jackson, Chris
Sent: Monday, November 28, 2016 7:07 PM
To: 'JPORTILLO@broward.org'
Cc: Costa, Aylin; 'Archie, Carl'
Subject: FW: BCWCD #2 - Drainage Records Request

Follow Up Flag: Follow up
Flag Status: Flagged

Hello Jose,
I hope your Thanksgiving holiday was good! Have you had a chance to review these items below? I'd greatly appreciate any feedback you can provide.

Regards,
Chris

From: Archie, Carl [mailto:CARCHIE@broward.org]
Sent: Wednesday, November 16, 2016 12:46 PM
To: Jackson, Chris
Subject: RE: BCWCD #2 - Drainage Records Request

1. Broward County Groundwater Maps indicate that the area has a SHGWT elevation of approximately 9 ft NGVD (7.5 NAVD). You mention that the C-2 Basin control elevation is 10 ft NGVD. Is the S-4 discharge structure and upstream waterbodies (including C-2 Canal) essentially providing wet retention up to elevation 10 ft NGVD? If the waterbodies are in fact providing wet retention (rather than wet detention) am I only required to expand the facilities to provide half of the required wet detention treatment volume?
   Consult your permit reviewer in regards to the latest requirements
2. For calculation of the required facility expansion area needed for water quality treatment, what is the treatment depth that I should be using (i.e. water quality treatment (weir) elevation – SHGWT)?
   Consult your permit reviewer in regards to the latest requirements
3. For the water quality treatment volume calculation, should I only consider the additional impervious area from the project? Although the project area is located within the C-2 Basin, it is not clear at this time if the existing impervious area actually ever discharges to the C-2 Canal in the pre-development condition.
   Consult your permit reviewer in regards to the latest requirements
4. For calculation of the required facility expansion area needed for water quantity, what is the attenuation depth that I should be using (i.e. maximum (25-year, 72-hour?) design stage elevation – SHGWT)?
   Consult your permit reviewer in regards to the latest requirements
5. For the water quantity / attenuation volume calculation, should I only consider the additional impervious area from the project? Although the project area is located within the C-2 Basin, it is not clear at this time if the existing impervious area actually ever discharges to the C-2 Canal in the pre-development condition.
   Consult your permit reviewer in regards to the latest requirements
6. Do you have the pump operating schedule for the S-4 discharge structure? I'm looking for pump stage-discharge, turn-on/turn off information. Also, do you have initial stage and maximum stage information for the C-2 Canal for various design storm events?

No, we do not pump on a schedule. We pump in according to a SFWMD Diversion and Impoundment permit to maintain the entire basin at 9.5'-10.0'. The purpose of the district is to protect the wellfield in the area while providing flood protection.

7. It appears that portion of the project and downstream receiving waterbodies are located within a Broward County Wellfield Protection Zone 3. If so, is an additional one half inch of dry detention or retention pretreatment required before discharging into the C-2 Canal? Or can we expand the existing facilities to provide an additional half inch of treatment? Alternatively, would one half inch of pretreatment via French drain (exfiltration trench) be acceptable prior to the project discharging into the C-2 Canal?
   Consult your permit reviewer in regards to the latest requirements
8. If the project results in floodplain encroachment, will the expansion of existing facilities need to accommodate the treatment and attenuation requirements, as well as provide compensation for the floodplain encroachment?
   Consult your permit reviewer in regards to the latest requirements

9. Do you have any records or documentation of flooding complaints within Century Village or Deer Creek communities that you can provide?

There have been no canal related flood complaints from either community.

From: Jackson, Chris [mailto:Chris.Jackson@rsandh.com]
Sent: Sunday, November 13, 2016 8:58 PM
To: Archie, Carl <CARCHIE@broward.org>
Cc: Costa, Aylin <Aylin.Costa@rsandh.com>
Subject: RE: BCWCD #2 - Drainage Records Request

Hello Carl,
I've reviewed the documents and have some questions that I'd really appreciate if you could review and advise. I hope these are clear but please let me know if I can provide any clarification.

1. Broward County Groundwater Maps indicate that the area has a SHGWT elevation of approximately 9 ft NGVD (7.5 NAVD). You mention that the C-2 Basin control elevation is 10 ft NGVD. Is the S-4 discharge structure and upstream waterbodies (including C-2 Canal) essentially providing wet retention up to elevation 10 ft NGVD? If the waterbodies are in fact providing wet retention (rather than wet detention) am I only required to expand the facilities to provide half of the required wet detention treatment volume?

2. For calculation of the required facility expansion area needed for water quality treatment, what is the treatment depth that I should be using (i.e. water quality treatment (weir) elevation – SHGWT)?

3. For the water quality treatment volume calculation, should I only consider the additional impervious area from the project? Although the project area is located within the C-2 Basin, it is not clear at this time if the existing impervious area actually ever discharges to the C-2 Canal in the pre-development condition.

4. For calculation of the required facility expansion area needed for water quantity, what is the attenuation depth that I should be using (i.e. maximum (25-year, 72-hour?) design stage elevation – SHGWT)?

5. For the water quantity / attenuation volume calculation, should I only consider the additional impervious area from the project? Although the project area is located within the C-2 Basin, it is not clear at this time if the existing impervious area actually ever discharges to the C-2 Canal in the pre-development condition.

6. Do you have the pump operating schedule for the S-4 discharge structure? I'm looking for pump stage-discharge, turn-on/turn off information. Also, do you have initial stage and maximum stage information for the C-2 Canal for various design storm events?

7. It appears that portion of the project and downstream receiving waterbodies are located within a Broward County Wellfield Protection Zone 3. If so, is an additional one half inch of dry detention or retention pretreatment required before discharging into the C-2 Canal? Or can we expand the existing facilities to provide an additional half inch of treatment? Alternatively, would one half inch of pretreatment via French drain (exfiltration trench) be acceptable prior to the project discharging into the C-2 Canal?

8. If the project results in floodplain encroachment, will the expansion of existing facilities need to accommodate the treatment and attenuation requirements, as well as provide compensation for the floodplain encroachment?

9. Do you have any records or documentation of flooding complaints within Century Village or Deer Creek communities that you can provide?

Thanks,
Chris

Chris Jackson, PE, LEED AP
Vice President, Transportation-Infrastructure
3125 W Commercial Blvd, Suite 130, Fort Lauderdale, FL 33309
O 954-236-7375 | M 954-205-0288
chris.jackson@rsandh.com

Celebrating 75 years!

From: Archie, Carl [mailto:CARCHIE@broward.org]
Sent: Thursday, October 27, 2016 4:45 PM
To: Jackson, Chris
Cc: Costa, Aylin
Subject: RE: BCWCD #2 - Drainage Records Request

There was never a master permit requested from SFWMD. The District never commissioned a computer model. The entire district is considered a water quality basin. Expanding the existing facilities to treat/attenuate for the additional development is the way it is normally done. Attached is a digital copy of the District's facilities and the Century Village P&D plans. Thanks.

From: Jackson, Chris [mailto:Chris.Jackson@rsandh.com]
Sent: Wednesday, October 26, 2016 5:24 PM
To: Archie, Carl <CARCHIE@broward.org>

Cc: Costa, Aylin <Aylin.Costa@rsandh.com>
Subject: RE: BCWCD #2 - Drainage Records Request

Thank you Carl. This information is helpful. I guess I was really looking for a "master" plan and/or master permit for the C-2 basin of WCD #2, which would include an updated Drainage Map of the entire basin and and updated AdICPR model for the entire basin.

Additionally, I have some questions regarding proposed development within the basin, particularly within the Century Village area. Since the existing ponds within Century Village and the adjoining golf course are directly connected to WCD #2 canals, would new upstream stormwater management facilities with control structures be required to treat and attenuate new development prior to discharge into the existing ponds? Or, since everything in the C-2 basin is controlled by the S-4 structure, could the existing ponds merely be expanded to treat and attenuate the increased runoff from proposed development?

I'd be happy to meet with you and explain in more detail what we are exploring. Look forward to hearing from you.

Regards,
Chris

Chris Jackson, PE, LEED AP
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3125 W Commercial Blvd, Suite 130, Fort Lauderdale, FL 33309
O 954-236-7375 | M 954-205-0288
chris.jackson@rsandh.com

Celebrating 75 years!

RS&H 75 years

From: Archie, Carl [mailto:CARCHIE@broward.org]
Sent: Wednesday, October 26, 2016 1:59 PM
To: Jackson, Chris
Cc: Costa, Aylin
Subject: FW: BCWCD #2 - Drainage Records Request

I am a little uncertain how to answer your question since your enquiry includes a wide variety of plans and permits. We call the basin in question the "C-2" basin of WCD # 2. Your physical description is accurate with the exception of the southern basin boundary. The southern boundary is Sample Road. Attached is the schematic of our S-4 Structure the discharge structure for that basin. For the purposes of calculation, we use the discharge rate of the Hillsboro Canal discharge rate. Basin control elevation is 10.00' NGVD.

From: Crouse, John
Sent: Wednesday, October 26, 2016 9:01 AM
To: Archie, Carl <CARCHIE@broward.org>
Subject: FW: BCWCD #2 - Drainage Records Request

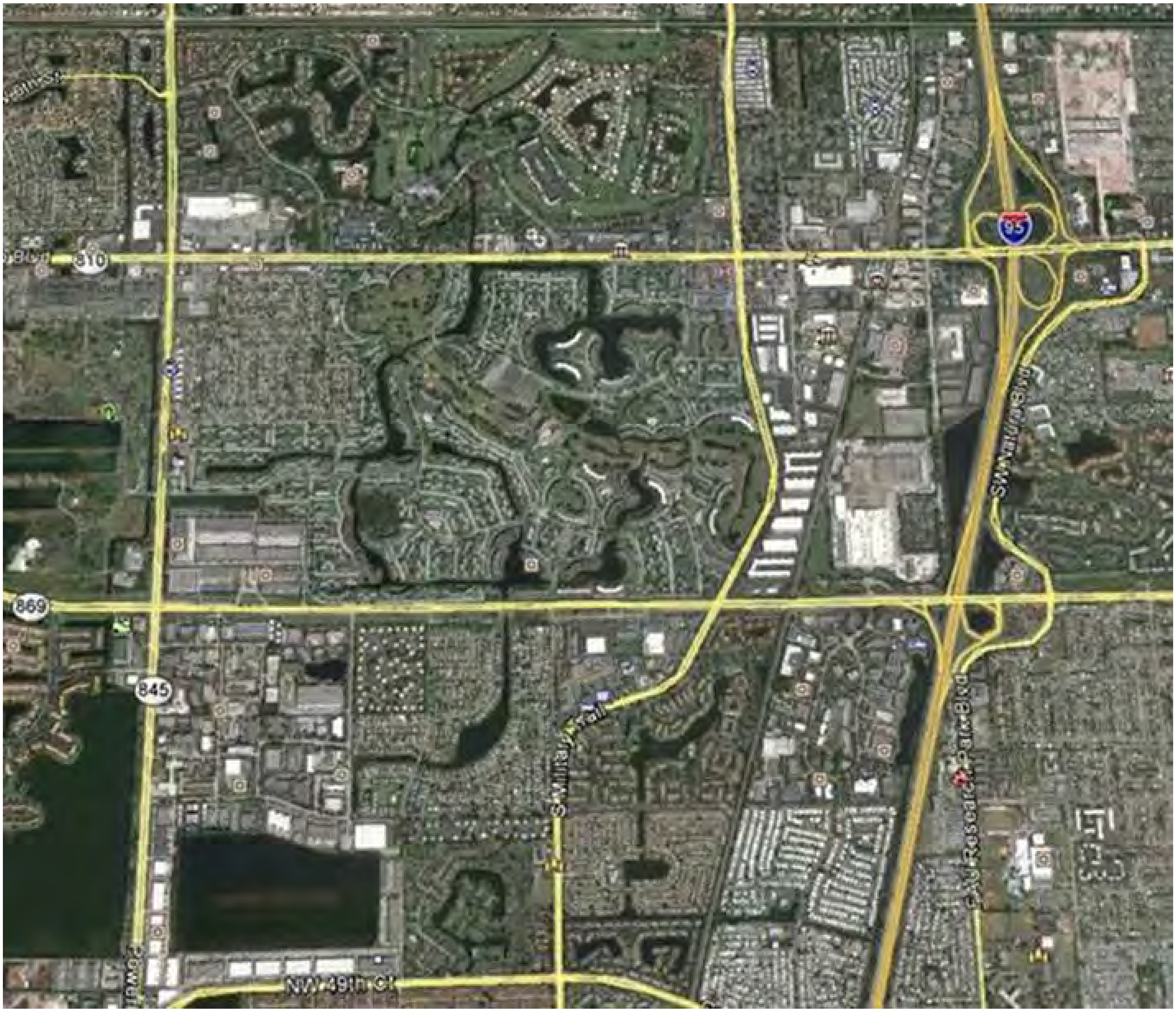
Please assist on this request. Tks.

John M. Crouse, P.E.
Director of Water Management
2555 W. Copans Road, Pompano Beach, FL 33069
Office: 954-831-0765
www.broward.org

From: Jackson, Chris [mailto:Chris.Jackson@rsandh.com]
Sent: Tuesday, October 25, 2016 11:12 PM
To: Crouse, John <JCROUSE@broward.org>
Cc: Costa, Aylin <Aylin.Costa@rsandh.com>
Subject: BCWCD #2 - Drainage Records Request

Dear Mr. Crouse:
I am assisting the FDOT with a drainage evaluation for a project located within BCWCD #2. I am specifically interested in any existing drainage or permit documentation for the stormwater management system that ultimately discharges into the SFWMD Hillsboro Canal via control structure located at the north side of the Deer Creek community. The watershed for this stormwater management system appears to be the area bounded by the Hillsboro Canal to the north, Military Trail to the east, NW 49th Court to the south, and Powerline Road to the west). I would greatly appreciate any drainage maps, drainage models, calculations, and/or permit/license documents.

Thanks,
Chris



Chris Jackson, PE, LEED AP
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O 954-236-7375 | M 954-205-0288
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rsandh.com | Facebook | Twitter | LinkedIn
Celebrating 75 years!

Under Florida law, most e-mail messages to or from Broward County employees or officials are public

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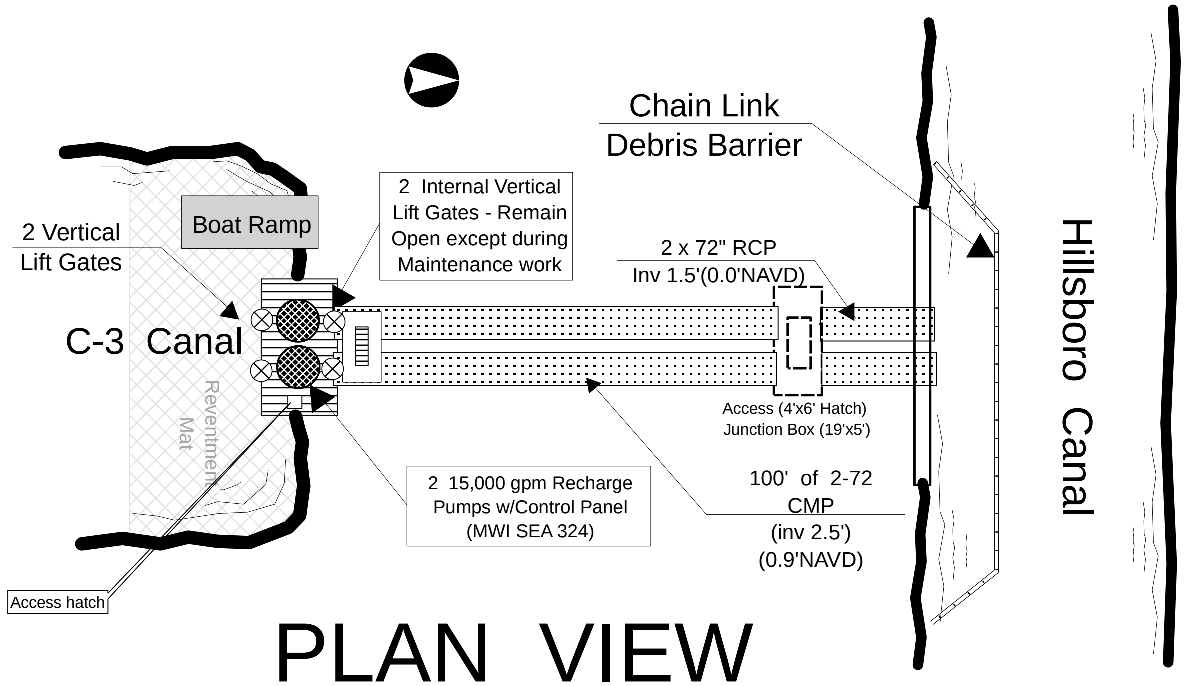
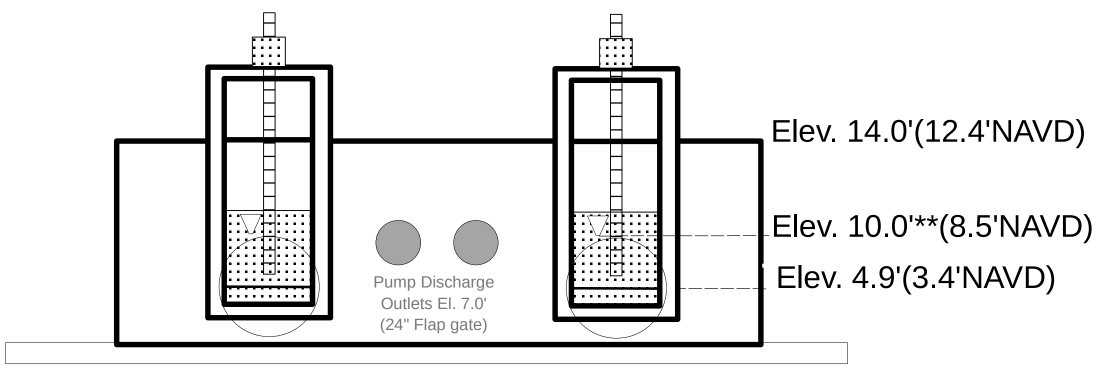
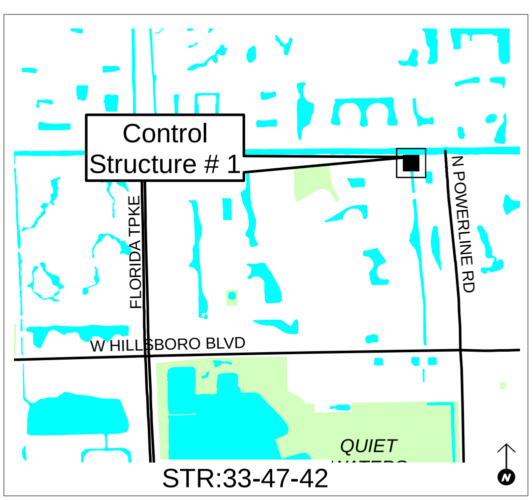
Under Florida law, most e-mail messages to or from Broward County employees or officials are public records, available to any person upon request, absent an exemption. Therefore, any e-mail message to or from the County, inclusive of e-mail addresses contained therein, may be subject to public disclosure.



PLAN VIEW
nts



ELEVATION
nts



**NOTES:

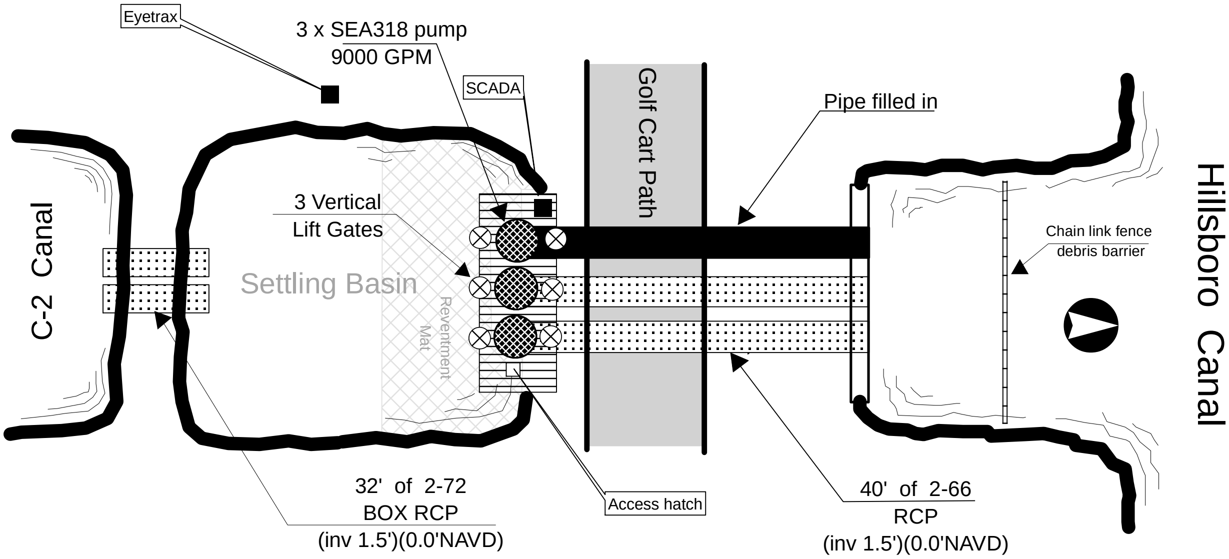
- Gates adjust between elevations 9.0'(7.5'NAVD) and 11.0'(9.5'NAVD)

- Gates are 66 wide and 80 tall

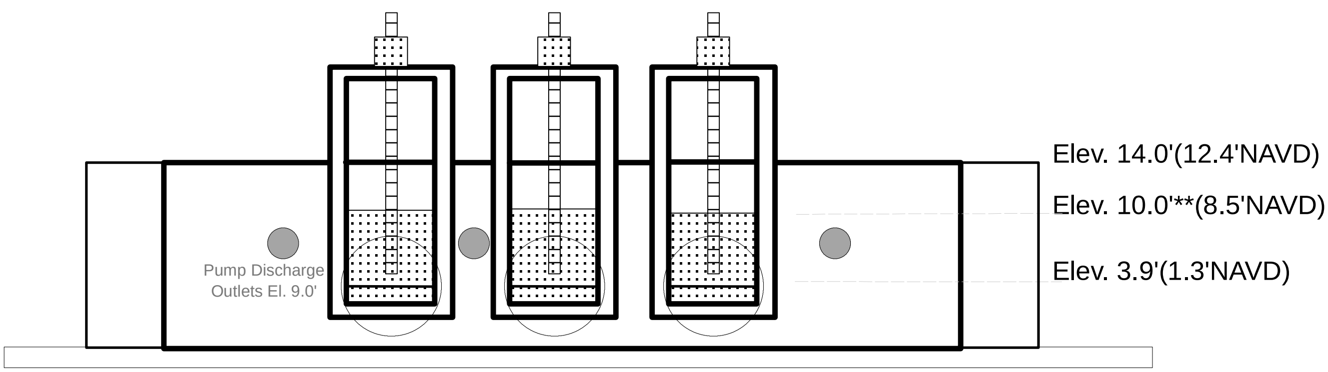
-V notches are 12wide at top and 2 wide at bottom.

Date: 5/12/2015

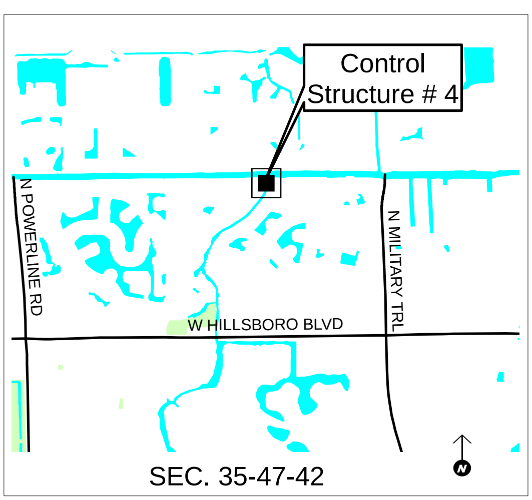
1



PLAN VIEW
nts



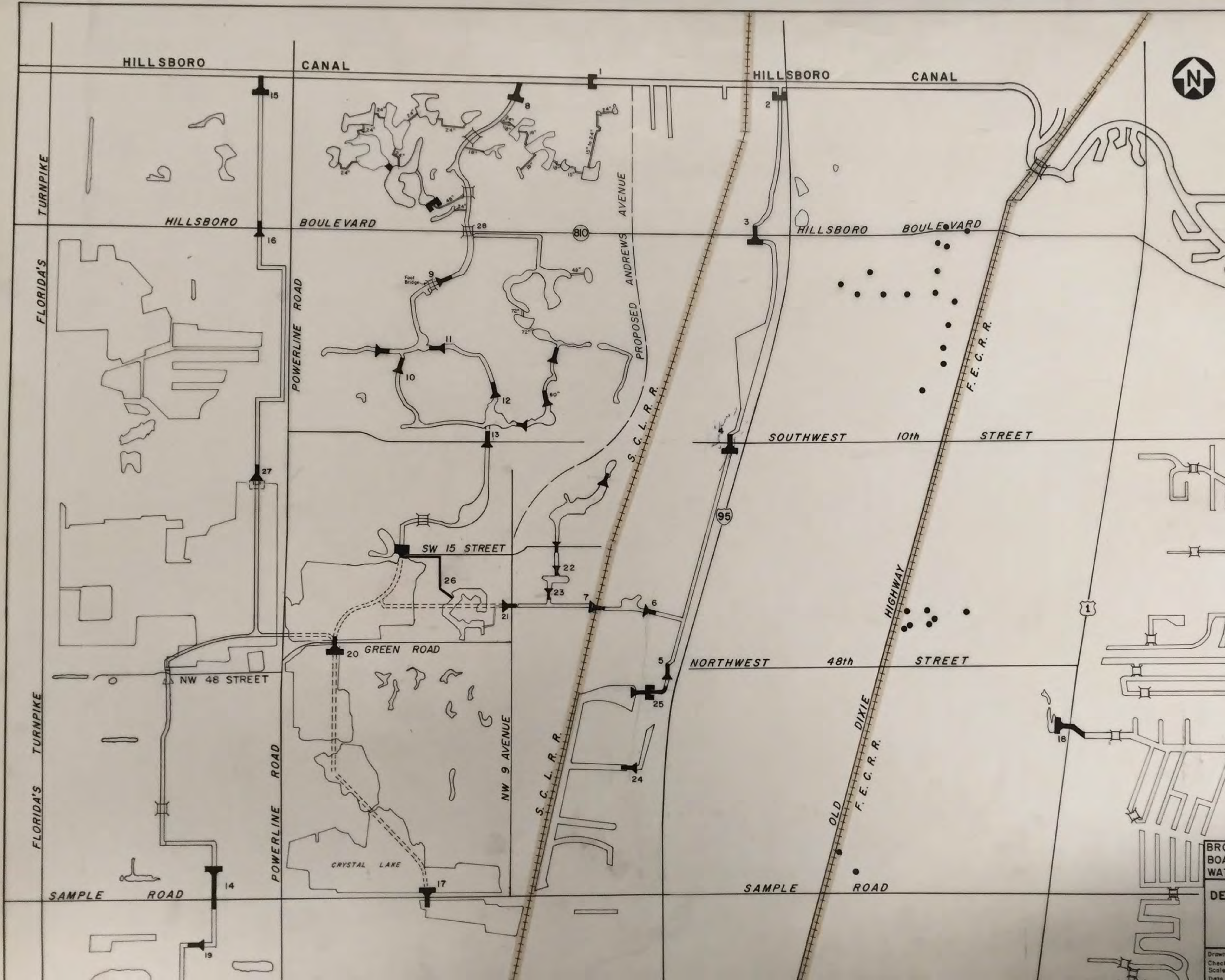
ELEVATION
nts



**NOTES:
- Gates adjust between elevations 9.0' and 10.0' (7.5' AND 8.5' NAVD)

- Gates are 60"wide by 60" tall

Date: 5/12/2015



STRUCTURE & CULVERT INFO.					
NO.	SIZE	TYPE	INVERT	Control Elevation	LENGTH
1	DEERFIELD LOCK	WEIR CREST		8.5	65'
2	258'	WEIR CREST		6.0	258'
3	8'x8'	Box	(-) 0.5		213'
3A	4-72"x72"	VLG		8.0	24'
4	3-66"	RCP	4.3		254'
4A	3-60"x72"	VLG		10.0	15'
5	2-72"	RCP	4.7		262'
6	2-36"	CMP	5.2		71'
7	48"		4.0		140'
8	3-66"	CMP	1.5		40'
8A	3-60"x72"	VLG		10.0	15'
9	Bridge	W/Box Cul.	4.85		6' High 16' Wide
10	Bridge	W/Box Cul.	4.85		6' High 16' Wide
11	48"	CMP	4.85		104'
12	30"	CMP	5.75		115'
13	72"x 72"	RCP	4.0		192'
14	60"	RCP	5.88		308'
14A	60"x36"	VLG		10.0	5'
15	[illegible] / 2-72"	CMP	2.5		[illegible] / 100'
15A	60"x36" / 2-60"x72"	VLG		10.0	15'
16	6'x10'	BOX	1.6		67'
17	60"	RCP	3.0		149'
17A	60"x66"	VLG		10.0	5'
18	54" / 60"	RCP	0.80		[illegible]
18A	2-48"x24"	VLG		8.0	8'
19	66"	RCP	0.0		60'
20	60"	RCP	6.0		112'
20A	60"x 60"	VLG		11.0	
21	54"	RCP	4.5		[illegible]
22	2-65"x40"	CMP	0.0		106'
23	72"	CMP	0.0		106'
24	54'	CMP	2.5		84'
25	36"	CMP	3.0		725'
25A					
26	36"	RCP	3.0		1860' LF
26A		VLG		6.5	
27	2-60"				
27A		VLG		9-11	
28	2-13X13.5	Box			

LEGEND

- Primary Canals
- Existing Canals
- Proposed Canals
- Streets and Roads
- Control Structures
- Culverts
- Supply Wells
- Pumping Station
- Bridge

BROWARD COUNTY FLORIDA
BOARD of COUNTY COMMISSIONERS
WATER MANAGEMENT DIVISION

DEERFIELD WELL FIELD AREA

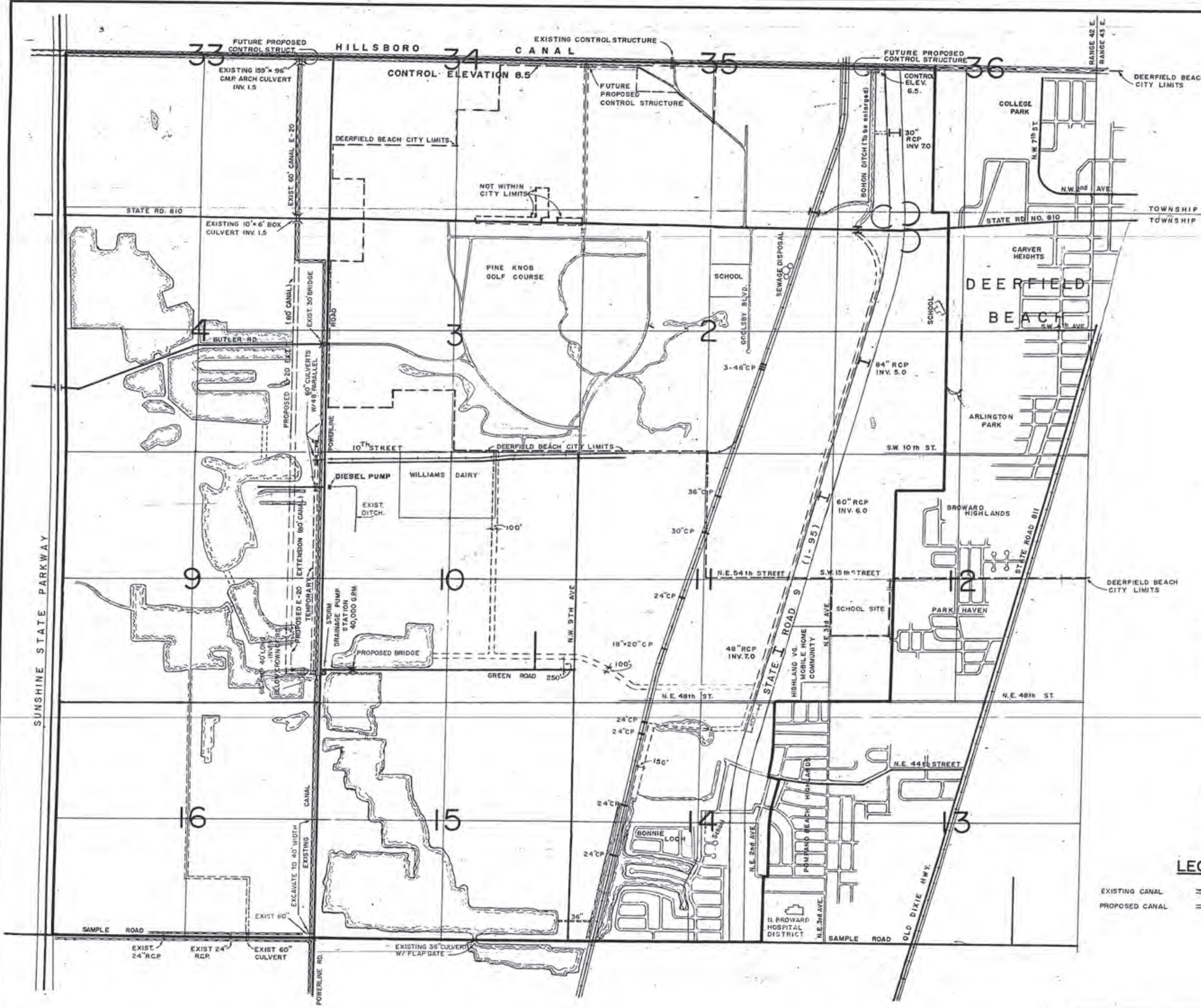
CULVERT INFORMATION

1000 0 1000 2000
SCALE

Drawn by M.P.M.
Checked by J.S.W.
Scale: As Shown
Date: August 1976

Sheet No. 1 of 2

File No. M-51



SCALE 1" = 1000'

CERTIFICATION

THIS IS TO CERTIFY THAT WATER MANAGEMENT DISTRICT NO. 2 ADOPT AND APPROVE THIS OVERALL PLAN FOR STORM DRAINAGE CONTROL SYSTEM BY RESOLUTION ADOPTED THE 5TH DAY OF JAN. 1970

WATER MANAGEMENT DISTRICT NO. 2

BY Robert F. Sullivan
CHAIRMAN

ATTEST:
Edward F. Ackerman
SECRETARY

ACKNOWLEDGEMENT

STATE OF FLORIDA

COUNTY OF BROWARD

BEFORE ME, THE UNDERSIGNED AUTHORITY, PERSONALLY APPEARED ROBERT F. SULLIVAN AND EDWARD F. ACKERMAN THE CHAIRMAN AND SECRETARY, RESPECTIVELY, OF WATER MANAGEMENT DISTRICT NO. 2, WHO, BEING FIRST DULY SWORN BY ME, DEPOSE AND SAY THAT THE STATEMENTS CONTAINED IN THE ABOVE CERTIFICATION ARE TRUE, AND THAT THEY EXECUTED SAME FOR THE PURPOSES THERIN EXPRESSED.

IN WITNESS WHEREOF, I HAVE HERUNTO SET MY HAND AND OFFICIAL SEAL IN THE STATE AND COUNTY AFORESAID, THIS 2ND DAY OF FEBRUARY 1970

NOTARY PUBLIC

MY COMISSION EXPIRES:

THIS PLAN PREPARED BY TOM G. LIVELY PROFESSIONIAL ENGINEER, REGISTERED FLORIDA ENGINEER NO. 6561

Tom G. Lively
TOM G. LIVELY

SEAL

719

LEGEND

EXISTING CANAL

PROPOSED CANAL

REV. NO.	DESCRIPTION	DATE
1	BROUGHT UP TO DATE	9-11-68
2	BROUGHT UP TO DATE	3-20-69
3	" " " "	9-16-69
4	" " " "	10-21-69

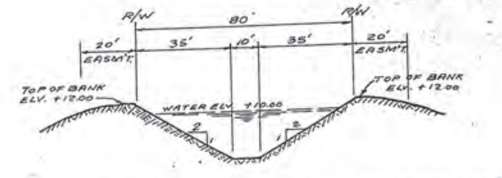
STORM DRAINAGE CONTROL SYSTEM MANAGEMENT DISTRICT NO. 2 BROWARD COUNTY FLA.

OVERALL PLAN

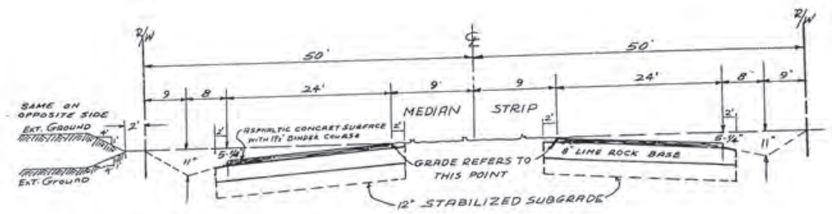
WINNINGHAM & LIVELY, INC.
SURVEYING & ENGINEERING
541 N. E. 44th STREET
FORT LAUDERDALE, FLORIDA
PHONES: 564-2649 — 564-4790

SCALE 1" = 1000'
DATE 6-17-68
SH. 1 OF

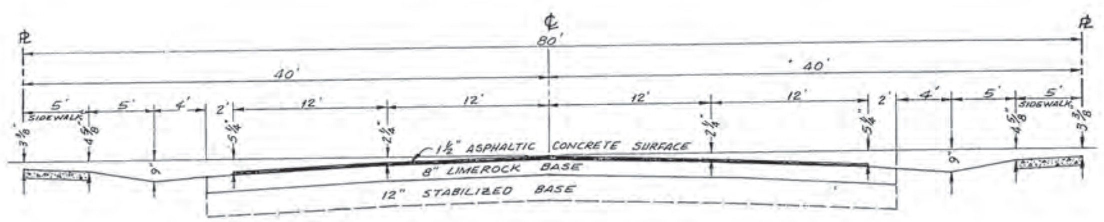
5-719



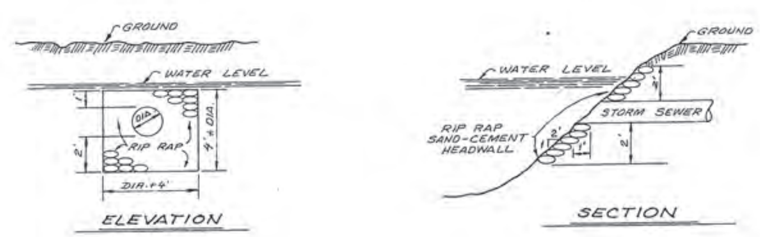
80' WIDE CANAL SECTION



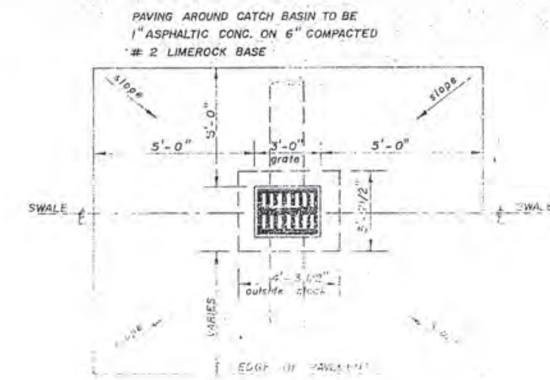
TYPICAL 100' ROAD WAY SECTION



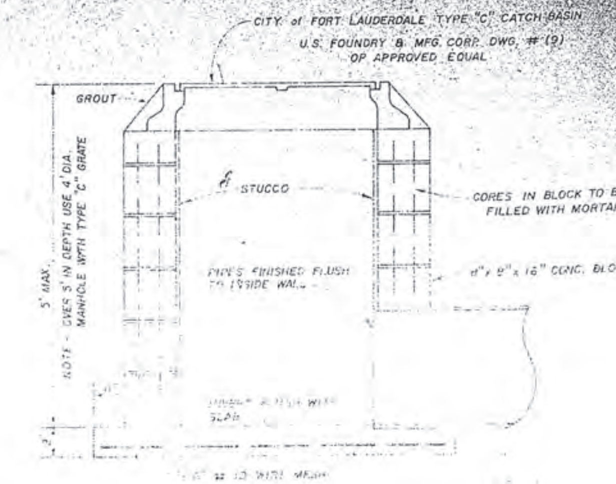
TYPICAL 80' ROADWAY SECTION



STORM SEWER OUTFALL DETAIL



PLAN
CATCH BASIN PAVING DETAIL

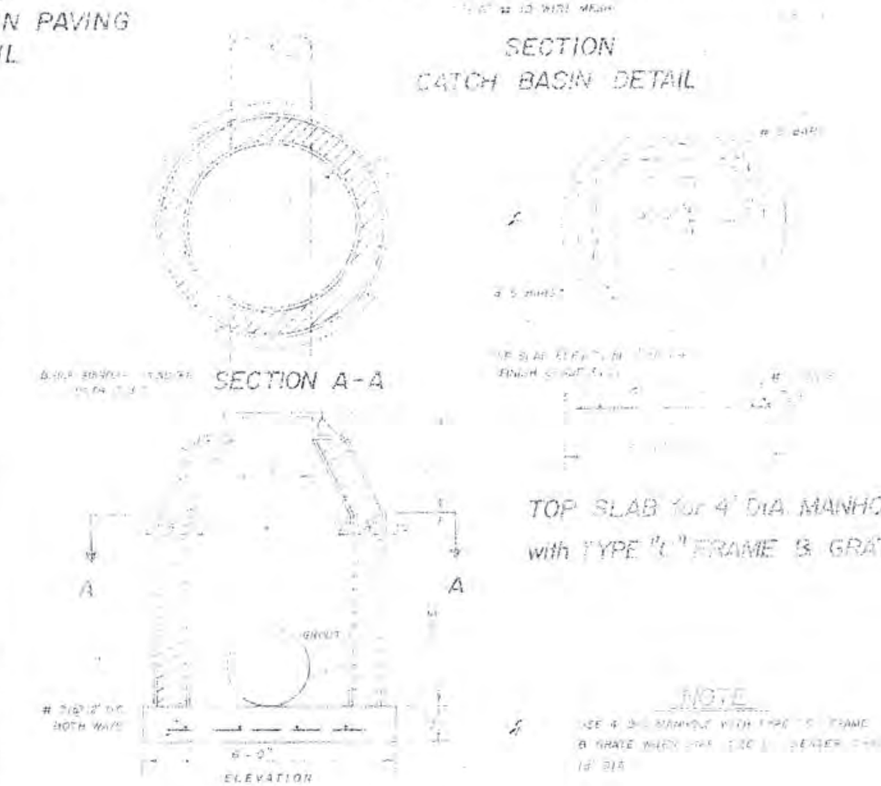


SECTION
CATCH BASIN DETAIL

STORM SEWER SCHEDULE

CATCH BASIN FROM	TO	LENGTH	SIZE	RIM ELEV	INVERT UPPER	INVERT LOWER

cont.



TYPICAL LINE MANHOLE

TOP SLAB for 4' DIA. MANHOLE with TYPE "C" FRAME & GRATE

CATCH BASIN FROM	TO	LENGTH	SIZE	RIM ELEV	INVERT UPPER	INVERT LOWER

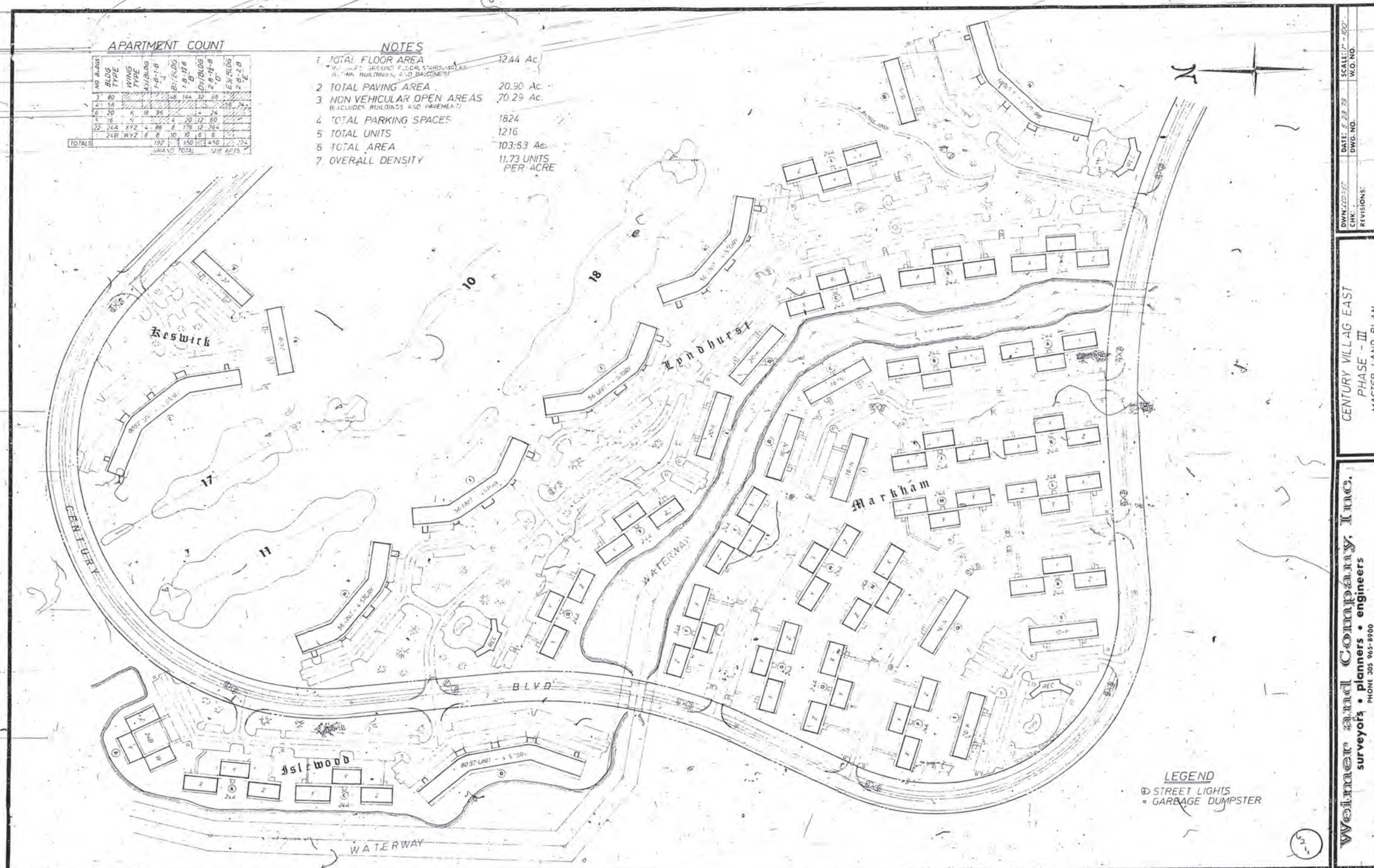
6121

DAVIS AND CRAVEN, INC.
CIVIL ENGINEERS LAND SURVEYORS

GRADING & DRAINAGE DETAILS
DEER CREEK COUNTRY CLUB

SCALE AS SHOWN
DRAWN BY J. GRAY
SHEET 2 OF 12 SHEETS
REVISIONS: REVISED TYPICAL 80' ROADWAY SECTION 1-24-73 (J. GRAY)

6121-1



APARTMENT COUNT

NO BLDGS	BLDG TYPE	WING TYPE	AS/BLDG	1-B-1-B "A"	BS/BLDG	1-B-1½B "B"	DS/BLDG	2-B-1½-B "D"	ES/BLDG	2-B-2B "E"
3	80				48	144	32	96		
4	56								56	[illegible]
6	20	K	16	96			4	24		
5	16	N			4	20	12	60		
22	24A	XYZ	4	88	8	176	12	264		
1	24B	WYZ	8	8	10	10	6	6		
TOTALS				192		350		450		224
				GRAND TOTAL				1216 APTS.		

NOTES

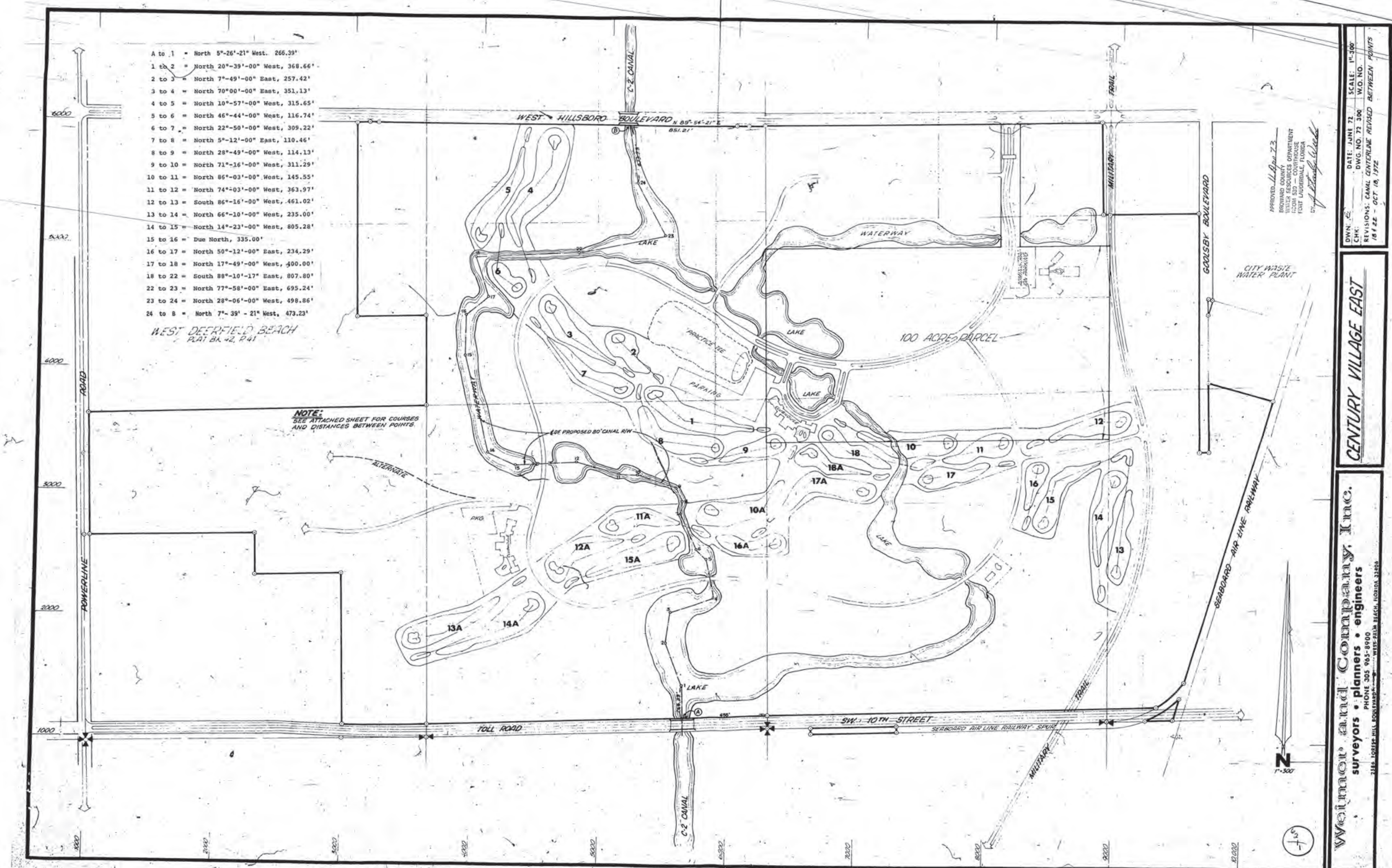
1 TOTAL FLOOR AREA 12.44 Ac.
(INCLUDES GROUND FLOOR, STAIRS, HALLS WITHIN BUILDINGS, AND BALCONIES)
2 TOTAL PAVING AREA 20.90 Ac.
3 NON VEHICULAR OPEN AREAS 70.29 Ac.
(EXCLUDES BUILDINGS AND PAVEMENT)
4 TOTAL PARKING SPACES 1824
5 TOTAL UNITS 1216
6 TOTAL AREA 103.63 Ac.
7 OVERALL DENSITY 11.73 UNITS PER ACRE

Weimer and Company, Inc.
surveyors • planners • engineers
PHONE 305 965-8900
2586 FOREST HILL BOULEVARD • WEST PALM BEACH, FLORIDA 33406

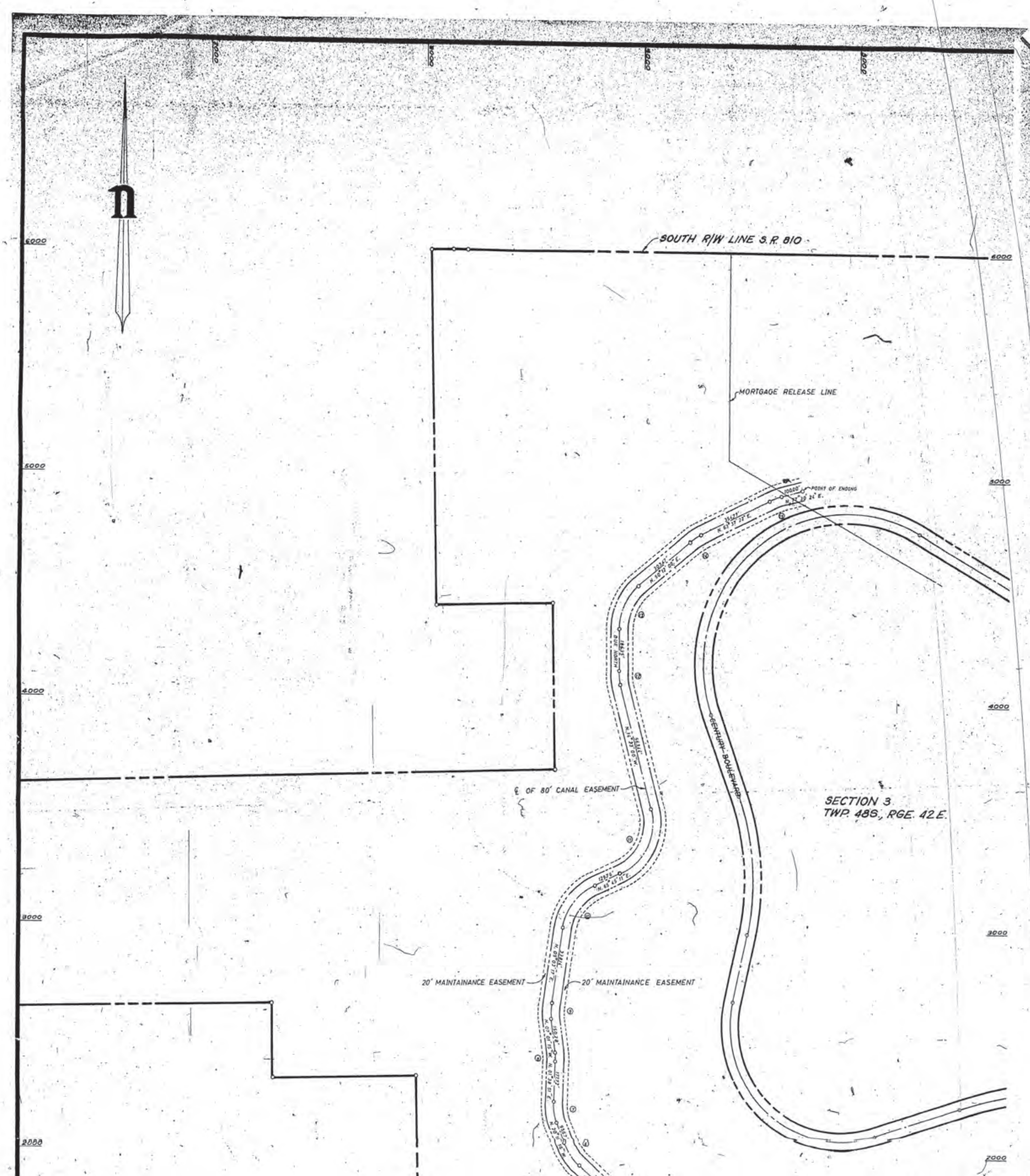
CENTURY VILLAG EAST
PHASE - III
MASTER LAND PLAN

DWN: [illegible] DATE: 5 23 73 SCALE: 1" = 100'
CHK: DWG. NO. W.O. NO.
REVISIONS:
SHEET ___ OF ___

6211


A to 1 = North 5°-26'-21" West. 266.39'
1 to 2 = North 20°-39'-00" West, 368.66'
2 to 3 = North 7°-49'-00" East, 257.42'
3 to 4 = North 70°00'-00" East, 351.13'
4 to 5 = North 10°-57'-00" West, 315.65'
5 to 6 = North 46°-44'-00" West, 116.74'
6 to 7 = North 22°-50'-00" West, 309.22'
7 to 8 = North 5°-12'-00" East, 110.46'
8 to 9 = North 28°-49'-00" West, 114.13'
9 to 10 = North 71°-16'-00" West, 311.29'
10 to 11 = North 86°-03'-00" West, 145.55'
11 to 12 = North 74°-03'-00" West, 363.97'
12 to 13 = South 86°-16'-00" West, 461.02'
13 to 14 = North 66°-10'-00" West, 235.00'
14 to 15 = North 14°-23'-00" West, 805.28'
15 to 16 = Due North, 335.00'
16 to 17 = North 50°-12'-00" East, 234.29'
17 to 18 = North 17°-49'-00" West, 400.00'
18 to 22 = South 88°-10'-17" East, 807.80'
22 to 23 = North 77°-58'-00" East, 695.24'
23 to 24 = North 28°-06'-00" West, 498.86'
24 to B = North 7°- 39' - 21" West, 473.23'
WEST DEERFIELD BEACH
PLAT BK 42, P 41
NOTE:
SEE ATTACHED SHEET FOR COURSES AND DISTANCES BETWEEN POINTS.
WEST HILLSBORO BOULEVARD
C-2 CANAL
POWERLINE ROAD
TOLL ROAD
SW 10TH STREET
SEABOARD AIR LINE RAILWAY SPUR
SEABOARD AIR LINE RAILWAY
MILITARY TRAIL
GOOLSBY BOULEVARD
CITY WASTE WATER PLANT
100 ACRES PARCEL
WATERWAY
LAKE
PRACTICE TEE
PARKING
ALTERNATE
APPROVED 11 Apr 73
BROWARD COUNTY
WATER RESOURCES DEPARTMENT
ROOM 530 — COURTHOUSE
FORT LAUDERDALE, FLORIDA
DWN:
CHK:
DATE: JUNE 72
SCALE: 1"=300'
DWG. NO. 72 300
W.O. NO.
REVISIONS: CANAL CENTERLINE REVISED BETWEEN POINTS 18 & 22 - OCT 18, 1972
SHEET 1 OF 1
CENTURY VILLAGE EAST
Weimer and Company, Inc.
surveyors • planners • engineers
PHONE 305 965-8900
N
1"=300'

6211



CENTERLINE
CURVE DATA

CURVE - KEY NUMBER SHOWN ON DRAWING	RADIUS	DELTA ANGLE	ARC LENGTH
1	250.0	84°-14'-55"	367.61'
2	250.0	12°-46'-17"	55.73'
3	250.0	12°-27'-30"	54.36'
4	250.0	69°-20'-38"	302.57'
5	250.0	28°-14'-23"	123.22'
6	250.0	28°-37'-49"	124.92'
7	250.0	21°-54'-47"	95.61'
8	250.0	08°-40'-06"	37.82'
9	250.0	16°-04'-32"	70.14'
10	250.0	56°-41'-54"	247.40'
11	250.0	80°-03'-11"	349.67'
12	250.0	14°-23'-00"	62.76'
13	250.0	50°-12'-00"	218.18'
14	250.0	13°-25'-22"	58.56'
15	250.0	13°-53'-02"	60.58'

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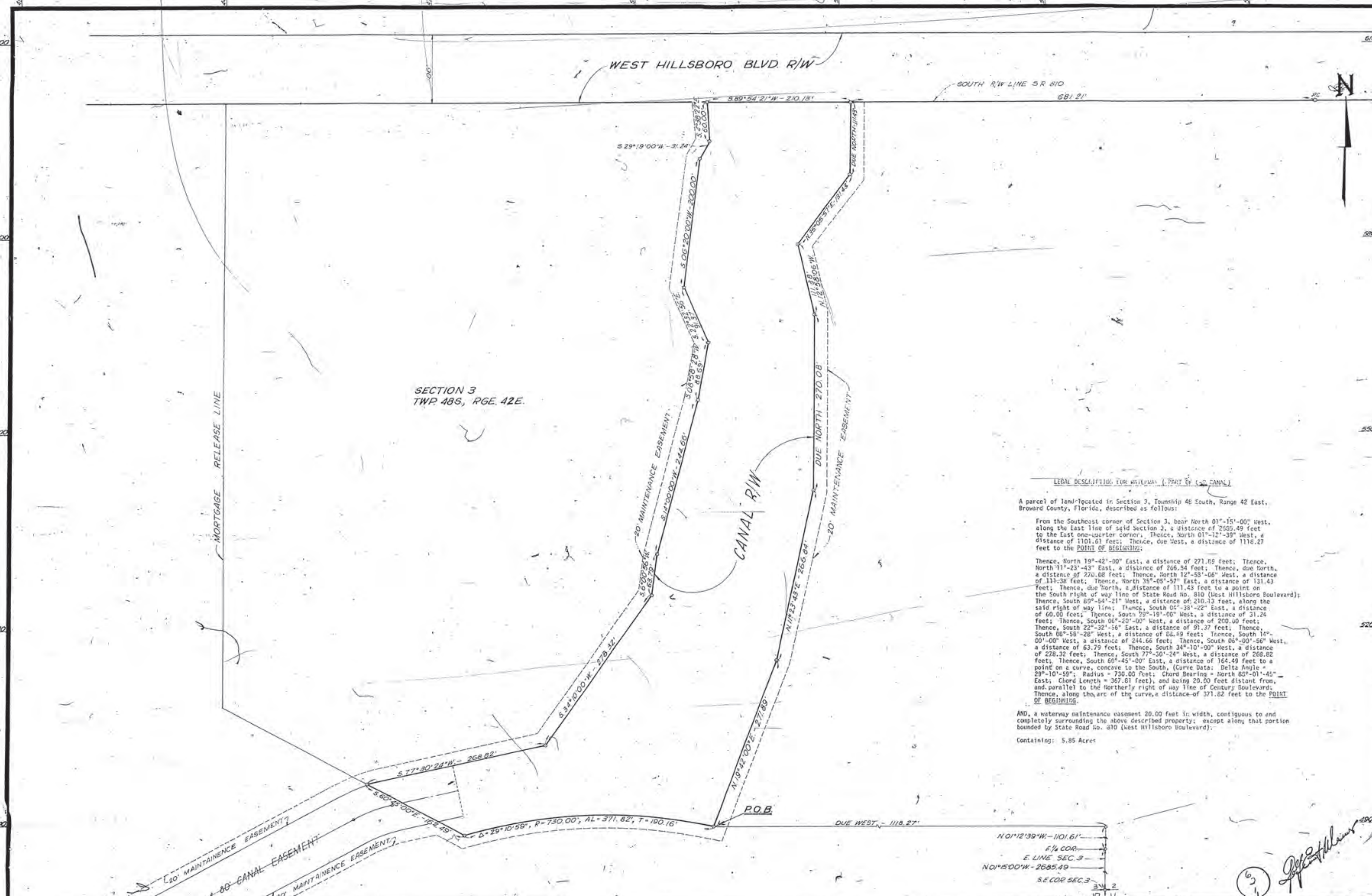
2386 FOREST HILL BOULEVARD • WEST PALM BEACH, FLORIDA 33406

CENTURY VILLAGE EAST
C-2 CANAL EASEMENT

DWN:	DATE: 11-6-79	SCALE: 1"=200'
CHK:	DWG. NO.	W.O. NO.
REVISIONS:		

SHEET 2 OF 2

6211



LEGAL DESCRIPTION FOR WATERWAY (PART OF C-2 CANAL)

A parcel of land located in Section 3, Township 48 South, Range 42 East, Broward County, Florida, described as follows:

From the Southeast corner of Section 3, bear North 01°-15'-00" West, along the East line of said Section 3, a distance of 2685.49 feet to the East one-quarter corner; Thence, North 01°-12'-39" West, a distance of 1101.61 feet; Thence, due West, a distance of 1118.27 feet to the POINT OF BEGINNING;

Thence, North 19°-42'-00" East, a distance of 271.89 feet; Thence, North 11°-23'-43" East, a distance of 266.54 feet; Thence, due North, a distance of 270.08 feet; Thence, North 12°-58'-06" West, a distance of 111.38 feet; Thence, North 35°-05'-57" East, a distance of 131.43 feet; Thence, due North, a distance of 111.43 feet to a point on the South right of way line of State Road No. 810 (West Hillsboro Boulevard); Thence, South 89°-54'-21" West, a distance of 210.13 feet, along the said right of way line; Thence, South 04°-38'-22" East, a distance of 60.00 feet; Thence, South 29°-19'-00" West, a distance of 31.24 feet; Thence, South 00°-20'-00" West, a distance of 200.00 feet; Thence, South 22°-32'-56" East, a distance of 91.37 feet; Thence, South 08°-58'-28" West, a distance of 88.69 feet; Thence, South 14°-00'-00" West, a distance of 244.66 feet; Thence, South 06°-00'-56" West, a distance of 63.79 feet; Thence, South 34°-10'-00" West, a distance of 228.32 feet; Thence, South 77°-30'-24" West, a distance of 268.82 feet; Thence, South 60°-45'-00" East, a distance of 164.49 feet to a point on a curve, concave to the South, (Curve Data: Delta Angle = 29°-10'-59"; Radius = 730.00 feet; Chord Bearing = North 83°-01'-45" East; Chord Length = 367.81 feet), and being 20.00 feet distant from, and parallel to the Northerly right of way line of Century Boulevard; Thence, along the arc of the curve, a distance of 371.82 feet to the POINT OF BEGINNING.

AND, a waterway maintenance easement 20.00 feet in width, contiguous to and completely surrounding the above described property; except along that portion bounded by State Road No. 810 (West Hillsboro Boulevard).

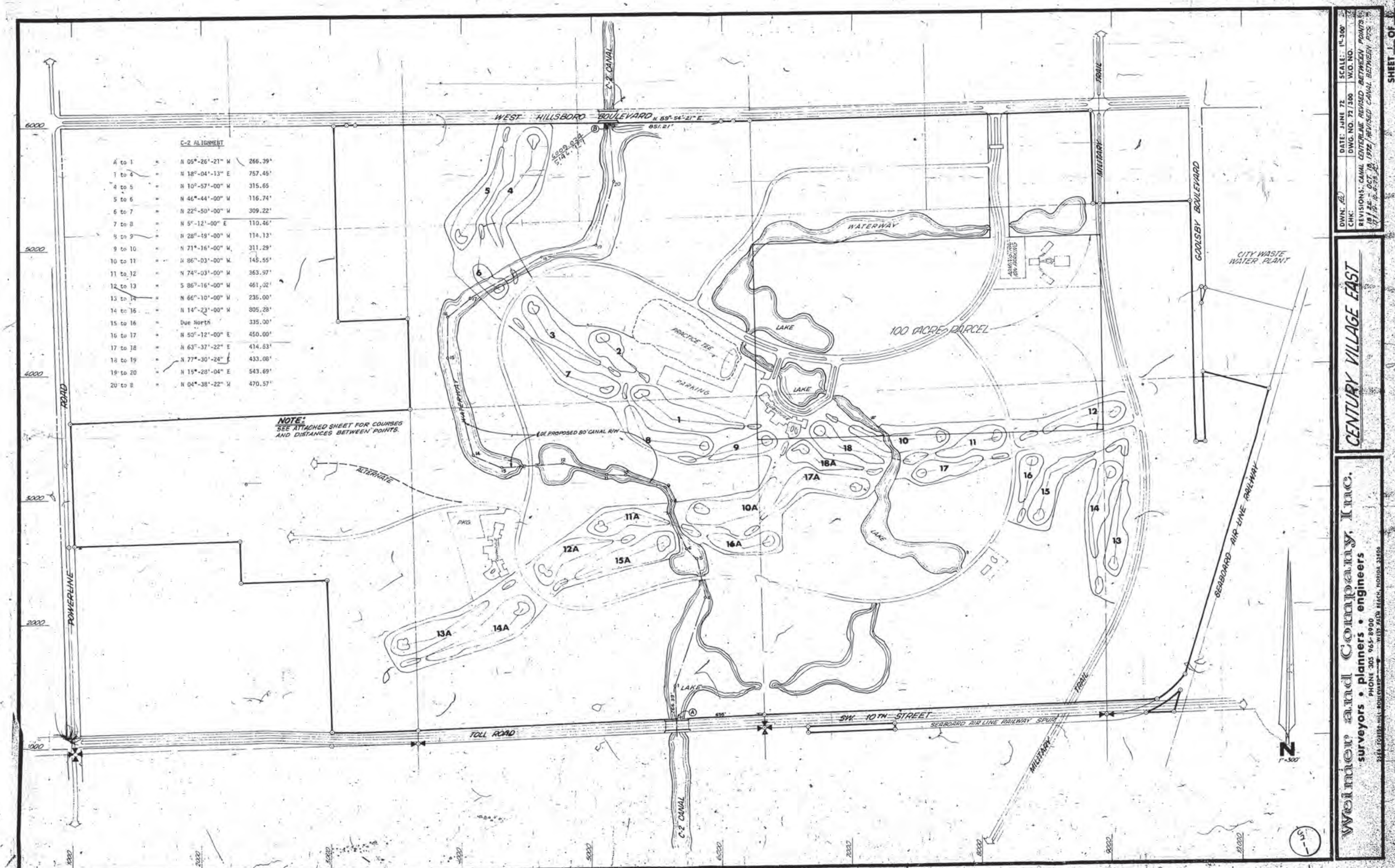
Containing: 5.85 Acres

DWN:	DATE: 11-9-73
CHK:	DWG. NO.
REVISIONS:	SCALE: 1" = 60'
	W.O. NO.

SHEET ___ OF ___

C-2 CANAL RT. of WAY
CENTURY VILLAGE

Weimer and Company, Inc.
surveyors • planners • engineers
PHONE 305 965-8900



C-2 ALIGNMENT

A to 1	=	N 05°-26'-21" W	266.39'
1 to 4	=	N 18°-04'-13" E	757.45'
4 to 5	=	N 10°-57'-00" W	315.65
5 to 6	=	N 46°-44'-00" W	116.74'
6 to 7	=	N 22°-50'-00" W	309.22'
7 to 8	=	N 5°-12'-00" E	110.46'
8 to 9	=	N 28°-49'-00" W	114.13'
9 to 10	=	N 71°-16'-00" W	311.29'
10 to 11	=	N 86°-03'-00" W	145.55'
11 to 12	=	N 74°-03'-00" W	363.97'
12 to 13	=	S 86°-16'-00" W	461.02'
13 to 14	=	N 66°-10'-00" W	235.00'
14 to 15	=	N 14°-23'-00" W	805.28'
15 to 16	=	Due North	335.00'
16 to 17	=	N 50°-12'-00" E	450.00'
17 to 18	=	N 63°-37'-22" E	414.53'
18 to 19	=	N 77°-30'-24" E	433.08'
19 to 20	=	N 15°-28'-04" E	543.69'
20 to 8	=	N 04°-38'-22" W	470.57'

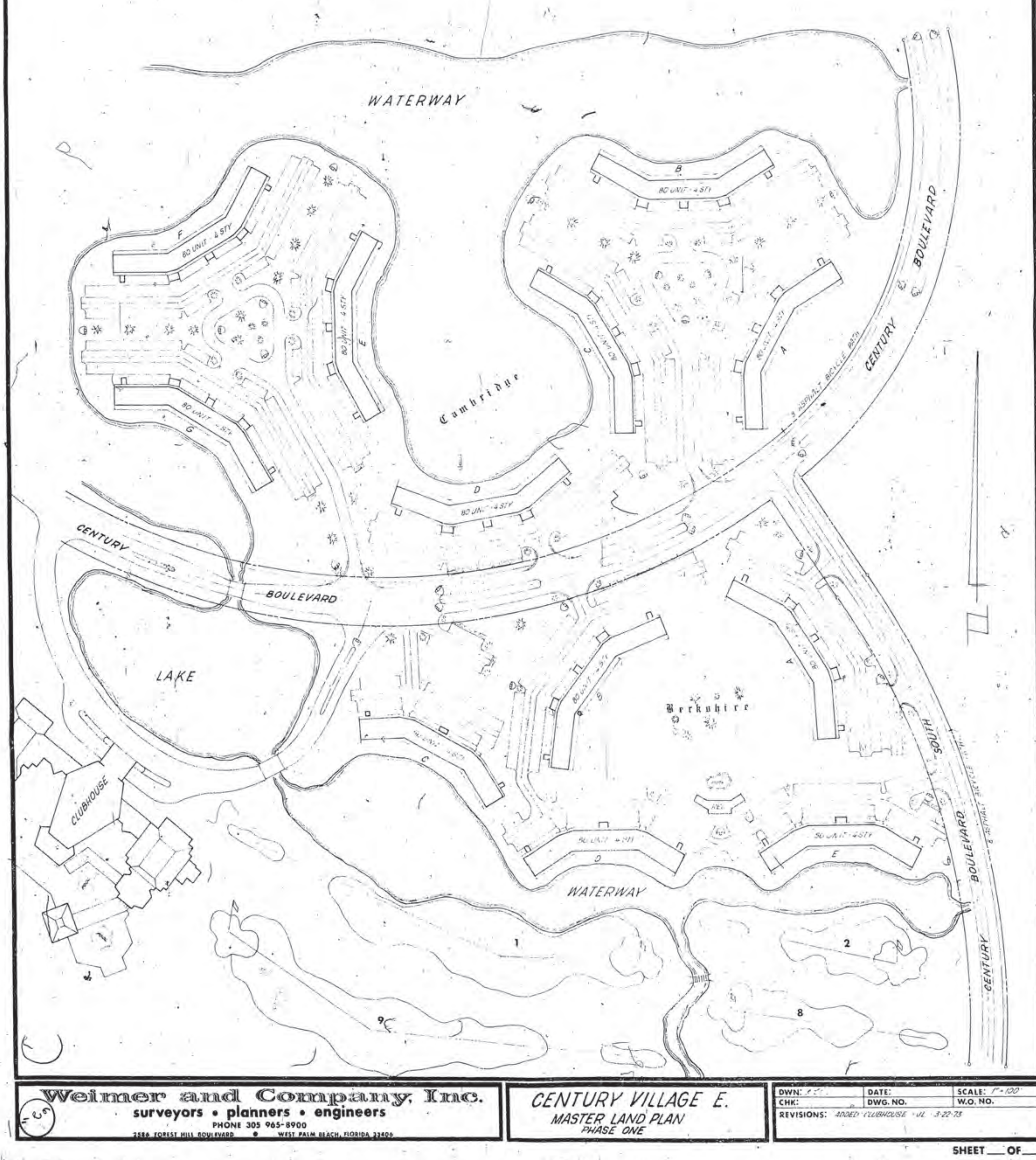
6211

APARTMENT COUNT

NO BLDGS	BUILDING TYPE		E'S/BLDG	2B, 2B 'E'	B'S/BLDG	1B, 1½B 'B'	D'S/BLDG	2B, 1½B 'D'
9	80				64	576	16	144
3	56		56	168				
TOTAL				168		576		144
			GRAND TOTAL	888 APTS.				

LEGEND

* - GARBAGE DUMPSTERS ARE LOCATED WITHIN BUILDINGS
Ⓢ - DENOTES STREET LIGHT



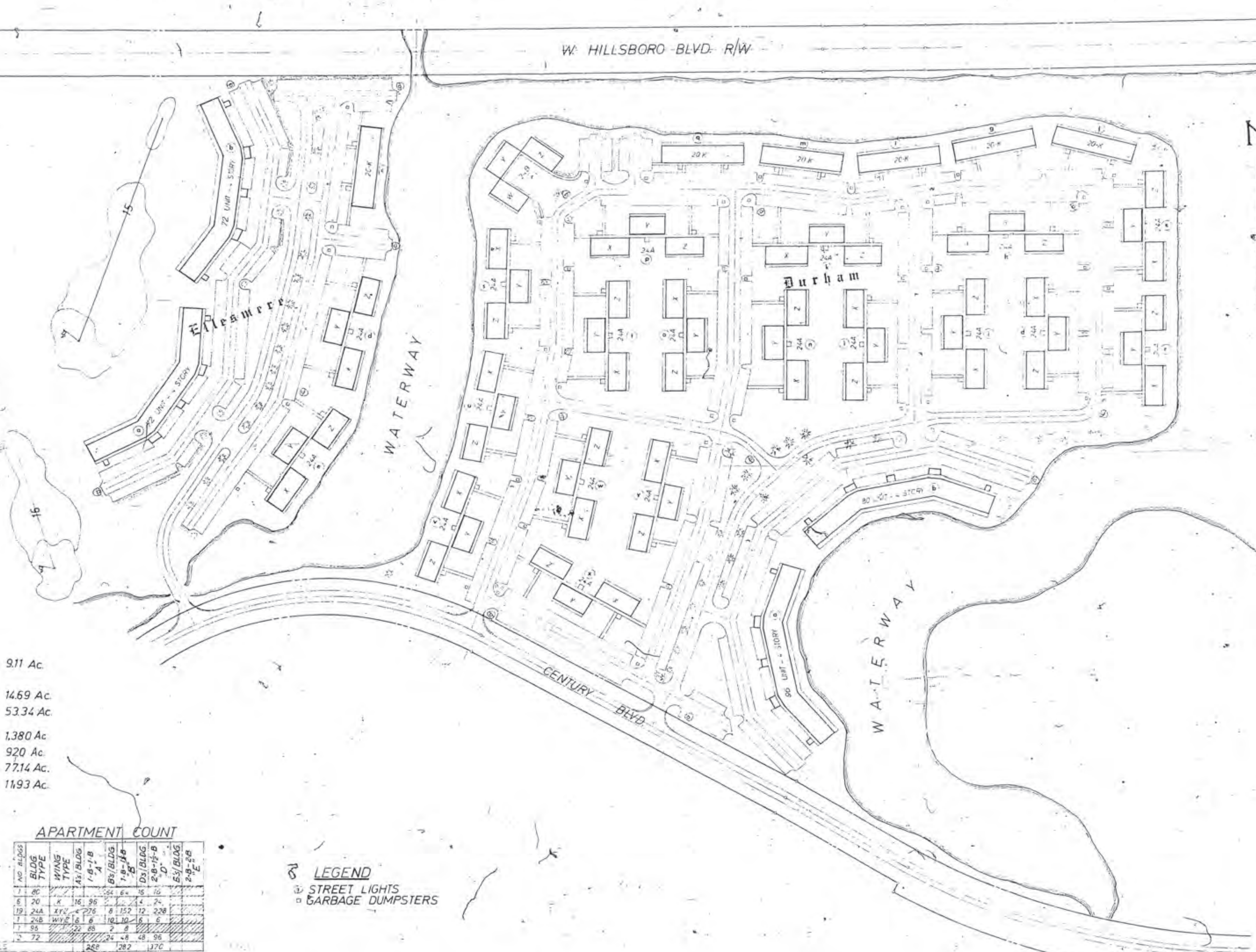
Weimer and Company, Inc.
surveyors • planners • engineers
PHONE 305 965-8900
2586 FOREST HILL BOULEVARD • WEST PALM BEACH, FLORIDA 33406

CENTURY VILLAGE E.
MASTER LAND PLAN
PHASE ONE

DWN: | DATE: | SCALE: 1" = 100'
CHK: | DWG. NO. | W.O. NO.
REVISIONS: ADDED CLUBHOUSE - JL 3-22-73

SHEET ___ OF ___

6211



NOTES

1. TOTAL FLOOR AREA — 9.11 Ac.
   (INCLUDES GROUND FLOOR, STAIRS, WALKS WITHIN BUILDINGS, AND BALCONIES
2. TOTAL PAVING AREA — 14.69 Ac.
3. NON-VEHICULAR OPEN AREA — 53.34 Ac.
   (EXCLUDES BUILDINGS AND PAVEMENT)
4. TOTAL PARKING SPACES — 1,380 Ac.
5. TOTAL UNITS — 920 Ac.
6. TOTAL AREA — 77.14 Ac.
7. OVERALL DENSITY — 11.93 Ac.

APARTMENT COUNT

NO. BLDGS	BLDG TYPE	WING TYPE	A's/BLDG	1-B-1-B "A"	B's/BLDG	1-B-1½-B "B"	D's/BLDG	2-B-1½-B "D"	E's/BLDG	2-B-2B "E"
1	80				64	64	16	16		
6	20	K	16	96			4	24		
19	24A	X-Y-Z	4	276	8	152	12	228		
1	24B	W-Y-Z	6	6	10	10	6	6		
1	96		22	88	2	8				
2	72				24	48	48	96		
TOTALS				268		282		370		
			GRAND TOTAL = 1380 UNITS							

LEGEND

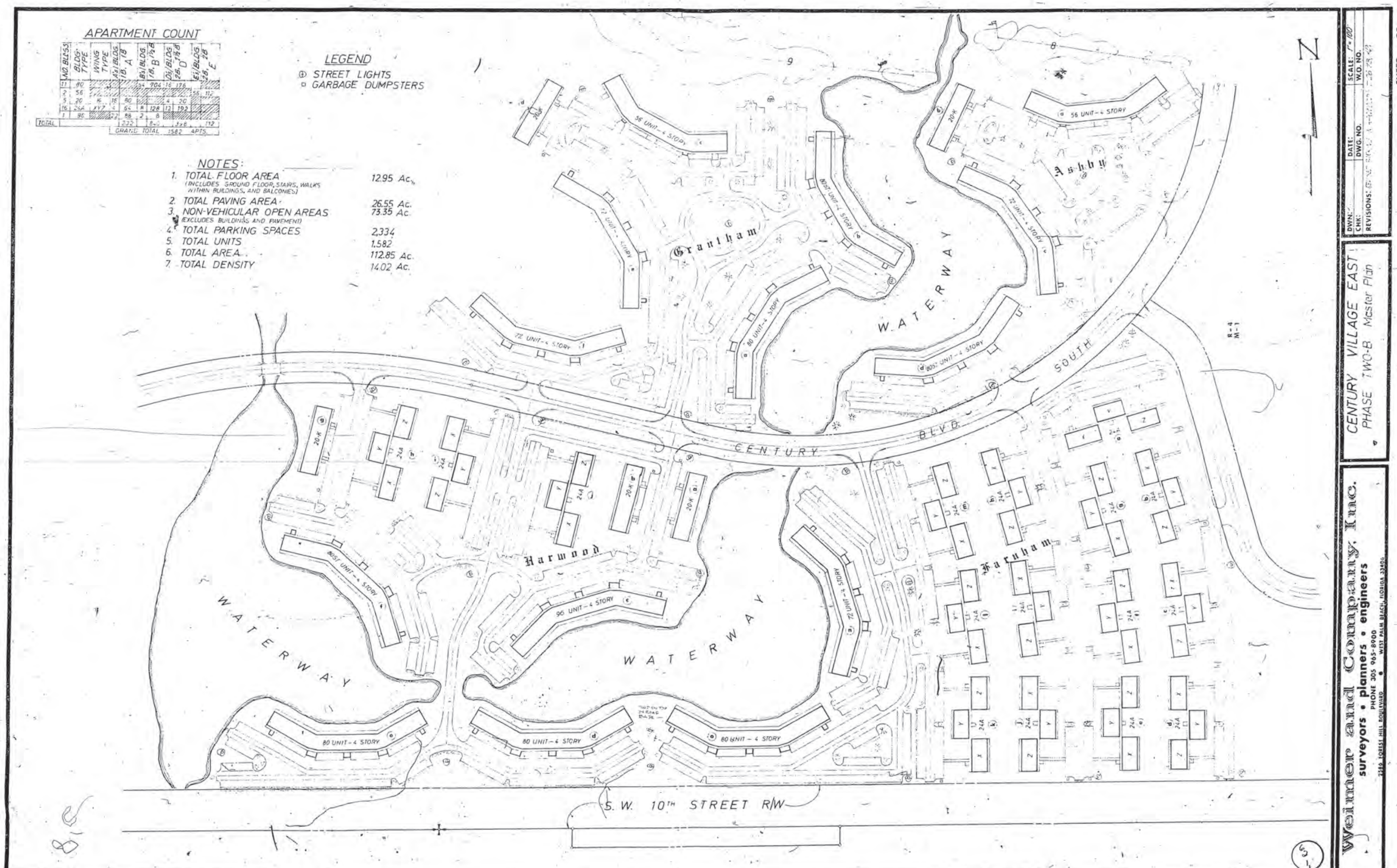
STREET LIGHTS
GARBAGE DUMPSTERS

CENTURY VILLAGE - EAST
PHASE TWO-A Master Plan

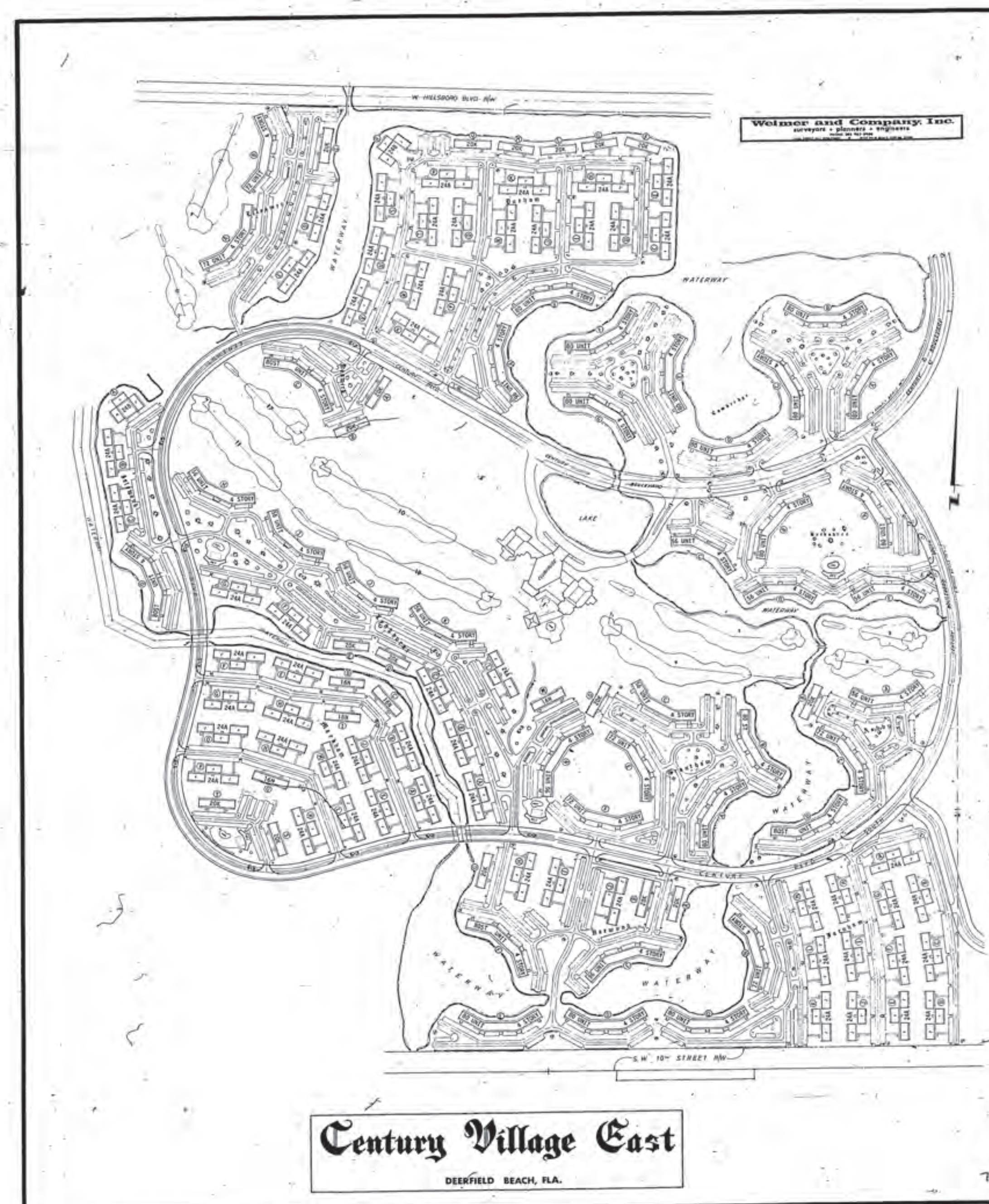
Weimer and Company, Inc.
surveyors • planners • engineers

DWN: CHK: REVISIONS:
DATE: SCALE: DWG. NO. W.O. NO.
SHEET ___ OF ___

6211


APARTMENT COUNT
LEGEND
STREET LIGHTS
GARBAGE DUMPSTERS
NOTES:
1. TOTAL FLOOR AREA (INCLUDES GROUND FLOOR, STAIRS, WALKS WITHIN BUILDINGS, AND BALCONIES) 12.95 Ac.
2. TOTAL PAVING AREA 26.55 Ac.
3. NON-VEHICULAR OPEN AREAS (EXCLUDES BUILDINGS AND PAVEMENT) 73.35 Ac.
4. TOTAL PARKING SPACES 2,334
5. TOTAL UNITS 1.582
6. TOTAL AREA 112.85 Ac.
7. TOTAL DENSITY 14.02 Ac.
GRAND TOTAL 1582 APTS.
Grantham
Ashby
Harwood
Farnham
WATERWAY
CENTURY BLVD. SOUTH
S.W. 10TH STREET R/W
56 UNIT - 4 STORY
72 UNIT - 4 STORY
80 UNIT - 4 STORY
96 UNIT - 4 STORY
Weimer and Company, Inc.
surveyors • planners • engineers
PHONE 305 965-8900
2580 FOREST HILL BOULEVARD • WEST PALM BEACH, FLORIDA 33406
CENTURY VILLAGE EAST
PHASE TWO-B Master Plan
DWN: DATE: SCALE: 1"=100
CHK: DWG. NO. W.O. NO.
REVISIONS:
SHEET ___ OF ___

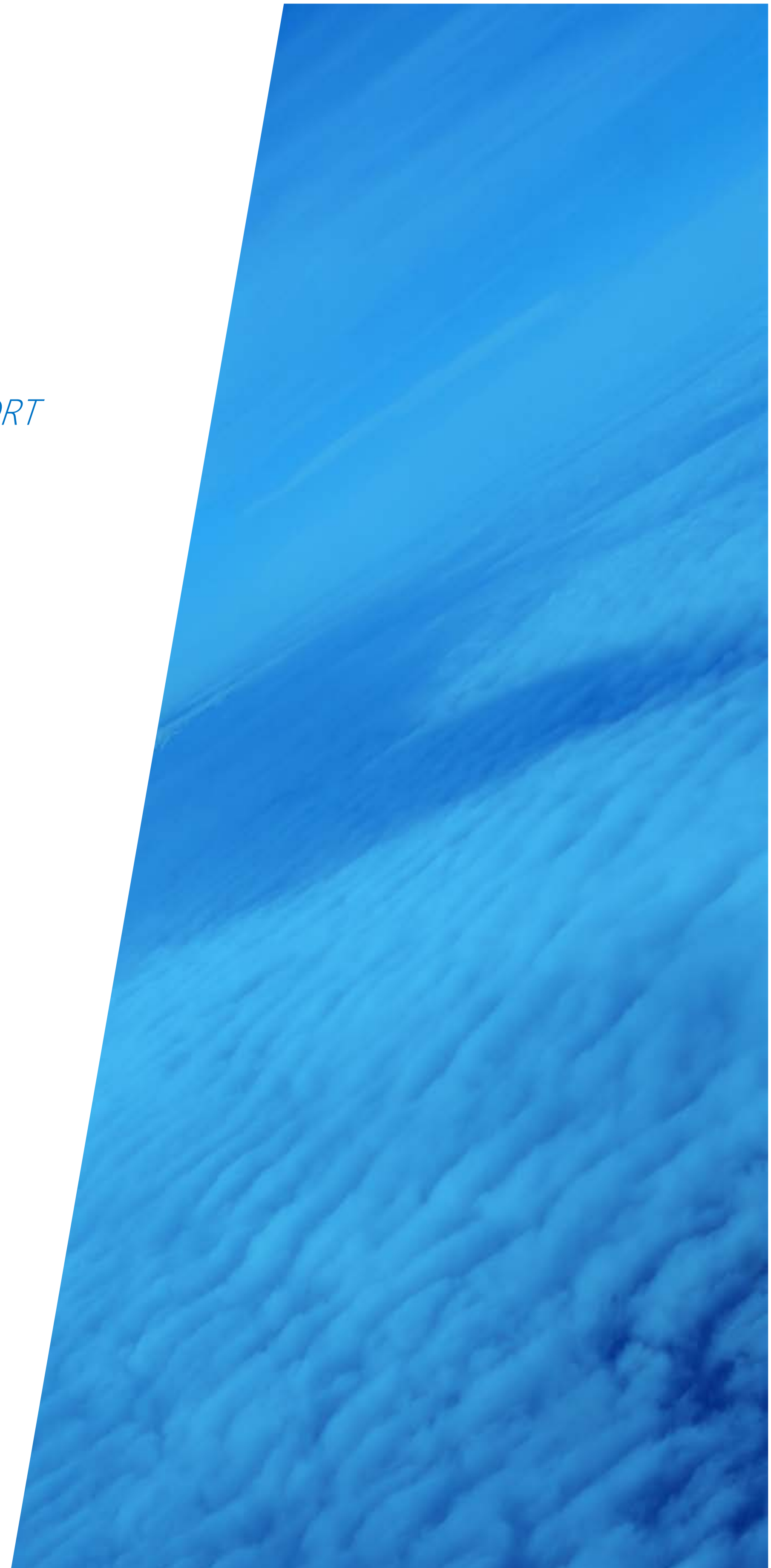
6211


Weimer and Company, Inc.
surveyors + planners + engineers
WATERWAY
WATERWAY
WATERWAY
LAKE
S.W. 10th STREET R/W
Century Village East
DEERFIELD BEACH, FLA.

6211

APPENDIX H

GEOTECHNICAL REPORT



Memo

To: Ms. Cassie Piché, P.E.

From: Partha Ghosh, P.E.

Date: February 16, 2018

Re: **SW 10th St. PD&E Soil Boring Info.; FPID No.: 439891-1-22-01**

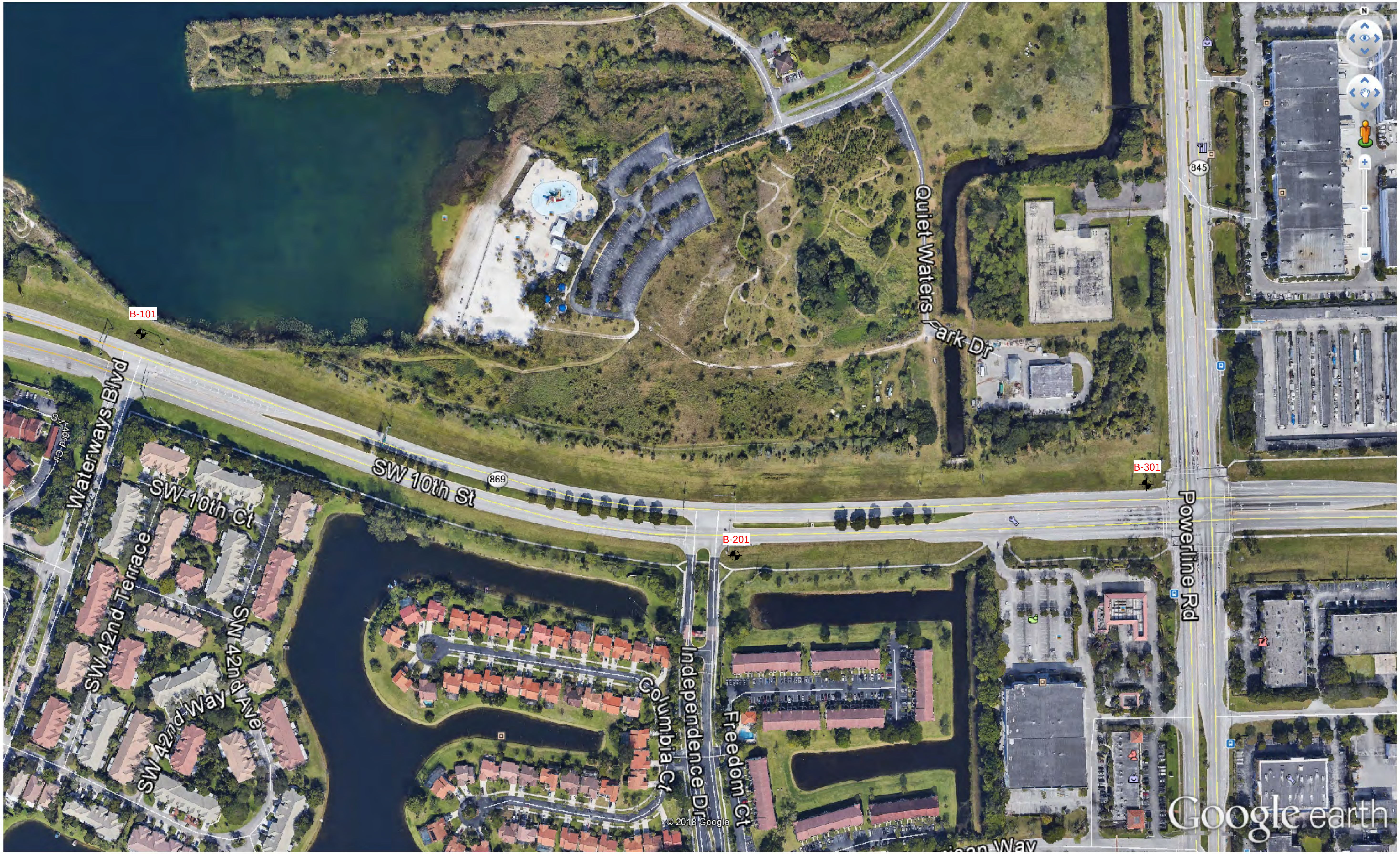
The following preliminary information are attached for your immediate use:

1. Boring Location Plan
2. Soil Profiles - Preliminary
3. 18 and 24 – inch PSC Piles Capacity, tables and graphs
4. 48 and 60 – inch Drilled Shaft Capacity, tables and graphs
5. Soil FB-Pier parameters for all borings

Note: The above information are provided for your immediate needs. A formal PD&E report will be provided at a later date.

Thank you.

Partha



REVISIONS

DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION

LEGEND:
B- SPT Boring (100')

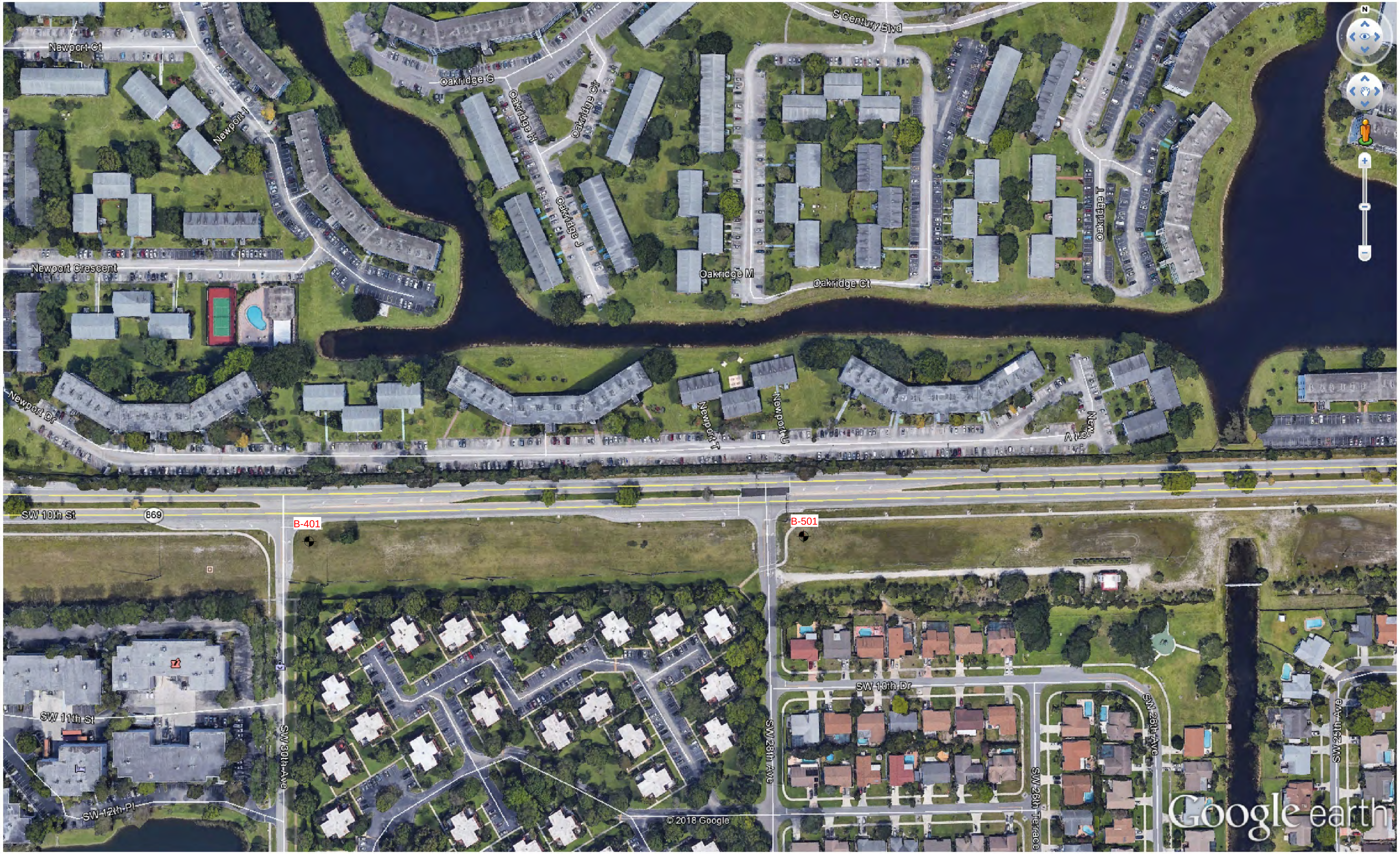
ENGINEER OF RECORD:
PARTHA GHOSH, P.E. LICENSE NO. 51377
GCME, INC.
1730 W. 10TH STREET
RIVIERA BEACH, FLORIDA 33404
CERTIFICATE OF AUTHORIZATION NO. 9076

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
	BROWARD	439891-1-22-02

APPROXIMATE BORING LOCATION PLAN
PLATE-1

SHEET NO.



DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION
					LEGEND: ⊕ B- SPT Boring (100')

REVISIONS

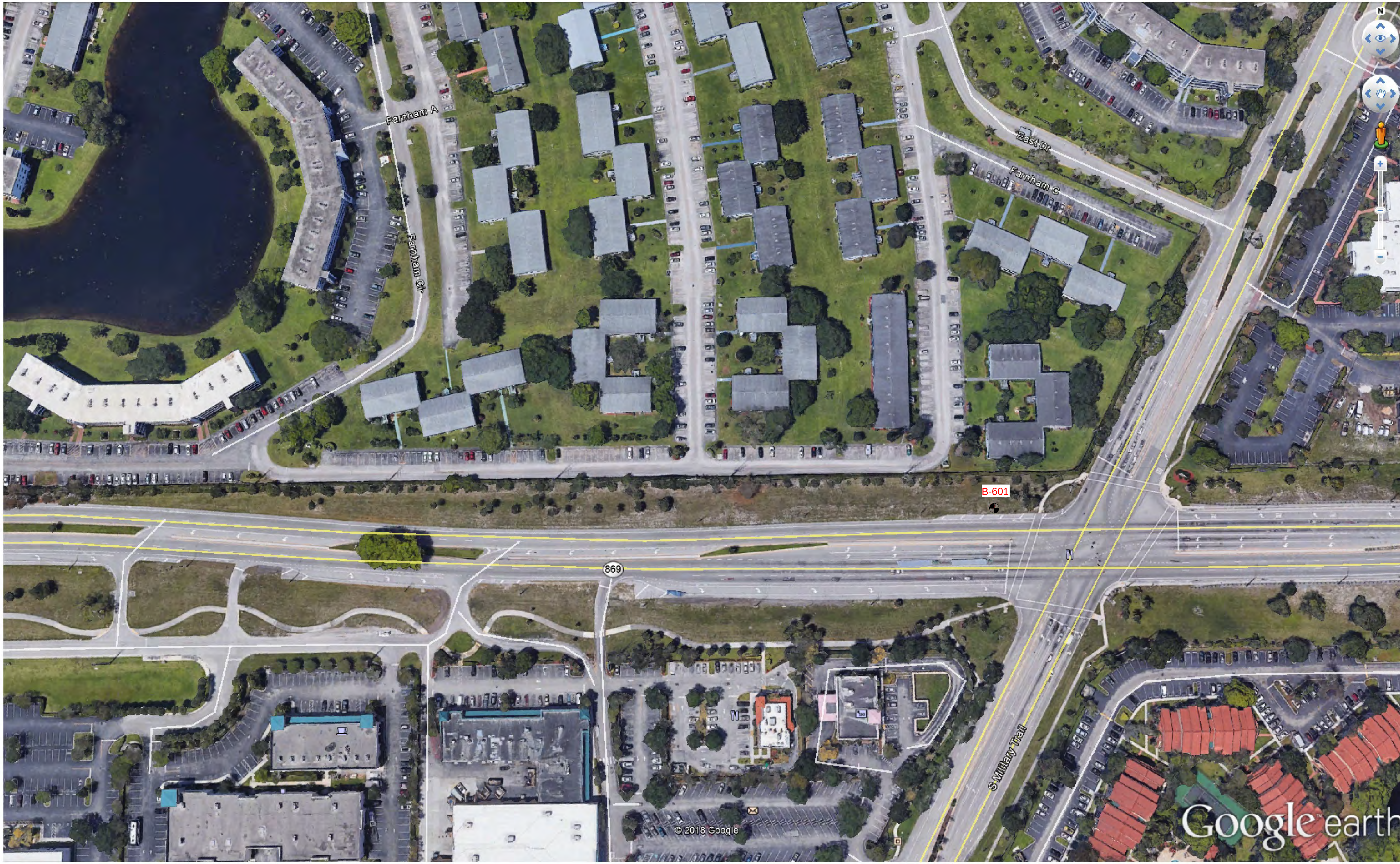
ENGINEER OF RECORD:
PARTHA GHOSH, P.E. LICENSE NO. 51377
GCME, INC.
1730 W. 10TH STREET
RIVIERA BEACH, FLORIDA 33404
CERTIFICATE OF AUTHORIZATION NO. 9076

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
	BROWARD	439891-1-22-02

APPROXIMATE BORING LOCATION PLAN
PLATE-2

SHEET NO.



REVISIONS					
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION
					LEGEND: B- SPT Boring (100')

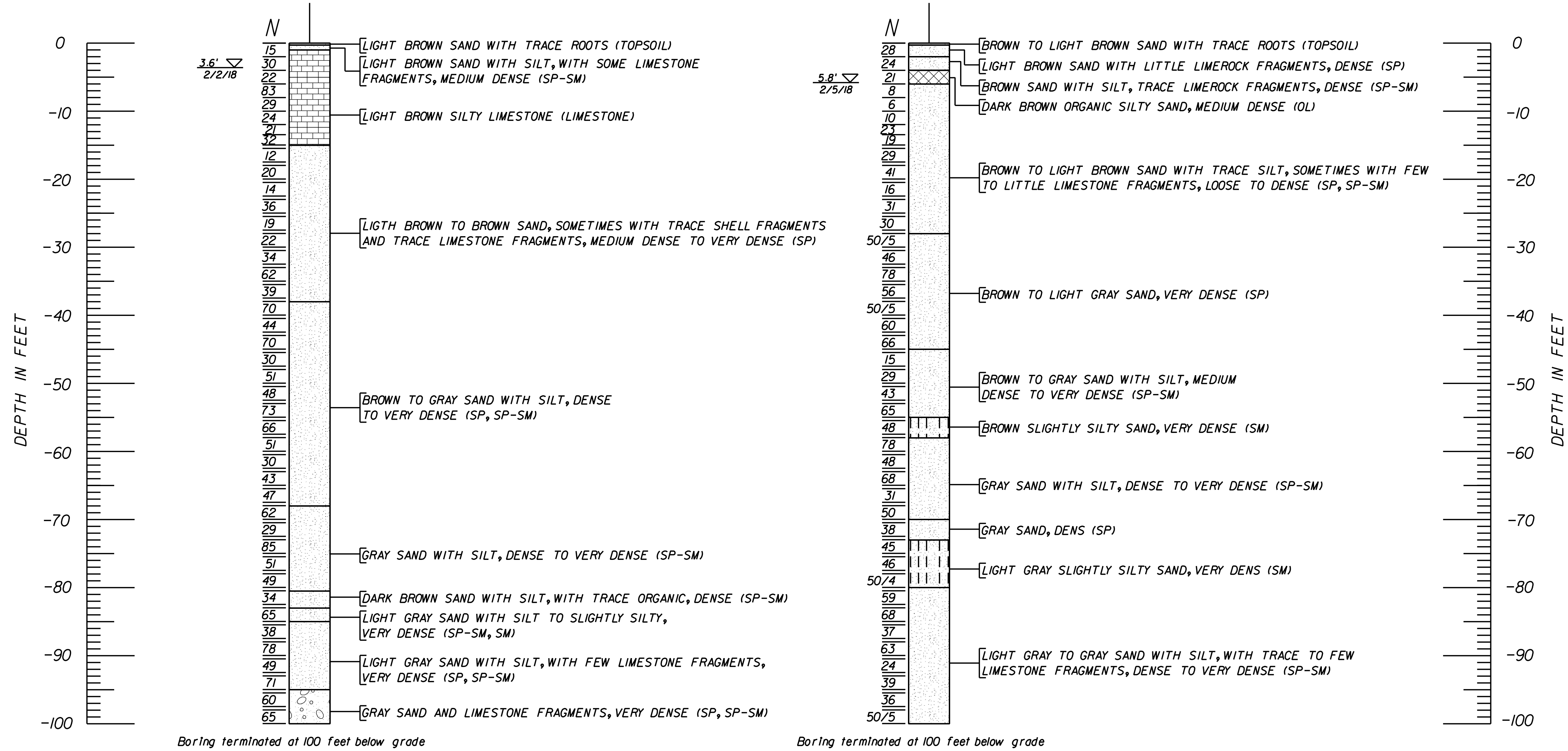
ENGINEER OF RECORD:
PARTHA GHOSH, P.E. LICENSE NO. 51377
GCME, INC.
1730 W. 10TH STREET
RIVIERA BEACH, FLORIDA 33404
CERTIFICATE OF AUTHORIZATION NO. 9076

STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION		
ROAD NO.	COUNTY	FINANCIAL PROJECT ID
	BROWARD	439891-1-22-02

APPROXIMATE BORING LOCATION PLAN
PLATE-3

SHEET NO.

	B-101	B-201
BORING NO.	B-101	B-201
STATION	-	-
OFFSET	-	-
ELEVATION	-	-
LATITUDE/LONGITUDE	-	-
RIG	CME-55	CME-55
HAMMER	AUTOMATIC	AUTOMATIC
DATE	2/2/18	2/5/18



SCALE: 1"=20'V

L E G E N D

(SP)	UNIFIED SOIL CLASSIFICATION SYSTEM SYMBOL
N	STANDARD PENETRATION RESISTANCE IN BLOWS PER 12 Inches UNLESS OTHERWISE NOTED. 50/3 INDICATES (50) BLOWS REQUIRED TO DRIVE A SAMPLING SPOON 3 INCHES.
2/2/18	WATER LEVEL WITH DATE OF READING
⟶	LOSS OF CIRCULATION
WR	SAMPLER DROPPED DUE TO WEIGHT OF ROD
WH	SAMPLER DROPPED DUE TO WEIGHT OF HAMMER
HA	DRILLED WITH A HAND AUGER IN ORDER TO CLEAR LOCATION FROM UNDERGROUND UTILITIES
NR	NO RECOVERY- NO SOIL/ROCK WAS RECOVERED IN THE SAMPLING SPOON

STATION / OFFSET / ELEVATION / COORDINATE INFORMATION ARE PROVIDED BY SURVEYORS.

MC=	NATURAL MOISTURE CONTENT (%)
-200=	FINES PASSING #200 SIEVE (%)
OC=	ORGANIC CONTENT (%)
LL=	LIQUID LIMIT (%)
PI=	PLASTICITY INDEX (%)
NP=	INDICATES NON-PLASTIC

NOTES: STRATA BOUNDARIES ARE APPROXIMATE AND MAY VARY BETWEEN OR AWAY FROM BORING LOCATIONS.

DRILLER: FAUSTINO

STANDARD PENETRATION TEST DATA

SPOON INSIDE DIA.	1.375 Inches
SPOON OUTSIDE DIA.	2.0 Inches
AVG. HAMMER DROP	30.0 Inches
HAMMER WEIGHT	140.0 pounds

SPT CONSISTENCY CHART

SILTS AND CLAYS-	SAFETY HAMMER	AUTOMATIC HAMMER
CONSISTENCY	SPT (BLOWS/1.0 ft)	SPT (BLOWS/1.0 ft)
VERY SOFT	LESS THAN 2	LESS THAN 1
SOFT	2 - 4	1 - 3
FIRM	4 - 8	3 - 6
STIFF	8 - 15	6 - 12
VERY STIFF	15 - 30	12- 24
HARD	GREATER THAN 30	GREATER THAN 24

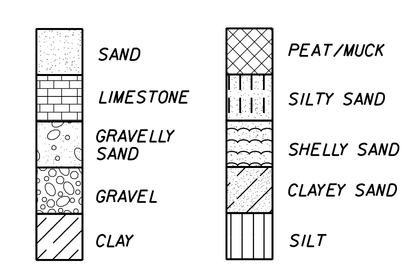
SPT DENSITY CHART

GRANULAR MATERIALS-	SAFETY HAMMER	AUTOMATIC HAMMER
RELATIVE DENSITY	SPT (BLOWS/1.0 ft)	SPT (BLOWS/1.0 ft)
VERY LOOSE	LESS THAN 4	LESS THAN 3
LOOSE	4 - 10	3 - 8
MEDIUM DENSE	10 - 30	8 - 24
DENSE	30 - 50	24 - 40
VERY DENSE	GREATER THAN 50	GREATER THAN 40

ENVIRONMENTAL CLASSIFICATION:

SUBSTRUCTURE: -
-
SUPERSTRUCTURE: -

SOIL TYPE SYMBOLS:



GCME PROJECT NO. 2000-01-17003

NOTICE: THE OFFICAL RECORD OF THIS SHEET IS THE ELECTRONIC FILE DIGITALY SIGNED AND SEALED UNDER RULE 61G15-23.004, F.A.C

REVISIONS

DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION

ENGINEER OF RECORD:
PARTHA GHOSH, P.E. LICENSE NO. 51377
GCME, INC.
1730 W. 10TH STREET
RIVIERA BEACH, FLORIDA 33404
CERTIFICATE OF AUTHORIZATION NO. 9076

DRAWN BY: FP 02-18
CHECKED BY: ZP 02-18
DESIGNED BY: XXX MM-YY
CHECKED BY: XXX MM-YY

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
869	BROWARD	439891-1-22-02

SHEET TITLE: REPORT OF CORE BORINGS

PROJECT NAME: SW 10TH STREET PD&E STUDY

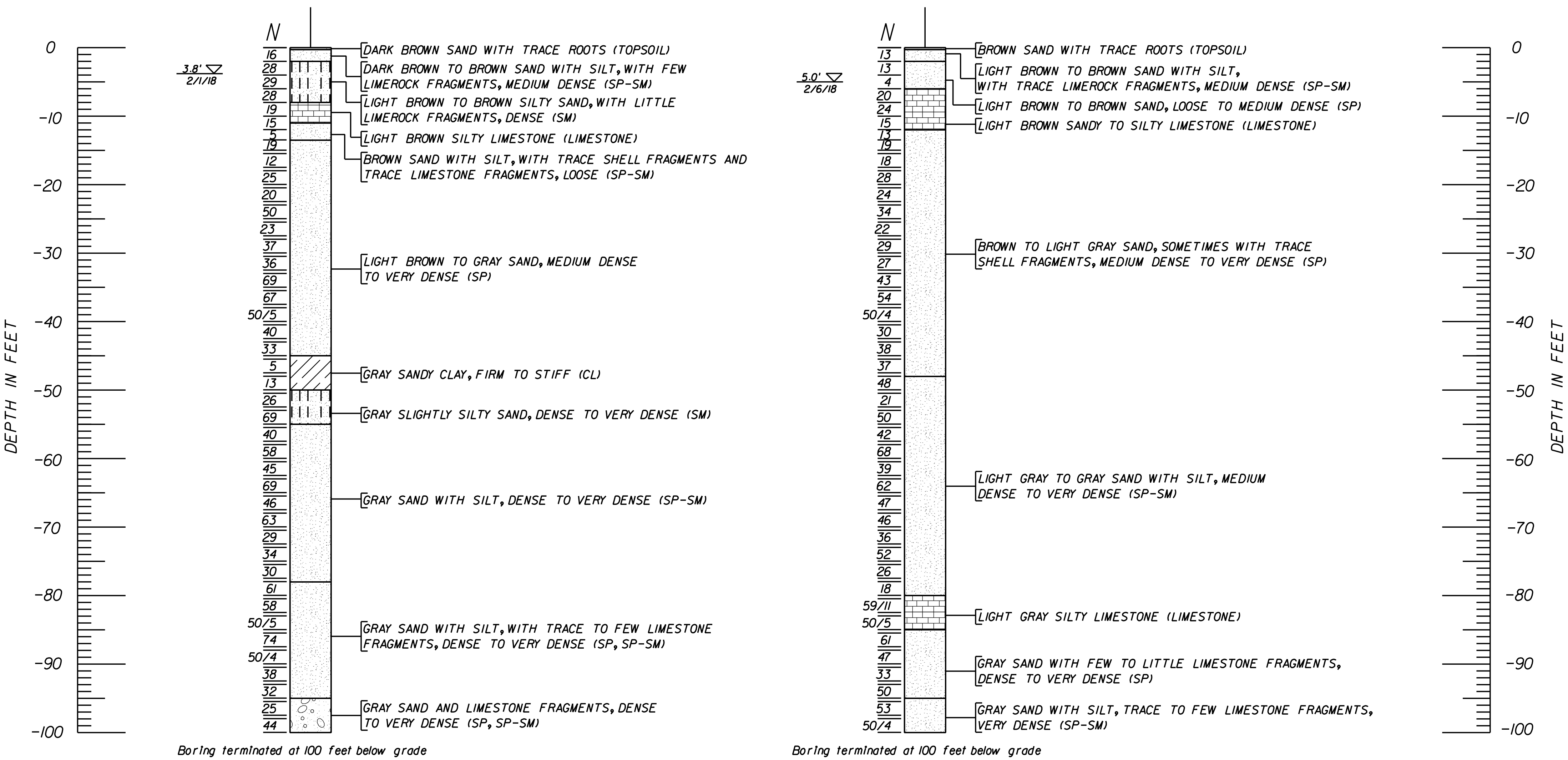
REF. DWG. NO.

SHEET NO.

FIGURE: 1

foier 2/12/2018 4:03:49 PM X:\CADD\MicroStation Drawing\2017\17003\STRUCTURE\BORING-101-201.dgn

BORING NO.	B-301	B-401
STATION	-	-
OFFSET	-	-
ELEVATION	-	-
LATITUDE/LONGITUDE	-	-
RIG	CME-55	CME-55
HAMMER	AUTOMATIC	AUTOMATIC
DATE	2/1/18	2/6/18



SCALE: 1"=20'V

LEGEND

(SP)	UNIFIED SOIL CLASSIFICATION SYSTEM SYMBOL
N	STANDARD PENETRATION RESISTANCE IN BLOWS PER 12 Inches UNLESS OTHERWISE NOTED. 50/3 INDICATES (50) BLOWS REQUIRED TO DRIVE A SAMPLING SPOON 3 INCHES.
2/1/18	WATER LEVEL WITH DATE OF READING
→	LOSS OF CIRCULATION
WR	SAMPLER DROPPED DUE TO WEIGHT OF ROD
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NR	NO RECOVERY- NO SOIL/ROCK WAS RECOVERED IN THE SAMPLING SPOON

STATION / OFFSET / ELEVATION / COORDINATE INFORMATION ARE PROVIDED BY SURVEYORS.

MC=	NATURAL MOISTURE CONTENT (%)
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LL=	LIQUID LIMIT (%)
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NOTES: STRATA BOUNDARIES ARE APPROXIMATE AND MAY VARY BETWEEN OR AWAY FROM BORING LOCATIONS.

DRILLER: FAUSTINO

STANDARD PENETRATION TEST DATA

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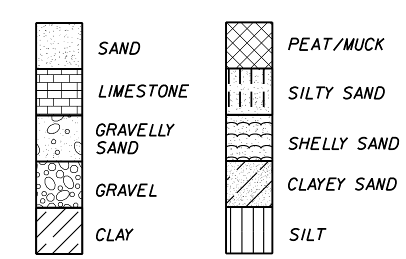
MEDIUM DENSE	10 - 30	8 - 24
DENSE	30 - 50	24 - 40
VERY DENSE	GREATER THAN 50	GREATER THAN 40

ENVIRONMENTAL CLASSIFICATION:

SUBSTRUCTURE: -
-
SUPERSTRUCTURE: -

SOIL TYPE SYMBOLS:



GCME PROJECT NO. 2000-01-17003

NOTICE: THE OFFICAL RECORD OF THIS SHEET IS THE ELECTRONIC FILE DIGITALY SIGNED AND SEALED UNDER RULE 61G15-23.004, F.A.C

REVISIONS

DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION

ENGINEER OF RECORD:
PARTHA GHOSH, P.E. LICENSE NO. 51377
GCME, INC.
1730 W. 10TH STREET
RIVIERA BEACH, FLORIDA 33404
CERTIFICATE OF AUTHORIZATION NO. 9076

DRAWN BY: FP 02-18
CHECKED BY: ZP 02-18
DESIGNED BY: XXX MM-YY
CHECKED BY: XXX MM-YY

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
869	BROWARD	439891-1-22-02

SHEET TITLE: REPORT OF CORE BORINGS

PROJECT NAME: SW 10TH STREET PD&E STUDY

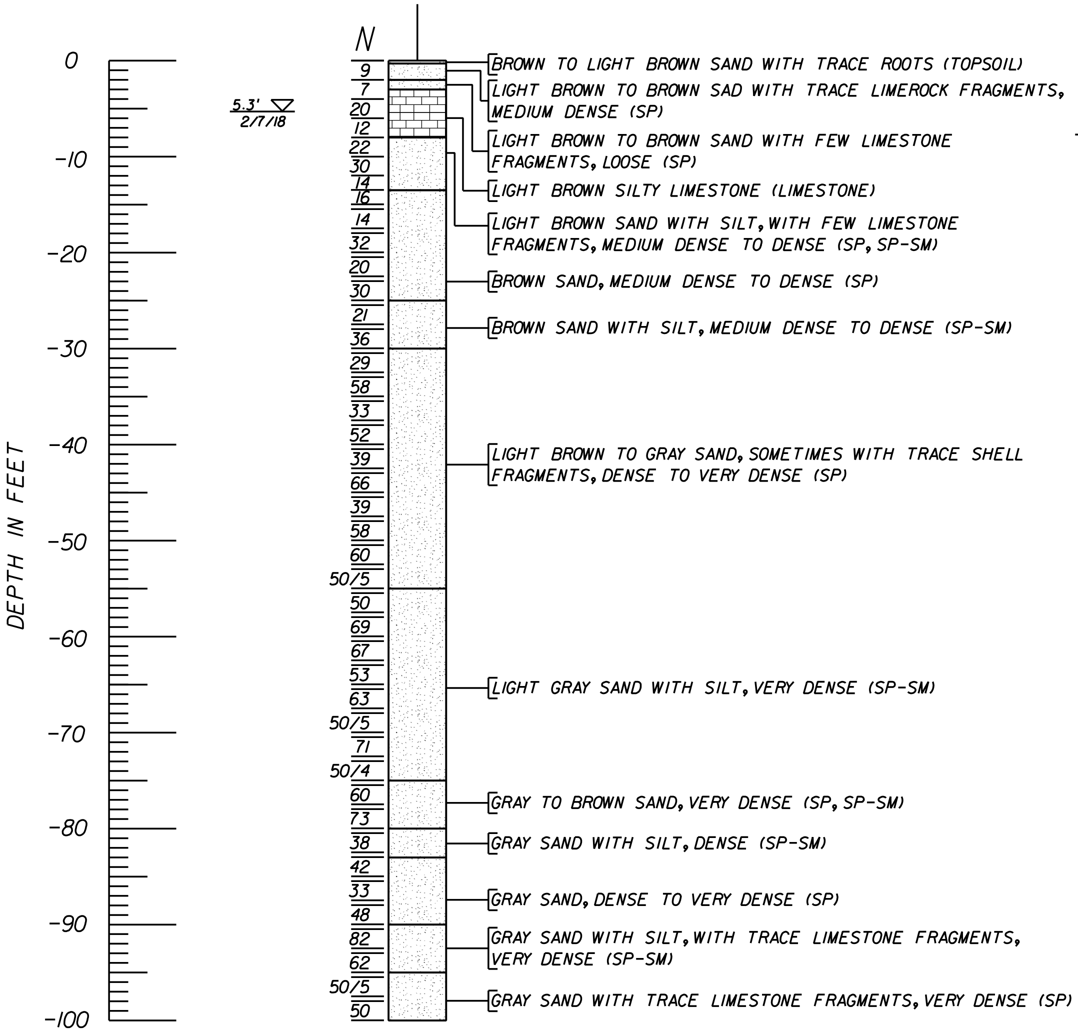
REF. DWG. NO.

SHEET NO.

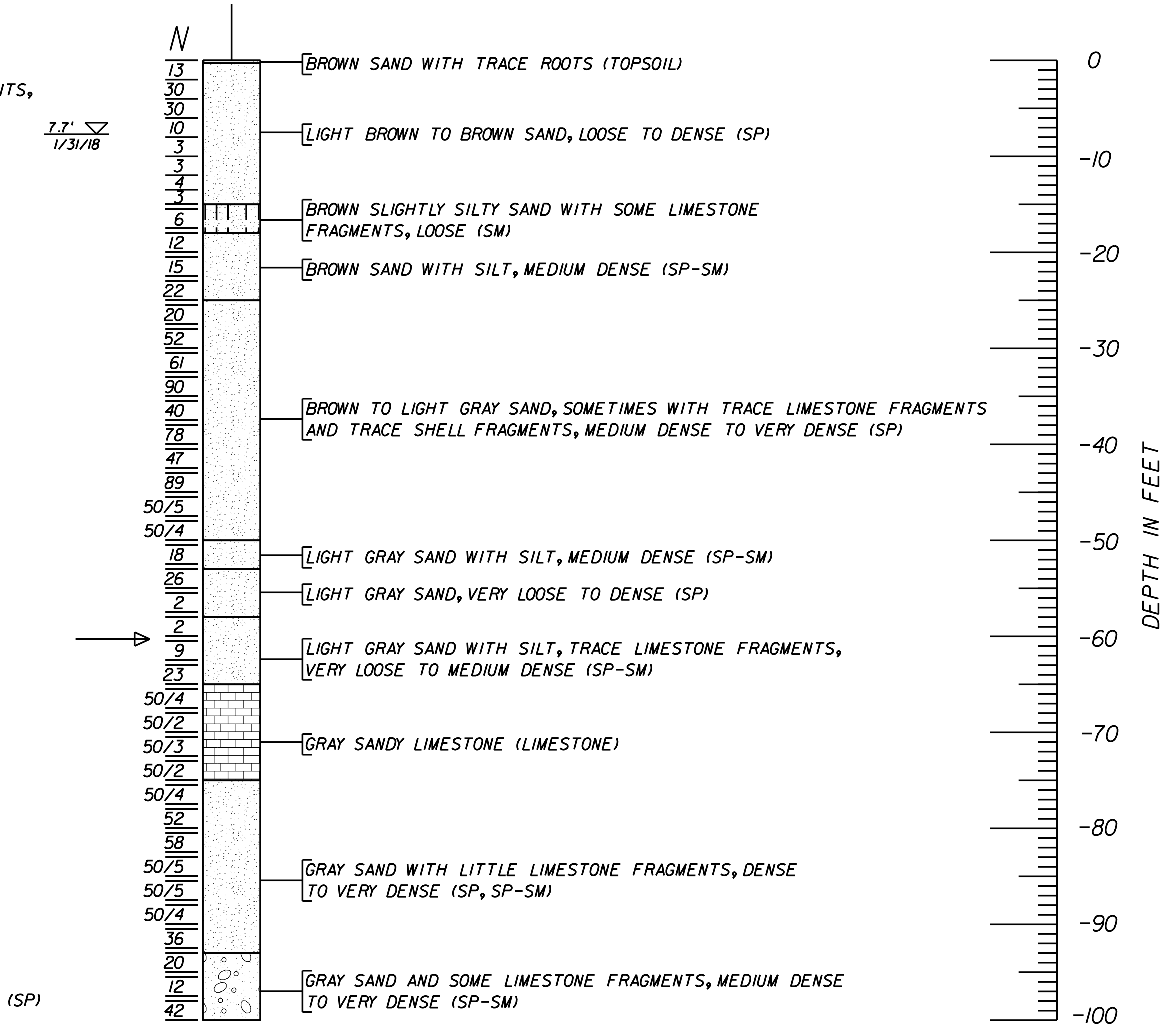
FIGURE: 2

fpier 2/12/2018 4:05:06 PM X:\CADD\MicroStation Drawing\2017\17003\STRUCTURE\BORING-301-401.dgn

	B-501	B-601
BORING NO.	B-501	B-601
STATION	-	-
OFFSET	-	-
ELEVATION	-	-
LATITUDE/LONGITUDE	-	-
RIG	CME-55	CME-55
HAMMER	AUTOMATIC	AUTOMATIC
DATE	2/7/18	1/31/18



Boring terminated at 100 feet below grade



Boring terminated at 100 feet below grade

SCALE: 1"=20'V

LEGEND

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DRILLER: FAUSTINO

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DENSE	30 - 50	24 - 40
VERY DENSE	GREATER THAN 50	GREATER THAN 40

ENVIRONMENTAL CLASSIFICATION:

SUBSTRUCTURE: -
-

SUPERSTRUCTURE: -

SOIL TYPE SYMBOLS:

SAND
LIMESTONE
GRAVELLY SAND
GRAVEL
CLAY
PEAT/MUCK
SILTY SAND
SHELLY SAND
CLAYEY SAND
SILT

GCME PROJECT NO. 2000-01-17003

NOTICE: THE OFFICAL RECORD OF THIS SHEET IS THE ELECTRONIC FILE DIGITALY SIGNED AND SEALED UNDER RULE 61G15-23.004, F.A.C

REVISIONS

DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION

ENGINEER OF RECORD:
PARTHA GHOSH, P.E. LICENSE NO. 51377
GCME, INC.
1730 W. 10TH STREET
RIVIERA BEACH, FLORIDA 33404
CERTIFICATE OF AUTHORIZATION NO. 9076

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STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
869	BROWARD	439891-1-22-02

SHEET TITLE: REPORT OF CORE BORINGS

PROJECT NAME: SW 10TH STREET PD&E STUDY

REF. DWG. NO.

SHEET NO.

FIGURE: 3

fpier 2/12/2018 4:10:34 PM X:\CADD\MicroStation Drawing\2017\17003\STRUCTURE\BORING-501-601.dgn

General Information:
====================
Input file: .....tary_RS&H)\Analysis_Structure\FB-Deep\Pile\B-101_Void-10ft.spc
Project number: 2000-01-17003
Job name: SW 10th Street, from Powerline Rd. to Military Trail
Engineer: JB Henry
Units: English

Analysis Information:
=====================
Analysis Type: SPT

Soil Information:
=================
Boring date: 2/2/2018, Boring Number: B-101
Station number: Offset:

Ground Elevation: 0.000(ft)

Hammer type: Automatic Hammer, Correction factor = 1.24

ID	Depth (ft)	No. of Blows (Blows/ft)	Soil Type
1	0.00	15.00	5- Cavity layer
2	2.00	30.00	5- Cavity layer
3	4.00	22.00	5- Cavity layer
4	6.00	83.00	5- Cavity layer
5	8.00	29.00	5- Cavity layer
6	10.00	24.00	4- Lime Stone/Very shelly sand
7	12.00	21.00	4- Lime Stone/Very shelly sand
8	13.50	32.00	4- Lime Stone/Very shelly sand
9	15.50	12.00	3- Clean sand
10	18.00	20.00	3- Clean sand
11	20.50	14.00	3- Clean sand
12	23.00	36.00	3- Clean sand
13	25.50	19.00	3- Clean sand
14	28.00	22.00	3- Clean sand
15	30.50	34.00	3- Clean sand
16	33.00	62.00	3- Clean sand
17	35.50	39.00	3- Clean sand
18	38.00	70.00	3- Clean sand
19	40.50	44.00	3- Clean sand
20	43.00	70.00	3- Clean sand
21	45.50	30.00	3- Clean sand
22	48.00	51.00	3- Clean sand
23	50.50	48.00	3- Clean sand
24	53.00	73.00	3- Clean sand
25	55.50	66.00	3- Clean sand
26	58.00	51.00	3- Clean sand
27	60.50	30.00	3- Clean sand
28	63.00	43.00	3- Clean sand
29	65.50	47.00	3- Clean sand
30	68.00	62.00	3- Clean sand
31	70.50	29.00	3- Clean sand
32	73.00	85.00	3- Clean sand
33	75.50	51.00	3- Clean sand
34	78.00	49.00	3- Clean sand
35	80.50	34.00	3- Clean sand
36	83.00	65.00	3- Clean sand
37	85.50	38.00	3- Clean sand
38	88.00	78.00	3- Clean sand
39	90.50	49.00	3- Clean sand
40	93.00	71.00	3- Clean sand
41	95.50	60.00	3- Clean sand
42	98.00	65.00	3- Clean sand
43	100.00	65.00	3- Clean sand

Blowcount Average Per Soil Layer

Layer Num.	Starting Elevation (ft)	Bottom Elevation (ft)	Thickness (ft)	Average Blowcount (Blows/ft)	Soil Type
1	0.00	-10.00	10.00	35.80	5-Void

2	-10.00	-15.50	5.50	26.09	4-Limestone, Very Shelly Sand
3	-15.50	-100.00	84.50	47.46	3-Clean Sand

Driven Pile Data:
=================
Pile unit weight = 150.00(pcf), Section Type: Square

Pile Geometry:

Width (in)	Length (ft)	Tip Elev. (ft)
18.00	25.00	-25.00
18.00	26.00	-26.00
18.00	27.00	-27.00
18.00	28.00	-28.00
18.00	29.00	-29.00
18.00	30.00	-30.00
18.00	31.00	-31.00
18.00	32.00	-32.00
18.00	33.00	-33.00
18.00	34.00	-34.00
18.00	35.00	-35.00
18.00	36.00	-36.00
18.00	37.00	-37.00
18.00	38.00	-38.00
18.00	39.00	-39.00
18.00	40.00	-40.00
18.00	41.00	-41.00
18.00	42.00	-42.00
18.00	43.00	-43.00
18.00	44.00	-44.00
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24.00	85.00	-85.00
24.00	86.00	-86.00
24.00	87.00	-87.00
24.00	88.00	-88.00
24.00	89.00	-89.00
24.00	90.00	-90.00
24.00	91.00	-91.00
24.00	92.00	-92.00
24.00	93.00	-93.00
24.00	94.00	-94.00

Driven Pile Capacity:
====================

Section Type: Square
Pile Width: 18.00 (in)

Test Pile Length (ft)	Pile Width (in)	Ultimate Side Friction (tons)	Mobilized End Bearing (tons)	Estimated Davisson Capacity (tons)	Allowable Pile Capacity (tons)	Ultimate Pile Capacity (tons)

25.00	18.0	32.59	54.22	86.82	43.41	195.26
26.00	18.0	34.23	57.85	92.08	46.04	207.77
27.00	18.0	35.57	63.36	98.93	49.46	225.64
28.00	18.0	36.87	71.02	107.88	53.94	249.92
29.00	18.0	38.78	78.82	117.60	58.80	275.25
30.00	18.0	41.56	85.63	127.19	63.60	298.45
31.00	18.0	45.09	91.86	136.95	68.47	320.67
32.00	18.0	49.25	98.86	148.11	74.05	345.83
33.00	18.0	54.12	106.52	160.64	80.32	373.68
34.00	18.0	59.56	111.51	171.07	85.54	394.09
35.00	18.0	64.92	113.62	178.54	89.27	405.77
36.00	18.0	70.06	115.83	185.90	92.95	417.56
37.00	18.0	75.54	118.91	194.45	97.23	432.27
38.00	18.0	81.47	122.52	203.99	102.00	449.04
39.00	18.0	87.55	124.60	212.15	106.08	461.34
40.00	18.0	93.50	124.71	218.22	109.11	467.65
41.00	18.0	99.35	123.76	223.11	111.55	470.62
42.00	18.0	105.37	123.95	229.32	114.66	477.23
43.00	18.0	111.62	125.27	236.90	118.45	487.44
44.00	18.0	117.59	126.90	244.49	122.24	498.28
45.00	18.0	122.75	128.94	251.68	125.84	509.55
46.00	18.0	127.27	131.71	258.99	129.49	522.41
47.00	18.0	132.44	134.11	266.55	133.28	534.78
48.00	18.0	138.47	135.73	274.20	137.10	545.67
49.00	18.0	144.94	136.45	281.38	140.69	554.27
50.00	18.0	151.41	136.72	288.12	144.06	561.55
51.00	18.0	157.89	136.88	294.77	147.38	568.52
52.00	18.0	164.39	137.24	301.64	150.82	576.12
53.00	18.0	170.94	137.68	308.62	154.31	583.98
54.00	18.0	177.50	136.44	313.95	156.97	586.83
55.00	18.0	184.08	132.90	316.99	158.49	582.79
56.00	18.0	190.68	128.63	319.30	159.65	576.56
57.00	18.0	197.28	126.63	323.91	161.95	577.16
58.00	18.0	203.90	126.75	330.65	165.32	584.15
59.00	18.0	210.07	127.52	337.59	168.80	592.63
60.00	18.0	215.35	129.00	344.35	172.17	602.35
61.00	18.0	219.91	131.33	351.23	175.62	613.89
62.00	18.0	224.91	133.26	358.18	179.09	624.70
63.00	18.0	230.56	134.47	365.03	182.52	633.96
64.00	18.0	236.64	133.58	370.22	185.11	637.38
65.00	18.0	242.92	130.22	373.14	186.57	633.58
66.00	18.0	249.40	125.65	375.05	187.52	626.35
67.00	18.0	255.96	123.04	379.00	189.50	625.07
68.00	18.0	262.60	122.46	385.06	192.53	629.99
69.00	18.0	268.79	123.08	391.87	195.94	638.04
70.00	18.0	274.01	124.94	398.94	199.47	648.81
71.00	18.0	278.48	128.17	406.66	203.33	663.00
72.00	18.0	283.69	131.40	415.09	207.54	677.88
73.00	18.0	289.89	134.05	423.94	211.97	692.04
74.00	18.0	296.59	134.46	431.05	215.52	699.97
75.00	18.0	303.29	132.60	435.88	217.94	701.08
76.00	18.0	309.99	129.60	439.59	219.80	698.78
77.00	18.0	316.70	127.93	444.63	222.32	700.49
78.00	18.0	323.42	127.62	451.04	225.52	706.28
79.00	18.0	329.76	127.30	457.06	228.53	711.67
80.00	18.0	335.37	126.65	462.02	231.01	715.32
81.00	18.0	340.43	126.62	467.04	233.52	720.28
82.00	18.0	346.03	127.97	474.00	237.00	729.93
83.00	18.0	352.39	130.26	482.64	241.32	743.16
84.00	18.0	358.85	132.03	490.88	245.44	754.94
85.00	18.0	364.77	133.50	498.28	249.14	765.28
86.00	18.0	370.29	135.00	505.28	252.64	775.28
87.00	18.0	376.21	135.99	512.20	256.10	784.18
88.00	18.0	382.68	136.32	519.00	259.50	791.64
89.00	18.0	389.42	136.32	525.74	262.87	798.38
90.00	18.0	396.16	136.32	532.48	266.24	805.12
91.00	18.0	402.91	136.68	539.58	269.79	812.94
92.00	18.0	409.66	137.75	547.40	273.70	822.90
93.00	18.0	416.41	139.35	555.76	277.88	834.46
94.00	18.0	423.16	140.42	563.58	281.79	844.43

Section Type: Square
Pile Width: 24.00 (in)

Test Pile Length (ft)	Pile Width (in)	Ultimate Side Friction (tons)	Mobilized End Bearing (tons)	Estimated Davisson Capacity (tons)	Allowable Pile Capacity (tons)	Ultimate Pile Capacity (tons)
25.00	24.0	41.05	92.19	133.24	66.62	317.62
26.00	24.0	42.45	99.09	141.54	70.77	339.72

27.00	24.0	44.03	106.69	150.71	75.36	364.09
28.00	24.0	46.01	114.37	160.39	80.19	389.13
29.00	24.0	48.65	121.57	170.23	85.11	413.37
30.00	24.0	52.00	128.84	180.85	90.42	438.53
31.00	24.0	55.87	137.45	193.32	96.66	468.22
32.00	24.0	60.47	146.80	207.26	103.63	500.85
33.00	24.0	66.09	155.15	221.24	110.62	531.55
34.00	24.0	72.14	162.98	235.12	117.56	561.07
35.00	24.0	77.82	172.12	249.94	124.97	594.18
36.00	24.0	83.17	183.11	266.28	133.14	632.50
37.00	24.0	89.22	193.32	282.55	141.27	669.19
38.00	24.0	96.45	199.47	295.92	147.96	694.86
39.00	24.0	104.45	201.99	306.44	153.22	710.41
40.00	24.0	112.22	203.79	316.01	158.00	723.59
41.00	24.0	119.79	206.97	326.76	163.38	740.71
42.00	24.0	127.60	212.20	339.79	169.90	764.19
43.00	24.0	135.70	216.96	352.66	176.33	786.57
44.00	24.0	143.48	222.07	365.55	182.77	809.68
45.00	24.0	150.29	228.29	378.58	189.29	835.16
46.00	24.0	156.34	234.95	391.29	195.65	861.19
47.00	24.0	163.17	239.66	402.82	201.41	882.13
48.00	24.0	171.06	241.87	412.92	206.46	896.65
49.00	24.0	179.50	242.36	421.86	210.93	906.57
50.00	24.0	187.96	242.72	430.68	215.34	916.11
51.00	24.0	196.44	243.72	440.16	220.08	927.61
52.00	24.0	204.96	243.78	448.74	224.37	936.30
53.00	24.0	213.54	240.56	454.10	227.05	935.21
54.00	24.0	222.16	234.51	456.67	228.34	925.70
55.00	24.0	230.80	229.67	460.48	230.24	919.82
56.00	24.0	239.47	227.09	466.56	233.28	920.74
57.00	24.0	248.16	226.01	474.17	237.08	926.19
58.00	24.0	256.86	225.32	482.18	241.09	932.81
59.00	24.0	265.02	225.67	490.69	245.35	942.03
60.00	24.0	272.05	228.31	500.36	250.18	956.98
61.00	24.0	278.18	233.60	511.79	255.89	978.99
62.00	24.0	284.87	237.68	522.55	261.27	997.90
63.00	24.0	292.38	236.80	529.18	264.59	1002.78
64.00	24.0	300.42	231.79	532.22	266.11	995.80
65.00	24.0	308.73	228.04	536.78	268.39	992.86
66.00	24.0	317.28	226.94	544.22	272.11	998.10
67.00	24.0	325.96	227.17	553.13	276.57	1007.48
68.00	24.0	334.73	227.27	562.00	281.00	1016.54
69.00	24.0	342.94	228.11	571.04	285.52	1027.26
70.00	24.0	349.90	230.58	580.48	290.24	1041.64
71.00	24.0	355.91	234.29	590.20	295.10	1058.78
72.00	24.0	362.87	235.68	598.55	299.27	1069.90
73.00	24.0	371.09	233.24	604.32	302.16	1070.80
74.00	24.0	379.94	228.34	608.29	304.14	1064.97
75.00	24.0	388.81	225.69	614.50	307.25	1065.87
76.00	24.0	397.68	226.43	624.10	312.05	1076.96
77.00	24.0	406.56	228.42	634.98	317.49	1091.82
78.00	24.0	415.45	228.25	643.69	321.85	1100.19
79.00	24.0	423.87	226.65	650.51	325.26	1103.81
80.00	24.0	431.34	226.88	658.22	329.11	1111.99
81.00	24.0	438.10	229.35	667.44	333.72	1126.13
82.00	24.0	445.57	231.43	677.00	338.50	1139.86
83.00	24.0	454.00	232.18	686.18	343.09	1150.54
84.00	24.0	462.57	232.67	695.24	347.62	1160.58
85.00	24.0	470.45	234.63	705.08	352.54	1174.35
86.00	24.0	477.81	238.54	716.35	358.18	1193.44
87.00	24.0	485.69	242.75	728.45	364.22	1213.95
88.00	24.0	494.27	245.12	739.39	369.70	1229.63
89.00	24.0	503.21	245.76	748.97	374.48	1240.49
90.00	24.0	512.15	245.76	757.91	378.95	1249.43
91.00	24.0	521.09	245.76	766.85	383.43	1258.37
92.00	24.0	530.04	245.76	775.80	387.90	1267.32
93.00	24.0	539.00	245.76	784.76	392.38	1276.28
94.00	24.0 Soil Elevations Must Extend At or Below Contribution Zone					

NOTES
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1. MOBILIZED END BEARING IS 1/3 OF THE ORIGINAL RB-121 VALUES.

2. DAVISSON PILE CAPACITY IS AN ESTIMATE BASED ON FAILURE CRITERIA, AND EQUALS ULTIMATE SIDE FRICTION PLUS MOBILIZED END BEARING.

3. ALLOWABLE PILE CAPACITY IS 1/2 THE DAVISSON PILE CAPACITY.

4. ULTIMATE PILE CAPACITY IS ULTIMATE SIDE FRICTION PLUS 3 x THE MOBILIZED END BEARING.
   EXCEPTION: FOR H-PILES TIPPED IN SAND OR LIMESTONE, THE ULTIMATE PILE CAPACITY IS ULTIMATE SIDE FRICTION PLUS 2 x THE MOBILIZED END BEARING.

General Information:
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Input file: .....tary_RS&H)\Analysis_Structure\FB-Deep\Pile\B-201_Void-10ft.spc
Project number: 2000-01-17003
Job name: SW 10th Street, from Powerline Rd. to Military Trail
Engineer: JB Henry
Units: English

Analysis Information:
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Analysis Type: SPT

Soil Information:
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Boring date: 2/5/2018, Boring Number: B-201
Station number: Offset:

Ground Elevation: 0.000(ft)

Hammer type: Automatic Hammer, Correction factor = 1.24

ID	Depth (ft)	No. of Blows (Blows/ft)	Soil Type
1	0.00	28.00	5- Cavity layer
2	2.00	24.00	5- Cavity layer
3	4.00	21.00	5- Cavity layer
4	6.00	8.00	5- Cavity layer
5	8.00	6.00	3- Clean sand
6	10.00	10.00	3- Clean sand
7	12.00	23.00	3- Clean sand
8	13.50	19.00	3- Clean sand
9	15.50	29.00	3- Clean sand
10	18.00	41.00	3- Clean sand
11	20.50	16.00	3- Clean sand
12	23.00	31.00	3- Clean sand
13	25.50	30.00	3- Clean sand
14	28.00	60.00	3- Clean sand
15	30.50	46.00	3- Clean sand
16	33.00	78.00	3- Clean sand
17	35.50	56.00	3- Clean sand
18	38.00	60.00	3- Clean sand
19	40.50	60.00	3- Clean sand
20	43.00	66.00	3- Clean sand
21	45.50	15.00	3- Clean sand
22	48.00	29.00	3- Clean sand
23	50.50	43.00	3- Clean sand
24	53.00	65.00	3- Clean sand
25	55.50	48.00	3- Clean sand
26	58.00	78.00	3- Clean sand
27	60.50	48.00	3- Clean sand
28	63.00	68.00	3- Clean sand
29	65.50	31.00	3- Clean sand
30	68.00	50.00	3- Clean sand
31	70.50	38.00	3- Clean sand
32	73.00	45.00	3- Clean sand
33	75.50	46.00	3- Clean sand
34	78.00	60.00	3- Clean sand
35	80.50	59.00	3- Clean sand
36	83.00	68.00	3- Clean sand
37	85.50	37.00	3- Clean sand
38	88.00	63.00	3- Clean sand
39	90.50	24.00	3- Clean sand
40	93.00	39.00	3- Clean sand
41	95.50	36.00	3- Clean sand
42	98.00	60.00	3- Clean sand
43	100.00	60.00	3- Clean sand

Blowcount Average Per Soil Layer

Layer Num.	Starting Elevation (ft)	Bottom Elevation (ft)	Thickness (ft)	Average Blowcount (Blows/ft)	Soil Type
1	0.00	-8.00	8.00	20.25	5-Void
2	-8.00	-100.00	92.00	44.91	3-Clean Sand

Driven Pile Data:
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Pile unit weight = 150.00(pcf), Section Type: Square

Pile Geometry:

Width (in)	Length (ft)	Tip Elev. (ft)
18.00	25.00	-25.00
18.00	26.00	-26.00
18.00	27.00	-27.00
18.00	28.00	-28.00
18.00	29.00	-29.00
18.00	30.00	-30.00
18.00	31.00	-31.00
18.00	32.00	-32.00
18.00	33.00	-33.00
18.00	34.00	-34.00
18.00	35.00	-35.00
18.00	36.00	-36.00
18.00	37.00	-37.00
18.00	38.00	-38.00
18.00	39.00	-39.00
18.00	40.00	-40.00
18.00	41.00	-41.00
18.00	42.00	-42.00
18.00	43.00	-43.00
18.00	44.00	-44.00
18.00	45.00	-45.00
18.00	46.00	-46.00
18.00	47.00	-47.00
18.00	48.00	-48.00
18.00	49.00	-49.00
18.00	50.00	-50.00
18.00	51.00	-51.00
18.00	52.00	-52.00
18.00	53.00	-53.00
18.00	54.00	-54.00
18.00	55.00	-55.00
18.00	56.00	-56.00
18.00	57.00	-57.00
18.00	58.00	-58.00
18.00	59.00	-59.00
18.00	60.00	-60.00
18.00	61.00	-61.00
18.00	62.00	-62.00
18.00	63.00	-63.00
18.00	64.00	-64.00
18.00	65.00	-65.00
18.00	66.00	-66.00
18.00	67.00	-67.00
18.00	68.00	-68.00
18.00	69.00	-69.00
18.00	70.00	-70.00
18.00	71.00	-71.00
18.00	72.00	-72.00
18.00	73.00	-73.00
18.00	74.00	-74.00
18.00	75.00	-75.00
18.00	76.00	-76.00
18.00	77.00	-77.00
18.00	78.00	-78.00
18.00	79.00	-79.00
18.00	80.00	-80.00
18.00	81.00	-81.00
18.00	82.00	-82.00
18.00	83.00	-83.00
18.00	84.00	-84.00
18.00	85.00	-85.00
18.00	86.00	-86.00
18.00	87.00	-87.00
18.00	88.00	-88.00
18.00	89.00	-89.00
18.00	90.00	-90.00
18.00	91.00	-91.00
18.00	92.00	-92.00
18.00	93.00	-93.00
18.00	94.00	-94.00
24.00	25.00	-25.00
24.00	26.00	-26.00
24.00	27.00	-27.00
24.00	28.00	-28.00
24.00	29.00	-29.00
24.00	30.00	-30.00
24.00	31.00	-31.00
24.00	32.00	-32.00
24.00	33.00	-33.00

24.00	34.00	-34.00
24.00	35.00	-35.00
24.00	36.00	-36.00
24.00	37.00	-37.00
24.00	38.00	-38.00
24.00	39.00	-39.00
24.00	40.00	-40.00
24.00	41.00	-41.00
24.00	42.00	-42.00
24.00	43.00	-43.00
24.00	44.00	-44.00
24.00	45.00	-45.00
24.00	46.00	-46.00
24.00	47.00	-47.00
24.00	48.00	-48.00
24.00	49.00	-49.00
24.00	50.00	-50.00
24.00	51.00	-51.00
24.00	52.00	-52.00
24.00	53.00	-53.00
24.00	54.00	-54.00
24.00	55.00	-55.00
24.00	56.00	-56.00
24.00	57.00	-57.00
24.00	58.00	-58.00
24.00	59.00	-59.00
24.00	60.00	-60.00
24.00	61.00	-61.00
24.00	62.00	-62.00
24.00	63.00	-63.00
24.00	64.00	-64.00
24.00	65.00	-65.00
24.00	66.00	-66.00
24.00	67.00	-67.00
24.00	68.00	-68.00
24.00	69.00	-69.00
24.00	70.00	-70.00
24.00	71.00	-71.00
24.00	72.00	-72.00
24.00	73.00	-73.00
24.00	74.00	-74.00
24.00	75.00	-75.00
24.00	76.00	-76.00
24.00	77.00	-77.00
24.00	78.00	-78.00
24.00	79.00	-79.00
24.00	80.00	-80.00
24.00	81.00	-81.00
24.00	82.00	-82.00
24.00	83.00	-83.00
24.00	84.00	-84.00
24.00	85.00	-85.00
24.00	86.00	-86.00
24.00	87.00	-87.00
24.00	88.00	-88.00
24.00	89.00	-89.00
24.00	90.00	-90.00
24.00	91.00	-91.00
24.00	92.00	-92.00
24.00	93.00	-93.00
24.00	94.00	-94.00

Driven Pile Capacity:

Section Type: Square
Pile Width: 18.00 (in)

Test Pile Length (ft)	Pile Width (in)	Ultimate Side Friction (tons)	Mobilized End Bearing (tons)	Estimated Davisson Capacity (tons)	Allowable Pile Capacity (tons)	Ultimate Pile Capacity (tons)
25.00	18.0	34.62	99.42	134.04	67.02	332.88
26.00	18.0	38.19	109.65	147.84	73.92	367.14
27.00	18.0	42.78	114.09	156.87	78.44	385.06
28.00	18.0	48.10	117.01	165.12	82.56	399.14
29.00	18.0	53.82	118.90	172.72	86.36	410.51
30.00	18.0	59.55	120.34	179.89	89.94	420.56
31.00	18.0	65.28	122.22	187.50	93.75	431.93
32.00	18.0	71.15	125.22	196.37	98.19	446.81
33.00	18.0	77.18	129.07	206.25	103.12	464.38

34.00	18.0	83.32	132.34	215.65	107.83	480.33
35.00	18.0	89.50	134.87	224.37	112.18	494.10
36.00	18.0	95.74	137.05	232.78	116.39	506.87
37.00	18.0	102.01	139.28	241.29	120.64	519.84
38.00	18.0	108.33	141.32	249.64	124.82	532.28
39.00	18.0	114.67	139.85	254.52	127.26	534.21
40.00	18.0	121.05	133.68	254.73	127.36	522.09
41.00	18.0	127.46	124.84	252.30	126.15	501.98
42.00	18.0	133.89	117.54	251.43	125.71	486.50
43.00	18.0	140.34	111.91	252.26	126.13	476.08
44.00	18.0	146.06	108.85	254.91	127.46	472.62
45.00	18.0	150.27	109.39	259.66	129.83	478.43
46.00	18.0	153.20	112.93	266.13	133.07	491.99
47.00	18.0	156.49	116.59	273.08	136.54	506.27
48.00	18.0	160.40	119.96	280.36	140.18	520.28
49.00	18.0	164.96	122.57	287.53	143.77	532.67
50.00	18.0	170.17	124.24	294.42	147.21	542.91
51.00	18.0	176.00	125.08	301.07	150.54	551.23
52.00	18.0	182.14	125.54	307.67	153.84	558.75
53.00	18.0	188.55	125.69	314.24	157.12	565.63
54.00	18.0	195.08	125.67	320.76	160.38	572.10
55.00	18.0	201.62	125.63	327.25	163.62	578.52
56.00	18.0	208.15	126.42	334.57	167.28	587.41
57.00	18.0	214.70	128.89	343.59	171.79	601.36
58.00	18.0	221.28	132.67	353.96	176.98	619.30
59.00	18.0	227.88	134.65	362.53	181.26	631.83
60.00	18.0	234.46	133.99	368.45	184.22	636.43
61.00	18.0	241.04	131.79	372.83	186.41	636.41
62.00	18.0	247.64	130.73	378.36	189.18	639.81
63.00	18.0	254.26	130.87	385.13	192.57	646.87
64.00	18.0	260.48	130.94	391.42	195.71	653.30
65.00	18.0	265.84	130.68	396.51	198.26	657.87
66.00	18.0	270.55	130.50	401.04	200.52	662.04
67.00	18.0	275.91	130.24	406.14	203.07	666.62
68.00	18.0	282.13	129.66	411.78	205.89	671.10
69.00	18.0	288.53	129.14	417.67	208.84	675.95
70.00	18.0	294.42	129.38	423.80	211.90	682.57
71.00	18.0	299.90	130.30	430.20	215.10	690.81
72.00	18.0	305.62	131.20	436.83	218.41	699.23
73.00	18.0	311.70	131.94	443.63	221.82	707.50
74.00	18.0	317.97	132.47	450.45	225.22	715.39
75.00	18.0	324.31	132.93	457.23	228.62	723.09
76.00	18.0	330.70	133.73	464.43	232.22	731.88
77.00	18.0	337.22	135.25	472.46	236.23	742.96
78.00	18.0	343.85	137.22	481.08	240.54	755.53
79.00	18.0	350.55	137.55	488.10	244.05	763.20
80.00	18.0	357.26	135.72	492.98	246.49	764.42
81.00	18.0	363.97	133.16	497.12	248.56	763.43
82.00	18.0	370.68	132.31	502.99	251.50	767.62
83.00	18.0	377.39	133.05	510.44	255.22	776.53
84.00	18.0	383.82	132.28	516.10	258.05	780.65
85.00	18.0	389.66	129.12	518.79	259.39	777.03
86.00	18.0	395.07	124.80	519.87	259.94	769.48
87.00	18.0	400.92	121.45	522.37	261.18	765.27
88.00	18.0	407.35	118.95	526.30	263.15	764.21
89.00	18.0	413.45	116.99	530.44	265.22	764.43
90.00	18.0	418.29	116.13	534.42	267.21	766.68
91.00	18.0	422.13	116.60	538.73	269.36	771.92
92.00	18.0	426.48	117.77	544.25	272.13	779.80
93.00	18.0	431.61	119.35	550.96	275.48	789.67
94.00	18.0	437.05	120.94	557.99	279.00	799.88

Section Type: Square
Pile Width: 24.00 (in)

Test Pile Length (ft)	Pile Width (in)	Ultimate Side Friction (tons)	Mobilized End Bearing (tons)	Estimated Davisson Capacity (tons)	Allowable Pile Capacity (tons)	Ultimate Pile Capacity (tons)
25.00	24.0	40.79	140.68	181.47	90.73	462.82
26.00	24.0	44.41	153.81	198.22	99.11	505.85
27.00	24.0	48.99	166.30	215.29	107.64	547.88
28.00	24.0	54.71	177.26	231.97	115.99	586.50
29.00	24.0	61.09	187.82	248.90	124.45	624.53
30.00	24.0	67.61	199.19	266.80	133.40	665.18
31.00	24.0	74.37	210.49	284.86	142.43	705.83
32.00	24.0	81.55	221.18	302.73	151.37	745.10
33.00	24.0	89.26	223.70	312.95	156.48	760.34
34.00	24.0	97.12	225.31	322.44	161.22	773.06
35.00	24.0	105.08	227.36	332.44	166.22	787.17
36.00	24.0	113.12	231.06	344.19	172.09	806.31
37.00	24.0	121.24	233.56	354.80	177.40	821.93
38.00	24.0	129.42	230.36	359.78	179.89	820.49
39.00	24.0	137.66	222.00	359.67	179.83	803.68

40.00	24.0	145.96	214.41	360.37	180.19	789.20
41.00	24.0	154.31	209.00	363.31	181.66	781.31
42.00	24.0	162.70	205.61	368.31	184.16	779.54
43.00	24.0	171.14	203.28	374.42	187.21	780.99
44.00	24.0	178.68	203.11	381.80	190.90	788.02
45.00	24.0	184.38	206.23	390.61	195.31	803.07
46.00	24.0	188.51	212.65	401.16	200.58	826.46
47.00	24.0	193.05	218.88	411.94	205.97	849.71
48.00	24.0	198.37	223.75	422.12	211.06	869.62
49.00	24.0	204.47	227.22	431.70	215.85	886.14
50.00	24.0	211.39	229.47	440.86	220.43	899.80
51.00	24.0	219.07	230.68	449.75	224.87	911.10
52.00	24.0	227.15	231.34	458.48	229.24	921.16
53.00	24.0	235.56	231.48	467.04	233.52	930.00
54.00	24.0	244.15	231.36	475.51	237.76	938.24
55.00	24.0	252.74	231.32	484.06	242.03	946.71
56.00	24.0	261.33	231.37	492.70	246.35	955.43
57.00	24.0	269.96	230.10	500.06	250.03	960.27
58.00	24.0	278.62	226.18	504.80	252.40	957.16
59.00	24.0	287.31	220.28	507.59	253.79	948.15
60.00	24.0	295.99	217.49	513.48	256.74	948.46
61.00	24.0	304.66	219.56	524.22	262.11	963.35
62.00	24.0	313.37	223.96	537.32	268.66	985.24
63.00	24.0	322.11	226.21	548.32	274.16	1000.75
64.00	24.0	330.34	227.02	557.36	278.68	1011.40
65.00	24.0	337.48	229.11	566.59	283.30	1024.82
66.00	24.0	343.80	232.45	576.25	288.12	1041.15
67.00	24.0	350.94	234.42	585.36	292.68	1054.21
68.00	24.0	359.18	234.64	593.83	296.91	1063.12
69.00	24.0	367.66	234.39	602.05	301.02	1070.82
70.00	24.0	375.48	235.18	610.66	305.33	1081.03
71.00	24.0	382.77	237.07	619.84	309.92	1093.97
72.00	24.0	390.38	238.74	629.12	314.56	1106.59
73.00	24.0	398.44	239.79	638.23	319.12	1117.82
74.00	24.0	406.77	240.48	647.25	323.62	1128.21
75.00	24.0	415.16	241.09	656.25	328.12	1138.42
76.00	24.0	423.63	241.62	665.25	332.63	1148.49
77.00	24.0	432.26	241.12	673.38	336.69	1155.62
78.00	24.0	441.05	238.68	679.73	339.86	1157.08
79.00	24.0	449.92	234.82	684.74	342.37	1154.37
80.00	24.0	458.80	232.81	691.61	345.81	1157.23
81.00	24.0	467.69	233.67	701.36	350.68	1168.71
82.00	24.0	476.58	234.42	711.00	355.50	1179.83
83.00	24.0	485.48	230.61	716.09	358.04	1177.32
84.00	24.0	494.00	223.20	717.21	358.60	1163.61
85.00	24.0	501.78	218.05	719.83	359.92	1155.93
86.00	24.0	509.00	216.58	725.58	362.79	1158.73
87.00	24.0	516.78	215.83	732.61	366.31	1164.27
88.00	24.0	525.32	213.34	738.66	369.33	1165.34
89.00	24.0	533.43	210.78	744.21	372.11	1165.77
90.00	24.0	539.92	211.61	751.53	375.76	1174.74
91.00	24.0	545.11	215.90	761.01	380.50	1192.80
92.00	24.0	550.96	220.19	771.15	385.58	1211.53
93.00	24.0	557.82	223.06	780.87	390.44	1226.99
94.00	24.0 Soil Elevations Must Extend At or Below Contribution Zone					

NOTES
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1. MOBILIZED END BEARING IS 1/3 OF THE ORIGINAL RB-121 VALUES.

2. DAVISSON PILE CAPACITY IS AN ESTIMATE BASED ON FAILURE CRITERIA, AND EQUALS ULTIMATE SIDE FRICTION PLUS MOBILIZED END BEARING.

3. ALLOWABLE PILE CAPACITY IS 1/2 THE DAVISSON PILE CAPACITY.

4. ULTIMATE PILE CAPACITY IS ULTIMATE SIDE FRICTION PLUS 3 x THE MOBILIZED END BEARING.
   EXCEPTION: FOR H-PILES TIPPED IN SAND OR LIMESTONE, THE ULTIMATE PILE CAPACITY IS ULTIMATE SIDE FRICTION PLUS 2 x THE MOBILIZED END BEARING.

General Information:
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Input file: .....tary_RS&H)\Analysis_Structure\FB-Deep\Pile\B-301_Void-10ft.spc
Project number: 2000-01-17003
Job name: SW 10th Street, from Powerline Rd. to Military Trail
Engineer: JB Henry
Units: English

Analysis Information:
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Analysis Type: SPT

Soil Information:
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Boring date: 2/1/2018, Boring Number: B-301
Station number: Offset:

Ground Elevation: 0.000(ft)

Hammer type: Automatic Hammer, Correction factor = 1.24

ID	Depth (ft)	No. of Blows (Blows/ft)	Soil Type
1	0.00	16.00	5- Cavity layer
2	2.00	28.00	5- Cavity layer
3	4.00	29.00	5- Cavity layer
4	6.00	28.00	5- Cavity layer
5	8.00	19.00	5- Cavity layer
6	10.00	15.00	3- Clean sand
7	12.00	5.00	3- Clean sand
8	13.50	19.00	3- Clean sand
9	15.50	12.00	3- Clean sand
10	18.00	25.00	3- Clean sand
11	20.50	20.00	3- Clean sand
12	23.00	50.00	3- Clean sand
13	25.50	23.00	3- Clean sand
14	28.00	37.00	3- Clean sand
15	30.50	36.00	3- Clean sand
16	33.00	69.00	3- Clean sand
17	35.50	67.00	3- Clean sand
18	38.00	60.00	3- Clean sand
19	40.50	40.00	3- Clean sand
20	43.00	33.00	3- Clean sand
21	45.50	5.00	2- Clay and silty sand
22	48.00	13.00	2- Clay and silty sand
23	50.50	26.00	3- Clean sand
24	53.00	69.00	3- Clean sand
25	55.50	40.00	3- Clean sand
26	58.00	58.00	3- Clean sand
27	60.50	45.00	3- Clean sand
28	63.00	69.00	3- Clean sand
29	65.50	46.00	3- Clean sand
30	68.00	63.00	3- Clean sand
31	70.50	29.00	3- Clean sand
32	73.00	34.00	3- Clean sand
33	75.50	30.00	3- Clean sand
34	78.00	61.00	3- Clean sand
35	80.50	58.00	3- Clean sand
36	83.00	60.00	3- Clean sand
37	85.50	74.00	3- Clean sand
38	88.00	60.00	3- Clean sand
39	90.50	38.00	3- Clean sand
40	93.00	32.00	3- Clean sand
41	95.50	25.00	3- Clean sand
42	98.00	44.00	3- Clean sand
43	100.00	44.00	3- Clean sand

Blowcount Average Per Soil Layer

Layer Num.	Starting Elevation (ft)	Bottom Elevation (ft)	Thickness (ft)	Average Blowcount (Blows/ft)	Soil Type
1	0.00	-10.00	10.00	24.00	5-Void
2	-10.00	-45.50	35.50	35.37	3-Clean Sand
3	-45.50	-50.50	5.00	9.00	2-Clay and Silty Sand
4	-50.50	-100.00	49.50	48.09	3-Clean Sand

Driven Pile Data:
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Pile unit weight = 150.00(pcf), Section Type: Square

Pile Geometry:

Width (in)	Length (ft)	Tip Elev. (ft)
18.00	25.00	-25.00
18.00	26.00	-26.00
18.00	27.00	-27.00
18.00	28.00	-28.00
18.00	29.00	-29.00
18.00	30.00	-30.00
18.00	31.00	-31.00
18.00	32.00	-32.00
18.00	33.00	-33.00
18.00	34.00	-34.00
18.00	35.00	-35.00
18.00	36.00	-36.00
18.00	37.00	-37.00
18.00	38.00	-38.00
18.00	39.00	-39.00
18.00	40.00	-40.00
18.00	41.00	-41.00
18.00	42.00	-42.00
18.00	43.00	-43.00
18.00	44.00	-44.00
18.00	45.00	-45.00
18.00	46.00	-46.00
18.00	47.00	-47.00
18.00	48.00	-48.00
18.00	49.00	-49.00
18.00	50.00	-50.00
18.00	51.00	-51.00
18.00	52.00	-52.00
18.00	53.00	-53.00
18.00	54.00	-54.00
18.00	55.00	-55.00
18.00	56.00	-56.00
18.00	57.00	-57.00
18.00	58.00	-58.00
18.00	59.00	-59.00
18.00	60.00	-60.00
18.00	61.00	-61.00
18.00	62.00	-62.00
18.00	63.00	-63.00
18.00	64.00	-64.00
18.00	65.00	-65.00
18.00	66.00	-66.00
18.00	67.00	-67.00
18.00	68.00	-68.00
18.00	69.00	-69.00
18.00	70.00	-70.00
18.00	71.00	-71.00
18.00	72.00	-72.00
18.00	73.00	-73.00
18.00	74.00	-74.00
18.00	75.00	-75.00
18.00	76.00	-76.00
18.00	77.00	-77.00
18.00	78.00	-78.00
18.00	79.00	-79.00
18.00	80.00	-80.00
18.00	81.00	-81.00
18.00	82.00	-82.00
18.00	83.00	-83.00
18.00	84.00	-84.00
18.00	85.00	-85.00
18.00	86.00	-86.00
18.00	87.00	-87.00
18.00	88.00	-88.00
18.00	89.00	-89.00
18.00	90.00	-90.00
18.00	91.00	-91.00
18.00	92.00	-92.00
18.00	93.00	-93.00
18.00	94.00	-94.00
24.00	25.00	-25.00
24.00	26.00	-26.00
24.00	27.00	-27.00
24.00	28.00	-28.00
24.00	29.00	-29.00
24.00	30.00	-30.00
24.00	31.00	-31.00

24.00	32.00	-32.00
24.00	33.00	-33.00
24.00	34.00	-34.00
24.00	35.00	-35.00
24.00	36.00	-36.00
24.00	37.00	-37.00
24.00	38.00	-38.00
24.00	39.00	-39.00
24.00	40.00	-40.00
24.00	41.00	-41.00
24.00	42.00	-42.00
24.00	43.00	-43.00
24.00	44.00	-44.00
24.00	45.00	-45.00
24.00	46.00	-46.00
24.00	47.00	-47.00
24.00	48.00	-48.00
24.00	49.00	-49.00
24.00	50.00	-50.00
24.00	51.00	-51.00
24.00	52.00	-52.00
24.00	53.00	-53.00
24.00	54.00	-54.00
24.00	55.00	-55.00
24.00	56.00	-56.00
24.00	57.00	-57.00
24.00	58.00	-58.00
24.00	59.00	-59.00
24.00	60.00	-60.00
24.00	61.00	-61.00
24.00	62.00	-62.00
24.00	63.00	-63.00
24.00	64.00	-64.00
24.00	65.00	-65.00
24.00	66.00	-66.00
24.00	67.00	-67.00
24.00	68.00	-68.00
24.00	69.00	-69.00
24.00	70.00	-70.00
24.00	71.00	-71.00
24.00	72.00	-72.00
24.00	73.00	-73.00
24.00	74.00	-74.00
24.00	75.00	-75.00
24.00	76.00	-76.00
24.00	77.00	-77.00
24.00	78.00	-78.00
24.00	79.00	-79.00
24.00	80.00	-80.00
24.00	81.00	-81.00
24.00	82.00	-82.00
24.00	83.00	-83.00
24.00	84.00	-84.00
24.00	85.00	-85.00
24.00	86.00	-86.00
24.00	87.00	-87.00
24.00	88.00	-88.00
24.00	89.00	-89.00
24.00	90.00	-90.00
24.00	91.00	-91.00
24.00	92.00	-92.00
24.00	93.00	-93.00
24.00	94.00	-94.00

Driven Pile Capacity:

Section Type: Square
Pile Width: 18.00 (in)

Test Pile Length (ft)	Pile Width (in)	Ultimate Side Friction (tons)	Mobilized End Bearing (tons)	Estimated Davisson Capacity (tons)	Allowable Pile Capacity (tons)	Ultimate Pile Capacity (tons)
25.00	18.0	28.46	75.03	103.49	51.74	253.54
26.00	18.0	31.15	82.61	113.76	56.88	278.97
27.00	18.0	34.26	91.63	125.89	62.95	309.16
28.00	18.0	37.99	102.04	140.03	70.02	344.11
29.00	18.0	42.48	107.75	150.23	75.12	365.74
30.00	18.0	47.00	112.89	159.89	79.95	385.67
31.00	18.0	51.61	117.78	169.39	84.70	404.95

32.00	18.0	56.68	122.24	178.92	89.46	423.39
33.00	18.0	62.30	125.91	188.21	94.11	440.04
34.00	18.0	68.23	127.31	195.54	97.77	450.17
35.00	18.0	74.23	126.35	200.59	100.29	453.29
36.00	18.0	80.30	124.41	204.72	102.36	453.54
37.00	18.0	86.43	122.93	209.36	104.68	455.23
38.00	18.0	92.61	121.59	214.20	107.10	457.38
39.00	18.0	98.65	117.36	216.01	108.00	450.72
40.00	18.0	104.37	109.51	213.88	106.94	432.89
41.00	18.0	109.76	99.50	209.26	104.63	408.26
42.00	18.0	114.86	90.33	205.19	102.59	385.84
43.00	18.0	119.65	82.08	201.73	100.87	365.89
44.00	18.0	123.82	76.21	200.03	100.02	352.46
45.00	18.0	127.03	73.89	200.92	100.46	348.70
46.00	18.0	161.08	24.85	185.93	92.97	235.63
47.00	18.0	163.49	33.79	197.28	98.64	264.86
48.00	18.0	165.47	39.38	204.85	102.43	283.61
49.00	18.0	167.59	49.16	216.75	108.38	315.07
50.00	18.0	169.96	61.85	231.81	115.91	355.52
51.00	18.0	178.71	94.56	273.27	136.64	462.38
52.00	18.0	183.51	94.73	278.24	139.12	467.71
53.00	18.0	189.40	95.07	284.47	142.23	474.61
54.00	18.0	195.55	95.55	291.10	145.55	482.20
55.00	18.0	201.03	96.31	297.34	148.67	489.95
56.00	18.0	205.79	97.62	303.42	151.71	498.67
57.00	18.0	210.37	99.81	310.18	155.09	509.80
58.00	18.0	214.92	102.97	317.89	158.94	523.82
59.00	18.0	219.53	106.64	326.17	163.08	539.45
60.00	18.0	223.98	110.78	334.76	167.38	556.32
61.00	18.0	228.46	115.18	343.63	171.82	573.98
62.00	18.0	233.30	119.52	352.83	176.41	591.87
63.00	18.0	238.62	123.59	362.21	181.10	609.38
64.00	18.0	244.73	125.98	370.71	185.36	622.67
65.00	18.0	251.73	125.84	377.57	188.79	629.26
66.00	18.0	259.36	123.94	383.30	191.65	631.18
67.00	18.0	267.06	122.23	389.29	194.65	633.76
68.00	18.0	274.84	120.76	395.60	197.80	637.12
69.00	18.0	281.73	118.33	400.06	200.03	636.73
70.00	18.0	287.04	115.53	402.56	201.28	633.61
71.00	18.0	291.49	113.90	405.39	202.69	633.18
72.00	18.0	296.03	114.31	410.35	205.17	638.97
73.00	18.0	300.82	116.56	417.38	208.69	650.49
74.00	18.0	305.62	119.23	424.85	212.43	663.31
75.00	18.0	310.20	121.99	432.20	216.10	676.18
76.00	18.0	314.71	124.80	439.52	219.76	689.13
77.00	18.0	320.04	126.74	446.78	223.39	700.26
78.00	18.0	326.32	127.59	453.91	226.96	709.10
79.00	18.0	333.10	127.77	460.87	230.43	716.41
80.00	18.0	339.87	127.83	467.70	233.85	723.36
81.00	18.0	346.66	128.31	474.97	237.48	731.59
82.00	18.0	353.44	129.75	483.19	241.60	742.70
83.00	18.0	360.23	131.97	492.20	246.10	756.14
84.00	18.0	367.02	133.24	500.26	250.13	766.75
85.00	18.0	373.82	133.09	506.91	253.45	773.08
86.00	18.0	380.61	131.87	512.49	256.24	776.24
87.00	18.0	387.41	130.16	517.58	258.79	777.90
88.00	18.0	394.22	127.82	522.04	261.02	777.69
89.00	18.0	400.74	124.28	525.02	262.51	773.59
90.00	18.0	406.71	119.70	526.41	263.20	765.81
91.00	18.0	412.14	115.32	527.47	263.73	758.11
92.00	18.0	417.23	113.43	530.65	265.33	757.50
93.00	18.0	421.98	114.00	535.98	267.99	763.97
94.00	18.0	426.38	115.59	541.97	270.99	773.15

Section Type: Square
Pile Width: 24.00 (in)

Test Pile Length (ft)	Pile Width (in)	Ultimate Side Friction (tons)	Mobilized End Bearing (tons)	Estimated Davisson Capacity (tons)	Allowable Pile Capacity (tons)	Ultimate Pile Capacity (tons)
25.00	24.0	33.94	106.62	140.55	70.28	353.79
26.00	24.0	36.52	117.91	154.44	77.22	390.26
27.00	24.0	39.65	130.02	169.67	84.83	429.71
28.00	24.0	43.53	142.70	186.24	93.12	471.64
29.00	24.0	47.94	155.48	203.42	101.71	514.38
30.00	24.0	52.61	168.00	220.61	110.31	556.61
31.00	24.0	57.52	181.39	238.91	119.45	601.68
32.00	24.0	63.18	194.38	257.56	128.78	646.32
33.00	24.0	69.80	205.06	274.86	137.43	684.99
34.00	24.0	77.11	213.43	290.55	145.27	717.42
35.00	24.0	84.71	213.24	297.95	148.97	724.43
36.00	24.0	92.42	212.32	304.74	152.37	729.37
37.00	24.0	100.24	208.61	308.85	154.43	726.08

38.00	24.0	108.15	198.70	306.85	153.42	704.24
39.00	24.0	115.93	183.30	299.24	149.62	665.85
40.00	24.0	123.36	168.48	291.84	145.92	628.79
41.00	24.0	130.41	156.63	287.04	143.52	600.31
42.00	24.0	137.12	148.53	285.65	142.82	582.70
43.00	24.0	143.47	143.36	286.84	143.42	573.56
44.00	24.0	149.08	141.87	290.95	145.48	574.70
45.00	24.0	153.54	145.87	299.41	149.70	591.15
46.00	24.0	214.78	61.87	276.65	138.32	400.38
47.00	24.0	218.24	80.09	298.33	149.16	458.50
48.00	24.0	222.56	93.42	315.97	157.99	502.80
49.00	24.0	226.06	100.95	327.00	163.50	528.90
50.00	24.0	229.13	112.81	341.94	170.97	567.56
51.00	24.0	238.28	186.97	425.25	212.62	799.18
52.00	24.0	244.68	187.21	431.89	215.95	806.32
53.00	24.0	252.76	187.42	440.18	220.09	815.03
54.00	24.0	261.47	187.51	448.97	224.49	823.98
55.00	24.0	269.40	187.78	457.18	228.59	832.74
56.00	24.0	276.55	188.47	465.01	232.51	841.95
57.00	24.0	284.02	189.36	473.38	236.69	852.10
58.00	24.0	292.13	190.26	482.38	241.19	862.90
59.00	24.0	300.35	191.28	491.63	245.82	874.20
60.00	24.0	307.76	193.16	500.92	250.46	887.23
61.00	24.0	314.13	196.46	510.58	255.29	903.50
62.00	24.0	320.49	200.37	520.85	260.43	921.59
63.00	24.0	327.93	203.14	531.07	265.53	937.34
64.00	24.0	336.25	204.60	540.85	270.42	950.04
65.00	24.0	344.54	205.92	550.46	275.23	962.29
66.00	24.0	352.90	206.99	559.89	279.94	973.86
67.00	24.0	361.94	207.07	569.01	284.51	983.16
68.00	24.0	372.12	205.36	577.48	288.74	988.21
69.00	24.0	382.28	202.59	584.88	292.44	990.06
70.00	24.0	389.73	202.29	592.01	296.01	996.59
71.00	24.0	394.05	205.90	599.95	299.97	1011.74
72.00	24.0	397.93	211.25	609.18	304.59	1031.69
73.00	24.0	402.62	216.23	618.85	309.42	1051.30
74.00	24.0	407.67	220.96	628.63	314.31	1070.56
75.00	24.0	413.14	225.37	638.51	319.25	1089.24
76.00	24.0	419.16	229.37	648.53	324.27	1107.28
77.00	24.0	426.25	232.22	658.48	329.24	1122.93
78.00	24.0	434.63	233.34	667.98	333.99	1134.66
79.00	24.0	443.66	233.45	677.12	338.56	1144.02
80.00	24.0	452.70	233.53	686.23	343.12	1153.29
81.00	24.0	461.74	233.77	695.51	347.75	1163.05
82.00	24.0	470.78	233.34	704.12	352.06	1170.80
83.00	24.0	479.83	231.22	711.05	355.53	1173.50
84.00	24.0	488.89	227.46	716.35	358.17	1171.26
85.00	24.0	497.95	223.27	721.21	360.61	1167.74
86.00	24.0	507.01	219.45	726.46	363.23	1165.36
87.00	24.0	516.07	215.73	731.80	365.90	1163.27
88.00	24.0	525.14	210.83	735.97	367.98	1157.62
89.00	24.0	533.84	205.47	739.30	369.65	1150.23
90.00	24.0	541.79	203.34	745.13	372.56	1151.80
91.00	24.0	549.04	205.18	754.22	377.11	1164.58
92.00	24.0	555.82	209.09	764.91	382.46	1183.10
93.00	24.0	562.16	212.49	774.65	387.33	1199.63
94.00	24.0	Soil Elevations Must Extend At or Below Contribution Zone				

NOTES
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1. MOBILIZED END BEARING IS 1/3 OF THE ORIGINAL RB-121 VALUES.

2. DAVISSON PILE CAPACITY IS AN ESTIMATE BASED ON FAILURE CRITERIA, AND EQUALS ULTIMATE SIDE FRICTION PLUS MOBILIZED END BEARING.

3. ALLOWABLE PILE CAPACITY IS 1/2 THE DAVISSON PILE CAPACITY.

4. ULTIMATE PILE CAPACITY IS ULTIMATE SIDE FRICTION PLUS 3 x THE MOBILIZED END BEARING.
EXCEPTION: FOR H-PILES TIPPED IN SAND OR LIMESTONE, THE ULTIMATE PILE CAPACITY IS ULTIMATE SIDE FRICTION PLUS 2 x THE MOBILIZED END BEARING.

General Information:
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Input file: .....tary_RS&H)\Analysis_Structure\FB-Deep\Pile\B-401_Void-10ft.spc
Project number: 2000-01-17003
Job name: SW 10th Street, from Powerline Rd. to Military Trail
Engineer: JB Henry
Units: English

Analysis Information:
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Analysis Type: SPT

Soil Information:
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Boring date: 2/6/2018, Boring Number: B-401
Station number: Offset:

Ground Elevation: 0.000(ft)

Hammer type: Automatic Hammer, Correction factor = 1.24

ID	Depth (ft)	No. of Blows (Blows/ft)	Soil Type
1	0.00	10.00	5- Cavity layer
2	2.00	13.00	5- Cavity layer
3	4.00	4.00	5- Cavity layer
4	6.00	20.00	5- Cavity layer
5	8.00	24.00	5- Cavity layer
6	10.00	15.00	4- Lime Stone/Very shelly sand
7	12.00	13.00	3- Clean sand
8	13.50	19.00	3- Clean sand
9	15.50	18.00	3- Clean sand
10	18.00	28.00	3- Clean sand
11	20.50	24.00	3- Clean sand
12	23.00	34.00	3- Clean sand
13	25.50	22.00	3- Clean sand
14	28.00	29.00	3- Clean sand
15	30.50	27.00	3- Clean sand
16	33.00	43.00	3- Clean sand
17	35.50	54.00	3- Clean sand
18	38.00	60.00	3- Clean sand
19	40.50	30.00	3- Clean sand
20	43.00	38.00	3- Clean sand
21	45.50	37.00	3- Clean sand
22	48.00	48.00	3- Clean sand
23	50.50	21.00	3- Clean sand
24	53.00	50.00	3- Clean sand
25	55.50	42.00	3- Clean sand
26	58.00	68.00	3- Clean sand
27	60.50	39.00	3- Clean sand
28	63.00	62.00	3- Clean sand
29	65.50	47.00	3- Clean sand
30	68.00	46.00	3- Clean sand
31	70.50	36.00	3- Clean sand
32	73.00	52.00	3- Clean sand
33	75.50	26.00	3- Clean sand
34	78.00	18.00	3- Clean sand
35	80.50	59.00	3- Clean sand
36	83.00	60.00	3- Clean sand
37	85.50	61.00	3- Clean sand
38	88.00	47.00	3- Clean sand
39	90.50	33.00	3- Clean sand
40	93.00	50.00	3- Clean sand
41	95.50	53.00	3- Clean sand
42	98.00	60.00	3- Clean sand
43	100.00	60.00	3- Clean sand

Blowcount Average Per Soil Layer

Layer Num.	Starting Elevation (ft)	Bottom Elevation (ft)	Thickness (ft)	Average Blowcount (Blows/ft)	Soil Type
1	0.00	-10.00	10.00	14.20	5-Void
2	-10.00	-12.00	2.00	15.00	4-Limestone, Very Shelly Sand
3	-12.00	-100.00	88.00	40.71	3-Clean Sand

Driven Pile Data:
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Pile unit weight = 150.00(pcf), Section Type: Square

Pile Geometry:

Width (in)	Length (ft)	Tip Elev. (ft)
18.00	25.00	-25.00
18.00	26.00	-26.00
18.00	27.00	-27.00
18.00	28.00	-28.00
18.00	29.00	-29.00
18.00	30.00	-30.00
18.00	31.00	-31.00
18.00	32.00	-32.00
18.00	33.00	-33.00
18.00	34.00	-34.00
18.00	35.00	-35.00
18.00	36.00	-36.00
18.00	37.00	-37.00
18.00	38.00	-38.00
18.00	39.00	-39.00
18.00	40.00	-40.00
18.00	41.00	-41.00
18.00	42.00	-42.00
18.00	43.00	-43.00
18.00	44.00	-44.00
18.00	45.00	-45.00
18.00	46.00	-46.00
18.00	47.00	-47.00
18.00	48.00	-48.00
18.00	49.00	-49.00
18.00	50.00	-50.00
18.00	51.00	-51.00
18.00	52.00	-52.00
18.00	53.00	-53.00
18.00	54.00	-54.00
18.00	55.00	-55.00
18.00	56.00	-56.00
18.00	57.00	-57.00
18.00	58.00	-58.00
18.00	59.00	-59.00
18.00	60.00	-60.00
18.00	61.00	-61.00
18.00	62.00	-62.00
18.00	63.00	-63.00
18.00	64.00	-64.00
18.00	65.00	-65.00
18.00	66.00	-66.00
18.00	67.00	-67.00
18.00	68.00	-68.00
18.00	69.00	-69.00
18.00	70.00	-70.00
18.00	71.00	-71.00
18.00	72.00	-72.00
18.00	73.00	-73.00
18.00	74.00	-74.00
18.00	75.00	-75.00
18.00	76.00	-76.00
18.00	77.00	-77.00
18.00	78.00	-78.00
18.00	79.00	-79.00
18.00	80.00	-80.00
18.00	81.00	-81.00
18.00	82.00	-82.00
18.00	83.00	-83.00
18.00	84.00	-84.00
18.00	85.00	-85.00
18.00	86.00	-86.00
18.00	87.00	-87.00
18.00	88.00	-88.00
18.00	89.00	-89.00
18.00	90.00	-90.00
18.00	91.00	-91.00
18.00	92.00	-92.00
18.00	93.00	-93.00
18.00	94.00	-94.00
24.00	25.00	-25.00
24.00	26.00	-26.00
24.00	27.00	-27.00
24.00	28.00	-28.00
24.00	29.00	-29.00
24.00	30.00	-30.00
24.00	31.00	-31.00
24.00	32.00	-32.00

24.00	33.00	-33.00
24.00	34.00	-34.00
24.00	35.00	-35.00
24.00	36.00	-36.00
24.00	37.00	-37.00
24.00	38.00	-38.00
24.00	39.00	-39.00
24.00	40.00	-40.00
24.00	41.00	-41.00
24.00	42.00	-42.00
24.00	43.00	-43.00
24.00	44.00	-44.00
24.00	45.00	-45.00
24.00	46.00	-46.00
24.00	47.00	-47.00
24.00	48.00	-48.00
24.00	49.00	-49.00
24.00	50.00	-50.00
24.00	51.00	-51.00
24.00	52.00	-52.00
24.00	53.00	-53.00
24.00	54.00	-54.00
24.00	55.00	-55.00
24.00	56.00	-56.00
24.00	57.00	-57.00
24.00	58.00	-58.00
24.00	59.00	-59.00
24.00	60.00	-60.00
24.00	61.00	-61.00
24.00	62.00	-62.00
24.00	63.00	-63.00
24.00	64.00	-64.00
24.00	65.00	-65.00
24.00	66.00	-66.00
24.00	67.00	-67.00
24.00	68.00	-68.00
24.00	69.00	-69.00
24.00	70.00	-70.00
24.00	71.00	-71.00
24.00	72.00	-72.00
24.00	73.00	-73.00
24.00	74.00	-74.00
24.00	75.00	-75.00
24.00	76.00	-76.00
24.00	77.00	-77.00
24.00	78.00	-78.00
24.00	79.00	-79.00
24.00	80.00	-80.00
24.00	81.00	-81.00
24.00	82.00	-82.00
24.00	83.00	-83.00
24.00	84.00	-84.00
24.00	85.00	-85.00
24.00	86.00	-86.00
24.00	87.00	-87.00
24.00	88.00	-88.00
24.00	89.00	-89.00
24.00	90.00	-90.00
24.00	91.00	-91.00
24.00	92.00	-92.00
24.00	93.00	-93.00
24.00	94.00	-94.00

Driven Pile Capacity:
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Section Type: Square
Pile Width: 18.00 (in)

Test Pile Length (ft)	Pile Width (in)	Ultimate Side Friction (tons)	Mobilized End Bearing (tons)	Estimated Davisson Capacity (tons)	Allowable Pile Capacity (tons)	Ultimate Pile Capacity (tons)
25.00	18.0	32.19	64.20	96.40	48.20	224.81
26.00	18.0	34.66	68.37	103.03	51.52	239.78
27.00	18.0	37.19	74.00	111.19	55.59	259.18
28.00	18.0	39.95	81.20	121.15	60.58	283.56
29.00	18.0	42.94	89.31	132.25	66.13	310.87
30.00	18.0	46.03	98.25	144.28	72.14	340.78
31.00	18.0	49.84	104.13	153.96	76.98	362.21
32.00	18.0	54.20	109.34	163.54	81.77	382.22

33.00	18.0	59.24	113.58	172.82	86.41	399.98
34.00	18.0	64.77	115.23	180.01	90.00	410.47
35.00	18.0	70.59	113.96	184.55	92.28	412.47
36.00	18.0	76.67	111.19	187.86	93.93	410.25
37.00	18.0	82.83	109.79	192.63	96.31	412.21
38.00	18.0	89.05	109.74	198.80	99.40	418.28
39.00	18.0	94.91	110.23	205.14	102.57	425.59
40.00	18.0	99.99	111.42	211.41	105.70	434.25
41.00	18.0	104.40	113.72	218.12	109.06	445.57
42.00	18.0	109.03	117.03	226.06	113.03	460.11
43.00	18.0	114.02	120.92	234.95	117.47	476.79
44.00	18.0	119.19	122.06	241.26	120.63	485.38
45.00	18.0	124.32	119.41	243.74	121.87	482.56
46.00	18.0	129.49	114.87	244.36	122.18	474.11
47.00	18.0	135.10	112.37	247.48	123.74	472.23
48.00	18.0	141.25	111.92	253.17	126.59	477.02
49.00	18.0	147.04	112.30	259.34	129.67	483.95
50.00	18.0	151.55	113.68	265.23	132.62	492.59
51.00	18.0	155.10	116.49	271.58	135.79	504.56
52.00	18.0	159.62	119.57	279.19	139.60	518.33
53.00	18.0	165.47	122.32	287.79	143.90	532.44
54.00	18.0	171.84	123.61	295.45	147.72	542.67
55.00	18.0	177.91	123.85	301.75	150.88	549.44
56.00	18.0	183.75	123.75	307.50	153.75	554.99
57.00	18.0	189.84	124.39	314.23	157.12	563.01
58.00	18.0	196.25	125.63	321.88	160.94	573.13
59.00	18.0	202.60	126.67	329.28	164.64	582.62
60.00	18.0	208.49	127.62	336.11	168.06	591.35
61.00	18.0	214.04	129.26	343.31	171.65	601.83
62.00	18.0	219.95	131.68	351.63	175.82	615.00
63.00	18.0	226.33	134.36	360.69	180.34	629.41
64.00	18.0	232.91	134.92	367.83	183.91	637.66
65.00	18.0	239.44	133.07	372.50	186.25	638.64
66.00	18.0	245.90	130.36	376.26	188.13	636.99
67.00	18.0	252.32	129.37	381.69	190.84	640.42
68.00	18.0	258.69	129.95	388.65	194.32	648.55
69.00	18.0	264.79	129.23	394.02	197.01	652.47
70.00	18.0	270.39	126.28	396.67	198.34	649.23
71.00	18.0	275.63	121.79	397.41	198.71	640.99
72.00	18.0	281.35	116.19	397.54	198.77	629.92
73.00	18.0	287.70	109.38	397.09	198.54	615.86
74.00	18.0	293.81	104.77	398.58	199.29	608.11
75.00	18.0	298.77	104.56	403.33	201.67	612.45
76.00	18.0	302.68	107.94	410.62	205.31	626.50
77.00	18.0	306.08	112.12	418.21	209.10	642.45
78.00	18.0	309.07	116.88	425.95	212.98	659.71
79.00	18.0	312.62	120.98	433.60	216.80	675.56
80.00	18.0	317.74	123.19	440.93	220.46	687.30
81.00	18.0	324.23	123.93	448.16	224.08	696.02
82.00	18.0	330.92	124.77	455.69	227.85	705.24
83.00	18.0	337.61	125.77	463.38	231.69	714.93
84.00	18.0	344.31	125.11	469.42	234.71	719.64
85.00	18.0	351.01	122.25	473.26	236.63	717.75
86.00	18.0	357.71	118.99	476.70	238.35	714.68
87.00	18.0	364.34	118.57	482.91	241.45	720.04
88.00	18.0	370.91	120.94	491.85	245.92	733.72
89.00	18.0	377.08	124.78	501.86	250.93	751.41
90.00	18.0	382.52	129.91	512.43	256.21	772.25
91.00	18.0	387.42	135.14	522.56	261.28	792.85
92.00	18.0	392.93	138.12	531.06	265.53	807.30
93.00	18.0	399.25	138.80	538.05	269.03	815.65
94.00	18.0	405.98	138.80	544.78	272.39	822.38

Section Type: Square
Pile Width: 24.00 (in)

Test Pile Length (ft)	Pile Width (in)	Ultimate Side Friction (tons)	Mobilized End Bearing (tons)	Estimated Davisson Capacity (tons)	Allowable Pile Capacity (tons)	Ultimate Pile Capacity (tons)
25.00	24.0	42.38	99.62	142.00	71.00	341.24
26.00	24.0	44.40	107.50	151.90	75.95	366.90
27.00	24.0	46.70	116.54	163.23	81.62	396.31
28.00	24.0	49.47	126.43	175.90	87.95	428.77
29.00	24.0	52.52	137.21	189.73	94.86	464.15
30.00	24.0	55.70	148.56	204.26	102.13	501.39
31.00	24.0	59.08	160.67	219.75	109.87	541.09
32.00	24.0	63.52	171.41	234.93	117.46	577.74
33.00	24.0	69.33	178.59	247.92	123.96	605.09
34.00	24.0	76.23	182.41	258.64	129.32	623.45
35.00	24.0	83.64	186.12	269.77	134.88	642.01
36.00	24.0	91.43	190.77	282.19	141.10	663.73
37.00	24.0	99.35	190.68	290.03	145.01	671.39
38.00	24.0	107.36	189.90	297.26	148.63	677.06

39.00	24.0	114.97	189.31	304.28	152.14	682.91
40.00	24.0	121.65	191.79	313.44	156.72	697.03
41.00	24.0	127.53	198.01	325.54	162.77	721.57
42.00	24.0	133.67	203.26	336.93	168.46	743.45
43.00	24.0	140.26	203.44	343.70	171.85	750.58
44.00	24.0	147.07	199.81	346.88	173.44	746.49
45.00	24.0	153.84	199.20	353.05	176.52	751.45
46.00	24.0	160.66	202.83	363.49	181.75	769.15
47.00	24.0	168.05	207.22	375.26	187.63	789.70
48.00	24.0	176.10	208.80	384.90	192.45	802.49
49.00	24.0	183.71	209.28	392.98	196.49	811.54
50.00	24.0	189.74	212.07	401.80	200.90	825.94
51.00	24.0	194.55	217.18	411.74	205.87	846.10
52.00	24.0	200.59	220.01	420.60	210.30	860.63
53.00	24.0	208.29	219.05	427.34	213.67	865.43
54.00	24.0	216.65	216.13	432.78	216.39	865.03
55.00	24.0	224.64	215.42	440.06	220.03	870.90
56.00	24.0	232.35	217.76	450.11	225.06	885.63
57.00	24.0	240.38	221.29	461.67	230.83	904.25
58.00	24.0	248.82	223.76	472.57	236.29	920.09
59.00	24.0	257.18	225.62	482.80	241.40	934.04
60.00	24.0	264.97	227.89	492.87	246.43	948.65
61.00	24.0	272.33	230.68	503.01	251.50	964.37
62.00	24.0	280.14	232.00	512.14	256.07	976.15
63.00	24.0	288.56	230.39	518.94	259.47	979.72
64.00	24.0	297.24	226.62	523.86	261.93	977.09
65.00	24.0	305.85	224.94	530.79	265.40	980.67
66.00	24.0	314.39	227.04	541.43	270.71	995.50
67.00	24.0	322.87	229.80	552.68	276.34	1012.28
68.00	24.0	331.30	227.91	559.21	279.61	1015.03
69.00	24.0	339.38	221.56	560.94	280.47	1004.06
70.00	24.0	346.82	213.88	560.71	280.35	988.47
71.00	24.0	353.80	206.03	559.83	279.91	971.90
72.00	24.0	361.40	199.38	560.77	280.39	959.53
73.00	24.0	369.81	195.94	565.76	282.88	957.64
74.00	24.0	377.91	196.53	574.44	287.22	967.51
75.00	24.0	384.54	199.70	584.23	292.12	983.63
76.00	24.0	389.81	205.24	595.04	297.52	1005.51
77.00	24.0	394.42	212.07	606.49	303.25	1030.63
78.00	24.0	398.50	219.12	617.62	308.81	1055.86
79.00	24.0	403.30	224.57	627.88	313.94	1077.02
80.00	24.0	410.12	226.99	637.12	318.56	1091.10
81.00	24.0	418.71	227.03	645.75	322.87	1099.82
82.00	24.0	427.56	225.68	653.24	326.62	1104.60
83.00	24.0	436.42	222.28	658.70	329.35	1103.25
84.00	24.0	445.29	217.38	662.67	331.33	1097.42
85.00	24.0	454.16	214.61	668.78	334.39	1098.01
86.00	24.0	463.03	214.85	677.88	338.94	1107.59
87.00	24.0	471.82	216.83	688.66	344.33	1122.32
88.00	24.0	480.53	218.30	698.83	349.41	1135.42
89.00	24.0	488.72	219.60	708.32	354.16	1147.51
90.00	24.0	495.97	222.42	718.39	359.19	1163.22
91.00	24.0	502.52	227.60	730.11	365.06	1185.31
92.00	24.0	509.86	233.14	743.00	371.50	1209.29
93.00	24.0	518.25	238.03	756.27	378.14	1232.33
94.00	24.0 Soil Elevations Must Extend At or Below Contribution Zone					

NOTES
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1. MOBILIZED END BEARING IS 1/3 OF THE ORIGINAL RB-121 VALUES.

2. DAVISSON PILE CAPACITY IS AN ESTIMATE BASED ON FAILURE CRITERIA, AND EQUALS ULTIMATE SIDE FRICTION PLUS MOBILIZED END BEARING.

3. ALLOWABLE PILE CAPACITY IS 1/2 THE DAVISSON PILE CAPACITY.

4. ULTIMATE PILE CAPACITY IS ULTIMATE SIDE FRICTION PLUS 3 x THE MOBILIZED END BEARING.
   EXCEPTION: FOR H-PILES TIPPED IN SAND OR LIMESTONE, THE ULTIMATE PILE CAPACITY IS ULTIMATE SIDE FRICTION PLUS 2 x THE MOBILIZED END BEARING.

General Information:

Input file: .....tary_RS&H)\Analysis_Structure\FB-Deep\Pile\B-501_Void-10ft.spc
Project number: 2000-01-17003
Job name: SW 10th Street, from Powerline Rd. to Military Trail
Engineer: JB Henry
Units: English

Analysis Information:

Analysis Type: SPT

Soil Information:

Boring date: 2/7/2018, Boring Number: B-501
Station number: Offset:

Ground Elevation: 0.000(ft)

Hammer type: Automatic Hammer, Correction factor = 1.24

ID	Depth (ft)	No. of Blows (Blows/ft)	Soil Type
1	0.00	9.00	5- Cavity layer
2	2.00	7.00	5- Cavity layer
3	4.00	20.00	5- Cavity layer
4	6.00	12.00	5- Cavity layer
5	8.00	22.00	5- Cavity layer
6	10.00	30.00	3- Clean sand
7	12.00	14.00	3- Clean sand
8	13.50	16.00	3- Clean sand
9	15.50	14.00	3- Clean sand
10	18.00	32.00	3- Clean sand
11	20.50	20.00	3- Clean sand
12	23.00	30.00	3- Clean sand
13	25.50	21.00	3- Clean sand
14	28.00	36.00	3- Clean sand
15	30.50	29.00	3- Clean sand
16	33.00	58.00	3- Clean sand
17	35.50	33.00	3- Clean sand
18	38.00	52.00	3- Clean sand
19	40.50	39.00	3- Clean sand
20	43.00	66.00	3- Clean sand
21	45.50	39.00	3- Clean sand
22	48.00	58.00	3- Clean sand
23	50.50	60.00	3- Clean sand
24	53.00	60.00	3- Clean sand
25	55.50	50.00	3- Clean sand
26	58.00	69.00	3- Clean sand
27	60.50	67.00	3- Clean sand
28	63.00	53.00	3- Clean sand
29	65.50	63.00	3- Clean sand
30	68.00	60.00	3- Clean sand
31	70.50	71.00	3- Clean sand
32	73.00	60.00	3- Clean sand
33	75.50	60.00	3- Clean sand
34	78.00	73.00	3- Clean sand
35	80.50	38.00	3- Clean sand
36	83.00	42.00	3- Clean sand
37	85.50	33.00	3- Clean sand
38	88.00	48.00	3- Clean sand
39	90.50	82.00	3- Clean sand
40	93.00	62.00	3- Clean sand
41	95.50	60.00	3- Clean sand
42	98.00	50.00	3- Clean sand
43	100.00	50.00	3- Clean sand

Blowcount Average Per Soil Layer

Layer Num.	Starting Elevation (ft)	Bottom Elevation (ft)	Thickness (ft)	Average Blowcount (Blows/ft)	Soil Type
1	0.00	-10.00	10.00	14.00	5-Void
2	-10.00	-100.00	90.00	47.87	3-Clean Sand

Driven Pile Data:
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Pile unit weight = 150.00(pcf), Section Type: Square

Pile Geometry:

Width (in)	Length (ft)	Tip Elev. (ft)
18.00	25.00	-25.00
18.00	26.00	-26.00
18.00	27.00	-27.00
18.00	28.00	-28.00
18.00	29.00	-29.00
18.00	30.00	-30.00
18.00	31.00	-31.00
18.00	32.00	-32.00
18.00	33.00	-33.00
18.00	34.00	-34.00
18.00	35.00	-35.00
18.00	36.00	-36.00
18.00	37.00	-37.00
18.00	38.00	-38.00
18.00	39.00	-39.00
18.00	40.00	-40.00
18.00	41.00	-41.00
18.00	42.00	-42.00
18.00	43.00	-43.00
18.00	44.00	-44.00
18.00	45.00	-45.00
18.00	46.00	-46.00
18.00	47.00	-47.00
18.00	48.00	-48.00
18.00	49.00	-49.00
18.00	50.00	-50.00
18.00	51.00	-51.00
18.00	52.00	-52.00
18.00	53.00	-53.00
18.00	54.00	-54.00
18.00	55.00	-55.00
18.00	56.00	-56.00
18.00	57.00	-57.00
18.00	58.00	-58.00
18.00	59.00	-59.00
18.00	60.00	-60.00
18.00	61.00	-61.00
18.00	62.00	-62.00
18.00	63.00	-63.00
18.00	64.00	-64.00
18.00	65.00	-65.00
18.00	66.00	-66.00
18.00	67.00	-67.00
18.00	68.00	-68.00
18.00	69.00	-69.00
18.00	70.00	-70.00
18.00	71.00	-71.00
18.00	72.00	-72.00
18.00	73.00	-73.00
18.00	74.00	-74.00
18.00	75.00	-75.00
18.00	76.00	-76.00
18.00	77.00	-77.00
18.00	78.00	-78.00
18.00	79.00	-79.00
18.00	80.00	-80.00
18.00	81.00	-81.00
18.00	82.00	-82.00
18.00	83.00	-83.00
18.00	84.00	-84.00
18.00	85.00	-85.00
18.00	86.00	-86.00
18.00	87.00	-87.00
18.00	88.00	-88.00
18.00	89.00	-89.00
18.00	90.00	-90.00
18.00	91.00	-91.00
18.00	92.00	-92.00
18.00	93.00	-93.00
18.00	94.00	-94.00
24.00	25.00	-25.00
24.00	26.00	-26.00
24.00	27.00	-27.00
24.00	28.00	-28.00
24.00	29.00	-29.00
24.00	30.00	-30.00
24.00	31.00	-31.00
24.00	32.00	-32.00
24.00	33.00	-33.00

24.00	34.00	-34.00
24.00	35.00	-35.00
24.00	36.00	-36.00
24.00	37.00	-37.00
24.00	38.00	-38.00
24.00	39.00	-39.00
24.00	40.00	-40.00
24.00	41.00	-41.00
24.00	42.00	-42.00
24.00	43.00	-43.00
24.00	44.00	-44.00
24.00	45.00	-45.00
24.00	46.00	-46.00
24.00	47.00	-47.00
24.00	48.00	-48.00
24.00	49.00	-49.00
24.00	50.00	-50.00
24.00	51.00	-51.00
24.00	52.00	-52.00
24.00	53.00	-53.00
24.00	54.00	-54.00
24.00	55.00	-55.00
24.00	56.00	-56.00
24.00	57.00	-57.00
24.00	58.00	-58.00
24.00	59.00	-59.00
24.00	60.00	-60.00
24.00	61.00	-61.00
24.00	62.00	-62.00
24.00	63.00	-63.00
24.00	64.00	-64.00
24.00	65.00	-65.00
24.00	66.00	-66.00
24.00	67.00	-67.00
24.00	68.00	-68.00
24.00	69.00	-69.00
24.00	70.00	-70.00
24.00	71.00	-71.00
24.00	72.00	-72.00
24.00	73.00	-73.00
24.00	74.00	-74.00
24.00	75.00	-75.00
24.00	76.00	-76.00
24.00	77.00	-77.00
24.00	78.00	-78.00
24.00	79.00	-79.00
24.00	80.00	-80.00
24.00	81.00	-81.00
24.00	82.00	-82.00
24.00	83.00	-83.00
24.00	84.00	-84.00
24.00	85.00	-85.00
24.00	86.00	-86.00
24.00	87.00	-87.00
24.00	88.00	-88.00
24.00	89.00	-89.00
24.00	90.00	-90.00
24.00	91.00	-91.00
24.00	92.00	-92.00
24.00	93.00	-93.00
24.00	94.00	-94.00

Driven Pile Capacity:
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Section Type: Square
Pile Width: 18.00 (in)

Test Pile Length (ft)	Pile Width (in)	Ultimate Side Friction (tons)	Mobilized End Bearing (tons)	Estimated Davisson Capacity (tons)	Allowable Pile Capacity (tons)	Ultimate Pile Capacity (tons)
25.00	18.0	34.76	70.49	105.25	52.63	246.23
26.00	18.0	37.18	76.14	113.32	56.66	265.59
27.00	18.0	40.02	83.50	123.52	61.76	290.53
28.00	18.0	43.48	92.52	136.00	68.00	321.04
29.00	18.0	47.86	96.78	144.64	72.32	338.21
30.00	18.0	52.02	98.85	150.87	75.43	348.57
31.00	18.0	56.05	100.25	156.30	78.15	356.79
32.00	18.0	60.77	102.84	163.62	81.81	369.31
33.00	18.0	66.35	106.32	172.67	86.33	385.31

34.00	18.0	72.06	109.04	181.10	90.55	399.18
35.00	18.0	77.17	111.18	188.35	94.17	410.70
36.00	18.0	81.81	113.56	195.37	97.69	422.49
37.00	18.0	86.98	116.65	203.63	101.82	436.93
38.00	18.0	92.86	120.06	212.91	106.46	453.02
39.00	18.0	98.91	122.21	221.11	110.56	465.53
40.00	18.0	104.56	123.15	227.72	113.86	474.02
41.00	18.0	109.93	123.88	233.81	116.90	481.57
42.00	18.0	115.63	125.50	241.13	120.57	492.14
43.00	18.0	121.79	127.75	249.53	124.77	505.02
44.00	18.0	127.97	129.49	257.46	128.73	516.43
45.00	18.0	133.73	130.87	264.60	132.30	526.33
46.00	18.0	139.18	132.59	271.78	135.89	536.97
47.00	18.0	144.98	134.64	279.61	139.81	548.89
48.00	18.0	151.23	136.65	287.88	143.94	561.19
49.00	18.0	157.72	137.80	295.52	147.76	571.12
50.00	18.0	164.24	138.18	302.42	151.21	578.78
51.00	18.0	170.76	138.41	309.18	154.59	586.00
52.00	18.0	177.31	139.11	316.42	158.21	594.64
53.00	18.0	183.86	140.16	324.02	162.01	604.34
54.00	18.0	190.43	140.86	331.29	165.64	613.00
55.00	18.0	197.01	141.09	338.10	169.05	620.28
56.00	18.0	203.61	141.32	344.93	172.46	627.57
57.00	18.0	210.21	142.02	352.23	176.11	636.27
58.00	18.0	216.82	143.07	359.89	179.94	646.03
59.00	18.0	223.44	143.77	367.21	183.61	654.74
60.00	18.0	230.07	144.00	374.07	187.04	662.07
61.00	18.0	236.71	144.00	380.71	190.36	668.71
62.00	18.0	243.36	144.00	387.36	193.68	675.36
63.00	18.0	250.01	144.00	394.01	197.01	682.01
64.00	18.0	256.68	144.00	400.68	200.34	688.68
65.00	18.0	263.34	144.00	407.34	203.67	695.34
66.00	18.0	270.02	144.00	414.02	207.01	702.02
67.00	18.0	276.70	144.00	420.70	210.35	708.70
68.00	18.0	283.38	144.00	427.38	213.69	715.38
69.00	18.0	290.07	144.00	434.07	217.04	722.07
70.00	18.0	296.77	144.00	440.77	220.38	728.77
71.00	18.0	303.47	144.00	447.47	223.73	735.47
72.00	18.0	310.17	144.00	454.17	227.09	742.17
73.00	18.0	316.88	143.96	460.84	230.42	748.77
74.00	18.0	323.59	143.08	466.67	233.34	752.83
75.00	18.0	330.31	141.02	471.33	235.66	753.37
76.00	18.0	337.03	138.24	475.27	237.63	751.75
77.00	18.0	343.75	135.86	479.62	239.81	751.34
78.00	18.0	350.48	133.89	484.37	242.19	752.16
79.00	18.0	356.94	131.65	488.59	244.30	751.89
80.00	18.0	362.87	129.05	491.92	245.96	750.01
81.00	18.0	368.36	126.74	495.09	247.55	748.57
82.00	18.0	373.96	125.90	499.86	249.93	751.66
83.00	18.0	379.76	126.46	506.22	253.11	759.14
84.00	18.0	385.44	127.69	513.13	256.56	768.51
85.00	18.0	390.65	129.54	520.18	260.09	779.25
86.00	18.0	395.54	131.80	527.34	263.67	790.93
87.00	18.0	401.06	133.29	534.35	267.18	800.94
88.00	18.0	407.36	133.83	541.19	270.60	808.86
89.00	18.0	414.07	133.88	547.95	273.97	815.71
90.00	18.0	420.79	133.91	554.70	277.35	822.52
91.00	18.0	427.54	134.17	561.71	280.85	830.05
92.00	18.0	434.29	134.94	569.24	284.62	839.12
93.00	18.0	441.05	136.14	577.19	288.59	849.47
94.00	18.0	447.81	137.23	585.03	292.52	859.49

Section Type: Square
Pile Width: 24.00 (in)

Test Pile Length (ft)	Pile Width (in)	Ultimate Side Friction (tons)	Mobilized End Bearing (tons)	Estimated Davisson Capacity (tons)	Allowable Pile Capacity (tons)	Ultimate Pile Capacity (tons)
25.00	24.0	42.43	108.58	151.01	75.51	368.18
26.00	24.0	44.72	117.72	162.44	81.22	397.88
27.00	24.0	47.84	126.63	174.47	87.23	427.73
28.00	24.0	52.00	134.43	186.43	93.21	455.28
29.00	24.0	56.66	141.41	198.06	99.03	480.88
30.00	24.0	60.93	150.47	211.40	105.70	512.33
31.00	24.0	64.94	162.39	227.33	113.67	552.12
32.00	24.0	69.98	174.16	244.14	122.07	592.46
33.00	24.0	76.53	182.62	259.14	129.57	624.38
34.00	24.0	83.63	188.91	272.54	136.27	650.37
35.00	24.0	90.21	191.85	282.06	141.03	665.77
36.00	24.0	96.27	197.99	294.25	147.13	690.23
37.00	24.0	102.95	203.75	306.71	153.35	714.21
38.00	24.0	110.50	206.31	316.81	158.40	729.43
39.00	24.0	118.27	206.89	325.16	162.58	738.93

40.00	24.0	125.60	209.29	334.90	167.45	753.48
41.00	24.0	132.60	214.31	346.91	173.45	775.53
42.00	24.0	140.01	219.84	359.85	179.93	799.53
43.00	24.0	148.00	223.77	371.77	185.88	819.32
44.00	24.0	156.02	226.72	382.74	191.37	836.17
45.00	24.0	163.56	230.19	393.75	196.88	854.14
46.00	24.0	170.71	234.73	405.45	202.72	874.91
47.00	24.0	178.30	238.92	417.22	208.61	895.05
48.00	24.0	186.46	241.24	427.70	213.85	910.18
49.00	24.0	194.93	241.88	436.81	218.40	920.57
50.00	24.0	203.43	242.39	445.82	222.91	930.60
51.00	24.0	211.96	243.92	455.88	227.94	943.71
52.00	24.0	220.52	246.20	466.73	233.36	959.14
53.00	24.0	229.11	247.73	476.84	238.42	972.30
54.00	24.0	237.72	248.24	485.96	242.98	982.44
55.00	24.0	246.35	248.55	494.90	247.45	992.00
56.00	24.0	255.00	249.48	504.48	252.24	1003.45
57.00	24.0	263.68	250.88	514.55	257.28	1016.31
58.00	24.0	272.37	251.81	524.18	262.09	1027.80
59.00	24.0	281.08	252.12	533.20	266.60	1037.44
60.00	24.0	289.80	252.43	542.23	271.12	1047.10
61.00	24.0	298.55	253.36	551.91	275.95	1058.63
62.00	24.0	307.30	254.76	562.06	281.03	1071.58
63.00	24.0	316.07	255.69	571.76	285.88	1083.14
64.00	24.0	324.85	256.00	580.85	290.43	1092.85
65.00	24.0	333.65	256.00	589.65	294.82	1101.65
66.00	24.0	342.46	256.00	598.46	299.23	1110.46
67.00	24.0	351.27	256.00	607.27	303.64	1119.27
68.00	24.0	360.10	256.00	616.10	308.05	1128.10
69.00	24.0	368.94	256.00	624.94	312.47	1136.94
70.00	24.0	377.79	256.00	633.79	316.89	1145.79
71.00	24.0	386.64	256.00	642.64	321.32	1154.64
72.00	24.0	395.51	255.21	650.72	325.36	1161.15
73.00	24.0	404.38	252.86	657.24	328.62	1162.96
74.00	24.0	413.26	249.21	662.47	331.23	1160.88
75.00	24.0	422.15	245.89	668.04	334.02	1159.81
76.00	24.0	431.04	243.17	674.21	337.11	1160.55
77.00	24.0	439.95	240.08	680.02	340.01	1160.17
78.00	24.0	448.85	235.62	684.48	342.24	1155.72
79.00	24.0	457.43	230.70	688.13	344.06	1149.53
80.00	24.0	465.31	228.48	693.79	346.90	1150.75
81.00	24.0	472.63	229.25	701.88	350.94	1160.39
82.00	24.0	480.10	231.00	711.10	355.55	1173.11
83.00	24.0	487.83	232.47	720.30	360.15	1185.25
84.00	24.0	495.39	234.21	729.60	364.80	1198.01
85.00	24.0	502.36	236.71	739.07	369.53	1212.49
86.00	24.0	508.92	239.73	748.64	374.32	1228.10
87.00	24.0	516.28	241.72	758.00	379.00	1241.45
88.00	24.0	524.65	242.44	767.09	383.55	1251.98
89.00	24.0	533.54	242.51	776.05	388.02	1261.07
90.00	24.0	542.46	242.54	785.00	392.50	1270.09
91.00	24.0	551.41	242.55	793.95	396.98	1279.05
92.00	24.0	560.36	242.55	802.91	401.45	1288.00
93.00	24.0	569.32	242.55	811.87	405.93	1296.96
94.00	24.0 Soil Elevations Must Extend At or Below Contribution Zone					

NOTES
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1. MOBILIZED END BEARING IS 1/3 OF THE ORIGINAL RB-121 VALUES.

2. DAVISSON PILE CAPACITY IS AN ESTIMATE BASED ON FAILURE CRITERIA, AND EQUALS ULTIMATE SIDE FRICTION PLUS MOBILIZED END BEARING.

3. ALLOWABLE PILE CAPACITY IS 1/2 THE DAVISSON PILE CAPACITY.

4. ULTIMATE PILE CAPACITY IS ULTIMATE SIDE FRICTION PLUS 3 x THE MOBILIZED END BEARING.
   EXCEPTION: FOR H-PILES TIPPED IN SAND OR LIMESTONE, THE ULTIMATE PILE CAPACITY IS ULTIMATE SIDE FRICTION PLUS 2 x THE MOBILIZED END BEARING.

General Information:
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Input file: .....tary_RS&H)\Analysis_Structure\FB-Deep\Pile\B-601_Void-10ft.spc
Project number: 2000-01-17003
Job name: SW 10th Street, from Powerline Rd. to Military Trail
Engineer: JB Henry
Units: English

Analysis Information:
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Analysis Type: SPT

Soil Information:
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Boring date: 1/31/2018, Boring Number: B-601
Station number: Offset:

Ground Elevation: 0.000(ft)

Hammer type: Automatic Hammer, Correction factor = 1.24

ID	Depth (ft)	No. of Blows (Blows/ft)	Soil Type
1	0.00	13.00	5- Cavity layer
2	2.00	30.00	5- Cavity layer
3	4.00	30.00	5- Cavity layer
4	6.00	10.00	5- Cavity layer
5	8.00	3.00	5- Cavity layer
6	10.00	3.00	3- Clean sand
7	12.00	4.00	3- Clean sand
8	13.50	3.00	3- Clean sand
9	15.50	6.00	3- Clean sand
10	18.00	12.00	3- Clean sand
11	20.50	15.00	3- Clean sand
12	23.00	22.00	3- Clean sand
13	25.50	20.00	3- Clean sand
14	28.00	52.00	3- Clean sand
15	30.50	61.00	3- Clean sand
16	33.00	90.00	3- Clean sand
17	35.50	40.00	3- Clean sand
18	38.00	78.00	3- Clean sand
19	40.50	47.00	3- Clean sand
20	43.00	89.00	3- Clean sand
21	45.50	60.00	3- Clean sand
22	48.00	60.00	3- Clean sand
23	50.50	18.00	3- Clean sand
24	53.00	26.00	3- Clean sand
25	55.50	2.00	3- Clean sand
26	58.00	2.00	3- Clean sand
27	60.50	9.00	3- Clean sand
28	63.00	23.00	3- Clean sand
29	65.50	60.00	4- Lime Stone/Very shelly sand
30	68.00	60.00	4- Lime Stone/Very shelly sand
31	70.50	60.00	4- Lime Stone/Very shelly sand
32	73.00	60.00	4- Lime Stone/Very shelly sand
33	75.50	60.00	3- Clean sand
34	78.00	52.00	3- Clean sand
35	80.50	58.00	3- Clean sand
36	83.00	60.00	3- Clean sand
37	85.50	60.00	3- Clean sand
38	88.00	60.00	3- Clean sand
39	90.50	36.00	3- Clean sand
40	93.00	20.00	3- Clean sand
41	95.50	12.00	3- Clean sand
42	98.00	42.00	3- Clean sand
43	100.00	42.00	3- Clean sand

Blowcount Average Per Soil Layer

Layer Num.	Starting Elevation (ft)	Bottom Elevation (ft)	Thickness (ft)	Average Blowcount (Blows/ft)	Soil Type
1	0.00	-10.00	10.00	17.20	5-Void
2	-10.00	-65.50	55.50	33.30	3-Clean Sand
3	-65.50	-75.50	10.00	60.00	4-Limestone, Very Shelly Sand
4	-75.50	-100.00	24.50	46.08	3-Clean Sand

Driven Pile Data:
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Pile unit weight = 150.00(pcf), Section Type: Square

Pile Geometry:

Width (in)	Length (ft)	Tip Elev. (ft)
18.00	25.00	-25.00
18.00	26.00	-26.00
18.00	27.00	-27.00
18.00	28.00	-28.00
18.00	29.00	-29.00
18.00	30.00	-30.00
18.00	31.00	-31.00
18.00	32.00	-32.00
18.00	33.00	-33.00
18.00	34.00	-34.00
18.00	35.00	-35.00
18.00	36.00	-36.00
18.00	37.00	-37.00
18.00	38.00	-38.00
18.00	39.00	-39.00
18.00	40.00	-40.00
18.00	41.00	-41.00
18.00	42.00	-42.00
18.00	43.00	-43.00
18.00	44.00	-44.00
18.00	45.00	-45.00
18.00	46.00	-46.00
18.00	47.00	-47.00
18.00	48.00	-48.00
18.00	49.00	-49.00
18.00	50.00	-50.00
18.00	51.00	-51.00
18.00	52.00	-52.00
18.00	53.00	-53.00
18.00	54.00	-54.00
18.00	55.00	-55.00
18.00	56.00	-56.00
18.00	57.00	-57.00
18.00	58.00	-58.00
18.00	59.00	-59.00
18.00	60.00	-60.00
18.00	61.00	-61.00
18.00	62.00	-62.00
18.00	63.00	-63.00
18.00	64.00	-64.00
18.00	65.00	-65.00
18.00	66.00	-66.00
18.00	67.00	-67.00
18.00	68.00	-68.00
18.00	69.00	-69.00
18.00	70.00	-70.00
18.00	71.00	-71.00
18.00	72.00	-72.00
18.00	73.00	-73.00
18.00	74.00	-74.00
18.00	75.00	-75.00
18.00	76.00	-76.00
18.00	77.00	-77.00
18.00	78.00	-78.00
18.00	79.00	-79.00
18.00	80.00	-80.00
18.00	81.00	-81.00
18.00	82.00	-82.00
18.00	83.00	-83.00
18.00	84.00	-84.00
18.00	85.00	-85.00
18.00	86.00	-86.00
18.00	87.00	-87.00
18.00	88.00	-88.00
18.00	89.00	-89.00
18.00	90.00	-90.00
18.00	91.00	-91.00
18.00	92.00	-92.00
18.00	93.00	-93.00
18.00	94.00	-94.00
24.00	25.00	-25.00
24.00	26.00	-26.00
24.00	27.00	-27.00
24.00	28.00	-28.00
24.00	29.00	-29.00
24.00	30.00	-30.00
24.00	31.00	-31.00

24.00	32.00	-32.00
24.00	33.00	-33.00
24.00	34.00	-34.00
24.00	35.00	-35.00
24.00	36.00	-36.00
24.00	37.00	-37.00
24.00	38.00	-38.00
24.00	39.00	-39.00
24.00	40.00	-40.00
24.00	41.00	-41.00
24.00	42.00	-42.00
24.00	43.00	-43.00
24.00	44.00	-44.00
24.00	45.00	-45.00
24.00	46.00	-46.00
24.00	47.00	-47.00
24.00	48.00	-48.00
24.00	49.00	-49.00
24.00	50.00	-50.00
24.00	51.00	-51.00
24.00	52.00	-52.00
24.00	53.00	-53.00
24.00	54.00	-54.00
24.00	55.00	-55.00
24.00	56.00	-56.00
24.00	57.00	-57.00
24.00	58.00	-58.00
24.00	59.00	-59.00
24.00	60.00	-60.00
24.00	61.00	-61.00
24.00	62.00	-62.00
24.00	63.00	-63.00
24.00	64.00	-64.00
24.00	65.00	-65.00
24.00	66.00	-66.00
24.00	67.00	-67.00
24.00	68.00	-68.00
24.00	69.00	-69.00
24.00	70.00	-70.00
24.00	71.00	-71.00
24.00	72.00	-72.00
24.00	73.00	-73.00
24.00	74.00	-74.00
24.00	75.00	-75.00
24.00	76.00	-76.00
24.00	77.00	-77.00
24.00	78.00	-78.00
24.00	79.00	-79.00
24.00	80.00	-80.00
24.00	81.00	-81.00
24.00	82.00	-82.00
24.00	83.00	-83.00
24.00	84.00	-84.00
24.00	85.00	-85.00
24.00	86.00	-86.00
24.00	87.00	-87.00
24.00	88.00	-88.00
24.00	89.00	-89.00
24.00	90.00	-90.00
24.00	91.00	-91.00
24.00	92.00	-92.00
24.00	93.00	-93.00
24.00	94.00	-94.00

Driven Pile Capacity:
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Section Type: Square
Pile Width: 18.00 (in)

Test Pile Length (ft)	Pile Width (in)	Ultimate Side Friction (tons)	Mobilized End Bearing (tons)	Estimated Davisson Capacity (tons)	Allowable Pile Capacity (tons)	Ultimate Pile Capacity (tons)
25.00	18.0	11.28	65.37	76.65	38.33	207.38
26.00	18.0	13.24	78.10	91.34	45.67	247.54
27.00	18.0	16.08	90.31	106.39	53.20	287.01
28.00	18.0	20.03	101.38	121.41	60.70	324.17
29.00	18.0	24.74	105.63	130.36	65.18	341.62
30.00	18.0	29.66	108.62	138.28	69.14	355.53
31.00	18.0	34.76	110.98	145.75	72.87	367.71

32.00	18.0	40.03	114.08	154.11	77.05	382.27
33.00	18.0	45.43	117.92	163.35	81.68	399.20
34.00	18.0	50.79	121.87	172.66	86.33	416.39
35.00	18.0	55.94	125.84	181.78	90.89	433.46
36.00	18.0	60.93	130.02	190.95	95.48	450.99
37.00	18.0	66.22	134.05	200.27	100.13	468.36
38.00	18.0	71.90	137.60	209.50	104.75	484.70
39.00	18.0	77.78	139.76	217.54	108.77	497.06
40.00	18.0	83.67	140.59	224.27	112.13	505.46
41.00	18.0	89.57	140.79	230.37	115.18	511.95
42.00	18.0	95.56	140.93	236.49	118.24	518.34
43.00	18.0	101.66	140.86	242.52	121.26	524.24
44.00	18.0	107.82	138.28	246.10	123.05	522.66
45.00	18.0	114.02	132.25	246.27	123.14	510.77
46.00	18.0	120.26	124.21	244.47	122.24	492.89
47.00	18.0	126.53	117.35	243.89	121.94	478.59
48.00	18.0	132.83	111.60	244.43	122.22	467.62
49.00	18.0	138.49	104.63	243.12	121.56	452.39
50.00	18.0	142.81	96.24	239.05	119.53	431.54
51.00	18.0	145.97	87.20	233.17	116.58	407.56
52.00	18.0	149.27	77.92	227.19	113.59	383.03
53.00	18.0	152.91	68.22	221.13	110.56	357.56
54.00	18.0	156.14	59.77	215.90	107.95	335.44
55.00	18.0	158.15	53.93	212.08	106.04	319.94
56.00	18.0	159.10	50.69	209.79	104.89	311.16
57.00	18.0	159.86	49.22	209.08	104.54	307.53
58.00	18.0	160.59	49.42	210.01	105.00	308.85
59.00	18.0	161.50	52.65	214.15	107.08	319.45
60.00	18.0	162.80	59.31	222.11	111.06	340.73
61.00	18.0	164.54	68.98	233.53	116.76	371.49
62.00	18.0	166.90	79.43	246.33	123.17	405.20
63.00	18.0	169.91	90.26	260.17	130.09	440.69
64.00	18.0	173.45	99.36	272.81	136.41	471.53
65.00	18.0	177.40	105.81	283.21	141.61	494.83
66.00	18.0	213.99	173.44	387.43	193.72	734.32
67.00	18.0	218.45	173.44	391.90	195.95	738.78
68.00	18.0	222.92	172.46	395.38	197.69	740.30
69.00	18.0	227.38	169.52	396.90	198.45	735.93
70.00	18.0	231.84	164.85	396.70	198.35	726.41
71.00	18.0	236.31	159.95	396.26	198.13	716.15
72.00	18.0	240.77	155.04	395.81	197.91	705.90
73.00	18.0	245.24	150.13	395.37	197.69	695.64
74.00	18.0	250.18	146.21	396.38	198.19	688.80
75.00	18.0	256.07	144.25	400.31	200.16	688.80
76.00	18.0	262.79	144.00	406.79	203.39	694.79
77.00	18.0	269.63	144.00	413.63	206.81	701.63
78.00	18.0	276.47	144.00	420.47	210.23	708.47
79.00	18.0	283.31	144.00	427.31	213.65	715.31
80.00	18.0	290.15	144.00	434.15	217.07	722.15
81.00	18.0	296.99	144.00	440.99	220.49	728.99
82.00	18.0	303.83	144.00	447.83	223.91	735.83
83.00	18.0	310.67	143.96	454.62	227.31	742.54
84.00	18.0	317.51	142.90	460.41	230.20	746.22
85.00	18.0	324.35	140.45	464.79	232.40	745.68
86.00	18.0	331.19	136.47	467.66	233.83	740.59
87.00	18.0	338.03	130.69	468.72	234.36	730.10
88.00	18.0	344.87	123.13	467.99	234.00	714.24
89.00	18.0	351.36	114.79	466.15	233.08	695.74
90.00	18.0	357.15	106.35	463.49	231.75	676.19
91.00	18.0	362.21	99.02	461.23	230.62	659.28
92.00	18.0	366.39	95.96	462.35	231.17	654.26
93.00	18.0	369.67	97.20	466.88	233.44	661.29
94.00	18.0	372.27	100.18	472.45	236.22	672.80

Section Type: Square
Pile Width: 24.00 (in)

Test Pile Length (ft)	Pile Width (in)	Ultimate Side Friction (tons)	Mobilized End Bearing (tons)	Estimated Davisson Capacity (tons)	Allowable Pile Capacity (tons)	Ultimate Pile Capacity (tons)
25.00	24.0	12.43	90.66	103.09	51.55	284.41
26.00	24.0	14.43	104.71	119.14	59.57	328.57
27.00	24.0	17.38	117.83	135.21	67.61	370.87
28.00	24.0	21.50	129.00	150.50	75.25	408.49
29.00	24.0	26.42	139.02	165.44	82.72	443.49
30.00	24.0	31.66	150.27	181.93	90.97	482.48
31.00	24.0	37.22	162.92	200.14	100.07	525.98
32.00	24.0	43.12	176.36	219.47	109.74	572.19
33.00	24.0	49.37	189.81	239.18	119.59	618.79
34.00	24.0	55.81	203.58	259.39	129.69	666.55
35.00	24.0	62.25	210.25	272.51	136.25	693.01
36.00	24.0	68.56	217.47	286.03	143.02	720.97
37.00	24.0	75.25	224.03	299.28	149.64	747.33

38.00	24.0	82.42	229.44	311.86	155.93	770.75
39.00	24.0	89.87	234.10	323.96	161.98	792.15
40.00	24.0	97.36	238.70	336.06	168.03	813.46
41.00	24.0	104.89	243.53	348.42	174.21	835.47
42.00	24.0	112.56	245.85	358.41	179.20	850.11
43.00	24.0	120.38	241.83	362.21	181.11	845.88
44.00	24.0	128.30	232.02	360.32	180.16	824.35
45.00	24.0	136.30	221.74	358.04	179.02	801.52
46.00	24.0	144.35	212.68	357.03	178.51	782.38
47.00	24.0	152.47	202.25	354.72	177.36	759.22
48.00	24.0	160.63	187.90	348.53	174.26	724.32
49.00	24.0	168.03	171.39	339.43	169.71	682.21
50.00	24.0	173.81	157.26	331.07	165.54	645.59
51.00	24.0	178.19	145.86	324.05	162.02	615.76
52.00	24.0	182.71	135.28	317.99	158.99	588.55
53.00	24.0	187.65	124.97	312.62	156.31	562.55
54.00	24.0	192.07	116.32	308.39	154.20	541.03
55.00	24.0	195.00	111.67	306.67	153.34	530.01
56.00	24.0	196.59	111.16	307.76	153.88	530.09
57.00	24.0	197.94	114.73	312.67	156.33	542.12
58.00	24.0	199.23	123.56	322.78	161.39	569.90
59.00	24.0	200.72	136.58	337.30	168.65	610.46
60.00	24.0	202.70	149.46	352.16	176.08	651.07
61.00	24.0	205.21	161.51	366.72	183.36	689.75
62.00	24.0	208.48	172.43	380.91	190.46	725.78
63.00	24.0	212.56	182.17	394.72	197.36	759.05
64.00	24.0	217.30	189.80	407.10	203.55	786.70
65.00	24.0	222.56	195.44	418.00	209.00	808.88
66.00	24.0	285.32	307.03	592.35	296.18	1206.42
67.00	24.0	291.27	303.11	594.38	297.19	1200.59
68.00	24.0	297.22	296.89	594.11	297.06	1187.90
69.00	24.0	303.17	290.35	593.52	296.76	1174.22
70.00	24.0	309.13	283.81	592.93	296.47	1160.55
71.00	24.0	315.08	277.26	592.34	296.17	1146.87
72.00	24.0	321.03	270.72	591.75	295.88	1133.19
73.00	24.0	326.98	264.18	591.16	295.58	1119.52
74.00	24.0	333.57	258.94	592.51	296.26	1110.40
75.00	24.0	341.42	256.33	597.75	298.87	1110.40
76.00	24.0	350.38	256.00	606.38	303.19	1118.38
77.00	24.0	359.50	256.00	615.50	307.75	1127.50
78.00	24.0	368.62	256.00	624.62	312.31	1136.62
79.00	24.0	377.74	256.00	633.74	316.87	1145.74
80.00	24.0	386.86	256.00	642.86	321.43	1154.86
81.00	24.0	395.98	256.00	651.98	325.99	1163.98
82.00	24.0	405.10	255.06	660.17	330.08	1170.29
83.00	24.0	414.22	252.26	666.48	333.24	1170.99
84.00	24.0	423.34	247.51	670.85	335.42	1165.86
85.00	24.0	432.46	240.41	672.87	336.43	1153.68
86.00	24.0	441.58	230.89	672.47	336.24	1134.25
87.00	24.0	450.70	219.56	670.26	335.13	1109.37
88.00	24.0	459.82	207.01	666.84	333.42	1080.86
89.00	24.0	468.48	194.43	662.91	331.45	1051.77
90.00	24.0	476.19	186.70	662.90	331.45	1036.30
91.00	24.0	482.95	184.74	667.69	333.84	1037.17
92.00	24.0	488.53	186.44	674.97	337.48	1047.85
93.00	24.0	492.90	189.38	682.28	341.14	1061.04
94.00	24.0	Soil Elevations Must Extend At or Below Contribution Zone				

NOTES
----

1. MOBILIZED END BEARING IS 1/3 OF THE ORIGINAL RB-121 VALUES.

2. DAVISSON PILE CAPACITY IS AN ESTIMATE BASED ON FAILURE CRITERIA, AND EQUALS ULTIMATE SIDE FRICTION PLUS MOBILIZED END BEARING.

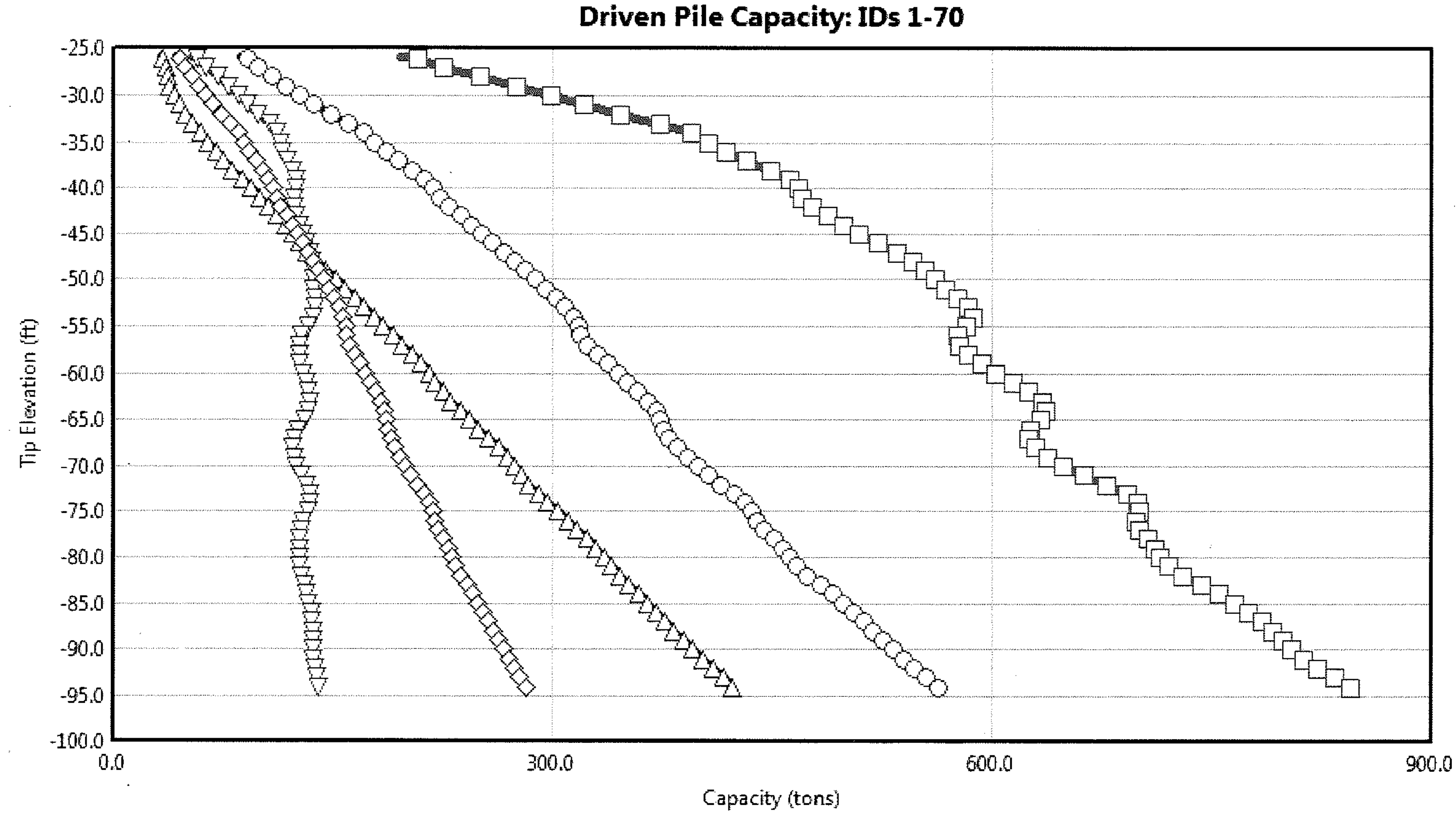
3. ALLOWABLE PILE CAPACITY IS 1/2 THE DAVISSON PILE CAPACITY.

4. ULTIMATE PILE CAPACITY IS ULTIMATE SIDE FRICTION PLUS 3 x THE MOBILIZED END BEARING.
   EXCEPTION: FOR H-PILES TIPPED IN SAND OR LIMESTONE, THE ULTIMATE PILE CAPACITY IS ULTIMATE SIDE FRICTION PLUS 2 x THE MOBILIZED END BEARING.

Plot Window

Job Name: SW 10th Street, from Powerline Rd. to Military Trail

State Job (Project) #: 2000-01-17003



Curves

- ☑ Ultimate Side Friction
- ☑ Mobilized End Bearing
- ☑ Ultimate Pile Capacity
- ☑ Estimated Davisson Capacity
- ☑ Allowable Pile Capacity

*The 'Save to File' button saves the currently selected Curves to a text file.

Driven Pile Data

Boring Number:	B-101	
Ground Surface Elevation	0.00	(ft)
Section:	Square	
Width	18.00	(in)

Project Data

File:	B-101_Void-10ft
Date:	Feb 16, 2018
Engineer:	JB Henry

Analysis Data

Analysis Type:	SPT

Plot Options

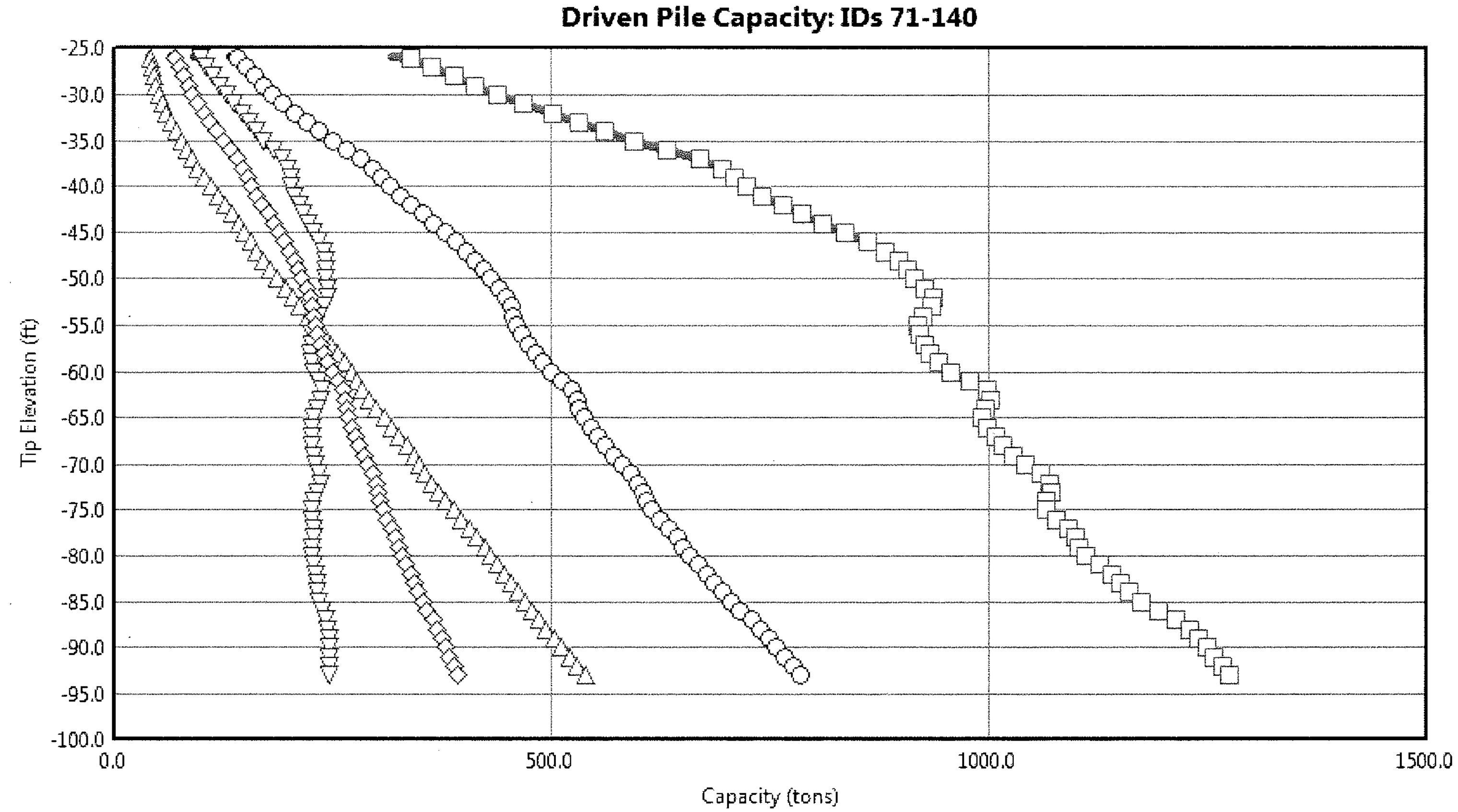
Customize | Update Plot | Print Plot | Print Window | Save To File

Close

Plot Window

Job Name: SW 10th Street, from Powerline Rd. to Military Trail

State Job (Project) #: 2000-01-17003



Curves

- [x] Ultimate Side Friction
- [x] Mobilized End Bearing
- [x] Ultimate Pile Capacity
- [x] Estimated Davisson Capacity
- [x] Allowable Pile Capacity

*The 'Save to File' button saves the currently selected Curves to a text file.

Driven Pile Data

Boring Number:	B-101	
Ground Surface Elevation	0.00	(ft)
Section:	Square	
Width	24.00	(in)

Project Data

File:	B-101_Void-10ft
Date:	Feb 16, 2018
Engineer:	JB Henry

Analysis Data

Analysis Type:	SPT

Plot Options

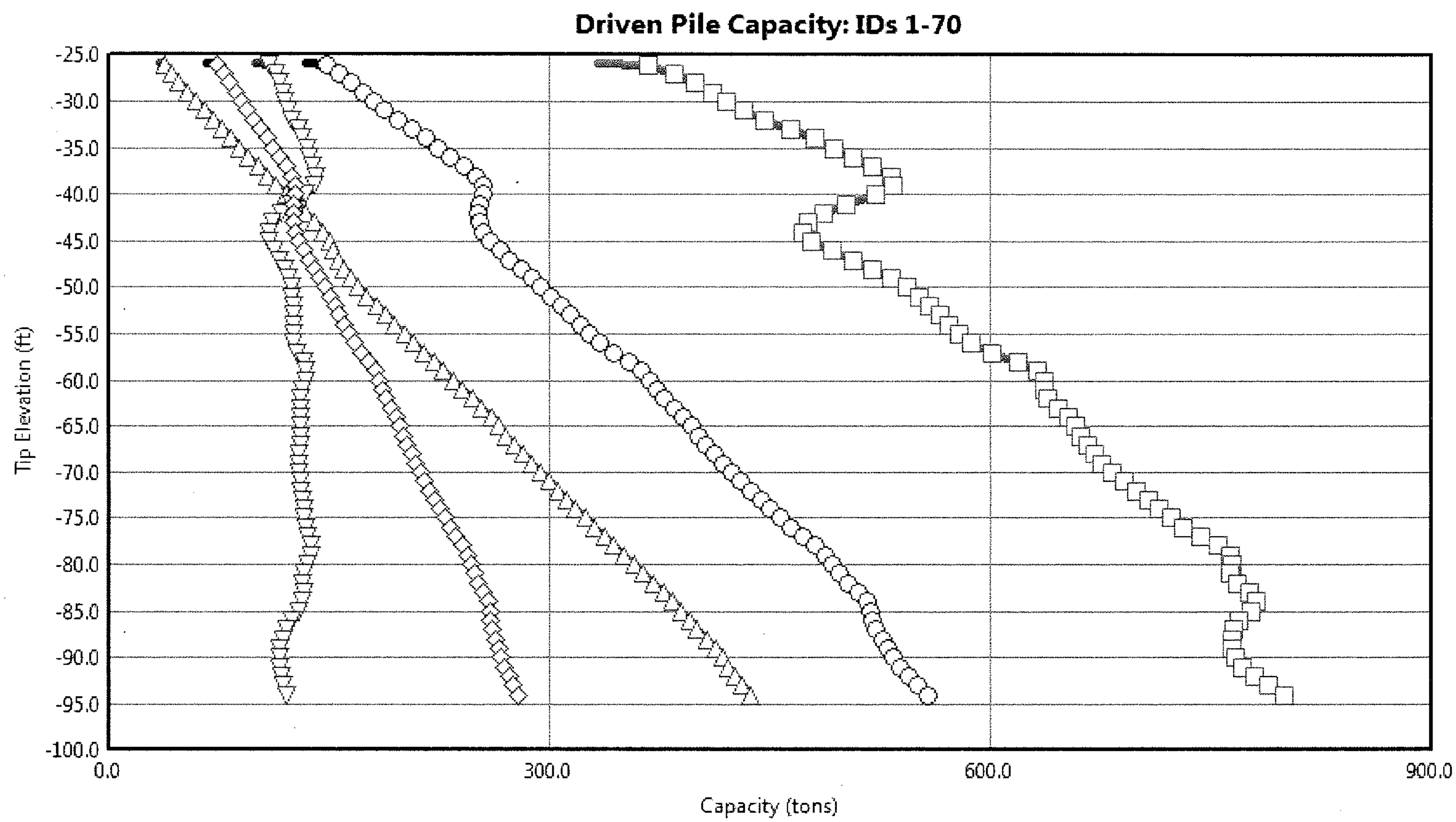
Customize | Update Plot | Print Plot | Print Window | Save To File

Close

Plot Window

Job Name: SW 10th Street, from Powerline Rd. to Military Trail

State Job (Project) #: 2000-01-17003



Curves

- ☑ Ultimate Side Friction
- ☑ Mobilized End Bearing
- ☑ Ultimate Pile Capacity
- ☑ Estimated Davisson Capacity
- ☑ Allowable Pile Capacity

*The 'Save to File' button saves the currently selected Curves to a text file.

Driven Pile Data

Boring Number:	B-201	
Ground Surface Elevation	0.00	(ft)
Section:	Square	
Width	18.00	(in)

Project Data

File:	B-201_Void-10ft
Date:	Feb 16, 2018
Engineer:	JB Henry

Analysis Data

Analysis Type:	SPT

Plot Options

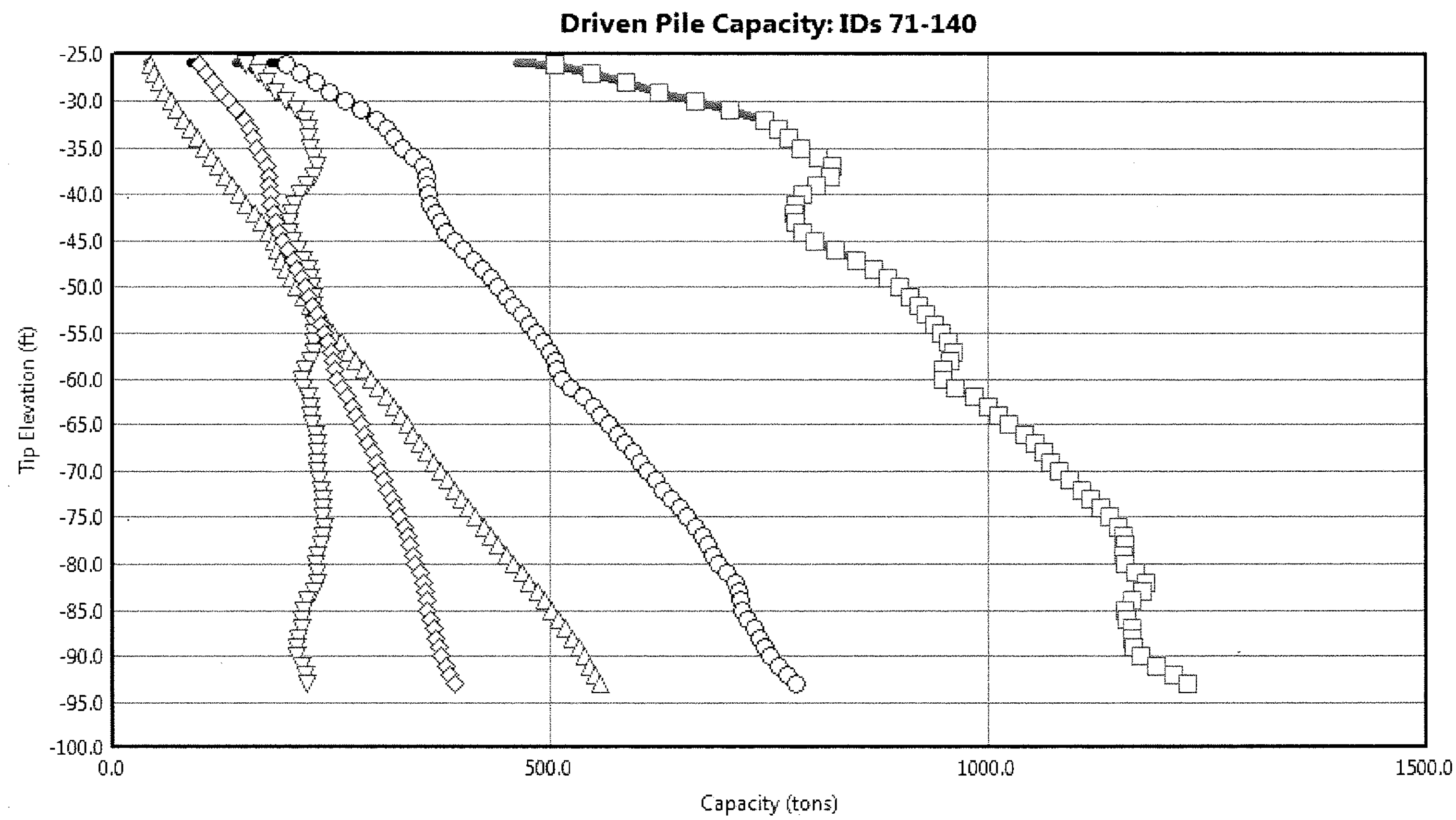
Customize | Update Plot | Print Plot | Print Window | Save To File

Close

Plot Window

Job Name: SW 10th Street, from Powerline Rd. to Military Trail

State Job (Project) #: 2000-01-17003



Curves

- ☑ Ultimate Side Friction
- ☑ Mobilized End Bearing
- ☑ Ultimate Pile Capacity
- ☑ Estimated Davisson Capacity
- ☑ Allowable Pile Capacity

*The 'Save to File' button saves the currently selected Curves to a text file.

Driven Pile Data

Boring Number:	B-201	
Ground Surface Elevation	0.00	(ft)
Section:	Square	
Width	24.00	(in)

Project Data

File:	B-201_Void-10ft
Date:	Feb 16, 2018
Engineer:	JB Henry

Analysis Data

Analysis Type:	SPT

Plot Options

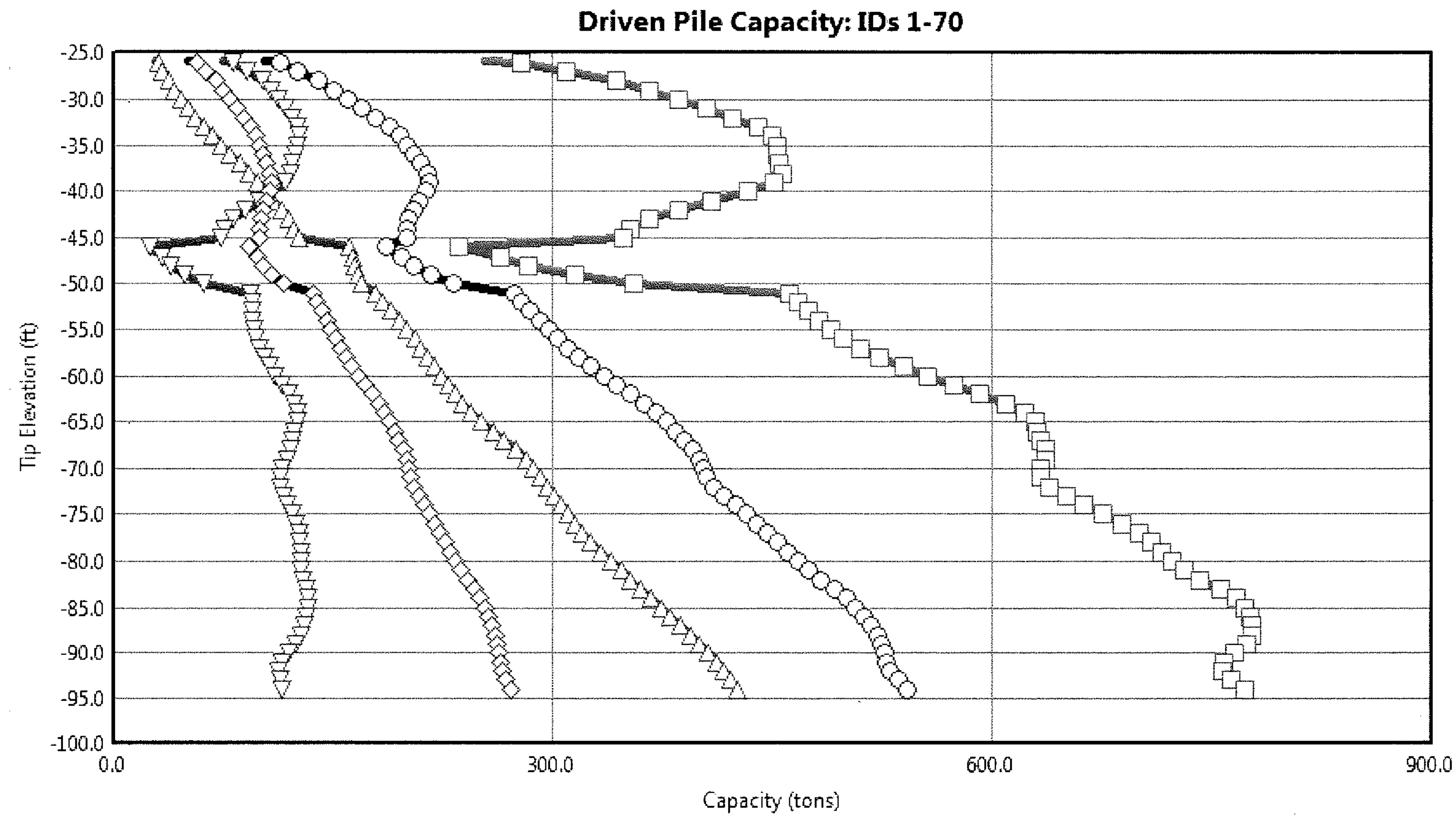
Customize | Update Plot | Print Plot | Print Window | Save To File

Close

Plot Window

Job Name: SW 10th Street, from Powerline Rd. to Military Trail

State Job (Project) #: 2000-01-17003



Curves

- [x] Ultimate Side Friction
- [x] Mobilized End Bearing
- [x] Ultimate Pile Capacity
- [x] Estimated Davisson Capacity
- [x] Allowable Pile Capacity

*The 'Save to File' button saves the currently selected Curves to a text file.

Driven Pile Data

Boring Number:	B-301	
Ground Surface Elevation	0.00	(ft)
Section:	Square	
Width	18.00	(in)

Project Data

File:	B-301_Void-10ft
Date:	Feb 16, 2018
Engineer:	JB Henry

Analysis Data

Analysis Type:	SPT

Plot Options

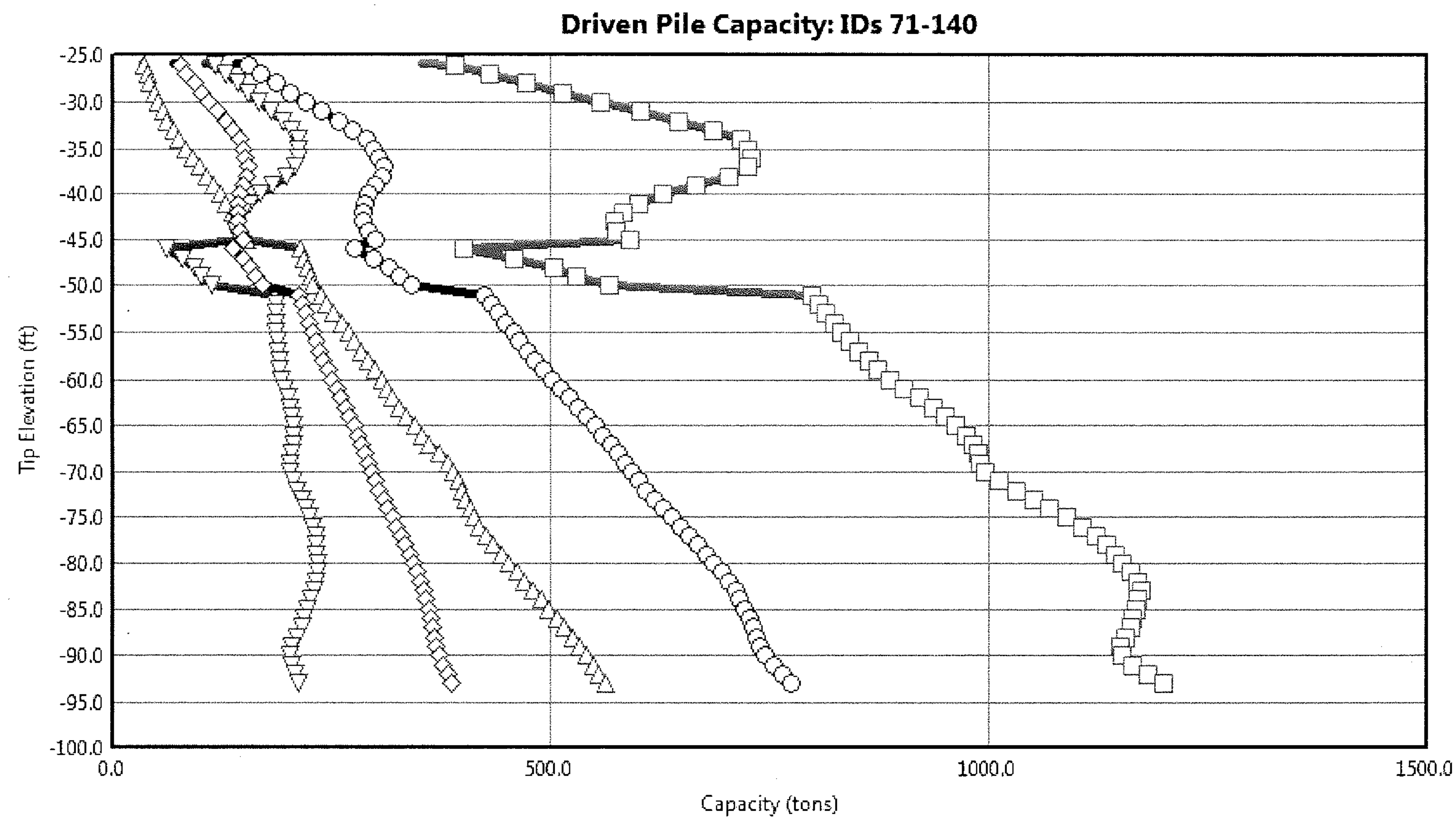
Customize | Update Plot | Print Plot | Print Window | Save To File

Close

Plot Window

Job Name: SW 10th Street, from Powerline Rd. to Military Trail

State Job (Project) #: 2000-01-17003



Curves

- ☑ Ultimate Side Friction
- ☑ Mobilized End Bearing
- ☑ Ultimate Pile Capacity
- ☑ Estimated Davisson Capacity
- ☑ Allowable Pile Capacity

*The 'Save to File' button saves the currently selected Curves to a text file.

Driven Pile Data

Boring Number:	B-301	
Ground Surface Elevation	0.00	(ft)
Section:	Square	
Width	24.00	(in)

Project Data

File:	B-301_Void-10ft
Date:	Feb 16, 2018
Engineer:	JB Henry

Analysis Data

Analysis Type:	SPT

Plot Options

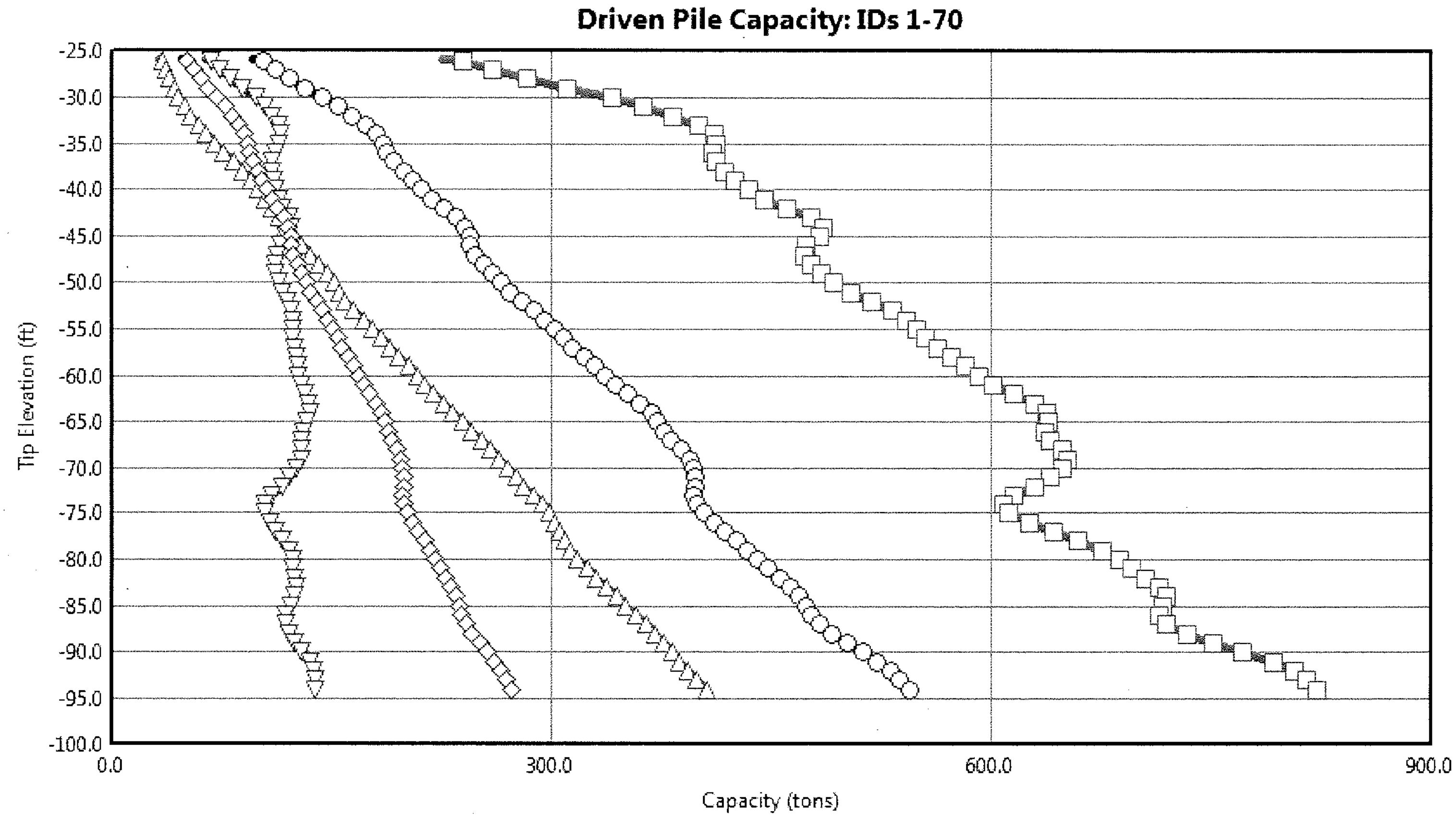
Customize | Update Plot | Print Plot | Print Window | Save To File

Close

Plot Window

Job Name: SW 10th Street, from Powerline Rd. to Military Trail

State Job (Project) #: 2000-01-17003



Curves

- ☑ Ultimate Side Friction
- ☑ Mobilized End Bearing
- ☑ Ultimate Pile Capacity
- ☑ Estimated Davisson Capacity
- ☑ Allowable Pile Capacity

*The 'Save to File' button saves the currently selected Curves to a text file.

Driven Pile Data

Boring Number:	B-401	
Ground Surface Elevation	0.00	(ft)
Section:	Square	
Width	18.00	(in)

Project Data

File:	B-401_Void-10ft
Date:	Feb 16, 2018
Engineer:	JB Henry

Analysis Data

Analysis Type:	SPT

Plot Options

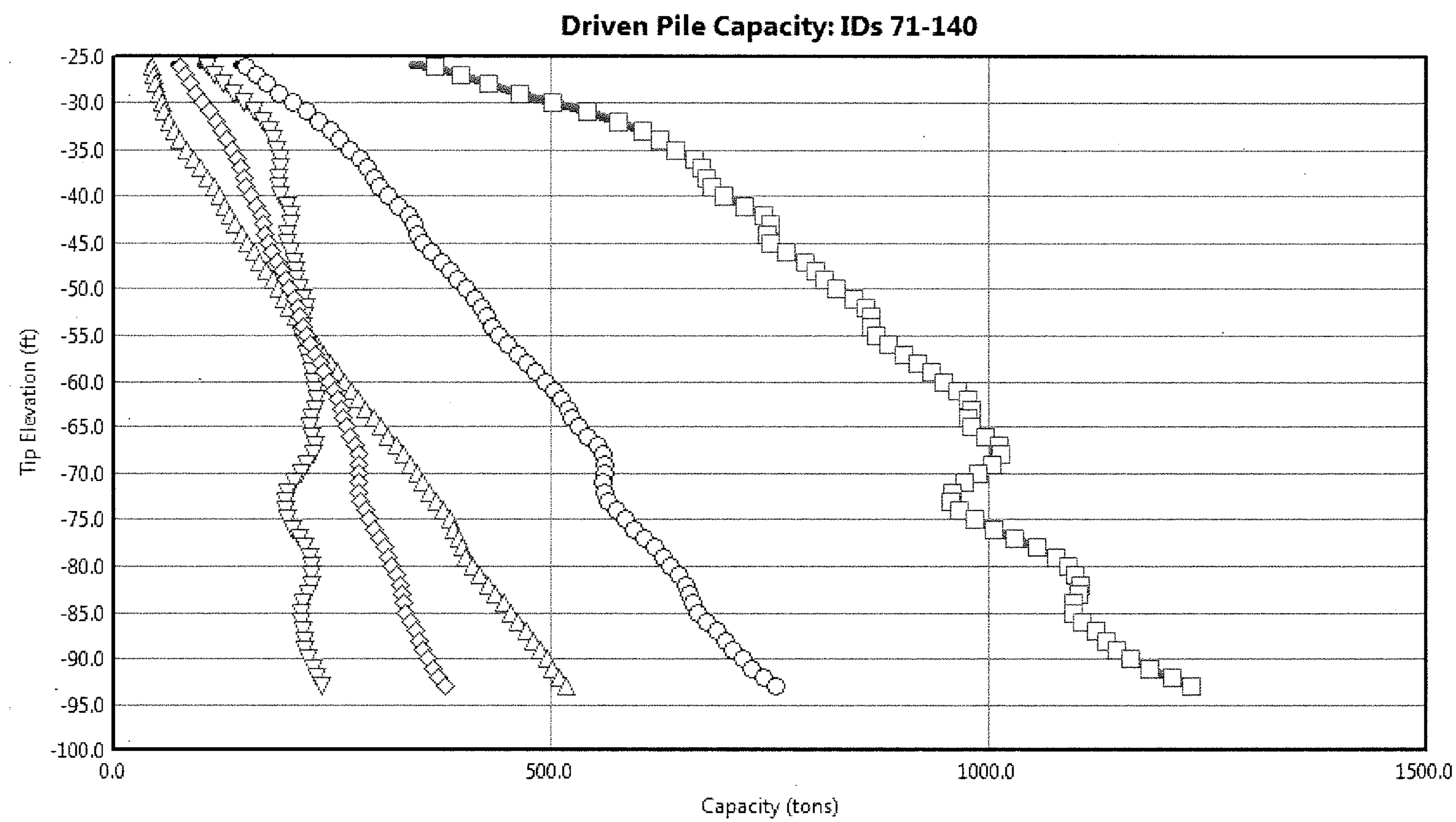
Customize | Update Plot | Print Plot | Print Window | Save To File

Close

Plot Window

Job Name: SW 10th Street, from Powerline Rd. to Military Trail

State Job (Project) #: 2000-01-17003



Curves

- [x] Ultimate Side Friction
- [x] Mobilized End Bearing
- [x] Ultimate Pile Capacity
- [x] Estimated Davisson Capacity
- [x] Allowable Pile Capacity

*The 'Save to File' button saves the currently selected Curves to a text file.

Driven Pile Data

Boring Number:	B-401	
Ground Surface Elevation	0.00	(ft)
Section:	Square	
Width	24.00	(in)

Project Data

File:	B-401_Void-10ft
Date:	Feb 16, 2018
Engineer:	JB Henry

Analysis Data

Analysis Type:	SPT

Plot Options

Customize | Update Plot | Print Plot | Print Window | Save To File

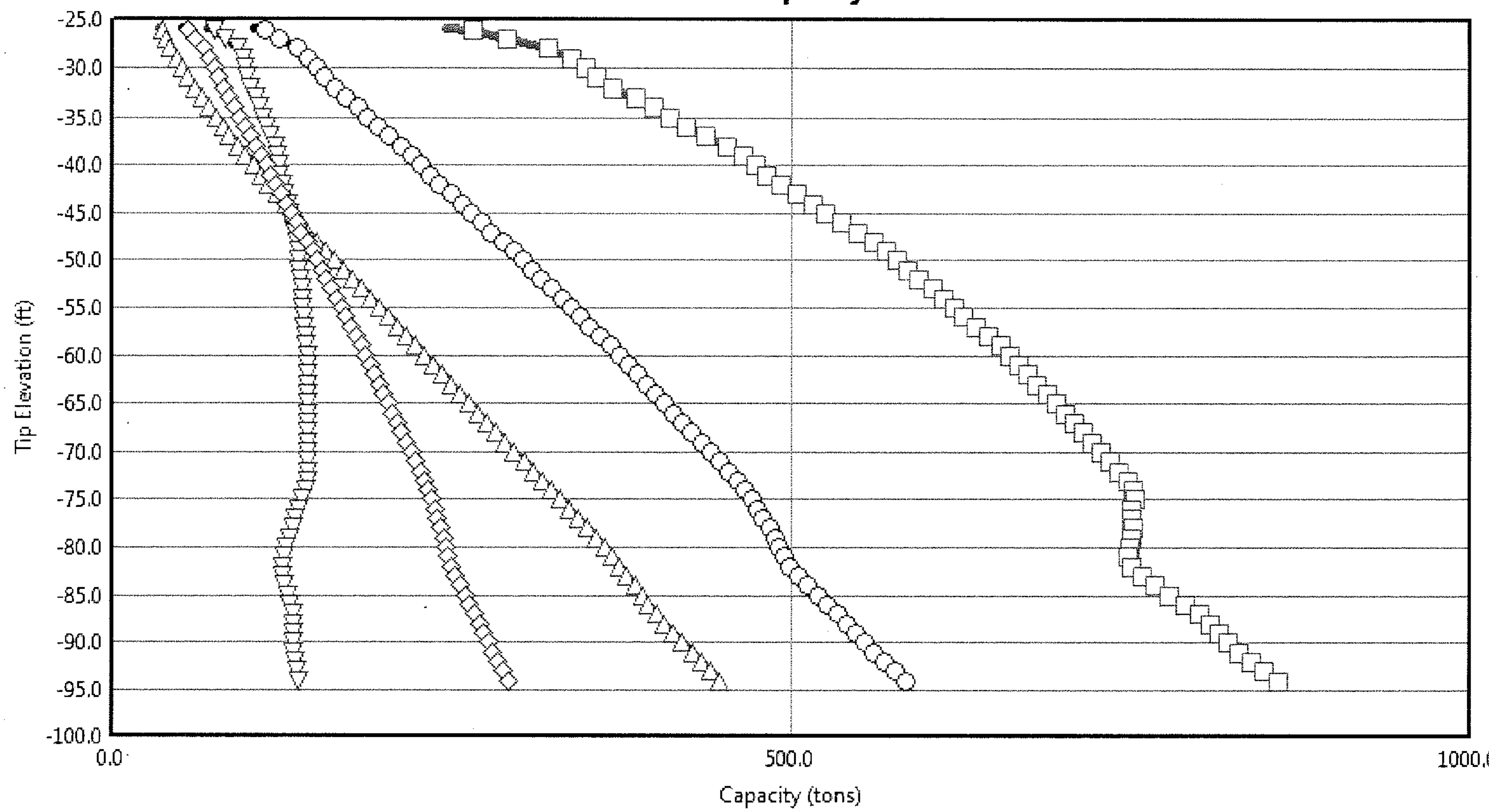
Close

Plot Window

Job Name: SW 10th Street, from Powerline Rd. to Military Trail

State Job (Project) #: 2000-01-17003

Driven Pile Capacity: IDs 1-70



Curves

- ☑ Ultimate Side Friction
- ☑ Mobilized End Bearing
- ☑ Ultimate Pile Capacity
- ☑ Estimated Davisson Capacity
- ☑ Allowable Pile Capacity

*The 'Save to File' button saves the currently selected Curves to a text file.

Driven Pile Data

Boring Number:	B-501	
Ground Surface Elevation	0.00	(ft)
Section:	Square	
Width	18.00	(in)

Project Data

File:	B-501_Void-10ft
Date:	Feb 16, 2018
Engineer:	JB Henry

Analysis Data

Analysis Type:	SPT

Plot Options

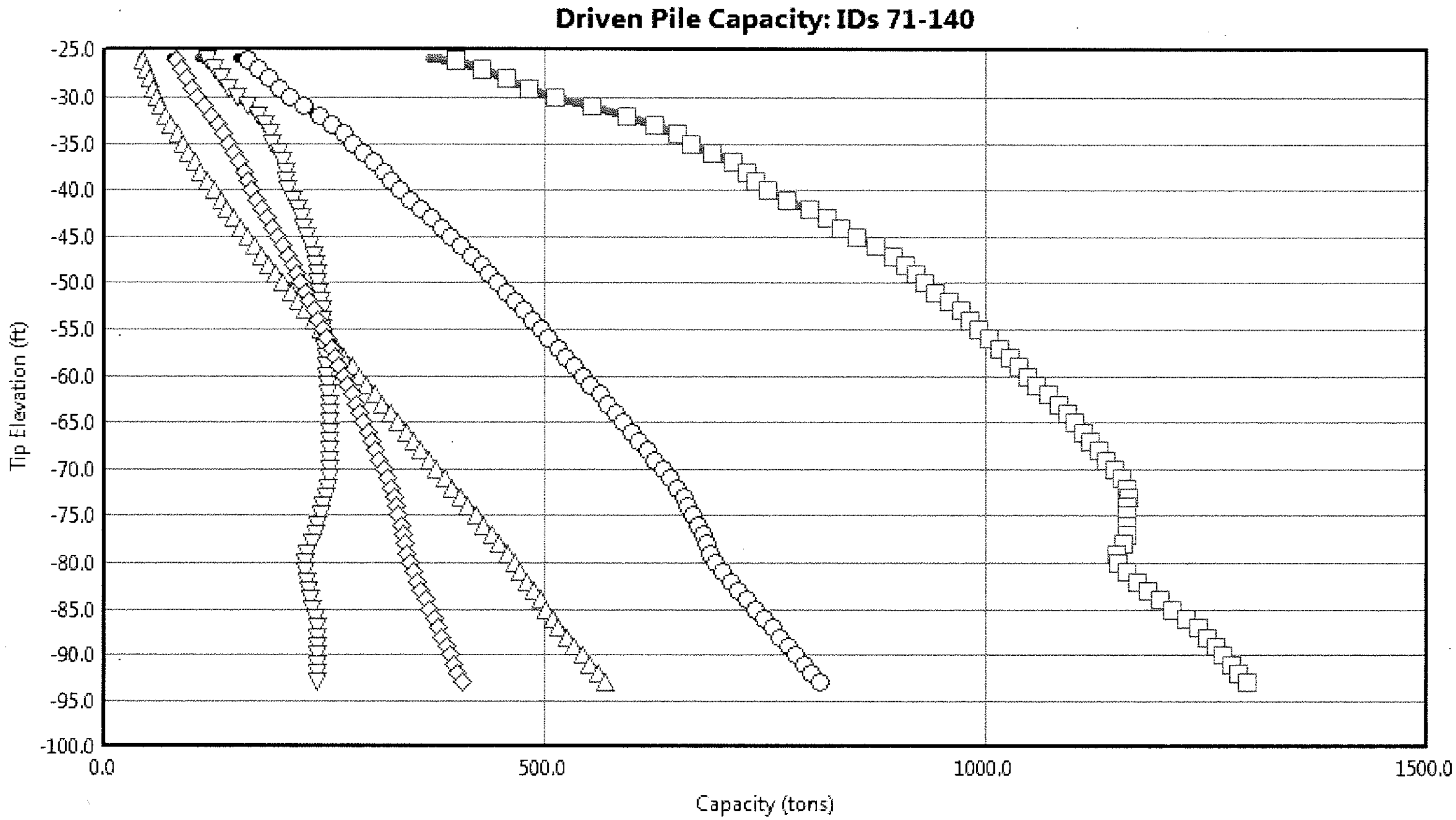
Customize | Update Plot | Print Plot | Print Window | Save To File

Close

Plot Window

Job Name: SW 10th Street, from Powerline Rd. to Military Trail

State Job (Project) #: 2000-01-17003



Curves

- ☑ Ultimate Side Friction
- ☑ Mobilized End Bearing
- ☑ Ultimate Pile Capacity
- ☑ Estimated Davisson Capacity
- ☑ Allowable Pile Capacity

*The 'Save to File' button saves the currently selected Curves to a text file.

Driven Pile Data

Boring Number:	B-501	
Ground Surface Elevation	0.00	(ft)
Section:	Square	
Width	24.00	(in)

Project Data

File:	B-501_Void-10ft
Date:	Feb 16, 2018
Engineer:	JB Henry

Analysis Data

Analysis Type:	SPT

Plot Options

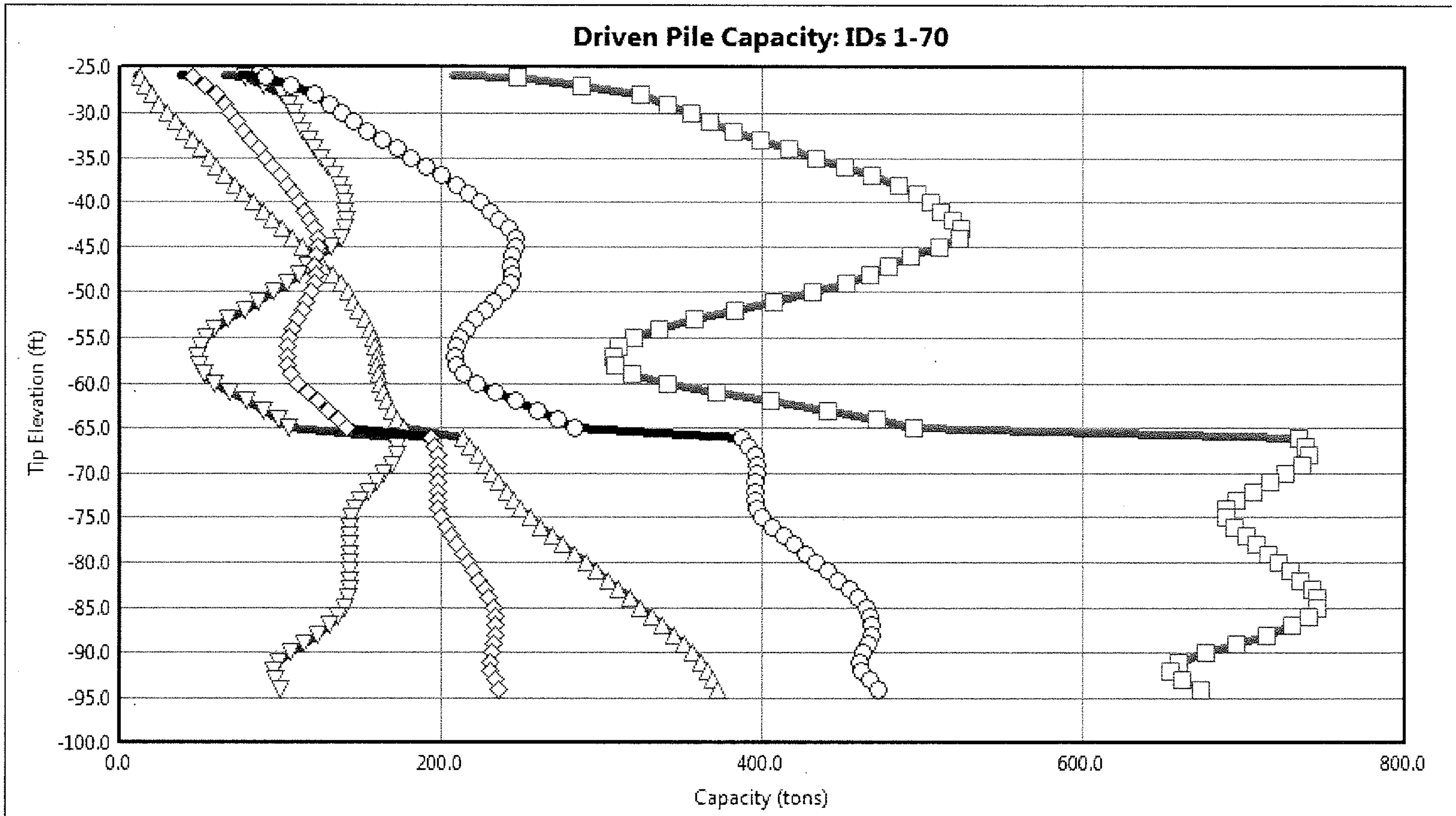
Customize | Update Plot | Print Plot | Print Window | Save To File

Close

Plot Window

Job Name: SW 10th Street, from Powerline Rd. to Military Trail

State Job (Project) #: 2000-01-17003



Curves

- ☑ Ultimate Side Friction
- ☑ Mobilized End Bearing
- ☑ Ultimate Pile Capacity
- ☑ Estimated Davisson Capacity
- ☑ Allowable Pile Capacity

*The 'Save to File' button saves the currently selected Curves to a text file.

Driven Pile Data

Boring Number:	B-601	
Ground Surface Elevation	0.00	(ft)
Section:	Square	
Width	18.00	(in)

Project Data

File:	B-601_Void-10ft
Date:	Feb 16, 2018
Engineer:	JB Henry

Analysis Data

Analysis Type:	SPT

Plot Options

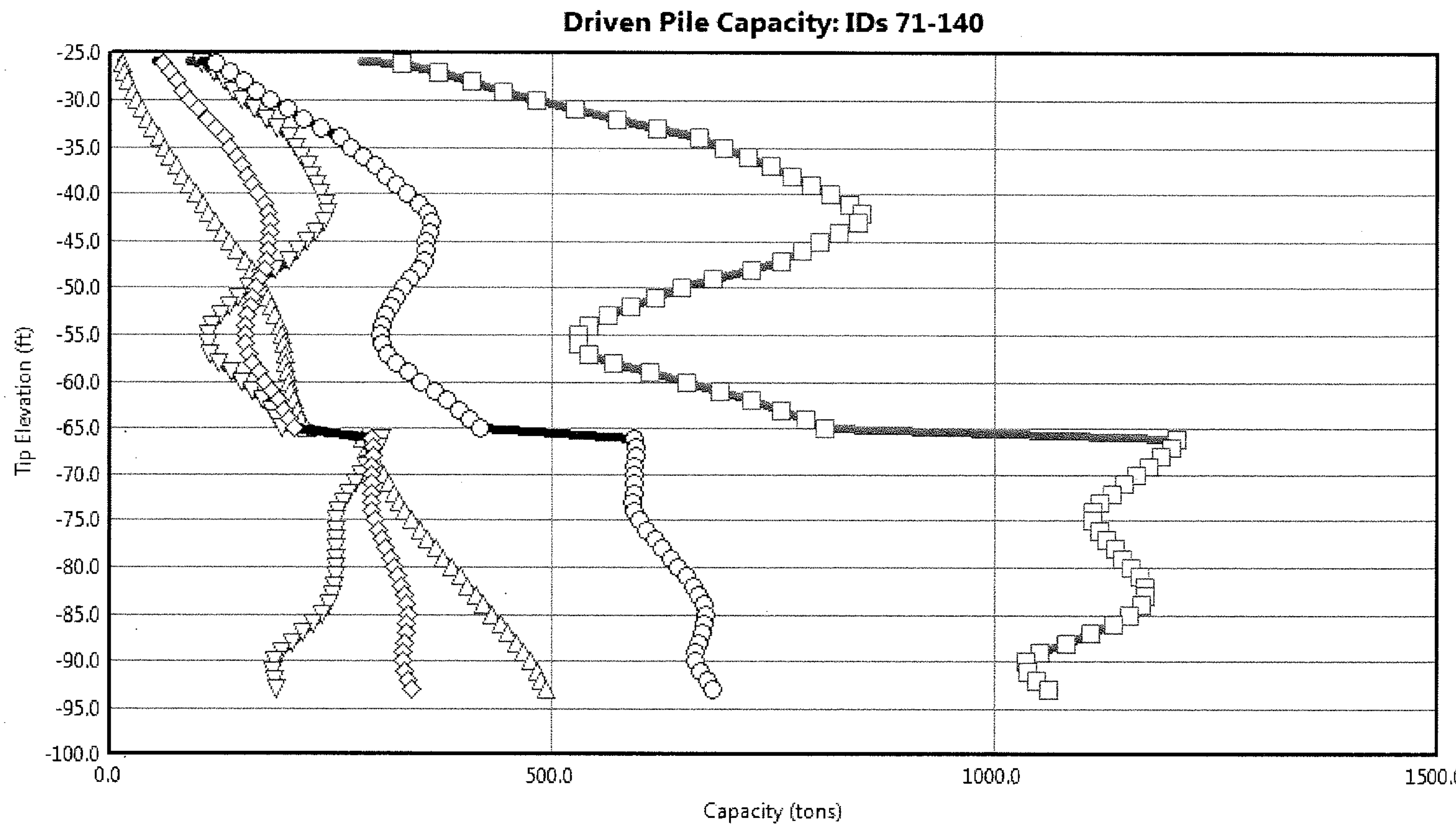
Customize | Update Plot | Print Plot | Print Window | Save To File

Close

Plot Window

Job Name: SW 10th Street, from Powerline Rd. to Military Trail

State Job (Project) #: 2000-01-17003



Curves

- ☑ Ultimate Side Friction
- ☑ Mobilized End Bearing
- ☑ Ultimate Pile Capacity
- ☑ Estimated Davisson Capacity
- ☑ Allowable Pile Capacity

*The 'Save to File' button saves the currently selected Curves to a text file.

Driven Pile Data

Boring Number:	B-601	
Ground Surface Elevation	0.00	(ft)
Section:	Square	
Width	24.00	(in)

Project Data

File:	B-601_Void-10ft
Date:	Feb 16, 2018
Engineer:	JB Henry

Analysis Data

Analysis Type:	SPT

Plot Options

Customize | Update Plot | Print Plot | Print Window | Save To File

Close

General Information:
====================
Input file: .....H)\Analysis_Structure\FB-Deep\Drilled Shaft\B-101Shaft48in.spc
Project number: 2000-01-17003
Job name: SW 10th Street, from Powerline Rd. to Military Trail
Engineer: JB Henry
Units: English

Analysis Information:
=====================
Analysis Type: Drilled Shaft Analysis

Soil Information:
=================
Boring date: 2/2/2018
Boring number: B-101
Station number: Offset:

Ground Elevation: 0.00(ft)
Water table Elevation = 0.00(ft)

Hammer type: Automatic Hammer, Correction factor = 1.24

ID	Depth (ft)	Elevation (ft)	SPT Blows (Blows/ft)	Unit Weight (pcf)	Soil Type
1	0.00	-0.00	N/A	0.00	5- Cavity layer
2	2.00	-2.00	N/A	0.00	5- Cavity layer
3	4.00	-4.00	N/A	0.00	5- Cavity layer
4	6.00	-6.00	N/A	0.00	5- Cavity layer
5	8.00	-8.00	N/A	0.00	5- Cavity layer
6	10.00	-10.00	24.00	115.00	3- Clean sand
7	12.00	-12.00	21.00	115.00	3- Clean sand
8	13.50	-13.50	32.00	120.00	3- Clean sand
9	15.50	-15.50	12.00	110.00	3- Clean sand
10	18.00	-18.00	20.00	115.00	3- Clean sand
11	20.50	-20.50	14.00	110.00	3- Clean sand
12	23.00	-23.00	36.00	125.00	3- Clean sand
13	25.50	-25.50	19.00	115.00	3- Clean sand
14	28.00	-28.00	22.00	115.00	3- Clean sand
15	30.50	-30.50	34.00	125.00	3- Clean sand
16	33.00	-33.00	62.00	130.00	3- Clean sand
17	35.50	-35.50	39.00	125.00	3- Clean sand
18	38.00	-38.00	70.00	130.00	3- Clean sand
19	40.50	-40.50	44.00	125.00	3- Clean sand
20	43.00	-43.00	70.00	130.00	3- Clean sand
21	45.50	-45.50	30.00	120.00	3- Clean sand
22	48.00	-48.00	51.00	130.00	3- Clean sand
23	50.50	-50.50	48.00	125.00	3- Clean sand
24	53.00	-53.00	73.00	130.00	3- Clean sand
25	55.50	-55.50	66.00	130.00	3- Clean sand
26	58.00	-58.00	51.00	130.00	3- Clean sand
27	60.50	-60.50	30.00	120.00	3- Clean sand
28	63.00	-63.00	43.00	125.00	3- Clean sand
29	65.50	-65.50	47.00	125.00	3- Clean sand
30	68.00	-68.00	62.00	130.00	3- Clean sand
31	70.50	-70.50	29.00	120.00	3- Clean sand
32	73.00	-73.00	85.00	130.00	3- Clean sand
33	75.50	-75.50	51.00	130.00	3- Clean sand
34	78.00	-78.00	49.00	130.00	3- Clean sand
35	80.50	-80.50	34.00	125.00	3- Clean sand
36	83.00	-83.00	65.00	130.00	3- Clean sand
37	85.50	-85.50	38.00	125.00	3- Clean sand
38	88.00	-88.00	78.00	130.00	3- Clean sand
39	90.50	-90.50	49.00	130.00	3- Clean sand
40	93.00	-93.00	71.00	130.00	3- Clean sand
41	95.50	-95.50	60.00	130.00	3- Clean sand
42	98.00	-98.00	65.00	130.00	3- Clean sand
43	100.00	-100.00	65.00	130.00	3- Clean sand

ID	Cu-DIR (tsf)	qu (tsf)	qt (tsf)	Em (ksi)	qb (tsf)
1	N/A	N/A	N/A	N/A	N/A
2	N/A	N/A	N/A	N/A	N/A
3	N/A	N/A	N/A	N/A	N/A
4	N/A	N/A	N/A	N/A	N/A
5	N/A	N/A	N/A	N/A	N/A
6	N/A	N/A	N/A	N/A	N/A
7	N/A	N/A	N/A	N/A	N/A
8	N/A	N/A	N/A	N/A	N/A

9	N/A	N/A	N/A	N/A	N/A
10	N/A	N/A	N/A	N/A	N/A
11	N/A	N/A	N/A	N/A	N/A
12	N/A	N/A	N/A	N/A	N/A
13	N/A	N/A	N/A	N/A	N/A
14	N/A	N/A	N/A	N/A	N/A
15	N/A	N/A	N/A	N/A	N/A
16	N/A	N/A	N/A	N/A	N/A
17	N/A	N/A	N/A	N/A	N/A
18	N/A	N/A	N/A	N/A	N/A
19	N/A	N/A	N/A	N/A	N/A
20	N/A	N/A	N/A	N/A	N/A
21	N/A	N/A	N/A	N/A	N/A
22	N/A	N/A	N/A	N/A	N/A
23	N/A	N/A	N/A	N/A	N/A
24	N/A	N/A	N/A	N/A	N/A
25	N/A	N/A	N/A	N/A	N/A
26	N/A	N/A	N/A	N/A	N/A
27	N/A	N/A	N/A	N/A	N/A
28	N/A	N/A	N/A	N/A	N/A
29	N/A	N/A	N/A	N/A	N/A
30	N/A	N/A	N/A	N/A	N/A
31	N/A	N/A	N/A	N/A	N/A
32	N/A	N/A	N/A	N/A	N/A
33	N/A	N/A	N/A	N/A	N/A
34	N/A	N/A	N/A	N/A	N/A
35	N/A	N/A	N/A	N/A	N/A
36	N/A	N/A	N/A	N/A	N/A
37	N/A	N/A	N/A	N/A	N/A
38	N/A	N/A	N/A	N/A	N/A
39	N/A	N/A	N/A	N/A	N/A
40	N/A	N/A	N/A	N/A	N/A
41	N/A	N/A	N/A	N/A	N/A
42	N/A	N/A	N/A	N/A	N/A
43	N/A	N/A	N/A	N/A	N/A

ID	RQD F.M.	S.R.I.	Rock Recovery
1	N/A	N/A	N/A
2	N/A	N/A	N/A
3	N/A	N/A	N/A
4	N/A	N/A	N/A
5	N/A	N/A	N/A
6	N/A	N/A	N/A
7	N/A	N/A	N/A
8	N/A	N/A	N/A
9	N/A	N/A	N/A
10	N/A	N/A	N/A
11	N/A	N/A	N/A
12	N/A	N/A	N/A
13	N/A	N/A	N/A
14	N/A	N/A	N/A
15	N/A	N/A	N/A
16	N/A	N/A	N/A
17	N/A	N/A	N/A
18	N/A	N/A	N/A
19	N/A	N/A	N/A
20	N/A	N/A	N/A
21	N/A	N/A	N/A
22	N/A	N/A	N/A
23	N/A	N/A	N/A
24	N/A	N/A	N/A
25	N/A	N/A	N/A
26	N/A	N/A	N/A
27	N/A	N/A	N/A
28	N/A	N/A	N/A
29	N/A	N/A	N/A
30	N/A	N/A	N/A
31	N/A	N/A	N/A
32	N/A	N/A	N/A
33	N/A	N/A	N/A
34	N/A	N/A	N/A
35	N/A	N/A	N/A
36	N/A	N/A	N/A
37	N/A	N/A	N/A
38	N/A	N/A	N/A
39	N/A	N/A	N/A
40	N/A	N/A	N/A
41	N/A	N/A	N/A
42	N/A	N/A	N/A
43	N/A	N/A	N/A

Drilled Shaft Data:
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Shaft Geometry:

ID	Length (ft)	Tip Elev. (ft)	Case Len. (ft)	Diameter (in)	Base Diam. (in)	Bell Len. (ft)
1	15.00	-15.00	6.00	48.00	48.00	0.00
2	16.00	-16.00	6.00	48.00	48.00	0.00
3	17.00	-17.00	6.00	48.00	48.00	0.00
4	18.00	-18.00	6.00	48.00	48.00	0.00
5	19.00	-19.00	6.00	48.00	48.00	0.00
6	20.00	-20.00	6.00	48.00	48.00	0.00
7	21.00	-21.00	6.00	48.00	48.00	0.00
8	22.00	-22.00	6.00	48.00	48.00	0.00
9	23.00	-23.00	6.00	48.00	48.00	0.00
10	24.00	-24.00	6.00	48.00	48.00	0.00
11	25.00	-25.00	6.00	48.00	48.00	0.00
12	26.00	-26.00	6.00	48.00	48.00	0.00
13	27.00	-27.00	6.00	48.00	48.00	0.00
14	28.00	-28.00	6.00	48.00	48.00	0.00
15	29.00	-29.00	6.00	48.00	48.00	0.00
16	30.00	-30.00	6.00	48.00	48.00	0.00
17	31.00	-31.00	6.00	48.00	48.00	0.00
18	32.00	-32.00	6.00	48.00	48.00	0.00
19	33.00	-33.00	6.00	48.00	48.00	0.00
20	34.00	-34.00	6.00	48.00	48.00	0.00
21	35.00	-35.00	6.00	48.00	48.00	0.00
22	36.00	-36.00	6.00	48.00	48.00	0.00
23	37.00	-37.00	6.00	48.00	48.00	0.00
24	38.00	-38.00	6.00	48.00	48.00	0.00
25	39.00	-39.00	6.00	48.00	48.00	0.00
26	40.00	-40.00	6.00	48.00	48.00	0.00
27	41.00	-41.00	6.00	48.00	48.00	0.00
28	42.00	-42.00	6.00	48.00	48.00	0.00
29	43.00	-43.00	6.00	48.00	48.00	0.00
30	44.00	-44.00	6.00	48.00	48.00	0.00
31	45.00	-45.00	6.00	48.00	48.00	0.00
32	46.00	-46.00	6.00	48.00	48.00	0.00
33	47.00	-47.00	6.00	48.00	48.00	0.00
34	48.00	-48.00	6.00	48.00	48.00	0.00
35	49.00	-49.00	6.00	48.00	48.00	0.00
36	50.00	-50.00	6.00	48.00	48.00	0.00
37	51.00	-51.00	6.00	48.00	48.00	0.00
38	52.00	-52.00	6.00	48.00	48.00	0.00
39	53.00	-53.00	6.00	48.00	48.00	0.00
40	54.00	-54.00	6.00	48.00	48.00	0.00
41	55.00	-55.00	6.00	48.00	48.00	0.00
42	56.00	-56.00	6.00	48.00	48.00	0.00
43	57.00	-57.00	6.00	48.00	48.00	0.00
44	58.00	-58.00	6.00	48.00	48.00	0.00
45	59.00	-59.00	6.00	48.00	48.00	0.00
46	60.00	-60.00	6.00	48.00	48.00	0.00
47	61.00	-61.00	6.00	48.00	48.00	0.00
48	62.00	-62.00	6.00	48.00	48.00	0.00
49	63.00	-63.00	6.00	48.00	48.00	0.00
50	64.00	-64.00	6.00	48.00	48.00	0.00
51	65.00	-65.00	6.00	48.00	48.00	0.00
52	66.00	-66.00	6.00	48.00	48.00	0.00
53	67.00	-67.00	6.00	48.00	48.00	0.00
54	68.00	-68.00	6.00	48.00	48.00	0.00
55	69.00	-69.00	6.00	48.00	48.00	0.00
56	70.00	-70.00	6.00	48.00	48.00	0.00
57	71.00	-71.00	6.00	48.00	48.00	0.00
58	72.00	-72.00	6.00	48.00	48.00	0.00
59	73.00	-73.00	6.00	48.00	48.00	0.00
60	74.00	-74.00	6.00	48.00	48.00	0.00
61	75.00	-75.00	6.00	48.00	48.00	0.00
62	76.00	-76.00	6.00	48.00	48.00	0.00
63	77.00	-77.00	6.00	48.00	48.00	0.00
64	78.00	-78.00	6.00	48.00	48.00	0.00
65	79.00	-79.00	6.00	48.00	48.00	0.00
66	80.00	-80.00	6.00	48.00	48.00	0.00
67	81.00	-81.00	6.00	48.00	48.00	0.00
68	82.00	-82.00	6.00	48.00	48.00	0.00
69	83.00	-83.00	6.00	48.00	48.00	0.00
70	84.00	-84.00	6.00	48.00	48.00	0.00
71	85.00	-85.00	6.00	48.00	48.00	0.00
72	86.00	-86.00	6.00	48.00	48.00	0.00
73	87.00	-87.00	6.00	48.00	48.00	0.00
74	88.00	-88.00	6.00	48.00	48.00	0.00
75	89.00	-89.00	6.00	48.00	48.00	0.00
76	90.00	-90.00	6.00	48.00	48.00	0.00
77	91.00	-91.00	6.00	48.00	48.00	0.00
78	92.00	-92.00	6.00	48.00	48.00	0.00
79	93.00	-93.00	6.00	48.00	48.00	0.00
80	94.00	-94.00	6.00	48.00	48.00	0.00
81	95.00	-95.00	6.00	48.00	48.00	0.00

Drilled Shaft Capacity (sorted by shaft diameter):

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Strength reduction factors: Skin-friction = 1.00, End-bearing = 1.00

ID	Diameter (in)	Length (ft)	Skin Fric. (tons)	End Bearing (tons)	Capacity (tons)
1	48.00	15.00	4.205	88.965	93.170
2	48.00	16.00	6.013	205.336	211.349
3	48.00	17.00	8.071	205.258	213.329
4	48.00	18.00	10.375	203.583	213.958
5	48.00	19.00	12.943	199.830	212.773
6	48.00	20.00	15.769	192.286	208.055
7	48.00	21.00	18.839	192.402	211.241
8	48.00	22.00	22.120	203.271	225.391
9	48.00	23.00	25.607	217.285	242.892
10	48.00	24.00	29.327	230.644	259.971
11	48.00	25.00	33.315	243.845	277.161
12	48.00	26.00	37.555	258.371	295.926
13	48.00	27.00	41.996	273.405	315.401
14	48.00	28.00	46.630	282.676	329.306
15	48.00	29.00	51.444	285.907	337.351
16	48.00	30.00	56.435	289.603	346.038
17	48.00	31.00	61.602	299.631	361.233
18	48.00	32.00	66.971	314.725	381.696
19	48.00	33.00	72.543	330.157	402.700
20	48.00	34.00	78.317	344.848	423.165
21	48.00	35.00	84.299	357.099	441.398
22	48.00	36.00	90.478	364.327	454.805
23	48.00	37.00	96.828	365.700	462.528
24	48.00	38.00	103.342	363.176	466.518
25	48.00	39.00	110.018	360.542	470.559
26	48.00	40.00	116.863	359.541	476.405
27	48.00	41.00	123.866	360.160	484.026
28	48.00	42.00	131.003	361.087	492.090
29	48.00	43.00	138.269	361.705	499.974
30	48.00	44.00	145.660	361.509	507.169
31	48.00	45.00	153.184	360.303	513.487
32	48.00	46.00	160.827	358.493	519.321
33	48.00	47.00	168.555	357.287	525.842
34	48.00	48.00	176.359	356.885	533.244
35	48.00	49.00	184.248	356.885	541.133
36	48.00	50.00	192.236	358.493	550.729
37	48.00	51.00	200.313	362.113	562.425
38	48.00	52.00	208.458	365.732	574.190
39	48.00	53.00	216.668	365.128	581.796
40	48.00	54.00	224.938	363.118	588.056
41	48.00	55.00	233.276	361.911	595.188
42	48.00	56.00	241.673	361.911	603.585
43	48.00	57.00	250.122	361.911	612.034
44	48.00	58.00	258.620	361.911	620.532
45	48.00	59.00	267.156	361.509	628.665
46	48.00	60.00	275.727	360.303	636.030
47	48.00	61.00	284.323	357.170	641.493
48	48.00	62.00	292.916	351.994	644.910
49	48.00	63.00	301.501	345.637	647.138
50	48.00	64.00	310.075	341.668	651.742
51	48.00	65.00	318.643	341.953	660.596
52	48.00	66.00	327.199	346.778	673.977
53	48.00	67.00	335.736	354.017	689.753
54	48.00	68.00	344.253	358.842	703.095
55	48.00	69.00	352.746	360.010	712.755
56	48.00	70.00	361.219	358.686	719.905
57	48.00	71.00	369.662	355.963	725.625
58	48.00	72.00	378.052	352.423	730.475
59	48.00	73.00	386.385	348.656	735.041
60	48.00	74.00	394.662	346.440	741.102
61	48.00	75.00	402.894	347.465	750.359
62	48.00	76.00	411.072	352.487	763.559
63	48.00	77.00	419.192	359.612	778.804
64	48.00	78.00	427.251	363.683	790.934
65	48.00	79.00	435.238	364.387	799.625
66	48.00	80.00	443.153	363.377	806.530
67	48.00	81.00	450.988	362.268	813.256
68	48.00	82.00	458.730	361.529	820.260
69	48.00	83.00	466.377	361.283	827.660
70	48.00	84.00	473.923	361.193	835.116
71	48.00	85.00	481.372	361.906	843.279
72	48.00	86.00	488.719	364.455	853.174
73	48.00	87.00	496.111	368.617	864.728
74	48.00	88.00	503.603	371.482	875.085
75	48.00	89.00	511.196	372.467	883.663
76	48.00	90.00	518.896	372.829	891.725
77	48.00	91.00	526.701	373.915	900.616
78	48.00	92.00	534.613	375.543	910.157
79	48.00	93.00	Soil Elevations Must Extend At or Below Contribution Zone		
80	48.00	94.00	Soil Elevations Must Extend At or Below Contribution Zone		
81	48.00	95.00	Soil Elevations Must Extend At or Below Contribution Zone		

Drilled Shaft Capacity at User-Defined Settlement (sorted by shaft diameter):
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***** Capacity is NOT modified by the strength reduction factors *****

User-Defined Settlement = 1.04%

ID	Diameter (in)	Length (ft)	Skin Fric. (tons)	End Bearing (tons)	Capacity (tons)
1	48.00	15.00	4.113	28.282	32.395
2	48.00	16.00	5.881	65.276	71.158
3	48.00	17.00	7.895	65.252	73.146
4	48.00	18.00	10.148	64.719	74.867
5	48.00	19.00	12.660	63.526	76.186
6	48.00	20.00	15.424	61.128	76.552
7	48.00	21.00	18.426	61.165	79.591
8	48.00	22.00	21.636	64.620	86.256
9	48.00	23.00	25.047	69.075	94.122
10	48.00	24.00	28.685	73.322	102.007
11	48.00	25.00	32.586	77.519	110.105
12	48.00	26.00	36.733	82.136	118.869
13	48.00	27.00	41.077	86.916	127.992
14	48.00	28.00	45.610	89.863	135.472
15	48.00	29.00	50.318	90.890	141.208
16	48.00	30.00	55.200	92.065	147.265
17	48.00	31.00	60.254	95.253	155.506
18	48.00	32.00	65.505	100.051	165.556
19	48.00	33.00	70.956	104.957	175.912
20	48.00	34.00	76.602	109.627	186.230
21	48.00	35.00	82.454	113.522	195.976
22	48.00	36.00	88.498	115.820	204.318
23	48.00	37.00	94.709	116.256	210.965
24	48.00	38.00	101.080	115.454	216.534
25	48.00	39.00	107.610	114.616	222.226
26	48.00	40.00	114.305	114.298	228.604
27	48.00	41.00	121.155	114.495	235.650
28	48.00	42.00	128.136	114.790	242.926
29	48.00	43.00	135.242	114.986	250.229
30	48.00	44.00	142.472	114.924	257.395
31	48.00	45.00	149.831	114.540	264.371
32	48.00	46.00	157.307	113.965	271.272
33	48.00	47.00	164.865	113.582	278.447
34	48.00	48.00	172.499	113.454	285.953
35	48.00	49.00	180.215	113.454	293.669
36	48.00	50.00	188.028	113.965	301.993
37	48.00	51.00	195.928	115.116	311.044
38	48.00	52.00	203.896	116.266	320.162
39	48.00	53.00	211.925	116.074	328.000
40	48.00	54.00	220.015	115.435	335.450
41	48.00	55.00	228.170	115.052	343.222
42	48.00	56.00	236.384	115.052	351.435
43	48.00	57.00	244.648	115.052	359.699
44	48.00	58.00	252.959	115.052	368.011
45	48.00	59.00	261.308	114.924	376.232
46	48.00	60.00	269.692	114.540	384.232
47	48.00	61.00	278.100	113.545	391.644
48	48.00	62.00	286.505	111.899	398.404
49	48.00	63.00	294.901	109.878	404.780
50	48.00	64.00	303.288	108.616	411.904
51	48.00	65.00	311.668	108.707	420.375
52	48.00	66.00	320.037	110.241	430.278
53	48.00	67.00	328.388	112.542	440.930
54	48.00	68.00	336.718	114.076	450.794
55	48.00	69.00	345.025	114.447	459.472
56	48.00	70.00	353.312	114.026	467.339
57	48.00	71.00	361.571	113.161	474.731
58	48.00	72.00	369.777	112.035	481.813
59	48.00	73.00	377.928	110.838	488.766
60	48.00	74.00	386.024	110.133	496.157
61	48.00	75.00	394.075	110.459	504.534
62	48.00	76.00	402.075	112.056	514.130
63	48.00	77.00	410.017	114.321	524.338
64	48.00	78.00	417.899	115.615	533.514
65	48.00	79.00	425.711	115.839	541.550
66	48.00	80.00	433.453	115.518	548.971
67	48.00	81.00	441.117	115.165	556.282
68	48.00	82.00	448.689	114.930	563.620
69	48.00	83.00	456.169	114.852	571.021
70	48.00	84.00	463.550	114.823	578.373
71	48.00	85.00	470.836	115.050	585.886
72	48.00	86.00	478.022	115.860	593.882
73	48.00	87.00	485.253	117.183	602.436
74	48.00	88.00	492.580	118.094	610.674
75	48.00	89.00	500.007	118.407	618.414
76	48.00	90.00	507.538	118.522	626.060
77	48.00	91.00	515.173	118.868	634.040

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 78      48.00      92.00      522.912     119.385     642.297
 79      48.00      93.00 Soil Elevations Must Extend At or Below Contribution Zone
 80      48.00      94.00 Soil Elevations Must Extend At or Below Contribution Zone
 81      48.00      95.00 Soil Elevations Must Extend At or Below Contribution Zone
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General Information:
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Input file: .....H)\Analysis_Structure\FB-Deep\Drilled Shaft\B-101Shaft60in.spc
Project number: 2000-01-17003
Job name: SW 10th Street, from Powerline Rd. to Military Trail
Engineer: JB Henry
Units: English

Analysis Information:
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Analysis Type: Drilled Shaft Analysis

Soil Information:
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Boring date: 2/2/2018
Boring number: B-101
Station number: Offset:

Ground Elevation: 0.00(ft)
Water table Elevation = 0.00(ft)

Hammer type: Automatic Hammer, Correction factor = 1.24

ID	Depth (ft)	Elevation (ft)	SPT Blows (Blows/ft)	Unit Weight (pcf)	Soil Type
1	0.00	-0.00	N/A	0.00	5- Cavity layer
2	2.00	-2.00	N/A	0.00	5- Cavity layer
3	4.00	-4.00	N/A	0.00	5- Cavity layer
4	6.00	-6.00	N/A	0.00	5- Cavity layer
5	8.00	-8.00	N/A	0.00	5- Cavity layer
6	10.00	-10.00	24.00	115.00	3- Clean sand
7	12.00	-12.00	21.00	115.00	3- Clean sand
8	13.50	-13.50	32.00	120.00	3- Clean sand
9	15.50	-15.50	12.00	110.00	3- Clean sand
10	18.00	-18.00	20.00	115.00	3- Clean sand
11	20.50	-20.50	14.00	110.00	3- Clean sand
12	23.00	-23.00	36.00	125.00	3- Clean sand
13	25.50	-25.50	19.00	115.00	3- Clean sand
14	28.00	-28.00	22.00	115.00	3- Clean sand
15	30.50	-30.50	34.00	125.00	3- Clean sand
16	33.00	-33.00	62.00	130.00	3- Clean sand
17	35.50	-35.50	39.00	125.00	3- Clean sand
18	38.00	-38.00	70.00	130.00	3- Clean sand
19	40.50	-40.50	44.00	125.00	3- Clean sand
20	43.00	-43.00	70.00	130.00	3- Clean sand
21	45.50	-45.50	30.00	120.00	3- Clean sand
22	48.00	-48.00	51.00	130.00	3- Clean sand
23	50.50	-50.50	48.00	125.00	3- Clean sand
24	53.00	-53.00	73.00	130.00	3- Clean sand
25	55.50	-55.50	66.00	130.00	3- Clean sand
26	58.00	-58.00	51.00	130.00	3- Clean sand
27	60.50	-60.50	30.00	120.00	3- Clean sand
28	63.00	-63.00	43.00	125.00	3- Clean sand
29	65.50	-65.50	47.00	125.00	3- Clean sand
30	68.00	-68.00	62.00	130.00	3- Clean sand
31	70.50	-70.50	29.00	120.00	3- Clean sand
32	73.00	-73.00	85.00	130.00	3- Clean sand
33	75.50	-75.50	51.00	130.00	3- Clean sand
34	78.00	-78.00	49.00	130.00	3- Clean sand
35	80.50	-80.50	34.00	125.00	3- Clean sand
36	83.00	-83.00	65.00	130.00	3- Clean sand
37	85.50	-85.50	38.00	125.00	3- Clean sand
38	88.00	-88.00	78.00	130.00	3- Clean sand
39	90.50	-90.50	49.00	130.00	3- Clean sand
40	93.00	-93.00	71.00	130.00	3- Clean sand
41	95.50	-95.50	60.00	130.00	3- Clean sand
42	98.00	-98.00	65.00	130.00	3- Clean sand
43	100.00	-100.00	65.00	130.00	3- Clean sand

ID	Cu-DIR (tsf)	qu (tsf)	qt (tsf)	Em (ksi)	qb (tsf)
1	N/A	N/A	N/A	N/A	N/A
2	N/A	N/A	N/A	N/A	N/A
3	N/A	N/A	N/A	N/A	N/A
4	N/A	N/A	N/A	N/A	N/A
5	N/A	N/A	N/A	N/A	N/A
6	N/A	N/A	N/A	N/A	N/A
7	N/A	N/A	N/A	N/A	N/A
8	N/A	N/A	N/A	N/A	N/A

9	N/A	N/A	N/A	N/A	N/A
10	N/A	N/A	N/A	N/A	N/A
11	N/A	N/A	N/A	N/A	N/A
12	N/A	N/A	N/A	N/A	N/A
13	N/A	N/A	N/A	N/A	N/A
14	N/A	N/A	N/A	N/A	N/A
15	N/A	N/A	N/A	N/A	N/A
16	N/A	N/A	N/A	N/A	N/A
17	N/A	N/A	N/A	N/A	N/A
18	N/A	N/A	N/A	N/A	N/A
19	N/A	N/A	N/A	N/A	N/A
20	N/A	N/A	N/A	N/A	N/A
21	N/A	N/A	N/A	N/A	N/A
22	N/A	N/A	N/A	N/A	N/A
23	N/A	N/A	N/A	N/A	N/A
24	N/A	N/A	N/A	N/A	N/A
25	N/A	N/A	N/A	N/A	N/A
26	N/A	N/A	N/A	N/A	N/A
27	N/A	N/A	N/A	N/A	N/A
28	N/A	N/A	N/A	N/A	N/A
29	N/A	N/A	N/A	N/A	N/A
30	N/A	N/A	N/A	N/A	N/A
31	N/A	N/A	N/A	N/A	N/A
32	N/A	N/A	N/A	N/A	N/A
33	N/A	N/A	N/A	N/A	N/A
34	N/A	N/A	N/A	N/A	N/A
35	N/A	N/A	N/A	N/A	N/A
36	N/A	N/A	N/A	N/A	N/A
37	N/A	N/A	N/A	N/A	N/A
38	N/A	N/A	N/A	N/A	N/A
39	N/A	N/A	N/A	N/A	N/A
40	N/A	N/A	N/A	N/A	N/A
41	N/A	N/A	N/A	N/A	N/A
42	N/A	N/A	N/A	N/A	N/A
43	N/A	N/A	N/A	N/A	N/A

ID	RQD F.M.	S.R.I.	Rock Recovery
1	N/A	N/A	N/A
2	N/A	N/A	N/A
3	N/A	N/A	N/A
4	N/A	N/A	N/A
5	N/A	N/A	N/A
6	N/A	N/A	N/A
7	N/A	N/A	N/A
8	N/A	N/A	N/A
9	N/A	N/A	N/A
10	N/A	N/A	N/A
11	N/A	N/A	N/A
12	N/A	N/A	N/A
13	N/A	N/A	N/A
14	N/A	N/A	N/A
15	N/A	N/A	N/A
16	N/A	N/A	N/A
17	N/A	N/A	N/A
18	N/A	N/A	N/A
19	N/A	N/A	N/A
20	N/A	N/A	N/A
21	N/A	N/A	N/A
22	N/A	N/A	N/A
23	N/A	N/A	N/A
24	N/A	N/A	N/A
25	N/A	N/A	N/A
26	N/A	N/A	N/A
27	N/A	N/A	N/A
28	N/A	N/A	N/A
29	N/A	N/A	N/A
30	N/A	N/A	N/A
31	N/A	N/A	N/A
32	N/A	N/A	N/A
33	N/A	N/A	N/A
34	N/A	N/A	N/A
35	N/A	N/A	N/A
36	N/A	N/A	N/A
37	N/A	N/A	N/A
38	N/A	N/A	N/A
39	N/A	N/A	N/A
40	N/A	N/A	N/A
41	N/A	N/A	N/A
42	N/A	N/A	N/A
43	N/A	N/A	N/A

Drilled Shaft Data:
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Shaft Geometry:

ID	Length (ft)	Tip Elev. (ft)	Case Len. (ft)	Diameter (in)	Base Diam. (in)	Bell Len. (ft)
1	15.00	-15.00	6.00	60.00	60.00	0.00
2	16.00	-16.00	6.00	60.00	60.00	0.00
3	17.00	-17.00	6.00	60.00	60.00	0.00
4	18.00	-18.00	6.00	60.00	60.00	0.00
5	19.00	-19.00	6.00	60.00	60.00	0.00
6	20.00	-20.00	6.00	60.00	60.00	0.00
7	21.00	-21.00	6.00	60.00	60.00	0.00
8	22.00	-22.00	6.00	60.00	60.00	0.00
9	23.00	-23.00	6.00	60.00	60.00	0.00
10	24.00	-24.00	6.00	60.00	60.00	0.00
11	25.00	-25.00	6.00	60.00	60.00	0.00
12	26.00	-26.00	6.00	60.00	60.00	0.00
13	27.00	-27.00	6.00	60.00	60.00	0.00
14	28.00	-28.00	6.00	60.00	60.00	0.00
15	29.00	-29.00	6.00	60.00	60.00	0.00
16	30.00	-30.00	6.00	60.00	60.00	0.00
17	31.00	-31.00	6.00	60.00	60.00	0.00
18	32.00	-32.00	6.00	60.00	60.00	0.00
19	33.00	-33.00	6.00	60.00	60.00	0.00
20	34.00	-34.00	6.00	60.00	60.00	0.00
21	35.00	-35.00	6.00	60.00	60.00	0.00
22	36.00	-36.00	6.00	60.00	60.00	0.00
23	37.00	-37.00	6.00	60.00	60.00	0.00
24	38.00	-38.00	6.00	60.00	60.00	0.00
25	39.00	-39.00	6.00	60.00	60.00	0.00
26	40.00	-40.00	6.00	60.00	60.00	0.00
27	41.00	-41.00	6.00	60.00	60.00	0.00
28	42.00	-42.00	6.00	60.00	60.00	0.00
29	43.00	-43.00	6.00	60.00	60.00	0.00
30	44.00	-44.00	6.00	60.00	60.00	0.00
31	45.00	-45.00	6.00	60.00	60.00	0.00
32	46.00	-46.00	6.00	60.00	60.00	0.00
33	47.00	-47.00	6.00	60.00	60.00	0.00
34	48.00	-48.00	6.00	60.00	60.00	0.00
35	49.00	-49.00	6.00	60.00	60.00	0.00
36	50.00	-50.00	6.00	60.00	60.00	0.00
37	51.00	-51.00	6.00	60.00	60.00	0.00
38	52.00	-52.00	6.00	60.00	60.00	0.00
39	53.00	-53.00	6.00	60.00	60.00	0.00
40	54.00	-54.00	6.00	60.00	60.00	0.00
41	55.00	-55.00	6.00	60.00	60.00	0.00
42	56.00	-56.00	6.00	60.00	60.00	0.00
43	57.00	-57.00	6.00	60.00	60.00	0.00
44	58.00	-58.00	6.00	60.00	60.00	0.00
45	59.00	-59.00	6.00	60.00	60.00	0.00
46	60.00	-60.00	6.00	60.00	60.00	0.00
47	61.00	-61.00	6.00	60.00	60.00	0.00
48	62.00	-62.00	6.00	60.00	60.00	0.00
49	63.00	-63.00	6.00	60.00	60.00	0.00
50	64.00	-64.00	6.00	60.00	60.00	0.00
51	65.00	-65.00	6.00	60.00	60.00	0.00
52	66.00	-66.00	6.00	60.00	60.00	0.00
53	67.00	-67.00	6.00	60.00	60.00	0.00
54	68.00	-68.00	6.00	60.00	60.00	0.00
55	69.00	-69.00	6.00	60.00	60.00	0.00
56	70.00	-70.00	6.00	60.00	60.00	0.00
57	71.00	-71.00	6.00	60.00	60.00	0.00
58	72.00	-72.00	6.00	60.00	60.00	0.00
59	73.00	-73.00	6.00	60.00	60.00	0.00
60	74.00	-74.00	6.00	60.00	60.00	0.00
61	75.00	-75.00	6.00	60.00	60.00	0.00
62	76.00	-76.00	6.00	60.00	60.00	0.00
63	77.00	-77.00	6.00	60.00	60.00	0.00
64	78.00	-78.00	6.00	60.00	60.00	0.00
65	79.00	-79.00	6.00	60.00	60.00	0.00
66	80.00	-80.00	6.00	60.00	60.00	0.00
67	81.00	-81.00	6.00	60.00	60.00	0.00
68	82.00	-82.00	6.00	60.00	60.00	0.00
69	83.00	-83.00	6.00	60.00	60.00	0.00
70	84.00	-84.00	6.00	60.00	60.00	0.00
71	85.00	-85.00	6.00	60.00	60.00	0.00
72	86.00	-86.00	6.00	60.00	60.00	0.00
73	87.00	-87.00	6.00	60.00	60.00	0.00
74	88.00	-88.00	6.00	60.00	60.00	0.00
75	89.00	-89.00	6.00	60.00	60.00	0.00
76	90.00	-90.00	6.00	60.00	60.00	0.00
77	91.00	-91.00	6.00	60.00	60.00	0.00
78	92.00	-92.00	6.00	60.00	60.00	0.00
79	93.00	-93.00	6.00	60.00	60.00	0.00
80	94.00	-94.00	6.00	60.00	60.00	0.00
81	95.00	-95.00	6.00	60.00	60.00	0.00

Drilled Shaft Capacity (sorted by shaft diameter):

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Strength reduction factors: Skin-friction = 1.00, End-bearing = 1.00

ID	Diameter (in)	Length (ft)	Skin Fric. (tons)	End Bearing (tons)	Capacity (tons)
1	60.00	15.00	5.256	128.219	133.475
2	60.00	16.00	7.516	132.084	139.601
3	60.00	17.00	10.089	135.128	145.217
4	60.00	18.00	12.969	264.321	277.290
5	60.00	19.00	16.179	264.727	280.906
6	60.00	20.00	19.712	267.888	287.600
7	60.00	21.00	23.548	268.541	292.089
8	60.00	22.00	27.650	273.489	301.139
9	60.00	23.00	32.009	289.877	321.886
10	60.00	24.00	36.658	309.837	346.495
11	60.00	25.00	41.644	325.498	367.142
12	60.00	26.00	46.943	337.711	384.655
13	60.00	27.00	52.495	351.587	404.082
14	60.00	28.00	58.288	367.975	426.263
15	60.00	29.00	64.305	382.537	446.842
16	60.00	30.00	70.544	390.930	461.474
17	60.00	31.00	77.002	394.680	471.683
18	60.00	32.00	83.713	402.937	486.651
19	60.00	33.00	90.679	417.226	507.906
20	60.00	34.00	97.896	432.734	530.630
21	60.00	35.00	105.374	444.647	550.021
22	60.00	36.00	113.098	453.256	566.354
23	60.00	37.00	121.035	460.300	581.334
24	60.00	38.00	129.177	466.068	595.246
25	60.00	39.00	137.522	470.173	607.695
26	60.00	40.00	146.079	472.226	618.305
27	60.00	41.00	154.833	472.536	627.369
28	60.00	42.00	163.754	472.965	636.720
29	60.00	43.00	172.836	473.824	646.660
30	60.00	44.00	182.075	474.264	656.339
31	60.00	45.00	191.480	473.437	664.916
32	60.00	46.00	201.034	471.605	672.640
33	60.00	47.00	210.694	470.349	681.042
34	60.00	48.00	220.449	469.930	690.379
35	60.00	49.00	230.310	468.673	698.983
36	60.00	50.00	240.294	464.903	705.198
37	60.00	51.00	250.391	459.667	710.058
38	60.00	52.00	260.573	459.248	719.821
39	60.00	53.00	270.835	464.694	735.529
40	60.00	54.00	281.173	471.396	752.569
41	60.00	55.00	291.595	474.747	766.342
42	60.00	56.00	302.092	475.166	777.258
43	60.00	57.00	312.653	475.166	787.819
44	60.00	58.00	323.275	475.166	798.441
45	60.00	59.00	333.944	473.369	807.313
46	60.00	60.00	344.658	467.977	812.635
47	60.00	61.00	355.404	459.889	815.293
48	60.00	62.00	366.145	454.497	820.643
49	60.00	63.00	376.876	452.700	829.576
50	60.00	64.00	387.593	452.700	840.293
51	60.00	65.00	398.303	452.700	851.004
52	60.00	66.00	408.998	453.119	862.118
53	60.00	67.00	419.670	456.470	876.141
54	60.00	68.00	430.317	463.172	893.489
55	60.00	69.00	440.932	468.645	909.578
56	60.00	70.00	451.523	468.309	919.832
57	60.00	71.00	462.078	463.196	925.274
58	60.00	72.00	472.565	459.509	932.074
59	60.00	73.00	482.981	458.280	941.261
60	60.00	74.00	493.328	457.997	951.325
61	60.00	75.00	503.617	457.149	960.766
62	60.00	76.00	513.840	456.336	970.176
63	60.00	77.00	523.990	459.163	983.154
64	60.00	78.00	534.063	466.232	1000.295
65	60.00	79.00	544.047	473.327	1017.374
66	60.00	80.00	553.941	476.233	1030.174
67	60.00	81.00	563.735	475.538	1039.272
68	60.00	82.00	573.413	474.768	1048.181
69	60.00	83.00	582.971	474.511	1057.482
70	60.00	84.00	592.404	474.417	1066.821
71	60.00	85.00	601.715	474.134	1075.850
72	60.00	86.00	610.898	473.967	1084.865
73	60.00	87.00	620.139	475.737	1095.876
74	60.00	88.00	629.503	479.747	1109.251
75	60.00	89.00	638.995	483.852	1122.847
76	60.00	90.00	648.619	485.905	1134.524
77	60.00	91.00	Soil Elevations Must Extend At or Below Contribution Zone		
78	60.00	92.00	Soil Elevations Must Extend At or Below Contribution Zone		
79	60.00	93.00	Soil Elevations Must Extend At or Below Contribution Zone		
80	60.00	94.00	Soil Elevations Must Extend At or Below Contribution Zone		
81	60.00	95.00	Soil Elevations Must Extend At or Below Contribution Zone		

Drilled Shaft Capacity at User-Defined Settlement (sorted by shaft diameter):
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***** Capacity is NOT modified by the strength reduction factors *****

User-Defined Settlement = 0.83%

ID	Diameter (in)	Length (ft)	Skin Fric. (tons)	End Bearing (tons)	Capacity (tons)
1	60.00	15.00	5.122	33.477	38.599
2	60.00	16.00	7.325	34.486	41.811
3	60.00	17.00	9.832	35.281	45.113
4	60.00	18.00	12.638	69.012	81.650
5	60.00	19.00	15.767	69.118	84.885
6	60.00	20.00	19.209	69.944	89.153
7	60.00	21.00	22.948	70.114	93.062
8	60.00	22.00	26.945	71.406	98.351
9	60.00	23.00	31.193	75.685	106.878
10	60.00	24.00	35.724	80.896	116.620
11	60.00	25.00	40.582	84.985	125.567
12	60.00	26.00	45.747	88.174	133.920
13	60.00	27.00	51.157	91.797	142.953
14	60.00	28.00	56.802	96.075	152.877
15	60.00	29.00	62.666	99.877	162.543
16	60.00	30.00	68.746	102.069	170.814
17	60.00	31.00	75.039	103.048	178.087
18	60.00	32.00	81.579	105.204	186.783
19	60.00	33.00	88.367	108.935	197.302
20	60.00	34.00	95.400	112.983	208.383
21	60.00	35.00	102.688	116.094	218.782
22	60.00	36.00	110.215	118.342	228.556
23	60.00	37.00	117.949	120.181	238.130
24	60.00	38.00	125.884	121.687	247.571
25	60.00	39.00	134.016	122.759	256.775
26	60.00	40.00	142.355	123.294	265.649
27	60.00	41.00	150.886	123.375	274.261
28	60.00	42.00	159.580	123.488	283.067
29	60.00	43.00	168.430	123.712	292.141
30	60.00	44.00	177.433	123.827	301.260
31	60.00	45.00	186.598	123.611	310.209
32	60.00	46.00	195.909	123.132	319.042
33	60.00	47.00	205.322	122.804	328.127
34	60.00	48.00	214.829	122.695	337.524
35	60.00	49.00	224.438	122.367	346.805
36	60.00	50.00	234.168	121.383	355.551
37	60.00	51.00	244.007	120.016	364.023
38	60.00	52.00	253.930	119.906	373.836
39	60.00	53.00	263.930	121.328	385.258
40	60.00	54.00	274.005	123.078	397.083
41	60.00	55.00	284.161	123.953	408.114
42	60.00	56.00	294.390	124.062	418.452
43	60.00	57.00	304.682	124.062	428.744
44	60.00	58.00	315.034	124.062	439.096
45	60.00	59.00	325.431	123.593	449.024
46	60.00	60.00	335.872	122.185	458.057
47	60.00	61.00	346.343	120.073	466.417
48	60.00	62.00	356.811	118.666	475.477
49	60.00	63.00	367.268	118.196	485.464
50	60.00	64.00	377.712	118.196	495.908
51	60.00	65.00	388.149	118.196	506.346
52	60.00	66.00	398.572	118.306	516.877
53	60.00	67.00	408.972	119.181	528.152
54	60.00	68.00	419.346	120.931	540.277
55	60.00	69.00	429.691	122.360	552.051
56	60.00	70.00	440.012	122.272	562.284
57	60.00	71.00	450.298	120.937	571.235
58	60.00	72.00	460.518	119.974	580.492
59	60.00	73.00	470.668	119.653	590.321
60	60.00	74.00	480.751	119.579	600.330
61	60.00	75.00	490.778	119.358	610.136
62	60.00	76.00	500.741	119.146	619.887
63	60.00	77.00	510.632	119.884	630.516
64	60.00	78.00	520.448	121.730	642.177
65	60.00	79.00	530.178	123.582	653.760
66	60.00	80.00	539.819	124.341	664.160
67	60.00	81.00	549.363	124.159	673.522
68	60.00	82.00	558.794	123.958	682.753
69	60.00	83.00	568.109	123.891	692.000
70	60.00	84.00	577.301	123.867	701.168
71	60.00	85.00	586.375	123.793	710.168
72	60.00	86.00	595.324	123.749	719.073
73	60.00	87.00	604.330	124.211	728.541
74	60.00	88.00	613.455	125.258	738.713
75	60.00	89.00	622.705	126.330	749.035
76	60.00	90.00	632.084	126.866	758.950
77	60.00	91.00	Soil Elevations Must Extend At or Below Contribution Zone		

78	60.00	92.00	Soil Elevations Must Extend At or Below Contribution Zone
79	60.00	93.00	Soil Elevations Must Extend At or Below Contribution Zone
80	60.00	94.00	Soil Elevations Must Extend At or Below Contribution Zone
81	60.00	95.00	Soil Elevations Must Extend At or Below Contribution Zone

General Information:
====================
Input file: .....H)\Analysis_Structure\FB-Deep\Drilled Shaft\B-201Shaft48in.spc
Project number: 2000-01-17003
Job name: SW 10th Street, from Powerline Rd. to Military Trail
Engineer: JB Henry
Units: English

Analysis Information:
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Analysis Type: Drilled Shaft Analysis

Soil Information:
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Boring date: 2/5/2018
Boring number: B-201
Station number: Offset:

Ground Elevation: 0.00(ft)
Water table Elevation = 0.00(ft)

Hammer type: Automatic Hammer, Correction factor = 1.24

ID	Depth (ft)	Elevation (ft)	SPT Blows (Blows/ft)	Unit Weight (pcf)	Soil Type
1	0.00	-0.00	N/A	0.00	5- Cavity layer
2	2.00	-2.00	N/A	0.00	5- Cavity layer
3	4.00	-4.00	N/A	0.00	5- Cavity layer
4	6.00	-6.00	N/A	0.00	5- Cavity layer
5	8.00	-8.00	N/A	0.00	5- Cavity layer
6	10.00	-10.00	10.00	110.00	3- Clean sand
7	12.00	-12.00	23.00	115.00	3- Clean sand
8	13.50	-13.50	19.00	115.00	3- Clean sand
9	15.50	-15.50	29.00	120.00	3- Clean sand
10	18.00	-18.00	41.00	125.00	3- Clean sand
11	20.50	-20.50	16.00	110.00	3- Clean sand
12	23.00	-23.00	31.00	120.00	3- Clean sand
13	25.50	-25.50	30.00	120.00	3- Clean sand
14	28.00	-28.00	60.00	130.00	3- Clean sand
15	30.50	-30.50	46.00	125.00	3- Clean sand
16	33.00	-33.00	78.00	130.00	3- Clean sand
17	35.50	-35.50	56.00	130.00	3- Clean sand
18	38.00	-38.00	60.00	130.00	3- Clean sand
19	40.50	-40.50	60.00	130.00	3- Clean sand
20	43.00	-43.00	66.00	130.00	3- Clean sand
21	45.50	-45.50	15.00	110.00	3- Clean sand
22	48.00	-48.00	29.00	120.00	3- Clean sand
23	50.50	-50.50	43.00	125.00	3- Clean sand
24	53.00	-53.00	65.00	130.00	3- Clean sand
25	55.50	-55.50	48.00	125.00	3- Clean sand
26	58.00	-58.00	78.00	130.00	3- Clean sand
27	60.50	-60.50	48.00	125.00	3- Clean sand
28	63.00	-63.00	68.00	130.00	3- Clean sand
29	65.50	-65.50	31.00	120.00	3- Clean sand
30	68.00	-68.00	50.00	130.00	3- Clean sand
31	70.50	-70.50	38.00	125.00	3- Clean sand
32	73.00	-73.00	45.00	125.00	3- Clean sand
33	75.50	-75.50	46.00	125.00	3- Clean sand
34	78.00	-78.00	60.00	130.00	3- Clean sand
35	80.50	-80.50	59.00	130.00	3- Clean sand
36	83.00	-83.00	68.00	130.00	3- Clean sand
37	85.50	-85.50	37.00	125.00	3- Clean sand
38	88.00	-88.00	63.00	130.00	3- Clean sand
39	90.50	-90.50	24.00	115.00	3- Clean sand
40	93.00	-93.00	39.00	125.00	3- Clean sand
41	95.50	-95.50	36.00	125.00	3- Clean sand
42	98.00	-98.00	60.00	130.00	3- Clean sand
43	100.00	-100.00	60.00	130.00	3- Clean sand

ID	Cu-DIR (tsf)	qu (tsf)	qt (tsf)	Em (ksi)	qb (tsf)
1	N/A	N/A	N/A	N/A	N/A
2	N/A	N/A	N/A	N/A	N/A
3	N/A	N/A	N/A	N/A	N/A
4	N/A	N/A	N/A	N/A	N/A
5	N/A	N/A	N/A	N/A	N/A
6	N/A	N/A	N/A	N/A	N/A
7	N/A	N/A	N/A	N/A	N/A
8	N/A	N/A	N/A	N/A	N/A

9	N/A	N/A	N/A	N/A	N/A
10	N/A	N/A	N/A	N/A	N/A
11	N/A	N/A	N/A	N/A	N/A
12	N/A	N/A	N/A	N/A	N/A
13	N/A	N/A	N/A	N/A	N/A
14	N/A	N/A	N/A	N/A	N/A
15	N/A	N/A	N/A	N/A	N/A
16	N/A	N/A	N/A	N/A	N/A
17	N/A	N/A	N/A	N/A	N/A
18	N/A	N/A	N/A	N/A	N/A
19	N/A	N/A	N/A	N/A	N/A
20	N/A	N/A	N/A	N/A	N/A
21	N/A	N/A	N/A	N/A	N/A
22	N/A	N/A	N/A	N/A	N/A
23	N/A	N/A	N/A	N/A	N/A
24	N/A	N/A	N/A	N/A	N/A
25	N/A	N/A	N/A	N/A	N/A
26	N/A	N/A	N/A	N/A	N/A
27	N/A	N/A	N/A	N/A	N/A
28	N/A	N/A	N/A	N/A	N/A
29	N/A	N/A	N/A	N/A	N/A
30	N/A	N/A	N/A	N/A	N/A
31	N/A	N/A	N/A	N/A	N/A
32	N/A	N/A	N/A	N/A	N/A
33	N/A	N/A	N/A	N/A	N/A
34	N/A	N/A	N/A	N/A	N/A
35	N/A	N/A	N/A	N/A	N/A
36	N/A	N/A	N/A	N/A	N/A
37	N/A	N/A	N/A	N/A	N/A
38	N/A	N/A	N/A	N/A	N/A
39	N/A	N/A	N/A	N/A	N/A
40	N/A	N/A	N/A	N/A	N/A
41	N/A	N/A	N/A	N/A	N/A
42	N/A	N/A	N/A	N/A	N/A
43	N/A	N/A	N/A	N/A	N/A

ID	RQD F.M.	S.R.I.	Rock Recovery
1	N/A	N/A	N/A
2	N/A	N/A	N/A
3	N/A	N/A	N/A
4	N/A	N/A	N/A
5	N/A	N/A	N/A
6	N/A	N/A	N/A
7	N/A	N/A	N/A
8	N/A	N/A	N/A
9	N/A	N/A	N/A
10	N/A	N/A	N/A
11	N/A	N/A	N/A
12	N/A	N/A	N/A
13	N/A	N/A	N/A
14	N/A	N/A	N/A
15	N/A	N/A	N/A
16	N/A	N/A	N/A
17	N/A	N/A	N/A
18	N/A	N/A	N/A
19	N/A	N/A	N/A
20	N/A	N/A	N/A
21	N/A	N/A	N/A
22	N/A	N/A	N/A
23	N/A	N/A	N/A
24	N/A	N/A	N/A
25	N/A	N/A	N/A
26	N/A	N/A	N/A
27	N/A	N/A	N/A
28	N/A	N/A	N/A
29	N/A	N/A	N/A
30	N/A	N/A	N/A
31	N/A	N/A	N/A
32	N/A	N/A	N/A
33	N/A	N/A	N/A
34	N/A	N/A	N/A
35	N/A	N/A	N/A
36	N/A	N/A	N/A
37	N/A	N/A	N/A
38	N/A	N/A	N/A
39	N/A	N/A	N/A
40	N/A	N/A	N/A
41	N/A	N/A	N/A
42	N/A	N/A	N/A
43	N/A	N/A	N/A

Drilled Shaft Data:

Shaft Geometry:

ID	Length (ft)	Tip Elev. (ft)	Case Len. (ft)	Diameter (in)	Base Diam. (in)	Bell Len. (ft)
1	15.00	-15.00	6.00	48.00	48.00	0.00
2	16.00	-16.00	6.00	48.00	48.00	0.00
3	17.00	-17.00	6.00	48.00	48.00	0.00
4	18.00	-18.00	6.00	48.00	48.00	0.00
5	19.00	-19.00	6.00	48.00	48.00	0.00
6	20.00	-20.00	6.00	48.00	48.00	0.00
7	21.00	-21.00	6.00	48.00	48.00	0.00
8	22.00	-22.00	6.00	48.00	48.00	0.00
9	23.00	-23.00	6.00	48.00	48.00	0.00
10	24.00	-24.00	6.00	48.00	48.00	0.00
11	25.00	-25.00	6.00	48.00	48.00	0.00
12	26.00	-26.00	6.00	48.00	48.00	0.00
13	27.00	-27.00	6.00	48.00	48.00	0.00
14	28.00	-28.00	6.00	48.00	48.00	0.00
15	29.00	-29.00	6.00	48.00	48.00	0.00
16	30.00	-30.00	6.00	48.00	48.00	0.00
17	31.00	-31.00	6.00	48.00	48.00	0.00
18	32.00	-32.00	6.00	48.00	48.00	0.00
19	33.00	-33.00	6.00	48.00	48.00	0.00
20	34.00	-34.00	6.00	48.00	48.00	0.00
21	35.00	-35.00	6.00	48.00	48.00	0.00
22	36.00	-36.00	6.00	48.00	48.00	0.00
23	37.00	-37.00	6.00	48.00	48.00	0.00
24	38.00	-38.00	6.00	48.00	48.00	0.00
25	39.00	-39.00	6.00	48.00	48.00	0.00
26	40.00	-40.00	6.00	48.00	48.00	0.00
27	41.00	-41.00	6.00	48.00	48.00	0.00
28	42.00	-42.00	6.00	48.00	48.00	0.00
29	43.00	-43.00	6.00	48.00	48.00	0.00
30	44.00	-44.00	6.00	48.00	48.00	0.00
31	45.00	-45.00	6.00	48.00	48.00	0.00
32	46.00	-46.00	6.00	48.00	48.00	0.00
33	47.00	-47.00	6.00	48.00	48.00	0.00
34	48.00	-48.00	6.00	48.00	48.00	0.00
35	49.00	-49.00	6.00	48.00	48.00	0.00
36	50.00	-50.00	6.00	48.00	48.00	0.00
37	51.00	-51.00	6.00	48.00	48.00	0.00
38	52.00	-52.00	6.00	48.00	48.00	0.00
39	53.00	-53.00	6.00	48.00	48.00	0.00
40	54.00	-54.00	6.00	48.00	48.00	0.00
41	55.00	-55.00	6.00	48.00	48.00	0.00
42	56.00	-56.00	6.00	48.00	48.00	0.00
43	57.00	-57.00	6.00	48.00	48.00	0.00
44	58.00	-58.00	6.00	48.00	48.00	0.00
45	59.00	-59.00	6.00	48.00	48.00	0.00
46	60.00	-60.00	6.00	48.00	48.00	0.00
47	61.00	-61.00	6.00	48.00	48.00	0.00
48	62.00	-62.00	6.00	48.00	48.00	0.00
49	63.00	-63.00	6.00	48.00	48.00	0.00
50	64.00	-64.00	6.00	48.00	48.00	0.00
51	65.00	-65.00	6.00	48.00	48.00	0.00
52	66.00	-66.00	6.00	48.00	48.00	0.00
53	67.00	-67.00	6.00	48.00	48.00	0.00
54	68.00	-68.00	6.00	48.00	48.00	0.00
55	69.00	-69.00	6.00	48.00	48.00	0.00
56	70.00	-70.00	6.00	48.00	48.00	0.00
57	71.00	-71.00	6.00	48.00	48.00	0.00
58	72.00	-72.00	6.00	48.00	48.00	0.00
59	73.00	-73.00	6.00	48.00	48.00	0.00
60	74.00	-74.00	6.00	48.00	48.00	0.00
61	75.00	-75.00	6.00	48.00	48.00	0.00
62	76.00	-76.00	6.00	48.00	48.00	0.00
63	77.00	-77.00	6.00	48.00	48.00	0.00
64	78.00	-78.00	6.00	48.00	48.00	0.00
65	79.00	-79.00	6.00	48.00	48.00	0.00
66	80.00	-80.00	6.00	48.00	48.00	0.00
67	81.00	-81.00	6.00	48.00	48.00	0.00
68	82.00	-82.00	6.00	48.00	48.00	0.00
69	83.00	-83.00	6.00	48.00	48.00	0.00
70	84.00	-84.00	6.00	48.00	48.00	0.00
71	85.00	-85.00	6.00	48.00	48.00	0.00
72	86.00	-86.00	6.00	48.00	48.00	0.00
73	87.00	-87.00	6.00	48.00	48.00	0.00
74	88.00	-88.00	6.00	48.00	48.00	0.00
75	89.00	-89.00	6.00	48.00	48.00	0.00
76	90.00	-90.00	6.00	48.00	48.00	0.00
77	91.00	-91.00	6.00	48.00	48.00	0.00
78	92.00	-92.00	6.00	48.00	48.00	0.00
79	93.00	-93.00	6.00	48.00	48.00	0.00
80	94.00	-94.00	6.00	48.00	48.00	0.00
81	95.00	-95.00	6.00	48.00	48.00	0.00

Drilled Shaft Capacity (sorted by shaft diameter):

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Strength reduction factors: Skin-friction = 1.00, End-bearing = 1.00

ID	Diameter (in)	Length (ft)	Skin Fric. (tons)	End Bearing (tons)	Capacity (tons)
1	48.00	15.00	3.805	134.211	138.017
2	48.00	16.00	5.511	234.686	240.197
3	48.00	17.00	7.526	248.657	256.183
4	48.00	18.00	9.849	258.544	268.393
5	48.00	19.00	12.475	268.512	280.987
6	48.00	20.00	15.415	280.329	295.745
7	48.00	21.00	18.646	288.692	307.338
8	48.00	22.00	22.092	293.991	316.082
9	48.00	23.00	25.741	296.883	322.624
10	48.00	24.00	29.607	296.793	326.400
11	48.00	25.00	33.712	298.650	332.363
12	48.00	26.00	38.048	308.120	346.168
13	48.00	27.00	42.603	324.332	366.935
14	48.00	28.00	47.375	338.205	385.580
15	48.00	29.00	52.372	347.806	400.178
16	48.00	30.00	57.617	355.225	412.842
17	48.00	31.00	63.095	362.956	426.051
18	48.00	32.00	68.779	370.557	439.336
19	48.00	33.00	74.661	375.383	450.044
20	48.00	34.00	80.739	376.991	457.730
21	48.00	35.00	87.022	376.991	464.013
22	48.00	36.00	93.499	374.032	467.530
23	48.00	37.00	100.160	365.154	465.314
24	48.00	38.00	107.002	351.506	458.508
25	48.00	39.00	114.011	339.981	453.992
26	48.00	40.00	121.184	331.729	452.912
27	48.00	41.00	128.512	326.436	454.947
28	48.00	42.00	135.985	323.789	459.775
29	48.00	43.00	143.602	323.458	467.060
30	48.00	44.00	151.347	322.472	473.819
31	48.00	45.00	159.219	319.513	478.732
32	48.00	46.00	167.201	314.963	482.164
33	48.00	47.00	175.228	311.122	486.350
34	48.00	48.00	183.292	308.371	491.663
35	48.00	49.00	191.400	306.607	498.007
36	48.00	50.00	199.569	309.670	509.239
37	48.00	51.00	207.794	321.397	529.192
38	48.00	52.00	216.082	339.595	555.677
39	48.00	53.00	224.431	354.961	579.392
40	48.00	54.00	232.838	365.964	598.802
41	48.00	55.00	241.310	373.021	614.332
42	48.00	56.00	249.838	375.461	625.298
43	48.00	57.00	258.401	372.633	631.034
44	48.00	58.00	266.996	367.730	634.726
45	48.00	59.00	275.619	364.462	640.081
46	48.00	60.00	284.277	363.372	647.649
47	48.00	61.00	292.960	363.101	656.061
48	48.00	62.00	301.650	362.287	663.936
49	48.00	63.00	310.343	361.065	671.409
50	48.00	64.00	319.037	359.888	678.925
51	48.00	65.00	327.736	358.527	686.263
52	48.00	66.00	336.430	356.892	693.322
53	48.00	67.00	345.093	355.803	700.896
54	48.00	68.00	353.720	355.440	709.160
55	48.00	69.00	362.315	355.349	717.664
56	48.00	70.00	370.888	356.531	727.418
57	48.00	71.00	379.430	360.481	739.912
58	48.00	72.00	387.928	366.747	754.675
59	48.00	73.00	396.376	371.015	767.390
60	48.00	74.00	404.766	372.467	777.234
61	48.00	75.00	413.098	372.829	785.927
62	48.00	76.00	421.364	373.527	794.890
63	48.00	77.00	429.558	373.990	803.549
64	48.00	78.00	437.680	373.329	811.009
65	48.00	79.00	445.725	372.526	818.251
66	48.00	80.00	453.696	372.137	825.833
67	48.00	81.00	461.586	370.230	831.816
68	48.00	82.00	469.390	364.507	833.898
69	48.00	83.00	477.106	355.884	832.990
70	48.00	84.00	484.724	349.723	834.447
71	48.00	85.00	492.242	346.809	839.051
72	48.00	86.00	499.655	345.103	844.758
73	48.00	87.00	507.115	342.890	850.005
74	48.00	88.00	514.673	340.449	855.122
75	48.00	89.00	522.333	338.297	860.630
76	48.00	90.00	530.099	336.402	866.502
77	48.00	91.00	537.969	335.081	873.050
78	48.00	92.00	545.924	335.401	881.325
79	48.00	93.00	Soil Elevations Must Extend At or Below Contribution Zone		
80	48.00	94.00	Soil Elevations Must Extend At or Below Contribution Zone		
81	48.00	95.00	Soil Elevations Must Extend At or Below Contribution Zone		

Drilled Shaft Capacity at User-Defined Settlement (sorted by shaft diameter):
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***** Capacity is NOT modified by the strength reduction factors *****

User-Defined Settlement = 1.04%

ID	Diameter (in)	Length (ft)	Skin Fric. (tons)	End Bearing (tons)	Capacity (tons)
1	48.00	15.00	3.722	42.666	46.388
2	48.00	16.00	5.390	74.607	79.997
3	48.00	17.00	7.361	79.048	86.410
4	48.00	18.00	9.634	82.191	91.825
5	48.00	19.00	12.202	85.360	97.562
6	48.00	20.00	15.078	89.117	104.195
7	48.00	21.00	18.237	91.775	110.013
8	48.00	22.00	21.608	93.460	115.068
9	48.00	23.00	25.178	94.379	119.557
10	48.00	24.00	28.959	94.351	123.309
11	48.00	25.00	32.975	94.941	127.916
12	48.00	26.00	37.215	97.951	135.167
13	48.00	27.00	41.671	103.105	144.776
14	48.00	28.00	46.338	107.515	153.853
15	48.00	29.00	51.226	110.568	161.793
16	48.00	30.00	56.356	112.926	169.282
17	48.00	31.00	61.714	115.384	177.098
18	48.00	32.00	67.273	117.800	185.074
19	48.00	33.00	73.027	119.334	192.361
20	48.00	34.00	78.972	119.846	198.818
21	48.00	35.00	85.117	119.846	204.963
22	48.00	36.00	91.452	118.905	210.357
23	48.00	37.00	97.968	116.082	214.050
24	48.00	38.00	104.660	111.744	216.404
25	48.00	39.00	111.515	108.080	219.595
26	48.00	40.00	118.531	105.457	223.988
27	48.00	41.00	125.699	103.774	229.473
28	48.00	42.00	133.009	102.933	235.942
29	48.00	43.00	140.458	102.828	243.286
30	48.00	44.00	148.034	102.514	250.548
31	48.00	45.00	155.734	101.573	257.307
32	48.00	46.00	163.541	100.127	263.668
33	48.00	47.00	171.393	98.906	270.299
34	48.00	48.00	179.280	98.031	277.311
35	48.00	49.00	187.211	97.470	284.681
36	48.00	50.00	195.201	98.444	293.645
37	48.00	51.00	203.246	102.172	305.419
38	48.00	52.00	211.352	107.957	319.310
39	48.00	53.00	219.518	112.842	332.361
40	48.00	54.00	227.742	116.340	344.082
41	48.00	55.00	236.029	118.584	354.612
42	48.00	56.00	244.369	119.359	363.728
43	48.00	57.00	252.745	118.460	371.205
44	48.00	58.00	261.152	116.902	378.053
45	48.00	59.00	269.586	115.863	385.449
46	48.00	60.00	278.055	115.516	393.571
47	48.00	61.00	286.547	115.430	401.977
48	48.00	62.00	295.047	115.171	410.218
49	48.00	63.00	303.551	114.783	418.333
50	48.00	64.00	312.054	114.408	426.463
51	48.00	65.00	320.563	113.976	434.538
52	48.00	66.00	329.066	113.456	442.522
53	48.00	67.00	337.540	113.110	450.649
54	48.00	68.00	345.978	112.994	458.972
55	48.00	69.00	354.385	112.966	467.350
56	48.00	70.00	362.770	113.341	476.111
57	48.00	71.00	371.125	114.597	485.723
58	48.00	72.00	379.437	116.589	496.026
59	48.00	73.00	387.700	117.946	505.646
60	48.00	74.00	395.907	118.407	514.314
61	48.00	75.00	404.056	118.522	522.578
62	48.00	76.00	412.141	118.744	530.885
63	48.00	77.00	420.156	118.892	539.048
64	48.00	78.00	428.100	118.681	546.782
65	48.00	79.00	435.969	118.426	554.395
66	48.00	80.00	443.765	118.303	562.068
67	48.00	81.00	451.483	117.696	569.179
68	48.00	82.00	459.116	115.877	574.993
69	48.00	83.00	466.663	113.136	579.799
70	48.00	84.00	474.114	111.177	585.291
71	48.00	85.00	481.468	110.251	591.718
72	48.00	86.00	488.719	109.708	598.427
73	48.00	87.00	496.015	109.005	605.020
74	48.00	88.00	503.408	108.229	611.637
75	48.00	89.00	510.900	107.545	618.445
76	48.00	90.00	518.497	106.942	625.439
77	48.00	91.00	526.194	106.522	632.716

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78       48.00       92.00      533.975      106.624      640.599
79       48.00       93.00 Soil Elevations Must Extend At or Below Contribution Zone
80       48.00       94.00 Soil Elevations Must Extend At or Below Contribution Zone
81       48.00       95.00 Soil Elevations Must Extend At or Below Contribution Zone
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General Information:
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Input file: .....H)\Analysis_Structure\FB-Deep\Drilled Shaft\B-201Shaft60in.spc
Project number: 2000-01-17003
Job name: SW 10th Street, from Powerline Rd. to Military Trail
Engineer: JB Henry
Units: English

Analysis Information:
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Analysis Type: Drilled Shaft Analysis

Soil Information:
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Boring date: 2/5/2018
Boring number: B-201
Station number: Offset:

Ground Elevation: 0.00(ft)
Water table Elevation = 0.00(ft)

Hammer type: Automatic Hammer, Correction factor = 1.24

ID	Depth (ft)	Elevation (ft)	SPT Blows (Blows/ft)	Unit Weight (pcf)	Soil Type
1	0.00	-0.00	N/A	0.00	5- Cavity layer
2	2.00	-2.00	N/A	0.00	5- Cavity layer
3	4.00	-4.00	N/A	0.00	5- Cavity layer
4	6.00	-6.00	N/A	0.00	5- Cavity layer
5	8.00	-8.00	N/A	0.00	5- Cavity layer
6	10.00	-10.00	10.00	110.00	3- Clean sand
7	12.00	-12.00	23.00	115.00	3- Clean sand
8	13.50	-13.50	19.00	115.00	3- Clean sand
9	15.50	-15.50	29.00	120.00	3- Clean sand
10	18.00	-18.00	41.00	125.00	3- Clean sand
11	20.50	-20.50	16.00	110.00	3- Clean sand
12	23.00	-23.00	31.00	120.00	3- Clean sand
13	25.50	-25.50	30.00	120.00	3- Clean sand
14	28.00	-28.00	60.00	130.00	3- Clean sand
15	30.50	-30.50	46.00	125.00	3- Clean sand
16	33.00	-33.00	78.00	130.00	3- Clean sand
17	35.50	-35.50	56.00	130.00	3- Clean sand
18	38.00	-38.00	60.00	130.00	3- Clean sand
19	40.50	-40.50	60.00	130.00	3- Clean sand
20	43.00	-43.00	66.00	130.00	3- Clean sand
21	45.50	-45.50	15.00	110.00	3- Clean sand
22	48.00	-48.00	29.00	120.00	3- Clean sand
23	50.50	-50.50	43.00	125.00	3- Clean sand
24	53.00	-53.00	65.00	130.00	3- Clean sand
25	55.50	-55.50	48.00	125.00	3- Clean sand
26	58.00	-58.00	78.00	130.00	3- Clean sand
27	60.50	-60.50	48.00	125.00	3- Clean sand
28	63.00	-63.00	68.00	130.00	3- Clean sand
29	65.50	-65.50	31.00	120.00	3- Clean sand
30	68.00	-68.00	50.00	130.00	3- Clean sand
31	70.50	-70.50	38.00	125.00	3- Clean sand
32	73.00	-73.00	45.00	125.00	3- Clean sand
33	75.50	-75.50	46.00	125.00	3- Clean sand
34	78.00	-78.00	60.00	130.00	3- Clean sand
35	80.50	-80.50	59.00	130.00	3- Clean sand
36	83.00	-83.00	68.00	130.00	3- Clean sand
37	85.50	-85.50	37.00	125.00	3- Clean sand
38	88.00	-88.00	63.00	130.00	3- Clean sand
39	90.50	-90.50	24.00	115.00	3- Clean sand
40	93.00	-93.00	39.00	125.00	3- Clean sand
41	95.50	-95.50	36.00	125.00	3- Clean sand
42	98.00	-98.00	60.00	130.00	3- Clean sand
43	100.00	-100.00	60.00	130.00	3- Clean sand

ID	Cu-DIR (tsf)	qu (tsf)	qt (tsf)	Em (ksi)	qb (tsf)
1	N/A	N/A	N/A	N/A	N/A
2	N/A	N/A	N/A	N/A	N/A
3	N/A	N/A	N/A	N/A	N/A
4	N/A	N/A	N/A	N/A	N/A
5	N/A	N/A	N/A	N/A	N/A
6	N/A	N/A	N/A	N/A	N/A
7	N/A	N/A	N/A	N/A	N/A
8	N/A	N/A	N/A	N/A	N/A

9	N/A	N/A	N/A	N/A	N/A
10	N/A	N/A	N/A	N/A	N/A
11	N/A	N/A	N/A	N/A	N/A
12	N/A	N/A	N/A	N/A	N/A
13	N/A	N/A	N/A	N/A	N/A
14	N/A	N/A	N/A	N/A	N/A
15	N/A	N/A	N/A	N/A	N/A
16	N/A	N/A	N/A	N/A	N/A
17	N/A	N/A	N/A	N/A	N/A
18	N/A	N/A	N/A	N/A	N/A
19	N/A	N/A	N/A	N/A	N/A
20	N/A	N/A	N/A	N/A	N/A
21	N/A	N/A	N/A	N/A	N/A
22	N/A	N/A	N/A	N/A	N/A
23	N/A	N/A	N/A	N/A	N/A
24	N/A	N/A	N/A	N/A	N/A
25	N/A	N/A	N/A	N/A	N/A
26	N/A	N/A	N/A	N/A	N/A
27	N/A	N/A	N/A	N/A	N/A
28	N/A	N/A	N/A	N/A	N/A
29	N/A	N/A	N/A	N/A	N/A
30	N/A	N/A	N/A	N/A	N/A
31	N/A	N/A	N/A	N/A	N/A
32	N/A	N/A	N/A	N/A	N/A
33	N/A	N/A	N/A	N/A	N/A
34	N/A	N/A	N/A	N/A	N/A
35	N/A	N/A	N/A	N/A	N/A
36	N/A	N/A	N/A	N/A	N/A
37	N/A	N/A	N/A	N/A	N/A
38	N/A	N/A	N/A	N/A	N/A
39	N/A	N/A	N/A	N/A	N/A
40	N/A	N/A	N/A	N/A	N/A
41	N/A	N/A	N/A	N/A	N/A
42	N/A	N/A	N/A	N/A	N/A
43	N/A	N/A	N/A	N/A	N/A

ID	RQD F.M.	S.R.I.	Rock Recovery
1	N/A	N/A	N/A
2	N/A	N/A	N/A
3	N/A	N/A	N/A
4	N/A	N/A	N/A
5	N/A	N/A	N/A
6	N/A	N/A	N/A
7	N/A	N/A	N/A
8	N/A	N/A	N/A
9	N/A	N/A	N/A
10	N/A	N/A	N/A
11	N/A	N/A	N/A
12	N/A	N/A	N/A
13	N/A	N/A	N/A
14	N/A	N/A	N/A
15	N/A	N/A	N/A
16	N/A	N/A	N/A
17	N/A	N/A	N/A
18	N/A	N/A	N/A
19	N/A	N/A	N/A
20	N/A	N/A	N/A
21	N/A	N/A	N/A
22	N/A	N/A	N/A
23	N/A	N/A	N/A
24	N/A	N/A	N/A
25	N/A	N/A	N/A
26	N/A	N/A	N/A
27	N/A	N/A	N/A
28	N/A	N/A	N/A
29	N/A	N/A	N/A
30	N/A	N/A	N/A
31	N/A	N/A	N/A
32	N/A	N/A	N/A
33	N/A	N/A	N/A
34	N/A	N/A	N/A
35	N/A	N/A	N/A
36	N/A	N/A	N/A
37	N/A	N/A	N/A
38	N/A	N/A	N/A
39	N/A	N/A	N/A
40	N/A	N/A	N/A
41	N/A	N/A	N/A
42	N/A	N/A	N/A
43	N/A	N/A	N/A

Drilled Shaft Data:
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Shaft Geometry:

ID	Length (ft)	Tip Elev. (ft)	Case Len. (ft)	Diameter (in)	Base Diam. (in)	Bell Len. (ft)
1	15.00	-15.00	6.00	60.00	60.00	0.00
2	16.00	-16.00	6.00	60.00	60.00	0.00
3	17.00	-17.00	6.00	60.00	60.00	0.00
4	18.00	-18.00	6.00	60.00	60.00	0.00
5	19.00	-19.00	6.00	60.00	60.00	0.00
6	20.00	-20.00	6.00	60.00	60.00	0.00
7	21.00	-21.00	6.00	60.00	60.00	0.00
8	22.00	-22.00	6.00	60.00	60.00	0.00
9	23.00	-23.00	6.00	60.00	60.00	0.00
10	24.00	-24.00	6.00	60.00	60.00	0.00
11	25.00	-25.00	6.00	60.00	60.00	0.00
12	26.00	-26.00	6.00	60.00	60.00	0.00
13	27.00	-27.00	6.00	60.00	60.00	0.00
14	28.00	-28.00	6.00	60.00	60.00	0.00
15	29.00	-29.00	6.00	60.00	60.00	0.00
16	30.00	-30.00	6.00	60.00	60.00	0.00
17	31.00	-31.00	6.00	60.00	60.00	0.00
18	32.00	-32.00	6.00	60.00	60.00	0.00
19	33.00	-33.00	6.00	60.00	60.00	0.00
20	34.00	-34.00	6.00	60.00	60.00	0.00
21	35.00	-35.00	6.00	60.00	60.00	0.00
22	36.00	-36.00	6.00	60.00	60.00	0.00
23	37.00	-37.00	6.00	60.00	60.00	0.00
24	38.00	-38.00	6.00	60.00	60.00	0.00
25	39.00	-39.00	6.00	60.00	60.00	0.00
26	40.00	-40.00	6.00	60.00	60.00	0.00
27	41.00	-41.00	6.00	60.00	60.00	0.00
28	42.00	-42.00	6.00	60.00	60.00	0.00
29	43.00	-43.00	6.00	60.00	60.00	0.00
30	44.00	-44.00	6.00	60.00	60.00	0.00
31	45.00	-45.00	6.00	60.00	60.00	0.00
32	46.00	-46.00	6.00	60.00	60.00	0.00
33	47.00	-47.00	6.00	60.00	60.00	0.00
34	48.00	-48.00	6.00	60.00	60.00	0.00
35	49.00	-49.00	6.00	60.00	60.00	0.00
36	50.00	-50.00	6.00	60.00	60.00	0.00
37	51.00	-51.00	6.00	60.00	60.00	0.00
38	52.00	-52.00	6.00	60.00	60.00	0.00
39	53.00	-53.00	6.00	60.00	60.00	0.00
40	54.00	-54.00	6.00	60.00	60.00	0.00
41	55.00	-55.00	6.00	60.00	60.00	0.00
42	56.00	-56.00	6.00	60.00	60.00	0.00
43	57.00	-57.00	6.00	60.00	60.00	0.00
44	58.00	-58.00	6.00	60.00	60.00	0.00
45	59.00	-59.00	6.00	60.00	60.00	0.00
46	60.00	-60.00	6.00	60.00	60.00	0.00
47	61.00	-61.00	6.00	60.00	60.00	0.00
48	62.00	-62.00	6.00	60.00	60.00	0.00
49	63.00	-63.00	6.00	60.00	60.00	0.00
50	64.00	-64.00	6.00	60.00	60.00	0.00
51	65.00	-65.00	6.00	60.00	60.00	0.00
52	66.00	-66.00	6.00	60.00	60.00	0.00
53	67.00	-67.00	6.00	60.00	60.00	0.00
54	68.00	-68.00	6.00	60.00	60.00	0.00
55	69.00	-69.00	6.00	60.00	60.00	0.00
56	70.00	-70.00	6.00	60.00	60.00	0.00
57	71.00	-71.00	6.00	60.00	60.00	0.00
58	72.00	-72.00	6.00	60.00	60.00	0.00
59	73.00	-73.00	6.00	60.00	60.00	0.00
60	74.00	-74.00	6.00	60.00	60.00	0.00
61	75.00	-75.00	6.00	60.00	60.00	0.00
62	76.00	-76.00	6.00	60.00	60.00	0.00
63	77.00	-77.00	6.00	60.00	60.00	0.00
64	78.00	-78.00	6.00	60.00	60.00	0.00
65	79.00	-79.00	6.00	60.00	60.00	0.00
66	80.00	-80.00	6.00	60.00	60.00	0.00
67	81.00	-81.00	6.00	60.00	60.00	0.00
68	82.00	-82.00	6.00	60.00	60.00	0.00
69	83.00	-83.00	6.00	60.00	60.00	0.00
70	84.00	-84.00	6.00	60.00	60.00	0.00
71	85.00	-85.00	6.00	60.00	60.00	0.00
72	86.00	-86.00	6.00	60.00	60.00	0.00
73	87.00	-87.00	6.00	60.00	60.00	0.00
74	88.00	-88.00	6.00	60.00	60.00	0.00
75	89.00	-89.00	6.00	60.00	60.00	0.00
76	90.00	-90.00	6.00	60.00	60.00	0.00
77	91.00	-91.00	6.00	60.00	60.00	0.00
78	92.00	-92.00	6.00	60.00	60.00	0.00
79	93.00	-93.00	6.00	60.00	60.00	0.00
80	94.00	-94.00	6.00	60.00	60.00	0.00
81	95.00	-95.00	6.00	60.00	60.00	0.00

Drilled Shaft Capacity (sorted by shaft diameter):

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Strength reduction factors: Skin-friction = 1.00, End-bearing = 1.00

ID	Diameter (in)	Length (ft)	Skin Fric. (tons)	End Bearing (tons)	Capacity (tons)
1	60.00	15.00	4.757	177.055	181.812
2	60.00	16.00	6.888	178.044	184.932
3	60.00	17.00	9.408	178.409	187.817
4	60.00	18.00	12.312	335.442	347.754
5	60.00	19.00	15.594	353.789	369.383
6	60.00	20.00	19.269	365.816	385.085
7	60.00	21.00	23.307	377.503	400.810
8	60.00	22.00	27.615	389.062	416.676
9	60.00	23.00	32.176	397.780	429.956
10	60.00	24.00	37.008	403.199	440.207
11	60.00	25.00	42.141	404.861	447.002
12	60.00	26.00	47.560	404.328	451.888
13	60.00	27.00	53.254	410.967	464.222
14	60.00	28.00	59.218	426.340	485.559
15	60.00	29.00	65.465	443.645	509.110
16	60.00	30.00	72.021	456.081	528.102
17	60.00	31.00	78.869	464.296	543.165
18	60.00	32.00	85.974	472.187	558.160
19	60.00	33.00	93.327	480.402	573.728
20	60.00	34.00	100.924	484.021	584.945
21	60.00	35.00	108.777	478.124	586.901
22	60.00	36.00	116.873	464.326	581.200
23	60.00	37.00	125.200	452.322	577.522
24	60.00	38.00	133.753	443.725	577.478
25	60.00	39.00	142.514	438.212	580.726
26	60.00	40.00	151.480	435.455	586.935
27	60.00	41.00	160.640	435.111	595.750
28	60.00	42.00	169.982	435.111	605.092
29	60.00	43.00	179.502	435.111	614.613
30	60.00	44.00	189.184	434.083	623.267
31	60.00	45.00	199.024	431.000	630.024
32	60.00	46.00	209.001	426.261	635.262
33	60.00	47.00	219.036	422.260	641.295
34	60.00	48.00	229.115	419.394	648.509
35	60.00	49.00	239.250	417.557	656.807
36	60.00	50.00	249.461	416.638	666.099
37	60.00	51.00	259.743	417.550	677.293
38	60.00	52.00	270.102	425.771	695.873
39	60.00	53.00	280.538	442.212	722.750
40	60.00	54.00	291.048	459.356	750.404
41	60.00	55.00	301.638	469.685	771.323
42	60.00	56.00	312.297	473.876	786.173
43	60.00	57.00	323.001	475.985	798.986
44	60.00	58.00	333.745	476.688	810.432
45	60.00	59.00	344.524	476.405	820.929
46	60.00	60.00	355.346	475.557	830.903
47	60.00	61.00	366.200	474.284	840.484
48	60.00	62.00	377.062	473.436	850.498
49	60.00	63.00	387.929	473.153	861.083
50	60.00	64.00	398.797	472.775	871.572
51	60.00	65.00	409.670	471.640	881.310
52	60.00	66.00	420.537	469.938	890.475
53	60.00	67.00	431.366	468.803	900.169
54	60.00	68.00	442.150	468.425	910.575
55	60.00	69.00	452.894	468.330	921.224
56	60.00	70.00	463.610	468.048	931.657
57	60.00	71.00	474.288	468.002	942.290
58	60.00	72.00	484.909	470.745	955.655
59	60.00	73.00	495.470	476.704	972.174
60	60.00	74.00	505.958	482.352	988.310
61	60.00	75.00	516.372	484.165	1000.537
62	60.00	76.00	526.704	482.818	1009.522
63	60.00	77.00	536.948	482.358	1019.306
64	60.00	78.00	547.100	483.462	1030.562
65	60.00	79.00	557.156	482.983	1040.139
66	60.00	80.00	567.120	477.775	1044.895
67	60.00	81.00	576.983	468.888	1045.870
68	60.00	82.00	586.738	462.604	1049.342
69	60.00	83.00	596.382	459.973	1056.356
70	60.00	84.00	605.904	458.668	1064.573
71	60.00	85.00	615.302	456.363	1071.665
72	60.00	86.00	624.569	453.348	1077.918
73	60.00	87.00	633.894	451.365	1085.259
74	60.00	88.00	643.341	450.704	1094.045
75	60.00	89.00	652.916	450.042	1102.958
76	60.00	90.00	662.624	448.055	1110.679
77	60.00	91.00	Soil Elevations Must Extend At or Below Contribution Zone		
78	60.00	92.00	Soil Elevations Must Extend At or Below Contribution Zone		
79	60.00	93.00	Soil Elevations Must Extend At or Below Contribution Zone		
80	60.00	94.00	Soil Elevations Must Extend At or Below Contribution Zone		
81	60.00	95.00	Soil Elevations Must Extend At or Below Contribution Zone		

Drilled Shaft Capacity at User-Defined Settlement (sorted by shaft diameter):
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***** Capacity is NOT modified by the strength reduction factors *****

User-Defined Settlement = 0.83%

ID	Diameter (in)	Length (ft)	Skin Fric. (tons)	End Bearing (tons)	Capacity (tons)
1	60.00	15.00	4.636	46.228	50.863
2	60.00	16.00	6.713	46.486	53.198
3	60.00	17.00	9.168	46.581	55.749
4	60.00	18.00	11.998	87.581	99.579
5	60.00	19.00	15.197	92.371	107.568
6	60.00	20.00	18.778	95.512	114.290
7	60.00	21.00	22.713	98.563	121.276
8	60.00	22.00	26.911	101.581	128.492
9	60.00	23.00	31.356	103.857	135.213
10	60.00	24.00	36.065	105.272	141.337
11	60.00	25.00	41.066	105.706	146.772
12	60.00	26.00	46.348	105.567	151.915
13	60.00	27.00	51.896	107.300	159.197
14	60.00	28.00	57.709	111.314	169.023
15	60.00	29.00	63.796	115.832	179.628
16	60.00	30.00	70.185	119.079	189.264
17	60.00	31.00	76.859	121.224	198.083
18	60.00	32.00	83.782	123.284	207.066
19	60.00	33.00	90.947	125.429	216.376
20	60.00	34.00	98.351	126.374	224.725
21	60.00	35.00	106.004	124.834	230.839
22	60.00	36.00	113.894	121.232	235.126
23	60.00	37.00	122.008	118.098	240.106
24	60.00	38.00	130.343	115.853	246.196
25	60.00	39.00	138.880	114.414	253.294
26	60.00	40.00	147.618	113.694	261.312
27	60.00	41.00	156.544	113.604	270.148
28	60.00	42.00	165.648	113.604	279.252
29	60.00	43.00	174.926	113.604	288.530
30	60.00	44.00	184.361	113.336	297.696
31	60.00	45.00	193.950	112.531	306.481
32	60.00	46.00	203.673	111.294	314.966
33	60.00	47.00	213.452	110.249	323.700
34	60.00	48.00	223.274	109.501	332.774
35	60.00	49.00	233.151	109.021	342.171
36	60.00	50.00	243.102	108.781	351.883
37	60.00	51.00	253.121	109.019	362.140
38	60.00	52.00	263.216	111.165	374.382
39	60.00	53.00	273.387	115.458	388.845
40	60.00	54.00	283.628	119.934	403.562
41	60.00	55.00	293.948	122.631	416.579
42	60.00	56.00	304.335	123.725	428.061
43	60.00	57.00	314.767	124.276	439.042
44	60.00	58.00	325.236	124.459	449.696
45	60.00	59.00	335.741	124.386	460.126
46	60.00	60.00	346.287	124.164	470.451
47	60.00	61.00	356.864	123.832	480.696
48	60.00	62.00	367.450	123.610	491.060
49	60.00	63.00	378.040	123.537	501.576
50	60.00	64.00	388.630	123.438	512.068
51	60.00	65.00	399.226	123.142	522.368
52	60.00	66.00	409.816	122.697	532.514
53	60.00	67.00	420.369	122.401	542.770
54	60.00	68.00	430.878	122.302	553.180
55	60.00	69.00	441.348	122.277	563.625
56	60.00	70.00	451.791	122.204	573.994
57	60.00	71.00	462.197	122.192	584.388
58	60.00	72.00	472.547	122.908	595.455
59	60.00	73.00	482.839	124.464	607.302
60	60.00	74.00	493.059	125.938	618.998
61	60.00	75.00	503.208	126.412	629.620
62	60.00	76.00	513.277	126.060	639.337
63	60.00	77.00	523.259	125.940	649.199
64	60.00	78.00	533.153	126.228	659.381
65	60.00	79.00	542.952	126.103	669.055
66	60.00	80.00	552.662	124.743	677.405
67	60.00	81.00	562.273	122.423	684.696
68	60.00	82.00	571.780	120.782	692.562
69	60.00	83.00	581.179	120.095	701.274
70	60.00	84.00	590.458	119.755	710.213
71	60.00	85.00	599.616	119.153	718.769
72	60.00	86.00	608.647	118.366	727.013
73	60.00	87.00	617.734	117.848	735.581
74	60.00	88.00	626.940	117.675	744.615
75	60.00	89.00	636.271	117.502	753.774
76	60.00	90.00	645.732	116.984	762.715
77	60.00	91.00	Soil Elevations Must Extend At or Below Contribution Zone		

78	60.00	92.00 Soil Elevations Must Extend At or Below Contribution Zone
79	60.00	93.00 Soil Elevations Must Extend At or Below Contribution Zone
80	60.00	94.00 Soil Elevations Must Extend At or Below Contribution Zone
81	60.00	95.00 Soil Elevations Must Extend At or Below Contribution Zone

Florida Bridge Software Institute Date: February 16, 2018
Shaft and Pile Analysis (FB-Deep v.2.05) Time: 11:44:56

General Information:
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Input file: .....H)\Analysis_Structure\FB-Deep\Drilled Shaft\B-301Shaft48in.spc
Project number: 2000-01-17003
Job name: SW 10th Street, from Powerline Rd. to Military Trail
Engineer: JB Henry
Units: English

Analysis Information:
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Analysis Type: Drilled Shaft Analysis

Soil Information:
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Boring date: 2/1/2018
Boring number: B-301
Station number: Offset:

Ground Elevation: 0.00(ft)
Water table Elevation = 0.00(ft)

Hammer type: Automatic Hammer, Correction factor = 1.24

ID	Depth (ft)	Elevation (ft)	SPT Blows (Blows/ft)	Unit Weight (pcf)	Soil Type
1	0.00	-0.00	N/A	0.00	5- Cavity layer
2	2.00	-2.00	N/A	0.00	5- Cavity layer
3	4.00	-4.00	N/A	0.00	5- Cavity layer
4	6.00	-6.00	N/A	0.00	5- Cavity layer
5	8.00	-8.00	N/A	0.00	5- Cavity layer
6	10.00	-10.00	15.00	110.00	3- Clean sand
7	12.00	-12.00	5.00	105.00	3- Clean sand
8	13.50	-13.50	19.00	115.00	3- Clean sand
9	15.50	-15.50	12.00	110.00	3- Clean sand
10	18.00	-18.00	25.00	120.00	3- Clean sand
11	20.50	-20.50	20.00	115.00	3- Clean sand
12	23.00	-23.00	50.00	130.00	3- Clean sand
13	25.50	-25.50	23.00	115.00	3- Clean sand
14	28.00	-28.00	37.00	125.00	3- Clean sand
15	30.50	-30.50	36.00	125.00	3- Clean sand
16	33.00	-33.00	69.00	130.00	3- Clean sand
17	35.50	-35.50	67.00	130.00	3- Clean sand
18	38.00	-38.00	60.00	130.00	3- Clean sand
19	40.50	-40.50	40.00	125.00	3- Clean sand
20	43.00	-43.00	33.00	125.00	3- Clean sand
21	45.50	-45.50	5.00	105.00	3- Clean sand
22	48.00	-48.00	13.00	110.00	3- Clean sand
23	50.50	-50.50	26.00	120.00	3- Clean sand
24	53.00	-53.00	69.00	130.00	3- Clean sand
25	55.50	-55.50	40.00	125.00	3- Clean sand
26	58.00	-58.00	58.00	130.00	3- Clean sand
27	60.50	-60.50	45.00	125.00	3- Clean sand
28	63.00	-63.00	69.00	130.00	3- Clean sand
29	65.50	-65.50	46.00	125.00	3- Clean sand
30	68.00	-68.00	63.00	130.00	3- Clean sand
31	70.50	-70.50	29.00	120.00	3- Clean sand
32	73.00	-73.00	34.00	125.00	3- Clean sand
33	75.50	-75.50	30.00	120.00	3- Clean sand
34	78.00	-78.00	61.00	130.00	3- Clean sand
35	80.50	-80.50	58.00	130.00	3- Clean sand
36	83.00	-83.00	60.00	130.00	3- Clean sand
37	85.50	-85.50	74.00	130.00	3- Clean sand
38	88.00	-88.00	60.00	130.00	3- Clean sand
39	90.50	-90.50	38.00	125.00	3- Clean sand
40	93.00	-93.00	32.00	125.00	3- Clean sand
41	95.50	-95.50	25.00	120.00	3- Clean sand
42	98.00	-98.00	44.00	125.00	3- Clean sand
43	100.00	-100.00	44.00	125.00	3- Clean sand

ID	Cu-DIR (tsf)	qu (tsf)	qt (tsf)	Em (ksi)	qb (tsf)
1	N/A	N/A	N/A	N/A	N/A
2	N/A	N/A	N/A	N/A	N/A
3	N/A	N/A	N/A	N/A	N/A
4	N/A	N/A	N/A	N/A	N/A
5	N/A	N/A	N/A	N/A	N/A
6	N/A	N/A	N/A	N/A	N/A
7	N/A	N/A	N/A	N/A	N/A
8	N/A	N/A	N/A	N/A	N/A

9	N/A	N/A	N/A	N/A	N/A
10	N/A	N/A	N/A	N/A	N/A
11	N/A	N/A	N/A	N/A	N/A
12	N/A	N/A	N/A	N/A	N/A
13	N/A	N/A	N/A	N/A	N/A
14	N/A	N/A	N/A	N/A	N/A
15	N/A	N/A	N/A	N/A	N/A
16	N/A	N/A	N/A	N/A	N/A
17	N/A	N/A	N/A	N/A	N/A
18	N/A	N/A	N/A	N/A	N/A
19	N/A	N/A	N/A	N/A	N/A
20	N/A	N/A	N/A	N/A	N/A
21	N/A	N/A	N/A	N/A	N/A
22	N/A	N/A	N/A	N/A	N/A
23	N/A	N/A	N/A	N/A	N/A
24	N/A	N/A	N/A	N/A	N/A
25	N/A	N/A	N/A	N/A	N/A
26	N/A	N/A	N/A	N/A	N/A
27	N/A	N/A	N/A	N/A	N/A
28	N/A	N/A	N/A	N/A	N/A
29	N/A	N/A	N/A	N/A	N/A
30	N/A	N/A	N/A	N/A	N/A
31	N/A	N/A	N/A	N/A	N/A
32	N/A	N/A	N/A	N/A	N/A
33	N/A	N/A	N/A	N/A	N/A
34	N/A	N/A	N/A	N/A	N/A
35	N/A	N/A	N/A	N/A	N/A
36	N/A	N/A	N/A	N/A	N/A
37	N/A	N/A	N/A	N/A	N/A
38	N/A	N/A	N/A	N/A	N/A
39	N/A	N/A	N/A	N/A	N/A
40	N/A	N/A	N/A	N/A	N/A
41	N/A	N/A	N/A	N/A	N/A
42	N/A	N/A	N/A	N/A	N/A
43	N/A	N/A	N/A	N/A	N/A

ID	RQD F.M.	S.R.I.	Rock Recovery
1	N/A	N/A	N/A
2	N/A	N/A	N/A
3	N/A	N/A	N/A
4	N/A	N/A	N/A
5	N/A	N/A	N/A
6	N/A	N/A	N/A
7	N/A	N/A	N/A
8	N/A	N/A	N/A
9	N/A	N/A	N/A
10	N/A	N/A	N/A
11	N/A	N/A	N/A
12	N/A	N/A	N/A
13	N/A	N/A	N/A
14	N/A	N/A	N/A
15	N/A	N/A	N/A
16	N/A	N/A	N/A
17	N/A	N/A	N/A
18	N/A	N/A	N/A
19	N/A	N/A	N/A
20	N/A	N/A	N/A
21	N/A	N/A	N/A
22	N/A	N/A	N/A
23	N/A	N/A	N/A
24	N/A	N/A	N/A
25	N/A	N/A	N/A
26	N/A	N/A	N/A
27	N/A	N/A	N/A
28	N/A	N/A	N/A
29	N/A	N/A	N/A
30	N/A	N/A	N/A
31	N/A	N/A	N/A
32	N/A	N/A	N/A
33	N/A	N/A	N/A
34	N/A	N/A	N/A
35	N/A	N/A	N/A
36	N/A	N/A	N/A
37	N/A	N/A	N/A
38	N/A	N/A	N/A
39	N/A	N/A	N/A
40	N/A	N/A	N/A
41	N/A	N/A	N/A
42	N/A	N/A	N/A
43	N/A	N/A	N/A

Drilled Shaft Data:
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Shaft Geometry:

ID	Length (ft)	Tip Elev. (ft)	Case Len. (ft)	Diameter (in)	Base Diam. (in)	Bell Len. (ft)
1	15.00	-15.00	6.00	48.00	48.00	0.00
2	16.00	-16.00	6.00	48.00	48.00	0.00
3	17.00	-17.00	6.00	48.00	48.00	0.00
4	18.00	-18.00	6.00	48.00	48.00	0.00
5	19.00	-19.00	6.00	48.00	48.00	0.00
6	20.00	-20.00	6.00	48.00	48.00	0.00
7	21.00	-21.00	6.00	48.00	48.00	0.00
8	22.00	-22.00	6.00	48.00	48.00	0.00
9	23.00	-23.00	6.00	48.00	48.00	0.00
10	24.00	-24.00	6.00	48.00	48.00	0.00
11	25.00	-25.00	6.00	48.00	48.00	0.00
12	26.00	-26.00	6.00	48.00	48.00	0.00
13	27.00	-27.00	6.00	48.00	48.00	0.00
14	28.00	-28.00	6.00	48.00	48.00	0.00
15	29.00	-29.00	6.00	48.00	48.00	0.00
16	30.00	-30.00	6.00	48.00	48.00	0.00
17	31.00	-31.00	6.00	48.00	48.00	0.00
18	32.00	-32.00	6.00	48.00	48.00	0.00
19	33.00	-33.00	6.00	48.00	48.00	0.00
20	34.00	-34.00	6.00	48.00	48.00	0.00
21	35.00	-35.00	6.00	48.00	48.00	0.00
22	36.00	-36.00	6.00	48.00	48.00	0.00
23	37.00	-37.00	6.00	48.00	48.00	0.00
24	38.00	-38.00	6.00	48.00	48.00	0.00
25	39.00	-39.00	6.00	48.00	48.00	0.00
26	40.00	-40.00	6.00	48.00	48.00	0.00
27	41.00	-41.00	6.00	48.00	48.00	0.00
28	42.00	-42.00	6.00	48.00	48.00	0.00
29	43.00	-43.00	6.00	48.00	48.00	0.00
30	44.00	-44.00	6.00	48.00	48.00	0.00
31	45.00	-45.00	6.00	48.00	48.00	0.00
32	46.00	-46.00	6.00	48.00	48.00	0.00
33	47.00	-47.00	6.00	48.00	48.00	0.00
34	48.00	-48.00	6.00	48.00	48.00	0.00
35	49.00	-49.00	6.00	48.00	48.00	0.00
36	50.00	-50.00	6.00	48.00	48.00	0.00
37	51.00	-51.00	6.00	48.00	48.00	0.00
38	52.00	-52.00	6.00	48.00	48.00	0.00
39	53.00	-53.00	6.00	48.00	48.00	0.00
40	54.00	-54.00	6.00	48.00	48.00	0.00
41	55.00	-55.00	6.00	48.00	48.00	0.00
42	56.00	-56.00	6.00	48.00	48.00	0.00
43	57.00	-57.00	6.00	48.00	48.00	0.00
44	58.00	-58.00	6.00	48.00	48.00	0.00
45	59.00	-59.00	6.00	48.00	48.00	0.00
46	60.00	-60.00	6.00	48.00	48.00	0.00
47	61.00	-61.00	6.00	48.00	48.00	0.00
48	62.00	-62.00	6.00	48.00	48.00	0.00
49	63.00	-63.00	6.00	48.00	48.00	0.00
50	64.00	-64.00	6.00	48.00	48.00	0.00
51	65.00	-65.00	6.00	48.00	48.00	0.00
52	66.00	-66.00	6.00	48.00	48.00	0.00
53	67.00	-67.00	6.00	48.00	48.00	0.00
54	68.00	-68.00	6.00	48.00	48.00	0.00
55	69.00	-69.00	6.00	48.00	48.00	0.00
56	70.00	-70.00	6.00	48.00	48.00	0.00
57	71.00	-71.00	6.00	48.00	48.00	0.00
58	72.00	-72.00	6.00	48.00	48.00	0.00
59	73.00	-73.00	6.00	48.00	48.00	0.00
60	74.00	-74.00	6.00	48.00	48.00	0.00
61	75.00	-75.00	6.00	48.00	48.00	0.00
62	76.00	-76.00	6.00	48.00	48.00	0.00
63	77.00	-77.00	6.00	48.00	48.00	0.00
64	78.00	-78.00	6.00	48.00	48.00	0.00
65	79.00	-79.00	6.00	48.00	48.00	0.00
66	80.00	-80.00	6.00	48.00	48.00	0.00
67	81.00	-81.00	6.00	48.00	48.00	0.00
68	82.00	-82.00	6.00	48.00	48.00	0.00
69	83.00	-83.00	6.00	48.00	48.00	0.00
70	84.00	-84.00	6.00	48.00	48.00	0.00
71	85.00	-85.00	6.00	48.00	48.00	0.00
72	86.00	-86.00	6.00	48.00	48.00	0.00
73	87.00	-87.00	6.00	48.00	48.00	0.00
74	88.00	-88.00	6.00	48.00	48.00	0.00
75	89.00	-89.00	6.00	48.00	48.00	0.00
76	90.00	-90.00	6.00	48.00	48.00	0.00
77	91.00	-91.00	6.00	48.00	48.00	0.00
78	92.00	-92.00	6.00	48.00	48.00	0.00
79	93.00	-93.00	6.00	48.00	48.00	0.00
80	94.00	-94.00	6.00	48.00	48.00	0.00
81	95.00	-95.00	6.00	48.00	48.00	0.00

Drilled Shaft Capacity (sorted by shaft diameter):

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Strength reduction factors: Skin-friction = 1.00, End-bearing = 1.00

ID	Diameter (in)	Length (ft)	Skin Fric. (tons)	End Bearing (tons)	Capacity (tons)
1	48.00	15.00	2.987	107.717	110.704
2	48.00	16.00	4.586	180.547	185.134
3	48.00	17.00	6.437	191.647	198.084
4	48.00	18.00	8.537	204.521	213.059
5	48.00	19.00	10.918	218.377	229.294
6	48.00	20.00	13.588	229.093	242.680
7	48.00	21.00	16.531	242.662	259.194
8	48.00	22.00	19.717	259.214	278.931
9	48.00	23.00	23.137	274.068	297.205
10	48.00	24.00	26.817	285.841	312.658
11	48.00	25.00	30.792	296.029	326.821
12	48.00	26.00	35.042	307.235	342.277
13	48.00	27.00	39.496	319.799	359.294
14	48.00	28.00	44.142	328.106	372.249
15	48.00	29.00	48.993	330.587	379.580
16	48.00	30.00	54.069	332.522	386.591
17	48.00	31.00	59.360	339.792	399.153
18	48.00	32.00	64.857	351.450	416.307
19	48.00	33.00	70.556	360.031	430.587
20	48.00	34.00	76.454	362.977	439.430
21	48.00	35.00	82.558	362.261	444.819
22	48.00	36.00	88.861	357.766	446.626
23	48.00	37.00	95.350	346.830	442.180
24	48.00	38.00	102.023	329.262	431.285
25	48.00	39.00	108.865	311.153	420.018
26	48.00	40.00	115.874	294.215	410.089
27	48.00	41.00	123.039	279.641	402.679
28	48.00	42.00	130.334	267.625	397.959
29	48.00	43.00	137.755	258.141	395.896
30	48.00	44.00	145.290	250.602	395.892
31	48.00	45.00	152.936	244.280	397.216
32	48.00	46.00	158.451	237.863	396.315
33	48.00	47.00	161.805	232.005	393.810
34	48.00	48.00	165.225	228.635	393.860
35	48.00	49.00	173.043	228.321	401.364
36	48.00	50.00	180.892	234.548	415.441
37	48.00	51.00	188.771	250.566	439.337
38	48.00	52.00	196.700	275.010	471.710
39	48.00	53.00	204.679	299.479	504.159
40	48.00	54.00	212.717	322.001	534.717
41	48.00	55.00	220.825	341.225	562.050
42	48.00	56.00	228.995	356.379	585.374
43	48.00	57.00	237.208	367.448	604.656
44	48.00	58.00	245.458	374.131	619.589
45	48.00	59.00	253.744	376.363	630.107
46	48.00	60.00	262.070	376.413	638.484
47	48.00	61.00	270.428	375.241	645.669
48	48.00	62.00	278.799	371.497	650.297
49	48.00	63.00	287.180	365.509	652.689
50	48.00	64.00	295.568	360.111	655.679
51	48.00	65.00	303.966	355.832	659.799
52	48.00	66.00	312.367	351.671	664.038
53	48.00	67.00	320.754	346.574	667.328
54	48.00	68.00	329.124	340.960	670.084
55	48.00	69.00	337.472	336.900	674.372
56	48.00	70.00	345.804	334.370	680.174
57	48.00	71.00	354.109	332.324	686.433
58	48.00	72.00	362.364	330.508	692.872
59	48.00	73.00	370.564	329.082	699.646
60	48.00	74.00	378.707	327.695	706.402
61	48.00	75.00	386.797	327.760	714.557
62	48.00	76.00	394.825	331.182	726.007
63	48.00	77.00	402.779	338.161	740.940
64	48.00	78.00	410.656	345.022	755.678
65	48.00	79.00	418.457	350.727	769.185
66	48.00	80.00	426.191	356.277	782.468
67	48.00	81.00	433.850	362.801	796.651
68	48.00	82.00	441.429	369.471	810.900
69	48.00	83.00	448.925	372.832	821.757
70	48.00	84.00	456.329	371.681	828.011
71	48.00	85.00	463.640	367.519	831.159
72	48.00	86.00	470.853	361.838	832.691
73	48.00	87.00	478.120	354.521	832.641
74	48.00	88.00	485.494	346.219	831.713
75	48.00	89.00	492.973	340.757	833.730
76	48.00	90.00	500.559	338.694	839.253
77	48.00	91.00	508.250	338.206	846.456
78	48.00	92.00	516.040	337.286	853.326
79	48.00	93.00	Soil Elevations Must Extend At or Below Contribution Zone		
80	48.00	94.00	Soil Elevations Must Extend At or Below Contribution Zone		
81	48.00	95.00	Soil Elevations Must Extend At or Below Contribution Zone		

Drilled Shaft Capacity at User-Defined Settlement (sorted by shaft diameter):
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***** Capacity is NOT modified by the strength reduction factors *****

User-Defined Settlement = 1.04%

ID	Diameter (in)	Length (ft)	Skin Fric. (tons)	End Bearing (tons)	Capacity (tons)
1	48.00	15.00	2.922	34.243	37.165
2	48.00	16.00	4.486	57.396	61.882
3	48.00	17.00	6.296	60.925	67.221
4	48.00	18.00	8.350	65.017	73.368
5	48.00	19.00	10.679	69.422	80.101
6	48.00	20.00	13.290	72.829	86.119
7	48.00	21.00	16.170	77.142	93.312
8	48.00	22.00	19.285	82.404	101.690
9	48.00	23.00	22.631	87.126	109.757
10	48.00	24.00	26.230	90.869	117.099
11	48.00	25.00	30.118	94.108	124.226
12	48.00	26.00	34.275	97.670	131.945
13	48.00	27.00	38.631	101.664	140.295
14	48.00	28.00	43.176	104.305	147.481
15	48.00	29.00	47.920	105.094	153.014
16	48.00	30.00	52.885	105.709	158.594
17	48.00	31.00	58.061	108.020	166.081
18	48.00	32.00	63.438	111.726	175.164
19	48.00	33.00	69.012	114.454	183.466
20	48.00	34.00	74.780	115.390	190.171
21	48.00	35.00	80.751	115.163	195.914
22	48.00	36.00	86.916	113.734	200.649
23	48.00	37.00	93.263	110.257	203.520
24	48.00	38.00	99.790	104.673	204.462
25	48.00	39.00	106.482	98.916	205.398
26	48.00	40.00	113.338	93.531	206.869
27	48.00	41.00	120.345	88.898	209.243
28	48.00	42.00	127.481	85.078	212.559
29	48.00	43.00	134.740	82.063	216.803
30	48.00	44.00	142.110	79.666	221.776
31	48.00	45.00	149.588	77.657	227.245
32	48.00	46.00	154.983	75.617	230.600
33	48.00	47.00	158.263	73.754	232.017
34	48.00	48.00	161.609	72.683	234.292
35	48.00	49.00	169.255	72.583	241.839
36	48.00	50.00	176.933	74.563	251.496
37	48.00	51.00	184.639	79.655	264.294
38	48.00	52.00	192.394	87.426	279.820
39	48.00	53.00	200.199	95.205	295.404
40	48.00	54.00	208.061	102.364	310.425
41	48.00	55.00	215.992	108.475	324.467
42	48.00	56.00	223.983	113.293	337.276
43	48.00	57.00	232.016	116.812	348.828
44	48.00	58.00	240.086	118.936	359.022
45	48.00	59.00	248.190	119.646	367.836
46	48.00	60.00	256.334	119.662	375.996
47	48.00	61.00	264.509	119.289	383.798
48	48.00	62.00	272.697	118.099	390.796
49	48.00	63.00	280.895	116.195	397.090
50	48.00	64.00	289.098	114.480	403.578
51	48.00	65.00	297.313	113.119	410.432
52	48.00	66.00	305.530	111.796	417.326
53	48.00	67.00	313.734	110.176	423.910
54	48.00	68.00	321.920	108.391	430.311
55	48.00	69.00	330.086	107.101	437.186
56	48.00	70.00	338.235	106.296	444.531
57	48.00	71.00	346.358	105.646	452.004
58	48.00	72.00	354.433	105.069	459.501
59	48.00	73.00	362.454	104.615	467.069
60	48.00	74.00	370.418	104.174	474.592
61	48.00	75.00	378.330	104.195	482.525
62	48.00	76.00	386.183	105.283	491.466
63	48.00	77.00	393.963	107.501	501.465
64	48.00	78.00	401.668	109.683	511.350
65	48.00	79.00	409.298	111.496	520.795
66	48.00	80.00	416.862	113.260	530.123
67	48.00	81.00	424.354	115.335	539.689
68	48.00	82.00	431.767	117.455	549.222
69	48.00	83.00	439.099	118.523	557.623
70	48.00	84.00	446.341	118.158	564.499
71	48.00	85.00	453.492	116.834	570.326
72	48.00	86.00	460.547	115.028	575.575
73	48.00	87.00	467.655	112.702	580.357
74	48.00	88.00	474.867	110.063	584.930
75	48.00	89.00	482.183	108.327	590.509
76	48.00	90.00	489.602	107.671	597.274
77	48.00	91.00	497.125	107.516	604.641

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 78      48.00      92.00      504.745     107.223     611.968
 79      48.00      93.00 Soil Elevations Must Extend At or Below Contribution Zone
 80      48.00      94.00 Soil Elevations Must Extend At or Below Contribution Zone
 81      48.00      95.00 Soil Elevations Must Extend At or Below Contribution Zone
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General Information:
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Input file: .....H)\Analysis_Structure\FB-Deep\Drilled Shaft\B-301Shaft60in.spc
Project number: 2000-01-17003
Job name: SW 10th Street, from Powerline Rd. to Military Trail
Engineer: JB Henry
Units: English

Analysis Information:
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Analysis Type: Drilled Shaft Analysis

Soil Information:
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Boring date: 2/1/2018
Boring number: B-301
Station number: Offset:

Ground Elevation: 0.00(ft)
Water table Elevation = 0.00(ft)

Hammer type: Automatic Hammer, Correction factor = 1.24

ID	Depth (ft)	Elevation (ft)	SPT Blows (Blows/ft)	Unit Weight (pcf)	Soil Type
1	0.00	-0.00	N/A	0.00	5- Cavity layer
2	2.00	-2.00	N/A	0.00	5- Cavity layer
3	4.00	-4.00	N/A	0.00	5- Cavity layer
4	6.00	-6.00	N/A	0.00	5- Cavity layer
5	8.00	-8.00	N/A	0.00	5- Cavity layer
6	10.00	-10.00	15.00	110.00	3- Clean sand
7	12.00	-12.00	5.00	105.00	3- Clean sand
8	13.50	-13.50	19.00	115.00	3- Clean sand
9	15.50	-15.50	12.00	110.00	3- Clean sand
10	18.00	-18.00	25.00	120.00	3- Clean sand
11	20.50	-20.50	20.00	115.00	3- Clean sand
12	23.00	-23.00	50.00	130.00	3- Clean sand
13	25.50	-25.50	23.00	115.00	3- Clean sand
14	28.00	-28.00	37.00	125.00	3- Clean sand
15	30.50	-30.50	36.00	125.00	3- Clean sand
16	33.00	-33.00	69.00	130.00	3- Clean sand
17	35.50	-35.50	67.00	130.00	3- Clean sand
18	38.00	-38.00	60.00	130.00	3- Clean sand
19	40.50	-40.50	40.00	125.00	3- Clean sand
20	43.00	-43.00	33.00	125.00	3- Clean sand
21	45.50	-45.50	5.00	105.00	3- Clean sand
22	48.00	-48.00	13.00	110.00	3- Clean sand
23	50.50	-50.50	26.00	120.00	3- Clean sand
24	53.00	-53.00	69.00	130.00	3- Clean sand
25	55.50	-55.50	40.00	125.00	3- Clean sand
26	58.00	-58.00	58.00	130.00	3- Clean sand
27	60.50	-60.50	45.00	125.00	3- Clean sand
28	63.00	-63.00	69.00	130.00	3- Clean sand
29	65.50	-65.50	46.00	125.00	3- Clean sand
30	68.00	-68.00	63.00	130.00	3- Clean sand
31	70.50	-70.50	29.00	120.00	3- Clean sand
32	73.00	-73.00	34.00	125.00	3- Clean sand
33	75.50	-75.50	30.00	120.00	3- Clean sand
34	78.00	-78.00	61.00	130.00	3- Clean sand
35	80.50	-80.50	58.00	130.00	3- Clean sand
36	83.00	-83.00	60.00	130.00	3- Clean sand
37	85.50	-85.50	74.00	130.00	3- Clean sand
38	88.00	-88.00	60.00	130.00	3- Clean sand
39	90.50	-90.50	38.00	125.00	3- Clean sand
40	93.00	-93.00	32.00	125.00	3- Clean sand
41	95.50	-95.50	25.00	120.00	3- Clean sand
42	98.00	-98.00	44.00	125.00	3- Clean sand
43	100.00	-100.00	44.00	125.00	3- Clean sand

ID	Cu-DIR (tsf)	qu (tsf)	qt (tsf)	Em (ksi)	qb (tsf)
1	N/A	N/A	N/A	N/A	N/A
2	N/A	N/A	N/A	N/A	N/A
3	N/A	N/A	N/A	N/A	N/A
4	N/A	N/A	N/A	N/A	N/A
5	N/A	N/A	N/A	N/A	N/A
6	N/A	N/A	N/A	N/A	N/A
7	N/A	N/A	N/A	N/A	N/A
8	N/A	N/A	N/A	N/A	N/A

9	N/A	N/A	N/A	N/A	N/A
10	N/A	N/A	N/A	N/A	N/A
11	N/A	N/A	N/A	N/A	N/A
12	N/A	N/A	N/A	N/A	N/A
13	N/A	N/A	N/A	N/A	N/A
14	N/A	N/A	N/A	N/A	N/A
15	N/A	N/A	N/A	N/A	N/A
16	N/A	N/A	N/A	N/A	N/A
17	N/A	N/A	N/A	N/A	N/A
18	N/A	N/A	N/A	N/A	N/A
19	N/A	N/A	N/A	N/A	N/A
20	N/A	N/A	N/A	N/A	N/A
21	N/A	N/A	N/A	N/A	N/A
22	N/A	N/A	N/A	N/A	N/A
23	N/A	N/A	N/A	N/A	N/A
24	N/A	N/A	N/A	N/A	N/A
25	N/A	N/A	N/A	N/A	N/A
26	N/A	N/A	N/A	N/A	N/A
27	N/A	N/A	N/A	N/A	N/A
28	N/A	N/A	N/A	N/A	N/A
29	N/A	N/A	N/A	N/A	N/A
30	N/A	N/A	N/A	N/A	N/A
31	N/A	N/A	N/A	N/A	N/A
32	N/A	N/A	N/A	N/A	N/A
33	N/A	N/A	N/A	N/A	N/A
34	N/A	N/A	N/A	N/A	N/A
35	N/A	N/A	N/A	N/A	N/A
36	N/A	N/A	N/A	N/A	N/A
37	N/A	N/A	N/A	N/A	N/A
38	N/A	N/A	N/A	N/A	N/A
39	N/A	N/A	N/A	N/A	N/A
40	N/A	N/A	N/A	N/A	N/A
41	N/A	N/A	N/A	N/A	N/A
42	N/A	N/A	N/A	N/A	N/A
43	N/A	N/A	N/A	N/A	N/A

ID	RQD F.M.	S.R.I.	Rock Recovery
1	N/A	N/A	N/A
2	N/A	N/A	N/A
3	N/A	N/A	N/A
4	N/A	N/A	N/A
5	N/A	N/A	N/A
6	N/A	N/A	N/A
7	N/A	N/A	N/A
8	N/A	N/A	N/A
9	N/A	N/A	N/A
10	N/A	N/A	N/A
11	N/A	N/A	N/A
12	N/A	N/A	N/A
13	N/A	N/A	N/A
14	N/A	N/A	N/A
15	N/A	N/A	N/A
16	N/A	N/A	N/A
17	N/A	N/A	N/A
18	N/A	N/A	N/A
19	N/A	N/A	N/A
20	N/A	N/A	N/A
21	N/A	N/A	N/A
22	N/A	N/A	N/A
23	N/A	N/A	N/A
24	N/A	N/A	N/A
25	N/A	N/A	N/A
26	N/A	N/A	N/A
27	N/A	N/A	N/A
28	N/A	N/A	N/A
29	N/A	N/A	N/A
30	N/A	N/A	N/A
31	N/A	N/A	N/A
32	N/A	N/A	N/A
33	N/A	N/A	N/A
34	N/A	N/A	N/A
35	N/A	N/A	N/A
36	N/A	N/A	N/A
37	N/A	N/A	N/A
38	N/A	N/A	N/A
39	N/A	N/A	N/A
40	N/A	N/A	N/A
41	N/A	N/A	N/A
42	N/A	N/A	N/A
43	N/A	N/A	N/A

Drilled Shaft Data:
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Shaft Geometry:

ID	Length (ft)	Tip Elev. (ft)	Case Len. (ft)	Diameter (in)	Base Diam. (in)	Bell Len. (ft)
1	15.00	-15.00	6.00	60.00	60.00	0.00
2	16.00	-16.00	6.00	60.00	60.00	0.00
3	17.00	-17.00	6.00	60.00	60.00	0.00
4	18.00	-18.00	6.00	60.00	60.00	0.00
5	19.00	-19.00	6.00	60.00	60.00	0.00
6	20.00	-20.00	6.00	60.00	60.00	0.00
7	21.00	-21.00	6.00	60.00	60.00	0.00
8	22.00	-22.00	6.00	60.00	60.00	0.00
9	23.00	-23.00	6.00	60.00	60.00	0.00
10	24.00	-24.00	6.00	60.00	60.00	0.00
11	25.00	-25.00	6.00	60.00	60.00	0.00
12	26.00	-26.00	6.00	60.00	60.00	0.00
13	27.00	-27.00	6.00	60.00	60.00	0.00
14	28.00	-28.00	6.00	60.00	60.00	0.00
15	29.00	-29.00	6.00	60.00	60.00	0.00
16	30.00	-30.00	6.00	60.00	60.00	0.00
17	31.00	-31.00	6.00	60.00	60.00	0.00
18	32.00	-32.00	6.00	60.00	60.00	0.00
19	33.00	-33.00	6.00	60.00	60.00	0.00
20	34.00	-34.00	6.00	60.00	60.00	0.00
21	35.00	-35.00	6.00	60.00	60.00	0.00
22	36.00	-36.00	6.00	60.00	60.00	0.00
23	37.00	-37.00	6.00	60.00	60.00	0.00
24	38.00	-38.00	6.00	60.00	60.00	0.00
25	39.00	-39.00	6.00	60.00	60.00	0.00
26	40.00	-40.00	6.00	60.00	60.00	0.00
27	41.00	-41.00	6.00	60.00	60.00	0.00
28	42.00	-42.00	6.00	60.00	60.00	0.00
29	43.00	-43.00	6.00	60.00	60.00	0.00
30	44.00	-44.00	6.00	60.00	60.00	0.00
31	45.00	-45.00	6.00	60.00	60.00	0.00
32	46.00	-46.00	6.00	60.00	60.00	0.00
33	47.00	-47.00	6.00	60.00	60.00	0.00
34	48.00	-48.00	6.00	60.00	60.00	0.00
35	49.00	-49.00	6.00	60.00	60.00	0.00
36	50.00	-50.00	6.00	60.00	60.00	0.00
37	51.00	-51.00	6.00	60.00	60.00	0.00
38	52.00	-52.00	6.00	60.00	60.00	0.00
39	53.00	-53.00	6.00	60.00	60.00	0.00
40	54.00	-54.00	6.00	60.00	60.00	0.00
41	55.00	-55.00	6.00	60.00	60.00	0.00
42	56.00	-56.00	6.00	60.00	60.00	0.00
43	57.00	-57.00	6.00	60.00	60.00	0.00
44	58.00	-58.00	6.00	60.00	60.00	0.00
45	59.00	-59.00	6.00	60.00	60.00	0.00
46	60.00	-60.00	6.00	60.00	60.00	0.00
47	61.00	-61.00	6.00	60.00	60.00	0.00
48	62.00	-62.00	6.00	60.00	60.00	0.00
49	63.00	-63.00	6.00	60.00	60.00	0.00
50	64.00	-64.00	6.00	60.00	60.00	0.00
51	65.00	-65.00	6.00	60.00	60.00	0.00
52	66.00	-66.00	6.00	60.00	60.00	0.00
53	67.00	-67.00	6.00	60.00	60.00	0.00
54	68.00	-68.00	6.00	60.00	60.00	0.00
55	69.00	-69.00	6.00	60.00	60.00	0.00
56	70.00	-70.00	6.00	60.00	60.00	0.00
57	71.00	-71.00	6.00	60.00	60.00	0.00
58	72.00	-72.00	6.00	60.00	60.00	0.00
59	73.00	-73.00	6.00	60.00	60.00	0.00
60	74.00	-74.00	6.00	60.00	60.00	0.00
61	75.00	-75.00	6.00	60.00	60.00	0.00
62	76.00	-76.00	6.00	60.00	60.00	0.00
63	77.00	-77.00	6.00	60.00	60.00	0.00
64	78.00	-78.00	6.00	60.00	60.00	0.00
65	79.00	-79.00	6.00	60.00	60.00	0.00
66	80.00	-80.00	6.00	60.00	60.00	0.00
67	81.00	-81.00	6.00	60.00	60.00	0.00
68	82.00	-82.00	6.00	60.00	60.00	0.00
69	83.00	-83.00	6.00	60.00	60.00	0.00
70	84.00	-84.00	6.00	60.00	60.00	0.00
71	85.00	-85.00	6.00	60.00	60.00	0.00
72	86.00	-86.00	6.00	60.00	60.00	0.00
73	87.00	-87.00	6.00	60.00	60.00	0.00
74	88.00	-88.00	6.00	60.00	60.00	0.00
75	89.00	-89.00	6.00	60.00	60.00	0.00
76	90.00	-90.00	6.00	60.00	60.00	0.00
77	91.00	-91.00	6.00	60.00	60.00	0.00
78	92.00	-92.00	6.00	60.00	60.00	0.00
79	93.00	-93.00	6.00	60.00	60.00	0.00
80	94.00	-94.00	6.00	60.00	60.00	0.00
81	95.00	-95.00	6.00	60.00	60.00	0.00

Drilled Shaft Capacity (sorted by shaft diameter):

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Strength reduction factors: Skin-friction = 1.00, End-bearing = 1.00

ID	Diameter (in)	Length (ft)	Skin Fric. (tons)	End Bearing (tons)	Capacity (tons)
1	60.00	15.00	3.734	152.857	156.591
2	60.00	16.00	5.733	159.844	165.577
3	60.00	17.00	8.047	166.783	174.830
4	60.00	18.00	10.671	261.920	272.592
5	60.00	19.00	13.647	281.074	294.721
6	60.00	20.00	16.984	302.182	319.166
7	60.00	21.00	20.664	316.938	337.603
8	60.00	22.00	24.646	331.611	356.257
9	60.00	23.00	28.921	351.826	380.747
10	60.00	24.00	33.521	371.999	405.520
11	60.00	25.00	38.490	386.545	425.036
12	60.00	26.00	43.802	396.514	440.317
13	60.00	27.00	49.370	408.195	457.564
14	60.00	28.00	55.178	422.634	477.812
15	60.00	29.00	61.241	435.075	496.316
16	60.00	30.00	67.586	440.759	508.345
17	60.00	31.00	74.201	441.064	515.264
18	60.00	32.00	81.072	444.260	525.332
19	60.00	33.00	88.195	451.727	539.922
20	60.00	34.00	95.567	455.647	551.214
21	60.00	35.00	103.198	448.205	551.404
22	60.00	36.00	111.076	431.106	542.182
23	60.00	37.00	119.187	414.575	533.762
24	60.00	38.00	127.529	400.316	527.844
25	60.00	39.00	136.081	388.061	524.142
26	60.00	40.00	144.843	377.542	522.385
27	60.00	41.00	153.798	368.906	522.705
28	60.00	42.00	162.917	363.042	525.959
29	60.00	43.00	172.194	360.097	532.291
30	60.00	44.00	181.612	357.436	539.048
31	60.00	45.00	191.170	352.424	543.593
32	60.00	46.00	198.064	345.458	543.522
33	60.00	47.00	202.256	338.928	541.183
34	60.00	48.00	206.531	333.230	539.761
35	60.00	49.00	216.304	329.612	545.915
36	60.00	50.00	226.115	329.321	555.436
37	60.00	51.00	235.964	333.223	569.187
38	60.00	52.00	245.875	346.512	592.387
39	60.00	53.00	255.849	370.053	625.903
40	60.00	54.00	265.896	397.409	663.305
41	60.00	55.00	276.031	422.141	698.172
42	60.00	56.00	286.244	444.054	730.298
43	60.00	57.00	296.510	461.969	758.478
44	60.00	58.00	306.823	475.689	782.512
45	60.00	59.00	317.180	483.610	800.790
46	60.00	60.00	327.588	484.125	811.713
47	60.00	61.00	338.035	478.324	816.359
48	60.00	62.00	348.499	472.754	821.253
49	60.00	63.00	358.976	468.506	827.482
50	60.00	64.00	369.460	464.380	833.840
51	60.00	65.00	379.958	459.176	839.134
52	60.00	66.00	390.459	453.342	843.801
53	60.00	67.00	400.943	449.572	850.515
54	60.00	68.00	411.405	448.315	859.720
55	60.00	69.00	421.840	447.856	869.696
56	60.00	70.00	432.255	446.477	878.732
57	60.00	71.00	442.636	444.346	886.982
58	60.00	72.00	452.955	442.454	895.409
59	60.00	73.00	463.206	440.968	904.174
60	60.00	74.00	473.384	439.523	912.907
61	60.00	75.00	483.496	437.753	921.249
62	60.00	76.00	493.531	436.264	929.795
63	60.00	77.00	503.474	438.683	942.157
64	60.00	78.00	513.320	445.615	958.936
65	60.00	79.00	523.072	453.710	976.782
66	60.00	80.00	532.739	459.616	992.355
67	60.00	81.00	542.313	463.587	1005.900
68	60.00	82.00	551.786	467.142	1018.929
69	60.00	83.00	561.156	470.535	1031.692
70	60.00	84.00	570.412	471.319	1041.731
71	60.00	85.00	579.550	467.048	1046.598
72	60.00	86.00	588.566	458.820	1047.386
73	60.00	87.00	597.650	453.224	1050.874
74	60.00	88.00	606.867	451.359	1058.225
75	60.00	89.00	616.216	451.264	1067.481
76	60.00	90.00	625.698	450.982	1076.680
77	60.00	91.00	Soil Elevations Must Extend At or Below Contribution Zone		
78	60.00	92.00	Soil Elevations Must Extend At or Below Contribution Zone		
79	60.00	93.00	Soil Elevations Must Extend At or Below Contribution Zone		
80	60.00	94.00	Soil Elevations Must Extend At or Below Contribution Zone		
81	60.00	95.00	Soil Elevations Must Extend At or Below Contribution Zone		

Drilled Shaft Capacity at User-Defined Settlement (sorted by shaft diameter):
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***** Capacity is NOT modified by the strength reduction factors *****

User-Defined Settlement = 0.83%

ID	Diameter (in)	Length (ft)	Skin Fric. (tons)	End Bearing (tons)	Capacity (tons)
1	60.00	15.00	3.638	39.910	43.548
2	60.00	16.00	5.587	41.734	47.321
3	60.00	17.00	7.842	43.546	51.387
4	60.00	18.00	10.399	68.385	78.785
5	60.00	19.00	13.299	73.386	86.685
6	60.00	20.00	16.551	78.897	95.449
7	60.00	21.00	20.138	82.750	102.888
8	60.00	22.00	24.018	86.581	110.599
9	60.00	23.00	28.184	91.859	120.043
10	60.00	24.00	32.666	97.126	129.792
11	60.00	25.00	37.509	100.924	138.433
12	60.00	26.00	42.685	103.527	146.212
13	60.00	27.00	48.111	106.576	154.687
14	60.00	28.00	53.771	110.346	164.118
15	60.00	29.00	59.680	113.595	173.274
16	60.00	30.00	65.863	115.079	180.942
17	60.00	31.00	72.309	115.158	187.467
18	60.00	32.00	79.005	115.993	194.998
19	60.00	33.00	85.947	117.942	203.889
20	60.00	34.00	93.131	118.966	212.097
21	60.00	35.00	100.567	117.023	217.590
22	60.00	36.00	108.244	112.558	220.802
23	60.00	37.00	116.149	108.242	224.391
24	60.00	38.00	124.277	104.519	228.797
25	60.00	39.00	132.612	101.320	233.932
26	60.00	40.00	141.150	98.573	239.723
27	60.00	41.00	149.877	96.319	246.196
28	60.00	42.00	158.764	94.787	253.551
29	60.00	43.00	167.804	94.018	261.822
30	60.00	44.00	176.982	93.324	270.306
31	60.00	45.00	186.296	92.015	278.311
32	60.00	46.00	193.014	90.196	283.211
33	60.00	47.00	197.099	88.491	285.591
34	60.00	48.00	201.266	87.004	288.270
35	60.00	49.00	210.789	86.059	296.848
36	60.00	50.00	220.351	85.983	306.334
37	60.00	51.00	229.948	87.002	316.950
38	60.00	52.00	239.606	90.472	330.078
39	60.00	53.00	249.327	96.618	345.945
40	60.00	54.00	259.117	103.760	362.877
41	60.00	55.00	268.994	110.218	379.212
42	60.00	56.00	278.947	115.939	394.885
43	60.00	57.00	288.951	120.616	409.567
44	60.00	58.00	299.001	124.199	423.200
45	60.00	59.00	309.094	126.267	435.361
46	60.00	60.00	319.237	126.401	445.638
47	60.00	61.00	329.418	124.887	454.304
48	60.00	62.00	339.615	123.432	463.047
49	60.00	63.00	349.824	122.323	472.147
50	60.00	64.00	360.041	121.246	481.287
51	60.00	65.00	370.271	119.887	490.158
52	60.00	66.00	380.505	118.364	498.869
53	60.00	67.00	390.721	117.380	508.101
54	60.00	68.00	400.917	117.052	517.968
55	60.00	69.00	411.086	116.932	528.018
56	60.00	70.00	421.235	116.572	537.807
57	60.00	71.00	431.352	116.015	547.367
58	60.00	72.00	441.408	115.521	556.929
59	60.00	73.00	451.397	115.133	566.530
60	60.00	74.00	461.316	114.756	576.072
61	60.00	75.00	471.170	114.294	585.464
62	60.00	76.00	480.950	113.905	594.855
63	60.00	77.00	490.639	114.537	605.175
64	60.00	78.00	500.234	116.347	616.581
65	60.00	79.00	509.737	118.460	628.197
66	60.00	80.00	519.157	120.002	639.159
67	60.00	81.00	528.487	121.039	649.526
68	60.00	82.00	537.719	121.967	659.686
69	60.00	83.00	546.851	122.853	669.704
70	60.00	84.00	555.870	123.058	678.928
71	60.00	85.00	564.775	121.943	686.718
72	60.00	86.00	573.562	119.794	693.356
73	60.00	87.00	582.414	118.333	700.747
74	60.00	88.00	591.396	117.846	709.242
75	60.00	89.00	600.507	117.822	718.328
76	60.00	90.00	609.747	117.748	727.495
77	60.00	91.00	Soil Elevations Must Extend At or Below Contribution Zone		

78	60.00	92.00 Soil Elevations Must Extend At or Below Contribution Zone
79	60.00	93.00 Soil Elevations Must Extend At or Below Contribution Zone
80	60.00	94.00 Soil Elevations Must Extend At or Below Contribution Zone
81	60.00	95.00 Soil Elevations Must Extend At or Below Contribution Zone

Florida Bridge Software Institute Date: February 16, 2018
Shaft and Pile Analysis (FB-Deep v.2.05) Time: 11:45:53

General Information:
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Input file: .....H)\Analysis_Structure\FB-Deep\Drilled Shaft\B-401Shaft48in.spc
Project number: 2000-01-17003
Job name: SW 10th Street, from Powerline Rd. to Military Trail
Engineer: JB Henry
Units: English

Analysis Information:
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Analysis Type: Drilled Shaft Analysis

Soil Information:
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Boring date: 2/6/2018
Boring number: B-401
Station number: Offset:

Ground Elevation: 0.00(ft)
Water table Elevation = 0.00(ft)

Hammer type: Automatic Hammer, Correction factor = 1.24

ID	Depth (ft)	Elevation (ft)	SPT Blows (Blows/ft)	Unit Weight (pcf)	Soil Type
1	0.00	-0.00	N/A	0.00	5- Cavity layer
2	2.00	-2.00	N/A	0.00	5- Cavity layer
3	4.00	-4.00	N/A	0.00	5- Cavity layer
4	6.00	-6.00	N/A	0.00	5- Cavity layer
5	8.00	-8.00	N/A	0.00	5- Cavity layer
6	10.00	-10.00	15.00	110.00	3- Clean sand
7	12.00	-12.00	13.00	110.00	3- Clean sand
8	13.50	-13.50	19.00	115.00	3- Clean sand
9	15.50	-15.50	18.00	110.00	3- Clean sand
10	18.00	-18.00	28.00	120.00	3- Clean sand
11	20.50	-20.50	24.00	120.00	3- Clean sand
12	23.00	-23.00	34.00	125.00	3- Clean sand
13	25.50	-25.50	22.00	115.00	3- Clean sand
14	28.00	-28.00	29.00	120.00	3- Clean sand
15	30.50	-30.50	27.00	120.00	3- Clean sand
16	33.00	-33.00	43.00	125.00	3- Clean sand
17	35.50	-35.50	54.00	130.00	3- Clean sand
18	38.00	-38.00	60.00	130.00	3- Clean sand
19	40.50	-40.50	30.00	120.00	3- Clean sand
20	43.00	-43.00	38.00	125.00	3- Clean sand
21	45.50	-45.50	37.00	125.00	3- Clean sand
22	48.00	-48.00	48.00	125.00	3- Clean sand
23	50.50	-50.50	21.00	115.00	3- Clean sand
24	53.00	-53.00	50.00	130.00	3- Clean sand
25	55.50	-55.50	42.00	125.00	3- Clean sand
26	58.00	-58.00	68.00	130.00	3- Clean sand
27	60.50	-60.50	39.00	125.00	3- Clean sand
28	63.00	-63.00	62.00	130.00	3- Clean sand
29	65.50	-65.50	47.00	125.00	3- Clean sand
30	68.00	-68.00	46.00	125.00	3- Clean sand
31	70.50	-70.50	36.00	125.00	3- Clean sand
32	73.00	-73.00	52.00	130.00	3- Clean sand
33	75.50	-75.50	26.00	120.00	3- Clean sand
34	78.00	-78.00	18.00	115.00	3- Clean sand
35	80.50	-80.50	59.00	130.00	3- Clean sand
36	83.00	-83.00	60.00	130.00	3- Clean sand
37	85.50	-85.50	61.00	130.00	3- Clean sand
38	88.00	-88.00	47.00	125.00	3- Clean sand
39	90.50	-90.50	33.00	125.00	3- Clean sand
40	93.00	-93.00	50.00	130.00	3- Clean sand
41	95.50	-95.50	53.00	130.00	3- Clean sand
42	98.00	-98.00	60.00	130.00	3- Clean sand
43	100.00	-100.00	60.00	130.00	3- Clean sand

ID	Cu-DIR (tsf)	qu (tsf)	qt (tsf)	Em (ksi)	qb (tsf)
1	N/A	N/A	N/A	N/A	N/A
2	N/A	N/A	N/A	N/A	N/A
3	N/A	N/A	N/A	N/A	N/A
4	N/A	N/A	N/A	N/A	N/A
5	N/A	N/A	N/A	N/A	N/A
6	N/A	N/A	N/A	N/A	N/A
7	N/A	N/A	N/A	N/A	N/A
8	N/A	N/A	N/A	N/A	N/A

9	N/A	N/A	N/A	N/A	N/A
10	N/A	N/A	N/A	N/A	N/A
11	N/A	N/A	N/A	N/A	N/A
12	N/A	N/A	N/A	N/A	N/A
13	N/A	N/A	N/A	N/A	N/A
14	N/A	N/A	N/A	N/A	N/A
15	N/A	N/A	N/A	N/A	N/A
16	N/A	N/A	N/A	N/A	N/A
17	N/A	N/A	N/A	N/A	N/A
18	N/A	N/A	N/A	N/A	N/A
19	N/A	N/A	N/A	N/A	N/A
20	N/A	N/A	N/A	N/A	N/A
21	N/A	N/A	N/A	N/A	N/A
22	N/A	N/A	N/A	N/A	N/A
23	N/A	N/A	N/A	N/A	N/A
24	N/A	N/A	N/A	N/A	N/A
25	N/A	N/A	N/A	N/A	N/A
26	N/A	N/A	N/A	N/A	N/A
27	N/A	N/A	N/A	N/A	N/A
28	N/A	N/A	N/A	N/A	N/A
29	N/A	N/A	N/A	N/A	N/A
30	N/A	N/A	N/A	N/A	N/A
31	N/A	N/A	N/A	N/A	N/A
32	N/A	N/A	N/A	N/A	N/A
33	N/A	N/A	N/A	N/A	N/A
34	N/A	N/A	N/A	N/A	N/A
35	N/A	N/A	N/A	N/A	N/A
36	N/A	N/A	N/A	N/A	N/A
37	N/A	N/A	N/A	N/A	N/A
38	N/A	N/A	N/A	N/A	N/A
39	N/A	N/A	N/A	N/A	N/A
40	N/A	N/A	N/A	N/A	N/A
41	N/A	N/A	N/A	N/A	N/A
42	N/A	N/A	N/A	N/A	N/A
43	N/A	N/A	N/A	N/A	N/A

ID	RQD F.M.	S.R.I.	Rock Recovery
1	N/A	N/A	N/A
2	N/A	N/A	N/A
3	N/A	N/A	N/A
4	N/A	N/A	N/A
5	N/A	N/A	N/A
6	N/A	N/A	N/A
7	N/A	N/A	N/A
8	N/A	N/A	N/A
9	N/A	N/A	N/A
10	N/A	N/A	N/A
11	N/A	N/A	N/A
12	N/A	N/A	N/A
13	N/A	N/A	N/A
14	N/A	N/A	N/A
15	N/A	N/A	N/A
16	N/A	N/A	N/A
17	N/A	N/A	N/A
18	N/A	N/A	N/A
19	N/A	N/A	N/A
20	N/A	N/A	N/A
21	N/A	N/A	N/A
22	N/A	N/A	N/A
23	N/A	N/A	N/A
24	N/A	N/A	N/A
25	N/A	N/A	N/A
26	N/A	N/A	N/A
27	N/A	N/A	N/A
28	N/A	N/A	N/A
29	N/A	N/A	N/A
30	N/A	N/A	N/A
31	N/A	N/A	N/A
32	N/A	N/A	N/A
33	N/A	N/A	N/A
34	N/A	N/A	N/A
35	N/A	N/A	N/A
36	N/A	N/A	N/A
37	N/A	N/A	N/A
38	N/A	N/A	N/A
39	N/A	N/A	N/A
40	N/A	N/A	N/A
41	N/A	N/A	N/A
42	N/A	N/A	N/A
43	N/A	N/A	N/A

Drilled Shaft Data:
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Shaft Geometry:

ID	Length (ft)	Tip Elev. (ft)	Case Len. (ft)	Diameter (in)	Base Diam. (in)	Bell Len. (ft)
1	15.00	-15.00	6.00	48.00	48.00	0.00
2	16.00	-16.00	6.00	48.00	48.00	0.00
3	17.00	-17.00	6.00	48.00	48.00	0.00
4	18.00	-18.00	6.00	48.00	48.00	0.00
5	19.00	-19.00	6.00	48.00	48.00	0.00
6	20.00	-20.00	6.00	48.00	48.00	0.00
7	21.00	-21.00	6.00	48.00	48.00	0.00
8	22.00	-22.00	6.00	48.00	48.00	0.00
9	23.00	-23.00	6.00	48.00	48.00	0.00
10	24.00	-24.00	6.00	48.00	48.00	0.00
11	25.00	-25.00	6.00	48.00	48.00	0.00
12	26.00	-26.00	6.00	48.00	48.00	0.00
13	27.00	-27.00	6.00	48.00	48.00	0.00
14	28.00	-28.00	6.00	48.00	48.00	0.00
15	29.00	-29.00	6.00	48.00	48.00	0.00
16	30.00	-30.00	6.00	48.00	48.00	0.00
17	31.00	-31.00	6.00	48.00	48.00	0.00
18	32.00	-32.00	6.00	48.00	48.00	0.00
19	33.00	-33.00	6.00	48.00	48.00	0.00
20	34.00	-34.00	6.00	48.00	48.00	0.00
21	35.00	-35.00	6.00	48.00	48.00	0.00
22	36.00	-36.00	6.00	48.00	48.00	0.00
23	37.00	-37.00	6.00	48.00	48.00	0.00
24	38.00	-38.00	6.00	48.00	48.00	0.00
25	39.00	-39.00	6.00	48.00	48.00	0.00
26	40.00	-40.00	6.00	48.00	48.00	0.00
27	41.00	-41.00	6.00	48.00	48.00	0.00
28	42.00	-42.00	6.00	48.00	48.00	0.00
29	43.00	-43.00	6.00	48.00	48.00	0.00
30	44.00	-44.00	6.00	48.00	48.00	0.00
31	45.00	-45.00	6.00	48.00	48.00	0.00
32	46.00	-46.00	6.00	48.00	48.00	0.00
33	47.00	-47.00	6.00	48.00	48.00	0.00
34	48.00	-48.00	6.00	48.00	48.00	0.00
35	49.00	-49.00	6.00	48.00	48.00	0.00
36	50.00	-50.00	6.00	48.00	48.00	0.00
37	51.00	-51.00	6.00	48.00	48.00	0.00
38	52.00	-52.00	6.00	48.00	48.00	0.00
39	53.00	-53.00	6.00	48.00	48.00	0.00
40	54.00	-54.00	6.00	48.00	48.00	0.00
41	55.00	-55.00	6.00	48.00	48.00	0.00
42	56.00	-56.00	6.00	48.00	48.00	0.00
43	57.00	-57.00	6.00	48.00	48.00	0.00
44	58.00	-58.00	6.00	48.00	48.00	0.00
45	59.00	-59.00	6.00	48.00	48.00	0.00
46	60.00	-60.00	6.00	48.00	48.00	0.00
47	61.00	-61.00	6.00	48.00	48.00	0.00
48	62.00	-62.00	6.00	48.00	48.00	0.00
49	63.00	-63.00	6.00	48.00	48.00	0.00
50	64.00	-64.00	6.00	48.00	48.00	0.00
51	65.00	-65.00	6.00	48.00	48.00	0.00
52	66.00	-66.00	6.00	48.00	48.00	0.00
53	67.00	-67.00	6.00	48.00	48.00	0.00
54	68.00	-68.00	6.00	48.00	48.00	0.00
55	69.00	-69.00	6.00	48.00	48.00	0.00
56	70.00	-70.00	6.00	48.00	48.00	0.00
57	71.00	-71.00	6.00	48.00	48.00	0.00
58	72.00	-72.00	6.00	48.00	48.00	0.00
59	73.00	-73.00	6.00	48.00	48.00	0.00
60	74.00	-74.00	6.00	48.00	48.00	0.00
61	75.00	-75.00	6.00	48.00	48.00	0.00
62	76.00	-76.00	6.00	48.00	48.00	0.00
63	77.00	-77.00	6.00	48.00	48.00	0.00
64	78.00	-78.00	6.00	48.00	48.00	0.00
65	79.00	-79.00	6.00	48.00	48.00	0.00
66	80.00	-80.00	6.00	48.00	48.00	0.00
67	81.00	-81.00	6.00	48.00	48.00	0.00
68	82.00	-82.00	6.00	48.00	48.00	0.00
69	83.00	-83.00	6.00	48.00	48.00	0.00
70	84.00	-84.00	6.00	48.00	48.00	0.00
71	85.00	-85.00	6.00	48.00	48.00	0.00
72	86.00	-86.00	6.00	48.00	48.00	0.00
73	87.00	-87.00	6.00	48.00	48.00	0.00
74	88.00	-88.00	6.00	48.00	48.00	0.00
75	89.00	-89.00	6.00	48.00	48.00	0.00
76	90.00	-90.00	6.00	48.00	48.00	0.00
77	91.00	-91.00	6.00	48.00	48.00	0.00
78	92.00	-92.00	6.00	48.00	48.00	0.00
79	93.00	-93.00	6.00	48.00	48.00	0.00
80	94.00	-94.00	6.00	48.00	48.00	0.00
81	95.00	-95.00	6.00	48.00	48.00	0.00

Drilled Shaft Capacity (sorted by shaft diameter):

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Strength reduction factors: Skin-friction = 1.00, End-bearing = 1.00

ID	Diameter (in)	Length (ft)	Skin Fric. (tons)	End Bearing (tons)	Capacity (tons)
1	48.00	15.00	3.809	119.241	123.050
2	48.00	16.00	5.460	203.602	209.063
3	48.00	17.00	7.371	212.250	219.621
4	48.00	18.00	9.532	220.207	229.739
5	48.00	19.00	11.956	228.310	240.266
6	48.00	20.00	14.668	235.059	249.727
7	48.00	21.00	17.657	242.168	259.826
8	48.00	22.00	20.912	249.404	270.316
9	48.00	23.00	24.427	254.722	279.148
10	48.00	24.00	28.199	259.511	287.710
11	48.00	25.00	32.240	265.544	297.784
12	48.00	26.00	36.531	273.631	310.161
13	48.00	27.00	41.023	282.779	323.802
14	48.00	28.00	45.707	289.901	335.608
15	48.00	29.00	50.582	294.102	344.684
16	48.00	30.00	55.658	298.459	354.117
17	48.00	31.00	60.925	305.343	366.268
18	48.00	32.00	66.376	313.702	380.077
19	48.00	33.00	72.005	319.780	391.785
20	48.00	34.00	77.812	325.531	403.343
21	48.00	35.00	83.806	332.372	416.178
22	48.00	36.00	89.979	340.654	430.634
23	48.00	37.00	96.340	348.729	445.069
24	48.00	38.00	102.886	353.142	456.028
25	48.00	39.00	109.603	353.651	463.254
26	48.00	40.00	116.489	352.056	468.546
27	48.00	41.00	123.531	347.966	471.496
28	48.00	42.00	130.687	339.804	470.491
29	48.00	43.00	137.952	328.878	466.831
30	48.00	44.00	145.324	321.612	466.936
31	48.00	45.00	152.810	320.393	473.204
32	48.00	46.00	160.403	324.614	485.017
33	48.00	47.00	168.094	331.554	499.648
34	48.00	48.00	175.881	336.974	512.855
35	48.00	49.00	183.752	339.278	523.029
36	48.00	50.00	191.705	338.985	530.690
37	48.00	51.00	199.729	337.720	537.449
38	48.00	52.00	207.791	337.418	545.209
39	48.00	53.00	215.885	337.523	553.408
40	48.00	54.00	224.027	337.577	561.604
41	48.00	55.00	232.238	340.434	572.672
42	48.00	56.00	240.509	349.466	589.975
43	48.00	57.00	248.821	363.015	611.836
44	48.00	58.00	257.169	372.048	629.217
45	48.00	59.00	265.550	375.008	640.557
46	48.00	60.00	273.970	374.853	648.823
47	48.00	61.00	282.419	374.116	656.535
48	48.00	62.00	290.881	372.446	663.327
49	48.00	63.00	299.350	370.121	669.471
50	48.00	64.00	307.824	368.606	676.430
51	48.00	65.00	316.307	368.307	684.614
52	48.00	66.00	324.792	367.251	692.043
53	48.00	67.00	333.260	363.157	696.417
54	48.00	68.00	341.710	355.591	697.300
55	48.00	69.00	350.130	345.389	695.519
56	48.00	70.00	358.520	332.775	691.296
57	48.00	71.00	366.874	321.582	688.457
58	48.00	72.00	375.186	315.859	691.045
59	48.00	73.00	383.452	315.039	698.491
60	48.00	74.00	391.671	314.481	706.152
61	48.00	75.00	399.844	313.481	713.325
62	48.00	76.00	407.964	312.773	720.737
63	48.00	77.00	416.008	312.391	728.400
64	48.00	78.00	423.973	310.376	734.349
65	48.00	79.00	431.846	307.571	739.417
66	48.00	80.00	439.621	308.063	747.684
67	48.00	81.00	447.297	313.686	760.983
68	48.00	82.00	454.889	322.031	776.920
69	48.00	83.00	462.398	331.832	794.230
70	48.00	84.00	469.815	345.410	815.225
71	48.00	85.00	477.138	358.468	835.606
72	48.00	86.00	484.363	365.424	849.787
73	48.00	87.00	491.642	366.294	857.936
74	48.00	88.00	499.027	366.294	865.321
75	48.00	89.00	506.514	366.009	872.523
76	48.00	90.00	514.100	365.153	879.253
77	48.00	91.00	521.784	363.869	885.653
78	48.00	92.00	529.566	363.014	892.580
79	48.00	93.00	Soil Elevations Must Extend At or Below Contribution Zone		
80	48.00	94.00	Soil Elevations Must Extend At or Below Contribution Zone		
81	48.00	95.00	Soil Elevations Must Extend At or Below Contribution Zone		

Drilled Shaft Capacity at User-Defined Settlement (sorted by shaft diameter):
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***** Capacity is NOT modified by the strength reduction factors *****

User-Defined Settlement = 1.04%

ID	Diameter (in)	Length (ft)	Skin Fric. (tons)	End Bearing (tons)	Capacity (tons)
1	48.00	15.00	3.725	37.907	41.632
2	48.00	16.00	5.341	64.725	70.066
3	48.00	17.00	7.210	67.474	74.684
4	48.00	18.00	9.323	70.004	79.327
5	48.00	19.00	11.694	72.580	84.274
6	48.00	20.00	14.347	74.725	89.072
7	48.00	21.00	17.271	76.985	94.256
8	48.00	22.00	20.454	79.286	99.740
9	48.00	23.00	23.892	80.976	104.868
10	48.00	24.00	27.582	82.499	110.081
11	48.00	25.00	31.534	84.416	115.951
12	48.00	26.00	35.731	86.987	122.719
13	48.00	27.00	40.125	89.895	130.020
14	48.00	28.00	44.706	92.160	136.866
15	48.00	29.00	49.475	93.495	142.970
16	48.00	30.00	54.439	94.880	149.320
17	48.00	31.00	59.592	97.069	156.660
18	48.00	32.00	64.923	99.726	164.649
19	48.00	33.00	70.429	101.658	172.087
20	48.00	34.00	76.109	103.486	179.595
21	48.00	35.00	81.972	105.661	187.633
22	48.00	36.00	88.010	108.294	196.304
23	48.00	37.00	94.231	110.861	205.092
24	48.00	38.00	100.634	112.264	212.898
25	48.00	39.00	107.204	112.426	219.630
26	48.00	40.00	113.940	111.919	225.859
27	48.00	41.00	120.827	110.618	231.445
28	48.00	42.00	127.827	108.024	235.851
29	48.00	43.00	134.933	104.550	239.483
30	48.00	44.00	142.143	102.241	244.384
31	48.00	45.00	149.466	101.853	251.319
32	48.00	46.00	156.892	103.195	260.087
33	48.00	47.00	164.415	105.401	269.816
34	48.00	48.00	172.031	107.124	279.155
35	48.00	49.00	179.730	107.856	287.586
36	48.00	50.00	187.509	107.763	295.272
37	48.00	51.00	195.357	107.361	302.718
38	48.00	52.00	203.243	107.265	310.508
39	48.00	53.00	211.160	107.299	318.458
40	48.00	54.00	219.123	107.316	326.439
41	48.00	55.00	227.155	108.224	335.379
42	48.00	56.00	235.245	111.095	346.340
43	48.00	57.00	243.374	115.403	358.777
44	48.00	58.00	251.540	118.274	369.814
45	48.00	59.00	259.737	119.215	378.952
46	48.00	60.00	267.973	119.166	387.139
47	48.00	61.00	276.238	118.932	395.169
48	48.00	62.00	284.514	118.401	402.915
49	48.00	63.00	292.798	117.662	410.460
50	48.00	64.00	301.086	117.180	418.266
51	48.00	65.00	309.384	117.085	426.469
52	48.00	66.00	317.683	116.749	434.432
53	48.00	67.00	325.966	115.448	441.414
54	48.00	68.00	334.230	113.042	447.273
55	48.00	69.00	342.466	109.799	452.266
56	48.00	70.00	350.673	105.789	456.462
57	48.00	71.00	358.844	102.231	461.075
58	48.00	72.00	366.974	100.412	467.386
59	48.00	73.00	375.059	100.151	475.210
60	48.00	74.00	383.098	99.974	483.071
61	48.00	75.00	391.092	99.656	490.748
62	48.00	76.00	399.034	99.431	498.465
63	48.00	77.00	406.903	99.309	506.212
64	48.00	78.00	414.693	98.668	513.362
65	48.00	79.00	422.394	97.777	520.171
66	48.00	80.00	429.999	97.933	527.932
67	48.00	81.00	437.507	99.721	537.227
68	48.00	82.00	444.933	102.374	547.306
69	48.00	83.00	452.277	105.489	557.767
70	48.00	84.00	459.532	109.806	569.338
71	48.00	85.00	466.694	113.957	580.651
72	48.00	86.00	473.761	116.169	589.930
73	48.00	87.00	480.881	116.445	597.326
74	48.00	88.00	488.104	116.445	604.549
75	48.00	89.00	495.428	116.354	611.782
76	48.00	90.00	502.847	116.082	618.929
77	48.00	91.00	510.363	115.674	626.037

78	48.00	92.00	517.975	115.402	633.377
79	48.00	93.00 Soil Elevations Must Extend At or Below Contribution Zone			
80	48.00	94.00 Soil Elevations Must Extend At or Below Contribution Zone			
81	48.00	95.00 Soil Elevations Must Extend At or Below Contribution Zone			

General Information:
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Input file: .....H)\Analysis_Structure\FB-Deep\Drilled Shaft\B-401Shaft60in.spc
Project number: 2000-01-17003
Job name: SW 10th Street, from Powerline Rd. to Military Trail
Engineer: JB Henry
Units: English

Analysis Information:
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Analysis Type: Drilled Shaft Analysis

Soil Information:
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Boring date: 2/6/2018
Boring number: B-401
Station number: Offset:

Ground Elevation: 0.00(ft)
Water table Elevation = 0.00(ft)

Hammer type: Automatic Hammer, Correction factor = 1.24

ID	Depth (ft)	Elevation (ft)	SPT Blows (Blows/ft)	Unit Weight (pcf)	Soil Type
1	0.00	-0.00	N/A	0.00	5- Cavity layer
2	2.00	-2.00	N/A	0.00	5- Cavity layer
3	4.00	-4.00	N/A	0.00	5- Cavity layer
4	6.00	-6.00	N/A	0.00	5- Cavity layer
5	8.00	-8.00	N/A	0.00	5- Cavity layer
6	10.00	-10.00	15.00	110.00	3- Clean sand
7	12.00	-12.00	13.00	110.00	3- Clean sand
8	13.50	-13.50	19.00	115.00	3- Clean sand
9	15.50	-15.50	18.00	110.00	3- Clean sand
10	18.00	-18.00	28.00	120.00	3- Clean sand
11	20.50	-20.50	24.00	120.00	3- Clean sand
12	23.00	-23.00	34.00	125.00	3- Clean sand
13	25.50	-25.50	22.00	115.00	3- Clean sand
14	28.00	-28.00	29.00	120.00	3- Clean sand
15	30.50	-30.50	27.00	120.00	3- Clean sand
16	33.00	-33.00	43.00	125.00	3- Clean sand
17	35.50	-35.50	54.00	130.00	3- Clean sand
18	38.00	-38.00	60.00	130.00	3- Clean sand
19	40.50	-40.50	30.00	120.00	3- Clean sand
20	43.00	-43.00	38.00	125.00	3- Clean sand
21	45.50	-45.50	37.00	125.00	3- Clean sand
22	48.00	-48.00	48.00	125.00	3- Clean sand
23	50.50	-50.50	21.00	115.00	3- Clean sand
24	53.00	-53.00	50.00	130.00	3- Clean sand
25	55.50	-55.50	42.00	125.00	3- Clean sand
26	58.00	-58.00	68.00	130.00	3- Clean sand
27	60.50	-60.50	39.00	125.00	3- Clean sand
28	63.00	-63.00	62.00	130.00	3- Clean sand
29	65.50	-65.50	47.00	125.00	3- Clean sand
30	68.00	-68.00	46.00	125.00	3- Clean sand
31	70.50	-70.50	36.00	125.00	3- Clean sand
32	73.00	-73.00	52.00	130.00	3- Clean sand
33	75.50	-75.50	26.00	120.00	3- Clean sand
34	78.00	-78.00	18.00	115.00	3- Clean sand
35	80.50	-80.50	59.00	130.00	3- Clean sand
36	83.00	-83.00	60.00	130.00	3- Clean sand
37	85.50	-85.50	61.00	130.00	3- Clean sand
38	88.00	-88.00	47.00	125.00	3- Clean sand
39	90.50	-90.50	33.00	125.00	3- Clean sand
40	93.00	-93.00	50.00	130.00	3- Clean sand
41	95.50	-95.50	53.00	130.00	3- Clean sand
42	98.00	-98.00	60.00	130.00	3- Clean sand
43	100.00	-100.00	60.00	130.00	3- Clean sand

ID	Cu-DIR (tsf)	qu (tsf)	qt (tsf)	Em (ksi)	qb (tsf)
1	N/A	N/A	N/A	N/A	N/A
2	N/A	N/A	N/A	N/A	N/A
3	N/A	N/A	N/A	N/A	N/A
4	N/A	N/A	N/A	N/A	N/A
5	N/A	N/A	N/A	N/A	N/A
6	N/A	N/A	N/A	N/A	N/A
7	N/A	N/A	N/A	N/A	N/A
8	N/A	N/A	N/A	N/A	N/A

9	N/A	N/A	N/A	N/A	N/A
10	N/A	N/A	N/A	N/A	N/A
11	N/A	N/A	N/A	N/A	N/A
12	N/A	N/A	N/A	N/A	N/A
13	N/A	N/A	N/A	N/A	N/A
14	N/A	N/A	N/A	N/A	N/A
15	N/A	N/A	N/A	N/A	N/A
16	N/A	N/A	N/A	N/A	N/A
17	N/A	N/A	N/A	N/A	N/A
18	N/A	N/A	N/A	N/A	N/A
19	N/A	N/A	N/A	N/A	N/A
20	N/A	N/A	N/A	N/A	N/A
21	N/A	N/A	N/A	N/A	N/A
22	N/A	N/A	N/A	N/A	N/A
23	N/A	N/A	N/A	N/A	N/A
24	N/A	N/A	N/A	N/A	N/A
25	N/A	N/A	N/A	N/A	N/A
26	N/A	N/A	N/A	N/A	N/A
27	N/A	N/A	N/A	N/A	N/A
28	N/A	N/A	N/A	N/A	N/A
29	N/A	N/A	N/A	N/A	N/A
30	N/A	N/A	N/A	N/A	N/A
31	N/A	N/A	N/A	N/A	N/A
32	N/A	N/A	N/A	N/A	N/A
33	N/A	N/A	N/A	N/A	N/A
34	N/A	N/A	N/A	N/A	N/A
35	N/A	N/A	N/A	N/A	N/A
36	N/A	N/A	N/A	N/A	N/A
37	N/A	N/A	N/A	N/A	N/A
38	N/A	N/A	N/A	N/A	N/A
39	N/A	N/A	N/A	N/A	N/A
40	N/A	N/A	N/A	N/A	N/A
41	N/A	N/A	N/A	N/A	N/A
42	N/A	N/A	N/A	N/A	N/A
43	N/A	N/A	N/A	N/A	N/A

ID	RQD F.M.	S.R.I.	Rock Recovery
1	N/A	N/A	N/A
2	N/A	N/A	N/A
3	N/A	N/A	N/A
4	N/A	N/A	N/A
5	N/A	N/A	N/A
6	N/A	N/A	N/A
7	N/A	N/A	N/A
8	N/A	N/A	N/A
9	N/A	N/A	N/A
10	N/A	N/A	N/A
11	N/A	N/A	N/A
12	N/A	N/A	N/A
13	N/A	N/A	N/A
14	N/A	N/A	N/A
15	N/A	N/A	N/A
16	N/A	N/A	N/A
17	N/A	N/A	N/A
18	N/A	N/A	N/A
19	N/A	N/A	N/A
20	N/A	N/A	N/A
21	N/A	N/A	N/A
22	N/A	N/A	N/A
23	N/A	N/A	N/A
24	N/A	N/A	N/A
25	N/A	N/A	N/A
26	N/A	N/A	N/A
27	N/A	N/A	N/A
28	N/A	N/A	N/A
29	N/A	N/A	N/A
30	N/A	N/A	N/A
31	N/A	N/A	N/A
32	N/A	N/A	N/A
33	N/A	N/A	N/A
34	N/A	N/A	N/A
35	N/A	N/A	N/A
36	N/A	N/A	N/A
37	N/A	N/A	N/A
38	N/A	N/A	N/A
39	N/A	N/A	N/A
40	N/A	N/A	N/A
41	N/A	N/A	N/A
42	N/A	N/A	N/A
43	N/A	N/A	N/A

Drilled Shaft Data:
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Shaft Geometry:

ID	Length (ft)	Tip Elev. (ft)	Case Len. (ft)	Diameter (in)	Base Diam. (in)	Bell Len. (ft)
1	15.00	-15.00	6.00	60.00	60.00	0.00
2	16.00	-16.00	6.00	60.00	60.00	0.00
3	17.00	-17.00	6.00	60.00	60.00	0.00
4	18.00	-18.00	6.00	60.00	60.00	0.00
5	19.00	-19.00	6.00	60.00	60.00	0.00
6	20.00	-20.00	6.00	60.00	60.00	0.00
7	21.00	-21.00	6.00	60.00	60.00	0.00
8	22.00	-22.00	6.00	60.00	60.00	0.00
9	23.00	-23.00	6.00	60.00	60.00	0.00
10	24.00	-24.00	6.00	60.00	60.00	0.00
11	25.00	-25.00	6.00	60.00	60.00	0.00
12	26.00	-26.00	6.00	60.00	60.00	0.00
13	27.00	-27.00	6.00	60.00	60.00	0.00
14	28.00	-28.00	6.00	60.00	60.00	0.00
15	29.00	-29.00	6.00	60.00	60.00	0.00
16	30.00	-30.00	6.00	60.00	60.00	0.00
17	31.00	-31.00	6.00	60.00	60.00	0.00
18	32.00	-32.00	6.00	60.00	60.00	0.00
19	33.00	-33.00	6.00	60.00	60.00	0.00
20	34.00	-34.00	6.00	60.00	60.00	0.00
21	35.00	-35.00	6.00	60.00	60.00	0.00
22	36.00	-36.00	6.00	60.00	60.00	0.00
23	37.00	-37.00	6.00	60.00	60.00	0.00
24	38.00	-38.00	6.00	60.00	60.00	0.00
25	39.00	-39.00	6.00	60.00	60.00	0.00
26	40.00	-40.00	6.00	60.00	60.00	0.00
27	41.00	-41.00	6.00	60.00	60.00	0.00
28	42.00	-42.00	6.00	60.00	60.00	0.00
29	43.00	-43.00	6.00	60.00	60.00	0.00
30	44.00	-44.00	6.00	60.00	60.00	0.00
31	45.00	-45.00	6.00	60.00	60.00	0.00
32	46.00	-46.00	6.00	60.00	60.00	0.00
33	47.00	-47.00	6.00	60.00	60.00	0.00
34	48.00	-48.00	6.00	60.00	60.00	0.00
35	49.00	-49.00	6.00	60.00	60.00	0.00
36	50.00	-50.00	6.00	60.00	60.00	0.00
37	51.00	-51.00	6.00	60.00	60.00	0.00
38	52.00	-52.00	6.00	60.00	60.00	0.00
39	53.00	-53.00	6.00	60.00	60.00	0.00
40	54.00	-54.00	6.00	60.00	60.00	0.00
41	55.00	-55.00	6.00	60.00	60.00	0.00
42	56.00	-56.00	6.00	60.00	60.00	0.00
43	57.00	-57.00	6.00	60.00	60.00	0.00
44	58.00	-58.00	6.00	60.00	60.00	0.00
45	59.00	-59.00	6.00	60.00	60.00	0.00
46	60.00	-60.00	6.00	60.00	60.00	0.00
47	61.00	-61.00	6.00	60.00	60.00	0.00
48	62.00	-62.00	6.00	60.00	60.00	0.00
49	63.00	-63.00	6.00	60.00	60.00	0.00
50	64.00	-64.00	6.00	60.00	60.00	0.00
51	65.00	-65.00	6.00	60.00	60.00	0.00
52	66.00	-66.00	6.00	60.00	60.00	0.00
53	67.00	-67.00	6.00	60.00	60.00	0.00
54	68.00	-68.00	6.00	60.00	60.00	0.00
55	69.00	-69.00	6.00	60.00	60.00	0.00
56	70.00	-70.00	6.00	60.00	60.00	0.00
57	71.00	-71.00	6.00	60.00	60.00	0.00
58	72.00	-72.00	6.00	60.00	60.00	0.00
59	73.00	-73.00	6.00	60.00	60.00	0.00
60	74.00	-74.00	6.00	60.00	60.00	0.00
61	75.00	-75.00	6.00	60.00	60.00	0.00
62	76.00	-76.00	6.00	60.00	60.00	0.00
63	77.00	-77.00	6.00	60.00	60.00	0.00
64	78.00	-78.00	6.00	60.00	60.00	0.00
65	79.00	-79.00	6.00	60.00	60.00	0.00
66	80.00	-80.00	6.00	60.00	60.00	0.00
67	81.00	-81.00	6.00	60.00	60.00	0.00
68	82.00	-82.00	6.00	60.00	60.00	0.00
69	83.00	-83.00	6.00	60.00	60.00	0.00
70	84.00	-84.00	6.00	60.00	60.00	0.00
71	85.00	-85.00	6.00	60.00	60.00	0.00
72	86.00	-86.00	6.00	60.00	60.00	0.00
73	87.00	-87.00	6.00	60.00	60.00	0.00
74	88.00	-88.00	6.00	60.00	60.00	0.00
75	89.00	-89.00	6.00	60.00	60.00	0.00
76	90.00	-90.00	6.00	60.00	60.00	0.00
77	91.00	-91.00	6.00	60.00	60.00	0.00
78	92.00	-92.00	6.00	60.00	60.00	0.00
79	93.00	-93.00	6.00	60.00	60.00	0.00
80	94.00	-94.00	6.00	60.00	60.00	0.00
81	95.00	-95.00	6.00	60.00	60.00	0.00

Drilled Shaft Capacity (sorted by shaft diameter):

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Strength reduction factors: Skin-friction = 1.00, End-bearing = 1.00

ID	Diameter (in)	Length (ft)	Skin Fric. (tons)	End Bearing (tons)	Capacity (tons)
1	60.00	15.00	4.761	159.757	164.517
2	60.00	16.00	6.826	162.427	169.253
3	60.00	17.00	9.214	164.132	173.345
4	60.00	18.00	11.915	278.016	289.931
5	60.00	19.00	14.945	289.581	304.526
6	60.00	20.00	18.335	300.639	318.974
7	60.00	21.00	22.072	308.754	330.826
8	60.00	22.00	26.140	318.897	345.036
9	60.00	23.00	30.533	333.500	364.033
10	60.00	24.00	35.249	348.223	383.473
11	60.00	25.00	40.300	358.727	399.027
12	60.00	26.00	45.664	365.771	411.434
13	60.00	27.00	51.279	373.921	425.199
14	60.00	28.00	57.133	383.937	441.070
15	60.00	29.00	63.227	391.926	455.153
16	60.00	30.00	69.572	393.993	463.565
17	60.00	31.00	76.157	391.744	467.900
18	60.00	32.00	82.969	394.813	477.782
19	60.00	33.00	90.006	404.807	494.814
20	60.00	34.00	97.265	417.006	514.271
21	60.00	35.00	104.757	426.688	531.446
22	60.00	36.00	112.474	434.352	546.826
23	60.00	37.00	120.425	442.977	563.402
24	60.00	38.00	128.607	453.060	581.667
25	60.00	39.00	137.004	458.939	595.943
26	60.00	40.00	145.612	454.950	600.562
27	60.00	41.00	154.413	442.997	597.410
28	60.00	42.00	163.359	434.495	597.854
29	60.00	43.00	172.440	431.347	603.788
30	60.00	44.00	181.655	430.835	612.491
31	60.00	45.00	191.013	430.242	621.255
32	60.00	46.00	200.504	430.031	630.535
33	60.00	47.00	210.117	432.978	643.095
34	60.00	48.00	219.851	439.545	659.396
35	60.00	49.00	229.689	445.679	675.368
36	60.00	50.00	239.631	447.325	686.956
37	60.00	51.00	249.661	445.323	694.984
38	60.00	52.00	259.738	444.697	704.435
39	60.00	53.00	269.856	446.286	716.142
40	60.00	54.00	280.033	448.443	728.477
41	60.00	55.00	290.297	449.522	739.819
42	60.00	56.00	300.636	450.441	751.077
43	60.00	57.00	311.026	456.714	767.739
44	60.00	58.00	321.461	469.259	790.720
45	60.00	59.00	331.937	481.225	813.162
46	60.00	60.00	342.462	485.758	828.220
47	60.00	61.00	353.024	483.932	836.956
48	60.00	62.00	363.601	482.193	845.794
49	60.00	63.00	374.188	481.613	855.800
50	60.00	64.00	384.780	479.869	864.649
51	60.00	65.00	395.384	474.638	870.023
52	60.00	66.00	405.990	466.167	872.156
53	60.00	67.00	416.575	455.930	872.505
54	60.00	68.00	427.137	444.175	871.312
55	60.00	69.00	437.663	433.989	871.651
56	60.00	70.00	448.151	428.457	876.608
57	60.00	71.00	458.593	427.042	885.635
58	60.00	72.00	468.982	426.516	895.498
59	60.00	73.00	479.316	426.340	905.656
60	60.00	74.00	489.588	425.759	915.347
61	60.00	75.00	499.805	424.016	923.821
62	60.00	76.00	509.955	421.349	931.304
63	60.00	77.00	520.011	419.197	939.208
64	60.00	78.00	529.967	417.799	947.766
65	60.00	79.00	539.808	416.091	955.899
66	60.00	80.00	549.526	413.008	962.535
67	60.00	81.00	559.121	409.527	968.648
68	60.00	82.00	568.611	411.502	980.114
69	60.00	83.00	577.998	419.910	997.908
70	60.00	84.00	587.269	432.832	1020.101
71	60.00	85.00	596.422	448.352	1044.774
72	60.00	86.00	605.453	465.238	1070.691
73	60.00	87.00	614.552	476.108	1090.660
74	60.00	88.00	623.783	479.731	1103.515
75	60.00	89.00	633.143	479.434	1112.577
76	60.00	90.00	642.625	478.542	1121.167
77	60.00	91.00	Soil Elevations Must Extend At or Below Contribution Zone		
78	60.00	92.00	Soil Elevations Must Extend At or Below Contribution Zone		
79	60.00	93.00	Soil Elevations Must Extend At or Below Contribution Zone		
80	60.00	94.00	Soil Elevations Must Extend At or Below Contribution Zone		
81	60.00	95.00	Soil Elevations Must Extend At or Below Contribution Zone		

Drilled Shaft Capacity at User-Defined Settlement (sorted by shaft diameter):
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***** Capacity is NOT modified by the strength reduction factors *****

User-Defined Settlement = 0.83%

ID	Diameter (in)	Length (ft)	Skin Fric. (tons)	End Bearing (tons)	Capacity (tons)
1	60.00	15.00	4.639	41.711	46.351
2	60.00	16.00	6.652	42.408	49.060
3	60.00	17.00	8.979	42.853	51.832
4	60.00	18.00	11.611	72.588	84.199
5	60.00	19.00	14.564	75.607	90.171
6	60.00	20.00	17.868	78.494	96.362
7	60.00	21.00	21.509	80.613	102.122
8	60.00	22.00	25.473	83.261	108.735
9	60.00	23.00	29.755	87.074	116.829
10	60.00	24.00	34.351	90.918	125.269
11	60.00	25.00	39.273	93.661	132.933
12	60.00	26.00	44.500	95.500	139.999
13	60.00	27.00	49.971	97.628	147.599
14	60.00	28.00	55.677	100.243	155.920
15	60.00	29.00	61.615	102.329	163.944
16	60.00	30.00	67.798	102.868	170.667
17	60.00	31.00	74.215	102.281	176.496
18	60.00	32.00	80.854	103.083	183.937
19	60.00	33.00	87.712	105.692	193.404
20	60.00	34.00	94.786	108.877	203.663
21	60.00	35.00	102.087	111.405	213.492
22	60.00	36.00	109.607	113.406	223.013
23	60.00	37.00	117.355	115.658	233.012
24	60.00	38.00	125.329	118.290	243.619
25	60.00	39.00	133.511	119.825	253.337
26	60.00	40.00	141.900	118.784	260.684
27	60.00	41.00	150.477	115.663	266.140
28	60.00	42.00	159.194	113.443	272.638
29	60.00	43.00	168.044	112.621	280.666
30	60.00	44.00	177.024	112.488	289.512
31	60.00	45.00	186.143	112.333	298.476
32	60.00	46.00	195.392	112.278	307.670
33	60.00	47.00	204.761	113.047	317.808
34	60.00	48.00	214.246	114.762	329.008
35	60.00	49.00	223.834	116.363	340.197
36	60.00	50.00	233.522	116.793	350.315
37	60.00	51.00	243.296	116.270	359.566
38	60.00	52.00	253.117	116.107	369.224
39	60.00	53.00	262.977	116.522	379.498
40	60.00	54.00	272.894	117.085	389.979
41	60.00	55.00	282.897	117.367	400.263
42	60.00	56.00	292.972	117.607	410.579
43	60.00	57.00	303.097	119.244	422.341
44	60.00	58.00	313.266	122.520	435.785
45	60.00	59.00	323.475	125.644	449.119
46	60.00	60.00	333.732	126.828	460.559
47	60.00	61.00	344.024	126.351	470.375
48	60.00	62.00	354.331	125.897	480.228
49	60.00	63.00	364.648	125.745	490.394
50	60.00	64.00	374.971	125.290	500.261
51	60.00	65.00	385.304	123.924	509.229
52	60.00	66.00	395.639	121.712	517.352
53	60.00	67.00	405.955	119.040	524.995
54	60.00	68.00	416.248	115.971	532.218
55	60.00	69.00	426.505	113.311	539.816
56	60.00	70.00	436.726	111.867	548.592
57	60.00	71.00	446.902	111.497	558.399
58	60.00	72.00	457.026	111.360	568.386
59	60.00	73.00	467.096	111.314	578.410
60	60.00	74.00	477.107	111.162	588.269
61	60.00	75.00	487.063	110.707	597.771
62	60.00	76.00	496.954	110.011	606.965
63	60.00	77.00	506.754	109.449	616.203
64	60.00	78.00	516.456	109.084	625.540
65	60.00	79.00	526.046	108.638	634.684
66	60.00	80.00	535.517	107.833	643.350
67	60.00	81.00	544.867	106.924	651.792
68	60.00	82.00	554.116	107.440	661.556
69	60.00	83.00	563.263	109.635	672.898
70	60.00	84.00	572.297	113.009	685.306
71	60.00	85.00	581.218	117.061	698.279
72	60.00	86.00	590.018	121.470	711.488
73	60.00	87.00	598.885	124.308	723.193
74	60.00	88.00	607.881	125.254	733.135
75	60.00	89.00	617.002	125.176	742.178
76	60.00	90.00	626.242	124.944	751.186
77	60.00	91.00	Soil Elevations Must Extend At or Below Contribution Zone		

78	60.00	92.00	Soil Elevations Must Extend At or Below Contribution Zone
79	60.00	93.00	Soil Elevations Must Extend At or Below Contribution Zone
80	60.00	94.00	Soil Elevations Must Extend At or Below Contribution Zone
81	60.00	95.00	Soil Elevations Must Extend At or Below Contribution Zone

General Information:
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Input file: .....H)\Analysis_Structure\FB-Deep\Drilled Shaft\B-501Shaft48in.spc
Project number: 2000-01-17003
Job name: SW 10th Street, from Powerline Rd. to Military Trail
Engineer: JB Henry
Units: English

Analysis Information:
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Analysis Type: Drilled Shaft Analysis

Soil Information:
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Boring date: 2/7/2018
Boring number: B-501
Station number: Offset:

Ground Elevation: 0.00(ft)
Water table Elevation = 0.00(ft)

Hammer type: Automatic Hammer, Correction factor = 1.24

ID	Depth (ft)	Elevation (ft)	SPT Blows (Blows/ft)	Unit Weight (pcf)	Soil Type
1	0.00	-0.00	N/A	0.00	5- Cavity layer
2	2.00	-2.00	N/A	0.00	5- Cavity layer
3	4.00	-4.00	N/A	0.00	5- Cavity layer
4	6.00	-6.00	N/A	0.00	5- Cavity layer
5	8.00	-8.00	N/A	0.00	5- Cavity layer
6	10.00	-10.00	30.00	120.00	3- Clean sand
7	12.00	-12.00	14.00	110.00	3- Clean sand
8	13.50	-13.50	16.00	110.00	3- Clean sand
9	15.50	-15.50	14.00	110.00	3- Clean sand
10	18.00	-18.00	32.00	120.00	3- Clean sand
11	20.50	-20.50	20.00	115.00	3- Clean sand
12	23.00	-23.00	30.00	120.00	3- Clean sand
13	25.50	-25.50	21.00	115.00	3- Clean sand
14	28.00	-28.00	36.00	125.00	3- Clean sand
15	30.50	-30.50	29.00	120.00	3- Clean sand
16	33.00	-33.00	58.00	130.00	3- Clean sand
17	35.50	-35.50	33.00	125.00	3- Clean sand
18	38.00	-38.00	52.00	130.00	3- Clean sand
19	40.50	-40.50	39.00	125.00	3- Clean sand
20	43.00	-43.00	66.00	130.00	3- Clean sand
21	45.50	-45.50	39.00	125.00	3- Clean sand
22	48.00	-48.00	58.00	130.00	3- Clean sand
23	50.50	-50.50	60.00	130.00	3- Clean sand
24	53.00	-53.00	60.00	130.00	3- Clean sand
25	55.50	-55.50	50.00	130.00	3- Clean sand
26	58.00	-58.00	69.00	130.00	3- Clean sand
27	60.50	-60.50	67.00	130.00	3- Clean sand
28	63.00	-63.00	53.00	130.00	3- Clean sand
29	65.50	-65.50	63.00	130.00	3- Clean sand
30	68.00	-68.00	60.00	130.00	3- Clean sand
31	70.50	-70.50	71.00	130.00	3- Clean sand
32	73.00	-73.00	60.00	130.00	3- Clean sand
33	75.50	-75.50	60.00	130.00	3- Clean sand
34	78.00	-78.00	73.00	130.00	3- Clean sand
35	80.50	-80.50	38.00	125.00	3- Clean sand
36	83.00	-83.00	42.00	125.00	3- Clean sand
37	85.50	-85.50	33.00	125.00	3- Clean sand
38	88.00	-88.00	48.00	125.00	3- Clean sand
39	90.50	-90.50	82.00	130.00	3- Clean sand
40	93.00	-93.00	62.00	130.00	3- Clean sand
41	95.50	-95.50	60.00	130.00	3- Clean sand
42	98.00	-98.00	50.00	130.00	3- Clean sand
43	100.00	-100.00	50.00	130.00	3- Clean sand

ID	Cu-DIR (tsf)	qu (tsf)	qt (tsf)	Em (ksi)	qb (tsf)
1	N/A	N/A	N/A	N/A	N/A
2	N/A	N/A	N/A	N/A	N/A
3	N/A	N/A	N/A	N/A	N/A
4	N/A	N/A	N/A	N/A	N/A
5	N/A	N/A	N/A	N/A	N/A
6	N/A	N/A	N/A	N/A	N/A
7	N/A	N/A	N/A	N/A	N/A
8	N/A	N/A	N/A	N/A	N/A

9	N/A	N/A	N/A	N/A	N/A
10	N/A	N/A	N/A	N/A	N/A
11	N/A	N/A	N/A	N/A	N/A
12	N/A	N/A	N/A	N/A	N/A
13	N/A	N/A	N/A	N/A	N/A
14	N/A	N/A	N/A	N/A	N/A
15	N/A	N/A	N/A	N/A	N/A
16	N/A	N/A	N/A	N/A	N/A
17	N/A	N/A	N/A	N/A	N/A
18	N/A	N/A	N/A	N/A	N/A
19	N/A	N/A	N/A	N/A	N/A
20	N/A	N/A	N/A	N/A	N/A
21	N/A	N/A	N/A	N/A	N/A
22	N/A	N/A	N/A	N/A	N/A
23	N/A	N/A	N/A	N/A	N/A
24	N/A	N/A	N/A	N/A	N/A
25	N/A	N/A	N/A	N/A	N/A
26	N/A	N/A	N/A	N/A	N/A
27	N/A	N/A	N/A	N/A	N/A
28	N/A	N/A	N/A	N/A	N/A
29	N/A	N/A	N/A	N/A	N/A
30	N/A	N/A	N/A	N/A	N/A
31	N/A	N/A	N/A	N/A	N/A
32	N/A	N/A	N/A	N/A	N/A
33	N/A	N/A	N/A	N/A	N/A
34	N/A	N/A	N/A	N/A	N/A
35	N/A	N/A	N/A	N/A	N/A
36	N/A	N/A	N/A	N/A	N/A
37	N/A	N/A	N/A	N/A	N/A
38	N/A	N/A	N/A	N/A	N/A
39	N/A	N/A	N/A	N/A	N/A
40	N/A	N/A	N/A	N/A	N/A
41	N/A	N/A	N/A	N/A	N/A
42	N/A	N/A	N/A	N/A	N/A
43	N/A	N/A	N/A	N/A	N/A

ID	RQD F.M.	S.R.I.	Rock Recovery
1	N/A	N/A	N/A
2	N/A	N/A	N/A
3	N/A	N/A	N/A
4	N/A	N/A	N/A
5	N/A	N/A	N/A
6	N/A	N/A	N/A
7	N/A	N/A	N/A
8	N/A	N/A	N/A
9	N/A	N/A	N/A
10	N/A	N/A	N/A
11	N/A	N/A	N/A
12	N/A	N/A	N/A
13	N/A	N/A	N/A
14	N/A	N/A	N/A
15	N/A	N/A	N/A
16	N/A	N/A	N/A
17	N/A	N/A	N/A
18	N/A	N/A	N/A
19	N/A	N/A	N/A
20	N/A	N/A	N/A
21	N/A	N/A	N/A
22	N/A	N/A	N/A
23	N/A	N/A	N/A
24	N/A	N/A	N/A
25	N/A	N/A	N/A
26	N/A	N/A	N/A
27	N/A	N/A	N/A
28	N/A	N/A	N/A
29	N/A	N/A	N/A
30	N/A	N/A	N/A
31	N/A	N/A	N/A
32	N/A	N/A	N/A
33	N/A	N/A	N/A
34	N/A	N/A	N/A
35	N/A	N/A	N/A
36	N/A	N/A	N/A
37	N/A	N/A	N/A
38	N/A	N/A	N/A
39	N/A	N/A	N/A
40	N/A	N/A	N/A
41	N/A	N/A	N/A
42	N/A	N/A	N/A
43	N/A	N/A	N/A

Drilled Shaft Data:
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Shaft Geometry:

ID	Length (ft)	Tip Elev. (ft)	Case Len. (ft)	Diameter (in)	Base Diam. (in)	Bell Len. (ft)
1	15.00	-15.00	6.00	48.00	48.00	0.00
2	16.00	-16.00	6.00	48.00	48.00	0.00
3	17.00	-17.00	6.00	48.00	48.00	0.00
4	18.00	-18.00	6.00	48.00	48.00	0.00
5	19.00	-19.00	6.00	48.00	48.00	0.00
6	20.00	-20.00	6.00	48.00	48.00	0.00
7	21.00	-21.00	6.00	48.00	48.00	0.00
8	22.00	-22.00	6.00	48.00	48.00	0.00
9	23.00	-23.00	6.00	48.00	48.00	0.00
10	24.00	-24.00	6.00	48.00	48.00	0.00
11	25.00	-25.00	6.00	48.00	48.00	0.00
12	26.00	-26.00	6.00	48.00	48.00	0.00
13	27.00	-27.00	6.00	48.00	48.00	0.00
14	28.00	-28.00	6.00	48.00	48.00	0.00
15	29.00	-29.00	6.00	48.00	48.00	0.00
16	30.00	-30.00	6.00	48.00	48.00	0.00
17	31.00	-31.00	6.00	48.00	48.00	0.00
18	32.00	-32.00	6.00	48.00	48.00	0.00
19	33.00	-33.00	6.00	48.00	48.00	0.00
20	34.00	-34.00	6.00	48.00	48.00	0.00
21	35.00	-35.00	6.00	48.00	48.00	0.00
22	36.00	-36.00	6.00	48.00	48.00	0.00
23	37.00	-37.00	6.00	48.00	48.00	0.00
24	38.00	-38.00	6.00	48.00	48.00	0.00
25	39.00	-39.00	6.00	48.00	48.00	0.00
26	40.00	-40.00	6.00	48.00	48.00	0.00
27	41.00	-41.00	6.00	48.00	48.00	0.00
28	42.00	-42.00	6.00	48.00	48.00	0.00
29	43.00	-43.00	6.00	48.00	48.00	0.00
30	44.00	-44.00	6.00	48.00	48.00	0.00
31	45.00	-45.00	6.00	48.00	48.00	0.00
32	46.00	-46.00	6.00	48.00	48.00	0.00
33	47.00	-47.00	6.00	48.00	48.00	0.00
34	48.00	-48.00	6.00	48.00	48.00	0.00
35	49.00	-49.00	6.00	48.00	48.00	0.00
36	50.00	-50.00	6.00	48.00	48.00	0.00
37	51.00	-51.00	6.00	48.00	48.00	0.00
38	52.00	-52.00	6.00	48.00	48.00	0.00
39	53.00	-53.00	6.00	48.00	48.00	0.00
40	54.00	-54.00	6.00	48.00	48.00	0.00
41	55.00	-55.00	6.00	48.00	48.00	0.00
42	56.00	-56.00	6.00	48.00	48.00	0.00
43	57.00	-57.00	6.00	48.00	48.00	0.00
44	58.00	-58.00	6.00	48.00	48.00	0.00
45	59.00	-59.00	6.00	48.00	48.00	0.00
46	60.00	-60.00	6.00	48.00	48.00	0.00
47	61.00	-61.00	6.00	48.00	48.00	0.00
48	62.00	-62.00	6.00	48.00	48.00	0.00
49	63.00	-63.00	6.00	48.00	48.00	0.00
50	64.00	-64.00	6.00	48.00	48.00	0.00
51	65.00	-65.00	6.00	48.00	48.00	0.00
52	66.00	-66.00	6.00	48.00	48.00	0.00
53	67.00	-67.00	6.00	48.00	48.00	0.00
54	68.00	-68.00	6.00	48.00	48.00	0.00
55	69.00	-69.00	6.00	48.00	48.00	0.00
56	70.00	-70.00	6.00	48.00	48.00	0.00
57	71.00	-71.00	6.00	48.00	48.00	0.00
58	72.00	-72.00	6.00	48.00	48.00	0.00
59	73.00	-73.00	6.00	48.00	48.00	0.00
60	74.00	-74.00	6.00	48.00	48.00	0.00
61	75.00	-75.00	6.00	48.00	48.00	0.00
62	76.00	-76.00	6.00	48.00	48.00	0.00
63	77.00	-77.00	6.00	48.00	48.00	0.00
64	78.00	-78.00	6.00	48.00	48.00	0.00
65	79.00	-79.00	6.00	48.00	48.00	0.00
66	80.00	-80.00	6.00	48.00	48.00	0.00
67	81.00	-81.00	6.00	48.00	48.00	0.00
68	82.00	-82.00	6.00	48.00	48.00	0.00
69	83.00	-83.00	6.00	48.00	48.00	0.00
70	84.00	-84.00	6.00	48.00	48.00	0.00
71	85.00	-85.00	6.00	48.00	48.00	0.00
72	86.00	-86.00	6.00	48.00	48.00	0.00
73	87.00	-87.00	6.00	48.00	48.00	0.00
74	88.00	-88.00	6.00	48.00	48.00	0.00
75	89.00	-89.00	6.00	48.00	48.00	0.00
76	90.00	-90.00	6.00	48.00	48.00	0.00
77	91.00	-91.00	6.00	48.00	48.00	0.00
78	92.00	-92.00	6.00	48.00	48.00	0.00
79	93.00	-93.00	6.00	48.00	48.00	0.00
80	94.00	-94.00	6.00	48.00	48.00	0.00
81	95.00	-95.00	6.00	48.00	48.00	0.00

Drilled Shaft Capacity (sorted by shaft diameter):

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Strength reduction factors: Skin-friction = 1.00, End-bearing = 1.00

ID	Diameter (in)	Length (ft)	Skin Fric. (tons)	End Bearing (tons)	Capacity (tons)
1	48.00	15.00	4.284	112.266	116.550
2	48.00	16.00	6.001	201.304	207.305
3	48.00	17.00	7.971	199.551	207.522
4	48.00	18.00	10.191	204.031	214.221
5	48.00	19.00	12.672	214.146	226.818
6	48.00	20.00	15.442	226.021	241.463
7	48.00	21.00	18.483	238.662	257.146
8	48.00	22.00	21.765	250.213	271.977
9	48.00	23.00	25.279	256.630	281.910
10	48.00	24.00	29.025	259.589	288.614
11	48.00	25.00	33.014	263.557	296.571
12	48.00	26.00	37.230	271.265	308.496
13	48.00	27.00	41.646	281.080	322.726
14	48.00	28.00	46.256	288.519	334.775
15	48.00	29.00	51.069	294.438	345.508
16	48.00	30.00	56.109	301.367	357.477
17	48.00	31.00	61.362	311.436	372.798
18	48.00	32.00	66.801	323.768	390.569
19	48.00	33.00	72.419	333.011	405.431
20	48.00	34.00	78.226	337.968	416.194
21	48.00	35.00	84.242	341.416	425.658
22	48.00	36.00	90.454	346.618	437.072
23	48.00	37.00	96.836	353.406	450.242
24	48.00	38.00	103.382	357.718	461.100
25	48.00	39.00	110.089	358.967	469.056
26	48.00	40.00	116.965	359.799	476.764
27	48.00	41.00	123.998	362.990	486.989
28	48.00	42.00	131.165	367.970	499.135
29	48.00	43.00	138.460	371.342	509.802
30	48.00	44.00	145.879	372.431	518.311
31	48.00	45.00	153.432	372.483	525.915
32	48.00	46.00	161.105	372.869	533.975
33	48.00	47.00	168.878	373.642	542.520
34	48.00	48.00	176.746	374.209	550.955
35	48.00	49.00	184.704	374.415	559.119
36	48.00	50.00	192.761	374.621	567.383
37	48.00	51.00	200.909	375.239	576.148
38	48.00	52.00	209.138	376.167	585.304
39	48.00	53.00	217.446	376.785	594.231
40	48.00	54.00	225.821	376.991	602.812
41	48.00	55.00	234.262	376.991	611.253
42	48.00	56.00	242.760	376.991	619.751
43	48.00	57.00	251.308	376.991	628.299
44	48.00	58.00	259.903	376.991	636.894
45	48.00	59.00	268.534	376.991	645.525
46	48.00	60.00	277.199	376.991	654.190
47	48.00	61.00	285.890	376.991	662.881
48	48.00	62.00	294.601	376.991	671.592
49	48.00	63.00	303.329	376.991	680.320
50	48.00	64.00	312.063	376.991	689.054
51	48.00	65.00	320.801	376.991	697.792
52	48.00	66.00	329.536	376.991	706.528
53	48.00	67.00	338.262	376.991	715.253
54	48.00	68.00	346.976	376.991	723.967
55	48.00	69.00	355.667	376.991	732.658
56	48.00	70.00	364.334	376.991	741.325
57	48.00	71.00	372.970	376.720	749.690
58	48.00	72.00	381.568	375.905	757.474
59	48.00	73.00	390.127	374.684	764.811
60	48.00	74.00	398.636	373.870	772.506
61	48.00	75.00	407.094	373.598	780.692
62	48.00	76.00	415.493	372.742	788.236
63	48.00	77.00	423.829	370.175	794.004
64	48.00	78.00	432.097	366.324	798.422
65	48.00	79.00	440.290	363.666	803.956
66	48.00	80.00	448.405	362.539	810.944
67	48.00	81.00	456.435	362.132	818.567
68	48.00	82.00	464.367	361.861	826.228
69	48.00	83.00	472.199	361.770	833.969
70	48.00	84.00	479.921	361.485	841.406
71	48.00	85.00	487.533	360.991	848.524
72	48.00	86.00	495.030	360.793	855.823
73	48.00	87.00	502.572	361.566	864.138
74	48.00	88.00	510.213	362.366	872.579
75	48.00	89.00	517.951	362.728	880.680
76	48.00	90.00	525.788	363.869	889.658
77	48.00	91.00	533.725	367.292	901.017
78	48.00	92.00	541.766	372.427	914.193
79	48.00	93.00	Soil Elevations Must Extend At or Below Contribution Zone		
80	48.00	94.00	Soil Elevations Must Extend At or Below Contribution Zone		
81	48.00	95.00	Soil Elevations Must Extend At or Below Contribution Zone		

Drilled Shaft Capacity at User-Defined Settlement (sorted by shaft diameter):
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***** Capacity is NOT modified by the strength reduction factors *****

User-Defined Settlement = 1.04%

ID	Diameter (in)	Length (ft)	Skin Fric. (tons)	End Bearing (tons)	Capacity (tons)
1	48.00	15.00	4.191	35.689	39.880
2	48.00	16.00	5.869	63.995	69.864
3	48.00	17.00	7.797	63.437	71.234
4	48.00	18.00	9.968	64.861	74.829
5	48.00	19.00	12.395	68.077	80.472
6	48.00	20.00	15.104	71.852	86.956
7	48.00	21.00	18.079	75.871	93.949
8	48.00	22.00	21.288	79.543	100.831
9	48.00	23.00	24.726	81.583	106.309
10	48.00	24.00	28.390	82.523	110.913
11	48.00	25.00	32.291	83.785	116.076
12	48.00	26.00	36.416	86.235	122.651
13	48.00	27.00	40.735	89.355	130.090
14	48.00	28.00	45.243	91.720	136.964
15	48.00	29.00	49.952	93.602	143.554
16	48.00	30.00	54.881	95.805	150.686
17	48.00	31.00	60.019	99.005	159.025
18	48.00	32.00	65.339	102.926	168.265
19	48.00	33.00	70.834	105.864	176.699
20	48.00	34.00	76.514	107.440	183.954
21	48.00	35.00	82.398	108.536	190.935
22	48.00	36.00	88.474	110.190	198.664
23	48.00	37.00	94.716	112.348	207.064
24	48.00	38.00	101.119	113.719	214.838
25	48.00	39.00	107.679	114.116	221.795
26	48.00	40.00	114.405	114.380	228.785
27	48.00	41.00	121.284	115.395	236.679
28	48.00	42.00	128.294	116.978	245.272
29	48.00	43.00	135.429	118.050	253.479
30	48.00	44.00	142.686	118.396	261.082
31	48.00	45.00	150.073	118.412	268.486
32	48.00	46.00	157.579	118.535	276.114
33	48.00	47.00	165.182	118.781	283.963
34	48.00	48.00	172.877	118.961	291.838
35	48.00	49.00	180.662	119.027	299.688
36	48.00	50.00	188.542	119.092	307.634
37	48.00	51.00	196.511	119.289	315.800
38	48.00	52.00	204.560	119.584	324.144
39	48.00	53.00	212.686	119.780	332.467
40	48.00	54.00	220.878	119.846	340.724
41	48.00	55.00	229.134	119.846	348.980
42	48.00	56.00	237.446	119.846	357.292
43	48.00	57.00	245.807	119.846	365.653
44	48.00	58.00	254.214	119.846	374.060
45	48.00	59.00	262.656	119.846	382.502
46	48.00	60.00	271.131	119.846	390.977
47	48.00	61.00	279.633	119.846	399.478
48	48.00	62.00	288.153	119.846	407.999
49	48.00	63.00	296.690	119.846	416.535
50	48.00	64.00	305.232	119.846	425.078
51	48.00	65.00	313.779	119.846	433.625
52	48.00	66.00	322.324	119.846	442.169
53	48.00	67.00	330.858	119.846	450.704
54	48.00	68.00	339.381	119.846	459.227
55	48.00	69.00	347.882	119.846	467.728
56	48.00	70.00	356.359	119.846	476.205
57	48.00	71.00	364.806	119.759	484.566
58	48.00	72.00	373.217	119.500	492.717
59	48.00	73.00	381.588	119.112	500.700
60	48.00	74.00	389.911	118.853	508.764
61	48.00	75.00	398.183	118.767	516.950
62	48.00	76.00	406.399	118.495	524.894
63	48.00	77.00	414.552	117.679	532.231
64	48.00	78.00	422.640	116.455	539.094
65	48.00	79.00	430.653	115.610	546.263
66	48.00	80.00	438.590	115.251	553.842
67	48.00	81.00	446.445	115.122	561.567
68	48.00	82.00	454.203	115.036	569.239
69	48.00	83.00	461.863	115.007	576.870
70	48.00	84.00	469.417	114.916	584.333
71	48.00	85.00	476.862	114.759	591.621
72	48.00	86.00	484.195	114.696	598.891
73	48.00	87.00	491.572	114.942	606.514
74	48.00	88.00	499.045	115.196	614.242
75	48.00	89.00	506.614	115.311	621.926
76	48.00	90.00	514.280	115.674	629.954
77	48.00	91.00	522.043	116.762	638.805

78	48.00	92.00	529.908	118.395	648.303
79	48.00	93.00 Soil Elevations Must Extend At or Below Contribution Zone			
80	48.00	94.00 Soil Elevations Must Extend At or Below Contribution Zone			
81	48.00	95.00 Soil Elevations Must Extend At or Below Contribution Zone			

General Information:
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Input file: .....H)\Analysis_Structure\FB-Deep\Drilled Shaft\B-501Shaft60in.spc
Project number: 2000-01-17003
Job name: SW 10th Street, from Powerline Rd. to Military Trail
Engineer: JB Henry
Units: English

Analysis Information:
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Analysis Type: Drilled Shaft Analysis

Soil Information:
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Boring date: 2/7/2018
Boring number: B-501
Station number: Offset:

Ground Elevation: 0.00(ft)
Water table Elevation = 0.00(ft)

Hammer type: Automatic Hammer, Correction factor = 1.24

ID	Depth (ft)	Elevation (ft)	SPT Blows (Blows/ft)	Unit Weight (pcf)	Soil Type
1	0.00	-0.00	N/A	0.00	5- Cavity layer
2	2.00	-2.00	N/A	0.00	5- Cavity layer
3	4.00	-4.00	N/A	0.00	5- Cavity layer
4	6.00	-6.00	N/A	0.00	5- Cavity layer
5	8.00	-8.00	N/A	0.00	5- Cavity layer
6	10.00	-10.00	30.00	120.00	3- Clean sand
7	12.00	-12.00	14.00	110.00	3- Clean sand
8	13.50	-13.50	16.00	110.00	3- Clean sand
9	15.50	-15.50	14.00	110.00	3- Clean sand
10	18.00	-18.00	32.00	120.00	3- Clean sand
11	20.50	-20.50	20.00	115.00	3- Clean sand
12	23.00	-23.00	30.00	120.00	3- Clean sand
13	25.50	-25.50	21.00	115.00	3- Clean sand
14	28.00	-28.00	36.00	125.00	3- Clean sand
15	30.50	-30.50	29.00	120.00	3- Clean sand
16	33.00	-33.00	58.00	130.00	3- Clean sand
17	35.50	-35.50	33.00	125.00	3- Clean sand
18	38.00	-38.00	52.00	130.00	3- Clean sand
19	40.50	-40.50	39.00	125.00	3- Clean sand
20	43.00	-43.00	66.00	130.00	3- Clean sand
21	45.50	-45.50	39.00	125.00	3- Clean sand
22	48.00	-48.00	58.00	130.00	3- Clean sand
23	50.50	-50.50	60.00	130.00	3- Clean sand
24	53.00	-53.00	60.00	130.00	3- Clean sand
25	55.50	-55.50	50.00	130.00	3- Clean sand
26	58.00	-58.00	69.00	130.00	3- Clean sand
27	60.50	-60.50	67.00	130.00	3- Clean sand
28	63.00	-63.00	53.00	130.00	3- Clean sand
29	65.50	-65.50	63.00	130.00	3- Clean sand
30	68.00	-68.00	60.00	130.00	3- Clean sand
31	70.50	-70.50	71.00	130.00	3- Clean sand
32	73.00	-73.00	60.00	130.00	3- Clean sand
33	75.50	-75.50	60.00	130.00	3- Clean sand
34	78.00	-78.00	73.00	130.00	3- Clean sand
35	80.50	-80.50	38.00	125.00	3- Clean sand
36	83.00	-83.00	42.00	125.00	3- Clean sand
37	85.50	-85.50	33.00	125.00	3- Clean sand
38	88.00	-88.00	48.00	125.00	3- Clean sand
39	90.50	-90.50	82.00	130.00	3- Clean sand
40	93.00	-93.00	62.00	130.00	3- Clean sand
41	95.50	-95.50	60.00	130.00	3- Clean sand
42	98.00	-98.00	50.00	130.00	3- Clean sand
43	100.00	-100.00	50.00	130.00	3- Clean sand

ID	Cu-DIR (tsf)	qu (tsf)	qt (tsf)	Em (ksi)	qb (tsf)
1	N/A	N/A	N/A	N/A	N/A
2	N/A	N/A	N/A	N/A	N/A
3	N/A	N/A	N/A	N/A	N/A
4	N/A	N/A	N/A	N/A	N/A
5	N/A	N/A	N/A	N/A	N/A
6	N/A	N/A	N/A	N/A	N/A
7	N/A	N/A	N/A	N/A	N/A
8	N/A	N/A	N/A	N/A	N/A

9	N/A	N/A	N/A	N/A	N/A
10	N/A	N/A	N/A	N/A	N/A
11	N/A	N/A	N/A	N/A	N/A
12	N/A	N/A	N/A	N/A	N/A
13	N/A	N/A	N/A	N/A	N/A
14	N/A	N/A	N/A	N/A	N/A
15	N/A	N/A	N/A	N/A	N/A
16	N/A	N/A	N/A	N/A	N/A
17	N/A	N/A	N/A	N/A	N/A
18	N/A	N/A	N/A	N/A	N/A
19	N/A	N/A	N/A	N/A	N/A
20	N/A	N/A	N/A	N/A	N/A
21	N/A	N/A	N/A	N/A	N/A
22	N/A	N/A	N/A	N/A	N/A
23	N/A	N/A	N/A	N/A	N/A
24	N/A	N/A	N/A	N/A	N/A
25	N/A	N/A	N/A	N/A	N/A
26	N/A	N/A	N/A	N/A	N/A
27	N/A	N/A	N/A	N/A	N/A
28	N/A	N/A	N/A	N/A	N/A
29	N/A	N/A	N/A	N/A	N/A
30	N/A	N/A	N/A	N/A	N/A
31	N/A	N/A	N/A	N/A	N/A
32	N/A	N/A	N/A	N/A	N/A
33	N/A	N/A	N/A	N/A	N/A
34	N/A	N/A	N/A	N/A	N/A
35	N/A	N/A	N/A	N/A	N/A
36	N/A	N/A	N/A	N/A	N/A
37	N/A	N/A	N/A	N/A	N/A
38	N/A	N/A	N/A	N/A	N/A
39	N/A	N/A	N/A	N/A	N/A
40	N/A	N/A	N/A	N/A	N/A
41	N/A	N/A	N/A	N/A	N/A
42	N/A	N/A	N/A	N/A	N/A
43	N/A	N/A	N/A	N/A	N/A

ID	RQD F.M.	S.R.I.	Rock Recovery
1	N/A	N/A	N/A
2	N/A	N/A	N/A
3	N/A	N/A	N/A
4	N/A	N/A	N/A
5	N/A	N/A	N/A
6	N/A	N/A	N/A
7	N/A	N/A	N/A
8	N/A	N/A	N/A
9	N/A	N/A	N/A
10	N/A	N/A	N/A
11	N/A	N/A	N/A
12	N/A	N/A	N/A
13	N/A	N/A	N/A
14	N/A	N/A	N/A
15	N/A	N/A	N/A
16	N/A	N/A	N/A
17	N/A	N/A	N/A
18	N/A	N/A	N/A
19	N/A	N/A	N/A
20	N/A	N/A	N/A
21	N/A	N/A	N/A
22	N/A	N/A	N/A
23	N/A	N/A	N/A
24	N/A	N/A	N/A
25	N/A	N/A	N/A
26	N/A	N/A	N/A
27	N/A	N/A	N/A
28	N/A	N/A	N/A
29	N/A	N/A	N/A
30	N/A	N/A	N/A
31	N/A	N/A	N/A
32	N/A	N/A	N/A
33	N/A	N/A	N/A
34	N/A	N/A	N/A
35	N/A	N/A	N/A
36	N/A	N/A	N/A
37	N/A	N/A	N/A
38	N/A	N/A	N/A
39	N/A	N/A	N/A
40	N/A	N/A	N/A
41	N/A	N/A	N/A
42	N/A	N/A	N/A
43	N/A	N/A	N/A

Drilled Shaft Data:
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Shaft Geometry:

ID	Length (ft)	Tip Elev. (ft)	Case Len. (ft)	Diameter (in)	Base Diam. (in)	Bell Len. (ft)
1	15.00	-15.00	6.00	60.00	60.00	0.00
2	16.00	-16.00	6.00	60.00	60.00	0.00
3	17.00	-17.00	6.00	60.00	60.00	0.00
4	18.00	-18.00	6.00	60.00	60.00	0.00
5	19.00	-19.00	6.00	60.00	60.00	0.00
6	20.00	-20.00	6.00	60.00	60.00	0.00
7	21.00	-21.00	6.00	60.00	60.00	0.00
8	22.00	-22.00	6.00	60.00	60.00	0.00
9	23.00	-23.00	6.00	60.00	60.00	0.00
10	24.00	-24.00	6.00	60.00	60.00	0.00
11	25.00	-25.00	6.00	60.00	60.00	0.00
12	26.00	-26.00	6.00	60.00	60.00	0.00
13	27.00	-27.00	6.00	60.00	60.00	0.00
14	28.00	-28.00	6.00	60.00	60.00	0.00
15	29.00	-29.00	6.00	60.00	60.00	0.00
16	30.00	-30.00	6.00	60.00	60.00	0.00
17	31.00	-31.00	6.00	60.00	60.00	0.00
18	32.00	-32.00	6.00	60.00	60.00	0.00
19	33.00	-33.00	6.00	60.00	60.00	0.00
20	34.00	-34.00	6.00	60.00	60.00	0.00
21	35.00	-35.00	6.00	60.00	60.00	0.00
22	36.00	-36.00	6.00	60.00	60.00	0.00
23	37.00	-37.00	6.00	60.00	60.00	0.00
24	38.00	-38.00	6.00	60.00	60.00	0.00
25	39.00	-39.00	6.00	60.00	60.00	0.00
26	40.00	-40.00	6.00	60.00	60.00	0.00
27	41.00	-41.00	6.00	60.00	60.00	0.00
28	42.00	-42.00	6.00	60.00	60.00	0.00
29	43.00	-43.00	6.00	60.00	60.00	0.00
30	44.00	-44.00	6.00	60.00	60.00	0.00
31	45.00	-45.00	6.00	60.00	60.00	0.00
32	46.00	-46.00	6.00	60.00	60.00	0.00
33	47.00	-47.00	6.00	60.00	60.00	0.00
34	48.00	-48.00	6.00	60.00	60.00	0.00
35	49.00	-49.00	6.00	60.00	60.00	0.00
36	50.00	-50.00	6.00	60.00	60.00	0.00
37	51.00	-51.00	6.00	60.00	60.00	0.00
38	52.00	-52.00	6.00	60.00	60.00	0.00
39	53.00	-53.00	6.00	60.00	60.00	0.00
40	54.00	-54.00	6.00	60.00	60.00	0.00
41	55.00	-55.00	6.00	60.00	60.00	0.00
42	56.00	-56.00	6.00	60.00	60.00	0.00
43	57.00	-57.00	6.00	60.00	60.00	0.00
44	58.00	-58.00	6.00	60.00	60.00	0.00
45	59.00	-59.00	6.00	60.00	60.00	0.00
46	60.00	-60.00	6.00	60.00	60.00	0.00
47	61.00	-61.00	6.00	60.00	60.00	0.00
48	62.00	-62.00	6.00	60.00	60.00	0.00
49	63.00	-63.00	6.00	60.00	60.00	0.00
50	64.00	-64.00	6.00	60.00	60.00	0.00
51	65.00	-65.00	6.00	60.00	60.00	0.00
52	66.00	-66.00	6.00	60.00	60.00	0.00
53	67.00	-67.00	6.00	60.00	60.00	0.00
54	68.00	-68.00	6.00	60.00	60.00	0.00
55	69.00	-69.00	6.00	60.00	60.00	0.00
56	70.00	-70.00	6.00	60.00	60.00	0.00
57	71.00	-71.00	6.00	60.00	60.00	0.00
58	72.00	-72.00	6.00	60.00	60.00	0.00
59	73.00	-73.00	6.00	60.00	60.00	0.00
60	74.00	-74.00	6.00	60.00	60.00	0.00
61	75.00	-75.00	6.00	60.00	60.00	0.00
62	76.00	-76.00	6.00	60.00	60.00	0.00
63	77.00	-77.00	6.00	60.00	60.00	0.00
64	78.00	-78.00	6.00	60.00	60.00	0.00
65	79.00	-79.00	6.00	60.00	60.00	0.00
66	80.00	-80.00	6.00	60.00	60.00	0.00
67	81.00	-81.00	6.00	60.00	60.00	0.00
68	82.00	-82.00	6.00	60.00	60.00	0.00
69	83.00	-83.00	6.00	60.00	60.00	0.00
70	84.00	-84.00	6.00	60.00	60.00	0.00
71	85.00	-85.00	6.00	60.00	60.00	0.00
72	86.00	-86.00	6.00	60.00	60.00	0.00
73	87.00	-87.00	6.00	60.00	60.00	0.00
74	88.00	-88.00	6.00	60.00	60.00	0.00
75	89.00	-89.00	6.00	60.00	60.00	0.00
76	90.00	-90.00	6.00	60.00	60.00	0.00
77	91.00	-91.00	6.00	60.00	60.00	0.00
78	92.00	-92.00	6.00	60.00	60.00	0.00
79	93.00	-93.00	6.00	60.00	60.00	0.00
80	94.00	-94.00	6.00	60.00	60.00	0.00
81	95.00	-95.00	6.00	60.00	60.00	0.00

Drilled Shaft Capacity (sorted by shaft diameter):

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Strength reduction factors: Skin-friction = 1.00, End-bearing = 1.00

ID	Diameter (in)	Length (ft)	Skin Fric. (tons)	End Bearing (tons)	Capacity (tons)
1	60.00	15.00	5.355	149.082	154.437
2	60.00	16.00	7.501	153.449	160.950
3	60.00	17.00	9.964	156.979	166.943
4	60.00	18.00	12.738	273.400	286.139
5	60.00	19.00	15.840	282.612	298.452
6	60.00	20.00	19.302	294.691	313.993
7	60.00	21.00	23.104	304.737	327.841
8	60.00	22.00	27.206	317.436	344.642
9	60.00	23.00	31.599	334.514	366.113
10	60.00	24.00	36.282	349.604	385.886
11	60.00	25.00	41.267	356.338	397.605
12	60.00	26.00	46.538	356.621	403.159
13	60.00	27.00	52.058	361.894	413.952
14	60.00	28.00	57.820	374.062	431.882
15	60.00	29.00	63.837	387.610	451.447
16	60.00	30.00	70.137	397.022	467.159
17	60.00	31.00	76.703	403.335	480.038
18	60.00	32.00	83.501	412.773	496.274
19	60.00	33.00	90.524	426.373	516.897
20	60.00	34.00	97.783	439.162	536.945
21	60.00	35.00	105.303	446.165	551.468
22	60.00	36.00	113.068	448.504	561.572
23	60.00	37.00	121.045	452.910	573.955
24	60.00	38.00	129.227	460.505	589.732
25	60.00	39.00	137.611	467.803	605.414
26	60.00	40.00	146.206	471.317	617.524
27	60.00	41.00	154.998	471.833	626.830
28	60.00	42.00	163.956	474.049	638.005
29	60.00	43.00	173.075	478.749	651.824
30	60.00	44.00	182.349	483.450	665.799
31	60.00	45.00	191.789	485.666	677.455
32	60.00	46.00	201.382	485.775	687.157
33	60.00	47.00	211.098	486.044	697.142
34	60.00	48.00	220.932	486.849	707.781
35	60.00	49.00	230.880	487.707	718.588
36	60.00	50.00	240.952	488.137	729.089
37	60.00	51.00	251.136	488.244	739.380
38	60.00	52.00	261.422	488.673	750.096
39	60.00	53.00	271.807	489.532	761.339
40	60.00	54.00	282.276	490.391	772.667
41	60.00	55.00	292.827	490.820	783.647
42	60.00	56.00	303.450	490.874	794.324
43	60.00	57.00	314.135	490.874	805.009
44	60.00	58.00	324.879	490.874	815.752
45	60.00	59.00	335.667	490.874	826.541
46	60.00	60.00	346.498	490.874	837.372
47	60.00	61.00	357.363	490.874	848.237
48	60.00	62.00	368.252	490.874	859.126
49	60.00	63.00	379.161	490.874	870.035
50	60.00	64.00	390.079	490.874	880.953
51	60.00	65.00	401.001	490.874	891.875
52	60.00	66.00	411.921	490.874	902.794
53	60.00	67.00	422.828	490.874	913.702
54	60.00	68.00	433.720	490.874	924.594
55	60.00	69.00	444.583	490.591	935.175
56	60.00	70.00	455.417	489.743	945.160
57	60.00	71.00	466.212	488.471	954.683
58	60.00	72.00	476.961	487.622	964.583
59	60.00	73.00	487.659	487.340	974.999
60	60.00	74.00	498.295	486.448	984.743
61	60.00	75.00	508.867	483.774	992.641
62	60.00	76.00	519.366	479.762	999.129
63	60.00	77.00	529.786	477.088	1006.874
64	60.00	78.00	540.122	476.197	1016.318
65	60.00	79.00	550.363	476.102	1026.465
66	60.00	80.00	560.506	475.820	1036.326
67	60.00	81.00	570.544	475.396	1045.940
68	60.00	82.00	580.459	475.113	1055.572
69	60.00	83.00	590.249	475.019	1065.267
70	60.00	84.00	599.901	474.721	1074.623
71	60.00	85.00	609.416	473.830	1083.246
72	60.00	86.00	618.788	472.587	1091.375
73	60.00	87.00	628.215	472.450	1100.665
74	60.00	88.00	637.766	473.661	1111.426
75	60.00	89.00	647.439	475.169	1122.608
76	60.00	90.00	657.235	475.922	1133.158
77	60.00	91.00	Soil Elevations Must Extend At or Below Contribution Zone		
78	60.00	92.00	Soil Elevations Must Extend At or Below Contribution Zone		
79	60.00	93.00	Soil Elevations Must Extend At or Below Contribution Zone		
80	60.00	94.00	Soil Elevations Must Extend At or Below Contribution Zone		
81	60.00	95.00	Soil Elevations Must Extend At or Below Contribution Zone		

Drilled Shaft Capacity at User-Defined Settlement (sorted by shaft diameter):
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***** Capacity is NOT modified by the strength reduction factors *****

User-Defined Settlement = 0.83%

ID	Diameter (in)	Length (ft)	Skin Fric. (tons)	End Bearing (tons)	Capacity (tons)
1	60.00	15.00	5.219	38.924	44.143
2	60.00	16.00	7.310	40.064	47.374
3	60.00	17.00	9.710	40.986	50.696
4	60.00	18.00	12.414	71.383	83.796
5	60.00	19.00	15.436	73.788	89.224
6	60.00	20.00	18.810	76.941	95.751
7	60.00	21.00	22.515	79.564	102.079
8	60.00	22.00	26.512	82.880	109.392
9	60.00	23.00	30.794	87.339	118.133
10	60.00	24.00	35.357	91.279	126.636
11	60.00	25.00	40.215	93.037	133.252
12	60.00	26.00	45.352	93.111	138.463
13	60.00	27.00	50.731	94.488	145.219
14	60.00	28.00	56.346	97.665	154.010
15	60.00	29.00	62.209	101.202	163.411
16	60.00	30.00	68.349	103.659	172.008
17	60.00	31.00	74.748	105.308	180.055
18	60.00	32.00	81.373	107.772	189.144
19	60.00	33.00	88.216	111.323	199.539
20	60.00	34.00	95.290	114.662	209.952
21	60.00	35.00	102.618	116.490	219.109
22	60.00	36.00	110.185	117.101	227.286
23	60.00	37.00	117.959	118.251	236.210
24	60.00	38.00	125.933	120.234	246.167
25	60.00	39.00	134.103	122.140	256.242
26	60.00	40.00	142.479	123.057	265.536
27	60.00	41.00	151.046	123.192	274.238
28	60.00	42.00	159.776	123.770	283.547
29	60.00	43.00	168.662	124.998	293.660
30	60.00	44.00	177.700	126.225	303.925
31	60.00	45.00	186.900	126.804	313.704
32	60.00	46.00	196.248	126.832	323.080
33	60.00	47.00	205.716	126.902	332.618
34	60.00	48.00	215.300	127.112	342.412
35	60.00	49.00	224.994	127.337	352.331
36	60.00	50.00	234.809	127.449	362.258
37	60.00	51.00	244.733	127.477	372.210
38	60.00	52.00	254.758	127.589	382.346
39	60.00	53.00	264.878	127.813	392.691
40	60.00	54.00	275.080	128.037	403.117
41	60.00	55.00	285.362	128.149	413.511
42	60.00	56.00	295.714	128.163	423.877
43	60.00	57.00	306.126	128.163	434.290
44	60.00	58.00	316.596	128.163	444.760
45	60.00	59.00	327.110	128.163	455.273
46	60.00	60.00	337.665	128.163	465.828
47	60.00	61.00	348.252	128.163	476.416
48	60.00	62.00	358.864	128.163	487.027
49	60.00	63.00	369.495	128.163	497.659
50	60.00	64.00	380.134	128.163	508.297
51	60.00	65.00	390.778	128.163	518.942
52	60.00	66.00	401.419	128.163	529.583
53	60.00	67.00	412.048	128.163	540.212
54	60.00	68.00	422.663	128.163	550.826
55	60.00	69.00	433.249	128.089	561.339
56	60.00	70.00	443.807	127.868	571.675
57	60.00	71.00	454.327	127.536	581.863
58	60.00	72.00	464.801	127.314	592.116
59	60.00	73.00	475.227	127.241	602.467
60	60.00	74.00	485.592	127.008	612.600
61	60.00	75.00	495.894	126.310	622.204
62	60.00	76.00	506.126	125.262	631.388
63	60.00	77.00	516.280	124.564	640.844
64	60.00	78.00	526.352	124.331	650.683
65	60.00	79.00	536.332	124.307	660.638
66	60.00	80.00	546.217	124.233	670.450
67	60.00	81.00	555.999	124.122	680.121
68	60.00	82.00	565.661	124.048	689.710
69	60.00	83.00	575.201	124.024	699.225
70	60.00	84.00	584.608	123.946	708.554
71	60.00	85.00	593.880	123.713	717.593
72	60.00	86.00	603.013	123.389	726.402
73	60.00	87.00	612.200	123.353	735.553
74	60.00	88.00	621.507	123.669	745.176
75	60.00	89.00	630.934	124.063	754.996
76	60.00	90.00	640.480	124.260	764.740
77	60.00	91.00	Soil Elevations Must Extend At or Below Contribution Zone		

78	60.00	92.00	Soil Elevations Must Extend At or Below Contribution Zone
79	60.00	93.00	Soil Elevations Must Extend At or Below Contribution Zone
80	60.00	94.00	Soil Elevations Must Extend At or Below Contribution Zone
81	60.00	95.00	Soil Elevations Must Extend At or Below Contribution Zone

General Information:
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Input file: .....H)\Analysis_Structure\FB-Deep\Drilled Shaft\B-601Shaft48in.spc
Project number: 2000-01-17003
Job name: SW 10th Street, from Powerline Rd. to Military Trail
Engineer: JB Henry
Units: English

Analysis Information:
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Analysis Type: Drilled Shaft Analysis

Soil Information:
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Boring date: 1/31/2018
Boring number: B-601
Station number: Offset:

Ground Elevation: 0.00(ft)
Water table Elevation = 0.00(ft)

Hammer type: Automatic Hammer, Correction factor = 1.24

ID	Depth (ft)	Elevation (ft)	SPT Blows (Blows/ft)	Unit Weight (pcf)	Soil Type
1	0.00	-0.00	N/A	0.00	5- Cavity layer
2	2.00	-2.00	N/A	0.00	5- Cavity layer
3	4.00	-4.00	N/A	0.00	5- Cavity layer
4	6.00	-6.00	N/A	0.00	5- Cavity layer
5	8.00	-8.00	N/A	0.00	5- Cavity layer
6	10.00	-10.00	3.00	100.00	3- Clean sand
7	12.00	-12.00	4.00	105.00	3- Clean sand
8	13.50	-13.50	3.00	100.00	3- Clean sand
9	15.50	-15.50	6.00	105.00	3- Clean sand
10	18.00	-18.00	12.00	110.00	3- Clean sand
11	20.50	-20.50	15.00	110.00	3- Clean sand
12	23.00	-23.00	22.00	115.00	3- Clean sand
13	25.50	-25.50	20.00	115.00	3- Clean sand
14	28.00	-28.00	52.00	130.00	3- Clean sand
15	30.50	-30.50	61.00	130.00	3- Clean sand
16	33.00	-33.00	90.00	130.00	3- Clean sand
17	35.50	-35.50	40.00	125.00	3- Clean sand
18	38.00	-38.00	78.00	130.00	3- Clean sand
19	40.50	-40.50	47.00	125.00	3- Clean sand
20	43.00	-43.00	89.00	130.00	3- Clean sand
21	45.50	-45.50	60.00	130.00	3- Clean sand
22	48.00	-48.00	60.00	130.00	3- Clean sand
23	50.50	-50.50	18.00	115.00	3- Clean sand
24	53.00	-53.00	26.00	120.00	3- Clean sand
25	55.50	-55.50	2.00	100.00	3- Clean sand
26	58.00	-58.00	2.00	100.00	3- Clean sand
27	60.50	-60.50	9.00	110.00	3- Clean sand
28	63.00	-63.00	23.00	115.00	3- Clean sand
29	65.50	-65.50	60.00	130.00	3- Clean sand
30	68.00	-68.00	60.00	130.00	3- Clean sand
31	70.50	-70.50	60.00	130.00	3- Clean sand
32	73.00	-73.00	60.00	130.00	3- Clean sand
33	75.50	-75.50	60.00	130.00	3- Clean sand
34	78.00	-78.00	52.00	130.00	3- Clean sand
35	80.50	-80.50	58.00	130.00	3- Clean sand
36	83.00	-83.00	60.00	130.00	3- Clean sand
37	85.50	-85.50	60.00	130.00	3- Clean sand
38	88.00	-88.00	60.00	130.00	3- Clean sand
39	90.50	-90.50	36.00	125.00	3- Clean sand
40	93.00	-93.00	20.00	115.00	3- Clean sand
41	95.50	-95.50	12.00	110.00	3- Clean sand
42	98.00	-98.00	42.00	130.00	3- Clean sand
43	100.00	-100.00	42.00	130.00	3- Clean sand

ID	Cu-DIR (tsf)	qu (tsf)	qt (tsf)	Em (ksi)	qb (tsf)
1	N/A	N/A	N/A	N/A	N/A
2	N/A	N/A	N/A	N/A	N/A
3	N/A	N/A	N/A	N/A	N/A
4	N/A	N/A	N/A	N/A	N/A
5	N/A	N/A	N/A	N/A	N/A
6	N/A	N/A	N/A	N/A	N/A
7	N/A	N/A	N/A	N/A	N/A
8	N/A	N/A	N/A	N/A	N/A

9	N/A	N/A	N/A	N/A	N/A
10	N/A	N/A	N/A	N/A	N/A
11	N/A	N/A	N/A	N/A	N/A
12	N/A	N/A	N/A	N/A	N/A
13	N/A	N/A	N/A	N/A	N/A
14	N/A	N/A	N/A	N/A	N/A
15	N/A	N/A	N/A	N/A	N/A
16	N/A	N/A	N/A	N/A	N/A
17	N/A	N/A	N/A	N/A	N/A
18	N/A	N/A	N/A	N/A	N/A
19	N/A	N/A	N/A	N/A	N/A
20	N/A	N/A	N/A	N/A	N/A
21	N/A	N/A	N/A	N/A	N/A
22	N/A	N/A	N/A	N/A	N/A
23	N/A	N/A	N/A	N/A	N/A
24	N/A	N/A	N/A	N/A	N/A
25	N/A	N/A	N/A	N/A	N/A
26	N/A	N/A	N/A	N/A	N/A
27	N/A	N/A	N/A	N/A	N/A
28	N/A	N/A	N/A	N/A	N/A
29	N/A	N/A	N/A	N/A	N/A
30	N/A	N/A	N/A	N/A	N/A
31	N/A	N/A	N/A	N/A	N/A
32	N/A	N/A	N/A	N/A	N/A
33	N/A	N/A	N/A	N/A	N/A
34	N/A	N/A	N/A	N/A	N/A
35	N/A	N/A	N/A	N/A	N/A
36	N/A	N/A	N/A	N/A	N/A
37	N/A	N/A	N/A	N/A	N/A
38	N/A	N/A	N/A	N/A	N/A
39	N/A	N/A	N/A	N/A	N/A
40	N/A	N/A	N/A	N/A	N/A
41	N/A	N/A	N/A	N/A	N/A
42	N/A	N/A	N/A	N/A	N/A
43	N/A	N/A	N/A	N/A	N/A

ID	RQD F.M.	S.R.I.	Rock Recovery
1	N/A	N/A	N/A
2	N/A	N/A	N/A
3	N/A	N/A	N/A
4	N/A	N/A	N/A
5	N/A	N/A	N/A
6	N/A	N/A	N/A
7	N/A	N/A	N/A
8	N/A	N/A	N/A
9	N/A	N/A	N/A
10	N/A	N/A	N/A
11	N/A	N/A	N/A
12	N/A	N/A	N/A
13	N/A	N/A	N/A
14	N/A	N/A	N/A
15	N/A	N/A	N/A
16	N/A	N/A	N/A
17	N/A	N/A	N/A
18	N/A	N/A	N/A
19	N/A	N/A	N/A
20	N/A	N/A	N/A
21	N/A	N/A	N/A
22	N/A	N/A	N/A
23	N/A	N/A	N/A
24	N/A	N/A	N/A
25	N/A	N/A	N/A
26	N/A	N/A	N/A
27	N/A	N/A	N/A
28	N/A	N/A	N/A
29	N/A	N/A	N/A
30	N/A	N/A	N/A
31	N/A	N/A	N/A
32	N/A	N/A	N/A
33	N/A	N/A	N/A
34	N/A	N/A	N/A
35	N/A	N/A	N/A
36	N/A	N/A	N/A
37	N/A	N/A	N/A
38	N/A	N/A	N/A
39	N/A	N/A	N/A
40	N/A	N/A	N/A
41	N/A	N/A	N/A
42	N/A	N/A	N/A
43	N/A	N/A	N/A

Drilled Shaft Data:
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Shaft Geometry:

ID	Length (ft)	Tip Elev. (ft)	Case Len. (ft)	Diameter (in)	Base Diam. (in)	Bell Len. (ft)
1	15.00	-15.00	6.00	48.00	48.00	0.00
2	16.00	-16.00	6.00	48.00	48.00	0.00
3	17.00	-17.00	6.00	48.00	48.00	0.00
4	18.00	-18.00	6.00	48.00	48.00	0.00
5	19.00	-19.00	6.00	48.00	48.00	0.00
6	20.00	-20.00	6.00	48.00	48.00	0.00
7	21.00	-21.00	6.00	48.00	48.00	0.00
8	22.00	-22.00	6.00	48.00	48.00	0.00
9	23.00	-23.00	6.00	48.00	48.00	0.00
10	24.00	-24.00	6.00	48.00	48.00	0.00
11	25.00	-25.00	6.00	48.00	48.00	0.00
12	26.00	-26.00	6.00	48.00	48.00	0.00
13	27.00	-27.00	6.00	48.00	48.00	0.00
14	28.00	-28.00	6.00	48.00	48.00	0.00
15	29.00	-29.00	6.00	48.00	48.00	0.00
16	30.00	-30.00	6.00	48.00	48.00	0.00
17	31.00	-31.00	6.00	48.00	48.00	0.00
18	32.00	-32.00	6.00	48.00	48.00	0.00
19	33.00	-33.00	6.00	48.00	48.00	0.00
20	34.00	-34.00	6.00	48.00	48.00	0.00
21	35.00	-35.00	6.00	48.00	48.00	0.00
22	36.00	-36.00	6.00	48.00	48.00	0.00
23	37.00	-37.00	6.00	48.00	48.00	0.00
24	38.00	-38.00	6.00	48.00	48.00	0.00
25	39.00	-39.00	6.00	48.00	48.00	0.00
26	40.00	-40.00	6.00	48.00	48.00	0.00
27	41.00	-41.00	6.00	48.00	48.00	0.00
28	42.00	-42.00	6.00	48.00	48.00	0.00
29	43.00	-43.00	6.00	48.00	48.00	0.00
30	44.00	-44.00	6.00	48.00	48.00	0.00
31	45.00	-45.00	6.00	48.00	48.00	0.00
32	46.00	-46.00	6.00	48.00	48.00	0.00
33	47.00	-47.00	6.00	48.00	48.00	0.00
34	48.00	-48.00	6.00	48.00	48.00	0.00
35	49.00	-49.00	6.00	48.00	48.00	0.00
36	50.00	-50.00	6.00	48.00	48.00	0.00
37	51.00	-51.00	6.00	48.00	48.00	0.00
38	52.00	-52.00	6.00	48.00	48.00	0.00
39	53.00	-53.00	6.00	48.00	48.00	0.00
40	54.00	-54.00	6.00	48.00	48.00	0.00
41	55.00	-55.00	6.00	48.00	48.00	0.00
42	56.00	-56.00	6.00	48.00	48.00	0.00
43	57.00	-57.00	6.00	48.00	48.00	0.00
44	58.00	-58.00	6.00	48.00	48.00	0.00
45	59.00	-59.00	6.00	48.00	48.00	0.00
46	60.00	-60.00	6.00	48.00	48.00	0.00
47	61.00	-61.00	6.00	48.00	48.00	0.00
48	62.00	-62.00	6.00	48.00	48.00	0.00
49	63.00	-63.00	6.00	48.00	48.00	0.00
50	64.00	-64.00	6.00	48.00	48.00	0.00
51	65.00	-65.00	6.00	48.00	48.00	0.00
52	66.00	-66.00	6.00	48.00	48.00	0.00
53	67.00	-67.00	6.00	48.00	48.00	0.00
54	68.00	-68.00	6.00	48.00	48.00	0.00
55	69.00	-69.00	6.00	48.00	48.00	0.00
56	70.00	-70.00	6.00	48.00	48.00	0.00
57	71.00	-71.00	6.00	48.00	48.00	0.00
58	72.00	-72.00	6.00	48.00	48.00	0.00
59	73.00	-73.00	6.00	48.00	48.00	0.00
60	74.00	-74.00	6.00	48.00	48.00	0.00
61	75.00	-75.00	6.00	48.00	48.00	0.00
62	76.00	-76.00	6.00	48.00	48.00	0.00
63	77.00	-77.00	6.00	48.00	48.00	0.00
64	78.00	-78.00	6.00	48.00	48.00	0.00
65	79.00	-79.00	6.00	48.00	48.00	0.00
66	80.00	-80.00	6.00	48.00	48.00	0.00
67	81.00	-81.00	6.00	48.00	48.00	0.00
68	82.00	-82.00	6.00	48.00	48.00	0.00
69	83.00	-83.00	6.00	48.00	48.00	0.00
70	84.00	-84.00	6.00	48.00	48.00	0.00
71	85.00	-85.00	6.00	48.00	48.00	0.00
72	86.00	-86.00	6.00	48.00	48.00	0.00
73	87.00	-87.00	6.00	48.00	48.00	0.00
74	88.00	-88.00	6.00	48.00	48.00	0.00
75	89.00	-89.00	6.00	48.00	48.00	0.00
76	90.00	-90.00	6.00	48.00	48.00	0.00
77	91.00	-91.00	6.00	48.00	48.00	0.00
78	92.00	-92.00	6.00	48.00	48.00	0.00
79	93.00	-93.00	6.00	48.00	48.00	0.00
80	94.00	-94.00	6.00	48.00	48.00	0.00
81	95.00	-95.00	6.00	48.00	48.00	0.00

Drilled Shaft Capacity (sorted by shaft diameter):

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Strength reduction factors: Skin-friction = 1.00, End-bearing = 1.00

ID	Diameter (in)	Length (ft)	Skin Fric. (tons)	End Bearing (tons)	Capacity (tons)
1	48.00	15.00	0.857	61.538	62.395
2	48.00	16.00	1.356	89.715	91.071
3	48.00	17.00	2.119	100.973	103.092
4	48.00	18.00	2.993	112.494	115.488
5	48.00	19.00	4.968	128.528	133.496
6	48.00	20.00	7.180	149.855	157.035
7	48.00	21.00	9.628	172.871	182.500
8	48.00	22.00	12.306	195.138	207.444
9	48.00	23.00	15.199	216.168	231.367
10	48.00	24.00	18.307	235.523	253.830
11	48.00	25.00	21.642	253.319	274.961
12	48.00	26.00	25.194	270.205	295.398
13	48.00	27.00	28.952	287.290	316.242
14	48.00	28.00	32.914	303.876	336.791
15	48.00	29.00	37.104	319.129	356.233
16	48.00	30.00	41.554	333.679	375.233
17	48.00	31.00	46.253	348.889	395.142
18	48.00	32.00	51.191	363.853	415.044
19	48.00	33.00	56.362	373.353	429.715
20	48.00	34.00	61.752	376.507	438.259
21	48.00	35.00	67.357	376.470	443.826
22	48.00	36.00	73.164	376.413	449.577
23	48.00	37.00	79.148	376.375	455.524
24	48.00	38.00	85.303	376.363	461.666
25	48.00	39.00	91.625	376.363	467.988
26	48.00	40.00	98.122	376.413	474.535
27	48.00	41.00	104.783	373.955	478.738
28	48.00	42.00	111.584	366.355	477.939
29	48.00	43.00	118.518	354.348	472.866
30	48.00	44.00	125.583	343.224	468.807
31	48.00	45.00	132.787	333.920	466.707
32	48.00	46.00	140.121	322.746	462.867
33	48.00	47.00	147.575	305.962	453.537
34	48.00	48.00	155.148	284.270	439.418
35	48.00	49.00	162.825	261.007	423.832
36	48.00	50.00	170.605	236.005	406.611
37	48.00	51.00	178.475	210.377	388.852
38	48.00	52.00	186.386	186.714	373.100
39	48.00	53.00	194.333	165.514	359.847
40	48.00	54.00	202.314	146.759	349.072
41	48.00	55.00	210.335	132.884	343.219
42	48.00	56.00	216.404	127.991	344.394
43	48.00	57.00	220.536	132.688	353.224
44	48.00	58.00	224.728	139.616	364.344
45	48.00	59.00	228.979	144.830	373.809
46	48.00	60.00	233.289	153.082	386.371
47	48.00	61.00	238.389	169.428	407.817
48	48.00	62.00	244.225	193.340	437.565
49	48.00	63.00	250.045	219.278	469.324
50	48.00	64.00	257.846	246.437	504.283
51	48.00	65.00	265.630	273.854	539.485
52	48.00	66.00	273.397	300.271	573.668
53	48.00	67.00	281.170	324.402	605.572
54	48.00	68.00	288.951	344.443	633.394
55	48.00	69.00	296.728	360.121	656.849
56	48.00	70.00	304.501	370.918	675.419
57	48.00	71.00	312.262	376.316	688.578
58	48.00	72.00	320.005	376.991	696.996
59	48.00	73.00	327.727	376.991	704.718
60	48.00	74.00	335.417	376.991	712.408
61	48.00	75.00	343.076	376.991	720.067
62	48.00	76.00	350.695	376.991	727.686
63	48.00	77.00	358.268	376.991	735.259
64	48.00	78.00	365.793	376.991	742.784
65	48.00	79.00	373.260	376.991	750.251
66	48.00	80.00	380.668	376.991	757.659
67	48.00	81.00	388.009	376.486	764.495
68	48.00	82.00	395.279	374.970	770.249
69	48.00	83.00	402.474	372.103	774.578
70	48.00	84.00	409.585	365.838	775.423
71	48.00	85.00	416.611	355.832	772.444
72	48.00	86.00	423.547	343.022	766.570
73	48.00	87.00	430.540	328.342	758.882
74	48.00	88.00	437.638	312.854	750.492
75	48.00	89.00	444.843	302.755	747.598
76	48.00	90.00	452.154	298.940	751.094
77	48.00	91.00	459.570	297.984	757.554
78	48.00	92.00	467.085	295.896	762.981
79	48.00	93.00	Soil Elevations Must Extend At or Below Contribution Zone		
80	48.00	94.00	Soil Elevations Must Extend At or Below Contribution Zone		
81	48.00	95.00	Soil Elevations Must Extend At or Below Contribution Zone		

Drilled Shaft Capacity at User-Defined Settlement (sorted by shaft diameter):
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***** Capacity is NOT modified by the strength reduction factors *****

User-Defined Settlement = 1.04%

ID	Diameter (in)	Length (ft)	Skin Fric. (tons)	End Bearing (tons)	Capacity (tons)
1	48.00	15.00	0.839	19.563	20.402
2	48.00	16.00	1.327	28.520	29.847
3	48.00	17.00	2.072	32.099	34.172
4	48.00	18.00	2.928	35.762	38.690
5	48.00	19.00	4.859	40.859	45.719
6	48.00	20.00	7.022	47.639	54.661
7	48.00	21.00	9.418	54.956	64.373
8	48.00	22.00	12.036	62.034	74.071
9	48.00	23.00	14.866	68.720	83.586
10	48.00	24.00	17.907	74.873	92.779
11	48.00	25.00	21.168	80.530	101.699
12	48.00	26.00	24.642	85.898	110.540
13	48.00	27.00	28.318	91.330	119.648
14	48.00	28.00	32.194	96.602	128.796
15	48.00	29.00	36.292	101.451	137.743
16	48.00	30.00	40.644	106.077	146.721
17	48.00	31.00	45.241	110.912	156.153
18	48.00	32.00	50.070	115.669	165.739
19	48.00	33.00	55.128	118.689	173.817
20	48.00	34.00	60.400	119.692	180.092
21	48.00	35.00	65.882	119.680	185.562
22	48.00	36.00	71.563	119.662	191.225
23	48.00	37.00	77.416	119.650	197.066
24	48.00	38.00	83.436	119.646	203.082
25	48.00	39.00	89.619	119.646	209.265
26	48.00	40.00	95.975	119.662	215.636
27	48.00	41.00	102.490	118.880	221.370
28	48.00	42.00	109.141	116.464	225.606
29	48.00	43.00	115.924	112.647	228.571
30	48.00	44.00	122.835	109.111	231.946
31	48.00	45.00	129.881	106.153	236.034
32	48.00	46.00	137.054	102.601	239.655
33	48.00	47.00	144.345	97.265	241.611
34	48.00	48.00	151.752	90.370	242.121
35	48.00	49.00	159.261	82.974	242.235
36	48.00	50.00	166.871	75.026	241.897
37	48.00	51.00	174.568	66.879	241.447
38	48.00	52.00	182.307	59.356	241.663
39	48.00	53.00	190.080	52.617	242.696
40	48.00	54.00	197.886	46.655	244.540
41	48.00	55.00	205.731	42.244	247.975
42	48.00	56.00	211.667	40.688	252.355
43	48.00	57.00	215.709	42.182	257.891
44	48.00	58.00	219.809	44.384	264.193
45	48.00	59.00	223.967	46.041	270.008
46	48.00	60.00	228.182	48.665	276.847
47	48.00	61.00	233.171	53.861	287.032
48	48.00	62.00	238.880	61.463	300.343
49	48.00	63.00	244.572	69.709	314.281
50	48.00	64.00	252.203	78.342	330.545
51	48.00	65.00	259.816	87.058	346.875
52	48.00	66.00	267.413	95.456	362.870
53	48.00	67.00	275.016	103.128	378.144
54	48.00	68.00	282.626	109.499	392.125
55	48.00	69.00	290.233	114.483	404.716
56	48.00	70.00	297.836	117.915	415.751
57	48.00	71.00	305.427	119.631	425.058
58	48.00	72.00	313.000	119.846	432.846
59	48.00	73.00	320.553	119.846	440.399
60	48.00	74.00	328.076	119.846	447.921
61	48.00	75.00	335.566	119.846	455.412
62	48.00	76.00	343.019	119.846	462.864
63	48.00	77.00	350.426	119.846	470.272
64	48.00	78.00	357.786	119.846	477.632
65	48.00	79.00	365.090	119.846	484.936
66	48.00	80.00	372.335	119.846	492.181
67	48.00	81.00	379.517	119.685	499.202
68	48.00	82.00	386.627	119.203	505.830
69	48.00	83.00	393.665	118.292	511.957
70	48.00	84.00	400.620	116.300	516.920
71	48.00	85.00	407.493	113.119	520.612
72	48.00	86.00	414.277	109.047	523.324
73	48.00	87.00	421.116	104.380	525.496
74	48.00	88.00	428.059	99.456	527.515
75	48.00	89.00	435.106	96.246	531.352
76	48.00	90.00	442.257	95.033	537.290
77	48.00	91.00	449.510	94.729	544.240

78	48.00	92.00	456.861	94.065	550.927
79	48.00	93.00 Soil Elevations Must Extend At or Below Contribution Zone			
80	48.00	94.00 Soil Elevations Must Extend At or Below Contribution Zone			
81	48.00	95.00 Soil Elevations Must Extend At or Below Contribution Zone			

General Information:
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Input file: .....H)\Analysis_Structure\FB-Deep\Drilled Shaft\B-601Shaft60in.spc
Project number: 2000-01-17003
Job name: SW 10th Street, from Powerline Rd. to Military Trail
Engineer: JB Henry
Units: English

Analysis Information:
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Analysis Type: Drilled Shaft Analysis

Soil Information:
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Boring date: 1/31/2018
Boring number: B-601
Station number: Offset:

Ground Elevation: 0.00(ft)
Water table Elevation = 0.00(ft)

Hammer type: Automatic Hammer, Correction factor = 1.24

ID	Depth (ft)	Elevation (ft)	SPT Blows (Blows/ft)	Unit Weight (pcf)	Soil Type
1	0.00	-0.00	N/A	0.00	5- Cavity layer
2	2.00	-2.00	N/A	0.00	5- Cavity layer
3	4.00	-4.00	N/A	0.00	5- Cavity layer
4	6.00	-6.00	N/A	0.00	5- Cavity layer
5	8.00	-8.00	N/A	0.00	5- Cavity layer
6	10.00	-10.00	3.00	100.00	3- Clean sand
7	12.00	-12.00	4.00	105.00	3- Clean sand
8	13.50	-13.50	3.00	100.00	3- Clean sand
9	15.50	-15.50	6.00	105.00	3- Clean sand
10	18.00	-18.00	12.00	110.00	3- Clean sand
11	20.50	-20.50	15.00	110.00	3- Clean sand
12	23.00	-23.00	22.00	115.00	3- Clean sand
13	25.50	-25.50	20.00	115.00	3- Clean sand
14	28.00	-28.00	52.00	130.00	3- Clean sand
15	30.50	-30.50	61.00	130.00	3- Clean sand
16	33.00	-33.00	90.00	130.00	3- Clean sand
17	35.50	-35.50	40.00	125.00	3- Clean sand
18	38.00	-38.00	78.00	130.00	3- Clean sand
19	40.50	-40.50	47.00	125.00	3- Clean sand
20	43.00	-43.00	89.00	130.00	3- Clean sand
21	45.50	-45.50	60.00	130.00	3- Clean sand
22	48.00	-48.00	60.00	130.00	3- Clean sand
23	50.50	-50.50	18.00	115.00	3- Clean sand
24	53.00	-53.00	26.00	120.00	3- Clean sand
25	55.50	-55.50	2.00	100.00	3- Clean sand
26	58.00	-58.00	2.00	100.00	3- Clean sand
27	60.50	-60.50	9.00	110.00	3- Clean sand
28	63.00	-63.00	23.00	115.00	3- Clean sand
29	65.50	-65.50	60.00	130.00	3- Clean sand
30	68.00	-68.00	60.00	130.00	3- Clean sand
31	70.50	-70.50	60.00	130.00	3- Clean sand
32	73.00	-73.00	60.00	130.00	3- Clean sand
33	75.50	-75.50	60.00	130.00	3- Clean sand
34	78.00	-78.00	52.00	130.00	3- Clean sand
35	80.50	-80.50	58.00	130.00	3- Clean sand
36	83.00	-83.00	60.00	130.00	3- Clean sand
37	85.50	-85.50	60.00	130.00	3- Clean sand
38	88.00	-88.00	60.00	130.00	3- Clean sand
39	90.50	-90.50	36.00	125.00	3- Clean sand
40	93.00	-93.00	20.00	115.00	3- Clean sand
41	95.50	-95.50	12.00	110.00	3- Clean sand
42	98.00	-98.00	42.00	130.00	3- Clean sand
43	100.00	-100.00	42.00	130.00	3- Clean sand

ID	Cu-DIR (tsf)	qu (tsf)	qt (tsf)	Em (ksi)	qb (tsf)
1	N/A	N/A	N/A	N/A	N/A
2	N/A	N/A	N/A	N/A	N/A
3	N/A	N/A	N/A	N/A	N/A
4	N/A	N/A	N/A	N/A	N/A
5	N/A	N/A	N/A	N/A	N/A
6	N/A	N/A	N/A	N/A	N/A
7	N/A	N/A	N/A	N/A	N/A
8	N/A	N/A	N/A	N/A	N/A

9	N/A	N/A	N/A	N/A	N/A
10	N/A	N/A	N/A	N/A	N/A
11	N/A	N/A	N/A	N/A	N/A
12	N/A	N/A	N/A	N/A	N/A
13	N/A	N/A	N/A	N/A	N/A
14	N/A	N/A	N/A	N/A	N/A
15	N/A	N/A	N/A	N/A	N/A
16	N/A	N/A	N/A	N/A	N/A
17	N/A	N/A	N/A	N/A	N/A
18	N/A	N/A	N/A	N/A	N/A
19	N/A	N/A	N/A	N/A	N/A
20	N/A	N/A	N/A	N/A	N/A
21	N/A	N/A	N/A	N/A	N/A
22	N/A	N/A	N/A	N/A	N/A
23	N/A	N/A	N/A	N/A	N/A
24	N/A	N/A	N/A	N/A	N/A
25	N/A	N/A	N/A	N/A	N/A
26	N/A	N/A	N/A	N/A	N/A
27	N/A	N/A	N/A	N/A	N/A
28	N/A	N/A	N/A	N/A	N/A
29	N/A	N/A	N/A	N/A	N/A
30	N/A	N/A	N/A	N/A	N/A
31	N/A	N/A	N/A	N/A	N/A
32	N/A	N/A	N/A	N/A	N/A
33	N/A	N/A	N/A	N/A	N/A
34	N/A	N/A	N/A	N/A	N/A
35	N/A	N/A	N/A	N/A	N/A
36	N/A	N/A	N/A	N/A	N/A
37	N/A	N/A	N/A	N/A	N/A
38	N/A	N/A	N/A	N/A	N/A
39	N/A	N/A	N/A	N/A	N/A
40	N/A	N/A	N/A	N/A	N/A
41	N/A	N/A	N/A	N/A	N/A
42	N/A	N/A	N/A	N/A	N/A
43	N/A	N/A	N/A	N/A	N/A

ID	RQD F.M.	S.R.I.	Rock Recovery
1	N/A	N/A	N/A
2	N/A	N/A	N/A
3	N/A	N/A	N/A
4	N/A	N/A	N/A
5	N/A	N/A	N/A
6	N/A	N/A	N/A
7	N/A	N/A	N/A
8	N/A	N/A	N/A
9	N/A	N/A	N/A
10	N/A	N/A	N/A
11	N/A	N/A	N/A
12	N/A	N/A	N/A
13	N/A	N/A	N/A
14	N/A	N/A	N/A
15	N/A	N/A	N/A
16	N/A	N/A	N/A
17	N/A	N/A	N/A
18	N/A	N/A	N/A
19	N/A	N/A	N/A
20	N/A	N/A	N/A
21	N/A	N/A	N/A
22	N/A	N/A	N/A
23	N/A	N/A	N/A
24	N/A	N/A	N/A
25	N/A	N/A	N/A
26	N/A	N/A	N/A
27	N/A	N/A	N/A
28	N/A	N/A	N/A
29	N/A	N/A	N/A
30	N/A	N/A	N/A
31	N/A	N/A	N/A
32	N/A	N/A	N/A
33	N/A	N/A	N/A
34	N/A	N/A	N/A
35	N/A	N/A	N/A
36	N/A	N/A	N/A
37	N/A	N/A	N/A
38	N/A	N/A	N/A
39	N/A	N/A	N/A
40	N/A	N/A	N/A
41	N/A	N/A	N/A
42	N/A	N/A	N/A
43	N/A	N/A	N/A

Drilled Shaft Data:
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Shaft Geometry:

ID	Length (ft)	Tip Elev. (ft)	Case Len. (ft)	Diameter (in)	Base Diam. (in)	Bell Len. (ft)
1	15.00	-15.00	6.00	60.00	60.00	0.00
2	16.00	-16.00	6.00	60.00	60.00	0.00
3	17.00	-17.00	6.00	60.00	60.00	0.00
4	18.00	-18.00	6.00	60.00	60.00	0.00
5	19.00	-19.00	6.00	60.00	60.00	0.00
6	20.00	-20.00	6.00	60.00	60.00	0.00
7	21.00	-21.00	6.00	60.00	60.00	0.00
8	22.00	-22.00	6.00	60.00	60.00	0.00
9	23.00	-23.00	6.00	60.00	60.00	0.00
10	24.00	-24.00	6.00	60.00	60.00	0.00
11	25.00	-25.00	6.00	60.00	60.00	0.00
12	26.00	-26.00	6.00	60.00	60.00	0.00
13	27.00	-27.00	6.00	60.00	60.00	0.00
14	28.00	-28.00	6.00	60.00	60.00	0.00
15	29.00	-29.00	6.00	60.00	60.00	0.00
16	30.00	-30.00	6.00	60.00	60.00	0.00
17	31.00	-31.00	6.00	60.00	60.00	0.00
18	32.00	-32.00	6.00	60.00	60.00	0.00
19	33.00	-33.00	6.00	60.00	60.00	0.00
20	34.00	-34.00	6.00	60.00	60.00	0.00
21	35.00	-35.00	6.00	60.00	60.00	0.00
22	36.00	-36.00	6.00	60.00	60.00	0.00
23	37.00	-37.00	6.00	60.00	60.00	0.00
24	38.00	-38.00	6.00	60.00	60.00	0.00
25	39.00	-39.00	6.00	60.00	60.00	0.00
26	40.00	-40.00	6.00	60.00	60.00	0.00
27	41.00	-41.00	6.00	60.00	60.00	0.00
28	42.00	-42.00	6.00	60.00	60.00	0.00
29	43.00	-43.00	6.00	60.00	60.00	0.00
30	44.00	-44.00	6.00	60.00	60.00	0.00
31	45.00	-45.00	6.00	60.00	60.00	0.00
32	46.00	-46.00	6.00	60.00	60.00	0.00
33	47.00	-47.00	6.00	60.00	60.00	0.00
34	48.00	-48.00	6.00	60.00	60.00	0.00
35	49.00	-49.00	6.00	60.00	60.00	0.00
36	50.00	-50.00	6.00	60.00	60.00	0.00
37	51.00	-51.00	6.00	60.00	60.00	0.00
38	52.00	-52.00	6.00	60.00	60.00	0.00
39	53.00	-53.00	6.00	60.00	60.00	0.00
40	54.00	-54.00	6.00	60.00	60.00	0.00
41	55.00	-55.00	6.00	60.00	60.00	0.00
42	56.00	-56.00	6.00	60.00	60.00	0.00
43	57.00	-57.00	6.00	60.00	60.00	0.00
44	58.00	-58.00	6.00	60.00	60.00	0.00
45	59.00	-59.00	6.00	60.00	60.00	0.00
46	60.00	-60.00	6.00	60.00	60.00	0.00
47	61.00	-61.00	6.00	60.00	60.00	0.00
48	62.00	-62.00	6.00	60.00	60.00	0.00
49	63.00	-63.00	6.00	60.00	60.00	0.00
50	64.00	-64.00	6.00	60.00	60.00	0.00
51	65.00	-65.00	6.00	60.00	60.00	0.00
52	66.00	-66.00	6.00	60.00	60.00	0.00
53	67.00	-67.00	6.00	60.00	60.00	0.00
54	68.00	-68.00	6.00	60.00	60.00	0.00
55	69.00	-69.00	6.00	60.00	60.00	0.00
56	70.00	-70.00	6.00	60.00	60.00	0.00
57	71.00	-71.00	6.00	60.00	60.00	0.00
58	72.00	-72.00	6.00	60.00	60.00	0.00
59	73.00	-73.00	6.00	60.00	60.00	0.00
60	74.00	-74.00	6.00	60.00	60.00	0.00
61	75.00	-75.00	6.00	60.00	60.00	0.00
62	76.00	-76.00	6.00	60.00	60.00	0.00
63	77.00	-77.00	6.00	60.00	60.00	0.00
64	78.00	-78.00	6.00	60.00	60.00	0.00
65	79.00	-79.00	6.00	60.00	60.00	0.00
66	80.00	-80.00	6.00	60.00	60.00	0.00
67	81.00	-81.00	6.00	60.00	60.00	0.00
68	82.00	-82.00	6.00	60.00	60.00	0.00
69	83.00	-83.00	6.00	60.00	60.00	0.00
70	84.00	-84.00	6.00	60.00	60.00	0.00
71	85.00	-85.00	6.00	60.00	60.00	0.00
72	86.00	-86.00	6.00	60.00	60.00	0.00
73	87.00	-87.00	6.00	60.00	60.00	0.00
74	88.00	-88.00	6.00	60.00	60.00	0.00
75	89.00	-89.00	6.00	60.00	60.00	0.00
76	90.00	-90.00	6.00	60.00	60.00	0.00
77	91.00	-91.00	6.00	60.00	60.00	0.00
78	92.00	-92.00	6.00	60.00	60.00	0.00
79	93.00	-93.00	6.00	60.00	60.00	0.00
80	94.00	-94.00	6.00	60.00	60.00	0.00
81	95.00	-95.00	6.00	60.00	60.00	0.00

Drilled Shaft Capacity (sorted by shaft diameter):

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Strength reduction factors: Skin-friction = 1.00, End-bearing = 1.00

ID	Diameter (in)	Length (ft)	Skin Fric. (tons)	End Bearing (tons)	Capacity (tons)
1	60.00	15.00	1.072	89.910	90.982
2	60.00	16.00	1.695	99.043	100.738
3	60.00	17.00	2.648	111.051	113.700
4	60.00	18.00	3.742	160.786	164.527
5	60.00	19.00	6.210	185.045	191.255
6	60.00	20.00	8.975	209.261	218.236
7	60.00	21.00	12.035	234.183	246.219
8	60.00	22.00	15.382	259.295	274.677
9	60.00	23.00	18.999	283.758	302.756
10	60.00	24.00	22.884	306.801	329.686
11	60.00	25.00	27.053	327.656	354.709
12	60.00	26.00	31.492	346.690	378.182
13	60.00	27.00	36.190	366.111	402.301
14	60.00	28.00	41.143	386.285	427.428
15	60.00	29.00	46.380	405.700	452.080
16	60.00	30.00	51.942	422.843	474.785
17	60.00	31.00	57.817	438.078	495.895
18	60.00	32.00	63.988	453.598	517.586
19	60.00	33.00	70.453	469.766	540.219
20	60.00	34.00	77.189	482.948	560.137
21	60.00	35.00	84.196	489.506	573.702
22	60.00	36.00	91.455	490.272	581.727
23	60.00	37.00	98.935	490.232	589.168
24	60.00	38.00	106.628	490.219	596.848
25	60.00	39.00	114.531	487.502	602.033
26	60.00	40.00	122.653	479.349	602.002
27	60.00	41.00	130.979	466.698	597.677
28	60.00	42.00	139.479	455.163	594.643
29	60.00	43.00	148.147	445.681	593.828
30	60.00	44.00	156.979	434.251	591.230
31	60.00	45.00	165.984	416.872	582.856
32	60.00	46.00	175.151	394.290	569.440
33	60.00	47.00	184.469	370.963	555.432
34	60.00	48.00	193.934	347.637	541.571
35	60.00	49.00	203.531	324.257	527.788
36	60.00	50.00	213.257	300.770	514.026
37	60.00	51.00	223.093	277.696	500.789
38	60.00	52.00	232.983	258.159	491.142
39	60.00	53.00	242.916	242.680	485.596
40	60.00	54.00	252.892	230.365	483.257
41	60.00	55.00	262.919	220.320	483.238
42	60.00	56.00	270.505	213.166	483.671
43	60.00	57.00	275.671	212.637	488.308
44	60.00	58.00	280.910	219.355	500.265
45	60.00	59.00	286.224	228.682	514.905
46	60.00	60.00	291.611	235.979	527.590
47	60.00	61.00	297.986	242.618	540.604
48	60.00	62.00	305.282	256.814	562.095
49	60.00	63.00	312.557	279.937	592.494
50	60.00	64.00	322.308	308.227	630.535
51	60.00	65.00	332.038	337.923	669.961
52	60.00	66.00	341.747	368.565	710.312
53	60.00	67.00	351.463	397.394	748.857
54	60.00	68.00	361.188	423.951	785.140
55	60.00	69.00	370.910	447.100	818.010
56	60.00	70.00	380.626	465.703	846.329
57	60.00	71.00	390.327	479.627	869.954
58	60.00	72.00	400.006	488.062	888.068
59	60.00	73.00	409.658	490.874	900.532
60	60.00	74.00	419.272	490.874	910.146
61	60.00	75.00	428.845	490.874	919.718
62	60.00	76.00	438.368	490.874	929.242
63	60.00	77.00	447.835	490.874	938.709
64	60.00	78.00	457.241	490.874	948.115
65	60.00	79.00	466.575	490.348	956.922
66	60.00	80.00	475.834	488.769	964.603
67	60.00	81.00	485.012	485.783	970.794
68	60.00	82.00	494.099	479.256	973.354
69	60.00	83.00	503.093	468.834	971.926
70	60.00	84.00	511.982	455.490	967.471
71	60.00	85.00	520.764	440.198	960.962
72	60.00	86.00	529.434	424.064	953.498
73	60.00	87.00	538.175	413.720	951.895
74	60.00	88.00	547.048	410.272	957.320
75	60.00	89.00	556.053	410.097	966.150
76	60.00	90.00	565.192	409.571	974.763
77	60.00	91.00	Soil Elevations Must Extend At or Below Contribution Zone		
78	60.00	92.00	Soil Elevations Must Extend At or Below Contribution Zone		
79	60.00	93.00	Soil Elevations Must Extend At or Below Contribution Zone		
80	60.00	94.00	Soil Elevations Must Extend At or Below Contribution Zone		
81	60.00	95.00	Soil Elevations Must Extend At or Below Contribution Zone		

Drilled Shaft Capacity at User-Defined Settlement (sorted by shaft diameter):
==
***** Capacity is NOT modified by the strength reduction factors *****

User-Defined Settlement = 0.83%

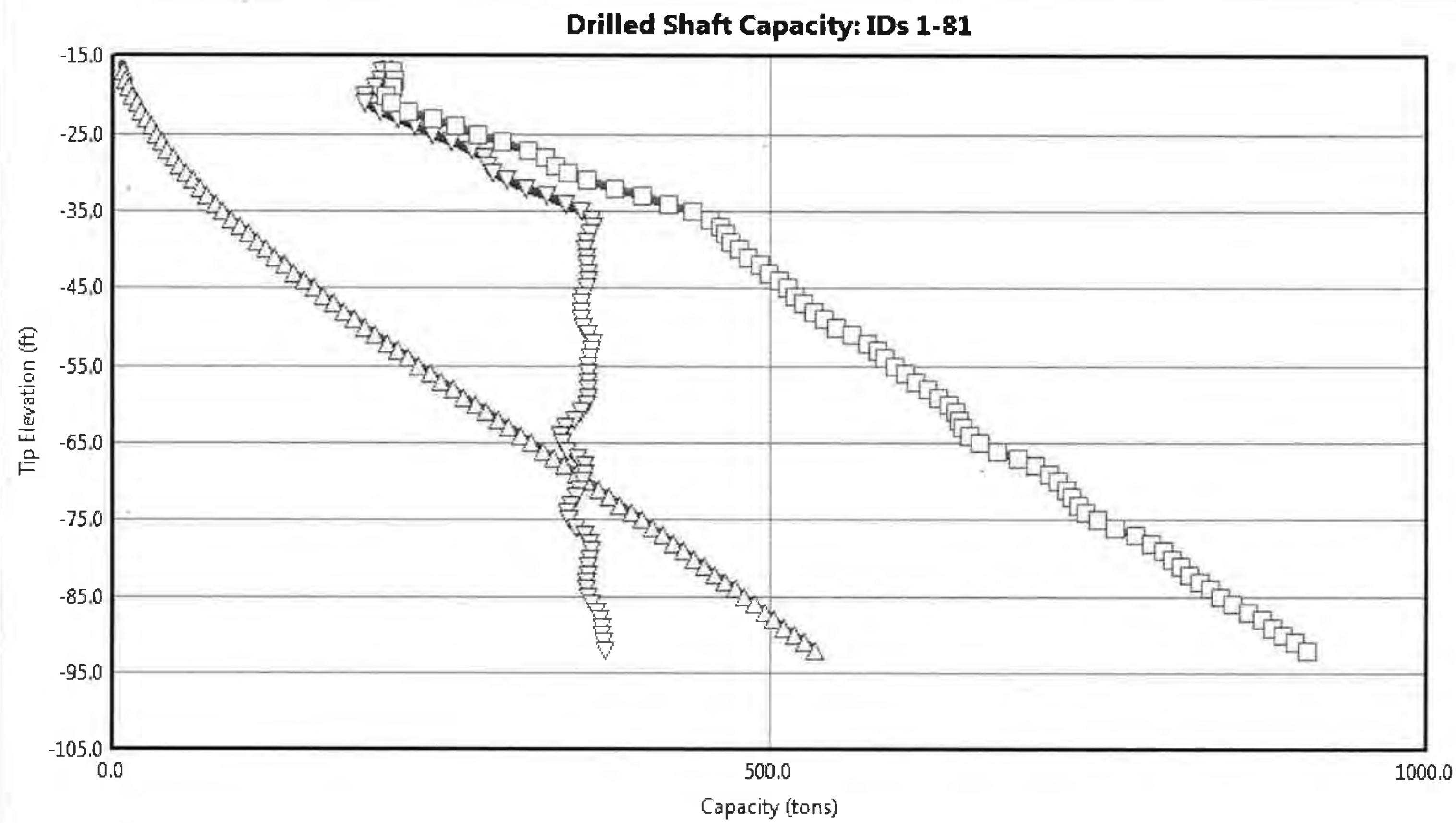
ID	Diameter (in)	Length (ft)	Skin Fric. (tons)	End Bearing (tons)	Capacity (tons)
1	60.00	15.00	1.044	23.475	24.519
2	60.00	16.00	1.652	25.859	27.511
3	60.00	17.00	2.581	28.995	31.575
4	60.00	18.00	3.646	41.980	45.626
5	60.00	19.00	6.052	48.314	54.366
6	60.00	20.00	8.746	54.636	63.382
7	60.00	21.00	11.729	61.143	72.872
8	60.00	22.00	14.990	67.700	82.690
9	60.00	23.00	18.514	74.087	92.601
10	60.00	24.00	22.301	80.103	102.404
11	60.00	25.00	26.363	85.549	111.912
12	60.00	26.00	30.689	90.518	121.207
13	60.00	27.00	35.267	95.589	130.856
14	60.00	28.00	40.094	100.856	140.950
15	60.00	29.00	45.197	105.925	151.123
16	60.00	30.00	50.618	110.401	161.019
17	60.00	31.00	56.343	114.379	170.721
18	60.00	32.00	62.357	118.431	180.788
19	60.00	33.00	68.656	122.652	191.309
20	60.00	34.00	75.222	126.094	201.315
21	60.00	35.00	82.049	127.806	209.855
22	60.00	36.00	89.124	128.006	217.130
23	60.00	37.00	96.413	127.996	224.409
24	60.00	38.00	103.910	127.992	231.903
25	60.00	39.00	111.611	127.283	238.894
26	60.00	40.00	119.526	125.154	244.680
27	60.00	41.00	127.640	121.851	249.491
28	60.00	42.00	135.924	118.840	254.763
29	60.00	43.00	144.371	116.364	260.734
30	60.00	44.00	152.977	113.379	266.357
31	60.00	45.00	161.752	108.842	270.595
32	60.00	46.00	170.686	102.946	273.632
33	60.00	47.00	179.766	96.856	276.622
34	60.00	48.00	188.990	90.765	279.756
35	60.00	49.00	198.342	84.661	283.003
36	60.00	50.00	207.820	78.529	286.349
37	60.00	51.00	217.406	72.504	289.910
38	60.00	52.00	227.043	67.403	294.447
39	60.00	53.00	236.724	63.362	300.085
40	60.00	54.00	246.445	60.146	306.592
41	60.00	55.00	256.216	57.524	313.740
42	60.00	56.00	263.609	55.656	319.265
43	60.00	57.00	268.643	55.518	324.161
44	60.00	58.00	273.749	57.272	331.021
45	60.00	59.00	278.927	59.707	338.634
46	60.00	60.00	284.177	61.612	345.789
47	60.00	61.00	290.390	63.346	353.735
48	60.00	62.00	297.499	67.052	364.551
49	60.00	63.00	304.589	73.089	377.678
50	60.00	64.00	314.091	80.476	394.567
51	60.00	65.00	323.573	88.229	411.802
52	60.00	66.00	333.035	96.229	429.264
53	60.00	67.00	342.503	103.757	446.259
54	60.00	68.00	351.980	110.690	462.671
55	60.00	69.00	361.454	116.734	478.189
56	60.00	70.00	370.922	121.591	492.514
57	60.00	71.00	380.377	125.227	505.603
58	60.00	72.00	389.808	127.429	517.237
59	60.00	73.00	399.215	128.163	527.378
60	60.00	74.00	408.583	128.163	536.746
61	60.00	75.00	417.912	128.163	546.075
62	60.00	76.00	427.193	128.163	555.356
63	60.00	77.00	436.418	128.163	564.581
64	60.00	78.00	445.584	128.163	573.748
65	60.00	79.00	454.680	128.026	582.706
66	60.00	80.00	463.704	127.614	591.317
67	60.00	81.00	472.647	126.834	599.481
68	60.00	82.00	481.502	125.130	606.632
69	60.00	83.00	490.267	122.409	612.676
70	60.00	84.00	498.929	118.925	617.854
71	60.00	85.00	507.488	114.932	622.420
72	60.00	86.00	515.937	110.720	626.657
73	60.00	87.00	524.455	108.019	632.474
74	60.00	88.00	533.101	107.119	640.220
75	60.00	89.00	541.878	107.073	648.951
76	60.00	90.00	550.783	106.936	657.719
77	60.00	91.00	Soil Elevations Must Extend At or Below Contribution Zone		

78	60.00	92.00 Soil Elevations Must Extend At or Below Contribution Zone
79	60.00	93.00 Soil Elevations Must Extend At or Below Contribution Zone
80	60.00	94.00 Soil Elevations Must Extend At or Below Contribution Zone
81	60.00	95.00 Soil Elevations Must Extend At or Below Contribution Zone

Plot Window

Job Name: SW 10th Street, from Powerline Rd. to Military Trail

State Job (Project) #: 2000-01-17003



Curves

- ☑ Ultimate Side Friction
- ☑ Mobilized End Bearing
- ☑ Ultimate Shaft Capacity

*The 'Save to File' button saves the currently selected Curves to a text file.

Drilled Shaft Data

Boring Number:	B-101	
Ground Surface Elevation:	0.00	(ft)
Diameter	48.00	(in)
Bell Diameter	48.00	(in)
Bell Length	0.00	(ft)
Case Length	6.00	(ft)

Project Data

File:	B-101Shaft48in	
Date:	Feb 16, 2018	
Engineer:	JB Henry	
Water Table Elevation:	0.00	(ft)

Analysis Data

Analysis Type: SPT

Plot Options

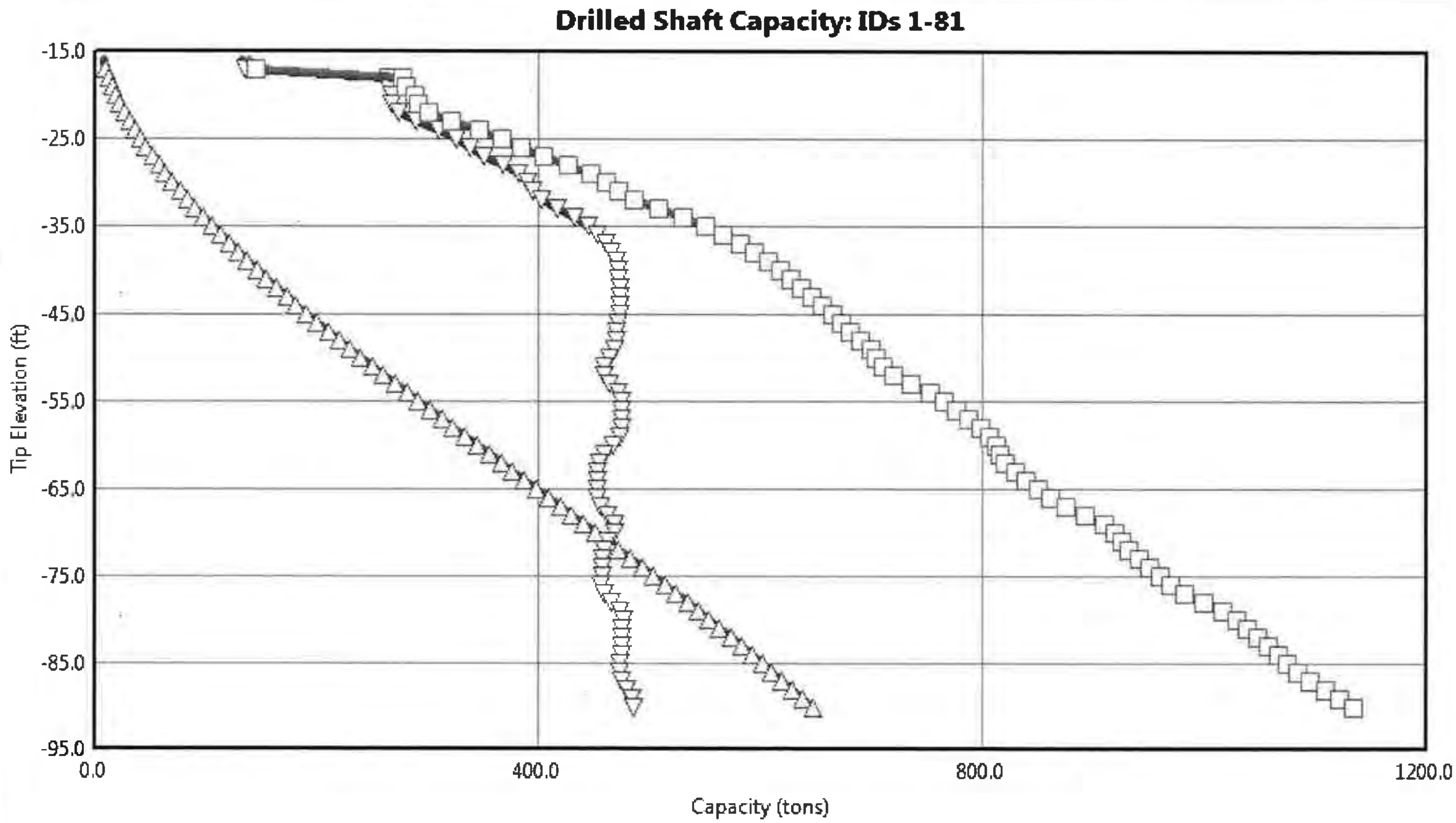
Customize | Update Plot | Print Plot | Print Window | Save To File

Close

Plot Window

Job Name: SW 10th Street, from Powerline Rd. to Military Trail

State Job (Project) #: 2000-01-17003



Curves

- ☑ Ultimate Side Friction
- ☑ Mobilized End Bearing
- ☑ Ultimate Shaft Capacity

Drilled Shaft Data		
Boring Number:	B-101	
Ground Surface Elevation:	0.00	(ft)
Diameter	60.00	(in)
Bell Diameter	60.00	(in)
Bell Length	0.00	(ft)
Case Length	6.00	(ft)

Project Data		
File:	B-101Shaft60in	
Date:	Feb 16, 2018	
Engineer:	JB Henry	
Water Table Elevation:	0.00	(ft)

Analysis Data

Analysis Type: SPT

*The 'Save to File' button saves the currently selected Curves to a text file.

Plot Options

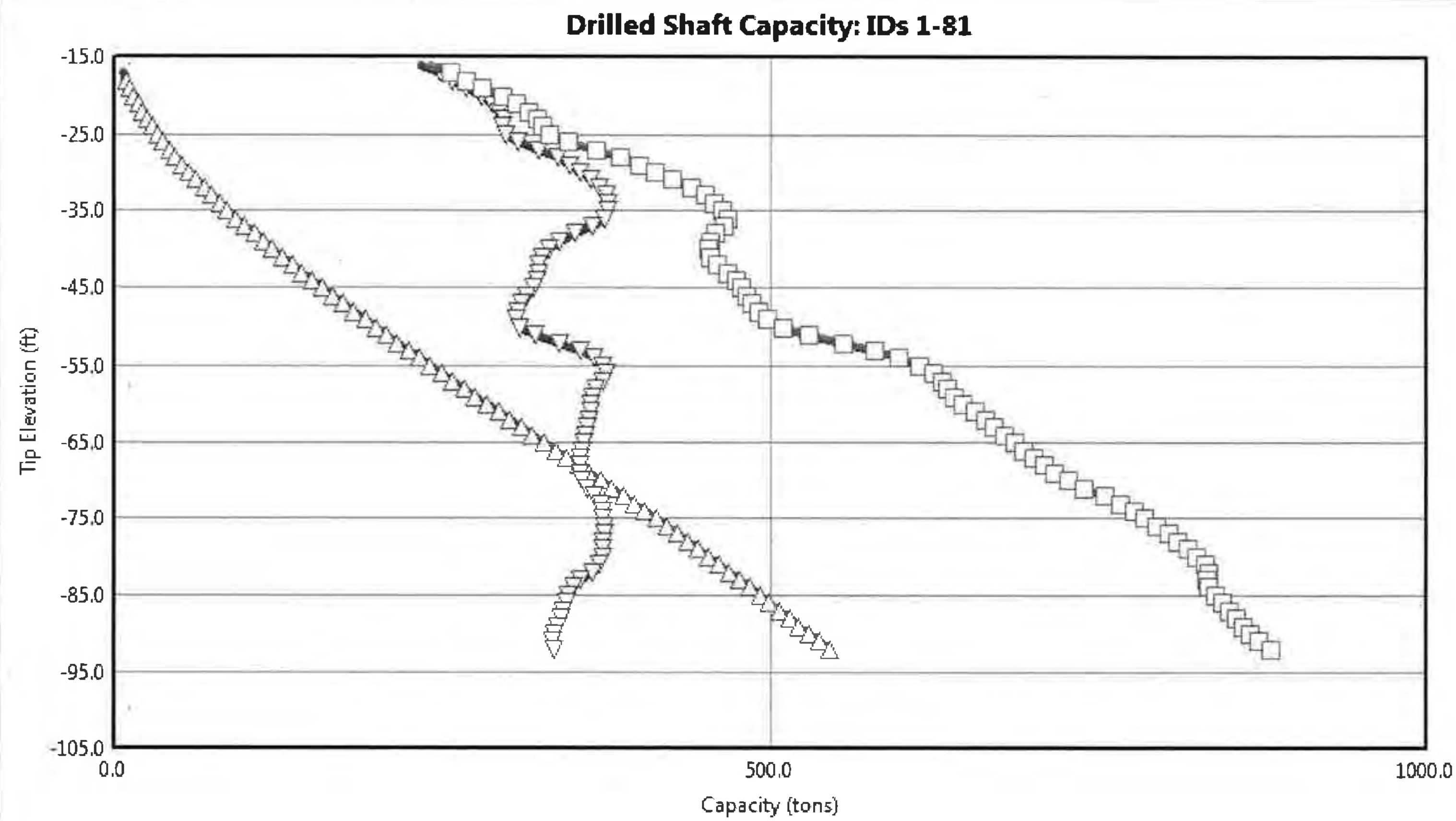
Customize | Update Plot | Print Plot | Print Window | Save To File

Close

Plot Window

Job Name: SW 10th Street, from Powerline Rd. to Military Trail

State Job (Project) #: 2000-01-17003



Curves

- ☑ Ultimate Side Friction
- ☑ Mobilized End Bearing
- ☑ Ultimate Shaft Capacity

*The 'Save to File' button saves the currently selected Curves to a text file.

Drilled Shaft Data

Boring Number:	B-201	
Ground Surface Elevation:	0.00	(ft)
Diameter	48.00	(in)
Bell Diameter	48.00	(in)
Bell Length	0.00	(ft)
Case Length	6.00	(ft)

Project Data

File:	B-201Shaft48in	
Date:	Feb 16, 2018	
Engineer:	JB Henry	
Water Table Elevation:	0.00	(ft)

Analysis Data

Analysis Type:	SPT

Plot Options

Customize | Update Plot | Print Plot | Print Window | Save To File

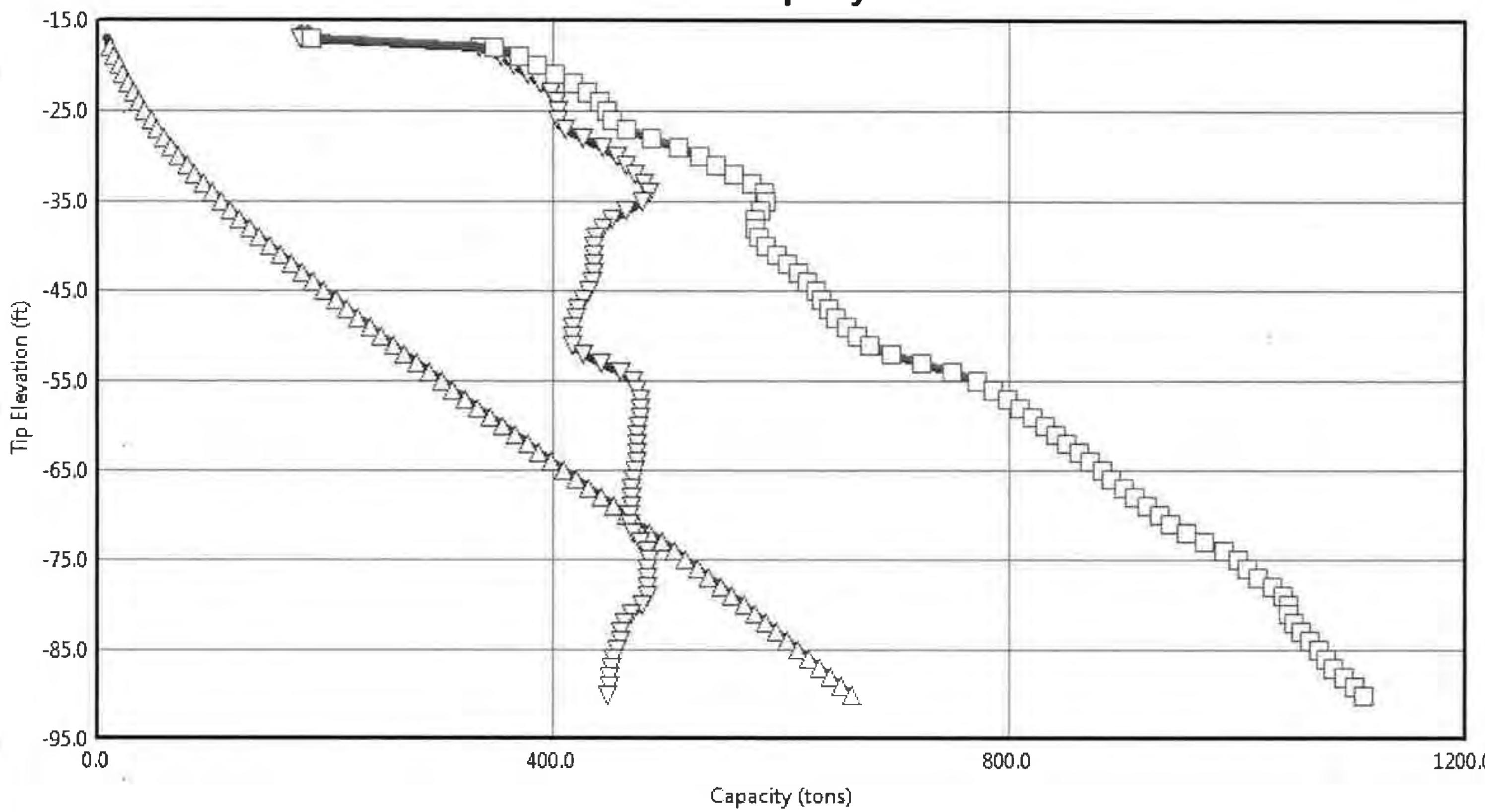
Close

Plot Window

Job Name: SW 10th Street, from Powerline Rd. to Military Trail

State Job (Project) #: 2000-01-17003

Drilled Shaft Capacity: IDs 1-81



Curves

- ☑ Ultimate Side Friction
- ☑ Mobilized End Bearing
- ☑ Ultimate Shaft Capacity

*The 'Save to File' button saves the currently selected Curves to a text file.

Drilled Shaft Data

Boring Number:	B-201	
Ground Surface Elevation:	0.00	(ft)
Diameter	60.00	(in)
Bell Diameter	60.00	(in)
Bell Length	0.00	(ft)
Case Length	6.00	(ft)

Project Data

File:	B-201Shaft60in	
Date:	Feb 16, 2018	
Engineer:	JB Henry	
Water Table Elevation:	0.00	(ft)

Analysis Data

Analysis Type:	SPT

Plot Options

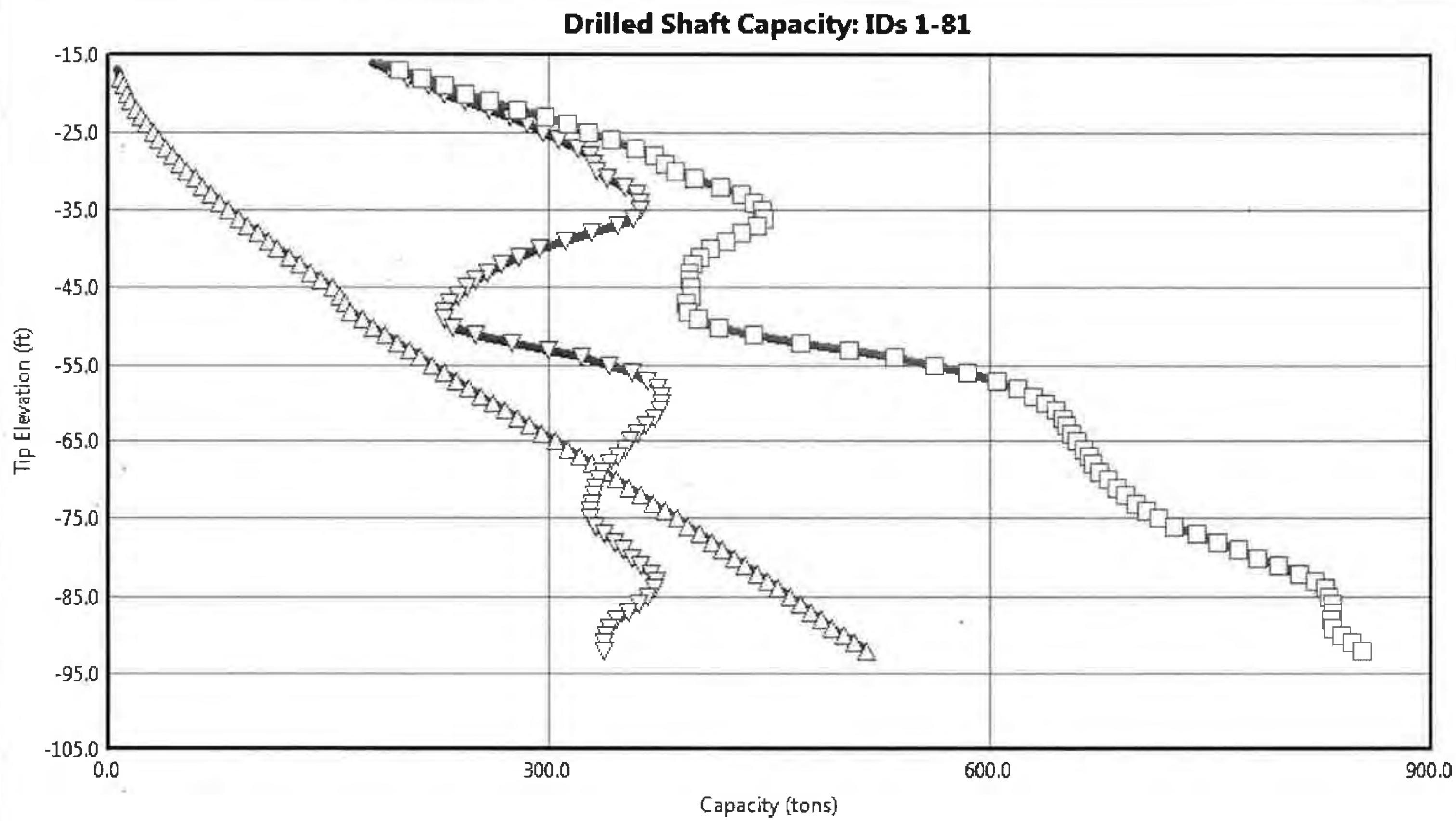
Customize | Update Plot | Print Plot | Print Window | Save To File

Close

Plot Window

Job Name: SW 10th Street, from Powerline Rd. to Military Trail

State Job (Project) #: 2000-01-17003



Curves

- ☑ Ultimate Side Friction
- ☑ Mobilized End Bearing
- ☑ Ultimate Shaft Capacity

*The 'Save to File' button saves the currently selected Curves to a text file.

Drilled Shaft Data

Boring Number:	B-301	
Ground Surface Elevation:	0.00	(ft)
Diameter	48.00	(in)
Bell Diameter	48.00	(in)
Bell Length	0.00	(ft)
Case Length	6.00	(ft)

Project Data

File:	B-301Shaft48in
Date:	Feb 16, 2018
Engineer:	JB Henry
Water Table Elevation:	0.00 (ft)

Analysis Data

Analysis Type:	SPT

Plot Options

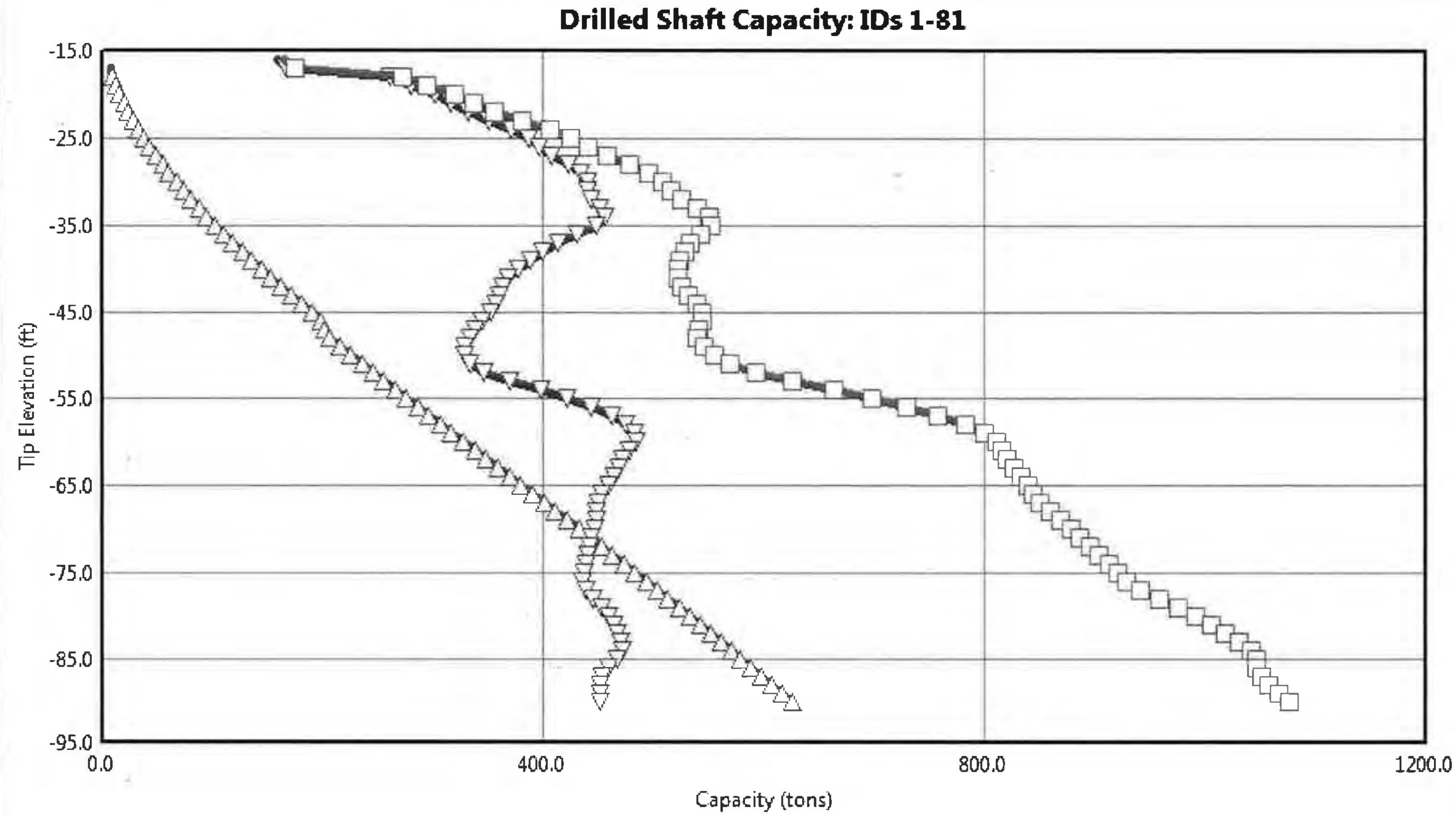
Customize | Update Plot | Print Plot | Print Window | Save To File

Close

Plot Window

Job Name: SW 10th Street, from Powerline Rd. to Military Trail

State Job (Project) #: 2000-01-17003



Curves

- ☑ Ultimate Side Friction
- ☑ Mobilized End Bearing
- ☑ Ultimate Shaft Capacity

Drilled Shaft Data

Boring Number:	B-301	
Ground Surface Elevation:	0.00	(ft)
Diameter	60.00	(in)
Bell Diameter	60.00	(in)
Bell Length	0.00	(ft)
Case Length	6.00	(ft)

Project Data

File:	B-301Shaft60in	
Date:	Feb 16, 2018	
Engineer:	JB Henry	
Water Table Elevation:	0.00	(ft)

Analysis Data

Analysis Type: SPT

*The 'Save to File' button saves the currently selected Curves to a text file.

Plot Options

Customize | Update Plot | Print Plot | Print Window | Save To File

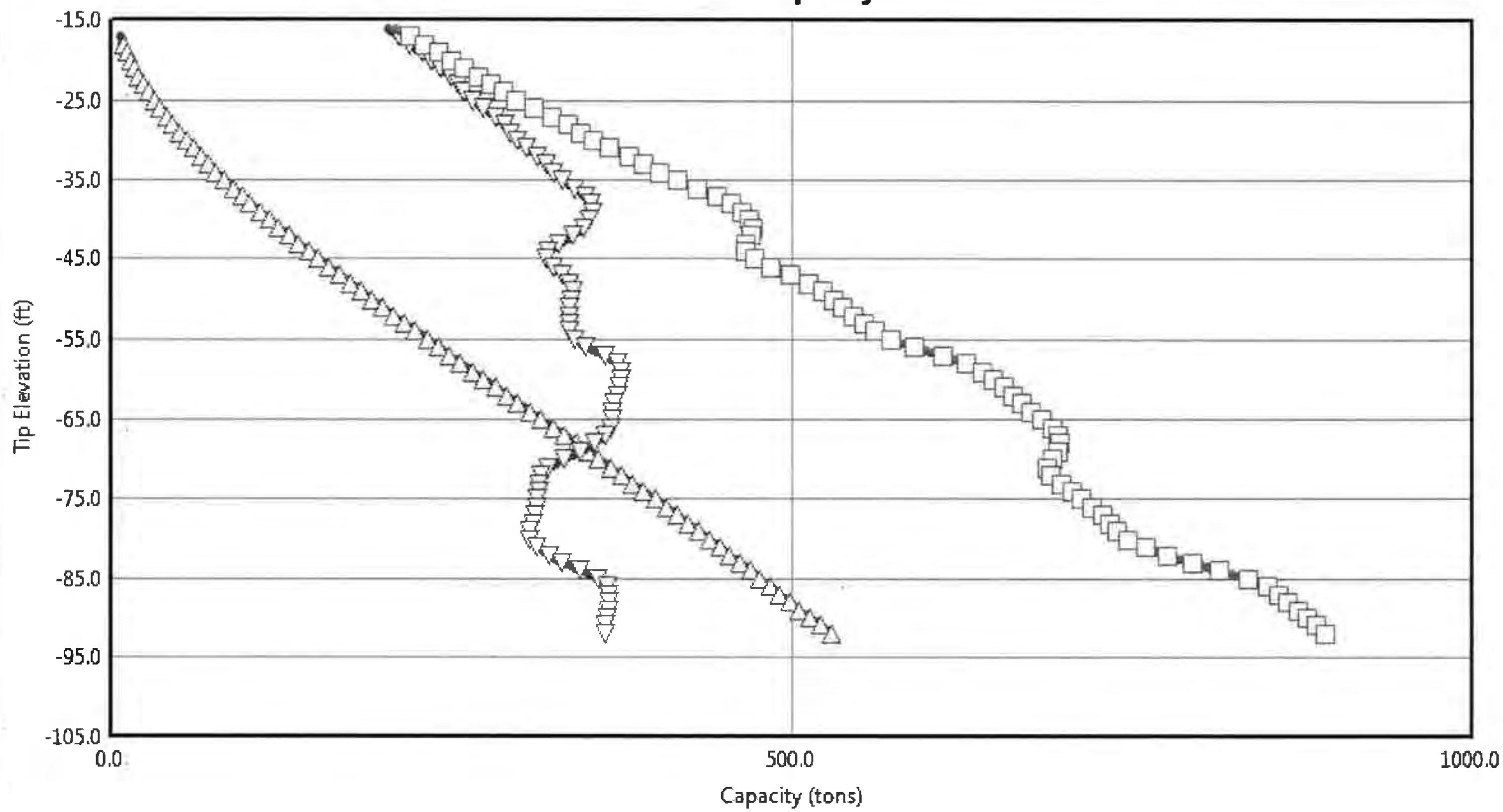
Close

Plot Window

Job Name: SW 10th Street, from Powerline Rd. to Military Trail

State Job (Project) #: 2000-01-17003

Drilled Shaft Capacity: IDs 1-81



Curves

- ☑ Ultimate Side Friction
- ☑ Mobilized End Bearing
- ☑ Ultimate Shaft Capacity

Drilled Shaft Data

Boring Number:	B-401	
Ground Surface Elevation:	0.00	(ft)
Diameter	48.00	(in)
Bell Diameter	48.00	(in)
Bell Length	0.00	(ft)
Case Length	6.00	(ft)

Project Data

File:	B-401Shaft48in	
Date:	Feb 16, 2018	
Engineer:	JB Henry	
Water Table Elevation:	0.00	(ft)

Analysis Data

Analysis Type:	SPT

*The 'Save to File' button saves the currently selected Curves to a text file.

Plot Options

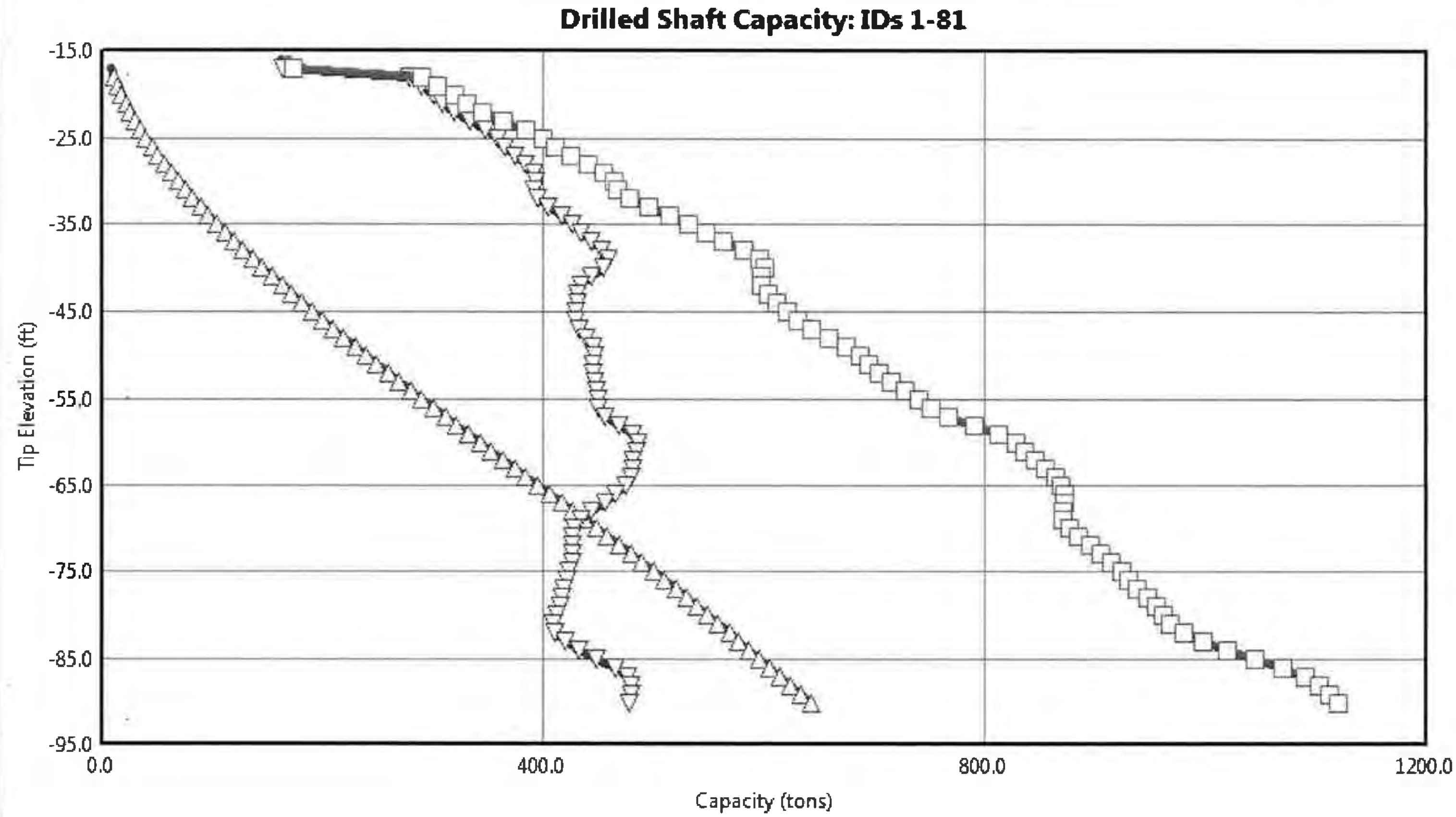
Customize | Update Plot | Print Plot | Print Window | Save To File

Close

Plot Window

Job Name: SW 10th Street, from Powerline Rd. to Military Trail

State Job (Project) #: 2000-01-17003



Curves	
☑ Ultimate Side Friction	
☑ Mobilized End Bearing	
☑ Ultimate Shaft Capacity	

*The 'Save to File' button saves the currently selected Curves to a text file.

Drilled Shaft Data

Boring Number:	B-401	
Ground Surface Elevation:	0.00	(ft)
Diameter	60.00	(in)
Bell Diameter	60.00	(in)
Bell Length	0.00	(ft)
Case Length	6.00	(ft)

Project Data

File:	B-401Shaft60in	
Date:	Feb 16, 2018	
Engineer:	JB Henry	
Water Table Elevation:	0.00	(ft)

Analysis Data

Analysis Type:	SPT

Plot Options

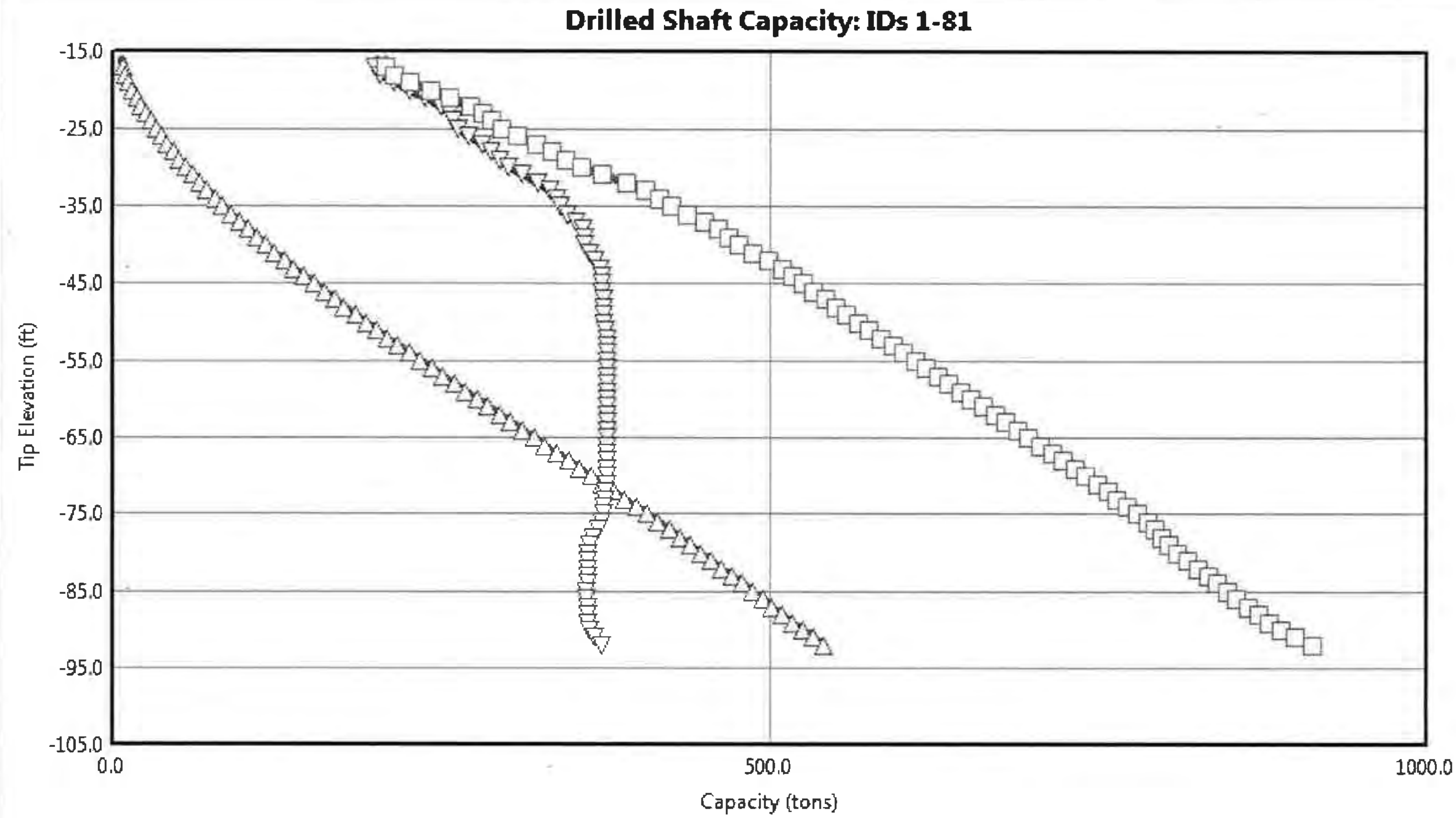
Customize | Update Plot | Print Plot | Print Window | Save To File

Close

Plot Window

Job Name: SW 10th Street, from Powerline Rd. to Military Trail

State Job (Project) #: 2000-01-17003



Curves

- ☑ Ultimate Side Friction
- ☑ Mobilized End Bearing
- ☑ Ultimate Shaft Capacity

Drilled Shaft Data

Boring Number:	B-501	
Ground Surface Elevation:	0.00	(ft)
Diameter	48.00	(in)
Bell Diameter	48.00	(in)
Bell Length	0.00	(ft)
Case Length	6.00	(ft)

Project Data

File:	B-501Shaft48in	
Date:	Feb 16, 2018	
Engineer:	JB Henry	
Water Table Elevation:	0.00	(ft)

Analysis Data

Analysis Type:	SPT

*The 'Save to File' button saves the currently selected Curves to a text file.

Plot Options

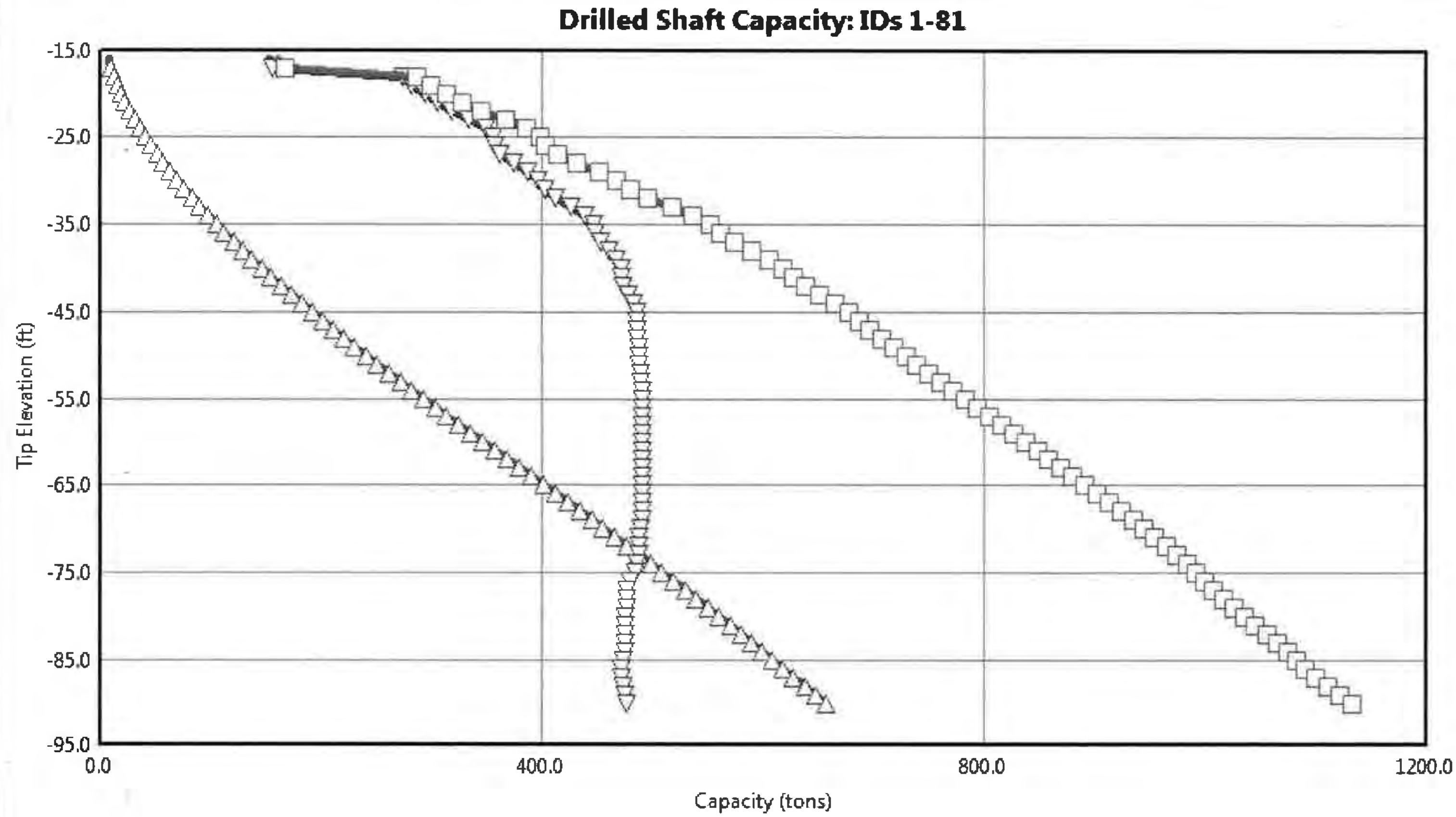
Customize | Update Plot | Print Plot | Print Window | Save To File

Close

Plot Window

Job Name: SW 10th Street, from Powerline Rd. to Military Trail

State Job (Project) #: 2000-01-17003



Curves

- ☑ Ultimate Side Friction
- ☑ Mobilized End Bearing
- ☑ Ultimate Shaft Capacity

*The 'Save to File' button saves the currently selected Curves to a text file.

Drilled Shaft Data

Boring Number:	B-501	
Ground Surface Elevation:	0.00	(ft)
Diameter	60.00	(in)
Bell Diameter	60.00	(in)
Bell Length	0.00	(ft)
Case Length	6.00	(ft)

Project Data

File:	B-501Shaft60in	
Date:	Feb 16, 2018	
Engineer:	JB Henry	
Water Table Elevation:	0.00	(ft)

Analysis Data

Analysis Type: SPT

Plot Options

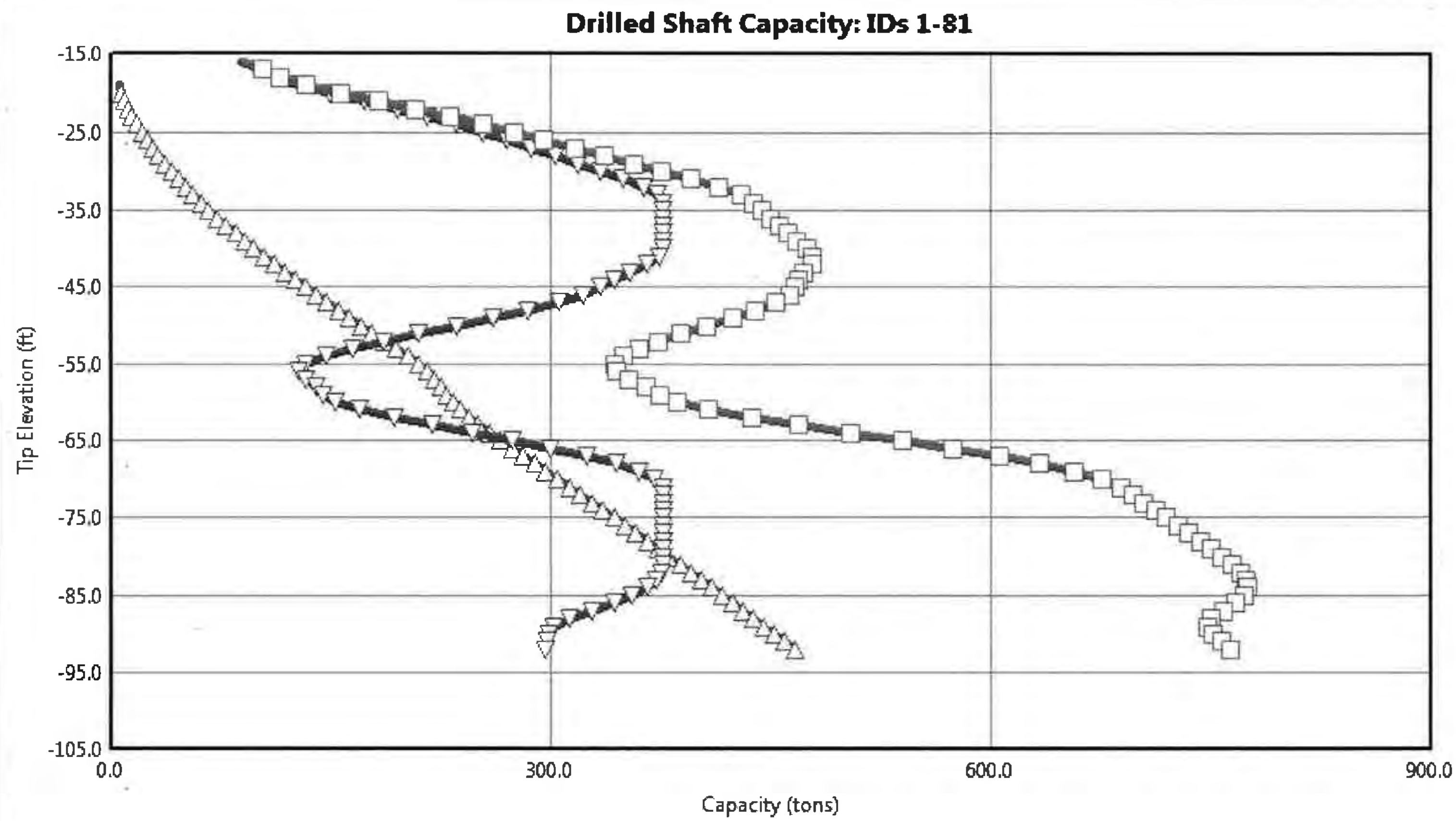
Customize | Update Plot | Print Plot | Print Window | Save To File

Close

Plot Window

Job Name: SW 10th Street, from Powerline Rd. to Military Trail

State Job (Project) #: 2000-01-17003



Curves

- ☑ Ultimate Side Friction
- ☑ Mobilized End Bearing
- ☑ Ultimate Shaft Capacity

*The 'Save to File' button saves the currently selected Curves to a text file.

Drilled Shaft Data

Boring Number:	B-601	
Ground Surface Elevation:	0.00	(ft)
Diameter	48.00	(in)
Bell Diameter	48.00	(in)
Bell Length	0.00	(ft)
Case Length	6.00	(ft)

Project Data

File:	B-601Shaft48in	
Date:	Feb 16, 2018	
Engineer:	JB Henry	
Water Table Elevation:	0.00	(ft)

Analysis Data

Analysis Type:	SPT

Plot Options

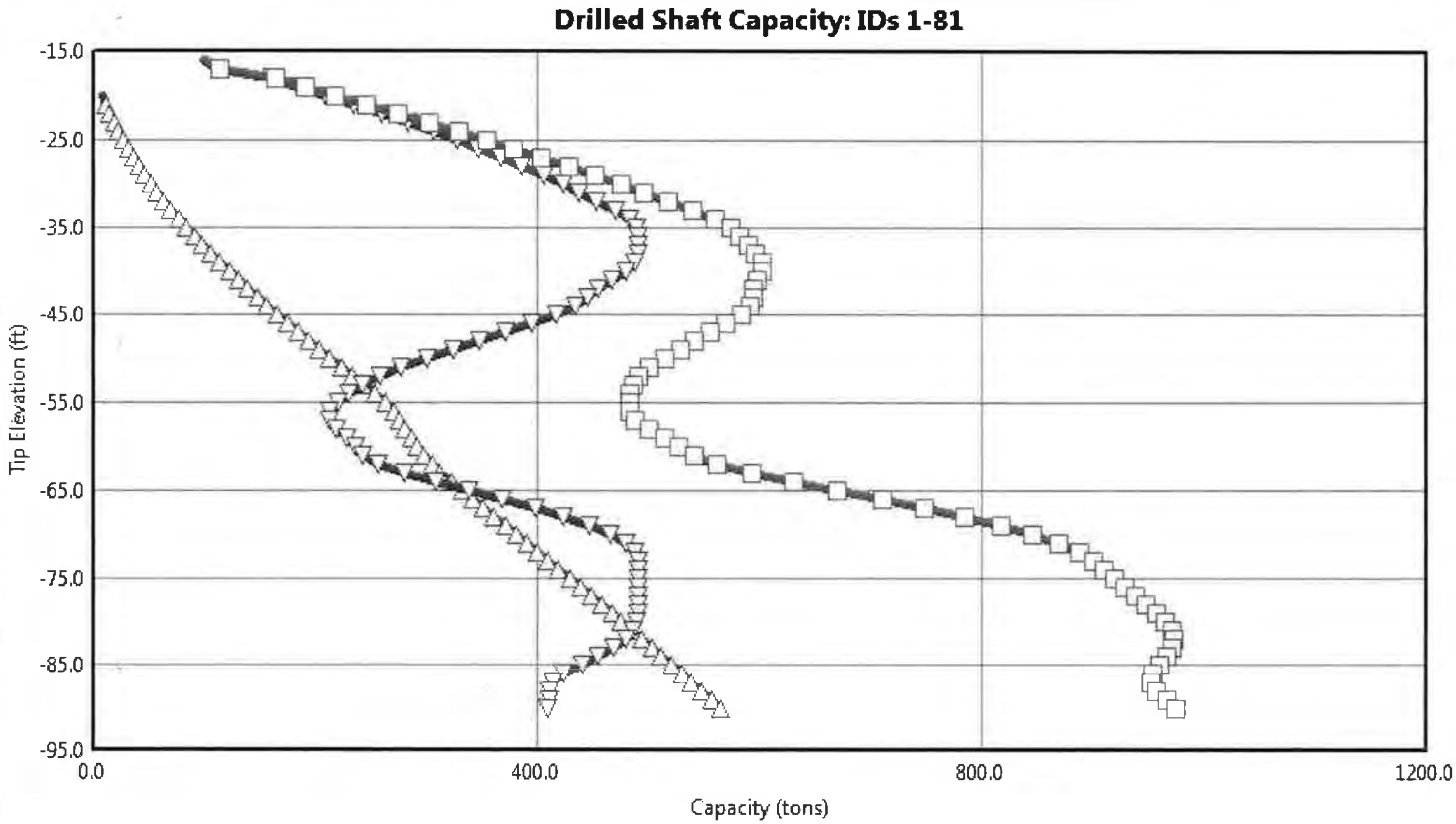
Customize | Update Plot | Print Plot | Print Window | Save To File

Close

Plot Window

Job Name: SW 10th Street, from Powerline Rd. to Military Trail

State Job (Project) #: 2000-01-17003



Curves

- ☑ Ultimate Side Friction
- ☑ Mobilized End Bearing
- ☑ Ultimate Shaft Capacity

Drilled Shaft Data

Boring Number:	B-601	
Ground Surface Elevation:	0.00	(ft)
Diameter	60.00	(in)
Bell Diameter	60.00	(in)
Bell Length	0.00	(ft)
Case Length	6.00	(ft)

Project Data

File:	B-601Shaft60in
Date:	Feb 16, 2018
Engineer:	JB Henry
Water Table Elevation:	0.00 (ft)

Analysis Data

Analysis Type: SPT

*The 'Save to File' button saves the currently selected Curves to a text file.

Plot Options

Customize | Update Plot | Print Plot | Print Window | Save To File

Close

TABLE - 3

Project: SW 10th St

From Powerline to Military Trail [Reference Borings: B-101]

Summary of Recommended Soil Parameters for FB-Pier Analysis for Driven Piles (18&24in)

Note: Reduction of N-Values is applied for soil in the predrilling zone (0 to 10').

Elevations and Soil Type:	Layer 0	Layer 1	Layer 2	Layer 3	Layer 4	Layer 5	Layer 6	Layer 7	Layer 8	Layer 9	Layer 10
Depth at top of layer (ft) Ground Level		0	1	15	20	35	45	53	63	70	95
Depth at bottom of layer (ft)		1	15	20	35	45	53	63	70	95	100
Depth at water table (ft)		3.6									
Elevation at top of layer (ft, NAVD)		0	-1	-15	-20	-35	-45	-53	-63	-70	-95
Elevation at bottom of layer (ft, NAVD)		-1	-15	-20	-35	-45	-53	-63	-70	-95	-100
Water Table Elevation (ft, NAVD)		-3.6									
Soil Layer Type (Cohesionless, Rock)	Cohesionless	Cohesionless	Rock	Cohesionless	Cohesionless	Cohesionless	Cohesionless	Cohesionless	Cohesionless	Cohesionless	Cohesionless
USCS Soil Layer Type	Fill	SP-SM	LS	SP-SM	SP	SP, SP-SM	SP, SP-SM	SP-SM	SP, SP-SM	SP-SM	SP, SP-SM+LS (Modele as Sandy Gravel)
Average SPT N value (Blows/ft) (Safety)		18.6	42.7	19.8	38.7	69.1	53.3	68.2	62.8	68.1	77.5
Soil Properties for Lateral Soil Model:											
Lateral Soil Model		1 (O'Neill)	1 (O'Neill)	1 (O'Neill)	1 (O'Neill)	1 (O'Neill)	1 (O'Neill)	1 (O'Neill)	1 (O'Neill)	1 (O'Neill)	1 (O'Neill)
Internal Friction Angle, Φ (degrees)		33	40	33	38	38	38	38	38	38	40
Subgrade Soil Modulus, RK (pci)		52	119	55	107	125	125	125	125	125	125
Total Unit Weight, γ (pcf)		110	135	110	120	125	125	125	125	125	130
Soil Properties for Axial Soil Model:											
Axial Soil Model		1 (McVay)	1 (McVay)	1 (McVay)	1 (McVay)	1 (McVay)	1 (McVay)	1 (McVay)	1 (McVay)	1 (McVay)	1 (McVay)
Poisson's Ratio, μ		0.25	0.23	0.25	0.30	0.30	0.30	0.30	0.30	0.30	0.30
Young's Modulus, Eem (psf)		370,000	4,260,000	390,000	770,000	1,000,000	1,000,000	1,000,000	1,000,000	1,000,000	1,000,000
Shear Modulus, Gem (ksi)		1.0	12.1	1.1	2.1	2.7	2.7	2.7	2.7	2.7	2.7
Vertical Failure Shear Stress (psf)		707	854	754	1469	2627	2026	2592	2388	2587	2945
Soil Properties for Torsional Soil Model:											
Torsional Soil Model		Hyperbolic	Hyperbolic	Hyperbolic	Hyperbolic	Hyperbolic	Hyperbolic	Hyperbolic	Hyperbolic	Hyperbolic	Hyperbolic
Torsional Shear Stress (psf)		707	854	754	1469	2627	2026	2592	2388	2587	2945
Soil Properties for Tip Soil Model:											
Tip Soil Model		1 (McVay)	1 (McVay)	1 (McVay)	1 (McVay)	1 (McVay)	1 (McVay)	1 (McVay)	1 (McVay)	1 (McVay)	1 (McVay)
Shear Modulus, G (ksi)		1.03	12.05	1.10	2.06	2.67	2.67	2.67	2.67	2.67	2.67
Poisson's Ratio, μ		0.25	0.23	0.25	0.3	0.3	0.3	0.3	0.3	0.3	0.3
Axial Bearing Failure Load, Qult (kip), 18" Pile		268	692	286	557	995	768	982	905	980	1116
Axial Bearing Failure Load, Qult (kip), 24" Pile		476	1229	508	989	1770	1365	1746	1608	1743	1984
Table 1. P-Y Curves for Rock											
Unconfined Compressive Strength, q_u (psf)			42000								
Undrained Strength, S_u (psi) =			148								

TABLE - 3

Project: SW 10th St

From Powerline to Military Trail [Reference Borings: B-201]

Summary of Recommended Soil Parameters for FB-Pier Analysis for Driven Piles (18&24in)

Note: Reduction of N-Values is applied for soil in the predrilling zone (0 to 10').

Elevations and Soil Type:	Layer 0	Layer 1	Layer 2	Layer 3	Layer 4	Layer 5	Layer 6	Layer 7	Layer 8	Layer 9	Layer 10	Layer 11	Layer 12
Depth at top of layer (ft) Ground Level		0	4	6	12	20	23	45	50	70	75	90	93
Depth at bottom of layer (ft)		4	6	12	20	23	45	50	70	75	90	93	100
Depth at water table (ft)		5.8											
Elevation at top of layer (ft, NAVD)		0	0	-4	-12	-20	-23	-45	-50	-70	-75	-90	-93
Elevation at bottom of layer (ft, NAVD)		-4	-6	-12	-20	-23	-45	-50	-70	-75	-90	-93	-100
Water Table Elevation (ft, NAVD)		-5.8											
Soil Layer Type (Cohesionless, Rock)	Cohesionless	Cohesionless	Cohesionless	Cohesionless	Cohesionless	Cohesionless	Cohesionless	Cohesionless	Cohesionless	Cohesionless	Cohesionless	Cohesionless	Cohesionless
USCS Soil Layer Type	Fill	SP, SP-SM	OL (Muck)	SP, SP-SM	SP-SM	SP	SP	SP-SM	SP-SM	SP, SP-SM	SP-SM	SP	SP-SM
Average SPT N value (Blows/ft) (Safety)		32.2	1.0	9.9	34.7	19.8	67.1	27.3	66.8	51.5	68.8	29.8	55.8
Soil Properties for Lateral Soil Model:													
Lateral Soil Model		1 (O'Neill)	1 (O'Neill)	1 (O'Neill)	1 (O'Neill)	1 (O'Neill)	1 (O'Neill)	1 (O'Neill)	1 (O'Neill)	1 (O'Neill)	1 (O'Neill)	1 (O'Neill)	1 (O'Neill)
Internal Friction Angle, Φ (degrees)		36	24	30	37	33	38	35	38	38	38	35	38
Subgrade Soil Modulus, RK (pci)		90	3	28	96	55	125	76	125	125	125	83	125
Total Unit Weight, γ (pcf)		120	100	105	120	110	125	115	125	125	125	115	125
Soil Properties for Axial Soil Model:													
Axial Soil Model		1 (McVay)	1 (McVay)	1 (McVay)	1 (McVay)	1 (McVay)	1 (McVay)	1 (McVay)	1 (McVay)	1 (McVay)	1 (McVay)	1 (McVay)	1 (McVay)
Poisson's Ratio, μ		0.30	0.20	0.20	0.30	0.25	0.30	0.25	0.30	0.30	0.30	0.25	0.30
Young's Modulus, Eem (psf)		640,000	20,000	190,000	690,000	390,000	1,000,000	540,000	1,000,000	1,000,000	1,000,000	590,000	1,000,000
Shear Modulus, Gem (ksi)		1.7	0.1	0.6	1.9	1.1	2.7	1.5	2.7	2.7	2.7	1.7	2.7
Vertical Failure Shear Stress (psf)		1225	38	377	1319	754	2550	1037	2539	1955	2615	1131	2120
Soil Properties for Torsional Soil Model:													
Torsional Soil Model		Hyperbolic	Hyperbolic	Hyperbolic	Hyperbolic	Hyperbolic	Hyperbolic	Hyperbolic	Hyperbolic	Hyperbolic	Hyperbolic	Hyperbolic	Hyperbolic
Torsional Shear Stress (psf)		1225	38	377	1319	754	2550	1037	2539	1955	2615	1131	2120
Soil Properties for Tip Soil Model:													
Tip Soil Model		1 (McVay)	1 (McVay)	1 (McVay)	1 (McVay)	1 (McVay)	1 (McVay)	1 (McVay)	1 (McVay)	1 (McVay)	1 (McVay)	1 (McVay)	2 (McVay)
Shear Modulus, G (ksi)		1.72	0.06	0.57	1.85	1.10	2.67	1.52	2.67	2.67	2.67	1.65	2.67
Poisson's Ratio, μ		0.3	0.2	0.2	0.3	0.25	0.3	0.25	0.3	0.3	0.3	0.25	0.3
Axial Bearing Failure Load, Qult (kip), 18" Pile		464	14	143	500	286	966	393	962	741	991	429	804
Axial Bearing Failure Load, Qult (kip), 24" Pile		825	26	254	889	508	1718	698	1710	1317	1762	762	1428
Table 1. P-Y Curves for Rock													
Unconfined Compressive Strength, q_u (psf)													
Undrained Strength, S_u (psi) =													

TABLE - 3
Project: SW 10th St
From Powerline to Military Trail [Reference Borings: B-301]
Summary of Recommended Soil Parameters for FB-Pier Analysis for Driven Piles (18&24in)

Note: Reduction of N-Values is applied for soil in the predrilling zone (0 to 10').

Elevations and Soil Type:	Layer 0	Layer 1	Layer 2	Layer 3	Layer 4	Layer 5	Layer 6	Layer 7	Layer 8	Layer 9	Layer 10	Layer 11
Depth at top of layer (ft) Ground Level		0	2	6	8	10	13.5	18	45	50	85	90
Depth at bottom of layer (ft)		2	6	8	10	13.5	18	45	50	85	90	100
Depth at water table (ft)		3.8										
Elevation at top of layer (ft, NAVD)		0	-2	-6	-8	-10	-13.5	-18	-45	-50	-85	-90
Elevation at bottom of layer (ft, NAVD)		-2	-6	-8	-10	-13.5	-18	-45	-50	-85	-90	-100
Water Table Elevation (ft, NAVD)		-3.8										
Soil Layer Type (Cohesionless, Rock)	Cohesionless	Cohesionless	Cohesionless	Cohesionless	Rock	Cohesionless	Cohesionless	Cohesionless	Cohesionless	Cohesionless	Cohesionless	Cohesionless
USCS Soil Layer Type	Fill	SP, SP-SM	SM	SM, SP-SM	LS	SM, SP-SM	SP, SP-SM	SP	SC	SP-SM	SP, SP-SM	SP-SM
Average SPT N value (Blows/ft) (Safety)		19.8	36.0	34.7	23.6	12.4	19.2	51.9	11.2	60.9	83.1	43.1
Soil Properties for Lateral Soil Model:												
Lateral Soil Model		1 (O'Neill)	1 (O'Neill)	1 (O'Neill)	1 (O'Neill)	1 (O'Neill)	1 (O'Neill)	1 (O'Neill)	1 (O'Neill)	1 (O'Neill)	1 (O'Neill)	1 (O'Neill)
Internal Friction Angle, Φ (degrees)		33	35	37	39	31	33	38	31	38	38	38
Subgrade Soil Modulus, RK (pci)		55	100	96	65	34	53	125	31	125	125	120
Total Unit Weight, γ (pcf)		110	120	120	125	110	110	125	110	125	125	125
Soil Properties for Axial Soil Model:												
Axial Soil Model		1 (McVay)	1 (McVay)	1 (McVay)	1 (McVay)	1 (McVay)	1 (McVay)	1 (McVay)	1 (McVay)	1 (McVay)	1 (McVay)	1 (McVay)
Poisson's Ratio, μ		0.25	0.30	0.30	0.23	0.25	0.25	0.30	0.25	0.30	0.30	0.30
Young's Modulus, Eem (psf)		390,000	710,000	690,000	2,350,000	240,000	380,000	1,000,000	220,000	1,000,000	1,000,000	860,000
Shear Modulus, Gem (ksi)		1.1	1.9	1.9	6.7	0.7	1.1	2.7	0.6	2.7	2.7	2.3
Vertical Failure Shear Stress (psf)		754	1366	1319	471	471	730	1970	424	2316	3157	1637
Soil Properties for Torsional Soil Model:												
Torsional Soil Model		Hyperbolic	Hyperbolic	Hyperbolic	Hyperbolic	Hyperbolic	Hyperbolic	Hyperbolic	Hyperbolic	Hyperbolic	Hyperbolic	Hyperbolic
Torsional Shear Stress (psf)		754	1366	1319	471	471	730	1970	424	2316	3157	1637
Soil Properties for Tip Soil Model:												
Tip Soil Model		1 (McVay)	1 (McVay)	1 (McVay)	1 (McVay)	1 (McVay)	1 (McVay)	1 (McVay)	1 (McVay)	1 (McVay)	1 (McVay)	2 (McVay)
Shear Modulus, G (ksi)		1.10	1.92	1.85	6.65	0.69	1.07	2.67	0.62	2.67	2.67	2.30
Poisson's Ratio, μ		0.25	0.3	0.3	0.23	0.25	0.25	0.3	0.25	0.3	0.3	0.3
Axial Bearing Failure Load, Qult (kip), 18" Pile		286	518	500	382	179	277	747	161	878	1196	620
Axial Bearing Failure Load, Qult (kip), 24" Pile		508	921	889	679	317	492	1327	286	1560	2127	1103
Table 1. P-Y Curves for Rock												
Unconfined Compressive Strength, q_u (psf)					23000							
Undrained Strength, S_u (psi) =					82							

TABLE - 3
Project: SW 10th St
From Powerline to Military Trail [Reference Borings: B-401]
Summary of Recommended Soil Parameters for FB-Pier Analysis for Driven Piles (18&24in)

Note: Reduction of N-Values is applied for soil in the predrilling zone (0 to 10').

Elevations and Soil Type:	Layer 0	Layer 1	Layer 2	Layer 3	Layer 4	Layer 5	Layer 6	Layer 7	Layer 8	Layer 9	Layer 10	Layer 11
Depth at top of layer (ft) Ground Level		0	6	8	10	12	33	48	53	75	80	83
Depth at bottom of layer (ft)		6	8	10	12	33	48	53	75	80	83	100
Depth at water table (ft)		5.0										
Elevation at top of layer (ft, NAVD)		0	-6	-8	-10	-12	-33	-48	-53	-75	-80	-83
Elevation at bottom of layer (ft, NAVD)		-6	-8	-10	-12	-33	-48	-53	-75	-80	-83	-100
Water Table Elevation (ft, NAVD)		-5.0										
Soil Layer Type (Cohesionless, Rock)	Cohesionless	Cohesionless	Rock	Cohesionless	Rock	Cohesionless	Cohesionless	Cohesionless	Cohesionless	Cohesionless	Rock	Cohesionless
USCS Soil Layer Type	Fill	SP, SP-SM	LS	SP-SM	LS	SP	SP	SP, SP-SM	SP-SM	SM, SP-SM	LS	SP, SP-SM
Average SPT N value (Blows/ft) (Safety)		11.2	24.8	29.8	18.6	33.2	54.2	42.8	60.9	27.3	74.4	62.8
Soil Properties for Lateral Soil Model:												
Lateral Soil Model		1 (O'Neill)	1 (O'Neill)	1 (O'Neill)	1 (O'Neill)	1 (O'Neill)	1 (O'Neill)	1 (O'Neill)	1 (O'Neill)	1 (O'Neill)	1 (O'Neill)	1 (O'Neill)
Internal Friction Angle, Φ (degrees)		31	39	35	38	36	38	38	38	35	40	38
Subgrade Soil Modulus, RK (pci)		31	69	83	52	92	125	119	125	76	125	125
Total Unit Weight, γ (pcf)		110	125	115	120	120	125	125	125	115	135	125
Soil Properties for Axial Soil Model:												
Axial Soil Model		1 (McVay)	1 (McVay)	1 (McVay)	1 (McVay)	1 (McVay)	1 (McVay)	1 (McVay)	1 (McVay)	1 (McVay)	1 (McVay)	1 (McVay)
Poisson's Ratio, μ		0.25	0.23	0.25	0.23	0.30	0.30	0.30	0.30	0.25	3.23	0.30
Young's Modulus, Eem (psf)		220,000	2,480,000	590,000	1,860,000	660,000	1,000,000	850,000	1,000,000	540,000	7,440,000	1,000,000
Shear Modulus, Gem (ksi)		0.6	7.0	1.7	5.3	1.8	2.7	2.3	2.7	1.5	6.1	2.7
Vertical Failure Shear Stress (psf)		424	496	1131	372	1260	2058	1626	2314	1037	1488	2388
Soil Properties for Torsional Soil Model:												
Torsional Soil Model		Hyperbolic	Hyperbolic	Hyperbolic	Hyperbolic	Hyperbolic	Hyperbolic	Hyperbolic	Hyperbolic	Hyperbolic	Hyperbolic	Hyperbolic
Torsional Shear Stress (psf)		424	496	1131	372	1260	2058	1626	2314	1037	1488	2388
Soil Properties for Tip Soil Model:												
Tip Soil Model		1 (McVay)	1 (McVay)	1 (McVay)	1 (McVay)	1 (McVay)	1 (McVay)	1 (McVay)	1 (McVay)	1 (McVay)	1 (McVay)	3 (McVay)
Shear Modulus, G (ksi)		0.62	7.00	1.65	5.25	1.77	2.67	2.29	2.67	1.52	6.11	2.67
Poisson's Ratio, μ		0.25	0.23	0.25	0.23	0.3	0.3	0.3	0.3	0.25	3.23	0.3
Axial Bearing Failure Load, Qult (kip), 18" Pile		161	402	429	301	478	780	616	877	393	1205	905
Axial Bearing Failure Load, Qult (kip), 24" Pile		286	714	762	536	849	1386	1095	1559	698	2143	1608
Table 1. P-Y Curves for Rock												
Unconfined Compressive Strength, q_u (psf)			24000		18000						50000	
Undrained Strength, S_u (psi) =			86		65						174	

TABLE - 3
Project: SW 10th St
From Powerline to Military Trail [Reference Borings: B-501]
Summary of Recommended Soil Parameters for FB-Pier Analysis for Driven Piles (18&24in)

Note: Reduction of N-Values is applied for soil in the predrilling zone (0 to 10').

Elevations and Soil Type:	Layer 0	Layer 1	Layer 2	Layer 3	Layer 4	Layer 5	Layer 6	Layer 7	Layer 8	Layer 9	Layer 10	Layer 11	Layer 12
Depth at top of layer (ft) Ground Level		0	3	8	12	18	25	30	55	78	80	83	90
Depth at bottom of layer (ft)		3	8	12	18	25	30	55	78	80	83	90	100
Depth at water table (ft)		5.3											
Elevation at top of layer (ft, NAVD)		0	-3	-8	-12	-18	-25	-30	-55	-78	-80	-83	-90
Elevation at bottom of layer (ft, NAVD)		-3	-8	-12	-18	-25	-30	-55	-78	-80	-83	-90	-100
Water Table Elevation (ft, NAVD)		-5.3											
Soil Layer Type (Cohesionless, Rock)	Cohesionless	Cohesionless	Rock	Cohesionless	Cohesionless	Cohesionless	Cohesionless	Cohesionless	Cohesionless	Cohesionless	Cohesionless	Cohesionless	Cohesionless
USCS Soil Layer Type	Fill	SP, SP-SM	LS	SP-SM	SP	SP	SP, SP-SM	SP	SP-SM	SP	SP-SM	SP	SP, SP-SM
Average SPT N value (Blows/ft) (Safety)		9.9	19.8	32.2	18.2	33.9	35.3	61.3	76.2	90.5	47.1	50.8	78.7
Soil Properties for Lateral Soil Model:													
Lateral Soil Model		1 (O'Neill)	1 (O'Neill)	1 (O'Neill)	1 (O'Neill)	1 (O'Neill)	1 (O'Neill)	1 (O'Neill)	1 (O'Neill)	1 (O'Neill)	1 (O'Neill)	1 (O'Neill)	1 (O'Neill)
Internal Friction Angle, Φ (degrees)		30	38	36	33	36	37	38	38	38	38	38	38
Subgrade Soil Modulus, RK (pci)		28	55	90	51	94	98	125	125	125	125	125	125
Total Unit Weight, γ (pcf)		105	120	120	110	120	120	125	125	125	125	125	125
Soil Properties for Axial Soil Model:													
Axial Soil Model		1 (McVay)	1 (McVay)	1 (McVay)	1 (McVay)	1 (McVay)	1 (McVay)	1 (McVay)	1 (McVay)	1 (McVay)	1 (McVay)	1 (McVay)	1 (McVay)
Poisson's Ratio, μ		0.20	0.23	0.30	0.25	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30
Young's Modulus, Eem (psf)		190,000	1,980,000	640,000	360,000	670,000	700,000	1,000,000	1,000,000	1,000,000	940,000	1,000,000	1,000,000
Shear Modulus, Gem (ksi)		0.6	5.6	1.7	1.0	1.8	1.9	2.7	2.7	2.7	2.5	2.7	2.7
Vertical Failure Shear Stress (psf)		377	397	1225	691	1288	1343	2328	2895	3440	1791	1932	2992
Soil Properties for Torsional Soil Model:													
Torsional Soil Model		Hyperbolic	Hyperbolic	Hyperbolic	Hyperbolic	Hyperbolic	Hyperbolic	Hyperbolic	Hyperbolic	Hyperbolic	Hyperbolic	Hyperbolic	Hyperbolic
Torsional Shear Stress (psf)		377	397	1225	691	1288	1343	2328	2895	3440	1791	1932	2992
Soil Properties for Tip Soil Model:													
Tip Soil Model		1 (McVay)	1 (McVay)	1 (McVay)	1 (McVay)	1 (McVay)	1 (McVay)	1 (McVay)	1 (McVay)	1 (McVay)	1 (McVay)	2 (McVay)	3 (McVay)
Shear Modulus, G (ksi)		0.57	5.60	1.72	1.01	1.81	1.89	2.67	2.67	2.67	2.52	2.67	2.67
Poisson's Ratio, μ		0.2	0.23	0.3	0.25	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3
Axial Bearing Failure Load, Qult (kip), 18" Pile		143	321	464	262	488	509	882	1097	1303	679	732	1134
Axial Bearing Failure Load, Qult (kip), 24" Pile		254	571	825	466	868	905	1568	1950	2317	1206	1302	2016
Table 1. P-Y Curves for Rock													
Unconfined Compressive Strength, q_u (psf)			19000										
Undrained Strength, S_u (psi) =			69										

TABLE - 3

Project: SW 10th St

From Powerline to Military Trail [Reference Borings: B-601]

Summary of Recommended Soil Parameters for FB-Pier Analysis for Driven Piles (18&24in)

Note: Reduction of N-Values is applied for soil in the predrilling zone (0 to 10').

Elevations and Soil Type:	Layer 0	Layer 1	Layer 2	Layer 3	Layer 4	Layer 5	Layer 6	Layer 7	Layer 8	Layer 9	Layer 10	Layer 11	Layer 12
Depth at top of layer (ft) Ground Level		0	6	15	18	28	50	55	63	67	75	93	98
Depth at bottom of layer (ft)		6	15	18	28	50	55	63	67	75	93	98	100
Depth at water table (ft)		7.7											
Elevation at top of layer (ft, NAVD)		0	-6	-15	-18	-28	-50	-55	-63	-67	-75	-93	-98
Elevation at bottom of layer (ft, NAVD)		-6	-15	-18	-28	-50	-55	-63	-67	-75	-93	-98	-100
Water Table Elevation (ft, NAVD)		-7.7											
Soil Layer Type (Cohesionless, Rock)	Cohesionless	Cohesionless	Cohesionless	Cohesionless	Cohesionless	Cohesionless	Cohesionless	Cohesionless	Cohesionless	Rock	Cohesionless	Cohesionless	Cohesionless
USCS Soil Layer Type	Fill	SP	SP	SM	SP, SP-SM	SP	SP, SP-SM	SP, SP-SM	SP-SM	LS	SP-SM	SP, SP-SM	SP, SP-SM
Average SPT N value (Blows/ft) (Safety)		30.2	5.7	7.4	21.4	79.5	27.3	5.4	28.5	74.4	68.4	19.8	52.1
Soil Properties for Lateral Soil Model:													
Lateral Soil Model		1 (O'Neill)	1 (O'Neill)	1 (O'Neill)	1 (O'Neill)	1 (O'Neill)	1 (O'Neill)	1 (O'Neill)	1 (O'Neill)	1 (O'Neill)	1 (O'Neill)	1 (O'Neill)	1 (O'Neill)
Internal Friction Angle, Φ (degrees)		36	29	30	33	38	35	29	35	40	38	33	38
Subgrade Soil Modulus, RK (pci)		84	16	21	59	125	76	15	79	125	125	55	125
Total Unit Weight, γ (pcf)		120	105	105	115	125	115	105	115	135	125	110	125
Soil Properties for Axial Soil Model:													
Axial Soil Model		1 (McVay)	1 (McVay)	1 (McVay)	1 (McVay)	1 (McVay)	1 (McVay)	1 (McVay)	1 (McVay)	1 (McVay)	1 (McVay)	1 (McVay)	1 (McVay)
Poisson's Ratio, μ		0.30	0.20	0.20	0.25	0.30	0.25	0.20	0.25	1.23	0.30	0.25	0.30
Young's Modulus, Eem (psf)		600,000	110,000	140,000	420,000	1,000,000	540,000	100,000	570,000	7,440,000	1,000,000	390,000	1,000,000
Shear Modulus, Gem (ksi)		1.6	0.3	0.4	1.2	2.7	1.5	0.3	1.6	11.6	2.7	1.1	2.7
Vertical Failure Shear Stress (psf)		1146	217	283	813	3021	1037	204	1084	1488	2598	754	1979
Soil Properties for Torsional Soil Model:													
Torsional Soil Model		Hyperbolic	Hyperbolic	Hyperbolic	Hyperbolic	Hyperbolic	Hyperbolic	Hyperbolic	Hyperbolic	Hyperbolic	Hyperbolic	Hyperbolic	Hyperbolic
Torsional Shear Stress (psf)		1146	217	283	813	3021	1037	204	1084	1488	2598	754	1979
Soil Properties for Tip Soil Model:													
Tip Soil Model		1 (McVay)	1 (McVay)	1 (McVay)	1 (McVay)	1 (McVay)	1 (McVay)	1 (McVay)	1 (McVay)	1 (McVay)	1 (McVay)	1 (McVay)	2 (McVay)
Shear Modulus, G (ksi)		1.61	0.33	0.43	1.19	2.67	1.52	0.31	1.58	11.58	2.67	1.10	2.67
Poisson's Ratio, μ		0.3	0.2	0.2	0.25	0.3	0.25	0.2	0.25	1.23	0.3	0.25	0.3
Axial Bearing Failure Load, Qult (kip), 18" Pile		434	82	107	308	1145	393	77	411	1205	985	286	750
Axial Bearing Failure Load, Qult (kip), 24" Pile		772	146	190	548	2035	698	137	730	2143	1751	508	1333
Table 1. P-Y Curves for Rock													
Unconfined Compressive Strength, q_u (psf)										50000			
Undrained Strength, S_u (psi) =										174			

REVISIONS					
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION

ENGINEER OF RECORD:
PARTHA GHOSH, P.E. LICENSE NO. 51377
GCME, INC.
1730 W. 10TH STREET
RIVIERA BEACH, FLORIDA 33404
CERTIFICATE OF AUTHORIZATION NO. 9076

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
SR-869	BROWARD	439891-1-22-02

APPROXIMATE GROUNDWATER
MONITORING WELL PLAN
PLATE-1

SHEET NO.

REVISIONS

DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION

ENGINEER OF RECORD:
PARTHA GHOSH, P.E. LICENSE NO. 51377
GCME, INC.
1730 W. 10TH STREET
RIVIERA BEACH, FLORIDA 33404
CERTIFICATE OF AUTHORIZATION NO. 9076

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
SR-869	BROWARD	439891-1-22-02

APPROXIMATE GROUNDWATER MONITORING WELL PLAN
PLATE-2

SHEET NO.

Project : PD&E SW 10th St from Powerline Rd to Military Trail

FPID #: 439891-1-22-01

GCME Project #: 2000-01-17003

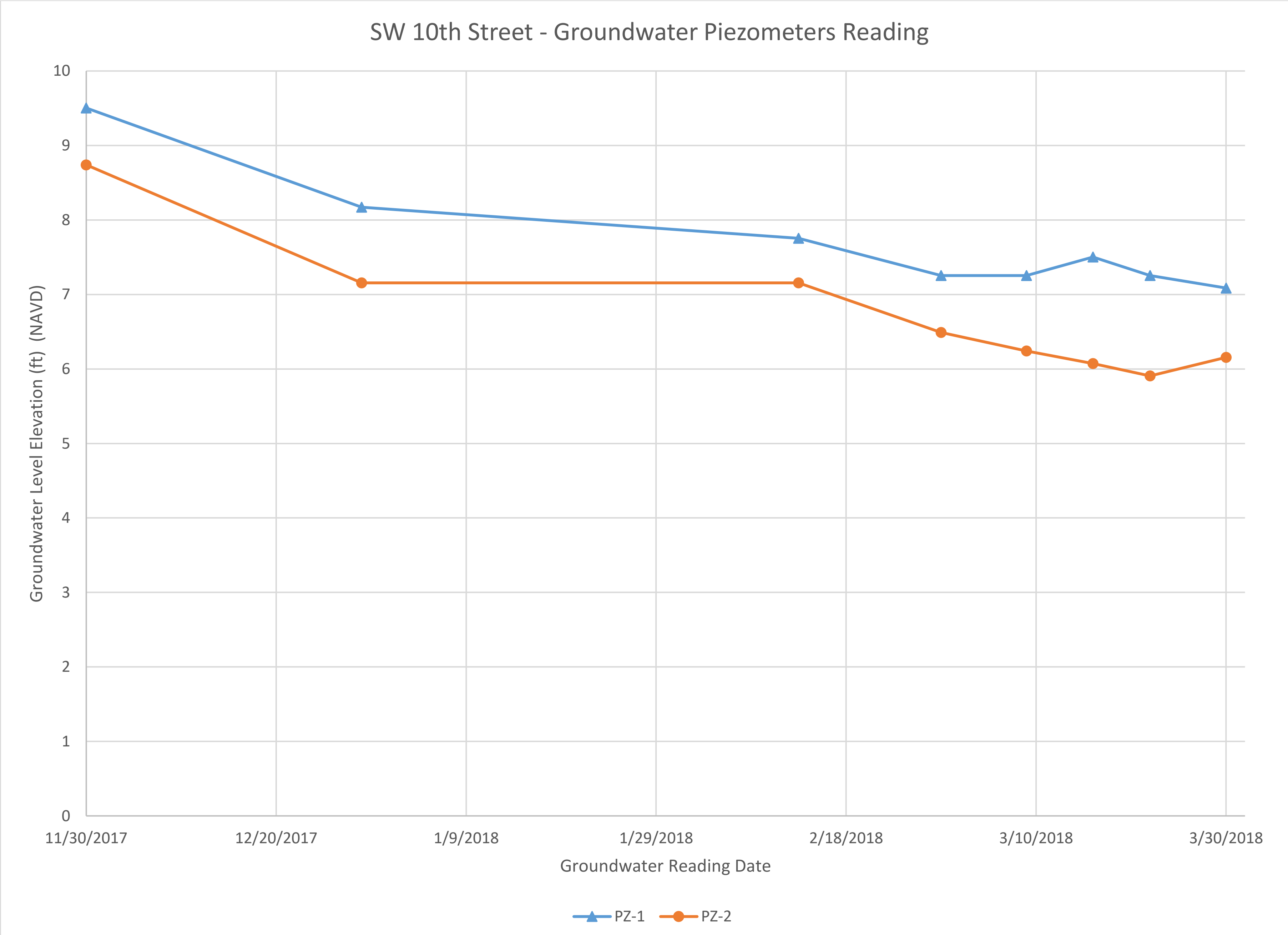
ID	Latitude	Longitude	Top of PVC Pipe (Elevation)	GWT_Depth (From Top of Pipe to Groundwater)	Date	GWT (Elevation)	Comment (Wether, etc.)
PZ-1	26°18'14.06"N	80° 8'34.07"W	12.42	2.92	11/30/2017	9.50	Sunny
PZ-1	26°18'14.06"N	80° 8'34.07"W	12.42	4.25	12/29/2017	8.17	Sunny
PZ-1	26°18'14.06"N	80° 8'34.07"W	12.42	4.67	2/13/2018	7.75	Sunny
PZ-1	26°18'14.06"N	80° 8'34.07"W	12.42	5.17	2/28/2018	7.25	Sunny
PZ-1	26°18'14.06"N	80° 8'34.07"W	12.42	5.17	3/9/2018	7.25	Sunny
PZ-1	26°18'14.06"N	80° 8'34.07"W	12.42	4.92	3/16/2018	7.50	Sunny
PZ-1	26°18'14.06"N	80° 8'34.07"W	12.42	5.17	3/22/2018	7.25	Sunny
PZ-1	26°18'14.06"N	80° 8'34.07"W	12.42	5.33	3/30/2018	7.09	Sunny

Project : PD&E SW 10th St from Powerline Rd to Military Trail

FPID #: 439891-1-22-01

GCME Project #: 2000-01-17003

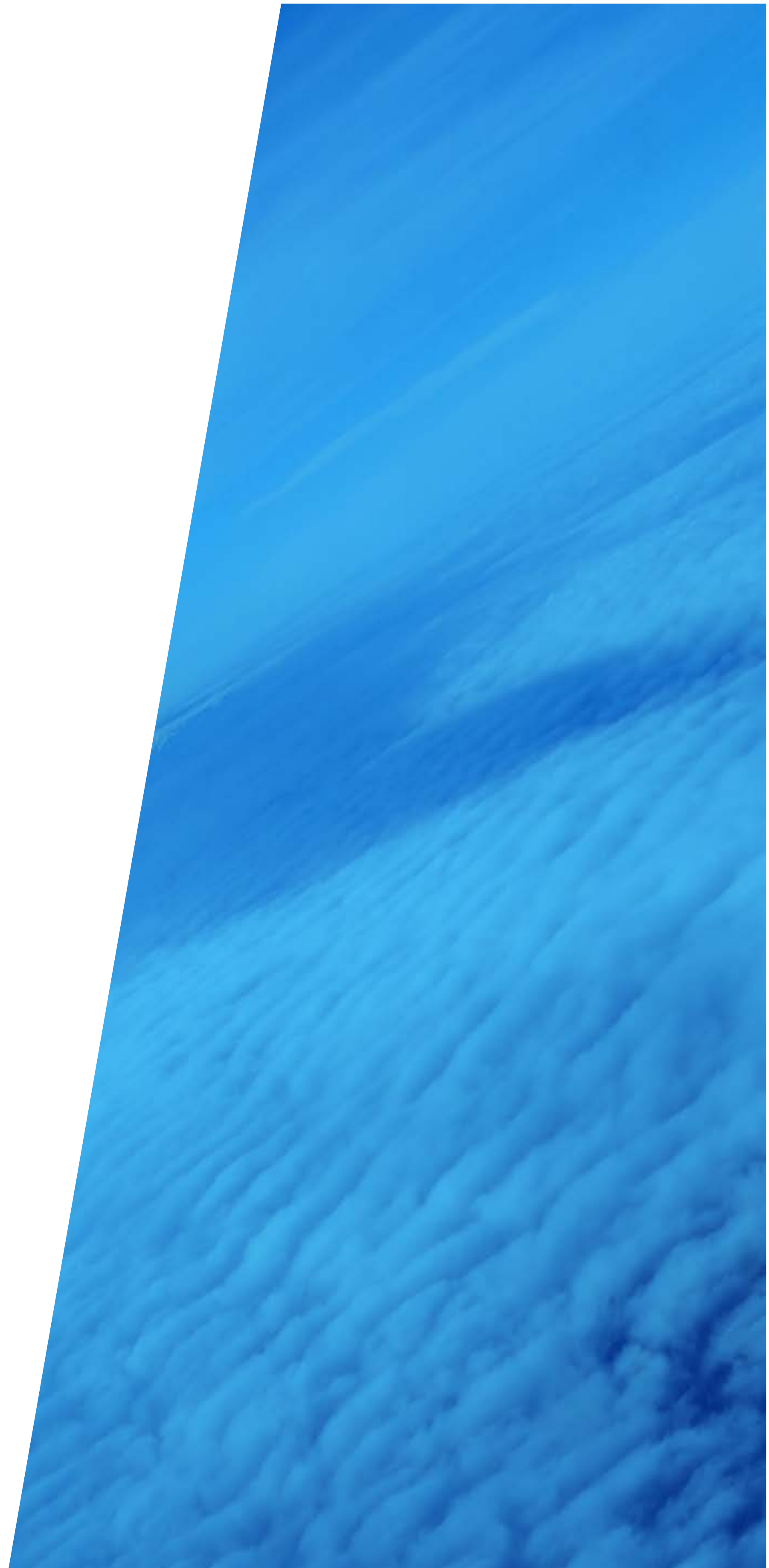
ID	Latitude	Longitude	Top of PVC Pipe (Elevation)	GWT_Depth (From Top of Pipe to Groundwater)	Date	GWT (Elevation)	Comment (Wether, etc.)
PZ-2	26°18'14.91"N	80° 7'58.37"W	14.49	5.75	11/30/2017	8.74	Sunny
PZ-2	26°18'14.91"N	80° 7'58.37"W	14.49	7.33	12/29/2017	7.16	Sunny
PZ-2	26°18'14.91"N	80° 7'58.37"W	14.49	7.33	2/13/2018	7.16	Sunny
PZ-2	26°18'14.91"N	80° 7'58.37"W	14.49	8.00	2/28/2018	6.49	Sunny
PZ-2	26°18'14.91"N	80° 7'58.37"W	14.49	8.25	3/9/2018	6.24	Sunny
PZ-2	26°18'14.91"N	80° 7'58.37"W	14.49	8.42	3/16/2018	6.07	Sunny
PZ-2	26°18'14.91"N	80° 7'58.37"W	14.49	8.58	3/22/2018	5.91	Sunny
PZ-2	26°18'14.91"N	80° 7'58.37"W	14.49	8.33	3/30/2018	6.16	Sunny

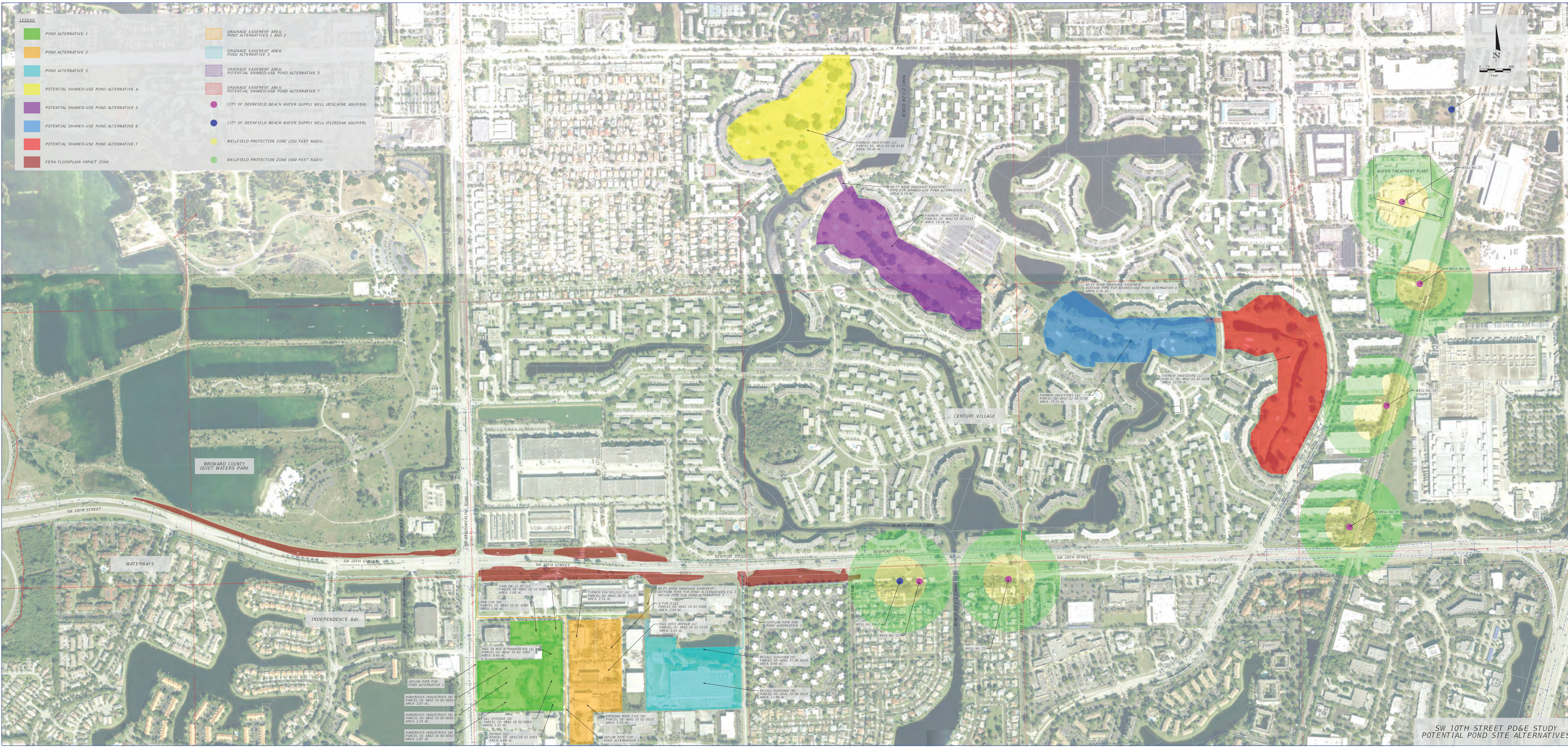


SW 10th Street - Groundwater Piezometers Reading
Groundwater Level Elevation (ft) (NAVD)
10
9
8
7
6
5
4
3
2
1
0
11/30/2017
12/20/2017
1/9/2018
1/29/2018
2/18/2018
3/10/2018
3/30/2018
Groundwater Reading Date
PZ-1
PZ-2

APPENDIX I

POND SITING DOCUMENTATION




LEGEND
POND ALTERNATIVE 1
POND ALTERNATIVE 2
POND ALTERNATIVE 3
POTENTIAL SHARED-USE POND ALTERNATIVE 4
POTENTIAL SHARED-USE POND ALTERNATIVE 5
POTENTIAL SHARED-USE POND ALTERNATIVE 6
POTENTIAL SHARED-USE POND ALTERNATIVE 7
FEMA FLOODPLAIN IMPACT ZONE
DRAINAGE EASEMENT AREA: POND ALTERNATIVES 1 AND 2
DRAINAGE EASEMENT AREA: POND ALTERNATIVE 3
DRAINAGE EASEMENT AREA: POTENTIAL SHARED-USE POND ALTERNATIVE 5
DRAINAGE EASEMENT AREA: POTENTIAL SHARED-USE POND ALTERNATIVE 7
CITY OF DEERFIELD BEACH WATER SUPPLY WELL (BISCAYNE AQUIFER)
CITY OF DEERFIELD BEACH WATER SUPPLY WELL (FLORIDAN AQUIFER)
WELLFIELD PROTECTION ZONE (250 FEET RADII)
WELLFIELD PROTECTION ZONE (500 FEET RADII)
BROWARD COUNTY QUIET WATERS PARK
CENTURY VILLAGE
WATERWAYS
INDEPENDENCE BAY
WATER TREATMENT PLANT
SW 10TH STREET
SW 10TH STREET PD&E STUDY
POTENTIAL POND SITE ALTERNATIVES

Conventional Pond Site Alternatives Evaluation Matrix

Unconventional Pond Site Assesment

	Weight of Factor	Factor	Score	Weighted Score	Score	Weighted Score	Score	Weighted Score	Century Village Potential 'SHARED USE' Pond Alternatives Assessment Summary		
	1-10		1-10		1-10		1-10		1-10	1-10	1-10
		Alternative Number	1		2		3		4	5	6
		Brief Description of Alternative	**Pond Site Alternative #1**		**Pond Site Alternative #2**		**Pond Site Alternative #3**		**Potential Shared-Use Pond Alternative 4**	**Potential Shared-Use Pond Alternative 5**	**Potential Shared-Use Pond Alternative 6**
		Parcel Number(s) - Pond Site(s)	4842 10 02 0091, 4842 10 02 0080 4842 10 02 0260, 4842 10 00 0054 4842 10 00 0052, 4842 10 00 0050 4842 10 02 0264, 4842 10 02 0261		4842 10 02 0430, 4842 10 02 0500 4842 10 02 0530, 4842 10 02 0510		4842 10 06 0010 4842 10 06 0020		4842 03 00 0140	4842 03 00 0233	4842 02 00 0238
		Parcel Size (Acres) - Pond Site(s)	12.82		12.07		13.54		19.26	19.18	17.11
		Parcel Number(s) - Easement(s)	4842 10 02 0550, 4842 10 06 0070 4842 10 06 0080		4842 10 02 0550, 4842 10 06 0070 4842 10 06 0080		4842 10 06 0070 4842 10 06 0080		-	4242 03 00 0234 4242 03 00 0146	-
		Parcel Size (Acres) - Easement(s)	0.42		0.42		0.45		0*	0.14*	0*
		Total Parcel Costs	$ 14,478,590.00		$ 28,761,820.00		$ 35,676,032.00		14033884*	14089743*	TBD*
1.00	7.00	Zoning (Right of Way)	1.00	7.00	2.00	14.00	3.00	21.00	Pond Construction falls within zoning for parcels		
2.00	7.00	Land Use	1.00	7.00	2.00	14.00	3.00	21.00	If mutual agreement is reached with CV will fall within their land use plans		
3.00	10.00	Right of Way	1.00	10.00	2.00	20.00	3.00	30.00	Right of Way is currently Vacant		
4.00	8.00	Drainage considerations	4.00	32.00	4.00	32.00	6.00	48.00	Parcels are adjacent to C-2 and adjacent canal system making connectivity of system straight forward		
5.00	6.00	Flood Zone FEMA	3.00	18.00	9.00	54.00	7.00	42.00	Majority of the pond areas are outside the 100-year floodplain so pond excavation will provide floodplain compensation benefits		
6.00	10.00	Contamination and Hazardous Materials	4.00	40.00	1.00	10.00	4.00	40.00	Excavation for ponds will be tested and treated as required by permitting agencies, arsenic levels are expected		
7.00	4.00	Utilities	2.00	8.00	2.00	8.00	3.00	12.00	No major utility impacts are anticipated with these parcels		
8.00	2.00	Threatened and Endangered Species and Associated Costs	2.00	4.00	2.00	4.00	2.00	4.00	No threatened or endangered species concerns		
9.00	2.00	Noise	0.00	0.00	0.00	0.00	0.00	0.00	No permanent noise impacts, there will be disruptions during construction that can be mitigated and restricted to certain		
10.00	1.00	Wetlands and protected Uplands and Associated Costs	1.00	1.00	1.00	1.00	1.00	1.00	No wetland or protected uplands with these parcels		
11.00	1.00	Cultural Resources Involvement and Associated Costs	6.00	6.00	6.00	6.00	10.00	10.00	No cultural resource involvement		
12.00	1.00	Section 4(f)	0.00	0.00	0.00	0.00	0.00	0.00	No Section 4(f) involvement		
13.00	6.00	Public Wellfield	10.00	60.00	10.00	60.00	10.00	60.00	Outside of protected influence area of any public wellfields		
14.00	5.00	Construction	6.00	30.00	3.00	15.00	5.00	25.00	Construction disruption can be restricted to specific hours and haul routes can be mitigated to minimize impacts to		
15.00	5.00	Maintenance	5.00	25.00	7.00	35.00	3.00	15.00	Maintenance should be minimal		
16.00	3.00	Aesthetics	5.00	15.00	5.00	15.00	3.00	9.00	Pond system can fit within park scheme and provide aesthetic enhancements to the area		
17.00	7.00	Public Opinion and Adjacent Residency Concerns	5.00	35.00	5.00	35.00	5.00	35.00	This most likely could vary among residents as opinion of the road project can influence attitudes to a 'shared use'		
18.00	0.00	Other	8.00	0.00	8.00	0.00	8.00	0.00	These 'unconventional' pond alternatives have potential to provide mutual benefits to the Department's overall storm water		
		Comments							A 'Shared Use' agreement must be mutual for the 'unconventional' pond alternatives to move forward.		
		Score	298.00		323.00		373.00				
		Ranking	**7**		**6**		**5**				

* Parcel Size for Pond area is anticipated to be approximately 12 Acres that can vary between one or all three Century Village Parcels with an estimated Cost of approximately $14M.

MEETING MINUTES

Project:	SW 10th Street Connector PD&E Study	**FPID No:** **Contract No.:**	439891-1-22-02 C9V60
Meeting Place:	Broward County 1 N. University Drive Plantation, FL	**Meeting Date:** **Meeting Time:**	2/21/18 2:00 p.m.
Participants:	See sign-in sheet for attendees		
Purpose:	FDOT-BCEPGMD Drainage Coordination Meeting		

Introductions

Project Overview

1. After introductions, Chris Jackson, RS&H Senior Drainage Engineer, provided a brief project overview and indicated the purpose of the meeting was to discuss potential impacts to Broward County Water Control District (BCWCD) #2 surface water management infrastructure. He discussed the preliminary alignments that were currently under evaluation as part of the Florida Department of Transportation (FDOT) SW 10th Street Project Development & Environment (PD&E) study.
2. Chris presented a stacked exhibit illustrating a northern alignment and a center alignment, both consisting of typical sections with four managed lanes within a depressed open cut section primarily serving traffic to/from the Sawgrass, Turnpike, and I-95, along with four at-grade, local general purpose lanes serving local SW 10th Street traffic.
3. Chris stated that the project is under a fast-track schedule since FDOT is planning to move directly from the PD&E study phase into the Design-Build phase, allowing for the proposed managed lanes to connect with the I-95 express lanes, which are currently under construction. He stated that the project is currently funded in 2025, however, funding is expected to become available sooner.

Drainage Overview

4. Chris indicated that the project is located within the South Florida Water Management District (SFWMD) Hillsboro Canal drainage basin and the BCWCD C-2 basin. He noted the project falls under the regulatory jurisdiction of SFWMD, as well as BCEPGMD since existing BCWCD #2 infrastructure and right-of-way is proposed to be impacted.
5. Chris indicated that portions of the project fall within the FEMA 100-year floodplain and the City of Deerfield Beach Wellfield zone of influence.
6. Chris provided an overview of the existing drainage. He indicated that the C-2 basin is controlled by one structure (S-4) at the north end of the C-2 Canal which discharges to the SFWMD Hillsboro Canal. He also indicated that, per prior correspondence with Carl Archie, BCWCD #2, the C-2 basin is designated as a "water quality basin" which provides storage, treatment, and groundwater control necessary to protect the wellfields from saltwater intrusion.

7. Chris acknowledged that stormwater treatment and attenuation would be required for the project. He also indicated that the project would likely impact the existing cross drains serving the BCWCD C-2 and C-3 canals.
8. Chris provided an overview of the potential stormwater management options. He stated that drainage and permit criteria could be achieved with the conventional approach of collecting and conveying project runoff to an adjacent, isolated offsite stormwater management facility for treatment and attenuation prior to discharge to receiving waters. Alternatively, he noted that the “water quality basin” designation provides additional flexibility by allowing for the potential of expanding/modifying any of the existing stormwater management facilities within the entire C-2 basin as needed to provide the required water quality, water quantity, and floodplain compensation volume for the project.
9. Chris indicated that the flexibility provided by the designation of the basin as a “water quality basin” would allow for modification/expansion of the existing stormwater management facilities such as the vacant golf course at Century Village and within the Deer Creek Golf Course, north of Hillsboro Boulevard. He noted that if these golf courses cannot be modified/expanded to accommodate the project, then FDOT would have very limited stormwater management options and would most likely need to acquire large offsite industrial parcels along the south side of the project.
10. Jose Portillo, BCEPGMD, agreed with the “water quality basin” designation but noted that FDOT would need to demonstrate no adverse impacts to conveyance at or near the point of inflow. Chris agreed with this concern and stated that FDOT would certainly evaluate any potential for adverse impacts.
11. Chris indicated that this “water quality basin” approach was also discussed at a meeting with SFWMD on February 15, 2018. He noted that SFWMD supported the approach but mentioned that there is no existing Environmental Resource Permit (ERP) for the C-2 basin and therefore a new ERP application would have to be submitted by Broward County if FDOT pursues this approach. The ERP application would require a model of the entire basin to demonstrate how it functions today. Carl and Jose stated there was no concern with this, but were unsure if this would require a new permit versus a modification to an existing permit, previously issued to Broward County for a project to the west of the SW 10th Street project.
12. Susan Juncosa, BCEPGMD, expressed concern with direct discharge of stormwater runoff to the C-2 Canal which is near the wellfields. She noted potential impacts to the wellfield and suggested that homeowners would be concerned that their ponds wouldn’t be degraded. Chris stated that similar concerns were encountered with the I-595 project in which there was direct discharge to the Lago Mar and Pine Island Ridge golf courses, and explained that the Department committed to providing sumps and baffles on every inlet throughout the project along with pollution control box just upstream of the discharge point into the golf course pond systems. He noted a similar approach could be taken for this project.
13. Chris indicated that at the recent SFWMD meeting, Carlos de Rojas clarified that dry pre-treatment retention is only required when the proposed stormwater management facilities are physically located within the wellfield zone of influence. Chris noted that while portions of the project falls within the wellfield zone of influence, none of the proposed stormwater management facilities do. He added that the proposed modifications/expansions to the stormwater management system could be limited to areas outside the wellfield zone of influence as well. Susan indicated that existing stormwater management facilities within the wellfield zone of influence could also become a concern since everything is interconnected.

14. Jose indicated that nutrient loading, particularly for nitrogen, could be a concern and inquired about the possibility of providing dry pre-treatment before discharging into the existing stormwater management system. Chris stated that it wouldn't be possible to provide dry pre-treatment within the existing corridor due to insufficient right-of-way width. However, he noted dry retention pre-treatment could be provided if roadway runoff was collected and conveyed by pipe to the offsite parcel located within the vacant golf course at Century Village, adjacent to Military Trail. Chris also stated that French drain might be able to be used along SW 10th Street to provide a limited amount of pre-treatment prior to discharge through a weir to the C-2 Canal. However, he had reservations since the need for pump stations to drain the depressed managed lanes section could make the use of French drain with weirs an unviable option. Susan and Jose also reaffirmed that French drains wouldn't be allowed within the wellfield zone of influence.
15. Susan inquired about the status of the Century Village golf course ownership, as she recalled a permit recently being submitted for a residential development. Chris stated that it is his understanding that there is a Memorandum of Agreement between the property owner, Fairway Investors LLC, and Toll Brothers for the three eastern vacant golf course parcels. However, he was unsure if the actual closing had yet gone through. Anson Sonnett, FDOT Project Manager, stated that Toll Brothers presented the City of Deerfield with plans to develop one parcel and turn the other two over to Century Village as passive parks but no approval has yet been given.
16. Chris stated that before putting too much effort into coordinating with Fairway Investors, Toll Brothers, or Deer Creek, FDOT needed to confirm the viability of the "water quality basin" approach. Otherwise, he noted, the focus would need to shift to traditional offsite pond siting and acquisition. Jose and Carl indicated that the "water quality basin" approach should be acceptable as long as the nutrient loading and pre-treatment concerns were properly addressed.
17. Chris indicated that the managed lanes depressed section would impact existing cross drains serving the BCWCD C-2 and C-3 canals. He noted that inverted siphons below the managed lanes depressed section, pipes on structure spanning over the managed lanes, and/or pump stations would be required to maintain these conveyances. He also noted that a pump station would be required for FDOT to collect and convey the roadway runoff from the managed lanes depressed section.
18. Carl stated they do not use stormwater pump stations since they have the advantage of gravity head within this area. He emphasized that maintenance and accessibility of the infrastructure would be a concern. He stated that while he would not prefer pump stations, he would not immediately rule them out. Carl asked that the options be sent to him so that he could evaluate them further. Jason Lee, Kimley-Horn, will prepare and distribute exhibits illustrating the three concepts.

Permit Requirements

19. Chris indicated that there are no existing Broward County or SFWMD stormwater management permits for the project or C-2 basin. He added that there is only a SFWMD Consumptive Use permit for the City of Deerfield Beach Wellfield.
20. Chris envisioned SFWMD would require submittal of an ERP application from Broward County to address the existing conditions of the BCWCD C-2 drainage basin, followed by a subsequent ERP application from FDOT for the SW 10th Street project that would build upon the permit to be issued to Broward County. He noted that the Broward County application would need to include drainage maps and ICPR model based on existing plans, atlas', as-builts, etc. and that the FDOT application would essentially modify the Broward

County drainage maps and ICPR model to reflect the additional impervious area and modified/expanded stormwater management facilities associated with the SW 10th Street project.

21. Carl mentioned that the County had similarly permitted one of its regional basins with SFWMD. He stated that this was done primarily to turn the entire area into a wellfield recharge basin and to facilitate large scale development.
22. Chris stated that while the proposed improvements do not physically impact or encroach existing wellfield infrastructure, SFWMD also requested that groundwater modeling be performed to ensure that the wellfields are not impacted by the managed lanes depressed section. He also mentioned that SFWMD requested additional analysis to ensure that dewatering activities do not adversely impact wellfields.
23. Chris noted that there were no wetlands within the project limits but that dredging activities would be required within other surface waters, including the BCWCD C-2 and C-3 canals.
24. Chris identified the anticipated environmental permits, as follows: SFWMD Environmental Resource Permit, SFWMD Consumptive Use (Dewatering), and USACE Section 404 Dredge & Fill Permit. In addition, he noted that a Surface Water Management License and a Natural Resource License would be required from BCEPGMD. Jose indicated that a Dewatering Approval may also be needed from BCEPGMD if dewatering is required within 500 feet of a contamination site.
25. Chris inquired about the new Broward County codes pertaining to sea level rise and antecedent (groundwater) conditions. Jose stated that the project is too far west to be affected by these new codes.

Meeting Sign-In Sheet

SW 10th Street PD&E Study
FDOT-BCEPGMD Drainage-Permit
Coordination Meeting

February 21, 2018 @ 2:00 pm
Meeting Location: Broward County, 1 N. University Drive, Plantation, FL

	Name	Company	Phone	e-mail
	Anson Sonnett	FDOT	954-777-4474	anson.sonnett@dot.state.fl.us
	Hui Shi	FDOT	954-777-4476	hui.shi@dot.state.fl.us
	~~Cassie Piche~~	~~RS&H~~	~~954-236-7365~~	~~cassie.piche@rsandh.com~~
CBJ	Chris Jackson	RS&H	954-236-7375	chris.jackson@rsandh.com
VC	Vanessa Caycedo	RS&H	954-236-7360	vanessa.caycedo@rsandh.com
	Jason Lee	KHA	561-317-0206	Jason.Lee@kimley-horn.com
	~~Carlos Adorisio~~	~~BCEPGMD~~		~~CADORISIO@broward.org~~
JP	Jose Portillo	BCEPGMD		JPORTILLO@broward.org
JN	Johana Narvaez	BCEPGMD	954-519-0318	JNARVAEZ@broward.org
	Carl Archie	BCWCD #2	954-831-0753	CARCHIE@broward.org
	Claudia Calvo	FDOT	954-777-4476	claudia.calvo@dot.state.fl.us
	Anaily Padron	HDR	305-728-7459	anaily.padron@hdrinc.com
	Ryan Solis-Rios	Corradino	954-777-0041	rsolis-rios@corradino.com
	Susan Juncosa	BC-WMD	954-831-0778	sjuncosa@broward.org

MEETING MINUTES

Project:	SW 10th Street Connector PD&E Study	**FPID No:** **Contract No.:**	439891-1-22-02 C9V60
Meeting Place:	FDOT 3400 West Commercial Blvd. Ft. Lauderdale, FL	**Meeting Date:** **Meeting Time:**	1/03/2018 2:00 p.m.
Participants:	See sign in sheet for attendees		
Purpose:	Pond Siting Kick-Off Meeting		

Pond Siting Team

1. The team went around the table / room and introduced themselves and stated their role.

Project Overview

2. FM 436964-1, I-95, SW 10th to Hillsboro PD&E: A brief project overview was given by Vilma Croft. In particular to this meeting, the HNTB team stated that proposed drainage can be accommodated along Hillsboro but that the interchange evaluation was on-going.

3. FM 439891-1, SW 10th Street Connector PD&E: A brief project overview was given by Cassie Piche. One item to note is that the managed lanes alternatives being evaluated are below grade for a segment of SW 10th Street and involves 2 perpendicular canals. The treatment of those canals is still being evaluated. Chris Jackson gave an overview of the pre-scope and **Drainage Technical Memo** that was prepared for the portion of SW 10th Street from Powerline Road and Military Trail. All land south of the existing SW 10th Street pavement encroaches into the 100-year flood plain. Broward County Water Control District #2 (BCWCD) is the governing entity. Area canals and ponds are owned by BCWCD and able to be modified to handle the projected runoff that will require 15 acres of additional pond area. This area is also a well field and as such, requires a dry, pre-treatment pond equivalent to 5 acres (included in the total 15 acres above). Traditional method of piping proposed water to a pond would require residential acquisition, which is undesirable. Shared use sites should be evaluated with Century Village, Toll Brothers (proposed developer of a section of the Century Village golf course, MOA filed but no deed) and Deer Creek to the north. It was noted that if the pod was wet, access and maintenance challenges need to be considered. A discussion of easements for **shared use ponds** was discussed. Laurice Mays stated that an easement provision could be included in the deed requiring that the private owner maintain the pond but if they defaulted on the maintenance of the pond, the FDOT would have the right to access private property in order to maintain the site. However, this would be a perpetual easement and introduces risk to the schedule due to the negotiations process. It was explained that the eminent domain process was invoked and FDOT was negotiating with 3 different sellers and they all refuse, engineering necessity needs to be proven for the best option for the drainage pond site.

Verification of Guidelines and Criteria

4. Broward County – needs to be met with to establish their guidelines and discuss the topic of construction in a well field and any additional requirements that may carry.
5. District 4 preferences – Ann Broadwell indicated that Maria Salgado needs to be added to the pond siting team. Anson stated that team members should be ranking each of the sites in regard to their specific discipline from a fatal flaw standpoint. Materials (pond sites with numbers, criteria, ranking instructions) will be prepared and distributed to team members. There will be an additional meeting schedules to discuss the rankings and criteria as a group.

Potential Pond Sites

6. Tech Memo – see above

Potential Joint Use Pond Sites

7. Tech Memo – see above

Summary of Decisions / Action Items

1. **ACTION:** (RS&H / KHA) Schedule meeting with Broward County for drainage / permitting requirements. ***Due date: in progress***
2. **ACTION:** (RS&H) Invite the City of Deerfield to participate in the pond siting process. ***Due date: in progress, prior to next pond siting team meeting.***
3. **ACTION:** (RS&H) Prepare packages with pond site numbers, blank matrix for distribution to pond siting team. ***Due date: in progress***
4. **ACTION:** (FDOT) Maria Salgado to be added to pond siting team. ***Due date: in progress, prior to next pond siting meeting***
5. ***ACTION:*** (FDOT) Initiate contact with Deer Creek to explore shared use. ***Due date: in progress***

scan

Meeting Sign-In Sheet

SW 10th Street PD&E

Pond Siting Meeting

January 3, 2018 @ 2:00 pm
Meeting Location: FDOT, District 4

	Name	Company	Phone	e-mail
AS	Anson Sonnett	FDOT	954-777-4474	anson.sonnett@dot.state.fl.us
SP	Scott Peterson	FDOT	954-777-4416	scott.peterson@dot.state.fl.us
LM	Laurice Mays	FDOT		
	Christian Rojas	FDOT		
	Sean Wydner	FDOT		
	Josh Miller	FDOT		
	Georgi Celusnek	FDOT		georgi.celusnek@dot.state.fl.us
LK	Lynn Kelley	FDOT		lynn.kelley@dot.state.fl.us
Sac	Scott Clark	FDOT		scott.clark@dot.state.fl.us
	James Poole	FDOT		
	Jorge Corrales	FDOT		jorge.corrales@dot.state.fl.us
HS	Hui Shui	FDOT		
C.C.	Claudia Calvo	FDOT		
MA	Morteza Alian	FDOT		
phone	Kelley Hall	FDOT		

Meeting Sign-In Sheet

SW 10th Street PD&E

Pond Siting Meeting

January 3, 2018 @ 2:00 pm
Meeting Location: FDOT, District 4

	Name	Company	Phone	e-mail
VC	Vilma Croft	HNTB		
	James Ford	HNTB		
CP.	Cassie Piche	RS&H	954-236-7365	cassie.piche@rsandh.com
	Paul Heeg	RS&H	904-256-2163	paul.heeg@rsandh.com
VC	Vanessa Caycedo	RS&H	954-236-7360	vanessa.caycedo@rsandh.com
CBJ	Chris Jackson	RS&H		Chris.jackson@rsandh.com
TM	TODD MCGEE	FDOT	954-777-4188	TODD.MCGEE@DOT.STATE.FL.US.
CJB	Christina Brown	FDOT	954 777 4457	Christina.brown@dot.state.fl.us
SE	Sarah Earls	FDOT R/W	954-777-4243	sarah-earls@dot.state.fl.us
phone	John Burk	HNTB		
phone	Brian McCarthy	HNTB		

MEETING MINUTES

Project:	SW 10th Street Connector PD&E Study	**FPID No:** **Contract No.:**	439891-1-22-02 C9V60
Meeting Place:	FDOT District 4, 3rd Floor Exec. 3400 W. Commercial Blvd. Fort Lauderdale, FL 33309	**Meeting Date:** **Meeting Time:**	07/02/18 3:00 pm
Participants:	See sign-in sheet for attendees		
Purpose:	Pond Siting Meeting #2		

Pond Siting Team

1. Attendees went around the room and introduced themselves and their role.

Project Status Update

2. HNTB: FM 436964-1, I-95 from SW 10th to Hillsboro PD&E: a brief project update was given by Vilma Croft. She stated the Alternatives workshop and the VE meeting were held in April, and that the suggestions from the VE team were being evaluated, as well as an alternative that is compatible with the RS&H at-grade option. Traffic analysis and interagency meeting were completed.
3. RS&H: FM 439891-1, SW 10th Street Connector PD&E: a brief update was given by Cassie Piche. She stated the Alternatives workshop was held in April and based on feedback, other alternatives will be evaluated. She stated that the overall additional impervious area of the project isn't going to change, but that a shorter depressed section and different ramp configurations will be assessed. The second alternatives workshop is scheduled for November and the public hearing is scheduled for February of 2019.

Drainage Status Update

4. HNTB: FM 436964-1, I-95 from SW 10th to Hillsboro PD&E: Brian McCarthy stated that their current approach is to place the stormwater management facilities within existing right-of-way. For compensatory treatment and attenuation, they are evaluating the expansion of the existing facilities within the interchange as well as the conversion from dry to wet facilities. He stated they have completed pre and post development drainage maps, calculations and that their facilities meet stormwater requirements. They are waiting on the execution of the Supplemental Agreement to begin floodplain analysis, but he is anticipating that offsite floodplain compensation sites will be needed.
5. RS&H: FM 439891-1, SW 10th Street Connector PD&E: Chris Jackson stated that Pre-Development and Post-Development analysis for the base project limits (i.e. SW 10th Street from Powerline to Military Trail) has been completed, including Drainage Maps, Calculations and Models. The analysis has resulted in the required parcel sizes for the stormwater management facilities that will be needed to meet permitting requirements as well FDOT drainage design criteria. This information will be packaged into a Conceptual Drainage / Pond Siting Report to be submitted to the Department.

6. Chris stated that additional work needs to be completed in the future as the project limits have changed over the last months. Pre- and Post-Development Drainage Maps, calculations and models associated with the extended limits to the west of Powerline Road is still pending NTP from the Department.
7. Chris referenced recent permitting agency meetings with Broward County Water Control District (BCWCD) #2 and South Florida Water Management District (SFWMD). He indicated that both agencies are amenable to expanding the overall BCWCD #2 drainage system (via existing pond expansion throughout the entire water quality basin) in lieu of providing the traditional offsite stormwater management facilities with conveyance from the roadway corridor and discharge to the receiving waters. However, both agencies noted that venturing into those any further would require regional modeling and permits. Chris stated that the regional modeling efforts have been included in previous supplemental agreement submitted to the Department and is still pending NTP.
8. Chris explained that the base project limits discharge to the BCWCD #2 C-2 Canal Basin, while the extended limits discharge to the C-3 Canal Basin. Preliminary calculations on the extended project limits indicate approximately 4 acres are required for stormwater management and these can be achieved by expanding the infield areas within the Turnpike/Sawgrass interchange. This avoids offsite right-of-way acquisition and more efficiently utilizes existing State-owned right-of-way located adjacent to the northeast and southeast quadrants of the interchange. Scott Peterson and Robert Bostian brought up concerns that the Turnpike may need all of this area for their project. Chris mentioned that there is over 30 acres of undeveloped State-owned right-of-way available and that all of their drainage correspondence provided to date reflects all SW 10th Street runoff, west of Powerline Road, being accommodated within their project. Chris added that the only other alternatives are acquiring / relocating single family homes or acquiring property within Quiet Water Park, a 4(f) resource.

Potential Offsite Ponds

9. Chris stated that for the base project limits, there are no undeveloped parcels within or directly adjacent to the existing right-of-way. He mentioned that three "conventional" alternatives were identified for stormwater management facilities and defined conventional as pond site alternatives located relatively close to the corridor which receive untreated stormwater runoff via piping from the roadway corridor and then contain control structures which discharge the treated overflow into the receiving waters (C-2 Canal). He noted that all three alternatives were located off-frontage within the industrial area located south of SW 10th Street, just east of Powerline Road, and would require permanent easements for inflow and/or outflow. He added that the three alternatives avoid residential or commercial relocations.
10. Chris stated that calculations indicate approximately 12 acres are required for stormwater management of the base project limits, and that includes the area for the perimeter berms and slopes around the pond.
11. Chris explained the four identified alternatives:
    - The first pond site alternative consists of a combination of 8 different parcels; industrial business and unimproved sites; easement required for outflow.
    - The second pond site alternative consists of a combination of 4 different parcels; industrial business and unimproved sites; easement required for outflow.
    - The third pond site alternative consists of a combination of 2 parcels; currently functional business and fully developed parcel; easement required for inflow.
12. Scott Peterson inquired about the storage facility on the north side of the corridor as a potential parcel, but it was discussed that the storage facility nature of the business entails

having to coordinate/relocate all different owners rather than one business as a whole. The VE team had considered this parcel as a potential, but determined the cost too high (approximately $22M).

13. Chris also mentioned that one "shared use" alternative was identified for stormwater management facilities, which would essentially involve expansion of the existing BCWCD #2 stormwater management facilities within the overall C-2 water quality basin in order to offset the new treatment and runoff volumes for the proposed roadway corridor. He clarified that he was only calling it shared use because the pond would be contiguous with the BCWCD #2 C-2 Canal. He noted that the pond site alternative was located within an abandoned golf course property owned by Fairway Investors LLC within the Century Village community just south of Hillsboro Blvd. Scott Peterson inquired about the other pond site alternatives within the golf courses that were identified in Pond Siting Meeting #1 (January 2018). Chris explained that since the last meeting, these choices were narrowed down based on findings that the other three Fairway Investors LLC golf course parcels had been purchased by Toll Brothers for residential development and park space, and one of the pond site alternatives within a parcel owned by CVE Management was found to be a preserve.
14. Scott Clark indicated that he read in the newspaper that the Toll Brothers purchase included all four parcels, rather than just three of the four. After long discussion, but the group ultimately acknowledged that no one in the meeting had actually seen any purchase documents to confirm one way or another.
15. Scott Peterson also inquired about the recent Toll Brothers purchase and whether or not that ruled out the possibility of acquisition, over acquiring functional businesses or relocating homes. FDOT D4 Right-of-Way and Legal attendees responded that the parcels should still be included as alternatives and further analysis would then determine whether or not these were viable or not.
16. Chris explained that while all four golf parcels were certainly viable alternatives, he felt it was very obvious that one stood out above the rest due to better access for construction and maintenance, and the planned residential development by Toll Brothers. Chris also noted that all 18-hole golf courses within this water quality basin are all options, but that there has to be stopping point as to how far we expand upon these. Nevertheless, Chris and Scott agreed to include at least two "shared use" pond site alternatives along with the three "conventional" alternatives.
17. Cassie stated that contamination of these sites would have to be considered. Chris stated that the golf courses are likely to be contaminated with arsenic, while the other (industrial) pond site alternatives would likely be contaminated with petroleum-based contaminants.
18. Chris expressed scheduling risk concerns with the "shared use" approach. He explained that because it is a water quality basin, a SFWMD master permit for the basin has to be obtained, and then the SW 10th Street project will have to obtain a permit modification to the master permit. Chris mentioned that there is a certain uncertainty in moving forward without the guarantee of a permit. A regional permit for the basin means that every pond, canal, structure, and pipe within the entire BCWCD #2 local drainage district needs to be modeled. Scott asked how long it has been estimated for the modeling efforts to be completed. Chris stated that he anticipated 2-3 months after NTP has been given. Scott inquired on the timeline for the permitting efforts, and Chris stated that it could take 6 months to get the master permit, followed by another 3 months or so for the SW 10th Street permit. He mentioned that construction cannot begin until the permits and right-of-way are obtained.
19. Chris stated that RS&H has moved forward as much as possible on the conceptual drainage and pond siting efforts, but in order to keep moving forward, the regional modeling has to be done immediately. He also noted that communication needed to commence with Florida's Turnpike Enterprise to coordinate the (potentially interim) pond expansion needs within the

interchange to accommodate SW 10th Street project runoff west of Powerline Road. Scott noted that right-of-way funding is scheduled for 2020 so there should be time.

20. The team moved on to discuss the pond siting matrix and review Chris's example. While a higher weight factor means more importance, a lower score is favorable. Scott requested that the scoring system be reversed so that 10 is most favorable and 1 is least favorable. Chris agreed to make the change to the matrix.
21. Scott Peterson asked for the Pond Siting Evaluation Matrix to be updated to include the date, "Pond Siting Meeting #2" and "DRAFT" watermark.
22. Scott inquired about rearranging or evaluating the weight factor criteria a little further on some of the categories, for public perception. Cassie noted that some items can be qualitative vs quantitative.
23. Scott asked if the City of Deerfield needs to be involved in the pond siting process. Cassie responded that they just asked to be kept in the loop but would not be required to fill out/participate in completing the evaluation matrix.
24. Some team members requested clarity on some of the scoring categories (factors) within the evaluation matrix. Chris discussed at length some of the factors and his logic in scoring contrast between pond siting alternatives. Chris stated that each meeting attendee (or their designee) will be provided the matrix, and asked to evaluate the alternative pond sites for their specific area of expertise. Once all members complete their evaluations and provide spreadsheets back to Chris, he will compile and schedule Pond Siting Meeting #3 to review the results.
25. Robert Bostian asked if Chris could hold another meeting with team members who needed additional clarity or help completing the matrix. Chris indicated he would prepare and distribute instructions for completion of the matrix and that he would certainly meet with any team members who required additional assistance.

Next Steps / Action Items

1. **ACTION:** (RS&H) Prepare 1-2 additional "shared use" pond site alternatives. ***Due date: 7/6/18***
2. **ACTION:** (RS&H) Prepare and distribute updated Pond Siting Matrix and Exhibit, Meeting Minutes, and instructions to complete the Pond Siting Matrix. ***Due date: 7/6/18***
3. **ACTION:** (FDOT – D4 Right-of-Way) Obtain and distribute right-of-way, permit, and/or zoning documents for Fairway Investors LLC – Toll Brothers. ***Due date: 7/20/18***
4. **ACTION:** (FDOT – All Attendees) Evaluate and provide weights/scores for Pond Siting Matrix and distribute to Chris. ***Due date: 7/20/18***
5. **ACTION:** (RS&H) Compile Pond Siting Matrices and schedule Pond Siting Meeting #3. ***Due date: 7/27/18***

Meeting Sign-In Sheet

SW 10th Street PD&E Study

Pond Siting Meeting#2

July 2, 2018 @ 3:00 pm

Meeting Location: FDOT, District 4

	Name	Company	Phone	e-mail
LK	Lynn Kelley	FDOT	777-4334	lynn.kelley ...
SC	Scott Clark	FDOT	777-4342	Scott.clark@dot.state.fl.us
VC	VILMA CROFT	HNTB	305-222-1457	VCROFT@HNTB.COM
REB	Rob Bostian	FDOT	954-777-4427	Robert.Bostian@dot.state.fl.us
HS	Hui Shi	FDOT	954-777-4557	Hui.Shi@dot.state.fl.us
C.C.	Claudia Calvo	FDOT	954-777-4476	claudia.calvo@dot.state.fl.us
SW	Sean Wydner	FDOT	x4501	sean.wydner@dot...
JS	Jared Silver	FDOT	x4501	jared.silver@dot...
SE	Sarah Earls	FDOT	954-777-4243	sarah.earls@dot.state.fl.us
CB	Christina Brown	FDOT	954 777-4457	christina.brown@dot.state.fl.us
JM	Josh Miller	FDOT Mw	954-777-4237	Josh.Miller@...
CBJ	CHRISTIAN B. JACKSON	RS&H	954.474.3005	CHRIS.JACKSON@RSANDH.COM
ACN	Aylin Costa	RS&H	954 236 7398	Aylin.COSTA@RSANDH.COM
CB	Christina Borello	RS&H	954.292.4603	tina.borello@rsandh.com
VC	VANESSA CAYCEDO	RS&H	(954) 236 7360	VANESSA.CAYCEDO@RSANDH.COM
TAM	TODD MCGEE	FDOT	954-777-4188	TODD.MCGEE@DOT.STATE.FL.US
CP	Christie Pitchard	Prot Env/Planning Ritchards, FDOT	954-777-4147	Christine.Pitchard@dot.state.fl.us

Meeting Sign-In Sheet

SW 10th Street PD&E Study

Pond Siting Meeting#2

July 2, 2018 @ 3:00 pm

Meeting Location: FDOT, District 4

	Name	Company	Phone	e-mail
[signature]	Anson Sonnett	FDOT	954 777 4474	anson.sonnett@dot.st~
VR	VICTOR RAMOS	FDOT	954 777 4257	VICTOR.RAMOS@DOT.STATE.FL.US
Phone:				
	Paul Heeg	RS&H	(904) 256-2163	Paul.Heeg@rsandh.com

MEETING MINUTES

Project:	SW 10th Street Connector PD&E Study	**FPID No:** **Contract No.:**	439891-1-22-02 C9V60
Meeting Place:	FDOT District 4 3400 West Commercial Blvd. Fort Lauderdale, FL 33309	**Meeting Date:** **Meeting Time:**	10/15/18 3:00 pm
Participants:	See sign in sheet for attendees		
Purpose:	Pond Siting Meeting #3		

Project Status Update

- Robert Bostian stated that the second Alternatives Public Workshop is scheduled for November 29, 2018. At the conclusion of that workshop, the preferred alternative will be determined and taken to the Public Hearing. The Public Hearing date has not been set as of yet, but it is anticipated to be between March and April of 2019.

Drainage Status Update - RS&H: FM 439891-1, SW 10th Street Connector PD&E

- Robert provided a brief summary of the FDOT-Century Village Drainage Coordination Meeting conducted on October 12, 2018.
- Chris Jackson indicated that Century Village, Toll Brothers, and Fairway Investors signed three-party agreement a month ago for the four parcels that constitute the vacant golf course property. As part of the agreement, Fairway Investors will sell Toll Brothers the entire golf course property, then Toll Brothers will transfer the two westernmost parcels to Century Village, along with a third parcel (located just east of the Century Village clubhouse) upon construction of the Toll Brother's stormwater management facility. The easternmost parcel (abutting Military Trail) will be developed by Toll Brothers into a multi-family residential community with 201 townhomes. Once those parcels are transferred, Century Village plans to develop those into a park for its residents, which will include bike trails and walking paths.
- Chris stated that there is still 40 more days of the Due Diligence period for the three-party agreement. He added that the transfers and closing is anticipated for November 2019 for the two westernmost parcels. The third parcel being donated to Century Village (east of the clubhouse) is not expected to be transferred until Toll Brothers construction is completed in 2021.
- Chris explained that the 2019 closing allows Toll Brothers to obtain permits for their site plan before acquiring the four parcels from Fairway Investors.
- Robert stated that Century Village expressed preference for the Department to focus SW 10th Street project stormwater management needs on the third parcel (east of the clubhouse) since they have no plans for their recreational facilities, walking paths, and amenities on such parcel.
- Robert also added, nevertheless, that the Department could still possibly coordinate the stormwater management needs for the project with Century Village park so that both stormwater management and park needs are provided within the two westernmost parcels.

- Chris stated that Century Village expressed concerns about possibly having to go back to their residents with modifications to the planned park improvements, regardless if the stormwater management improvements added aesthetic value.
- James Poole stated that if the Department was to enter into the three-party agreement, there would need to be some rights to access the property and build the required pond site regardless of whether or not the deal goes through or is stalled in any way.
- Chris mentioned RS&H Drainage team has already reached out to Toll Brothers and is attempting to set up a meeting with them to discuss the project further.
- Robert discussed how testing the potential sites could be beneficial to the process, in order to determine if the options are feasible in moving forward before having to condemn.

Drainage Status Update - HNTB: FM 436964-1, I-95 from SW 10th to Hillsboro PD&E

- Vilma Croft and Brian (HNTB Drainage) stated that there were no offsite pond site requirements for stormwater treatment and attenuation, however, an offsite pond was required for floodplain encroachment.
- Vilma and Brian identified a City of Deerfield Beach owned parcel located just east of the SW 10th Street interchange (southeast quadrant) that could potentially be utilized.
- Josh Miller indicated that the subject parcel was previously transferred from FDOT to the City, and that commitments have recently been made to the City by the Secretary on this parcel.
- James mentioned that HNTB would need to identify a minimum of three alternative parcels, since offsite drainage acquisition is required.

Next Steps / Action Items

- FDOT to issue NTP on Regional Stormwater Modeling/Calculations/Maps. Note these efforts were previously approved under Optional Services only and therefore a Letter of Authorization is required.
- RS&H to prepare Regional Stormwater Model/Calculations/Maps.
- RS&H to update Conceptual Drainage Report/Pond Siting Report per completed Regional Stormwater Model/Calculations/Maps.
- RS&H to coordinate findings with FDOT, BCEPGMD, and SFWMD.
- RS&H/FDOT to coordinate permit requirements, including SFWMD Individual (Master) Environmental Resource Permit (ERP) for BCWCD #2 Regional System.
- RS&H/FDOT to coordinate BCEPGMD Surface Water Management License, BCEPGMD Environmental Resource License, SFWMD Individual ERP Modification, and USACE Section 404 Dredge & Fill permits for SW 10th Street improvements, while coordinating with KHA and D4 EMO/AECOM re: SFWMD Consumptive Use (Dewatering), BCEPGMD Dewatering Approval, and related groundwater modeling and contamination issues

Meeting Sign-In Sheet

SW 10th Street PD&E Study

Pond Siting Meeting#3

October 15, 2018 @ 3:00 pm

Meeting Location: FDOT, District 4

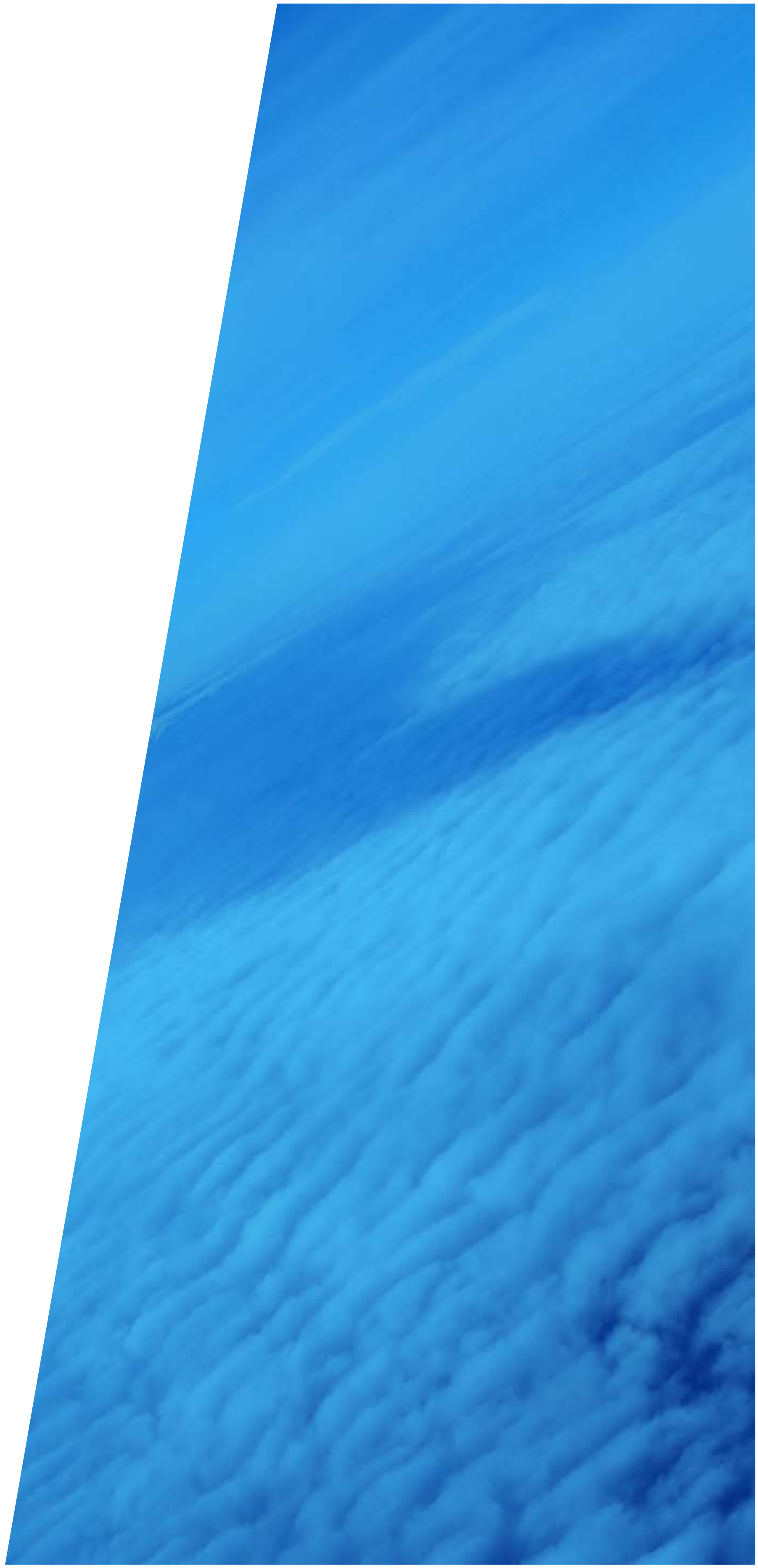
	Name	Company	Phone	e-mail
	Deborah Ihsan	FDOT	954 777-4387	deborah.Ihsan@dot.state.fl.us
	ELISABETH HASSETT	FDOT	954-777-4219	ELISABETH.HASSETT@DOT.STATE.FL.US
	GEOFF CAMPBELL	FDOT-LAU	561-747-6336	gcampbell@cotleur-hearing.com
	Scott Clark	FDOT PLEMO	954-777-4342	Scott.clark@dot.state.fl.us
	Kelley Hall	FDOT-MAINT	954-777-4205	Kelley.hall@dot.state.fl.us
	Ann Broadwell	FDOT-PLEMO	954-777-4325	
	Christina Brown	FDOT-R/W	954-777-4457	christina.brown@dot.state.fl.us
	Sarah Earls	FDOT-R/W	954-777-4243	sarah.earls@dot.state.fl.us
	Hui Shi	FDOT-Drainage	954-777-4057	Hui.Shi@dot.state.fl.us
	Josh Miller	FDOT-R/W	954 777-4237	Josh.Miller@dot....
	James Poole	" Drainage	" 4204	james.poole@dot...
	Maria Salgado	FDOT PLEMO	4286	
	VILMA CROFT	HNTB	305-222-1457	VCROFT@HNTB.COM

RS&H:

Chris Jackson
Cassie Piche
Vanessa Caycedo

APPENDIX J

PROJECT CORRESPONDENCE



MEETING MINUTES

Project:	SW 10th Street Connector PD&E Study	**FPID No:** **Contract No.:**	439891-1-22-02 C9V60
Meeting Place:	Conference Call	**Meeting Date:** **Meeting Time:**	10/4/2018 3:00 PM
Participants:	Chris Jackson, Vanessa Caycedo, Tina Borello, Ryan Solis-Rios, Mohammad Pervez		
Purpose:	FDOT-Turnpike Drainage Coordination Meeting		

- Ryan Solis-Rios (Corradino), consultant to Florida's Turnpike Enterprise (FTE), opened the meeting expressing a desire to coordinate drainage between the FTE Sawgrass Interchange PD&E Study and FDOT D4 SW 10th Street PD&E Study projects, and requesting an overview of the drainage for the FDOT D4 SW 10th Street PD&E Study project.

- Chris Jackson (RS&H), consultant to FDOT D4, provided an overview of the SW 10th Street PD&E Study drainage approach.

- Chris stated that good progress has been made in the Pre-Development and Post-Development drainage analysis o and that the team has already developed a draft Conceptual Drainage Report/Pond Siting Report. The report includes Drainage Maps, Calculations and Models, and the analysis has resulted in the required parcel sizes for the stormwater management facilities that will be needed to meet permitting requirements as well FDOT drainage design criteria.

- Chris indicated that the original project limits extended from Powerline Road to Military Trail, within the South Florida Water Management District (SFWMD) Hillsboro Canal Drainage Basin and Broward County Water Control District (BCWCD) C-2 Basin. For the base limits, he noted the drainage analysis indicates approximately 11 acres are required for stormwater management of the SW 10th Street project limits from Powerline Road to the FEC railroad, including pump stations for conveyance of roadway runoff to the receiving pond/canal. Chris stated that right-of-way acquisition for offsite ponds will be required to accommodate the 11 acres and mentioned there are no undeveloped parcels within or directly adjacent to the existing right-of-way. Chris presented a Drainage Overview exhibit illustrating the proposed drainage concept and alternative pond sites.

- Chris noted that FDOT D4 recently authorized additional drainage analysis scope to RS&H for evaluation of extended SW 10th Street project limits west of Powerline Road (towards the Sawgrass Expressway). Chris indicated that approximately 5 acres would be required within the Turnpike interchange for accommodation of SW 10th Street drainage west of Powerline Road. Chris presented the Drainage Maps, prepared by FTE/Corradino/HDR and presented to Broward County Environmental Protection and Growth Management Department (BCEPGMD), which illustrated that the portion of SW 10th Street west of Powerline Road (i.e.

Basins 5/6, now partially within the SW 10^{TH} Street PD&E Study project limits) was proposed to convey to the Sawgrass interchange for treatment and attenuation.

- Rayan and Mohammed Pervez (HDR) acknowledged that their drainage maps and permit documentation for the proposed Sawgrass interchange drainage system already included the portion of SW 10^{th} Street, west of Powerline Road. Mohammed confirmed that the Sawgrass interchange could accommodate SW 10^{th} Street west of Powerline Road but was wary of any proposed convey of runoff generated along SW 10th Street east of Powerline Road. Chris assured Ryan and Mohammed that was not the case and showed pre- and post-development drainage maps confirming the pre-development and post-development drainage divides.

- Mohammed agreed that the expanded Sawgrass interchange drainage ponds could accommodate water quality and water quantity for both projects, but suggested that peak stages in the interchange ponds could require that D4 raise the profile of SW 10th Street to provide HGL clearance for the final collection/conveyance system. Chris responded that the proposed SW 10^{th} Street profile could certainly be raised some if necessary to meet HGL clearance, or alternatively, just larger pipes could be required.

- Chris inquired as to the level of detail and completion of the drainage analysis performed by TCG/HDR. Ryan and Mohammed responded no progress has been made beyond the preliminary drainage evaluation that had been shared previously. Mohammed indicated that HDR had not performed, and was not planning, to model the Sawgrass interchange drainage system to accurately design the ponds and control structures. Therefore, Chris requested from Corradino/HDR their roadway, survey, and drainage files so that RS&H could model their project system for them.

- Subsequent to the meeting, Chris provided the Drainage Overview Exhibit in response to request from Corradino/HDR on 10/9/18.

MEETING MINUTES

Project:	SW 10th Street Connector PD&E Study	**FPID No:** **Contract No.:**	439891-1-22-02 C9V60
Meeting Place:	Century Village Community 3501 West Drive Deerfield Beach, FL	**Meeting Date:** **Meeting Time:**	10/12/2018 3:00 PM
Participants:	See sign-in sheet for attendees		
Purpose:	FDOT-Century Village Drainage Coordination Meeting		

Project Overview

1. Robert Bostian, FDOT Project Manager, provided a brief overview and description of the project, alternatives and schedule. He indicated that the first Alternatives Workshop held in April was an opportunity for the team to show the residents and locals what the plans for the corridor are. He indicated that while FDOT owns most of the corridor right-of-way (approximately 250 feet in width), there are a few, localized areas where some right-of-way will need to be acquired. He indicated that the following alternatives workshop will be held in November and that the PD&E process will be wrapped up by next summer, moving on to final design. The project will be procured through a design-build contract and is currently funded for 2022.

Drainage Overview

2. Chris Jackson, RS&H Senior Drainage Engineer, indicated that the project extends from just east of the Sawgrass Interchange to Military Trail. He indicated that the project is located and falls under the jurisdiction of the South Florida Water Management District (SFWMD) Hillsboro Canal Drainage Basin and Broward County Water Control District (BCWCD) C-2 and C-3 Basins. He added that Century Village Community is located within the C-2 Basin.
3. Chris mentioned that the project is in the PD&E Study phase, and as part of the drainage phase for that process, is developing a conceptual drainage design and defining any offsite pond requirements in order to select the best site for the project.
4. Chris stated that good progress has been made in the Pre-Development and Post-Development analysis of the area within the project limits and that the team has already developed a draft Conceptual Drainage Report/Pond Siting Report. The report includes Drainage Maps, Calculations and Models, and the analysis has resulted in the required parcel sizes for the stormwater management facilities that will be needed to meet permitting requirements as well FDOT drainage design criteria.
5. Chris stated that drainage analysis indicates approximately 11 acres are required for stormwater management of the SW 10th Street project limits from Powerline Road to the FEC railroad, including pump stations for conveyance of roadway runoff to the receiving pond/canal.
6. Chris stated that right-of-way acquisition for offsite ponds will be required to accommodate the 11 acres and mentioned there are no undeveloped parcels within or directly adjacent to the existing right-of-way.

7. Chris mentioned that the conventional approach for stormwater management facilities are pond site alternatives located relatively close to the corridor which receive untreated stormwater runoff via piping from the roadway corridor and then contain control structures which discharge the treated overflow into the receiving waters (C-2 Canal in this case). He added that BCWCD C-2 Basin is a little different, as it is designated as a "water quality basin" which provides storage, treatment, and groundwater control for the entire basin draining to it and is controlled by one structure (S-4) at the north end of the C-2 Canal which discharges to the SFWMD Hillsboro Canal. Therefore, in lieu of new stormwater management facilities within the basin, any of the existing stormwater management facilities within the entire basin could be expanded/modified as needed to provide the required water quality, water quantity, and floodplain compensation volume for the project. He explained this provides additional flexibility from the conventional approach of collecting and conveying project runoff to an adjacent, isolated offsite stormwater management facility for treatment and attenuation prior to discharge to receiving waters.
8. Chris explained the six identified alternatives depicted on the meeting exhibit:
   - Three conventional alternatives were identified for stormwater management facilities and defined conventional as pond site alternatives located relatively close to the corridor which receive untreated stormwater runoff via piping from the roadway corridor and then contain control structures which discharge the treated overflow into the receiving waters (C-2 Canal). He noted that all three alternatives were developed, and located off-frontage within the industrial area located south of SW 10th Street, just east of Powerline Road, and would require permanent easements for inflow and/or outflow. He added that the three alternatives avoid residential relocations but impacted existing businesses.
   - Three non-conventional (water quality basin) alternatives were identified for stormwater management facilities to the north of SW 10th Street. He noted that these were located within the vacant golf course property owned by Fairway Investors LLC within the Century Village community just south of Hillsboro Blvd. Chris noted that the golf course parcels were planned to be purchased by Toll Brothers for residential development and park space.
   - Chris explained that while all of the golf parcels were certainly viable alternatives, the westernmost (19.26-acre) parcel stood out above the rest due to better access for construction and maintenance, hydraulic connectivity, and avoidance of the planned residential development by Toll Brothers.
9. Dan Johnson, Master Management Executive Director, indicated that Century Village, Toll Brothers, and Fairway Investors signed a tri-party agreement a month ago, for the four parcels that constitute the golf course property. As part of the agreement, Fairway Investors will sell Toll Brothers the entire golf course property, then Toll Brothers will transfer the two westernmost parcels to Century Village, along with a third parcel (located just east of the Century Village clubhouse) upon construction of the Toll Brother's stormwater management facility. The easternmost parcel (abutting Military Trail) will be developed by Toll Brothers into a multi-family residential community with 201 townhomes. He added that once those parcels are turned over, Master Management plans to develop those into a park for the residents at Century Village, which will include bike trails and walkways/sidewalks. He mentioned he was unsure how the residents would react to a pond in the site rather than their anticipated park.
10. Dan inquired about the possible benefits from turning one of those parcels into a pond. Chris stated that greatest benefit to the residents adjacent to the parcel in question, would be turning their homes into waterfront sites, and compensating Century Village for the right-of-way, essentially paying for the bike trails and walkways/sidewalks improvements.

11. Chris also added that the vacant golf course parcels are known to be contaminated and that FDOT would remediate them prior to construction. Dan stated that as part of the agreement, Toll Brothers will be fully remediating the four parcels.
12. Chris mentioned that if the Department were to acquire the parcel in question, Toll Brothers would have less acreage to remediate and that whoever owns the parcel would have the right to fair market value compensation.
13. Cassie inquired about the types of contaminants that the sites will be remediated for, and whether or not any testing had been done. Dan stated that the site will be remediated per the FDEP 5.5 ppm for arsenic criteria, and that much of the site will not be built on.
14. Cassie asked Dan if they could provide the contaminants' test results reports.
15. Dan stated that Toll Brothers has to turn over those reports within the next 30 days, as part of the agreement. However, FDEP does have them on record. Dan stated that they are on their due diligence period under their agreement, in which case if Toll Brothers does not remediate the site, the agreement is void.
16. Robert stated that the required stormwater acreage could be provided within any of the parcels and still incorporate the planned aesthetic features of the park.
17. Dan inquired about the Department's proposed pond site being located in the same parcel that Toll Brothers will be using for their retention pond. Chris explained that from a right-of-way acquisition perspective, the other parcels would have been cleaner since hydraulically connected with public right-of-way (i.e. C-2 Canal right-of-way). The only hydraulic connection to the subject parcel is through property owned in fee by several different private parties. Nonetheless, further analysis will have to done on it, to ensure that permitting requirements are met within the area that Toll Brothers will not be using for their pond.
18. Chris explained that the viability of any of these parcels is contingent upon forthcoming regional modeling, contamination assessment/mitigation, and SFWMD and BCEPGMD permit requirements. He noted that they will require that the soil is remediated to avoid exacerbating the plume.
19. Dan mentioned that onsite and offsite testing has been underway, and the results indicate that contamination was low. Testing company was encouraged with the results, as they anticipated higher contamination levels.
20. Dan stated that the Due Diligence period for the tri-party agreement still has 40 more days on it. Property transfers/closing is anticipated for November 2019 for the two westernmost parcels. The third parcel being donated to Century Village (minus the Toll Brothers pond area) is not expected to be transferred until 2021 once Toll Brothers construction is completed.
21. Chris stated that the Department's timeline is more expeditious. The Department will need to know Century Village input to move forward on any of the options that are feasible. He noted that the two westernmost parcels combined are approximately 40 acres, and the ponds could meander and be designed in conjunction with the park plans.
22. Cassie asked if current site plans/renderings/figures could be shared with the Department to be further analyzed and work in conjunction with the park design.
23. Dan inquired on the impact on maintenance as a result from the additional stormwater runoff on their site. Chris explained that no additional maintenance would be required, as the acreage required for the pond site is enough to offset the runoff volume being generated by the additional travel lanes.
24. Vallen Smikle, Master Management Director of Planned Projects, stated that Toll Brothers plans/documents were already filed/submitted to City of Deerfield Beach for approval.
25. Dan mentioned Century Village prefers the Department to focus the stormwater management facility plans for the third parcel (east of the clubhouse) since they have no plans for the park or walking paths and amenities on such parcel.

26. Dan inquired on the project’s anticipated date for construction of stormwater management facilities. Robert explained that it is anticipated for spring of 2022, and he added that the Department could work on advanced right of-way acquisition to build the ponds ahead of roadway construction if it is advantageous for all parties.

Next Steps / Action Items

1. RS&H to setup Drainage Coordination Meeting with Toll Brothers.
2. RS&H to obtain any available plans and documents from Toll Brothers and City of Deerfield Beach.

MEETING AGENDA

Project:	SW 10th Street Connector PD&E Study	FPID No: Contract No.:	439891-1-22-02 C9V60
Meeting Place:	Conference Call	Meeting Date: Meeting Time:	10/24/2018 1:00 PM
Participants:	Robert Bostian, Cassie Piche, Chris Jackson, Vanessa Caycedo, Tina Borello, Zane Beard, Lisa Stone		
Purpose:	FDOT-Toll Brothers Drainage Coordination Meeting		

1. Introductions

2. Project Overview

   Chris Jackson, RS&H Senior Drainage Engineer, provided a brief overview and description of the project, alternatives and schedule.

3. Drainage Overview

   1. Chris discussed the pre-development and post-development drainage conditions for the project. He indicated that the project extends from just east of the Sawgrass Interchange to Military Trail, and that the project is located and falls under the jurisdiction of the South Florida Water Management District (SFWMD) Hillsboro Canal Drainage Basin and Broward County Water Control District (BCWCD) C-2 and C-3 Basins. He added that Century Village Community and future Toll Brothers properties are located within the C-2 Basin.
   2. Chris mentioned that the project is in the PD&E Study phase, and as part of the drainage phase for that process, is developing a conceptual drainage design and defining any offsite pond requirements in order to select the best site for the project. He stated that good progress has been made in the Pre-Development and Post-Development analysis of the area within the project limits and that the team has already developed a draft Conceptual Drainage Report/Pond Siting Report. The report includes Drainage Maps, Calculations and Models, and the analysis has resulted in the required parcel sizes for the stormwater management facilities that will be needed to meet permitting requirements as well FDOT drainage design criteria.
   3. Chris stated that the drainage analysis indicates approximately 11 acres are required for stormwater management of the SW 10th Street project limits from Powerline Road to the FEC railroad, including pump stations for conveyance of roadway runoff to the receiving pond/canal. Chris stated that right-of-way acquisition for offsite ponds will be required to accommodate the 11 acres.
   4. Chris briefly discussed the conventional approach for stormwater management facilities (a pond site located near the corridor which receives untreated stormwater runoff via piping from the roadway corridor and then contain control structures which discharge the treated overflow into the receiving waters (C-2 Canal in this case)). He then mentioned that BCWCD C-2 Basin is designated as a “water quality basin” which provides storage, treatment, and groundwater control for the entire basin draining to it and is controlled by one structure (S-4) at the north end of the C-2 Canal which discharges to the SFWMD Hillsboro Canal. Therefore, pond site alternatives within existing stormwater management facilities in the C-2 basin have also been evaluated to expand/modify as needed to provide the required water quality, water quantity, and floodplain compensation volume for the project.

5. Chris discussed that pond siting analysis has been completed, identifying three conventional offsite pond alternatives, along with four additional non-conventional offsite pond alternatives identified within the vacant Century Village golf course parcels owned by Fairway Investors LLC (soon to be Toll Brothers) for accommodation of stormwater management needs.
6. Chris stated that from the recent meeting with Century Village, it was discussed that, of the non-conventional alternatives, Century Village prefers Alternative 6 (the parcel just east of the clubhouse). They currently have development plans for Alternatives 4 and 5 that have already been vetted through the community.
7. Zane Beard, Land Development Manager for Toll Brothers, stated that the parcel just east of the clubhouse (Alternative 6) is the location of their stormwater management facility. He stated that they will need approximately 4 acres of the total 17.11 acres for construction of their stormwater management facility.
8. Zane asked what the project schedule was for the FDOT SW 10th Street Connector project, particularly for right-of-way acquisition, concerned that the project schedule would interfere with their development plans. Robert stated that construction is currently planned for spring of 2022, and he added that the Department could work on advanced right of-way acquisition to build the ponds ahead of roadway construction if it is advantageous for all parties.
9. Zane stated that Toll Brothers will be breaking ground in February 2019 and that they do not have a closing date for parcel acquisition, as it is contingent upon permit approvals.
10. Chris asked if Toll Brothers was using conventional stormwater management facility design or if they were expanding the existing lake/canal system within the parcel for volume compensation of the C-2 basin. Zane stated that they are expanding the existing facilities for their pond construction.
11. Cassie Piche, RS&H Project Manager, mentioned concerns over the presence of arsenic within the vacant golf course parcels and asked if any testing has been done for these parcels by Toll Brothers. Zane stated that they have done contamination testing, and although the reports were not yet available, results indicated lower contamination than originally anticipated.
12. Cassie asked if Toll Brothers could provide any of their development plans, reports, etc. Zane stated that their Site Assessment Report is to be submitted Friday, October 26th, and that he will send it over to RS&H once it has been submitted.

4. Next Steps / Action Items

1. Continued coordination with Toll Brothers as regional modeling progresses.

APPENDIX K

FTE DRAINAGE MAP AND BCPA PARCEL INFORMATION

Draft Print

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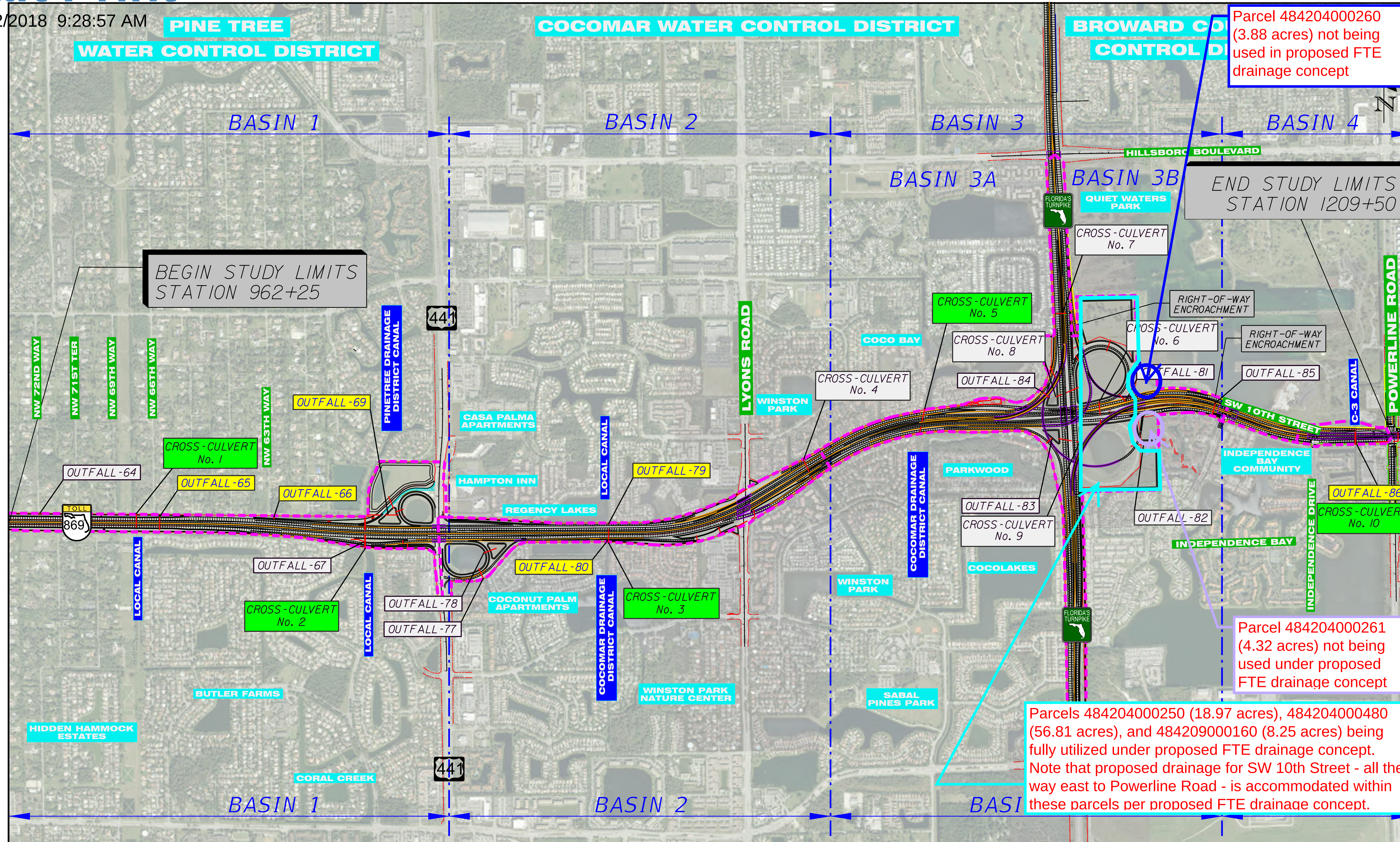


FLORIDA'S TURNPIKE ENTERPRISE
MILE POST 263 - TURKEY LAKE SERVICE PLAZA, BUILDING 5315
OCOEE, FL 34761

AUGUST 2017

SAWGRASS EXPRESSWAY (SR 869) WIDENING PD&E STUDY
From South of US 441/SR 7 (MP 18.0) to Powerline Road (MP 22.0)
FPID No.: 437153-1-22-01
ETDM No: 14280

PROJECT LAYOUT
DRAINAGE MAP

SHEET NO.

Property Id: 484204000260 **Please see map disclaimer

January 14, 2019

Flight Date : Dec. 15, 2017 Broward County Property Appraiser

MARTY KIAR
BROWARD
COUNTY
PROPERTY APPRAISER

Site Address	4651 SW 10 STREET, DEERFIELD BEACH FL 33442		ID #	4842 04 00 0260
Property Owner	FLORIDA TURNPIKE ENTERPRISE		Millage	1112
Mailing Address	PO BOX 613069 OCOEE FL 34761-3069		Use	80

Abbr Legal Description	4-48-42 SW1/4 OF SW1/4 LESS PT DESC IN PARCEL 343.A OF CA 84-23805 FOR EXPRESSWAY ALSO LESS PT LYING INSIDE LIMITS OF CITY OF DEERFIELD BEACH

The just values displayed below were set in compliance with Sec. 193.011, Fla. Stat., and include a reduction for costs of sale and other adjustments required by Sec. 193.011(8).

Property Assessment Values					
Year	Land	Building / Improvement	Just / Market Value	Assessed / SOH Value	Tax
2019	$337,790		$337,790	$136,080	
2018	$337,790		$337,790	$123,710	
2017	$337,790		$337,790	$112,470	

2019 Exemptions and Taxable Values by Taxing Authority				
	County	School Board	Municipal	Independent
Just Value	$337,790	$337,790	$337,790	$337,790
Portability	0	0	0	0
Assessed/SOH	$136,080	$337,790	$136,080	$136,080
Homestead	0	0	0	0
Add. Homestead	0	0	0	0
Wid/Vet/Dis	0	0	0	0
Senior	0	0	0	0
Exempt Type 10	$136,080	$337,790	$136,080	$136,080
Taxable	0	0	0	0

Sales History			
Date	Type	Price	Book/Page or CIN
11/30/1990	QC*	$127	28788 / 421
11/30/1990	QC*	$127	28788 / 419

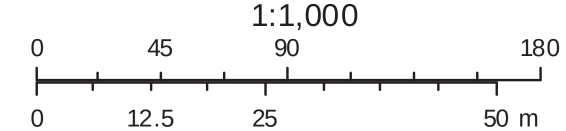
* Denotes Multi-Parcel Sale (See Deed)

Land Calculations		
Price	Factor	Type
$2.00	168,896	SF
Adj. Bldg. S.F.		

Special Assessments								
Fire	Garb	Light	Drain	Impr	Safe	Storm	Clean	Misc
11			2					
X			2					
1								

Property Id: 484204000261 **Please see map disclaimer

January 14, 2019



Flight Date : Dec. 15, 2017 Broward County Property Appraiser

Site Address	4500 SW 10 STREET, DEERFIELD BEACH FL 33442	ID #	4842 04 00 0261
Property Owner	FLORIDA TURNPIKE ENTERPRISE	Millage	1112
Mailing Address	PO BOX 613069 OCOEE FL 34761-3069	Use	94

Abbr Legal Description	4-48-42 SW1/4 OF SW1/4 LESS PT DESC IN PARCEL 343.A OF CA 84-23805 FOR EXPRESSWAY ALSO LESS PT LYING OUTSIDE LIMITS OF CITY OF DEERFIELD BEACH

The just values displayed below were set in compliance with Sec. 193.011, Fla. Stat., and include a reduction for costs of sale and other adjustments required by Sec. 193.011(8).

Property Assessment Values					
Year	Land	Building / Improvement	Just / Market Value	Assessed / SOH Value	Tax
2019	$94,090		$94,090	$94,090	
2018	$94,090		$94,090	$94,090	
2017	$94,090		$94,090	$94,090	

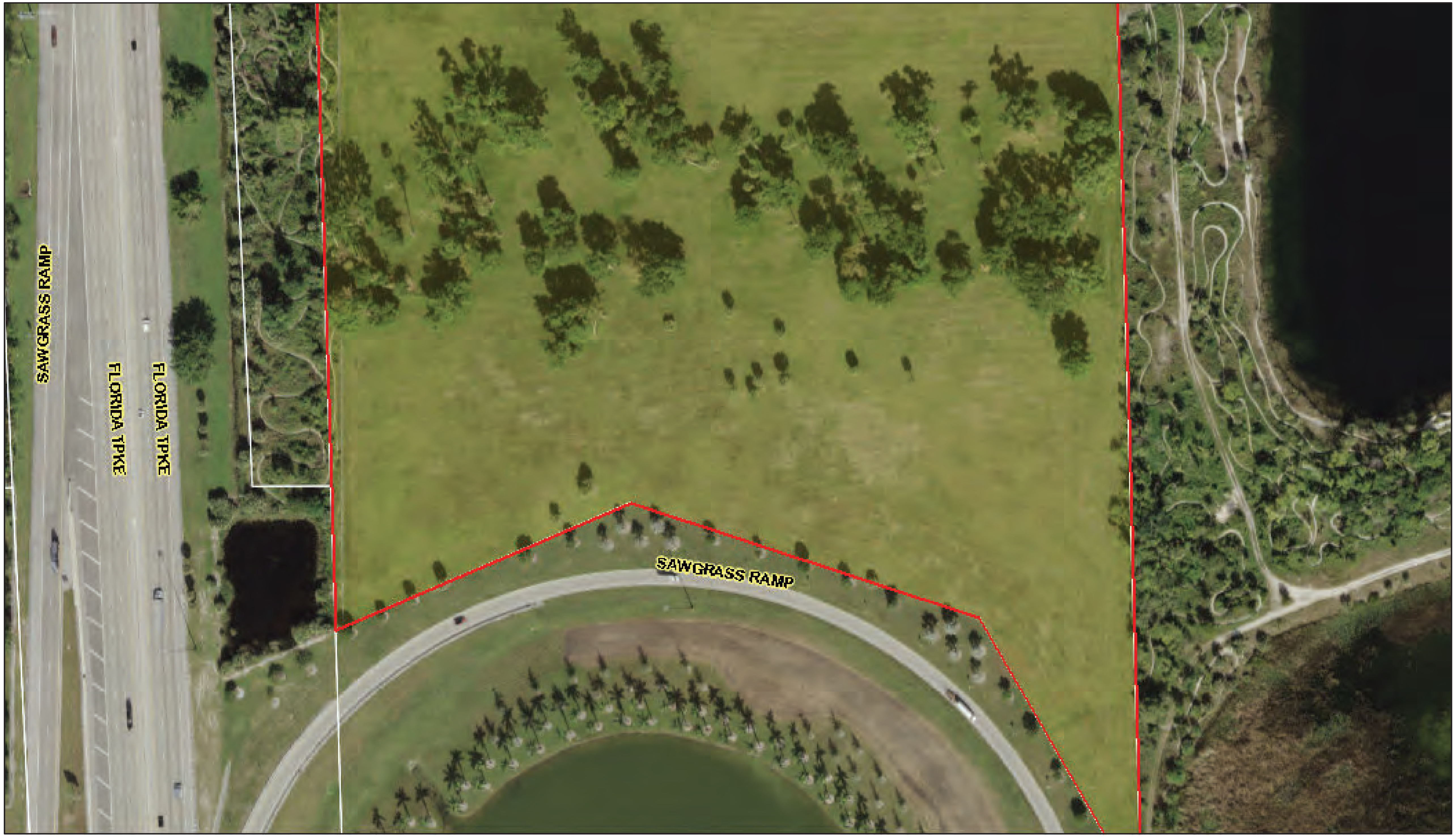
2019 Exemptions and Taxable Values by Taxing Authority				
	County	School Board	Municipal	Independent
Just Value	$94,090	$94,090	$94,090	$94,090
Portability	0	0	0	0
Assessed/SOH	$94,090	$94,090	$94,090	$94,090
Homestead	0	0	0	0
Add. Homestead	0	0	0	0
Wid/Vet/Dis	0	0	0	0
Senior	0	0	0	0
Exempt Type 10	$94,090	$94,090	$94,090	$94,090
Taxable	0	0	0	0

Sales History			
Date	Type	Price	Book/Page or CIN

Land Calculations		
Price	Factor	Type
$21,780	4.32	AC
Adj. Bldg. S.F.		

Special Assessments								
Fire	Garb	Light	Drain	Impr	Safe	Storm	Clean	Misc
11			2					
X			2					
1								

Property Id: 484204000250 **Please see map disclaimer



January 14, 2019

1:2,000

0 90 180 360 ft

0 25 50 100 m

Flight Date : Dec. 15, 2017 Broward County Property Appraiser

MARTY KIAR
BROWARD COUNTY
PROPERTY APPRAISER

Site Address	4701 SW 10 STREET, DEERFIELD BEACH FL 33442	ID #	4842 04 00 0250
Property Owner	FLORIDA TURNPIKE ENTERPRISE	Millage	1112
Mailing Address	PO BOX 613069 OCOEE FL 34761-3069	Use	80

Abbr Legal Description	4-48-42 W3/4 OF NW1/4 OF SW1/4 LESS PT DESC IN PARCEL 343.A OF CA 84-23805 FOR EXPRESSWAY

The just values displayed below were set in compliance with Sec. 193.011, Fla. Stat., and include a reduction for costs of sale and other adjustments required by Sec. 193.011(8).

Property Assessment Values

Year	Land	Building / Improvement	Just / Market Value	Assessed / SOH Value	Tax
2019	$1,652,560		$1,652,560	$665,390	
2018	$1,652,560		$1,652,560	$604,900	
2017	$1,652,560		$1,652,560	$549,910	

2019 Exemptions and Taxable Values by Taxing Authority

	County	School Board	Municipal	Independent
Just Value	$1,652,560	$1,652,560	$1,652,560	$1,652,560
Portability	0	0	0	0
Assessed/SOH	$665,390	$1,652,560	$665,390	$665,390
Homestead	0	0	0	0
Add. Homestead	0	0	0	0
Wid/Vet/Dis	0	0	0	0
Senior	0	0	0	0
Exempt Type 10	$665,390	$1,652,560	$665,390	$665,390
Taxable	0	0	0	0

Sales History

Date	Type	Price	Book/Page or CIN
11/30/1990	QC*	$127	28788 / 421
11/30/1990	QC*	$127	28788 / 419

* Denotes Multi-Parcel Sale (See Deed)

Land Calculations

Price	Factor	Type
$2.00	826,279	SF
Adj. Bldg. S.F.		

Special Assessments

Fire	Garb	Light	Drain	Impr	Safe	Storm	Clean	Misc
11			2					
X			2					
1								

Property Id: 484204000480 **Please see map disclaimer

January 14, 2019

1:8,000

0 365 730 1,460 ft

0 112.5 225 450 m

Flight Date : Dec. 15, 2017 Broward County Property Appraiser

MARTY KIAR
BROWARD COUNTY
PROPERTY APPRAISER

Site Address	FLORIDA TURNPIKE, DEERFIELD BEACH FL 33064	ID #	4842 04 00 0480
Property Owner	FLORIDA DEPT OF TRANSPORTATION OFFICE OF RIGHT OF WAY	Millage	1112
Mailing Address	3400 W COMMERCIAL BLVD FORT LAUDERDALE FL 33309-3421	Use	94

Abbr Legal Description	4-48-42 POR OF W1/2 OF SW1/4 SEC 4 & POR N1/2 OF NW1/4 SEC 9-48-42 DESC AS:BEG AT SW COR SEC 4,N 1817.01 NE 404.03,SE 462.38,SE 407.79, S 159.48,SW 450.68,ELY 439.58, S 302.86, WLY 352.72, SE 372.44, SW 466.62, SW 466.62,W 655.27, N 607.57 TO POB AKA: PARCEL 343.A CA 84.23805

The just values displayed below were set in compliance with Sec. 193.011, Fla. Stat., and include a reduction for costs of sale and other adjustments required by Sec. 193.011(8).

Property Assessment Values					
Year	Land	Building / Improvement	Just / Market Value	Assessed / SOH Value	Tax
2019	$742,430		$742,430	$742,430	
2018	$742,430		$742,430	$742,430	
2017	$742,430		$742,430	$742,430	

2019 Exemptions and Taxable Values by Taxing Authority				
	County	School Board	Municipal	Independent
Just Value	$742,430	$742,430	$742,430	$742,430
Portability	0	0	0	0
Assessed/SOH	$742,430	$742,430	$742,430	$742,430
Homestead	0	0	0	0
Add. Homestead	0	0	0	0
Wid/Vet/Dis	0	0	0	0
Senior	0	0	0	0
Exempt Type 10	$742,430	$742,430	$742,430	$742,430
Taxable	0	0	0	0

Sales History			
Date	Type	Price	Book/Page or CIN

Land Calculations		
Price	Factor	Type
$0.30	2,474,752	SF
Adj. Bldg. S.F.		

Special Assessments								
Fire	Garb	Light	Drain	Impr	Safe	Storm	Clean	Misc
11			2					
X			2					
1								

Property Id: 484209000160 **Please see map disclaimer

January 14, 2019

1:8,000

0 365 730 1,460 ft

0 112.5 225 450 m

Flight Date : Dec. 15, 2017 Broward County Property Appraiser

MARTY KIAR BROWARD COUNTY PROPERTY APPRAISER

Site Address	4460 SW 10 STREET, DEERFIELD BEACH FL 33442	ID #	4842 09 00 0160
Property Owner	FLORIDA TURNPIKE ENTERPRISE	Millage	1112
Mailing Address	PO BOX 613069 OCOEE FL 34761-3069	Use	94

Abbr Legal Description	9-48-42 N1/2 OF NW1/4 OF NW1/4 LESS PT DESC IN PARCEL 343.A OF CA 84-23805 FOR EXPRESSWAY

The just values displayed below were set in compliance with Sec. 193.011, Fla. Stat., and include a reduction for costs of sale and other adjustments required by Sec. 193.011(8).

Property Assessment Values

Year	Land	Building / Improvement	Just / Market Value	Assessed / SOH Value	Tax
2019	$183,280		$183,280	$183,280	
2018	$183,280		$183,280	$183,280	
2017	$183,280		$183,280	$183,280	

2019 Exemptions and Taxable Values by Taxing Authority

	County	School Board	Municipal	Independent
Just Value	$183,280	$183,280	$183,280	$183,280
Portability	0	0	0	0
Assessed/SOH	$183,280	$183,280	$183,280	$183,280
Homestead	0	0	0	0
Add. Homestead	0	0	0	0
Wid/Vet/Dis	0	0	0	0
Senior	0	0	0	0
Exempt Type 10	$183,280	$183,280	$183,280	$183,280
Taxable	0	0	0	0

Sales History

Date	Type	Price	Book/Page or CIN
11/30/1990	QC*	$127	28788 / 421
11/30/1990	QC*	$127	28788 / 419

* Denotes Multi-Parcel Sale (See Deed)

Land Calculations

Price	Factor	Type
$22,216	8.25	AC
Adj. Bldg. S.F.		

Special Assessments

Fire	Garb	Light	Drain	Impr	Safe	Storm	Clean	Misc
11			2					
X			2					
1								