Sunshine
Water Control District

PUBLIC HEARINGS AND REGULAR MEETING AGENDA

September 14, 2022

Sunshine
Water Control District

September 7, 2022

ATTENDEES:
Please identify yourself each time you speak to facilitate accurate transcription of meeting minutes.

Board of Supervisors
Sunshine Water Control District

Dear Board Members:

The Board of Supervisors of the Sunshine Water Control District will hold Public Hearings and a Regular Meeting on September 14, 2022, at 6:30 p.m., at the La Quinta Inn Coral Springs, 3701 N. University Drive, Coral Springs, Florida 33065. The agenda is as follows:

1. Call to Order

2. Roll Call

3. Pledge of Allegiance

4. Public Comments **[3-Minute Time Limit]** *(Comments should be made from the microphone to ensure recording. Please state your name prior to speaking.)*

5. Discussion: Memorandum Regarding Resolutions 2022-10 and 2022-04 Related to Health Insurance for Board Members
   - Consideration of Substitute Resolution 2022-10, Providing for Certain Insurance to Board Members and the Spouse of Board Members; Repealing Resolution 2022-04 in its Entirely; Providing for Severability; Providing for an Effective Date

6. Public Hearing on Adoption of Fiscal Year 2022/2023 Budget
   - Consideration of Resolution 2022-11, Relating to the Annual Appropriations and Adopting the Budget for the Fiscal Year Beginning October 1, 2022, and Ending September 30, 2023; Authorizing Budget Amendments; and Providing an Effective Date

7. Public Hearing to Hear Comments and Objections on the Imposition of Maintenance and Operation Special Assessments to Fund the Budget for Fiscal Year 2022/2023, Pursuant to Florida Law
   - Consideration of Resolution 2022-12, Making a Determination of Benefit and Imposing Special Assessments for Fiscal Year 2022/2023; Providing for the Collection and Enforcement of Special Assessments; Certifying an Assessment Roll; Providing for Amendments to the Assessment Roll; Providing a Severability Clause; and Providing an Effective Date

8. Acceptance of Unaudited Financial Statements as of July 31, 2022

9. Approval of August 10, 2022 Regular Meeting Minutes

10. Supervisors' Communications

11. Staff Reports
    - A. District Counsel: *Lewis, Longman & Walker, P.A.*
    - B. District Engineer: *Craig A. Smith & Associates*
        - I. Presentation: Monthly Engineer's Report
            - Update: Riverside Drive Bridge Repairs
        - II. Permit Applications
            - a. CSJ Capital, LLC (Ladybird Academy) Canal L
            - b. Foundry Commercial Acquisition, LLC (Waste Transfer Station) Culvert Crossing – Canal RR
    - C. District Engineering Consultant: *John McKune*
    - D. District Field Supervisor: *Cory Selchan*
    - E. District Manager: *Wrathell, Hunt & Associates, LLC*
        - I. Obstructions Removal Agreement Request (Option 2) – 2988 NW 103 Lane
        - II. NEXT MEETING DATE: October 12, 2022 at 6:30 P.M.
            - QUORUM CHECK

Joe Morera	☐ IN PERSON	☐ PHONE	☐ NO
Ivan Ortiz	☐ IN PERSON	☐ PHONE	☐ NO
Ed Khouri	☐ IN PERSON	☐ PHONE	☐ NO

12. Public Comments

13. Adjournment

Should you have any questions, please contact me directly at (561) 346-5294 or Jamie Sanchez at (561) 512-9027.

FOR BOARD MEMBERS AND STAFF TO ATTEND BY TELEPHONE
CALL-IN NUMBER: 1-888-354-0094
PARTICIPANT PASSCODE: 131 733 0895

Sincerely,

Cindy Cerbone

Cindy Cerbone
District Manager

SUNSHINE
WATER CONTROL DISTRICT

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Reply To: West Palm Beach

MEMORANDUM

TO: Board of Supervisors, Sunshine Water Control District

CC: Cindy Cerbone and Jamie Sanchez

FROM: Al Malefatto and Janice Rustin

DATE: September 7, 2022

SUBJECT: Resolution 2022-10 and 2022-04 related to health insurance for Board members

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This memo summarizes Resolution 2022-10 related to the District's desire to provide health insurance benefits to District Board members and their families. This Resolution 2022-10 amends and replaces Resolution 2022-04, adopted April 13, 2022, that covers similar subject matter.

Background

Earlier this year, the Board directed District staff to provide solutions that would permit the District to provide health insurance benefits to District Board members and their families in accordance with Section 112.08, *Florida Statutes*. District staff requested the District's benefit provider for quotes for to amend the District's health insurance plan to include Board members. However, the benefit provider was unable to provide such a plan because the District's current health insurance plan is limited to District employees. As a result, the Board adopted Resolution 2022-04, which permits the District to pay for or reimburse Board members the full amount of costs related to health insurance benefits purchased by the Board member, upon approval of such plan by the District. During the implementation of Resolution 2022-04, issues came to light that require the Resolution to be amended.

JACKSONVILLE
245 Riverside Ave.,
Suite 510
Jacksonville, Florida 32202
T: 904.353.6410
F: 904.353.7619

ST. PETERSBURG
100 Second Ave., South
Suite 501-S
St. Petersburg, Florida 33701
T: 727.245.0820
F: 727.290.4057

TALLAHASSEE
315 South Calhoun St.,
Suite 830
Tallahassee, Florida 32301
T: 850.222.5702
F: 850.224.9242

TAMPA
301 West Platt St.
Suite 364
Tampa, Florida 33606
T: 813.775.2331

WEST PALM BEACH
360 South Rosemary Ave.,
Suite 1100
West Palm Beach, FL 33401
T: 561.640.0820
F: 561.640.8202

Summary of changes included in Resolution 2022-10

The proposed Resolution 2022-10 makes the following changes to Resolution 2022-04:

- *Limitation on reimbursement amount*. Resolution 2022-10 states that the amount paid to a Board member for his or her health insurance premium shall not exceed the amount the District pays for a District employee's group health insurance coverage. This additional language prevents a Board member who elects to carry expansive health insurance coverage from being reimbursed in an amount that is significantly more than other Board members who elect lower cost coverage and/or District employees.

- *Reimbursements for Medicare and Veteran's Administration premiums*. Resolution 2022-10 expressly states that Board members may also be reimbursed for premiums paid for health insurance coverage obtained through Medicare or the Veteran's Administration.

- Resolution 2022-10 repeals Resolution 2202-04, which shall be void with no further force or effect upon adoption of Resolution 2202-10.

Tax implications of health insurance premium reimbursements

Under Section 105 of the Internal Revenue Code, reimbursements of health insurance premiums are deemed to be a fringe benefit that is includable the employee's gross income, unless the reimbursement is paid through a Health Reimbursement Arrangement (HRA). Therefore, in order for District Board members to receive reimbursements on a pre-tax basis, the District is required to set up and pay reimbursements though an HRA. To address this issue, we recommend that the District consult with legal counsel who specializes in tax law to inform the District of its options.

RESOLUTION 2022-10

A RESOLUTION OF THE BOARD OF SUPERVISORS OF THE SUNSHINE WATER CONTROL DISTRICT PROVIDING FOR CERTAIN INSURANCE TO BOARD MEMBERS AND THE SPOUSE OF BOARD MEMBERS; REPEALING RESOLUTION 2022-04 IN ITS ENTIRELY; PROVIDING FOR SEVERABILITY; PROVIDING FOR AN EFFECTIVE DATE.

WHEREAS, the Sunshine Water Control District ("District") is a special purpose, local government district created pursuant to Chapter 298, Florida Statutes, and a special act of the Florida Legislature; and

WHEREAS, the District is governed by a Board of Supervisors comprised of Board Members who are duly elected officers of the District; and

WHEREAS, Section 112.08, *Florida Statutes*, provides that a Florida special district is authorized to provide for and pay out of its available funds for all or part of the premium for health and other types of such insurance for the officers and employees of the special district, and the dependents of such officers and employees; and

WHEREAS, the District desires to pay for health insurance, dental insurance, and vision insurance benefits to Board Members and their spouses; and

WHEREAS, District desires to repeal Resolution 2022-04 in its entirely and replace it with this Resolution 2022-10.

WHEREAS, the District finds this Resolution to be in the best interest of the public health, safety, and welfare.

NOW THEREFORE, BE IT RESOLVED THAT THE BOARD OF SUPERVISORS OF THE SUNSHINE CONTROL WATER DISTRICT:

Section 1. The foregoing Whereas clauses are hereby ratified and incorporated as the intent of this Resolution.

Section 2. The District hereby elects to pay for health insurance, dental insurance, and vision insurance benefits (hereinafter collectively known as "Health Insurance Benefits") to current and future Board Members and the spouses of Board Members on an annual basis. The District shall reimburse Board Members all or part of the cost of the premiums for health, dental, and or vision insurance coverage obtained by the Board Member, including, but not limited to, health, dental or vision insurance coverage obtained through a spouse's group plan, Medicare, or the Veteran's Administration.

Section 3. Such Health Insurance Benefits extended to a Board Member and to the spouse of a Board member under this Resolution shall be available during the Board Member's term of office and shall terminate within 30 days of the Board Member's vacation from office.

Section 4. In order to be reimbursed, the Board Member must provide proof of payment of the insurance premium. District shall reimburse the Board Member in an amount not to exceed the cost of insurance premiums obtained by the District for District employees.

Section 5. This Resolution replaces Resolution 2022-04, which is hereby rescinded and repealed in its entirely

Section 6. The provisions of this Resolution are declared to be severable and if any section, sentence, clause or phrase of this Resolution shall for any reason be held to be invalid or unconstitutional, such decision shall not affect the validity of the remaining sections, sentences, clauses, and phrases of this Resolution but they shall remain in effect, it being the legislative intent that this Resolution shall stand notwithstanding the invalidity of any part.

Section 7. This Resolution shall be effective immediately upon its adoption.

Done and ordered this 14th day of September, 2022.

ATTEST: **SUNSHINE WATER CONTROL DISTRICT**

_____ _____

Secretary /Assistant Secretary President/Vice President, Board of Supervisors

SUNSHINE
WATER CONTROL DISTRICT

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RESOLUTION 2022-11

THE ANNUAL APPROPRIATION RESOLUTION OF THE SUNSHINE WATER CONTROL DISTRICT ("DISTRICT") RELATING TO THE ANNUAL APPROPRIATIONS AND ADOPTING THE BUDGET FOR THE FISCAL YEAR BEGINNING OCTOBER 1, 2022, AND ENDING SEPTEMBER 30, 2023; AUTHORIZING BUDGET AMENDMENTS; AND PROVIDING AN EFFECTIVE DATE.

WHEREAS, the District Manager has, prior to the fifteenth (15th) day in June, 2022, submitted to the Board of Supervisors ("**Board**") of the Sunshine Water Control District a proposed budget for the fiscal year beginning October 1, 2022 and ending September 30, 2023 ("**Fiscal Year 2022/2023"**) along with an explanatory and complete financial plan for each fund of the District, pursuant to the provisions of Section 189.016, *Florida Statutes*; and

WHEREAS, at least sixty (60) days prior to the adoption of the Proposed Budget, the District filed a copy of the Proposed Budget with the local governing authorities having jurisdiction over the area included in the District pursuant to the provisions of Section 189.016, *Florida Statutes*; and

WHEREAS, the Board set a public hearing thereon and caused notice of such public hearing to be given by publication pursuant to Section 189.016, *Florida Statutes*; and

WHEREAS, the District Manager posted the Proposed Budget on the District's website at least two days before the public hearing; and

WHEREAS, Section 189.016, Florida Statutes, requires that, prior to October 1st of each year, the District Board, by passage of the Annual Appropriation Resolution, shall adopt a budget for the ensuing fiscal year and appropriate such sums of money as the Board deems necessary to defray all expenditures of the District during the ensuing fiscal year; and

WHEREAS, the District Manager has prepared a Proposed Budget, whereby the budget shall project the cash receipts and disbursements anticipated during a given time period, including reserves for contingencies for emergency or other unanticipated expenditures during the fiscal year.

NOW, THEREFORE, BE IT RESOLVED BY THE BOARD OF SUPERVISORS OF THE SUNSHINE WATER CONTROL DISTRICT:

SECTION 1. BUDGET

a. The Board has reviewed the Proposed Budget, a copy of which is on file with the office of the District Manager and at the District's Local Records Office, and hereby approves certain amendments thereto, as shown in Section 2 below.

b. The Proposed Budget, attached hereto as **Exhibit "A,"** as amended by the Board, is hereby adopted in accordance with the provisions of Section 189.016, Florida

Statutes ("**Adopted Budget**"), and incorporated herein by reference; provided, however, that the comparative figures contained in the Adopted Budget may be subsequently revised as deemed necessary by the District Manager to reflect actual revenues and expenditures.

c. The Adopted Budget, as amended, shall be maintained in the office of the District Manager and at the District's Local Records Office and identified as "The Budget for the Sunshine Water Control District for the Fiscal Year Ending September 30, 2023".

d. The Adopted Budget shall be posted by the District Manager on the District's official website within thirty (30) days after adoption, and shall remain on the website for at least 2 years.

SECTION 2. APPROPRIATIONS

There is hereby appropriated out of the revenues of the District, for Fiscal Year 2022/2023, the sum of $7,618,506 to be raised by the levy of assessments and/or otherwise, which sum is deemed by the Board to be necessary to defray all expenditures of the District during said budget year, to be divided and appropriated in the following fashion:

TOTAL GENERAL FUND	$6,768,339
TOTAL DEBT SERVICES FUND - SERIES 2018	$ 0
TOTAL DEBT SERVICES FUND - SERIES 2021	$ 850,167
TOTAL ALL FUNDS	$7,618,506

SECTION 3. BUDGET AMENDMENTS

Pursuant to Section 189.016, *Florida Statutes*, the District at any time within Fiscal Year 2022/2023 or within 60 days following the end of Fiscal Year 2022/2023 may amend its Adopted Budget for that fiscal year as follows:

a. The Board may authorize an increase or decrease in line item appropriations within a fund by motion recorded in the minutes if the total appropriations of the fund do not increase.

b. The District Manager or Treasurer may authorize an increase or decrease in line item appropriations within a fund if the total appropriations of the fund do not increase and if the aggregate change in the original appropriation item does not exceed $15,000 or 15% of the original appropriation.

c. By resolution, the Board may increase any appropriation item and/or fund to reflect receipt of any additional unbudgeted monies and make the corresponding change to appropriations or the unappropriated balance.

d. Any other budget amendments shall be adopted by resolution and consistent with Florida law.

The District Manager or Treasurer must establish administrative procedures to ensure that any budget amendments are in compliance with this Section 3 and Section 189.016 of the Florida Statutes, among other applicable laws. Among other procedures, the District Manager or Treasurer must ensure that any amendments to budgets under subparagraphs c. and d. above are posted on the District's website within 5 days after adoption and remain on the website for at least 2 years.

SECTION 4. EFFECTIVE DATE. This Resolution shall take effect immediately upon adoption.

PASSED AND ADOPTED THIS 14TH DAY OF SEPTEMBER, 2022.

ATTEST: **SUNSHINE WATER CONTROL DISTRICT**

_____ By: _____

Secretary/Assistant Secretary

Its: _____

Exhibit A: Fiscal Year 2022/2023 Budget

Exhibit A: Fiscal Year 2022/2023 Budget

SUNSHINE
WATER CONTROL DISTRICT
PROPOSED BUDGET
FISCAL YEAR 2023

SUNSHINE
WATER CONTROL DISTRICT
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SUNSHINE
WATER CONTROL DISTRICT
GENERAL FUND BUDGET
FISCAL YEAR 2023

	Fiscal Year 2022				
	Adopted Budget FY 2022	Actual through 3/31/2022	Projected through 9/30/2022	Total Actual & Projected	Proposed Budget FY 2023
REVENUES					
Assessment levy: gross	$ 3,625,362				$ 3,760,561
Allowable discounts (4%)	(145,014)				(150,422)
Assessment levy: net	3,480,348	3,176,916	$ 303,432	$ 3,480,348	3,610,139
Interest and miscellaneous	9,000	1,928	7,072	9,000	9,000
Cost recovery	17,500	-	17,500	17,500	17,500
Permit review fees	4,900	2,450	-	2,450	2,450
Total revenues	3,511,748	3,181,294	328,004	3,509,298	3,639,089
EXPENDITURES					
Professional & administration					
Supervisors	1,800	750	1,050	1,800	1,800
Supervisor health care benefits	-	-	-	-	25,000
Supervisors/staff travel	7,500	-	7,500	7,500	7,500
Management/accounting/recording	63,819	31,910	31,909	63,819	65,734
DSF accounting	14,908	7,454	7,454	14,908	15,355
Dissemination agent	1,000	500	500	1,000	1,000
Legal	95,000	31,990	63,010	95,000	95,000
Legal - legislative work	-	-	35,400	35,400	53,100
Audit	11,200	-	11,200	11,200	11,500
Arbitrage rebate calculation	750	-	750	750	750
Trustee	5,000	-	5,000	5,000	5,000
Retirement plan consulting	-	-	-	-	10,000
Human resource services	7,337	3,669	3,668	7,337	7,557
Communications costs	7,500	-	7,500	7,500	7,500
Postage: ROW clearing	500	-	500	500	500
Postage	1,200	378	822	1,200	1,200
Printing & binding	1,400	700	700	1,400	1,400
Legal advertising	2,500	699	1,801	2,500	2,500
Dues, subscriptions, etc.	4,500	4,175	325	4,500	4,500
Office supplies	1,500	582	918	1,500	1,500
Rent - operations facility	47,249	23,627	23,622	47,249	48,666
Insurance	32,543	23,365	-	23,365	35,440
Website	3,000	1,109	1,891	3,000	3,000
ADA website compliance	210	-	210	210	210
Contingencies	5,000	2,673	2,327	5,000	5,000
Total professional & admin	315,416	133,581	208,057	341,638	410,712
Field operations					
Salaries and wages	438,375	188,801	249,574	438,375	437,561
FICA taxes	33,536	14,552	18,984	33,536	33,473
Special pay	2,000	1,435	565	2,000	2,000
Bonus program	1,500	-	1,500	1,500	2,500
401a retirement plan	43,838	18,863	24,975	43,838	43,756
Health insurance	278,434	119,300	159,134	278,434	325,000
Workers' compensation insurance	15,000	12,282	2,718	15,000	15,000

SUNSHINE
WATER CONTROL DISTRICT
GENERAL FUND BUDGET
FISCAL YEAR 2023

	Fiscal Year 2022				
	Adopted Budget FY 2022	Actual through 3/31/2022	Projected through 9/30/2022	Total Actual & Projected	Proposed Budget FY 2023
Engineering	100,000	12,122	87,878	100,000	100,000
Engineering - capital outlay Westch culv	-	-	-	-	7,500
Engineering - capital outlay PS1 & PS2	200,000	12,381	145,147	157,528	42,472
Engineering - capital outlay PS1 h/s/c	-	-	-	-	134,000
Engineering - capital outlay NW 123 Ave	-	-	-	-	12,550
Engineering - capital outlay Riverside Dr.	-	-	-	-	251,586
Engineering - capital outlay University Dr.	-	-	-	-	89,627
Engineering - telemetry	-	-	-	-	75,500
Engineering - WOFC phase 2B	219,900	76,801	143,099	219,900	-
Engineering - SW 20 yr reporting	-	3,024	3,616	6,640	-
Consulting engineer services	25,000	-	25,000	25,000	25,000
Cost recovery	17,500	2,369	15,131	17,500	17,500
Water quality testing	5,224	1,132	4,092	5,224	5,224
Telephone	1,800	713	1,087	1,800	1,800
Electric	85,000	19,906	65,094	85,000	85,000
Insurance	46,949	54,411	-	54,411	55,529
Repairs and maintenance					
Canal banks	50,000	6,630	43,370	50,000	75,000
Canal dredging	50,000	-	50,000	50,000	50,000
Culvert inspection & cleaning	100,000	-	100,000	100,000	100,000
Dumpster service	13,000	2,653	10,347	13,000	13,000
Truck, tractor and generator	21,000	2,193	18,807	21,000	21,000
Other	21,000	4,023	16,977	21,000	21,000
Operating supplies					
Chemicals	90,000	27,131	62,869	90,000	90,000
Fuel - trucks/equipment	20,000	3,512	16,488	20,000	20,000
Fuel - pump station generator	35,000	-	35,000	35,000	35,000
Triploid carp	19,755	-	19,755	19,755	19,755
Uniforms	3,217	710	2,507	3,217	3,217
Other	4,000	2,095	1,905	4,000	4,000
Permit fees, licenses, schools	5,000	4,680	320	5,000	5,000
Capital outlay: Westchester	-	765	13,400	14,165	-
Capital outlay - Westchester culvert	-	-	-	-	288,125
Capital outlay: pump station 1 & 2	1,500,000	-	55,800	55,800	1,444,200
Capital outlay - PS1 hydra/struc/canal	-	-	-	-	625,440
Capital outlay - NW 123 Ave.	-	-	-	-	150,000
Capital outlay - Riverside Dr. brdg bottom	-	-	-	-	985,000
Capital outlay - University Dr. pipe repair	-	-	-	-	150,000
Capital outlay - telemetry	-	-	-	-	340,000
Capital outlay: WOFC phase 2B	1,840,000	946,319	1,313,172	2,259,491	-
Field equipment	35,000	-	35,000	35,000	35,000
Pump station telemetry	40,000	1,564	38,436	40,000	40,000
Contingencies	5,000	138	4,862	5,000	5,000
Total field operations	5,366,028	1,540,505	2,786,609	4,327,114	6,282,315

SUNSHINE
WATER CONTROL DISTRICT
GENERAL FUND BUDGET
FISCAL YEAR 2023

	Fiscal Year 2022				
	Adopted Budget FY 2022	Actual through 3/31/2022	Projected through 9/30/2022	Total Actual & Projected	Proposed Budget FY 2023
Other fees and charges					
Tax collector	36,254	31,769	4,485	36,254	37,606
Property appraiser	36,254	31,769	4,485	36,254	37,606
Property tax bills - fire & EMS assessment	100	38	62	100	100
Total other fees & charges	72,608	63,576	9,032	72,608	75,312
Total expenditures	5,754,052	1,737,662	3,003,698	4,741,360	6,768,339
Excess/(deficiency) of revenues over/(under) expenditures	$ (2,242,304)	$ 1,443,632	$ (2,675,694)	$ (1,232,062)	$ (3,129,250)
OTHER FINANCING SOURCES/(USES)					
Transfers in - from DSF Series 2018	-	48,941	-	48,941	-
Transfers in - from DSF Series 2021	300,000	-	300,000	300,000	-
Transfers out - to DSF Series 2021	(107,946)	-	-	-	-
Total other financing sources/(uses)	192,054	48,941	300,000	348,941	-
Net increase/(decrease) of fund balance	(2,050,250)	1,492,573	(2,375,694)	(883,121)	(3,129,250)
Fund balance - beginning (unaudited)	14,022,163	14,608,203	16,100,776	14,608,203	13,725,082
Fund balance - ending (projected):					
Assigned:					
3 months working capital	1,438,513	1,438,513	1,438,513	1,438,513	1,760,312
Disaster recovery	3,500,000	3,500,000	3,000,000	3,000,000	3,500,000
Truck replacement[1]	142,000	142,000	142,000	142,000	180,000
Unassigned	6,891,400	11,020,263	9,144,569	9,144,569	5,155,520
Fund balance - ending (projected)	$ 11,971,913	$ 16,100,776	$ 13,725,082	$ 13,725,082	$ 10,595,832

[1]See page 10

SUNSHINE
WATER CONTROL DISTRICT
DEFINITIONS OF GENERAL FUND EXPENDITURES

EXPENDITURES

Professional and administration

Supervisors	$	1,800
Pursuant to Florida State Statute 218.14, supervisor fees are set at $50 for each meeting of the Board of Supervisors. The District anticipates it will hold twelve meetings during the fiscal year.		
Supervisor health care benefits		25,000
Supervisors/staff travel		7,500
Attendance at FASD meetings and convention and other educational programs and or travel necessary to conduct the business of the district.		
Management/accounting/recording		65,734
Wrathell, Hunt and Associates, LLC specializes in managing special districts in the State of Florida by combining the knowledge, skills and experience of a team of professionals to ensure compliance with all governmental requirements of the District, develops financing programs, administers the issuance of tax exempt bond financings and operates and maintains the assets of the community.		
DSF accounting		15,355
Debt service fund accounting		
Dissemination agent		1,000
The District must annually disseminate financial information in order to comply with the requirements of Rule 15c2-12 under the Securities & Exchange Act of 1934.		
Legal		95,000
Lewis, Longman & Walker, P.A. provides on-going general counsel and legal representation. This law firm advises the District Board of Supervisors concerning issues such as public finance, public bidding, rulemaking, open meetings, public records, real property dedications, conveyances and contracts. In this capacity, the firm provides service as "local government lawyers," realizing that this type of local government is very limited in its scope – providing drainage and flood control protection to property owners within the District.		
Legal - legislative work		53,100
Audit		11,500
The District is required by Florida State Statute 218.39 to undertake an independent examination of its books, records and accounting procedures on an annual basis. Pursuant to an agreement, the District anticipates this service will be provided by Grau & Associates. This agreement is automatically renewed each year thereafter subject to mutual agreement by both parties to all terms and fees.		
Arbitrage rebate calculation		750
To ensure the District's compliance with all tax regulations, annual computations are necessary to calculate the arbitrage rebate liability.		
Trustee		5,000
Retirement plan consulting		10,000
Human resource services		7,557

Includes the following services:

- Oversight of human resources
- Payroll services that include bi-weekly paychecks, W-2 preparation, employee file maintenance, administration of EEOC compliance & the personnel policy and record keeping
- Administration of the pension plan, health care insurance benefits, workers' compensation insurance and other state mandated levies
- Placement of employment ads, screening of potential candidates, drug screening and administration of the safety work-boot program.
- Information technology services and products

SUNSHINE
WATER CONTROL DISTRICT
DEFINITIONS OF GENERAL FUND EXPENDITURES

EXPENDITURES (continued)

Communications costs	7,500
The District anticipates distributing newsletters twice annually.	
Postage: ROW clearing	500
The District has commenced its capital improvement program as well as its canal ROW clearing program. A mass-mailing is anticipated to communicate the purpose and impact of these programs to the residents.	
Postage	1,200
Mailing of agenda packages, overnight deliveries, correspondence, etc.	
Printing & binding	1,400
Letterhead, envelopes, copies, agenda packages, etc.	
Legal advertising	2,500
The District advertises for monthly meetings, special meetings, public hearings, public bids, etc. The increase, as compared to the amount budgeted in the prior year, relates to notices that the District will likely have to mail to its residents pursuant to Florida Statute 197.3632.	
Dues, subscriptions, etc.	4,500
Pursuant to rule 9B-50.003, the Florida Department of Economic Opportunity requires all special districts to pay an annual fee.	
Office supplies	1,500
Accounting and administrative supplies.	
Rent - operations facility	48,666
Rent for facility for field superintendent and staff.	
■ Administration of the uniforms contract, inventory, and Nextel repairs	
■ Purchases office supplies (including paper goods & refreshments)	
■ Addresses vendor inquiries when the supervisor is unavailable	
■ Technology sharing	
■ Electricity, water & sewer services, kitchen area, air conditioning, 24-hour security	
■ On-site diesel & gasoline storage & dispensing and used oil recycling, which includes storage tank hazardous materials facility licensing, fuel pump meter calibrations, inspections, permitting and certification with the Department of Environmental Protection	
■ Hurricane disaster command center, which includes: food, water, sanitary facilities, shelter, emergency satellite radio phones, 2-way CB radio and employee & equipment sharing	
■ fax line & machine, internet access, printer, copiers, office supplies	
■ Supervisor office that includes a desk, phone, etc.	
■ Supervisor & employee back-up in case of injury or extended leave	
■ Secure parking for all trucks, boats and two tractors	
■ Workshop and garage area for equipment repair	
■ Insured and assigned chemical storage area (793 sq. ft.)	
■ SFWMD access gate key apportion and application	
■ Water quality control sampling & analysis reporting through CSID contracted accounts with environmental laboratories	
Insurance	35,440
Egis Insurance & Risk Advisors is the District's insurance agent and they provide insurance policies with Florida Insurance Alliance (FIA) for public officials, general liability insurance and employment practices liability.	
Website	3,000
ADA website compliance	210

SUNSHINE
WATER CONTROL DISTRICT
DEFINITIONS OF GENERAL FUND EXPENDITURES

EXPENDITURES (continued)

Contingencies	5,000
Bank charges, automated AP routing and other miscellaneous expenses incurred during the year.	
Field operations	
Salaries and wages	437,561
The amount budgeted allows for 9 positions (1 field supervisor, 4 crew leaders, and 4 field staff).	
FICA taxes	33,473
This expenditure is established by federal law, which is currently 7.65% of gross wages.	
Special pay	2,000
This is a holiday bonus that is based upon the number of years of employment.	
Bonus program	2,500
Discretionary performance bonuses to be administered by the field superintendent.	
401a retirement plan	43,756
The District contributes 10% of each employee's salary into a 401a retirement plan administered by ICMA-RC.	
Health insurance	325,000
Due to the unpredictability of the cost of health, life and disability insurance in prior years, the District has budgeted a 7% increase.	
Worker's Compensation Insurance	15,000
The District's workers' compensation Insurance policy is with Travelers Insurance.	
Engineering	100,000
These expenditures include general engineering support for potential District projects, ongoing operational activities and attendance at Board meetings.	
Engineering - capital outlay Westch culv	7,500
Engineering - capital outlay PS1 & PS2	42,472
Engineering - capital outlay PS1 h/s/c	134,000
Engineering - capital outlay NW 123 Ave	12,550
Engineering - capital outlay Riverside Dr.	251,586
Engineering - capital outlay University Dr.	89,627
Engineering - telemetry	75,500
Consulting engineer services	25,000
These expenditures relate to a variety of engineering services, which include: assisting with the development of operational & capital improvement programs, performing periodic field inspections, assisting with the designing processes and providing additional services as requested by the District. Pursuant to an agreement, these services are provided by McKune & Associates, Inc.	
Cost recovery	17,500
Water Quality Testing	5,224
The water quality testing program consists of quarterly sampling and analysis from different points within the District.	
Telephone	1,800
Electric	85,000
The District has three utility accounts with Florida Power & Light.	
Insurance	55,529
Egis Insurance & Risk Advisors is the District's insurance agent and they provide insurance policies with Preferred Governmental Insurance Trust (PGIT) for property, inland marine, crime and automobile liability & physical damage.	

SUNSHINE
WATER CONTROL DISTRICT
DEFINITIONS OF GENERAL FUND EXPENDITURES

EXPENDITURES (continued)	
Repairs and maintenance	
Canal banks	75,000
Canal dredging	50,000
Culvert inspection & cleaning	100,000
Dumpster service	13,000
Truck & tractor	21,000
Other	21,000
Operating supplies	
Chemicals	90,000
Fuel - trucks/equipment	20,000
Fuel - pump station generator	35,000
Triploid carp	19,755
Uniforms	3,217
Other	4,000
Permit fees, licenses, schools	5,000
These expenditures include educational necessities, permits, licenses and fees necessary for employees to obtain an aquatic license.	
Capital outlay - Westchester culvert	288,125
Capital outlay: pump station 1 & 2	1,444,200
Capital outlay - PS1 hydraulics/structural/canal	625,440
Capital outlay - NW 123 Ave.	150,000
Capital outlay - Riverside Dr. bridge bottom	985,000
Capital outlay - University Dr. pipe repair	150,000
Capital outlay - telemetry	340,000
Field equipment	35,000
Pump station telemetry	40,000
Contingencies	5,000
Other fees and charges	
Tax collector	37,606
Property appraiser	37,606
Property tax bills - fire & EMS assessment	100
Total expenditures	$ 6,768,339

SUNSHINE
WATER CONTROL DISTRICT
DEBT SERVICE FUND BUDGET - SERIES 2018
FISCAL YEAR 2023

	Fiscal Year 2022				
	Adopted Budget FY 2022	Actual through 3/31/2022	Projected through 9/30/2022	Total Actual & Projected	Proposed Budget FY 2023
REVENUES					
Assessment levy: on-roll - gross	$ -				$ -
Allowable discounts (4%)	-				-
Assessment levy: on-roll - net	-	$ -	$ -	$ -	-
Interest	-	6	-	6	-
Total revenues	-	6	-	6	-
EXPENDITURES					
Debt service					
Principal	-	-	-	-	-
Interest	-	-	-	-	-
Total debt service	-	-	-	-	-
Other fees & charges					
Property appraiser	-	-	-	-	-
Tax collector	-	-	-	-	-
Total other fees & charges	-	-	-	-	-
Total expenditures	-	-	-	-	-
Excess/(deficiency) of revenues over/(under) expenditures	-	6	-	6	-
OTHER FINANCING SOURCES/(USES)					
Transfer out	-	(156,887)	-	(156,887)	-
Total other financing sources/(uses)	-	(156,887)	-	(156,887)	-
Net increase/(decrease) in fund balance	-	(156,881)	-	(156,881)	-
Fund balance - beginning (unaudited)	42,970	156,881	-	156,881	-
Fund balance - ending (projected)	$ 42,970	$ -	$ -	$ -	-
Use of fund balance:					
Debt service reserve balance (required)					-
Interest expense - November 1, 2022					-
Projected fund balance surplus/(deficit) as of September 30, 2022					$ -

SUNSHINE
WATER CONTROL DISTRICT
DEBT SERVICE FUND BUDGET - SERIES 2021
FISCAL YEAR 2023

	Fiscal Year 2021				
	Adopted Budget FY 2022	Actual through 3/31/2022	Projected through 9/30/2022	Total Actual & Projected	Proposed Budget FY 2023
REVENUES					
Assessment levy: on-roll - gross	$ 883,707				$ 883,707
Allowable discounts (4%)	(35,348)				(35,348)
Assessment levy: on-roll - net	848,359	$ 774,471	$ 73,888	$ 848,359	848,359
Interest	-	1	-	1	-
Total revenues	848,359	774,472	73,888	848,360	848,359
EXPENDITURES					
Debt service					
Principal	135,000	-	135,000	135,000	470,000
Interest	291,251	107,946	183,305	291,251	362,493
Total debt service	426,251	107,946	318,305	426,251	832,493
Other fees & charges					
Property appraiser	8,837	-	8,837	8,837	8,837
Tax collector	8,837	15,489	-	15,489	8,837
Costs of issuance	-	3,000	-	3,000	-
Total other fees & charges	17,674	18,489	8,837	27,326	17,674
Total expenditures	443,925	126,435	327,142	453,577	850,167
Excess/(deficiency) of revenues over/(under) expenditures	404,434	648,037	(253,254)	394,783	(1,808)
OTHER FINANCING SOURCES/(USES)					
Transfer in	107,946	107,946	-	107,946	-
Transfer out	(300,000)	-	(300,000)	(300,000)	-
Total other financing sources/(uses)	(192,054)	107,946	(300,000)	(192,054)	-
Net increase/(decrease) in fund balance	212,380	755,983	(553,254)	202,729	(1,808)
Fund balance - beginning (unaudited)	-	50,678	806,661	50,678	253,407
Fund balance - ending (projected)	$212,380	$806,661	$ 253,407	$ 253,407	251,599
Use of fund balance:					
Debt service reserve balance (required)					-
Interest expense - November 1, 2023					(174,079)
Projected fund balance surplus/(deficit) as of September 30, 2023					$ 77,520

SUNSHINE

Water Control District

Special Assessment Revenue Refunding Bonds, Series 2021

$12,010,000

Debt Service Schedule

Date	Principal	Coupon	Interest	Total P+I
11/01/2022		-	181,246.25	181,246.25
05/01/2023	470,000.00	3.050%	181,246.25	651,246.25
11/01/2023	-	-	174,078.75	174,078.75
05/01/2024	490,000.00	3.050%	174,078.75	664,078.75
11/01/2024	-	-	166,606.25	166,606.25
05/01/2025	500,000.00	3.050%	166,606.25	666,606.25
11/01/2025	-	-	158,981.25	158,981.25
05/01/2026	515,000.00	3.050%	158,981.25	673,981.25
11/01/2026	-	-	151,127.50	151,127.50
05/01/2027	530,000.00	3.050%	151,127.50	681,127.50
11/01/2027	-	-	143,045.00	143,045.00
05/01/2028	550,000.00	3.050%	143,045.00	693,045.00
11/01/2028	-	-	134,657.50	134,657.50
05/01/2029	565,000.00	3.050%	134,657.50	699,657.50
11/01/2029	-	-	126,041.25	126,041.25
05/01/2030	585,000.00	3.050%	126,041.25	711,041.25
11/01/2030	-	-	117,120.00	117,120.00
05/01/2031	600,000.00	3.050%	117,120.00	717,120.00
11/01/2031	-	-	107,970.00	107,970.00
05/01/2032	615,000.00	3.050%	107,970.00	722,970.00
11/01/2032	-	-	98,591.25	98,591.25
05/01/2033	635,000.00	3.050%	98,591.25	733,591.25
11/01/2033	-	-	88,907.50	88,907.50
05/01/2034	655,000.00	3.050%	88,907.50	743,907.50
11/01/2034	-	-	78,918.75	78,918.75
05/01/2035	675,000.00	3.050%	78,918.75	753,918.75
11/01/2035	-	-	68,625.00	68,625.00
05/01/2036	690,000.00	3.050%	68,625.00	758,625.00
11/01/2036	-	-	58,102.50	58,102.50
05/01/2037	720,000.00	3.050%	58,102.50	778,102.50
11/01/2037	-	-	47,122.50	47,122.50
05/01/2038	735,000.00	3.050%	47,122.50	782,122.50
11/01/2038	-	-	35,913.75	35,913.75
05/01/2039	760,000.00	3.050%	35,913.75	795,913.75
11/01/2039	-	-	24,323.75	24,323.75
05/01/2040	785,000.00	3.050%	24,323.75	809,323.75
11/01/2040	-	-	12,352.50	12,352.50
05/01/2041	810,000.00	3.050%	12,352.50	822,352.50
Total	**$11,885,000.00**	**-**	**$3,947,462.50**	**$15,832,462.50**

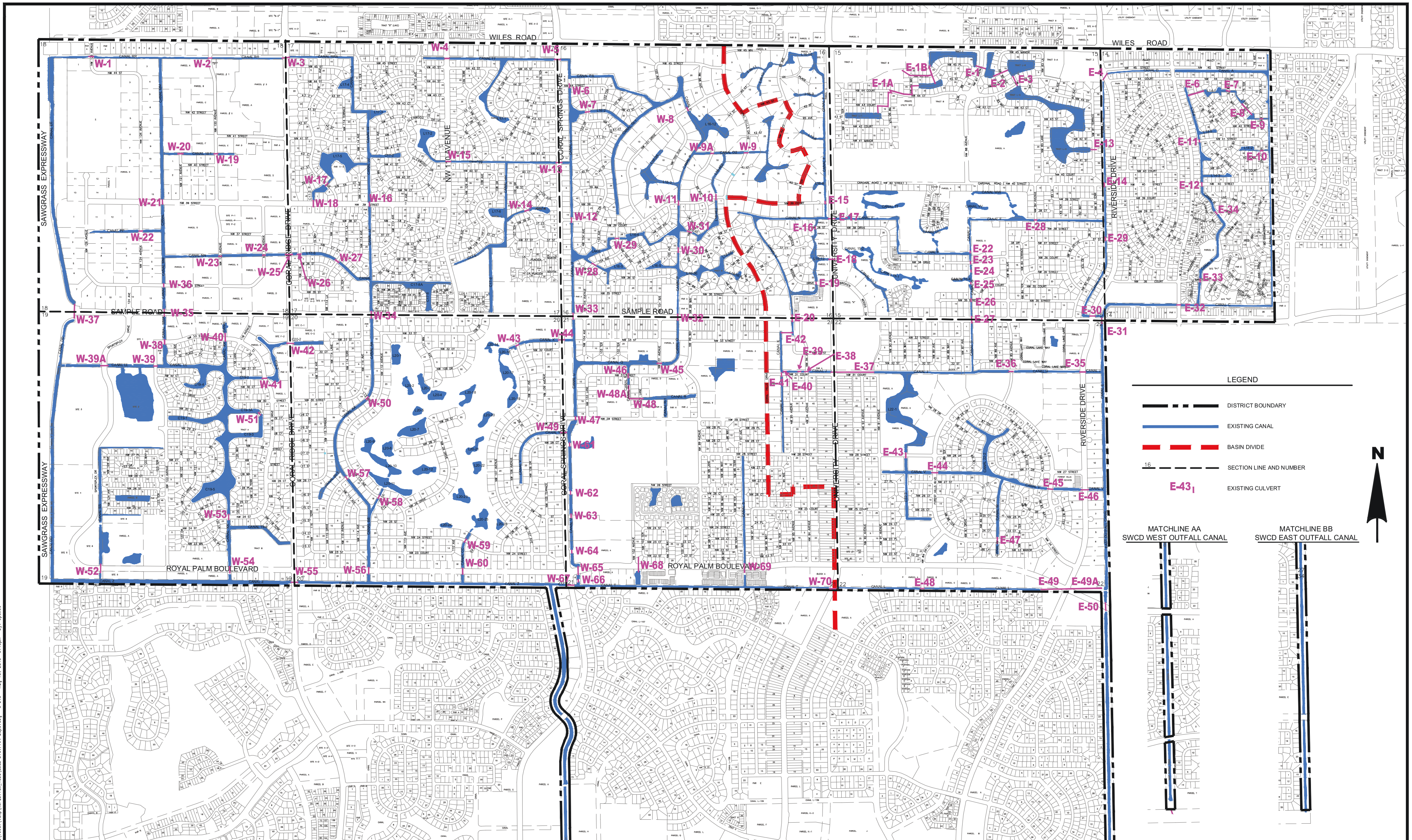
SUNSHINE
WATER CONTROL DISTRICT
PROJECTED ASSESSMENTS

	FY 2018	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023
Assessable units	17,023	17,000	17,000	17,000	17,003	17,003
Assessment per unit - general	$ 179.50	$ 186.57	$ 193.85	$ 201.36	$ 213.22	$ 221.17
Assessment per unit - debt	$ 56.10	$ 56.10	$ 56.10	$ 56.10	$ 51.97	$ 51.97
Total projected assessment	$ 235.60	$ 242.67	$ 249.95	$ 257.46	$ 265.19	$ 273.14
Total assessment % variance yr over yr	2.94%	3.00%	3.00%	3.00%	3.00%	3.00%

SUNSHINE
WATER CONTROL DISTRICT
TRUCK REPLACEMENT SCHEDULE

Truck	VIN	Year	Condition	Estimated Replacement Year	Estimated Replacement Cost	Assigned Fund Balance 9/30/2022	Change	Assigned Fund Balance 9/30/2023
Ford Pickup 150	1FTMF1E85GFD21298	2016	Fair	2023	42,000	28,000	8,000	36,000
Ford Pickup 150	1FTMF1E85GFD21299	2016	Fair	2023	42,000	28,000	8,000	36,000
Ford Pickup 150	1FTMF1E85GFD21300	2016	Fair	2023	42,000	28,000	8,000	36,000
Ford Pickup 150	1FTMF1E85GFD21301	2016	Fair	2023	42,000	28,000	8,000	36,000
Ford Pickup 150	1FTMF1EF3CFB16099	2012	Fair	2018	42,000	30,000	6,000	36,000
Total					210,000	142,000	38,000	180,000

SUNSHINE
WATER CONTROL DISTRICT
DISTRICT MAPS



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(954) 974-2200
EB# 2966 LC# 26000270

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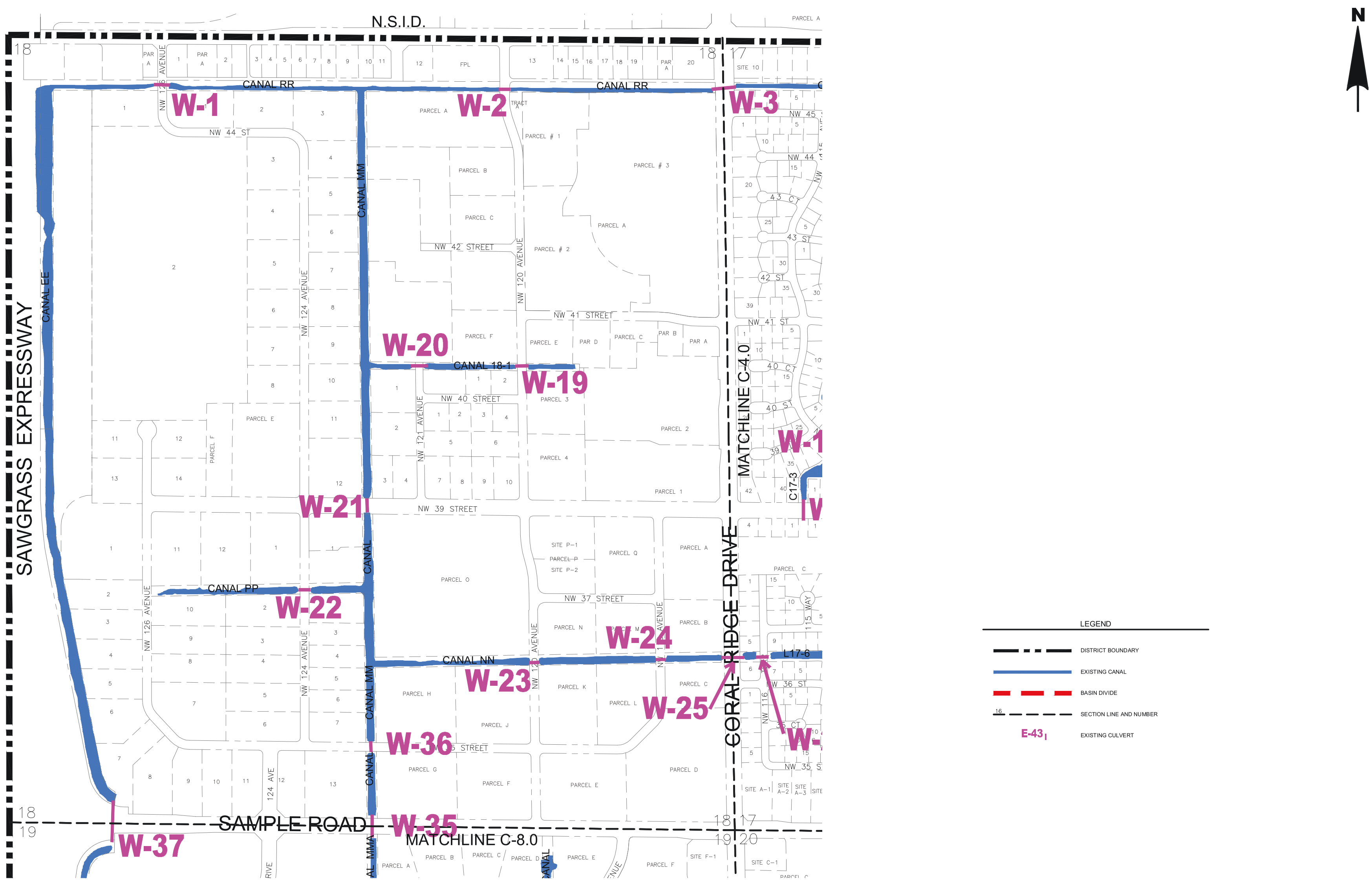
SUNSHINE WATER CONTROL DISTRICT

DISTRICT MAP

CITY OF CORAL SPRINGS BROWARD COUNTY FLORIDA

SCALE: 1" = 800' JOB NO: 08-0406 SHEET: C-2.0



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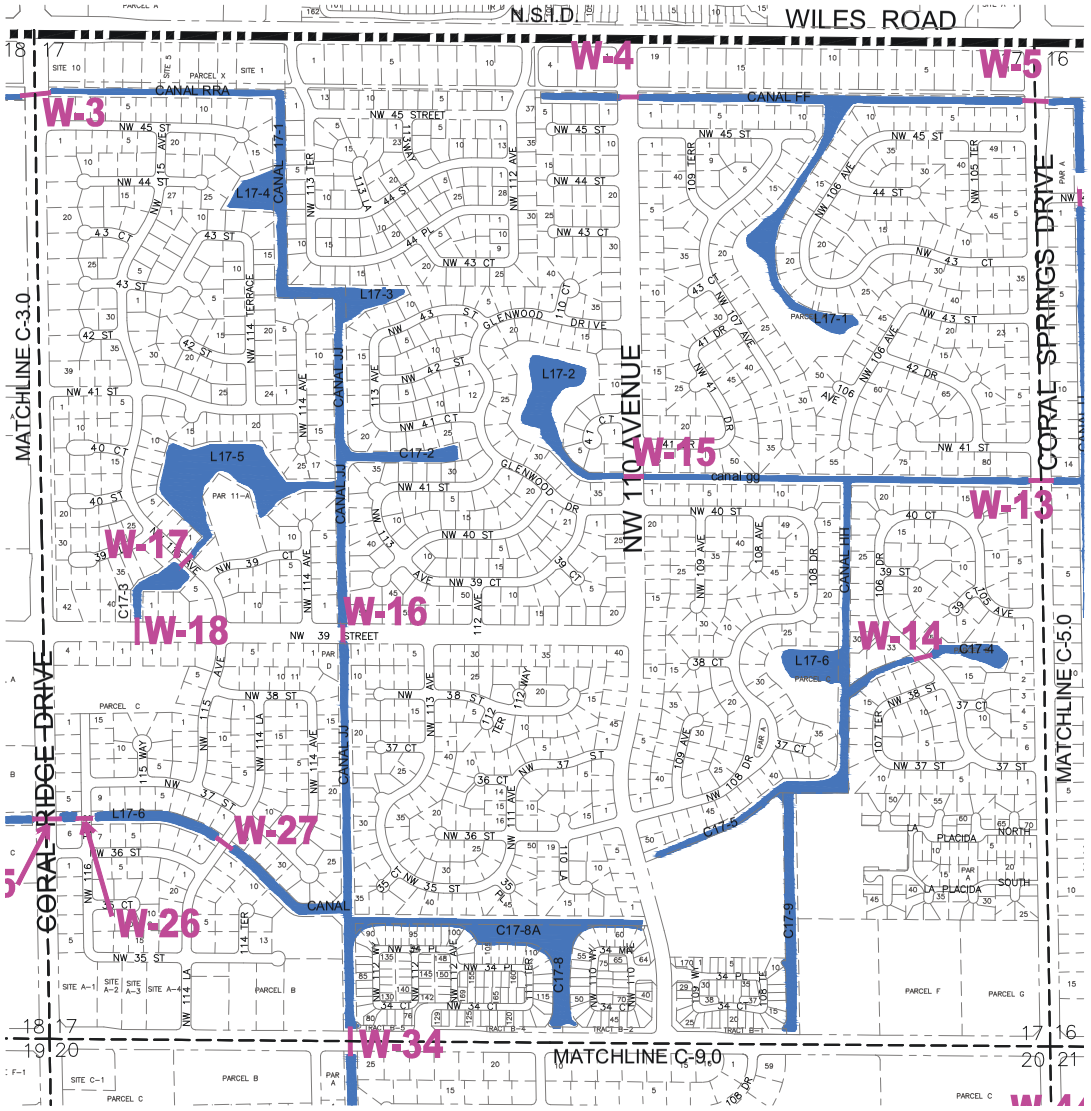
SUNSHINE WATER CONTROL DISTRICT

SECTION 18

CITY OF CORAL SPRINGS BROWARD COUNTY FLORIDA

SCALE: 1" = 300' JOB NO: 08-0406 SHEET: C-3.0



LEGEND

- DISTRICT BOUNDARY
- EXISTING CANAL
- BASIN DIVIDE
- 16 SECTION LINE AND NUMBER
- E-43 EXISTING CULVERT

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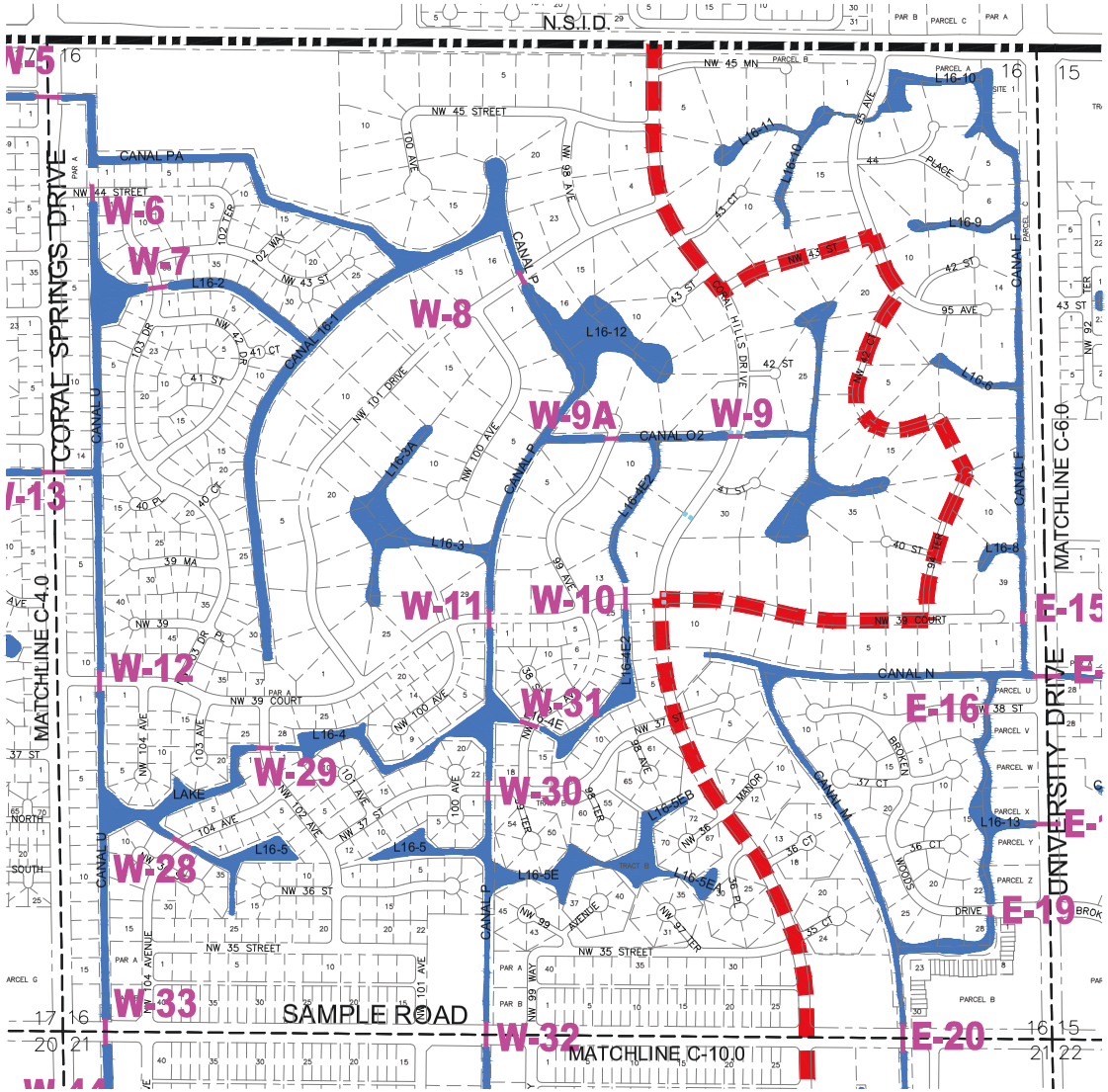
SUNSHINE WATER CONTROL DISTRICT

SECTION 17

CITY OF CORAL SPRINGS BROWARD COUNTY FLORIDA

SCALE:	1" = 300'	JOB NO:	08-0406	SHEET:	C-4.0



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SUNSHINE WATER CONTROL DISTRICT

SECTION 16

CITY OF CORAL SPRINGS BROWARD COUNTY FLORIDA

SCALE:	JOB NO:	SHEET:
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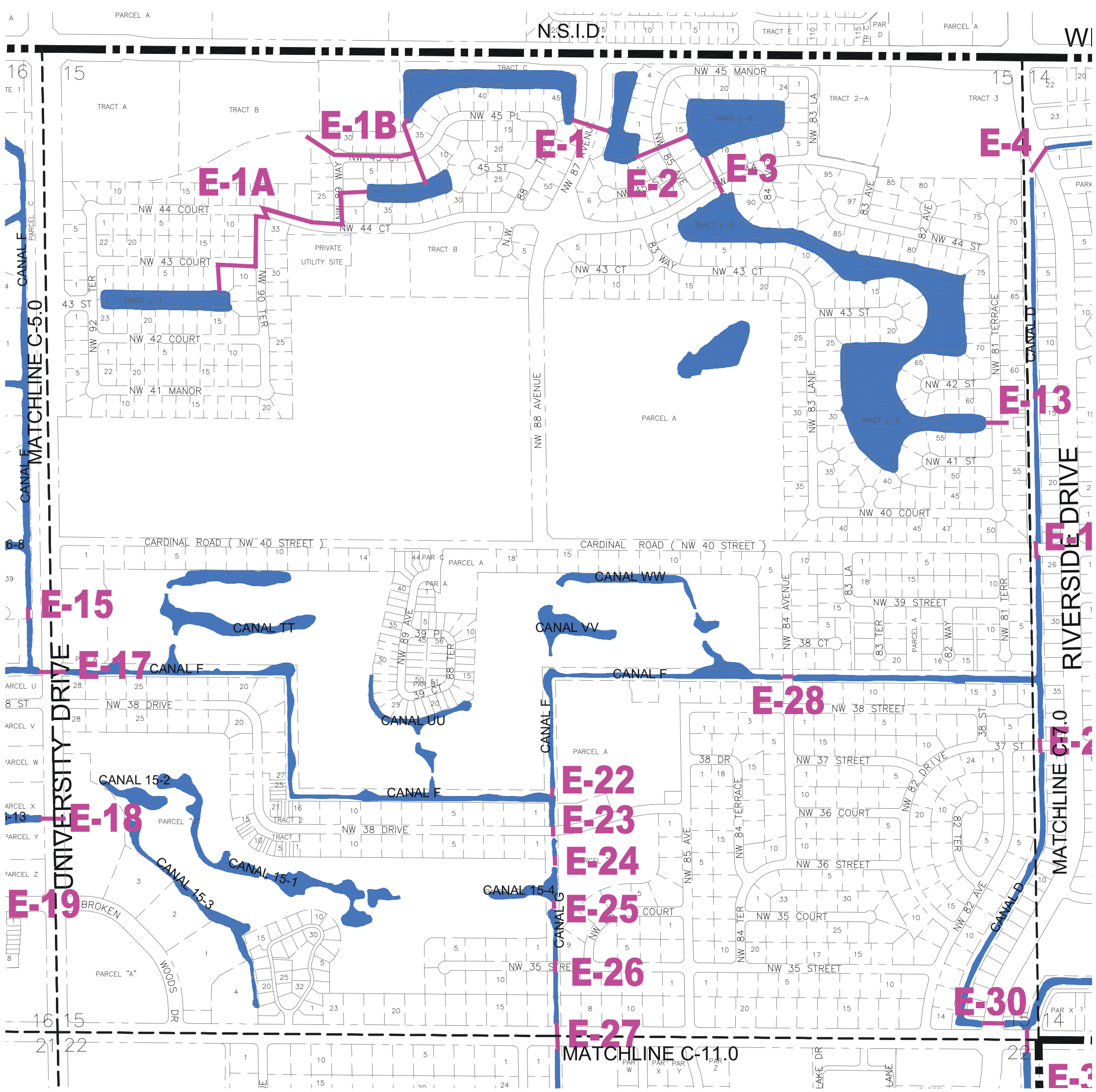

LEGEND

- DISTRICT BOUNDARY
- EXISTING CANAL
- BASIN DIVIDE
- 16 SECTION LINE AND NUMBER
- E-43 EXISTING CULVERT

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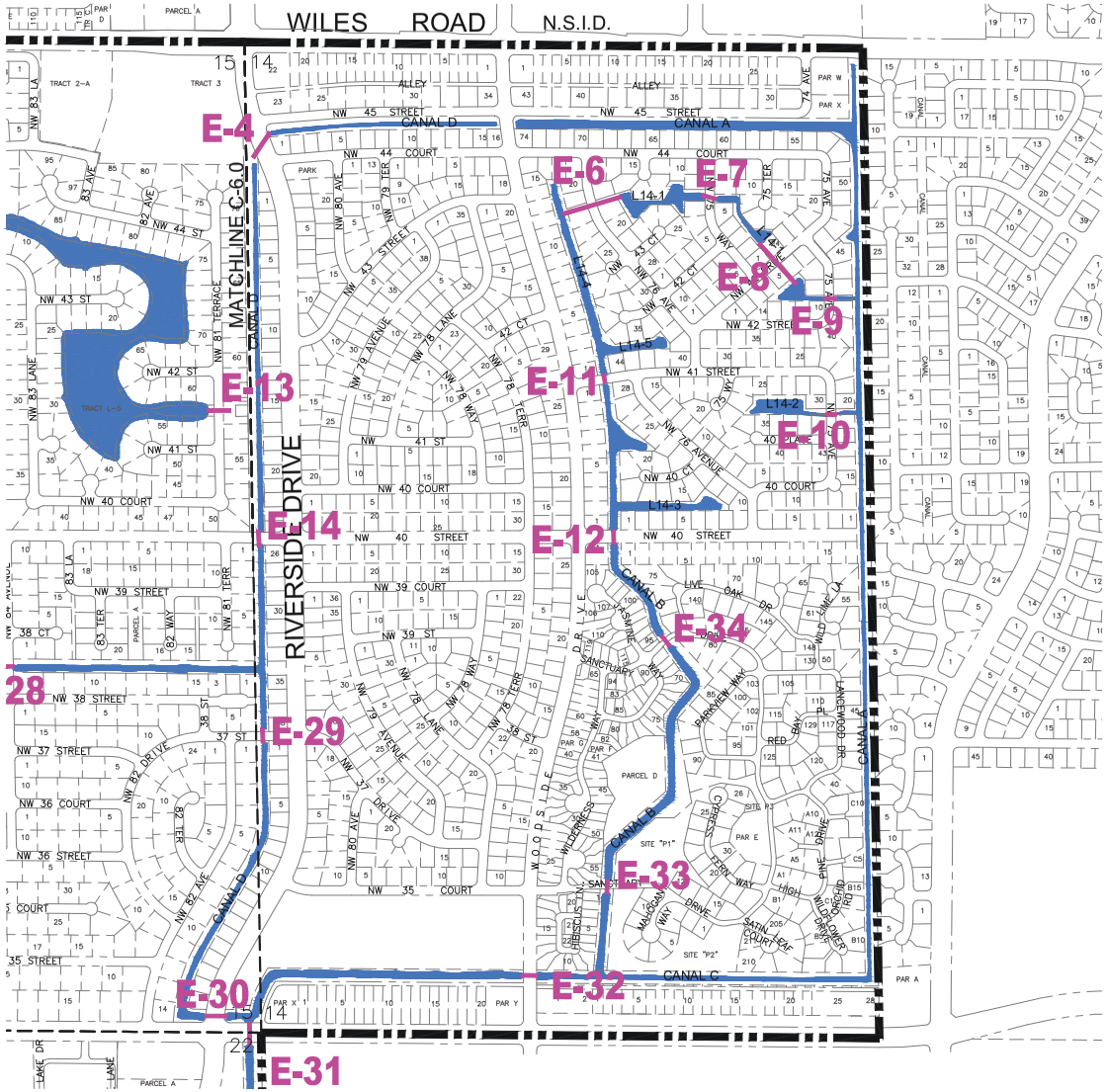
SUNSHINE WATER CONTROL DISTRICT

SECTION 15

CITY OF CORAL SPRINGS BROWARD COUNTY FLORIDA

SCALE: 1" = 300' JOB NO: 08-0406 SHEET: C-6.0



LEGEND

- DISTRICT BOUNDARY
- EXISTING CANAL
- BASIN DIVIDE
- 16 SECTION LINE AND NUMBER
- E-43 EXISTING CULVERT

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SUNSHINE WATER CONTROL DISTRICT

SECTION 14

CITY OF CORAL SPRINGS BROWARD COUNTY FLORIDA

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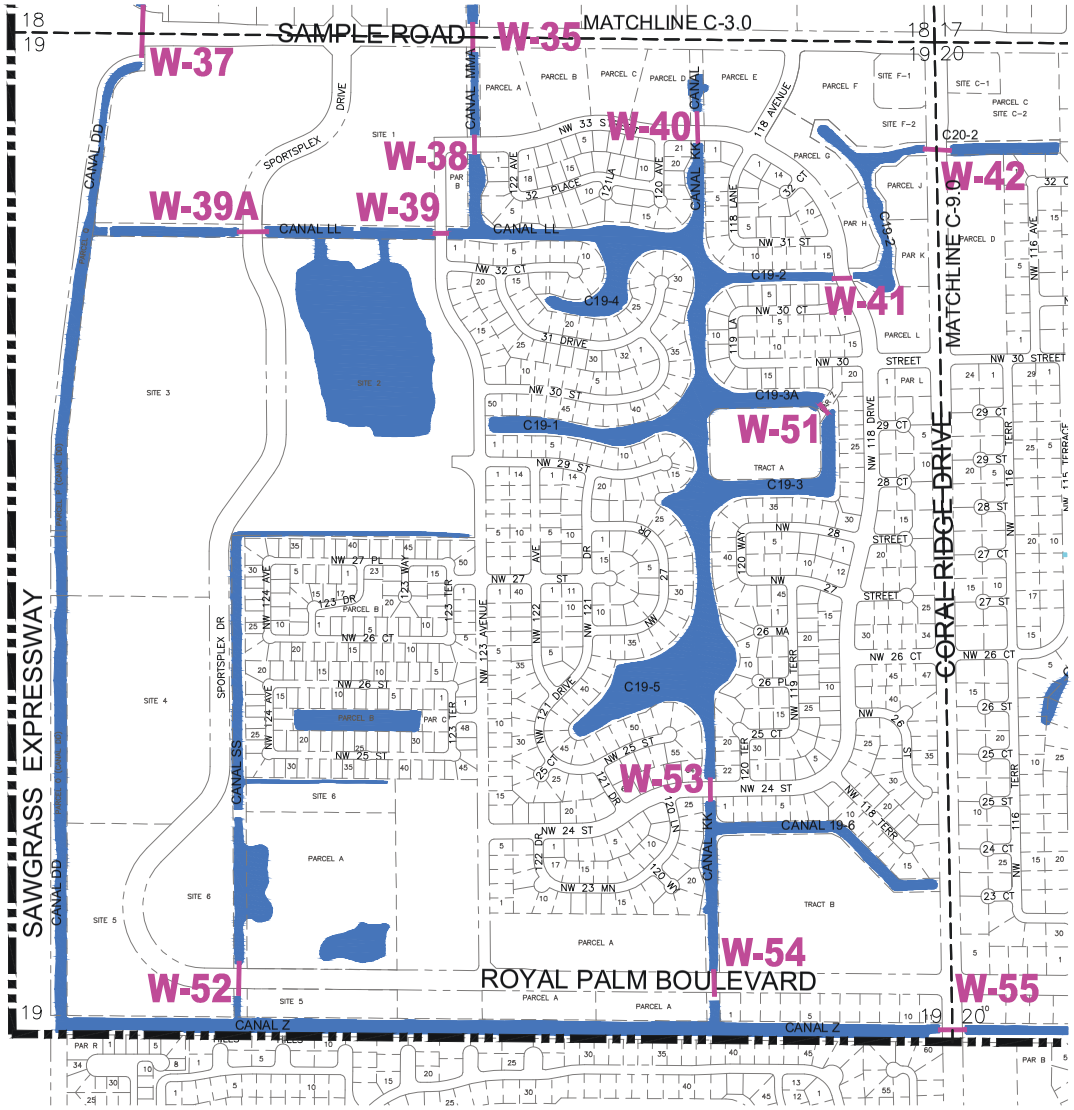

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LEGEND

- DISTRICT BOUNDARY
- EXISTING CANAL
- BASIN DIVIDE
- 16 SECTION LINE AND NUMBER
- E-43 EXISTING CULVERT

DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION
RELEASE INFORMATION					

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SUNSHINE WATER CONTROL DISTRICT

SECTION 19

CITY OF CORAL SPRINGS | BROWARD COUNTY | FLORIDA

SCALE:	JOB NO:	SHEET:
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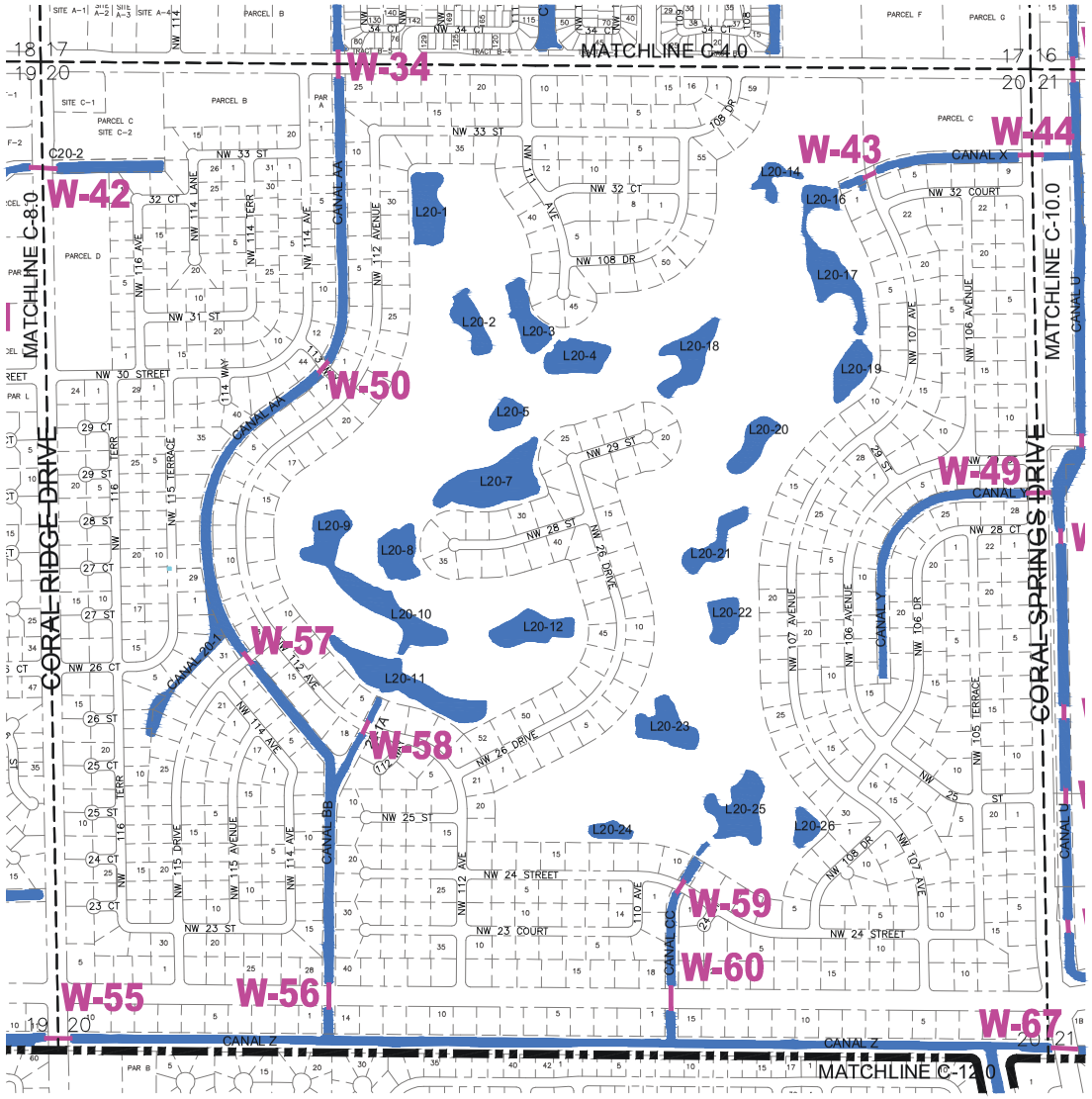

LEGEND

- DISTRICT BOUNDARY
- EXISTING CANAL
- BASIN DIVIDE
- 16 SECTION LINE AND NUMBER
- E-43 EXISTING CULVERT

DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION
RELEASE INFORMATION					

No.	DESCRIPTION	BY	DATE	CK'D
REVISIONS				

START DATE:	02/09
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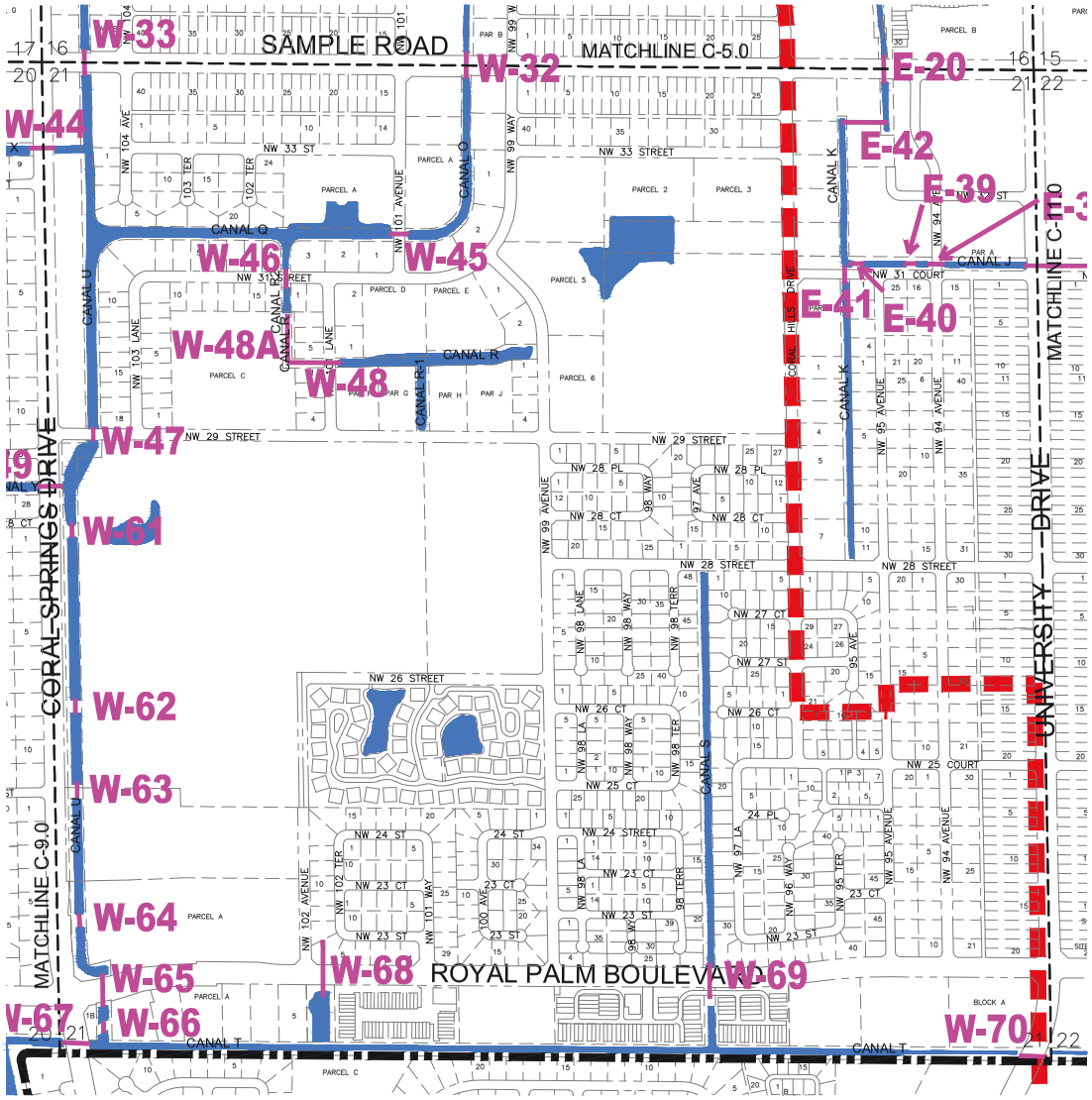
SUNSHINE WATER CONTROL DISTRICT

SECTION 20

CITY OF CORAL SPRINGS BROWARD COUNTY FLORIDA

SCALE:	1" = 300'	JOB NO:	08-0406	SHEET:	C-9.0



N

LEGEND

- DISTRICT BOUNDARY
- EXISTING CANAL
- BASIN DIVIDE
- 16 SECTION LINE AND NUMBER
- E-43 EXISTING CULVERT

DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION
		RELEASE INFORMATION			

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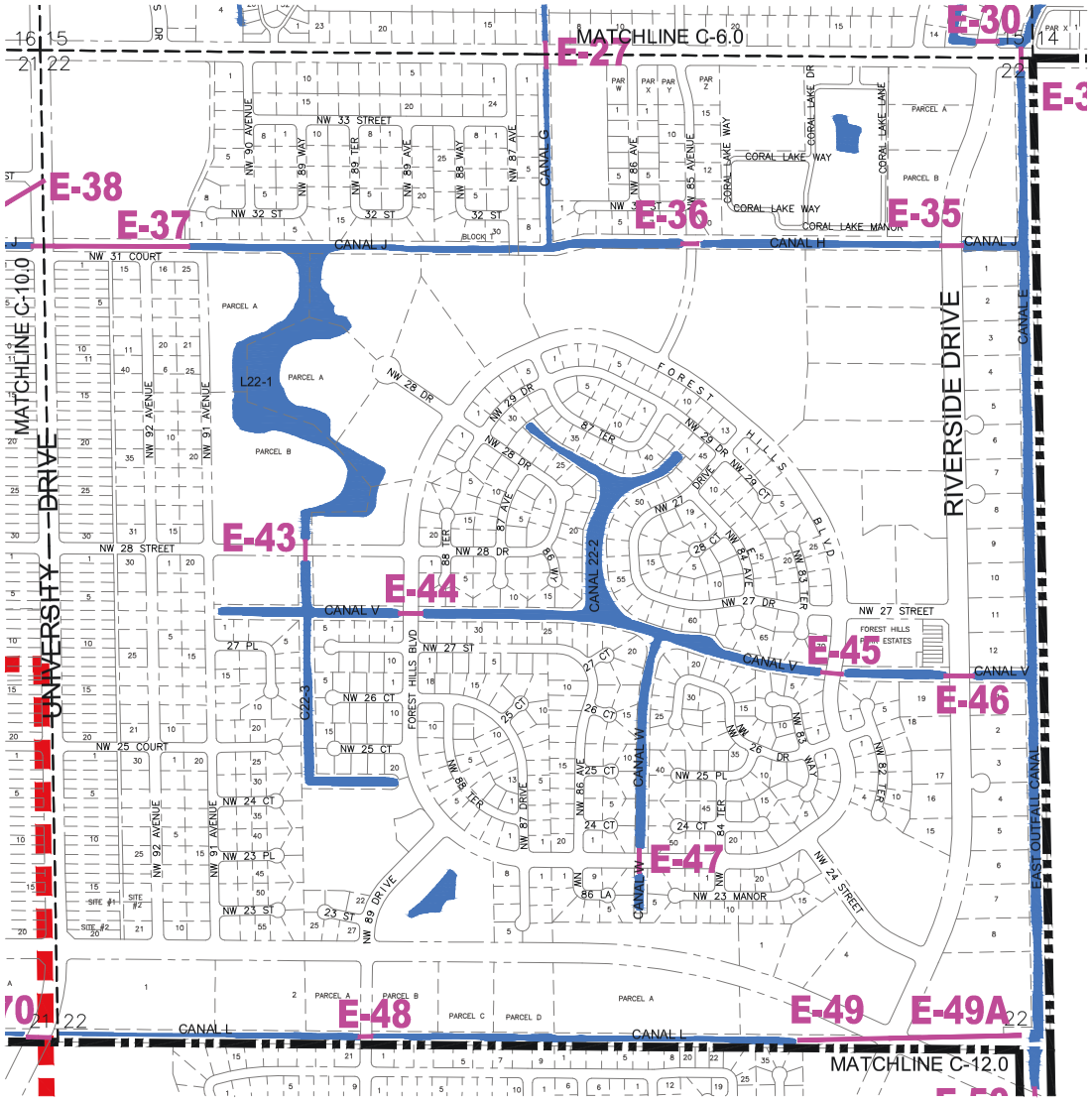
SUNSHINE WATER CONTROL DISTRICT

SECTION 21

CITY OF CORAL SPRINGS | BROWARD COUNTY | FLORIDA

SCALE:	1" = 300'	JOB NO:	08-0406	SHEET:	C-10.0



N

LEGEND

- DISTRICT BOUNDARY
- EXISTING CANAL
- BASIN DIVIDE
- 16 SECTION LINE AND NUMBER
- E-43 EXISTING CULVERT

DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION
RELEASE INFORMATION					

No.	DESCRIPTION	BY	DATE	CK'D
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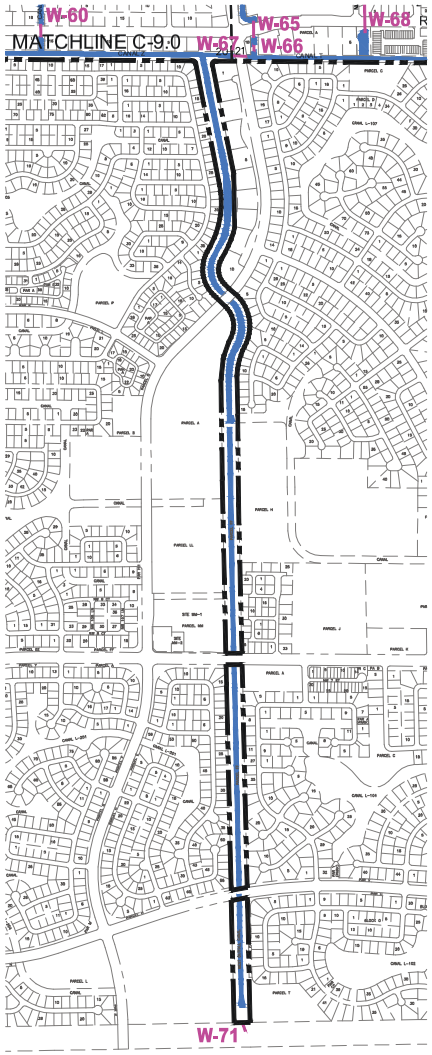
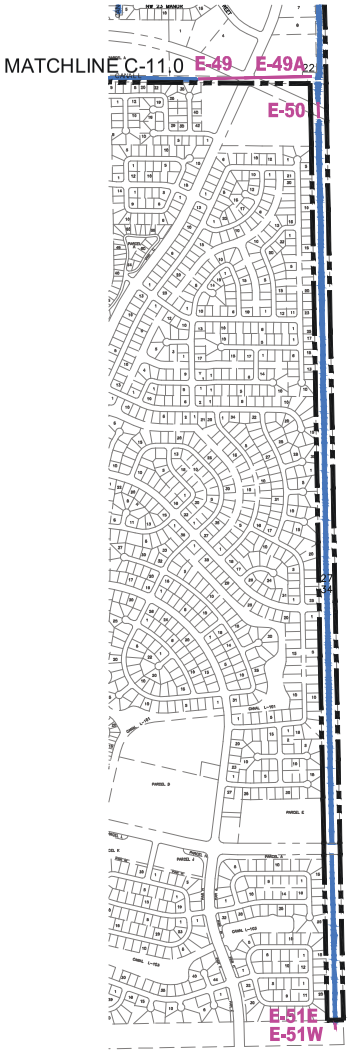
SUNSHINE WATER CONTROL DISTRICT

SECTION 22

CITY OF CORAL SPRINGS BROWARD COUNTY FLORIDA

SCALE:	JOB NO:	SHEET:
1" = 300'	08-0406	C-11.0





N

LEGEND

- DISTRICT BOUNDARY
- EXISTING CANAL
- BASIN DIVIDE
- 16 SECTION LINE AND NUMBER
- E-43 EXISTING CULVERT

DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION

RELEASE INFORMATION

No.	DESCRIPTION	BY	DATE	CK'D

REVISIONS

START DATE:	02/09
DESIGNED BY:	JRR
DRAWN BY:	CMP
CHECKED BY:	--
ARCHIVE NO:	

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SUNSHINE WATER CONTROL DISTRICT

EAST & WEST OUTFALL CANALS

CITY OF CORAL SPRINGS BROWARD COUNTY FLORIDA

SCALE:	JOB NO:	SHEET:
1" = 600'	08-0406	C-12.0

SUNSHINE
WATER CONTROL DISTRICT

7

RESOLUTION 2022-12

A RESOLUTION OF THE BOARD OF SUPERVISORS OF THE SUNSHINE WATER CONTROL DISTRICT MAKING A DETERMINATION OF BENEFIT AND IMPOSING SPECIAL ASSESSMENTS FOR FISCAL YEAR 2022/2023; PROVIDING FOR THE COLLECTION AND ENFORCEMENT OF SPECIAL ASSESSMENTS; CERTIFYING AN ASSESSMENT ROLL; PROVIDING FOR AMENDMENTS TO THE ASSESSMENT ROLL; PROVIDING A SEVERABILITY CLAUSE; AND PROVIDING AN EFFECTIVE DATE

WHEREAS, the Sunshine Water Control District ("**District**") is a local unit of special-purpose government established pursuant to Chapter 298, *Florida Statutes* for the purpose of providing, operating and maintaining water control improvements, facilities and services to the lands within the District; and

WHEREAS, the District is located in Broward County, Florida ("**County**"); and

WHEREAS, the District has constructed or acquired various water control improvements and provides certain services in accordance with the District's adopted water control plan and Chapter 298, *Florida Statutes*; and

WHEREAS, the Board of Supervisors ("**Board**") of the District hereby determines to undertake various operations and maintenance and other activities described in the District's budget ("**Adopted Budget**") for the fiscal year beginning October 1, 2022 and ending September 30, 2023 ("**Fiscal Year 2022/2023**"), attached hereto as **Exhibit A;** and

WHEREAS, the District must obtain sufficient funds to provide for the operation and maintenance of the services and facilities provided by the District as described in the Adopted Budget; and

WHEREAS, the provision of such services, facilities, and operations is a benefit to lands within the District; and

WHEREAS, Chapter 298, *Florida Statutes*, provides that the District may impose special assessments on benefitted lands within the District; and

WHEREAS, it is in the best interests of the District to proceed with the imposition of the special assessments for operations and maintenance in the amount set forth in the Adopted Budget; and

WHEREAS, the District has previously levied an assessment for debt service, which the District desires to collect for Fiscal Year 2022/2023; and

WHEREAS, Chapter 197, *Florida Statutes*, provides a mechanism pursuant to which such special assessments may be placed on the tax roll and collected by the local tax collector

("**Uniform Method**"), and the District has previously authorized the use of the Uniform Method by, among other things, entering into agreements with the Property Appraiser and Tax Collector of the County for that purpose; and

WHEREAS, it is in the best interests of the District to adopt the assessment roll ("**Assessment Roll**") attached to this Resolution as **Exhibit B**, and to certify the Assessment Roll to the County Tax Collector pursuant to the Uniform Method; and

WHEREAS, it is in the best interests of the District to permit the District Manager to amend the Assessment Roll, certified to the County Tax Collector by this Resolution, as the Property Appraiser updates the property roll for the County, for such time as authorized by Florida law.

NOW, THEREFORE, BE IT RESOLVED BY THE BOARD OF SUPERVISORS OF THE SUNSHINE WATER CONTROL DISTRICT:

SECTION 1. BENEFIT & ALLOCATION FINDINGS. The provision of the services, facilities, and operations as described in **Exhibit A** confers a special and peculiar benefit to the lands within the District, which benefits exceeds or equals the cost of the assessments. The allocation of the assessments to the specially benefitted lands is shown in **Exhibits A and B,** and is hereby found to be fair and reasonable.

SECTION 2. ASSESSMENT IMPOSITION. Pursuant to Chapters 170, 197 and 298, *Florida Statutes*, and using the procedures authorized by Florida law for the levy and collection of special assessments, a special assessment for operation and maintenance is hereby imposed and levied on benefitted lands within the District, and in accordance with **Exhibits A and B.** The lien of the special assessments for operations and maintenance imposed and levied by this Resolution shall be effective upon passage of this Resolution.

SECTION 3. COLLECTION AND ENFORCEMENT; PENALTIES; INTEREST.

A. Tax Roll Assessments. The operation and maintenance special assessments and previously levied debt service special assessments shall be collected at the same time and in the same manner as County taxes in accordance with the Uniform Method, as set forth in **Exhibits A and B.**

B. Future Collection Methods. The decision to collect special assessments by any particular method – e.g., on the tax roll or by direct bill – does not mean that such method will be used to collect special assessments in future years, and the District reserves the right in its sole discretion to select collection methods in any given year, regardless of past practices.

SECTION 4. ASSESSMENT ROLL. The District's Assessment Roll, attached to this Resolution as **Exhibit B**, is hereby certified to the County Tax Collector and shall be collected by the County

Tax Collector in the same manner and time as County taxes. The proceeds therefrom shall be paid to the Sunshine Water Control District.

SECTION 5. ASSESSMENT ROLL AMENDMENT. The District Manager shall keep apprised of all updates made to the County property roll by the Property Appraiser after the date of this Resolution, and shall amend the District's Assessment Roll in accordance with any such updates, for such time as authorized by Florida law, to the County property roll. After any amendment of the Assessment Roll, the District Manager shall file the updates in the District records.

SECTION 6. SEVERABILITY. The invalidity or unenforceability of any one or more provisions of this Resolution shall not affect the validity or enforceability of the remaining portions of this Resolution, or any part thereof.

SECTION 7. EFFECTIVE DATE. This Resolution shall take effect upon the passage and adoption of this Resolution by the Board of Supervisors of the Sunshine Water Control District.

PASSED AND ADOPTED this 14th day of September, 2022.

ATTEST: **SUNSHINE WATER CONTROL DISTRICT**

_____ By: _____
Secretary/Assistant Secretary

Its: _____

Exhibit A: Budget
Exhibit B: Assessment Roll (Uniform Method)

Exhibit A: Budget

Exhibit B: Assessment Roll

SUNSHINE
WATER CONTROL DISTRICT

UNAUDITED FINANCIAL REPORTS

SUNSHINE
WATER CONTROL DISTRICT
FINANCIAL STATEMENTS
UNAUDITED
JULY 31, 2022

SUNSHINE
WATER CONTROL DISTRICT
BALANCE SHEET
GOVERNMENTAL FUNDS
JULY 31, 2022

	General Fund	Debt Service Fund Series 2018	Debt Service Fund Series 2021	Total Governmental Funds
ASSETS				
Centennial Bank	$ 928,340	$ -	$ -	$ 928,340
Centennial Bank - escrow	80,854	-	-	80,854
DS - Series 2021	-	-	472,896	472,896
Investments				
State Board of Administration*				
A Investment account	5,132	-	-	5,132
A Bank maintenance reserve account	2,688	-	-	2,688
A Renewal & replacement reserve account	2,000	-	-	2,000
A Equipment replacement reserve account	211	-	-	211
Centennial Bank - MMA	259,506	-	-	259,506
FineMark Bank - MMA	249,015	-	-	249,015
FineMark Bank - ICS	13,057,250	-	-	13,057,250
Iberia Bank - MMA	5,531	-	-	5,531
Prepaid expense	133	-	-	133
Due from general fund	-	-	91,864	91,864
Total assets	$14,590,660	$ -	$ 564,760	$ 15,155,420
LIABILITIES				
Liabilities:				
Accounts payable	$ 59	$ -	$ -	$ 59
Retainage payable	1,102	-	-	1,102
Due to debt service	91,864	-	-	91,864
Deposits payable/trash bonds	194,500	-	-	194,500
Cost recovery deposits	48,855	-	-	48,855
Payroll liabilities	36	-	-	36
Total liabilities	336,416	-	-	336,416
FUND BALANCES				
Assigned:				
3 months working capital	1,438,513	-	-	1,438,513
Disaster recovery	3,500,000	-	-	3,500,000
Truck replacement	142,000	-	-	142,000
Restricted for				
Debt service	-	-	564,760	564,760
Unassigned	9,173,731	-	-	9,173,731
Total fund balances	14,254,244	-	564,760	14,819,004
Total liabilities and fund balances	$14,590,660	$ -	$ 564,760	$ 15,155,420

*Accounts not reconciled as statement not received prior to agenda preparation date.

SUNSHINE
WATER CONTROL DISTRICT
STATEMENT OF REVENUES, EXPENDITURES,
AND CHANGES IN FUND BALANCES
GENERAL FUND
FOR THE PERIOD ENDED JULY 31, 2022

	Current Month	Year to Date	Adopted Budget	% of Budget
REVENUES				
Assessments	$ 86,206	$ 3,494,390	$ 3,480,348	100%
Interest and miscellaneous	1,782	8,270	9,000	92%
Permit review fees	-	4,550	4,900	93%
Cost recovery	-	4,704	17,500	27%
Total revenues	87,988	3,511,914	3,511,748	100%
EXPENDITURES				
Administrative				
Supervisors	100	1,350	1,800	75%
Supervisors reimbursement	-	-	7,500	0%
Management/accounting/recording	5,318	53,182	63,819	83%
DSF & CPF accounting	1,242	12,423	14,908	83%
Dissemination fee	83	833	1,000	83%
Arbitrage rebate calculation	-	-	750	0%
Trustee	-	-	5,000	0%
Audit	11,200	11,200	11,200	100%
Legal	-	59,906	95,000	63%
Human resource services	612	6,114	7,337	83%
Communication	-	-	7,500	0%
Dues/subscriptions	-	4,175	4,500	93%
Rent - operations facility	3,937	39,375	47,249	83%
Insurance	-	23,365	32,543	72%
Legal advertising	-	699	2,500	28%
Office supplies and expenses	-	840	1,500	56%
Postage	-	678	1,200	57%
Postage-ROW clearing	-	-	500	0%
Printing and binding	117	1,167	1,400	83%
Website	-	1,109	3,000	37%
ADA website compliance	-	-	210	0%
Contingencies	-	2,673	5,000	53%
Total administrative expenses	22,609	219,089	315,416	69%
Field operations				
Salaries and wages	31,169	322,387	438,375	74%
FICA taxes	2,383	24,764	33,536	74%
Special pay	-	1,435	2,000	72%
Bonus program	-	-	1,500	0%
401a retirement plan	3,114	37,211	43,838	85%
Health insurance	22,355	208,720	278,434	75%
Workers' compensation insurance	-	12,551	15,000	84%
Engineering	5,670	26,990	100,000	27%
Engineering - capital outlay ps1 & ps2	924	15,111	200,000	8%
Engineering - wofo phase 2b	4,928	96,513	219,900	44%
Engineering - sw 20 yrs reporting	1,764	5,376	-	N/A

SUNSHINE
WATER CONTROL DISTRICT
STATEMENT OF REVENUES, EXPENDITURES,
AND CHANGES IN FUND BALANCES
GENERAL FUND
FOR THE PERIOD ENDED JULY 31, 2022

	Current Month	Year to Date	Adopted Budget	% of Budget
Consulting engineer services	-	-	25,000	0%
Cost recovery	378	3,811	17,500	22%
Water quality testing	-	3,428	5,224	66%
Telephone	-	1,112	1,800	62%
Electric	21,621	53,719	85,000	63%
Insurance	-	54,411	46,949	116%
Repairs and maintenance				
Canal banks	-	7,518	50,000	15%
Canal dredging	-	-	50,000	0%
Culvert inspection & cleaning	-	-	100,000	0%
Dumpster service	1,037	5,439	13,000	42%
Truck & tractor	4,155	8,281	21,000	39%
Other	100	18,129	21,000	86%
Operating supplies				
Chemicals	33,435	66,038	90,000	73%
Fuel	1,800	9,846	20,000	49%
Fuel-pump station generator	-	-	35,000	0%
Triploid carp	-	-	19,755	0%
Uniforms	147	1,266	3,217	39%
Other	26	2,949	4,000	74%
Permit fees, licenses, schools	-	4,730	5,000	95%
Capital outlay - westchester	76,949	79,495	-	N/A
Capital outlay - pump station 1 & 2	-	338,349	1,500,000	23%
Capital outlay - wofc phase 2B	586,880	2,204,399	1,840,000	120%
Field equipment	-	-	35,000	0%
Pump station telemetry	326	2,839	40,000	7%
Contingencies	-	8,984	5,000	180%
Total field operations	799,161	3,625,801	5,366,028	68%
Other fees and charges				
Tax collector	861	34,943	36,254	96%
Property appraiser	861	34,943	36,254	96%
Property tax bills - fire & EMS assessment	-	38	100	38%
Total other fees & charges	1,722	69,924	72,608	96%
Total expenditures	823,492	3,914,814	5,754,052	68%

SUNSHINE
WATER CONTROL DISTRICT
STATEMENT OF REVENUES, EXPENDITURES,
AND CHANGES IN FUND BALANCES
GENERAL FUND
FOR THE PERIOD ENDED JULY 31, 2022

	Current Month	Year to Date	Adopted Budget	% of Budget
Excess/(deficiency) of revenues over/(under) expenditures	(735,504)	(402,900)	(2,242,304)	
OTHER FINANCING SOURCES/(USES)				
Transfers in - from DSF Series 2018	-	48,941	-	N/A
Transfers in - from DSF Series 2021	-	-	300,000	0%
Transfer out - to DSF Series 2021	-	-	(107,946)	0%
Total other financing sources/(uses)	-	48,941	192,054	25%
Net increase/(decrease) of fund balance	(735,504)	(353,959)	(2,050,250)	
Fund balance - beginning	14,989,748	14,608,203	14,022,163	
Fund balance - ending				
Assigned:				
3 months working capital	1,438,513	1,438,513	1,438,513	
Disaster recovery	3,500,000	3,500,000	3,500,000	
Truck replacement	142,000	142,000	142,000	
Unassigned	9,173,731	9,173,731	6,891,400	
Total fund balance - ending	$ 14,254,244	$ 14,254,244	$ 11,971,913	

SUNSHINE
WATER CONTROL DISTRICT
STATEMENT OF REVENUES, EXPENDITURES,
AND CHANGES IN FUND BALANCES
DEBT SERVICE FUND SERIES 2018
FOR THE PERIOD ENDED JULY 31, 2022

	Current Month	Year To Date
REVENUES		
Interest	$ -	$ 6
Total revenues	-	6
EXPENDITURES		
Debt service	-	-
Total debt service	-	-
Excess/(deficiency) of revenues over/(under) expenditures	-	6
OTHER FINANCING SOURCES/(USES)		
Transfers (out)	-	(156,887)
Total other financing sources/(uses)	-	(156,887)
Net increase/(decrease) in fund balance	-	(156,881)
Fund balances - beginning	-	156,881
Fund balances - ending	$ -	$ -

SUNSHINE
WATER CONTROL DISTRICT
STATEMENT OF REVENUES, EXPENDITURES,
AND CHANGES IN FUND BALANCES
DEBT SERVICE FUND SERIES 2021
FOR THE PERIOD ENDED JULY 31, 2022

	Current Month	Year To Date	Adopted Budget	% of Budget
REVENUES				
Assessment levy: on-roll	$ 21,015	$ 851,866	$ 848,359	100%
Interest	346	558	-	N/A
Total revenues	21,361	852,424	848,359	100%
EXPENDITURES				
Debt service				
Principal	-	135,000	135,000	100%
Interest	-	291,251	291,251	100%
Total debt service	-	426,251	426,251	100%
Other fees and charges				
Tax collector	420	17,037	8,837	193%
Property appraiser	-	-	8,837	0%
Cost of issuance	-	3,000	-	N/A
Total other fees and charges	420	20,037	17,674	113%
Total expenditures	420	446,288	443,925	101%
Excess/(deficiency) of revenues over/(under) expenditures	20,941	406,136	404,434	
OTHER FINANCING SOURCES/(USES)				
Transfers in	-	107,946	107,946	100%
Transfers (out)	-	-	(300,000)	0%
Total other financing sources/(uses)	-	107,946	(192,054)	-56%
Net increase/(decrease) in fund balance	20,941	514,082	212,380	
Fund balances - beginning	543,819	50,678	-	
Fund balances - ending	$ 564,760	$ 564,760	$ 212,380	

SUNSHINE
Water Control District
Special Assessment Revenue Improvement Bonds, Series 2018
$11,685,000

Debt Service Schedule

Date	Principal	Coupon	Interest	Total P+I
11/01/2021		-	222,015.00	222,015.00
05/01/2022		4.800%	222,015.00	222,015.00
11/01/2022		-	222,015.00	222,015.00
05/01/2023	430,000.00	4.800%	222,015.00	652,015.00
11/01/2023		-	213,845.00	213,845.00
05/01/2024	450,000.00	4.800%	213,845.00	663,845.00
11/01/2024		-	205,295.00	205,295.00
05/01/2025	465,000.00	4.800%	205,295.00	670,295.00
11/01/2025		-	196,460.00	196,460.00
05/01/2026	480,000.00	4.800%	196,460.00	676,460.00
11/01/2026		-	187,340.00	187,340.00
05/01/2027	500,000.00	4.800%	187,340.00	687,340.00
11/01/2027		-	177,840.00	177,840.00
05/01/2028	520,000.00	4.800%	177,840.00	697,840.00
11/01/2028		-	167,960.00	167,960.00
05/01/2029	540,000.00	4.800%	167,960.00	707,960.00
11/01/2029		-	157,700.00	157,700.00
05/01/2030	560,000.00	4.800%	157,700.00	717,700.00
11/01/2030		-	147,060.00	147,060.00
05/01/2031	580,000.00	4.800%	147,060.00	727,060.00
11/01/2031		-	136,040.00	136,040.00
05/01/2032	600,000.00	4.800%	136,040.00	736,040.00
11/01/2032		-	124,640.00	124,640.00
05/01/2033	625,000.00	4.800%	124,640.00	749,640.00
11/01/2033		-	112,765.00	112,765.00
05/01/2034	650,000.00	4.800%	112,765.00	762,765.00
11/01/2034		-	100,415.00	100,415.00
05/01/2035	675,000.00	4.800%	100,415.00	775,415.00
11/01/2035		-	87,590.00	87,590.00
05/01/2036	695,000.00	4.800%	87,590.00	782,590.00
11/01/2036		-	74,385.00	74,385.00
05/01/2037	730,000.00	4.800%	74,385.00	804,385.00
11/01/2037		-	60,515.00	60,515.00
05/01/2038	750,000.00	4.800%	60,515.00	810,515.00
11/01/2038		-	46,265.00	46,265.00
05/01/2039	780,000.00	4.800%	46,265.00	826,265.00
11/01/2039		-	31,445.00	31,445.00
05/01/2040	810,000.00	4.800%	31,445.00	841,445.00
11/01/2040		-	16,055.00	16,055.00
05/01/2041	845,000.00	4.800%	16,055.00	861,055.00
Total	**$11,685,000.00**	**-**	**$5,375,290.00**	**$17,060,290.00**

SUNSHINE
WATER CONTROL DISTRICT

MINUTES

DRAFT

MINUTES OF MEETING
SUNSHINE WATER CONTROL DISTRICT

The Board of Supervisors of the Sunshine Water Control District held a Regular Meeting on August 10, 2022 at 6:30 p.m., at the La Quinta Inn Coral Springs, 3701 N. University Drive, Coral Springs, Florida 33065.

Present were:

Joe Morera	President
Ed Khouri	Vice President

Also present were:

Jamie Sanchez	District Manager
Al Malefatto	District Counsel
Orlando Rubio	District Engineer
Cory Selchan (via telephone)	Field Superintendent
John McKune (via telephone)	Engineering Consultant
Don Sharkey	Current Connections

FIRST ORDER OF BUSINESS **Call to Order**

Mr. Morera called the meeting to order at 6:30 p.m.

SECOND ORDER OF BUSINESS **Roll Call**

Supervisors Morera and Khouri were present. Supervisor Ortiz was not present.

THIRD ORDER OF BUSINESS **Pledge of Allegiance**

All present recited the Pledge of Allegiance.

FOURTH ORDER OF BUSINESS **Public Comments [3-Minute Time Limit]**

No members of the public spoke.

FIFTH ORDER OF BUSINESS **Update: Current Connections, Inc., Letter Regarding Pump Stations #1 and #2 for Electrical Repairs Payment for Stored Materials**

Mr. Rubio presented the Current Connections, Inc. (CCI) request for payment for equipment/materials received for the Pump Stations #1 and #2 repairs. He noted the following:

- Supply and demand issues continue to affect construction and delivery of some equipment/materials was delayed.
- Hurricane season now prevents taking the pump stations offline, as that could be detrimental to the property. Work should commence in early December.
- CCI is currently safely and securely storing the received equipment/materials at its warehouse. The Electrical Engineer of record had an Engineer inspect the materials being stored by CCI and confirm that everything is in order.
- CCI is seeking payment for the received equipment/materials stored in CCI's warehouse.

Mr. Rubio recommended payment, given the extenuating circumstances.

Mr. Don Sharkey, of CCI, noted the following:

- CCI's warehouse is fully concrete and hurricane resistant.
- The project was intended to be completed before hurricane season but all equipment and materials have not been received due to manufacturer delays.
- The last piece of equipment is scheduled to ship in early October and CCI will be responsible for payment for it on November 1, 2022.

It was noted that CCI is not asking for anything extra; rather, only to be paid for the cost of the equipment and materials received and already approved in the contract.

Mr. Sharkey stated CCI's pay application included the manufacturers' invoices to show the cost of the materials and equipment received, thus far, minus the 10% retainage.

Mr. Malefatto stated the decision is at the Board's discretion. He expressed his opinion that this is a fair request, under the circumstances. He recommended amending the contract as appropriate to reflect the change.

Mr. Morera stated he spoke with Ms. Cerbone and Mr. Smith and both support authorizing the payment. He asked what protections the CDD has if CCI goes out of business, is forced into bankruptcy or the warehouse is damaged. Mr. Malefatto stated that insurance is in effect, in the event of a catastrophic event. Mr. Sharkey stated, per the terms of the contract, a 100% performance bond would protect the District, in the event of any catastrophic loss.

Mr. Malefatto asked if the amount requested is $160,000 plus $120,000. Mr. Morera stated no; it is just $160,000 right now. Mr. Sharkey stated it is approximately $160,000, now,

for the equipment that was received and then another $120,000 once the rest of the equipment is received. Those are the gross amounts, which will be reduced by the 10% retainage.

On MOTION by Mr. Khouri and seconded by Mr. Morera, with all in favor, payment for the equipment and materials received and being stored at the CCI warehouse, less the 10% retainage, was approved.

SIXTH ORDER OF BUSINESS **Update: Legislative Matters**

Mr. Malefatto stated there were no updates. This item to be removed from the agenda.

SEVENTH ORDER OF BUSINESS **Consideration of Substitute Resolution 2022-10, Providing for Certain Insurance to Board Members and the Spouse of Board Members; Providing for Severability; Providing for an Effective Date**

Mr. Malefatto believed that, by the next meeting, the necessary information will be received so that a fair consideration and discussion can proceed. This item was deferred.

EIGHTH ORDER OF BUSINESS **Acceptance of Unaudited Financial Statements as of June 30, 2022**

Mr. Morera presented the Unaudited Financial Statements as of June 30, 2022.

On MOTION by Mr. Khouri and seconded by Mr. Morera, with all in favor, the Unaudited Financial Statements as of June 30, 2022, were accepted.

NINTH ORDER OF BUSINESS **Approval of July 13, 2022 Regular Meeting Minutes**

Mr. Morera presented the July 13, 2022 Regular Meeting Minutes.

On MOTION by Mr. Khouri and seconded by Mr. Morera, with all in favor, the July 13, 2022 Regular Meeting Minutes, as presented, were approved.

TENTH ORDER OF BUSINESS Supervisors' Communications

Mr. Morera stated the Coral Springs City Commission appointed him to the Planning and Zoning Board, effective August 15, 2022. A Budget Academy will be held on August 29, 2022 at the City Chamber, from 6:00 p.m. until 7:00 p.m.; all interested parties are welcome.

ELEVENTH ORDER OF BUSINESS Staff Reports

A. District Counsel: *Lewis, Longman & Walker, P.A.*

Mr. Malefatto stated he received a call from a reporter from Variety Magazine; they were reporting on the Reedy Creek Improvement District and asked for the District's response. He told them the District is concerned with flood protection and the welfare of its employees.

B. District Engineer: Craig A. Smith & Associates

- **Presentation: Monthly Engineer's Report**

Mr. Rubio presented the August Monthly Engineer's Report. He discussed the engineering scope of work for Pump Station 1. Once the design is complete, a price proposal from RBD will be negotiated as a change order to the current construction contract.

Discussion ensued regarding the CAS Radise design for work being done on the Riverside Drive Bridge canal. At the Board's request for a recap of next steps in the project, Mr. Rubio will present the proposal and the Report from Riverside Drive at the next meeting.

On MOTION by Mr. Morera and seconded by Mr. Khouri, with all in favor, the Craig A. Smith (CAS) and RADISE International (RADISE) design for Pump Station No. 1, was approved.

C. District Engineering Consultant: *John McKune*

There was no report.

D. District Field Supervisor: *Cory Selchan*

Mr. Selchan reported the following:

- He encouraged Mr. Rubio to bring up the matter of the Riverside Drive Bridge proposal as soon as possible so that the project can move quickly when the time comes.

- Saharan Desert dust is preventing rainfall. Less than 1" of rainfall was received since the last meeting. The lack of rain benefited the culvert project in Westchester and the project is close to completion.
- A District truck was involved in a minor accident. It was repaired and is back in service.

E. District Manager: *Wrathell, Hunt & Associates, LLC*

Ms. Sanchez distributed an Option 2 Agreement from Mr. Alain Bellevue, who spoke at the last meeting seeking a Letter of No Objection (LONO), which was denied. Mr. Bellevue agreed to remove everything in the CDD right-of-way (ROW). Mr. Selchan obtained estimates from Castle Tree Art and Just Call Jane.

Mr. Selchan recalled that the Board asked for tree trimming options. The City Forester indicated it is not acceptable to trim only one side. Both vendors stated the tree is in good shape and, while trimming is not necessary, they will trim it if directed. The bids include removal of the fencing, dock and deck, along with removal and stump grinding of all hardwoods. Both vendors are responsible. He recommended the Castle Tree Art bid, as it is the more competitive bid.

On MOTION by Mr. Khouri and seconded by Mr. Morera, with all in favor, the Castle Tree Art bid, in the amount of $6,680, and the Letter of No Objection/ Option 2 Agreement, were approved.

- **NEXT MEETING DATE: September 14, 2022 at 6:30 P.M. {Public Hearing on Adoption of Fiscal Year 2022/2023 Budget}**
  - **QUORUM CHECK**

The next meeting would be held on September 14, 2022.

TWELFTH ORDER OF BUSINESS Public Comments

No members of the public spoke.

THIRTEENTH ORDER OF BUSINESS Adjournment

On MOTION by Mr. Morera and seconded by Mr. Khouri, with all in favor, the meeting was adjourned at 7:20 p.m.

_____	_____
Secretary/Assistant Secretary	President/Vice President

SUNSHINE
WATER CONTROL DISTRICT

STAFF REPORTS BI

CRAIG A. SMITH & ASSOCIATES
A SMART-INFRASTRUCTURE COMPANY

September 7, 2022

Board of Supervisors
Sunshine Water Control District
2300 Glades Road, Suite 410W
Boca Raton, Florida 33073

RE: SUNSHINE WATER CONTROL DISTRICT - MONTHLY ENGINEER'S REPORT (MER)
(September 14, 2022 Board Meeting)
August 3, 2022 - September 7, 2022
CAS PROJECT NO. 15-1826

Dear Board of Supervisors:

Craig A. Smith & Associates, Inc. (CAS) is pleased to provide you with the MER summarizing activity performed by our team on behalf of SWCD during the referenced period including future work. Anything of significance or modifications occurring after this writing will be brought up at the September 14, 2022 BOS meeting.

Electrical Repairs at Pump Station Nos. 1 and 2

Pay application no. 3 has been recommended for payment. Current Connections Inc is currently working on the building permit for the foundation work at PS2.

West Outfall Canal Phase 2B Improvements

A field meeting headed by Radise International is scheduled with team members (SWCD, Rio-Bak Corp, & CAS) for the structural work at PS1 on 9.8.2022. The engineering design for this work is underway.

At the previous board meeting, an engineering proposal for design work under the Riverside Drive Bridge which entails the widening of the bottom in accordance with the report provided by Radise International was postponed and brought back for this month's board meeting. Once the design is complete, a price proposal from Rio-Bak Corporation is intended to be negotiated as a change order to the current construction contract. Radise International previously prepared (01/2021) and presented to the board an engineering report for each canal crossing with design alternatives and associated costs. Their report is attached to this monthly report for informational and background purposes. Recommended for BOS approval is the Radise International engineering scope which is attached to this report for a lump sum price of $123,295.04.

Culvert Replacement – NW 24th St (Westchester Blvd)

The project continues to be under construction and is being managed by the City and their consultants. Per the interlocal agreement, the SWCD is cost sharing the construction costs.

Right-of-Way Permits

The following applications are recommended for approval or are under review as noted:

- The Ladydbird Academy – Royal Palm Blvd & NW 89th Dr is attached to this report and is recommended for BOS approval.
- Foundry Commercial Acquisition (Waste Transfer Station) Culvert Crossing - Canal RR is attached to this report and is recommended for BOS approval. Note this project was previously approved on August 10, 2020 under SWCD ROW Permit 2022-12 issued to Sawgrass Development Partners, LLC. The construction never started, the permit has expired, and the property is now under new ownership. As such, a new permit will be issued for the same activity.
- Osprey Site - NW 39th St & NW 120th Ave: Additional review comments were sent to the owner's engineers and the review was coordinated with SFWMD permit staff.
- Amera Downtown Development Co., LLC – Sample Road and University Drive: Application submittal has been received (8.25.22) and is under review.

All of the above permit applications are under the cost recovery procedures.

As always, we continue to look forward to working with the SWCD staff on current and future important projects. Should there be any questions, I can be reached at the letterhead numbers shown or by electronic mail at orubio@craigasmith.com.

Sincerely,

CRAIG A. SMITH & ASSOCIATES

Orlando A. Rubio, PE
VP of Stormwater Engineering

Enclosures: ROW Permit Recommendations (2), Radise International (Riverside Drive Bridge Report) and Engineering scope

cc: **SWCD -** Cory Selchan, John McKune, PE (via e-mail)
WHA - Jamie Sanchez, Cindy Cerbone, Debbie Tudor, Daphne Gillyard, Gianna Denofrio, Caryn Kupiec (via e-mail)
CAS - Steve C. Smith, PE, (via e-mail)

August 3, 2022

Craig A. Smith & Associates
21045 Commercial Trail,
Boca Raton, FL 33486

Attn: Orlando Rubio, P.E.

Re: 06-Sunshine Water Control District, West Outfall Canal Improvements - Riverside Dr. Vehicular Bridge, Fee Proposal

Dear Mr. Rubio:

RADISE International (RADISE) is pleased to provide Craig A. Smith & Associates (CAS) this proposal for the development of engineering plans and specifications for the Sunshine Water Control District (SWCD) West Outfall Canal Improvements - Riverside Dr. Vehicular Bridge located in Broward County. This design effort will include civil and structural plans, specifications, and opinion of probable cost for the **Partial Canal Improvements** alternative (PCI) as outlined on pages 17 and 18 of RADISE's **Geotechnical Engineering Services Report** dated January 8, 2021. This alternative may include lag board shoring, tie backs and modifications/removal of concrete aprons under and/or around the bridge. Design will be based on a survey provided by Caufield and Wheeler Inc. dated January 21, 2022.

Engineering support for bidding, award, construction administration and inspection are not included in this scope of work and can be provided if requested.

Task 1 Project kick-off meeting, Coordination and Preparation of Preliminary Plans

RADISE will attend a project kick-off meeting with the designated project manager to establish project objectives, scope, lines of communication and project schedule. RADISE will coordinate with local utilities, Broward County, review existing surveys, geotechnical information and finalize the design approach with CAS. Permits for work in the canal are not included. RADISE will provide 30% plans. RADISE to obtain approval from Broward County regarding bridge modifications.

Deliverable – Attend meeting and provide meeting minutes. Provide two sets of 30% plans (11' x 17") to CAS with electronic copies in PDF format and list of proposed specifications. Obtain approval from Broward County for modifications to the Riverside Bridge.

Task 2 Preparation of Final Design Plans, Specifications and Opinion of Probable Cost

RADISE will provide the following design services:

1. Prepare final 100% engineering drawings and technical specifications. Division One Specifications (except for Summary of Work), General Terms and Conditions, etc. are not included.
2. Prepare an opinion of probable cost.
3. RADISE will provide drawings, technical specifications, and opinion of probable cost within 90 calendar days from approval of 30% plans by CAS and Broward County. RADISE will attend a design review meeting with CAS to review the drawings, technical specification, and opinion of probable cost.

Deliverables – Two (2) sets of plans (11" x 17"), specifications and cost estimates along with electronic copies in PDF format.

Fees

Fee for Task 1,		$	57,664.56
Fee for Task 2,		$	65,630.48
	Total	$	123,295.04

Closure

We appreciate the opportunity to provide this proposal and look forward to working with you on this project. RADISE will be glad to provide a proposal to provide permitting and construction support services, if requested by CSA. Please contact me if you have any questions.

Sincerely,

Tom Mullin, PE
VP - Chief Engineer & Geotechnical Services Group Consultant

January 08, 2021

Craig A. Smith & Associates
21045 Commercial Trail
Boca Raton, FL 33486

Attn: Orlando A. Rubio, P.E.
Direct Phone: 561-314-4445, Ext. 203
Cell Phone: 954-815-5911
E-mail: ORubio@craigasmith.com

RE: Geotechnical Engineering Services Report – Phase 2
Riverside Dr. Vehicular Bridge Evaluation
Sunshine Water Control District
West Outfall Canal Improvements - Bridges
Broward County, Florida
RADISE Project No: 191007

Dear Mr. Rubio,

RADISE International, LC (RADISE) is pleased to submit this Geotechnical Engineering Services Report Phase 2 for the above referenced project. RADISE has completed these services in accordance with our proposal dated August 28, 2019.

This report provides our geotechnical recommendations relative to the **Riverside Drive Vehicular Bridge** structure.

We appreciate the opportunity to work with you on this project. Should you have any questions regarding the report, or if we can be of further assistance as this project develops, please contact us at (561) 841-0103.

Sincerely,

RADISE International, LC
Florida Certificate of Authorization No.8901

Thomas Mullin, State of Florida, Professional Engineer, License No. 43366. This document has been digitally signed and sealed by Thomas Mullin, P.E. on the date indicated here.

Printed copies of this document are not considered signed and sealed and the signature must be verified on any electronic copies.

Andrew Nixon, P.E.
Operations Manager
Florida Registration No. 71458

Thomas Mullin, P.E.
Chief Geotechnical Engineer
Florida Registration No. 43366

TABLE OF CONTENTS

Attachments
Sheet 1 – Site Vicinity Map
Sheet 2 – Boring Location Plan
Sheet 3 – Subsurface Profiles
Appendix A – Side Slope Seepage and Stability Modeling
Appendix B – Cost Estimating Data

1.0 INTRODUCTION

This report has been prepared to aid in the evaluation and the design of the West Outfall Canal Improvements project, for the Sunshine Water Control District West Outfall Canal located in Coral Springs, Broward County, Florida. The project site is located at the general location shown on the attached *Vicinity Map*, Sheet 1.

A subsurface exploration program and laboratory testing program was completed for the bridges associated with the West Outfall Canal Improvements project, and the results were presented in the Geotechnical Engineering Services Report – Phase 1, dated December 13, 2019. That report includes relevant geotechnical exploration data, subsurface groundwater information and laboratory data.

The primary purpose of the Phase 2 engineering review as described herein, is to review the existing site conditions and recent construction improvements relative to the need to implement future construction modifications to the bridge structure and adjacent canal areas.

The assessments and recommendations presented in this report are based upon our interpretation of the subsurface information revealed by the test borings as well as prior construction improvements and as-built conditions thereof already affected at the bridge crossing.

2.0 PROJECT DESCRIPTION

The project is in the City of Coral Springs, Florida, as shown on attached Sheet 1 - *Site Vicinity Map*. It is our understanding that is proposed to continue to widen the West Outfall Canal from north of Coral Springs Drive to the pump station structure south of Riverside Drive. The canal cross section widening improvements have been designed; however, the canal intersects four (4) Vehicular Bridges, one (1) pedestrian bridge structure and one (1) utility pipe canal crossing. These structures are anticipated to constrict conveyance at the crossing locations to varying degrees without providing improvements beneath and thru the existing crossing areas. RADISE was sub-contracted to provide geotechnical engineering and preliminary concept design and cost estimating services to investigate, review, address and accommodate potential canal improvements to be potentially implemented under the following existing crossings:

- Coral Springs Drive Vehicular Bridge – Four lane, divided, prestressed concrete pile supported bridge with rip-rap slope protection.
- Cypress Park Vehicular Bridge – Two lane, prestressed concrete pile supported bridge with rip-rap slope protection.
- Cypress Park Pedestrian Bridge – Pedestrian Bridge, likely supported on shallow foundations, protected by a concrete headwall.
- Cypress Creek Aerial Utility Crossing – Aerial pipe crossing, middle bent supported by prestressed concrete piles, end bents either supported on shallow foundations or prestressed concrete piles with no slope protection on canal banks.

- Atlantic Boulevard Vehicular Bridge – Six lane, divided, prestressed concrete pile supported bridge with gravity walls and concrete covered slopes. Additional canal spanning arched pipe crossing.
- **riverside Dr. Vehicular Bridge** – Two land, prestressed concrete pile supported bridge with gravity walls and concrete covered slopes.

This report addresses the **Riverside Dr. Vehicular Bridge** crossing which is located approximately 0.2 miles north/upstream from the existing pump station structure and is the closest crossing to the pump station.

3.0 PROJECT OVERVIEW

3.1 Bridge Description and Overview

As can be seen in the following photographs, the **Riverside Dr. Vehicular Bridge** crossing consists of a one (1), 2-lane wide bridge approximately 35-feet in width and 70 feet in length between the centerline of the end bents on each side of the canal.

The bridge is supported by two (2) end-bents separated by a distance of about 70 feet located generally at the crest of the existing canal banks. One (1) intermediate bents supports two (2), 32-feet and 38-fet long pre-caste bridge sections. Precast concrete slabs span the canal section from each end bent to the intermediate bent. Variable width approach slabs ranging from 20 to 25-feet wide, provide the roadway transition from small raised earthen embankment approaches onto the end-bent bridge supports.

North Side of Bridge - View looking East

South Side of Bridge – View Looking North

Bridge to canal water level clearances appear equal between the south and north sides of the bridge. The bottom of the bridge has a field measured elevation of about +12.7 ft.-NGVD.

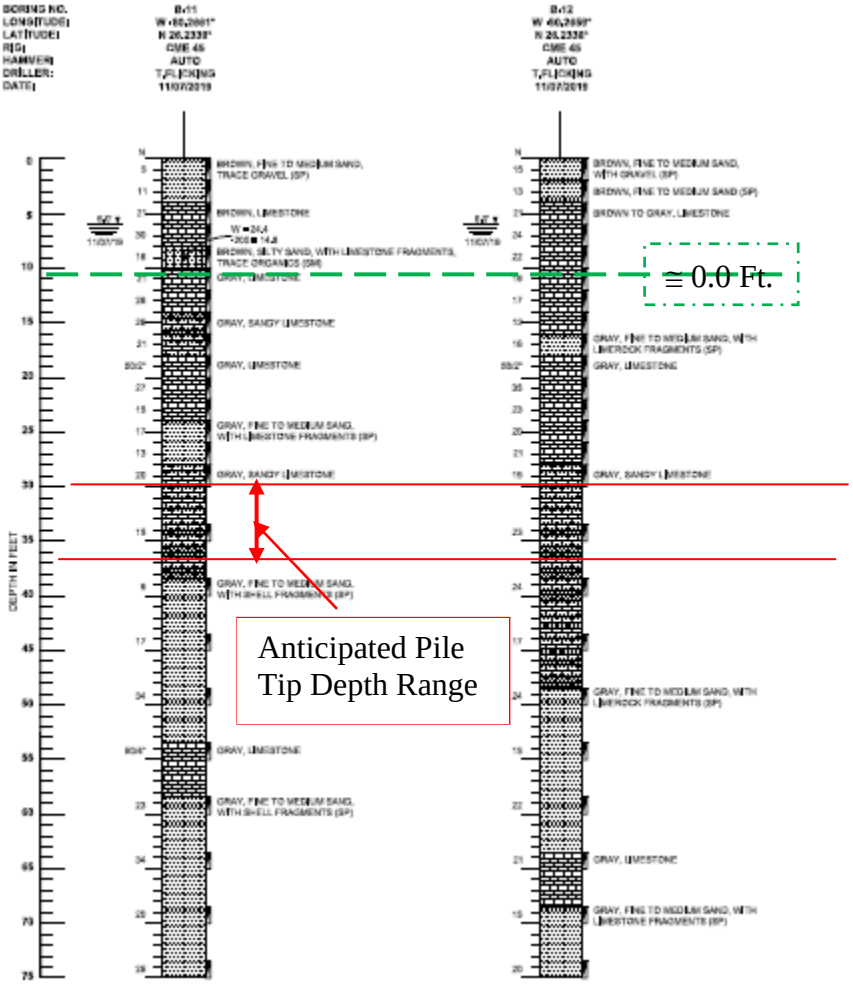
Added Sidewalk Extension

The intermediate bent is supported by 7, square concrete pilings. The southern outside pile was an additional pile added to support an elevated walkway along the south side of the bridge structure. The northern outside pile also appears to be an additional pile installed to support a water line crossing the canal. Other infrastructure lines are also supported/hung along the north side of the precast bridge slab sections.

Added Pipe Support Extension

The pile support configuration for the end bents is unknown but is expected to be on the same order of magnitude as the intermediate bent.

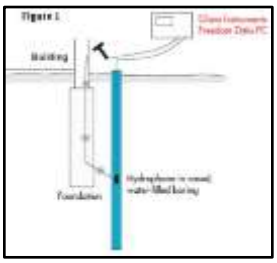
Boring logs drilled for the project are shown on the attached Sheet 3, *Subsurface Profiles*, and are extracted as shown to the right. The location of the borings are shown on the attached Sheet 2, *Boring Location Plan.* From a geotechnical perspective, the review of the B-11 and B-12 boring logs drilled for this bridge, indicate the ground conditions consist of approximately 4-feet of an upper sandy fill mixed with limerock gravel. This upper sand layer is underlain by a weak to moderately cemented limestone with an intermediate sand layer to a depth of around 38 to 48 feet below the prevailing grade at an elevation of approximately +11 ft.-NGVD. Below this depth range, the subsurface conditions at B-11 transitions into a 16-foot thick layer of loose to medium dense sand to depths on the order of 48 feet. Below these sands at B-11, the ground conditions encountered a well-cemented limestone layer with SPT-N values in excess of 50 bpf to a depth of 53 - feet. Finally, below this hard limestone, the B-11 boring encountered a typically medium dense sand with shell and limestone fragments after which a 5 – foot layer of hard limestone was encountered.



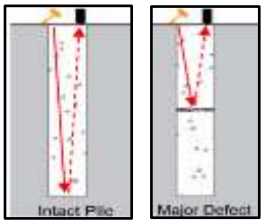
In the B-12 boring profile, below the upper limestones, a typically medium dense sand was encountered from a depth of 30 to 64 feet below the prevailing ground surface. This limestone is underlain by a 5 – foot layer of weakly cemented limestone. Both borings B-11 and B-12 were terminated in a typically medium dense sand to the termination 75 – foot depth of the borings.

From a piling installation perspective, it is reasonable to anticipate that the concrete piles driven for the bridge foundations were likely driven to and seated just into the weakly to moderately cemented limestone below a depth of 33 to 38-feet. This depth would provide adequate axial capacity for the minimally loaded piles as well as being of a enough depth to provide enough embedment (i.e. 20+ feet) below the estimated bottom of the canal for lateral piling capacity resistance. The lateral capacity of the existing end bent piles are further supported by the upper portion of the bridge piling above the canal bottom, being embedded in a weak to moderately cemented limestone. This cemented limestone will add significant lateral resistance capacity to the upper sections of the end bent piling.

If the unknown embedment depth of the piling becomes a design concern for any improvements, we recommend that an Unknown Foundation Study in the form of Parallel Seismic Testing (PST) and/or Pile Integrity Testing (PIT) be conducted should a more formal design efforts be authorized. Brief discussions of same are as follows:



Parallel Seismic Testing (PST) - Parallel Seismic involves hitting any part of the structure that is connected to the pile or (or hitting the foundation itself, if accessible) and receiving compressional and/or shear waves travelling down the foundation piling using a hydrophone or a geophone receiver inserted down an adjacent PVC tubing. With PST, one relies on identifying direct arrival times of compressional and shear waves at the receiver locations, as well as the wave amplitudes. The PST investigation is typically performed at 30-60cm vertical receiver intervals in the borehole. For this bridge site, PST would be prohibited due to access issues and the numerous utilities which exist on each side of the bridge.



Pile Integrity Testing (PIT) - Low strain impact Pile Integrity Testing (PIT) is a non-destructive pile testing method used primarily for integrity assessments of drilled shafts and driven concrete piles. PST results can be used to estimate pile length. If major defects exist, test results may also be interpreted to estimate the location of the pile defect.

This is a system of assessing the integrity of piles using low stress wave imparted to the pile column and is also known as Sonic Integrity or Sonic Echo Testing. A small metal/hard rubber hammer is used to produce a light tap on top of the pile. The shock traveling down the length of the pile is reflected back from the toe of the pile and recorded through a suitable transducer/accelerometer also held on top of the pile close to the point of impact. The PIT data is stored on a computer disk or diskette for subsequent analysis.

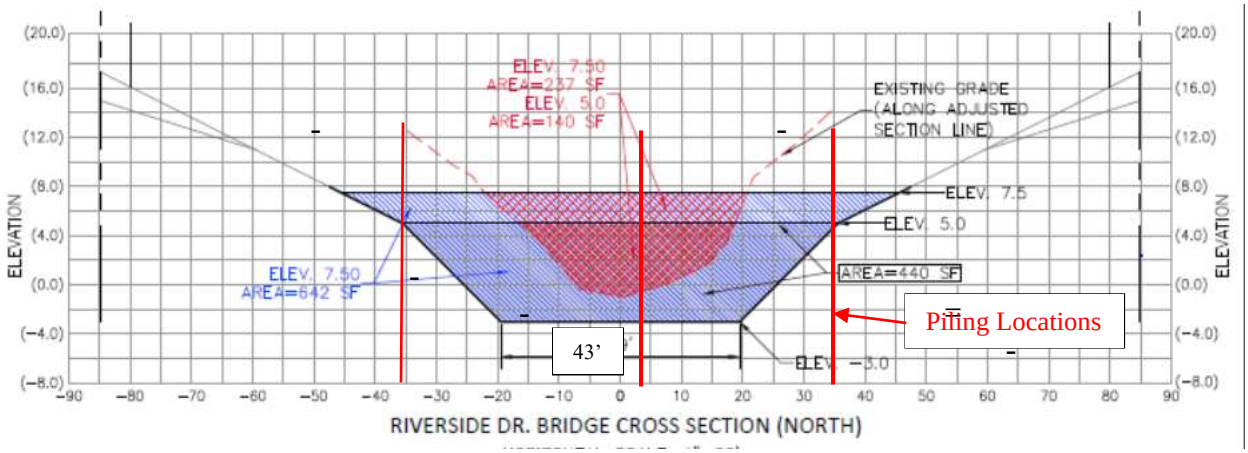
The primary shock wave which travels down the length of the shaft is reflected from the toe by the change in density between the concrete and sub-strata. However, if the pile has any imperfections or discontinuities within its length these will set up secondary reflections which will be added to the return signal (see Fig. 1). By a careful analysis of the captured signal and a knowledge of the conditions of the ground, the length of the pile and a picture of the locations of any discontinuities can be established. The reflected stress wave can be monitored using either processing technique, the observed signals are amplified and converted into digital display as velocity versus length or frequency versus mobility records, providing information on the anticipated length and structural integrity of piles.

One disadvantage with this low strain testing approach is that for long slender piles, the stress wave capable of being imparted to the pile may not be of enough energy for the stress wave to reach and be returned from the pile tip. The method of testing involves high skill and use of computerized equipment. Therefore, the tests should be performed and interpreted by trained and experienced personnel. This type of testing will be the most economical approach compared to the PST. However, the PIT testing may not produce meaningful/interpretable results due to the low energy pulse generation. Testing suitability would be readily evaluated on the first few PIT

testing attempts and if testing results are not meaningful, such a program would be terminated early to minimize/limit subsequent testing costs.

3.2 Canal Description and Overview

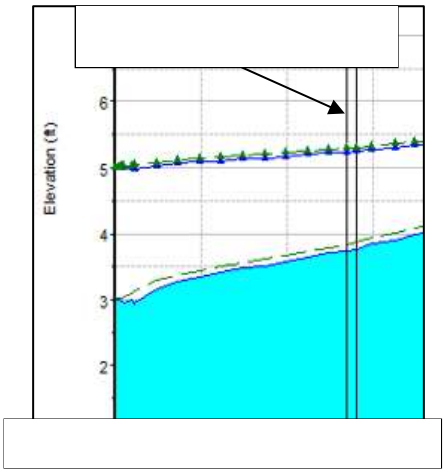
It is understood that the primary concern with this bridge crossing is the increased flow regime and head drop which reportedly occurs thru and beneath the existing bridge canal section. The canals are generally designed with upper safety slopes of 4:H:1V to a couple of feet below the normal canal operational level of +7.5 feet. Canal slopes more than 2-feet below the water depth are reportedly being re-designed with 2H:1V slopes. A schematic of the existing canal overlayed with the new proposed widened canal sections is shown below.



A review of the field measured cross-sections on the north side of the bridge, indicate the current canal section beneath the bridge has only about 237 sf of cross-sectional area beneath the north entry side of the bridge below an elevation of +7.5 feet. At this reduced cross-sectional area, the average canal flow velocities beneath the bridge would be calculated at 468 cfs/237 sf = 1.97 ft/s with a canal water surface at +7.5 feet.

From a worst-case canal flow perspective, it is understood that canal pumping occasionally occurs in advance of approaching significant potential rainfall events such as from hurricanes and tropical storms. Such drawdowns would be infrequent and only of relatively short duration on an annual basis.

This advance pumping at a 468 cfs volume, inherently lowers the canal water surface in the canal therein increasing flow velocities at the canal crossing locations. At a modeled +5.3-foot canal water level elevation during a pump station basin +5-foot elevation drawdown, the existing flow section at the bridge reduces from 237 sf down to 140 sf and the flow rate increases from 1.97 fps to 468 cfs/140 sf = 3.34 fps. At a +3.8-foot canal water level elevation during a pump station basin +3-feet elevation drawdown, the existing flow section at the bridge reduces further to 100 sf and the flow rate increases to 468 cfs/100 sf = 4.68 fps.



For the **Riverside Drive** bridge area, for the existing canal conditions, the flow velocity potentially increases to a maximum of about 4.7 fps during such pre-storm drawdown pumping activities. The fact that the existing canal has been performing well without erosional incidents under these advance drawdown pumping conditions, is a testament to the relatively sound nature of the canal side bank and bottom invert materials. However, the existing canal invert elevation will present a "hump" impediment to the bottom flow regime relative to future adjacent planned canal widening and deepening improvements. Thus, the existing cross-section is not considered to be acceptable.

From a design perspective, this author frequently designs linear canal sections for the SFWMD in natural sandy soils at canal flow velocities of up to 2 ft/sec. It is anticipated that soil/sand particle movements would remain stable with water flow velocities as high as 2 fps (+/-) as indicated by the USACE "Hydraulic Design of Flood Control Channels – Table 2-5" (Ref EM_1110-2-1601). However, once canal flows begin to exceed 1.5 fps, rip rap or other slope protection system begin to be considered by this author from an erosion protection perspective. This also applies to locations where canal necking or widening occurs such as at the Coral Springs Drive bridge site.

Table 2-5
Suggested Maximum Permissible Mean Channel Velocities

Channel Material	Mean Channel Velocity, fps
Fine Sand	2.0
Coarse Sand	4.0
Fine Gravel[1]	6.0
Earth	
Sandy Silt	2.0
Silt Clay	3.5
Clay	6.0
Grass-lined Earth (slopes less than 5%)[2]	
Bermuda Grass	
Sandy Silt	6.0
Silt Clay	8.0
Kentucky Blue Grass	
Sandy Silt	5.0
Silt Clay	7.0
Poor Rock (usually sedimentary)	10.0
Soft Sandstone	8.0
Soft Shale	3.5
Good Rock (usually igneous or hard metamorphic)	20.0

In the case of the **Riverside Dr. Vehicular Bridge** crossing, the side bank and canal bottom materials consist of more erosion resistant weakly to primarily moderately cemented sandy Limestones. The stable nature of these upper limestones is evident by observations and photographs taken of the submerged near bank conditions as observed and documented in the following photographs. Below an elevation of about +6 feet, the banks steepen from about a 1V:3H to a 1V:1H slope beneath the bridge.

Based on the USACE Table 2.5, for canal sections excavated in Soft Sedimentary limestones, canal velocities in the 3.5 fps (Poor Rock – Soft Shale) to as high as 8 fps (Poor Rock - Soft

Sandstone) are commonly allowed depending on the degree of cementation of the canal side-bank and bottom materials. This compares to a similar 6 to 8 fps design velocity range which is also common allowed for rip-rapped canal side slopes.

Correspondingly, it is felt that the existing weakly cemented limestone side banks are marginally adequate and acceptable from a current technical flow velocity and erosion protection perspective. Maximum current canal flow velocities are expected to be in the range of 3.34 fps to 4.68 fps compared to the 3.5 fps (Poor Rock – Soft Shale) to as high as 8 fps (Poor Rock - Soft Sandstone) range previously discussed. Under the worst-case flow conditions during a pre-storm canal drawdown, canal flow velocities through the narrower canal section beneath the bridge, would be on the order of 4.68 fps This effective worst-case canal velocity condition is above the lower velocity level of allowable canal velocities anticipated to potentially cause side bank erosion.

3.3 Canal Widening Alternatives

From discussions with CAS staff, it is understood that there is a stated desire to look at additional canal widening and deepening alternatives through the Riverside Drive bridge, as well as all other crossing areas. The intent is to identify alternatives which may be implemented to increase the bridge area canal cross section, provide a relatively uniform canal invert elevation along the canal without “humps” and reduce average canal flow velocities and head drops through the crossing areas. Hydraulic canal modeling provided by CAS indicates there is only a small 0.1-0.2-foot (+/) head drop across the Riverside Drive bridge footprint.

From a geotechnical engineering perspective, there are several issues of concern which need to be reviewed, discussed and considered prior to going forward with any alternatives for further canal improvements.

1. The bottom of the **Riverside Drive Vehicular Bridge** has a field measured elevation of about +12.7 ft.-NGVD. This provides for a minimum deck/water clearance of only about 5.2-feet from a canal high water level of +7.5 feet. This clearance can be increased by lowering the canal water levels or by temporary cofferdam construction like prior work at the earlier Coral Springs Drive bridge modifications.

2. Preliminary review of the bridge google aerial indicates that the bridge is about 70-feet in length and is supported on apparent 14-inch square concrete piles. After subtracting out 2, 14-inch pile widths, the flow width between the inside faces of the end bent piles would equate to 67.7 feet. From a +7.5 feet canal flow elevation, a 9.5-foot excavation depth would below elevation +7.5 would be required to provide a comparative flow cross-section area of 643 sf close to the 642 sf proposed upstream Canal cross-section. This would require an excavation to a -2.0-foot elevation or deeper between the end bent piling. The invert for the proposed canal improvement south of the bridge to the pump station, is presently anticipated to be at elevation -4 ft. In bridge areas containing the B-11 and B-12 subsurface profile, the upper sand layer and partially into the underlying limestone rock layer would be removed. Most of the lower canal section would be excavated into the weak to moderately cemented limestone layer.

3. In considering any canal widening approach beneath the bridges, an initial evaluation of the canal side slope seepage and slope stability needs to be made to assess slope stability issues associated with steeping of the slopes. For modeling purposes, the soil profiles encountered were used to model soils layers in the bridge crossing areas. For the **Riverside Drive Vehicular Bridge**, the soil layering profile shown in the borings was modeled as provided on Sheet 1 in attached Appendix A.

   Seepage analysis for the project was performed using the SEEP/W component of the Geo-Studio Package developed by GEO-SLOPE International Ltd. in accordance with US Army Corps of Engineers (USACE) Engineer Manual (EM) 1110-2-1901, "Engineering and Design – Seepage Analysis and Control for Dams". SEEP/W is a finite element program that performs seepage analysis and determines seepage paths and rates, phreatic surfaces, pore water pressures and exit gradients. Slope stability analyses were performed using the SLOPE/W component of the Geo-Studio Package. SLOPE/W is a limit-equilibrium slope stability program which utilizes Grid and Radius methods to determine the slip surface with the lowest factor of safety (i.e., the critical slip surface) by computing the factor of safety for many trial slip surfaces.

   The pore pressures generated during seepage analysis modeling are imported into the SLOPE/W program as opposed to using a simple hydrostatic elevation based on an estimated phreatic surface. This approach allows for the reasonably more accurate assessment of any artesian pressures and exit gradients to be incorporated into the slope stability analyses. The phreatic surface for different conditions was either obtained from seepage analysis or input into the cross-section.

   For the canal side slopes, a range of slope angles for the lower slope sections below Elev. +7.5 were evaluated for stability at slope angles from 0.75H:1V to 2H:1V were evaluated. The results of the seepage and slope stability modeling are included in the attached Appendix A and are summarized in the Table 1 below.

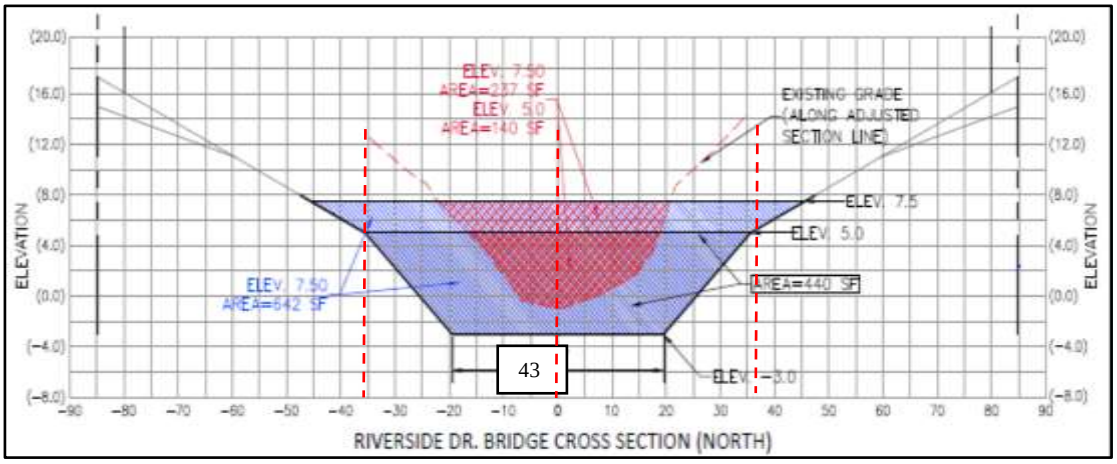
Table 1 – Summary of Canal Side Slope Stabilities

Model No.	Slope Ratio	Canal Water Level	Boundary Ground Water Level	Slope Factor of Safety (FOS) – Left (South) Side	Slope Factor of Safety (FOS) – Right (North) Side	Ref. Figure Number – Seepage Model	Ref. Figure Number – Slope Stability Model
		(Feet)	(Feet)			Appendix A	
0	Base Model Configuration					A--1	
1	0.75H:1V	7.5	10.0	1.59	1.25	A-2a	A-2b
2	0.75H:1V	5.3*	10.0	1.56	1.22	A-3a	A-3b
3	0.75H:1V	3.8**	10.0	1.44	1.12	A-4a	A-4b
4	1H:1V	7.5	10.0	1.79	1.42	A-5a	A-5b
5	1H:1V	5.3*	10.0	1.75	1.39	A-6a	A-6b

6	1H:1V	3.8**	10.0	1.61	1.29	A-7a	A-7b
7	1.5H:1V	7.5	10.0	2.03	1.80	A-8a	A-8b
8	1.5H:1V	5.3*	10.0	1.95	1.75	A-9a	A-9b
9	1.5H:1V	3.8**	10.0	1.81	1.61	A-10a	A-10b
10	2H:1V	7.5	10.0	2.27	2.16	A-11a	A-11b
11	2H:1V	5.3*	10.0	2.16	2.07	A-12a	A-12b
12	2H:1V	3.8**	10.0	1.96	1.90	A-13a	A-13b

*Water Level at bridge crossing with Pump Station Basin Draw Down to +5 feet
** Water Level at bridge crossing with Pump Station Basin Draw Down to +3 feet

Review of the slope stability modeling results above indicates that the presence of the weakly to moderately cemented limestone is beneficial to the stability of the canal slopes. For the proposed worst-case operation conditions during pre-storm drawdown activities of a +5-foot and a +3-foot Pump station basin elevation drawdown, the highlighted green slope ratios and FOS's would provide slopes with greater than a minimum FOS of 1.25. Essentially, it appears that the area beneath the bridge could potentially be constructed with slopes of 1.H:1V or flatter and would be stable under groundwater flows from an adjacent groundwater table of +10-feet into the side banks of the canal.



As discussed earlier, a box excavation beneath the bridge within the end bents to a -2.0-foot or lower elevation, would be required to provide a comparable cross-section area with the canal configuration approaching entering the bridge area.

4. Such an excavation in #2 above, would expose a vertical side slope at the end bent piling and below the bent pile cap of 15 to 16-feet in height would need to be provided. Small bobcat excavators and small bull dozers can easily operate with small head clearances to remove the existing weak to moderately cemented limestone. Canal dewatering would be required to elevation -3.0 feet or below to facilitate construction likely necessitating a dewatering system installed adjacent to the front piling faces with a hung header pipe system anchored to the sides of the end bent pile caps.

5. One of the primary difficulties and concerns with #2 through #4 above, is that the upper roadway fill soils and backfill used to construct the bridge approach embankments, primarily consist of an upper loose to slightly medium dense, non-cohesive sand/gravelly soils underlain by the weakly to moderately cemented sandy limestone. Sloughing of the non-cohesive granular soils could potentially occur to some degree. Such sloughing of any exposed sands and potentially the very weakly cemented sandy limestones, could potentially undermine the end bent cap and potentially propagate voids behind the cap thus potentially undermining the roadway and bridge approach transition slabs. The bridge approach slabs are likely well reinforced and capable of bridging over some minor loss of ground adjacent/exterior to the end bent cap. Major sloughing and loss of ground behind the cap would inherently result in some settlement of the bridge approach slab not supported by the pile supported end bent cap. The slab section supported by the end bent pile supported cap would not settle.

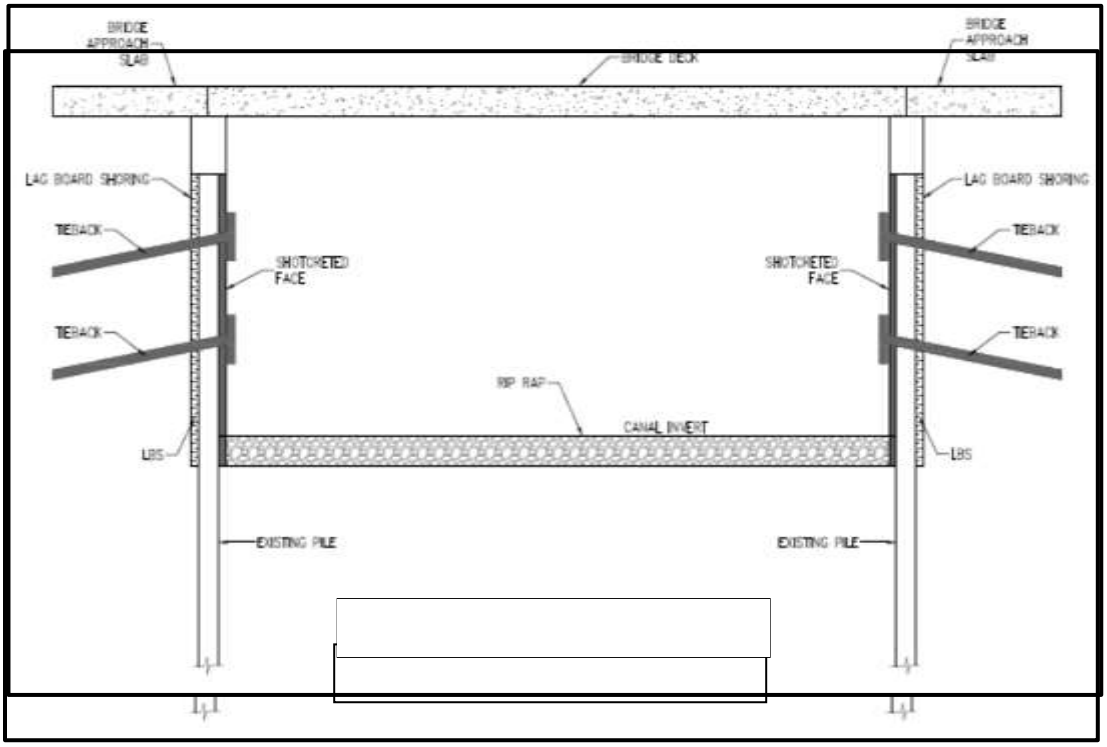
6. Given the above, a design would need to be provided which safely retains the embankment soils behind the back face of the exposed piling and end bent cap. This can be accomplished by 1 of the following anticipated methodologies:

   a. Lag Board Shoring (LBS) Approach – This approach is a historically older approach which involves slowly, methodically and progressively excavating the soil between and behind the backside of the piles and then constructing the wall retention system by inserting/sliding in, pre-cut treated or hardened plastic lagging boards behind the backside edges of the piles. The lag boards are inserted as the excavation slowly progresses downward with depth. With weakly cemented sandy limestone materials, the lower exposed excavation height needs to be minimized to the depth of one or only a few of the lagging elements to be inserted.

   
   Example: H-Piles w/Lagging Boards

   The advantage of this type of an approach is that the work is performed and completed beneath the existing bridge spans without the need for significant disruption of vehicular traffic upon the **Riverside Drive** bridge. A significant disadvantage is that dewatering of the canal and end bent wall installation areas will be required. Also, seepage or other water flows from the backside roadway embankment soils could potentially washout materials from behind the lagging creating a potential void beneath the overlying approach apron slab. Work would need to be completed in the dryer winter and early spring months when rainfall amounts are less however, even during such drier months, unexpected significant rainfall events may adversely impact site construction activities. Such adverse impacts may potentially lead to construction claims for additional costs and contract time extensions particularly in the more wet periods of the year.

This LBS method does have some additional associated risks with its construction particularly if groundwater or other water seepage conditions can occur in the granular fill material being retained. Seepage or other water flows in the approach roadway embankment soils could potentially washout soils behind the lagging creating a potential void beneath the overlying approach apron slab.



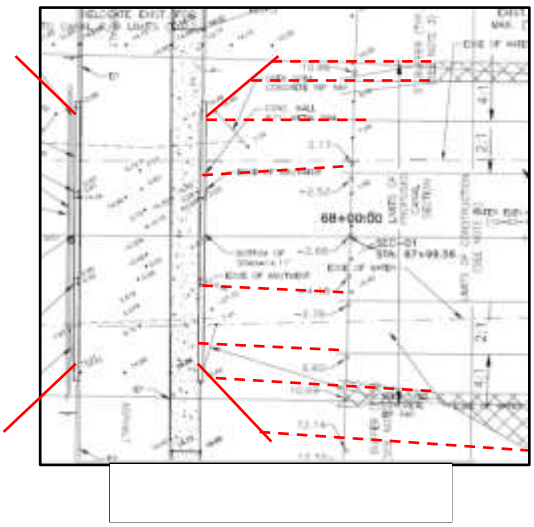
While this approach may be feasible, the need to excavate below the prevailing groundwater to a canal invert elevation of -3 feet would necessitate that a dewatering system be designed, installed and properly operated and maintained by the selected Contractor to assure that saturated soils and very weakly cemented limestones would not wash out from behind any advancing lagging boards with depth. Water levels behind any advancing retention system will need to be kept well below the canal excavation level to mitigate against washouts and sloughing and to prevent loss of ground behind the wall.

Once the excavation is completed, the bottom of the lagging forms would need to be stabilized against future erosion with a poured concrete seal slab constructed out onto the bench elevation at the base of the **LBS**. To provide for long-term wall stability, the areas between the piles would need to be poured in with a reinforced wall as the wooden lagging is only a temporary retention system material which would degrade/rot-out with time as a result of insect attack and the general environmental aging process. This concrete could be extended further out and over the bench area if desired or the bench area could be provided with rip rap, a Uniform Section Mattress or other suitable erosion protection systems.

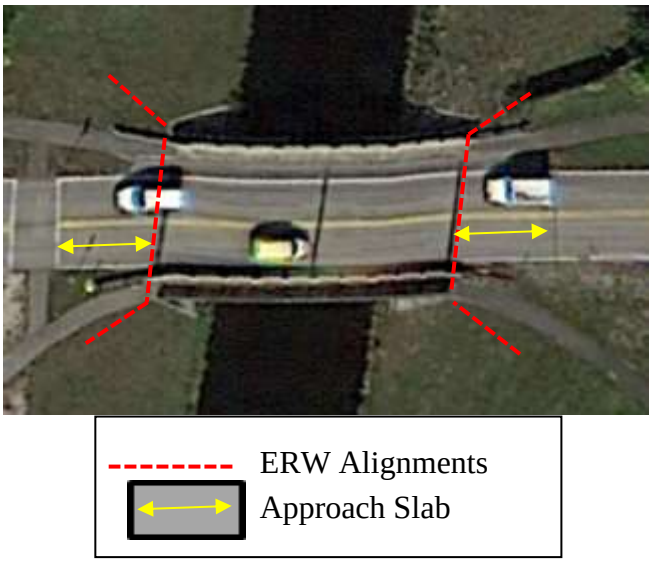
Finally, the active earth pressures being applied to the lagging, will transfer the lateral soil loads to the piling therein potentially causing the piles and end bent pile cap to rotate/move inward slightly towards the canal. Such lateral movement would stop when the end bent precast bridge spans become contacted with the bridge deck therein potentially reducing or eliminating expansion joint movement capacity at the end bent and intermediate expansion joint locations. For this reason, such a design would necessarily require a row of tie-back anchors be drilled, braced and tensioned to support the additional wall/pile loadings and to mitigate against pile movements associated with these loads.

Such tiebacks or an alternate system of soil nails, can be employed to retain the boarded and or stabilized/ excavation face. Such walls are generally constructed from the top down installation process coincident with the progression of the Lag Board excavation and shoring. Typically, soil is excavated in three to six feet deep stages. After each excavation stage, slightly inclined holes are drilled into the exposed face at typically three to six-foot centers. In the case of these walls, anchors would likely be installed mid-way between the existing pilings. Tension-resisting steel bars are inserted into the holes and grouted in place and then the bars are tensioned to restrain the soil. A drainage layer system is installed on the exposed face, followed by the application of reinforced shotcrete wall facing

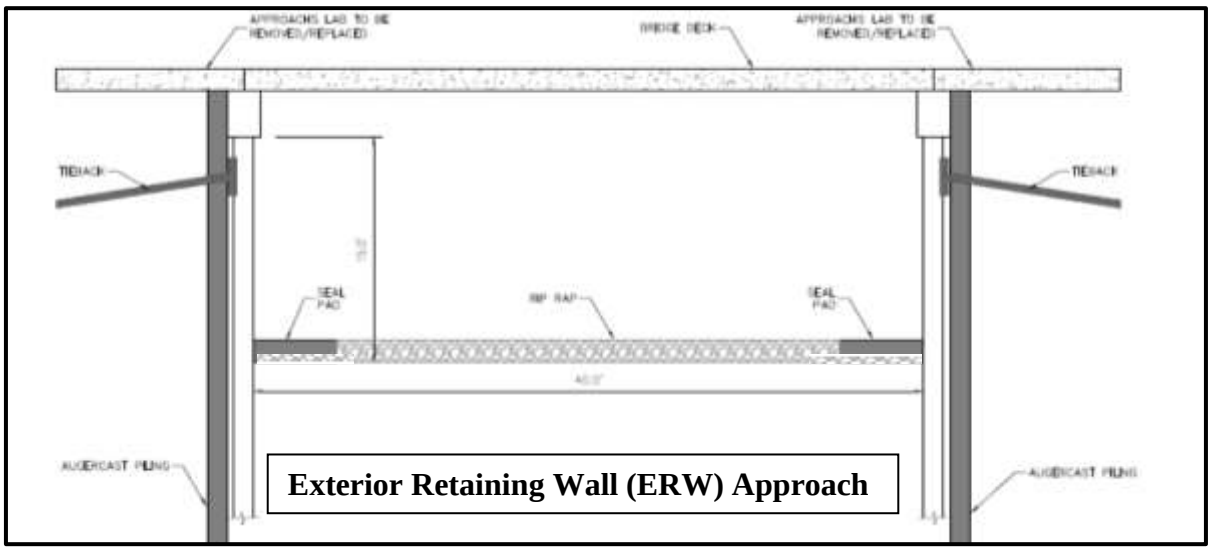
Because of the vertical wall canal section beneath the bridge, a transitional wing wall will need to be provided to transition from the overall wider sloped canal section into the below bridge vertical section. This would need to be provided by a retaining wall installation exterior to the bridge. The wall could be constructed of sheet piling, tangent Augered Cast-in Place piling or other properly designed retention system. The wall would need to extend out to near the top of the adjacent canal bank.



b. Exterior Retaining Wall (ERW) Approach – This approach involves temporarily removing the roadway bridge approach slabs to each side of the bridge and then installing a full-depth retaining wall along the backside face of the end-bent pile cap. A 25 to 30-foot deep wall installation would be required consisting of either steel sheet piling or a system of overlapping tangent installed Augered Cast-In-Place (ACIP) piling, 16" Dia. (min.). The construction sequence involves rerouting traffic around the bridge area onto other area roadways which would facilitate access to the residential areas North and South of the bridge.



The construction sequence involves closing the bridge, removal of the two (2) approach slabs and adjacent ancillary items, and installation of canal retaining and wing walls behind the end-bents. Wingwall installation in the removed Approach Slab area would be followed by re-construction of the approach slabs and any ancillary adjacent infrastructure including sidewalks, guardrails and existing piping re-connections along the outside of the bridge as appropriate. Canal excavation work beneath the bridge would occur thereafter.



It is noted that this ERW approach could also be constructed with steel sheet piling, however, steel sheet piling does corrode with time even when coated. Additionally, sheet piling installation would require some roadway downtime and would have

potential vibration associated impacts to the bridge, its' support piling and adjacent residential areas.

ACIP piles can be installed more quickly, are vibration-free and are more cost-effective to install. Designs can be promulgated to allow for and include a small gap between the new piles and end bent pile cap. Such a small gap would help accommodate some small rotation of the ACIP wall, however, such a design would necessarily require a row of tie-back anchors be drilled, braced and tensioned to support the additional wall/pile loadings and to mitigate against significant pile movements associated with these loads.

Once the ACIP piles are installed, the approach slab can quickly be replaced with a high strength rapid cure concrete to minimize roadway downtime.

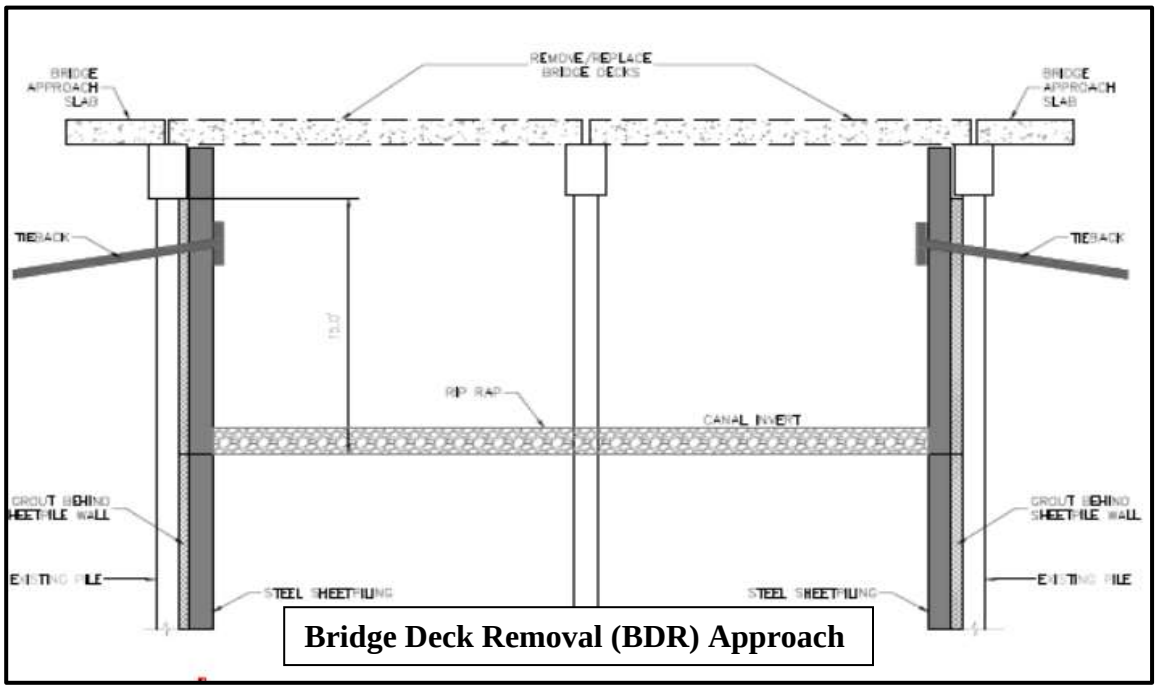
As with the LBS design option, wing walls will be needed to transition the improved, wider upstream and downstream canals sections into the beneath bridge vertical wall section. These can similarly be constructed using tangent ACIP piles or sheet piling.

After the ACIP piles are subsequently cured to design strengths, excavation work beneath the bridge can progress. The side bank soils would simply be excavated to the interior canal face of the hardened overlapping ACIP piles and then deeper to the targeted canal invert elevation.

This option has the primary disadvantage that the traffic across the bridge, will need to be temporarily re-routed while the approach slabs for each roadway bridge structures are removed, retaining walls installed and the approach slabs and walkways reconstructed. Existing utilities located on the sides of the bridge will need to be temporarily disconnected and/or re-located during the quick piling installation beneath the utility alignment. Additionally, identification of and clearances for the location of other presently unknown buried utilities (i.e. Horizontally Directionally Drilled installations) beneath the canal would need to be affected.

c. **Bridge Deck Removal (BDR) Approach** - From an alternative canal excavation perspective, a BDR approach would provide for the potential temporary removal of the existing sectional precast bridge decks to facilitate work within the canal without canal system operational impacts. Such temporary removal would facilitate canal excavation and any canal lining work in the wet without the need of canal dewatering system installations, operation, maintenance and removal.

Once the bridge deck sections are removed, permanent steel sheet piling retaining walls could be installed and backfilled with flowable fill. Tieback would be installed from a small bench excavated interior to the retaining wall and necessary canal excavation and riprap work could be completed in the wet without the need for dewatering or disruption of operational canal systems.



Bridge Deck Removal (BDR) Approach

Necessary excavation work would be completed with standard and/or long-reach excavation equipment within the removed pre-cast bridge deck areas. Half canal sections would be excavated, leveled and rip rapped (as-needed) to complete the canal re-design and construction work from on-land areas adjacent to the bridge in each quarter area of the bridge.

This option has the primary disadvantage that traffic disruption and MOT re-routing plans will need to be developed, approved by local traffic management authorities and then implemented to temporarily re-route traffic around the bridge construction area bridge to complete the project in a two-phase (i.e. north and south) construction sequence.

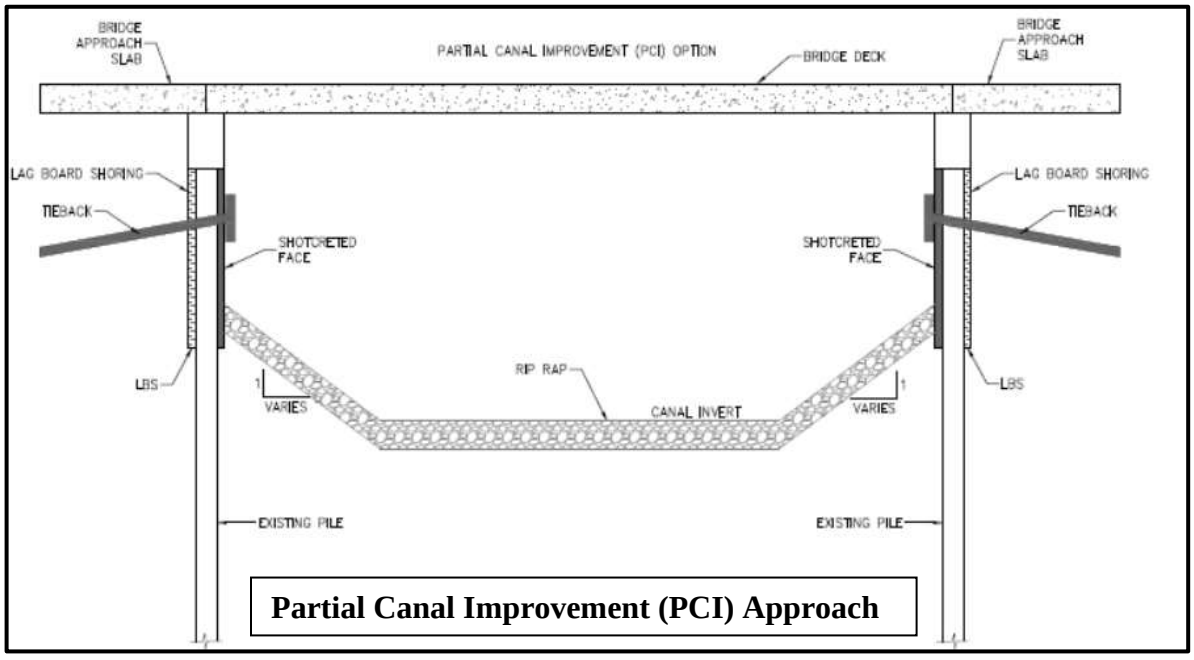
Similarly, existing utilities located on the sides of the bridges would need to be temporarily terminated or re-located during the wing wall piling installation beneath the utility alignment. Additionally, identification of and clearances for the location of other presently unknown buried utilities (i.e. any Horizontally Directionally Drilled installations) beneath the canal would need to be affected. No overhead power lines were observed in the bridge area, so power line feeds are assumed to be buried in nature. Permitting with appropriate utility companies would be required.

Costing analysis included in Appendix B, has assumed that the bridge deck slabs will have to be re-constructed as new as some damage during removal is anticipated. Additionally, design code changes over the years will likely require changes in the decking design section and reinforcement which is unknown for the existing deck slabs. This BDR approach is considered to have the least canal operational impacts as the in-canal excavation work and riprap placement should be capable of being completed in

the wet with long reach backhoe equipment operating from behind the end bent wall areas.

d. Partial Canal Improvement (PCI) - Approach (A) - One additional economical approach to be considered for this particular bridge, would be to simply improve the lower canal section in the limestones to the desired 43-foot bottom width and canal invert and then to provide slopes in the weakly to moderately cemented limestones at a 1.5H:1V to 2H:1V slope ratio to a +5.5-foot elevation. Upper slopes of 3H:1V would be provided exterior of the bridge above this elevation to existing grade.

This approach is a modification of the Lag Board Shoring Approach in that only an upper portion of the canal modification beneath the bridge, would require installation of the Lag boards and only one tie-back would likely be required. This approach would provide the desired canal bottom width, canal invert elevations and lower canal side slope ratios and would fit neatly beneath the bridge section. Additionally, canal flows during pre-storm drawdowns would be relatively low and would vary from 1.02 to 1.29 fps, well below USACE guidance flow criteria.



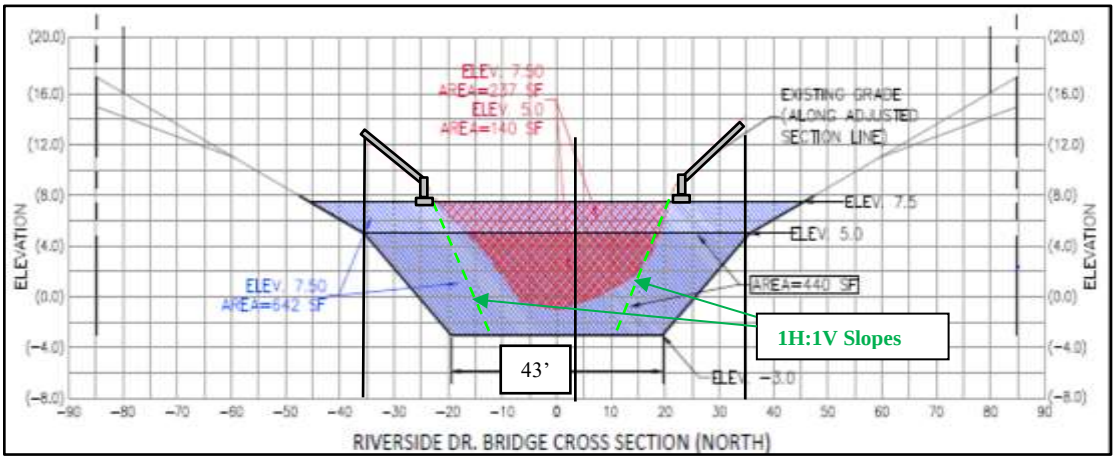
Partial Canal Improvement (PCI) Approach

With this option, there would be a reduced need/quantity for more expensive Lag Board Shoring or other vertical wall construction alternatives and the work could likely be completed without shutting down traffic on Riverside Drive. Additionally, utility disruptions would not be required. Excavation dewatering and flood stormwater drainage to the pump station, however, will remain a critical aspect of the work.

e. Partial Canal Improvement (PCI) - Approach (B) - Additionally, it is noted at this bridge that there exists a concrete slope apron beneath the bridge at the abutment areas which extends down to the waterline. There appears to be a small vertical retaining wall supported by a footing at the toe of the apron slope. This apron slope concrete and wall/footing would be required to be removed to construct the prior approaches.

Based on the review of the boring logs, it is anticipated that this wall/footing may likely have been constructed on the existing Limestone. One additional alternative which may be considered would be to leave the slope apron and wall footing concrete in-place and then trim the in-situ limestone slopes to a 1H:1V slope angle or flatter to the desired canal invert elevation.

This would provide a modified canal with a bottom width of about 23-feet and an approximate flow area of 194 sf below elevation +3.7 feet at a maximum flow velocity of 468 cfs/194 sf = 2.41 fps. This flow rate would be approximately 52% of the existing beneath bridge maximum flow condition (i.e. 2.41 fps/4.68 fps x100). This flow rate has been successfully accommodated by the current canal cross-section and is well capable of being resistant to scour per USACE guidance criteria for rip rap installations over the ground conditions encountered at this site.



The partially improved canal section would, however, create a narrowing/neck in the canal resulting in a higher flow velocity and small increased head drop beneath the bridge. However, such a partial canal modification would provide the canal invert elevation desired for entry into the pump station approach segment of the canal south of the bridge. This approach has the cost savings advantage that the existing concrete apron slab and wall/footing would not need to be removed. Additionally, Lag Board Retaining walls and tie-back installations would not be required.

f. Design Build Approach – The nature of the work described in 3.3.63a thru 3.3.6.d inherently involves specialty geotechnical construction work such as lag boarding installation, tie-back installation, sheet piling or ACIP installation work and shotcreting as examples. Given the specialty nature of some of the more critical and difficult construction work efforts, consideration has been given to projects of this specialized nature to prepare preliminary plans and design criteria/specifications describing the general nature of the work to be completed and then issue an RFP for a Design/Build (D/B) option approach.

In this manner, the design, construction, performance and construction liability rests solely on the shoulder of the selected and contracted Design Build team. The preliminary contract documents could also be tailored to provide for an extended Warranty period beyond the traditional Design/Bid/Build 1-year Warranty performance period.

4.0 ALTERNATIVES PRELIMINARY COST ESTIMATES

To help facilitate and assist in the decision-making process, Appendix B attached hereto, contains a preliminary Cost Estimate for the different alternatives describes in subsection 3.3.6.a, 3.3.6.b, 3.3.6.c, 3.3.6.d and 3,3,6.e discussed earlier herein. A summary of the provided cost estimates is provided in the following Table 2 below:

Table 2: Summary of Alternative Cost Estimates

Approach ID.	Description	Total Constr. Cost Estimate ($)	Testing, Engineering & Permits	Bid/Construction . Engineering & Insp.	Total Cost Estimate ($)
3.3.6.a	Lag Board Shoring	$1,441,327	$178,959	$144,133	**$1,764,419**
3.3.6.b	Exterior Retaining Wall (ERW)	$1,857,047	$228,846	$185,705	**$2,271,598**
3.3.6.c	Bridge Deck Removal (BDR)	$ 2,535,334	$310,240	$253,533	**$3,099,107**
3.3.6.d	Partial Canal Improvement (PCI) – Approach A	$984,664	$124,160	$98,466	**$1,207,291**
3.3.6.e	Partial Canal Improvement (PCI) – Approach B	$441,982	$53,038	$44,198	**$539,218**
3.3.6.f	Design/Build	TBD	TBD	TBD	TBD

Review of the costing data indicates that Partial Canal Improvement (PCI) – Approach A, is the most cost effective for this crossing while mostly achieving the desired hydraulic performance of the canal. This approach, however, is considered to be a slightly riskier approach due to the lag board installation process, canal and end-bent dewatering required and the potential for some loss of ground in sand soils behind the advancing lag board installations with depth below the exterior ground water levels. The PCI - Approach B is the most economical approach for the bridge however, such an approach implementation will restrict the canal cross-section beneath the bridge resulting in increased flow velocities and head drops across the structure.

The ERW approach is the second most costly approach primarily due to the need to provide MOT traffic diversions to shut down one bridge at a time, removal and replacement of the approach slabs to the bridge, temporary utility system disconnects and re-connects and installation of ACIP tangent piling walls. Coordination with local transportation agencies, permitting and public involvement/notifications will be important aspects of any follow-on design and construction management efforts.

The Bridge Deck Removal and replacement/reconstruction is the most costly approach due to the need to provide MOT traffic diversions to shut down one bridge at a time, removal and replacement of the bridge decks, temporary utility system disconnects and re-connects and installation of steel sheet piling walls. Costing analysis has assumed that the bridge deck slabs will have to be re-constructed as new as some damage during removal is anticipated. Additionally, design code changes over the years will likely require changes in the decking design section and reinforcement which is unknown for the existing deck slabs. This BDR approach is considered to have the least canal operational impacts as the in-canal excavation work and riprap placement should be capable of being completed in the wet with long reach backhoe equipment operating from behind the end bent wall areas.

5.0 CONCLUSION AND RECOMMENDATIONS

Based on the review of the subsurface conditions encountered in the borings along with evaluations of the canal design and as-built conditions, it is this authors' opinion that the current as-built canal condition beneath the bridge can be most economically modified and improved to achieve acceptable and compatible flow conditions from a technical perspective. Application of the 3.3.6.d Partial Canal Improvement (PCI) Approach A, would result in an improved canal section with a 43-foot bottom width and 2H:1V lower canal side slopes to a +5.5-foot elevation. This approach would mostly achieve the desired project hydraulic goals. With a PCI – A design, increased canal flow velocities up to 1.29 fps may be experienced for a worst-case advance storm pre-drawdown to a +3-foot Pump station basin drawdown, condition. This canal flow rate is well below tolerable the previously discussed USACE guidance flow ranges of 2.0 fps for sands and up to 8.0 fps for rip rap lined canals.

Alternatively, application of the 3.3.6.e Partial Canal Improvement (PCI) Approach B, results in an improved canal section with an invert of -3 feet elevation and a canal bottom width of approximately 23-feet and 1H:1V side slopes to an +7-foot elevation. With a PCI Approach B design, increased canal flow velocities up to 2.84 fps may be experienced for a worst-case advance storm pre-drawdown to a +3-foot Pump station basin drawdown, condition. This canal flow rate

is well below tolerable the previously discussed USACE guidance flow ranges of up to 8.0 fps for limestone or rip rap lined canals. The partially improved canal section, however, would create a narrowing/neck in the canal resulting in the higher flow velocity and small increased head drop beneath the bridge. Finally, it is also to be noted that the bridge abutments above the +5.5-foot elevation, will present an upper canal section restriction and narrowing of the upper canal flow regime resulting in somewhat increased canal flow rates and a small head loss across the structure.

The PCI options both have the final advantage that there would be minimal disruption to roadway and infrastructure systems resulting in minimal inconveniences to the surrounding community.

From a full cross-section remedial action approach which would provide a comparable beneath bridge canal cross-section with the upstream sloped canal section , the 3.3.6.a. Lag Board Shoring (LBS) Approach is the most economical full remedial construction option. This option will provide resilience from a long-term performance and maintenance perspective. The LBS Approach will approximately match total cross-sectional canal areas with the upgraded upstream and downstream canal widening projects which have been completed. This option does have some installation risk from a construction Lag Board installation and dewatering perspective. Additionally, along with all other remedial alternatives, the LBS approach does have a minor disadvantage in that existing utility infrastructure may need to be temporarily disrupted to facilitate the LBS wingwall construction.

Additionally, along with all other remedial alternatives, the LBS approach does have a significant disadvantage in that existing utility infrastructure may need to be temporarily disrupted to facilitate the LBS wingwall construction.

It is noted that presented calculations for currently existing canal flow conditions also indicate the present canal section is presently functioning safely under much higher canal flow velocities at flow velocities of up to 4.68 fps beneath the bridge crossings. This PCI – Approach B option has the final advantage that there would be minimal disruption to roadway and infrastructure systems resulting in minimal inconveniences to the surrounding community.

6.0 REPORT LIMITATIONS

This report is intended for geotechnical and preliminary conceptual design and cost estimating purposes only, and does not document or detect the presence, or absence, of any environmental conditions at the site, nor is it intended to perform an environmental assessment of the site.

The analysis and recommendations presented in this report are based upon our interpretation of the subsurface information revealed by the test borings. The report does not reflect variations in subsurface conditions that may exist between or beyond these borings. Variations in soil and groundwater conditions should be expected, the nature and extent of which might not become evident until construction is undertaken. If variations are encountered, and/or the scope of the project altered, we should be consulted for additional recommendations.

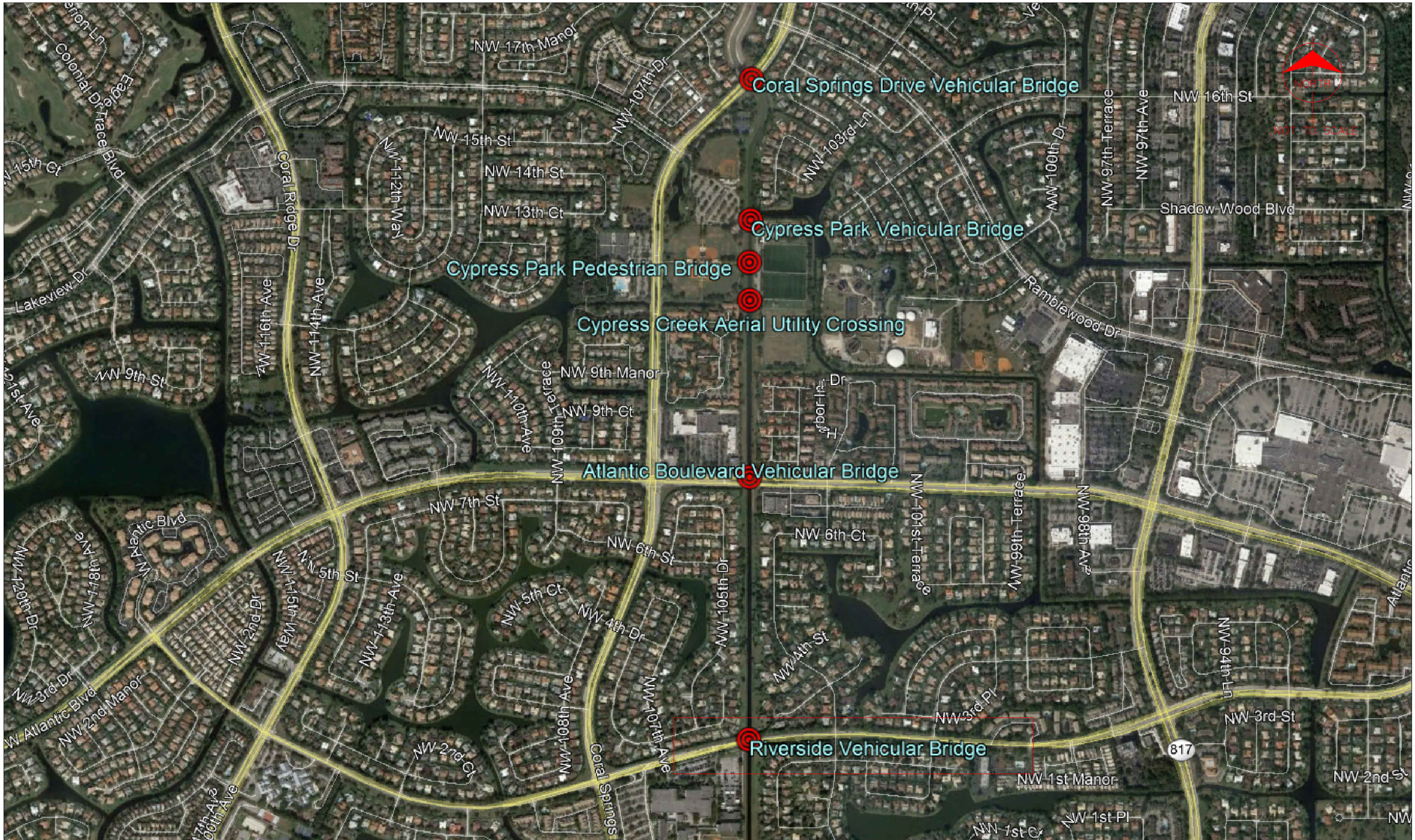
RADISE International warrants that the professional services performed and presented in this report, are prepared for Craig A. Smith & Associates and are based upon typical standard of care

recognized principles and practices in the discipline of geotechnical engineering and hydrogeology at this place and point in time, for this project site. No other warranties are expressed or implied.

-oOo-

RADISE appreciates the opportunity to be of service to you. Please feel free to contact us at 561-841-0103 if you have any questions or comments regarding this report.

Respectfully submitted
RADISE International, L.C.



REVISIONS							Names	Dates
Date.	By	Descriptions	Date.	By	Descriptions	Drawn by	AK	11/22/2019
						Checked by	NK	11/22/2019
						Designed by	AB	11/22/2019
						Checked by	AB	11/22/2019
						Approved by		

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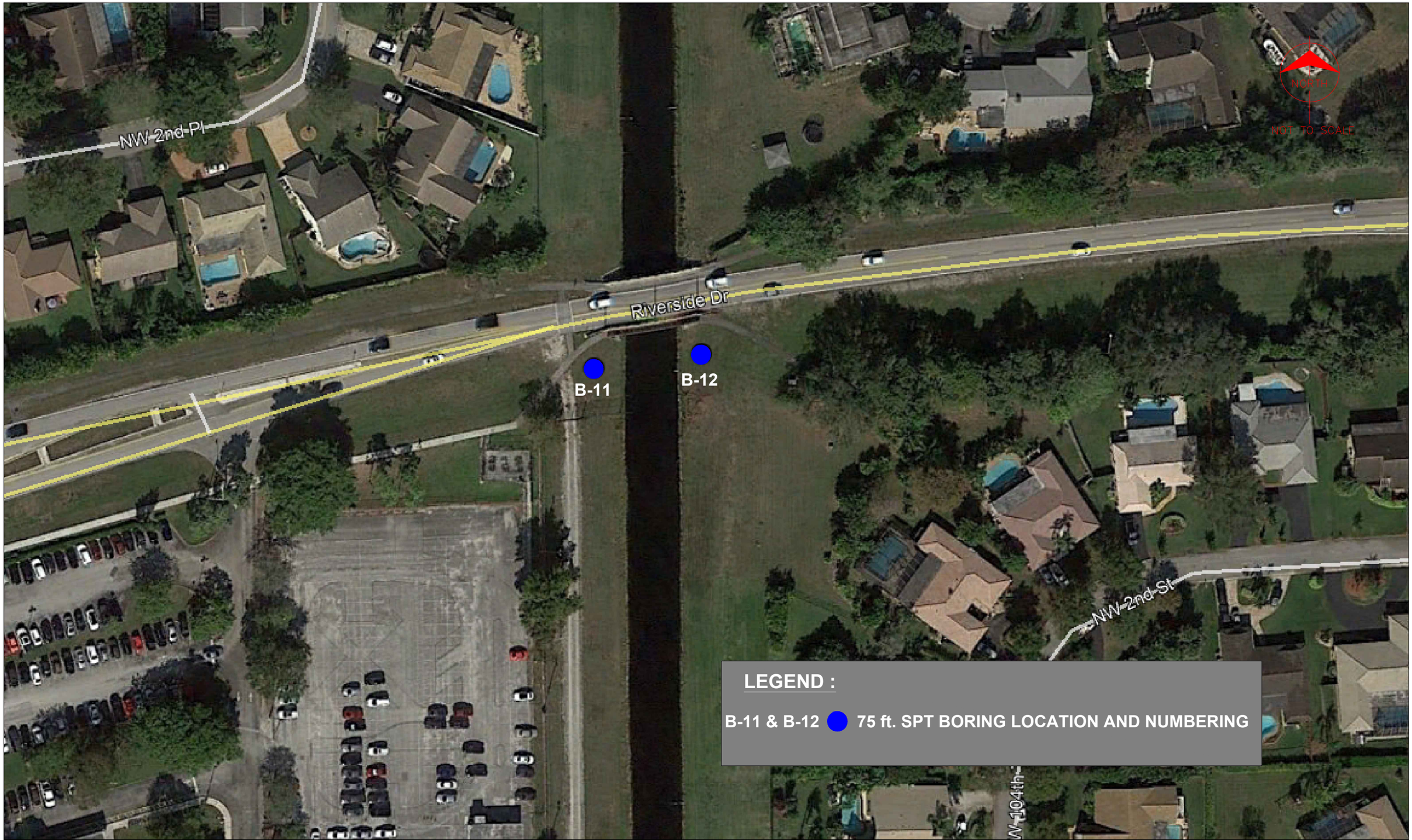
SUNSHINE WATER CONTROL DISTRICT		SCALE: VERTICAL N.T.S.	SHEET TITLE: VICINITY MAP	SHEET NO. 1
COUNTY	CLIENT	SCALE: HORIZONTAL N.T.S.	PROJECT NAME: WEST OUTFALL CANAL IMPROVEMENTS BRIDGES	RADISE PROJECT NO: 191007
BROWARD	CRAIG A. SMITH & ASSOCIATES			



REVISIONS							Names	Dates
Date.	By	Descriptions	Date.	By	Descriptions	Drawn by	AK	11/22/2019
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						Approved by		

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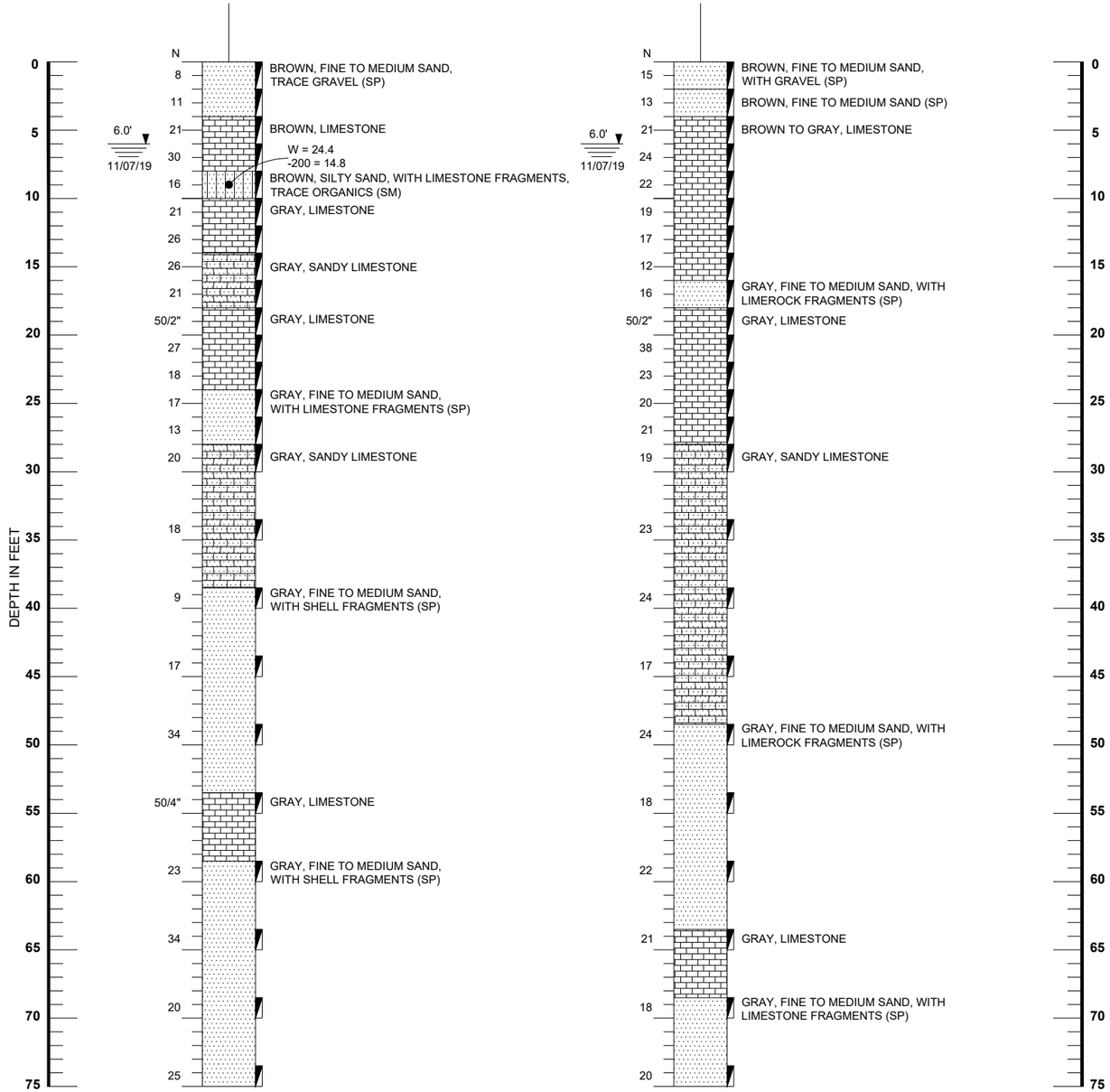
SUNSHINE WATER CONTROL DISTRICT		SCALE: VERTICAL N.T.S.	SHEET TITLE: BORING LOCATION PLAN	SHEET NO. 2
COUNTY	CLIENT	SCALE: HORIZONTAL N.T.S.	PROJECT NAME: WEST OUTFALL CANAL IMPROVEMENTS RIVERSIDE DRIVE VEHICULAR BRIDGE	RADISE PROJECT NO: 191007
BROWARD	CRAIG A. SMITH & ASSOCIATES			

	B-11	B-12
BORING NO.	B-11	B-12
LONGITUDE:	W -80.2661°	W -80.2659°
LATITUDE:	N 26.2338°	N 26.2338°
RIG:	CME 45	CME 45
HAMMER:	AUTO	AUTO
DRILLER:	T.FLICKING	T.FLICKING
DATE:	11/07/2019	11/07/2019



B.T. @ 75'
BELOW EXISTING GRADES

B.T. @ 75'
BELOW EXISTING GRADES

LEGEND

- SAND (SP, SP-SM)
- LIMEROCK
- TOPSOIL
- SANDY LIMESTONE
- SILTY SAND (SM)
- LIMESTONE

B.T @ 75'	BORING TERMINATED AT 75 FEET BELOW THE EXISTING GROUND SURFACE
B-1	STANDARD PENETRATION TEST (SPT) BORING AND NUMBER
N	STANDARD PENETRATION RESISTANCE-BLOWS PER FOOT USING AUTOMATIC HAMMER
	SAMPLING INTERVAL
4.5' ▼ 10/22/19	GROUNDWATER LEVEL IN FEET AND DRILLING DATE
W	MOISTURE CONTENT (%)
GROUP SYMBOL	(ASTM D 2487)
OC	ORGANIC CONTENT (%)
-200	AMOUNT PASSING US STANDARD 200 SIEVE (%)
SP, SP-SM	UNIFIED SOIL CLASSIFICATION SYSTEM

NOTES:

1. BORINGS WERE DRILLED BETWEEN 10/22/2019 AND 11/08/1 SPT BORINGS WERE PERFORMED USING A CME-45C AUTOMATIC HAMMER DRILLING RIG (ASTM D1586)
2. STRATA BOUNDARIES ARE APPROXIMATE AND REPRESEN SOIL STRATA AT EACH TEST HOLE LOCATION ONLY. SOIL TRANSITIONS MAY BE MORE GRADUAL THAN IMPLIED.
3. GROUNDWATER LEVELS SHOWN ON THE SUBSURFACE PROFILES REPRESENT GROUNDWATER SURFACES ON TH DATES SHOWN. GROUNDWATER LEVEL FLUCTUATIONS SHOULD BE ANTICIPATED THROUGHOUT THE YEAR.
4. AFTER COMPLETION OF DRILLING, BOREHOLES WERE BACKFILLED WITH GROUT. ASPHALT PAVEMENT WAS PATCHED USING ASPHALT COLD PATCH, WHERE NECESSA

STANDARD PENETRATION TEST DATA *

SPOON INSIDE DIA.	1.375 INCH
SPOON OUTSIDE DIA.	2 INCHES
AVG. HAMMER DROP	30 INCHES
HAMMER WEIGHT	140 POUNDS
GRANULAR MATERIALS	AUTOMATIC HAMMER SPT N - VALUE
RELATIVE DENSITY	BLOWS/FOOT
VERY LOOSE	LESS THAN 3
LOOSE	3 - 8
MEDIUM	8 - 24
DENSE	24 - 40
VERY DENSE	GREATER THAN 40
SILTS AND CLAYS	AUTOMATIC HAMMER SPT N - VALUE
CONSISTENCY	BLOWS/FOOT
VERY SOFT	LESS THAN 1
SOFT	1 - 3
FIRM	3 - 6
STIFF	6 - 12
VERY STIFF	12 - 24
HARD	GREATER THAN 24

*FDOT SOILS AND FOUNDATIONS HANDBOOK 2018

REVISIONS

Date.	By	Descriptions	Date.	By	Descriptions

	Names	Dates
Drawn by	AK	11/22/2019
Checked by	NK	11/22/2019
Designed by	AB	11/22/2019
Checked by	AB	11/22/2019
Approved by		

RADISE INTERNATIONAL
LICENSE NO. - 8901

ENGINEER OF RECORD
ANDREW NIXON (P.E.No. - 71458)
RADISE International
4152 West Blue Heron Boulevard, Suite 1114
Riviera Beach, Florida. 33404
TEL 561-841-0103 FAX 561-841-0104
URL : http:// www.radise.net

SUNSHINE WATER CONTROL DISTRICT

COUNTY	CLIENT
BROWARD	CRAIG A. SMITH & ASSOCIATES

SCALE: VERTICAL N.T.S.
SCALE: HORIZONTAL N.T.S.

SHEET TITLE: **SUBSURFACE PROFILES**

PROJECT NAME: **WEST OUTFALL CANAL IMPROVEMENTS RIVERSIDE DRIVE VEHICULAR BRIDGE**

SHEET NO. **3**

RADISE PROJECT NO: **191007**

Appendix A

Results of
Canal Side Slope Seepage
and
Stability Modeling

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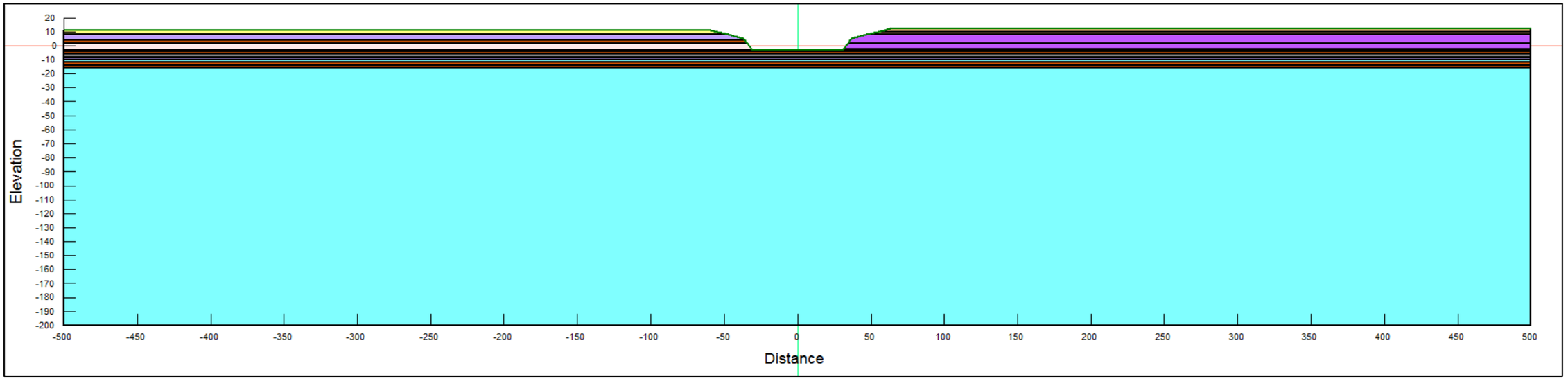

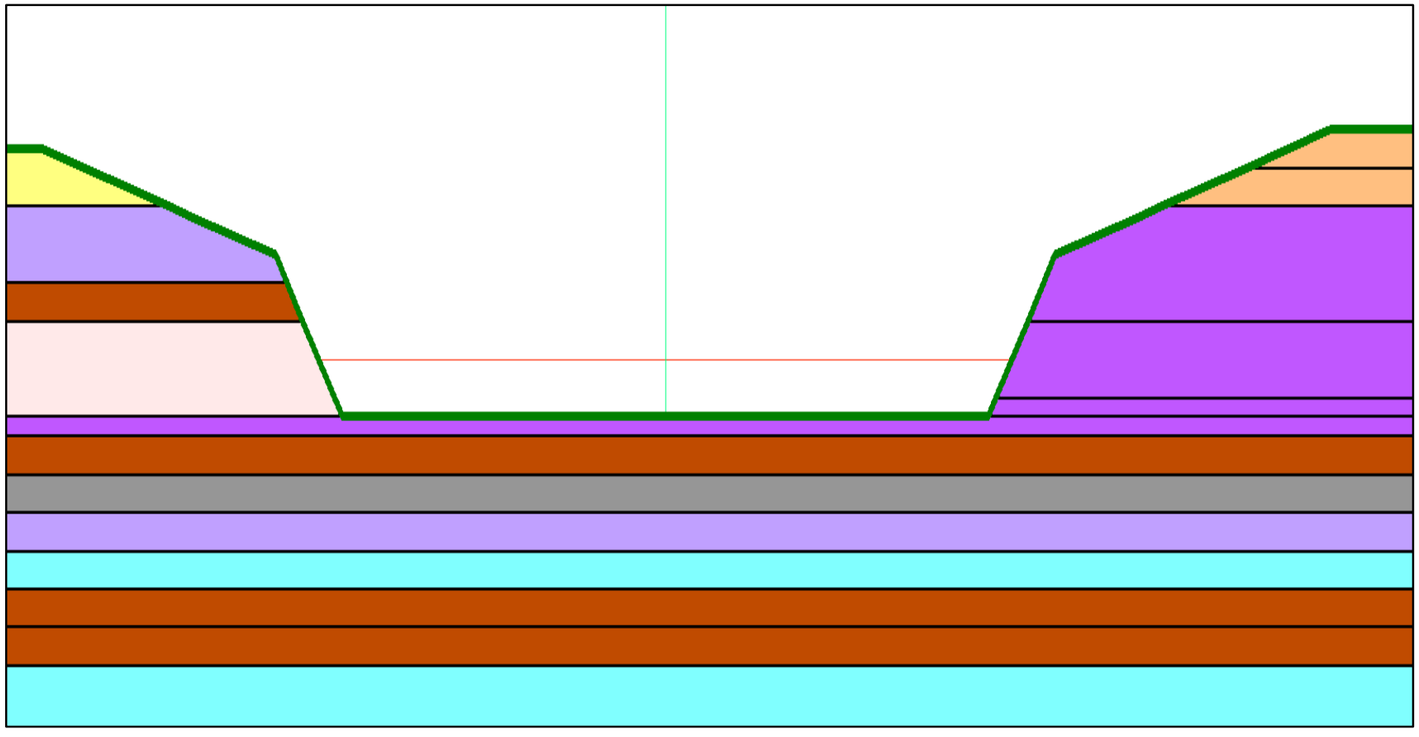

Color	Name
	Limestone 4
	Limestone 5
	Limestone 6
	Limestone 7
	Limestone 8
	Sand
	Sand 4
	Sand 7

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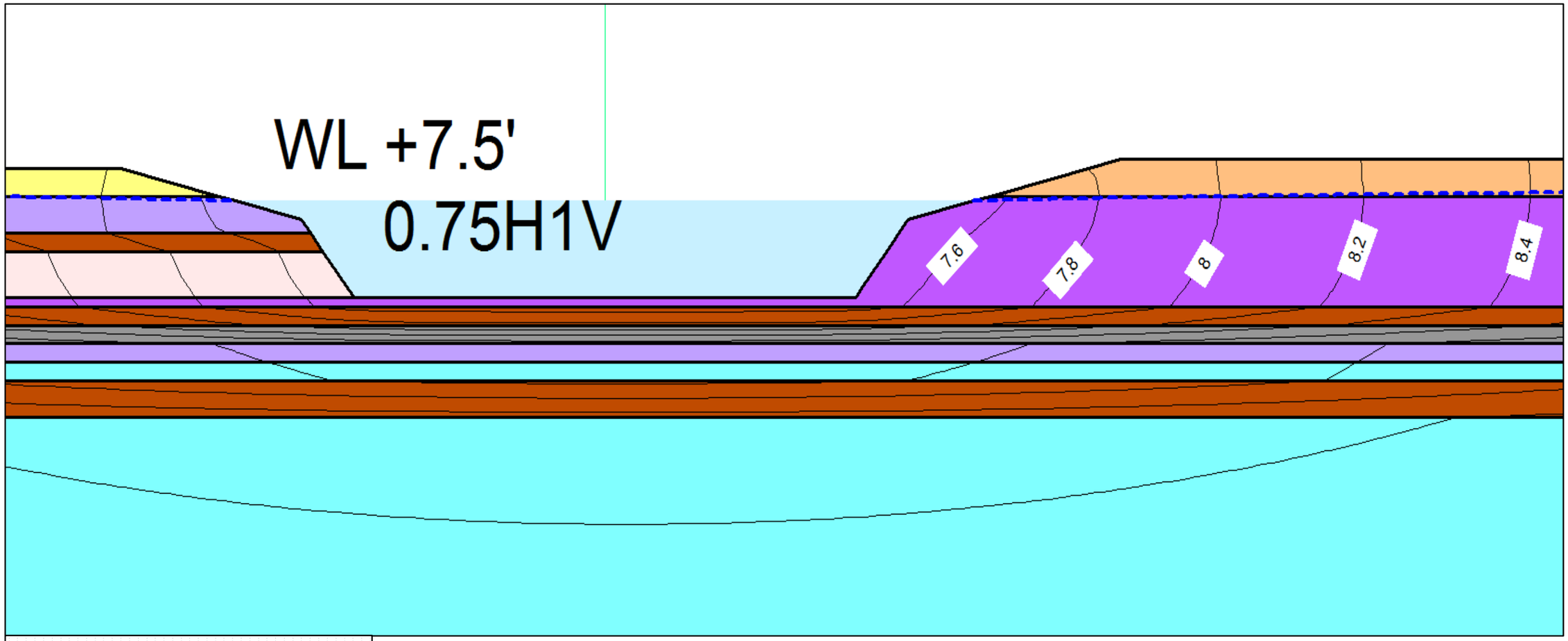
RADISE Project Number: 191007



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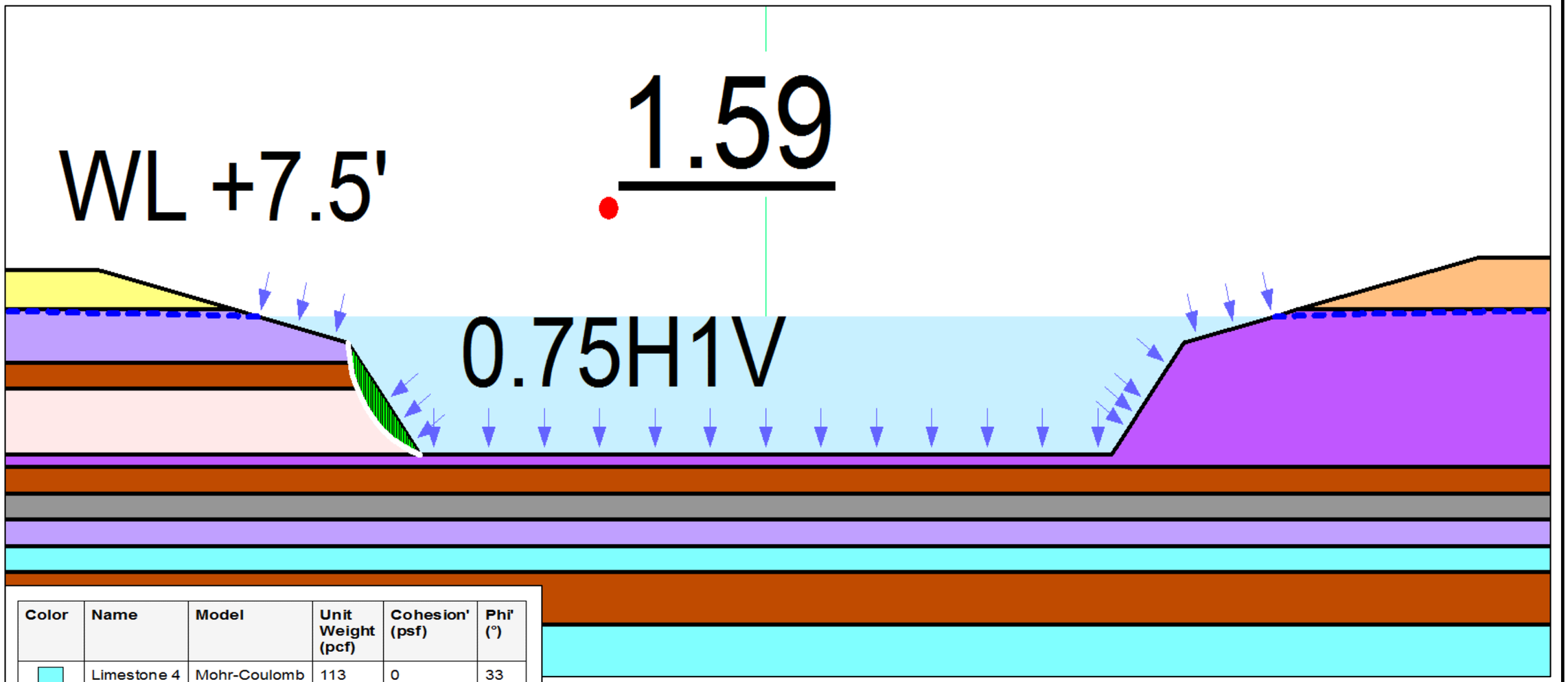
	Limestone 7	Saturated / Unsaturated	200	0.1
	Limestone 8	Saturated / Unsaturated	200	0.1
	Sand	Saturated / Unsaturated	20	0.1
	Sand 4	Saturated / Unsaturated	20	0.1
	Sand 7	Saturated / Unsaturated	20	0.1

RADISE Project Number: 191007



Color	Name	Model	Unit Weight (pcf)	Cohesion' (psf)	Phi' (°)
	Limestone 4	Mohr-Coulomb	113	0	33
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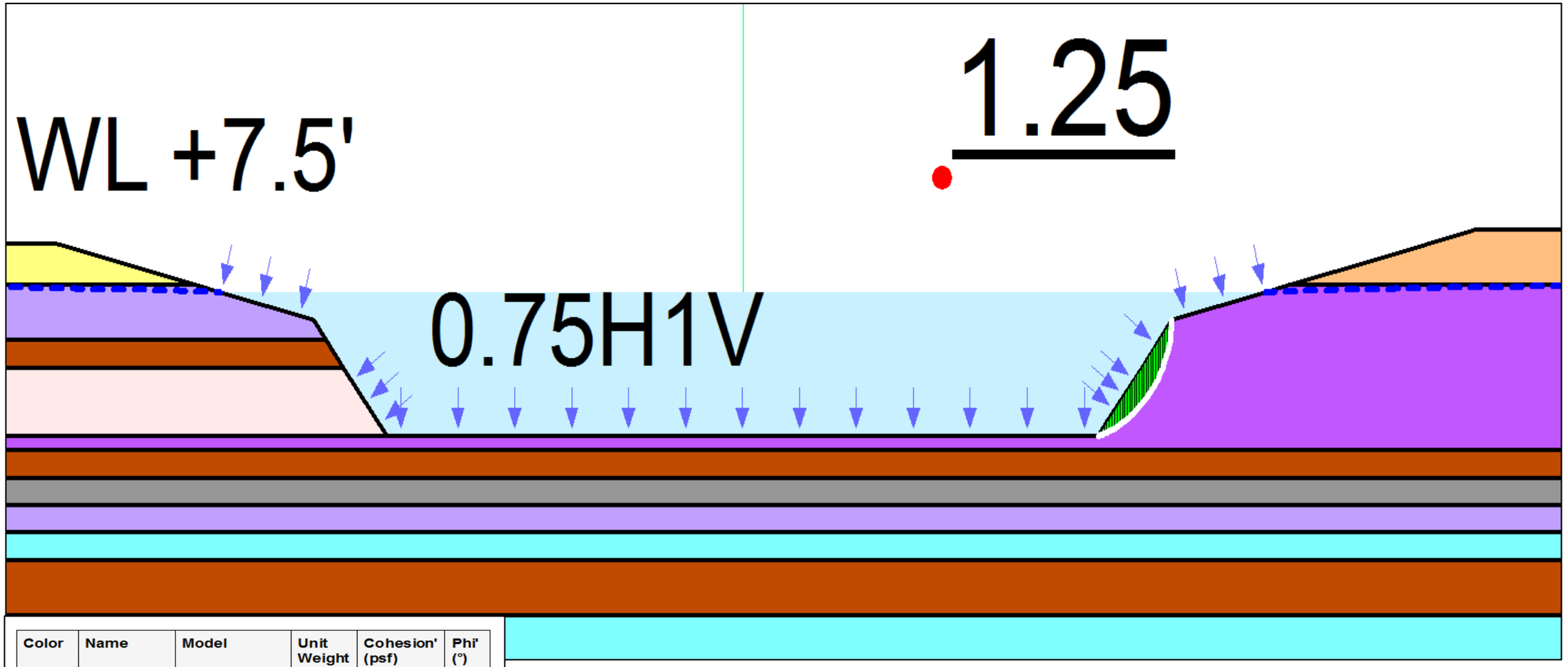
	Limestone 7	Mohr-Coulomb	118	50	35
	Limestone 8	Mohr-Coulomb	116	25	34
	Sand	Mohr-Coulomb	109	0	31
	Sand 4	Mohr-Coulomb	113	0	32
	Sand 7	Mohr-Coulomb	114	0	33

RADISE Project Number: 191007



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	Sand	Mohr-Coulomb	109	0	31
	Sand 4	Mohr-Coulomb	113	0	32
	Sand 7	Mohr-Coulomb	114	0	33

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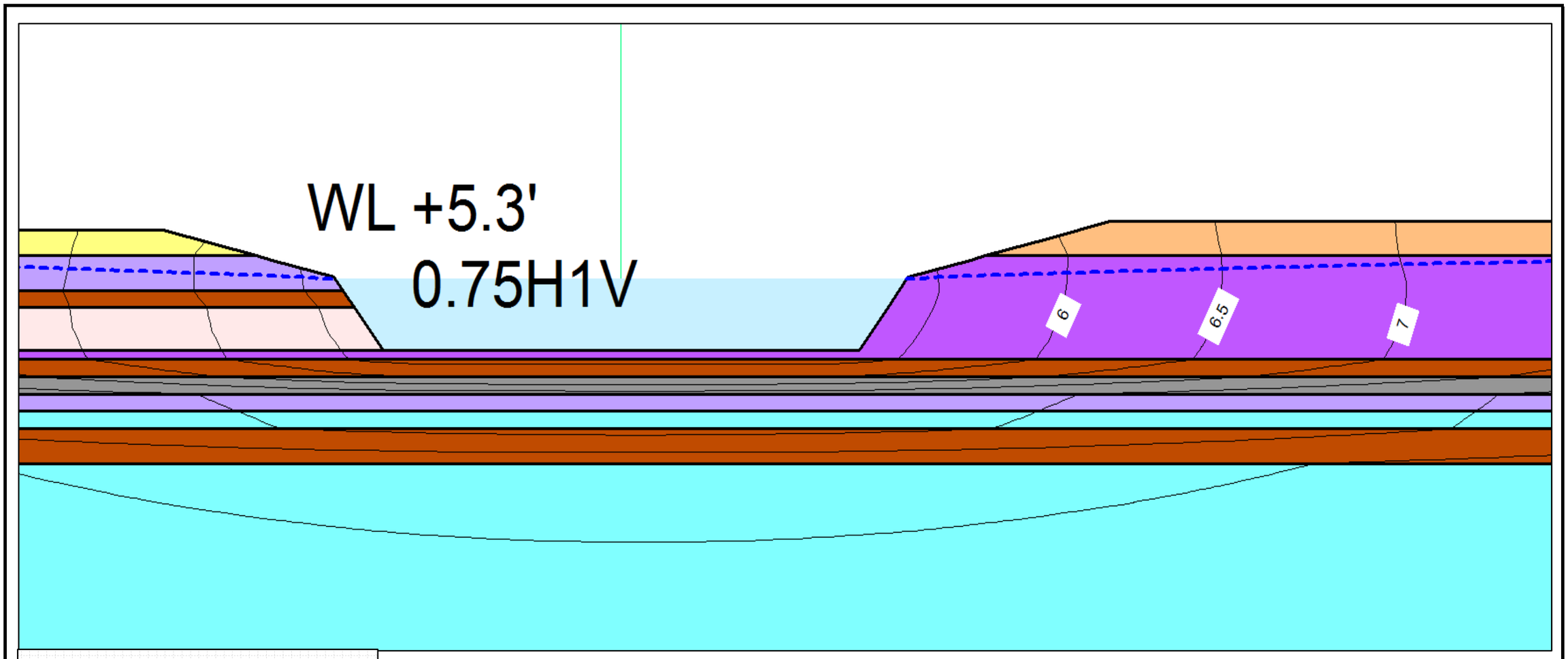

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	Limestone 8	Saturated / Unsaturated	200	0.1
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	Sand 4	Saturated / Unsaturated	20	0.1
	Sand 7	Saturated / Unsaturated	20	0.1

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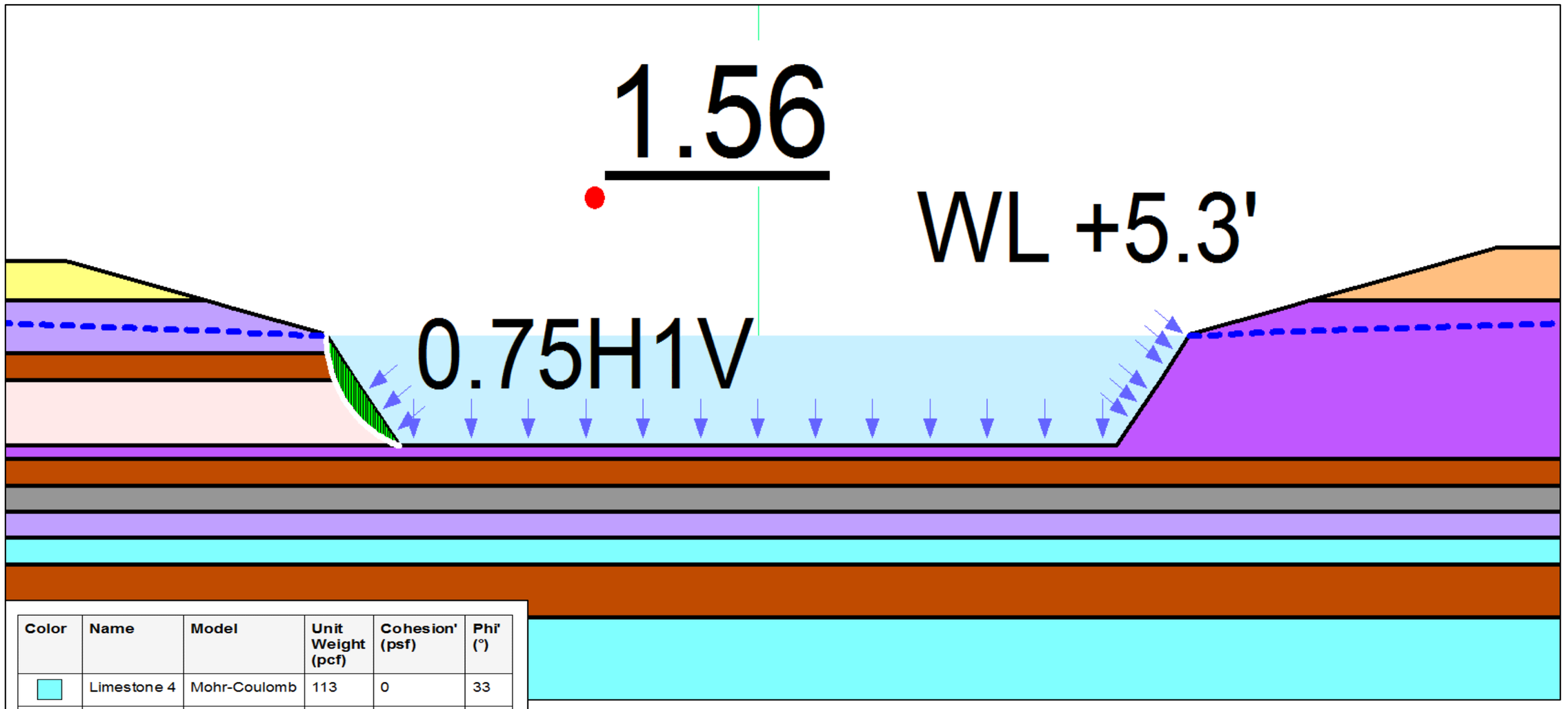

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	Sand 4	Mohr-Coulomb	113	0	32
	Sand 7	Mohr-Coulomb	114	0	33

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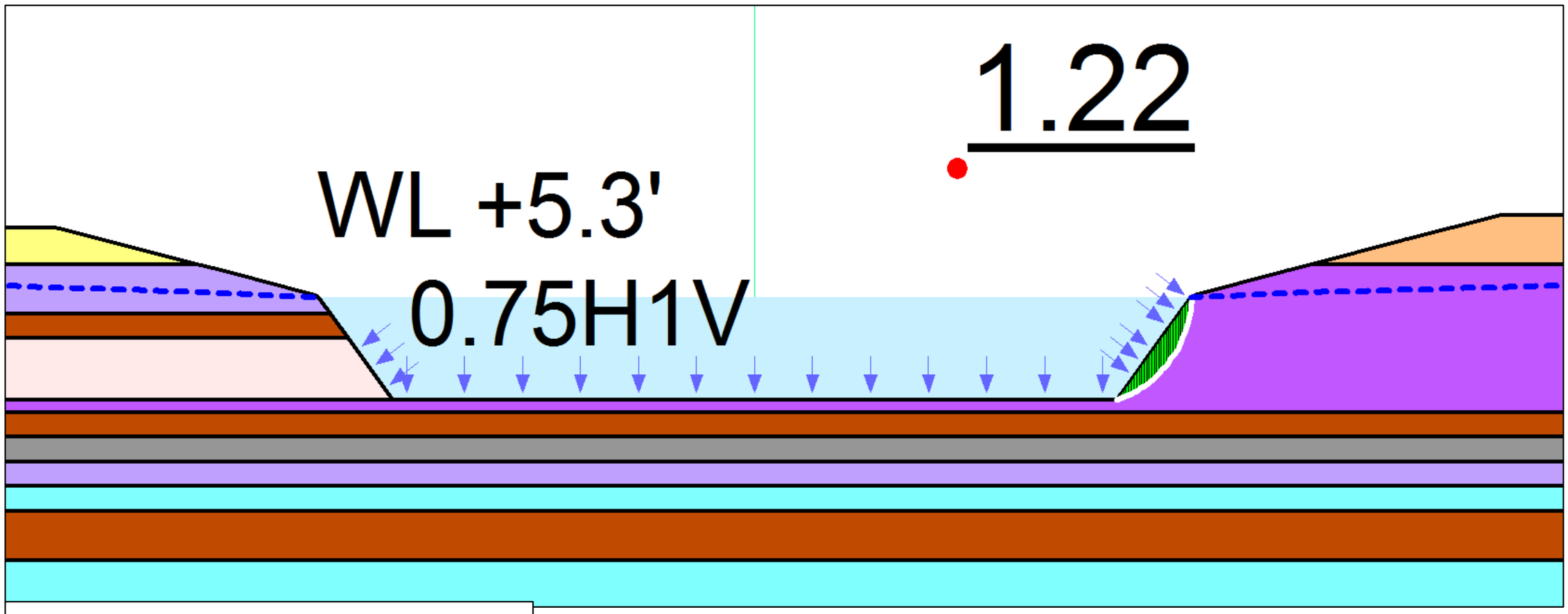

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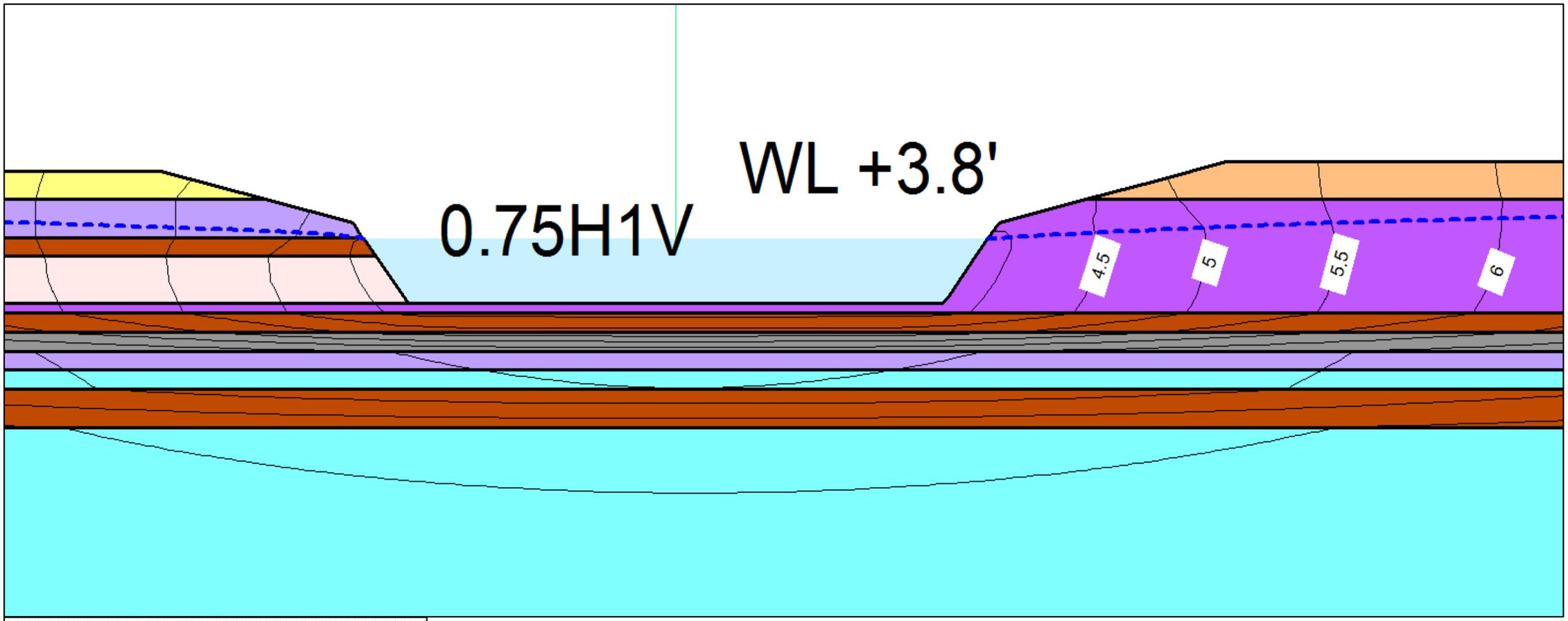
	Sand 4	Mohr-Coulomb	113	0	32
	Sand 7	Mohr-Coulomb	114	0	33

RADISE Project Number: 191007



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	Sand 7	Saturated / Unsaturated	20	0.1

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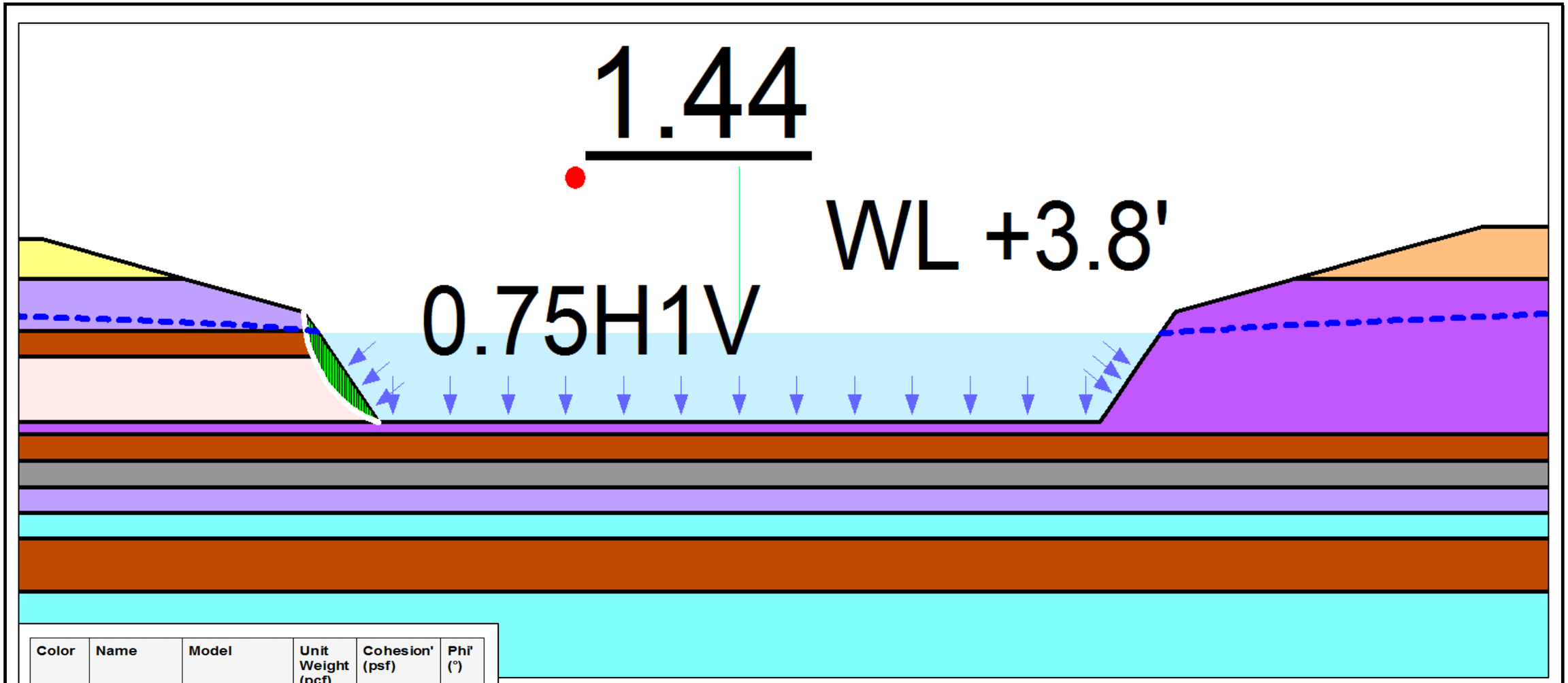

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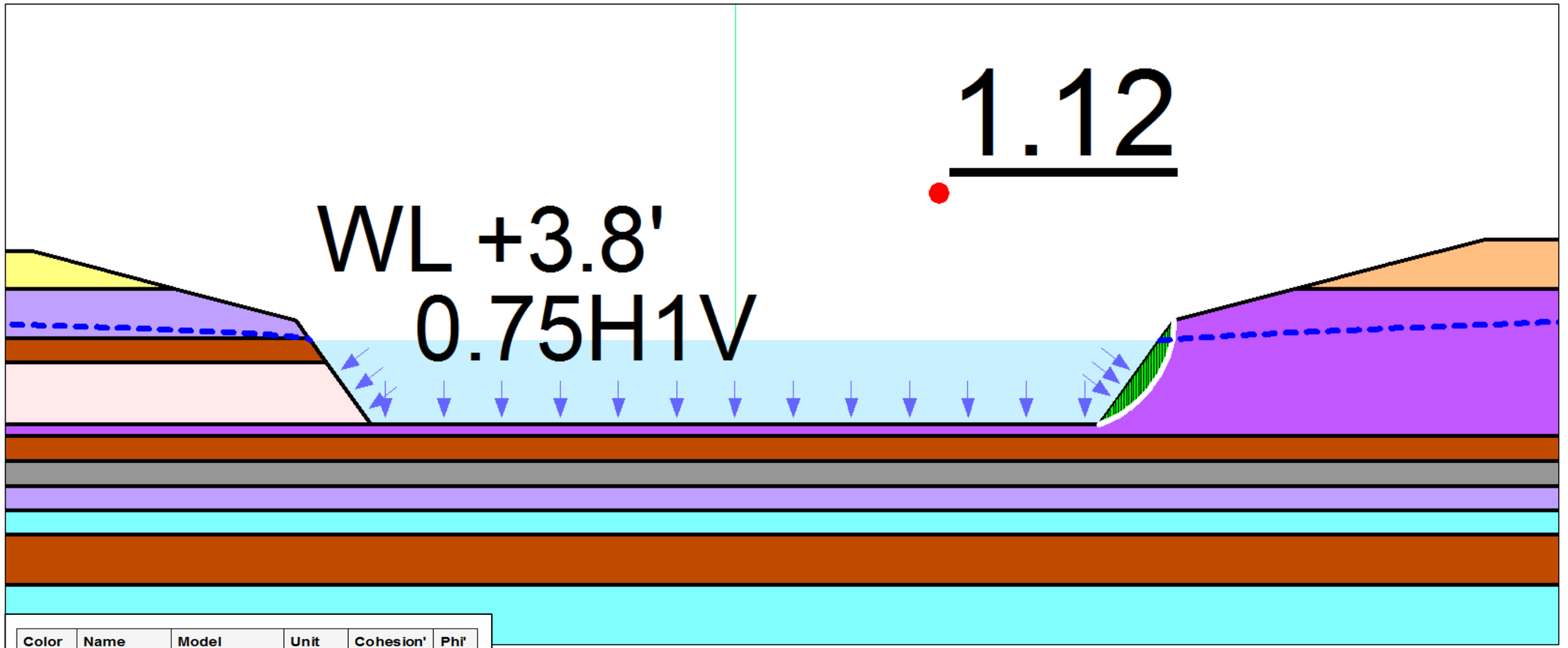

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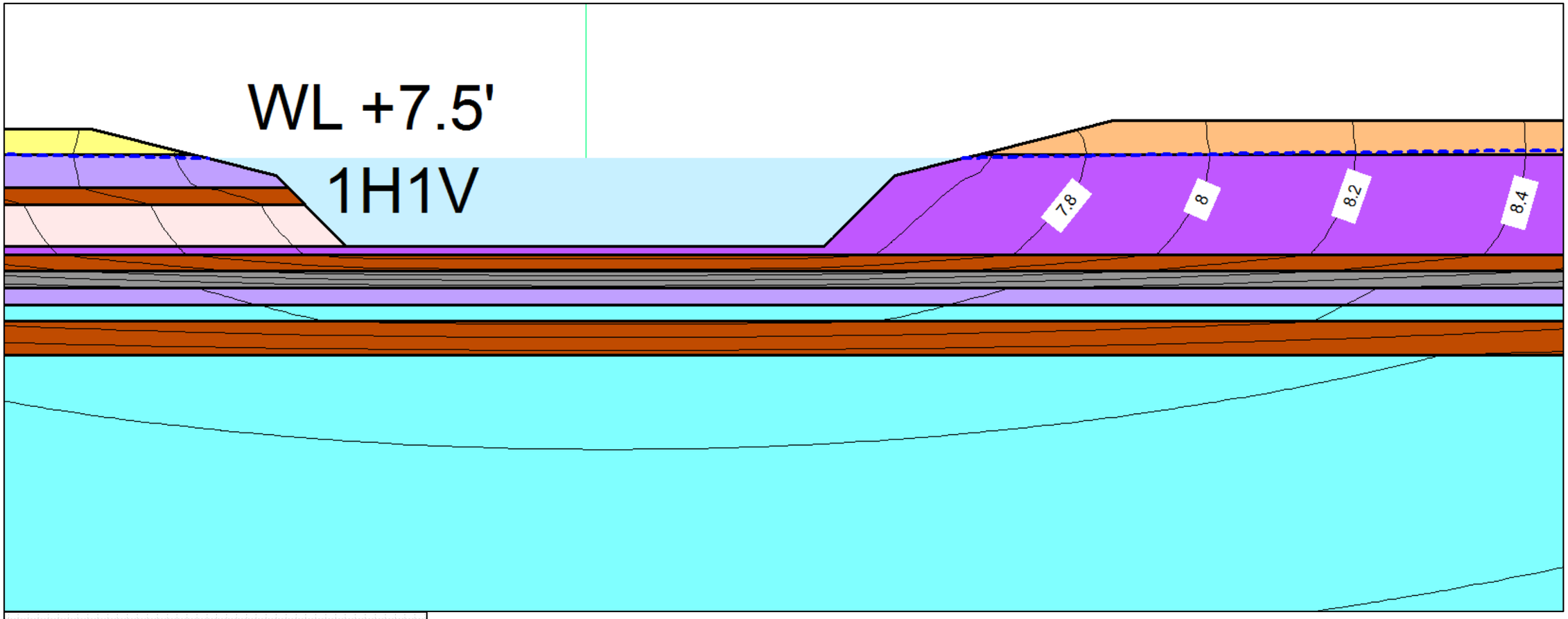

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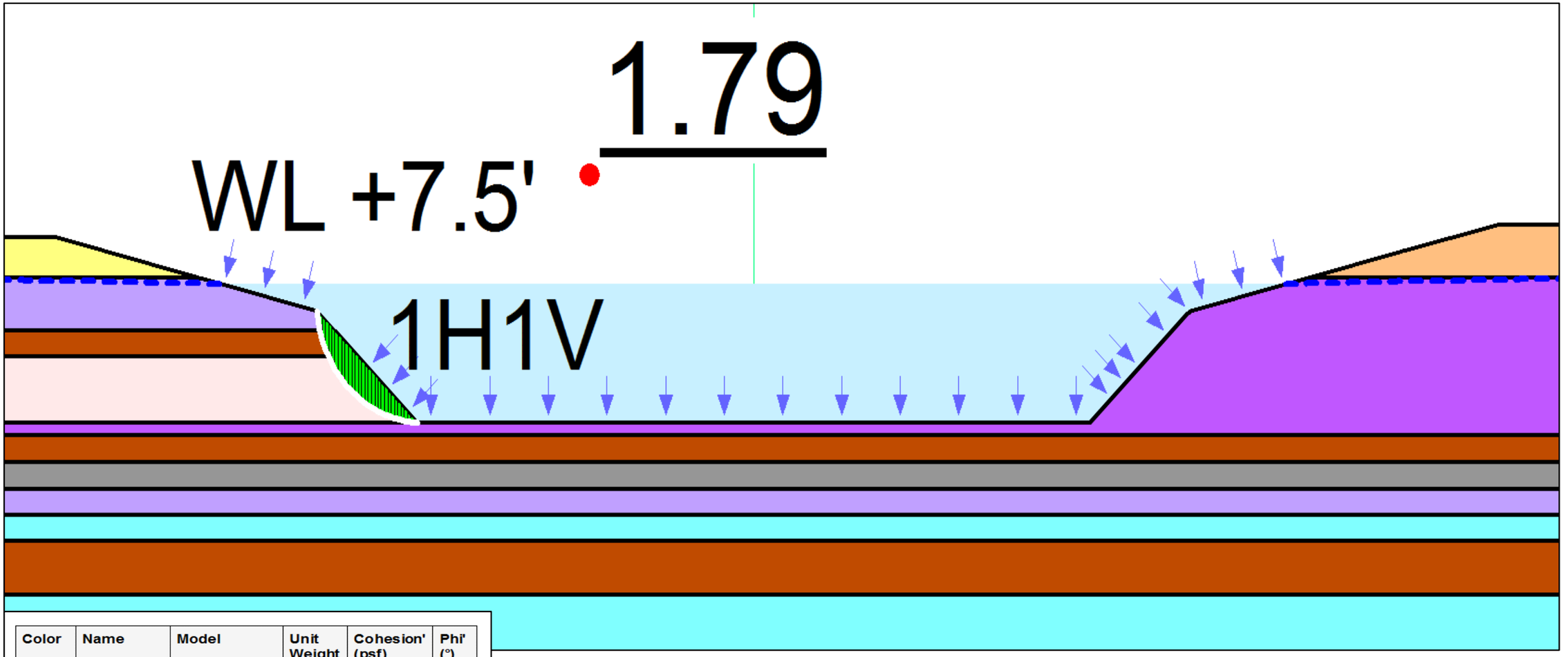

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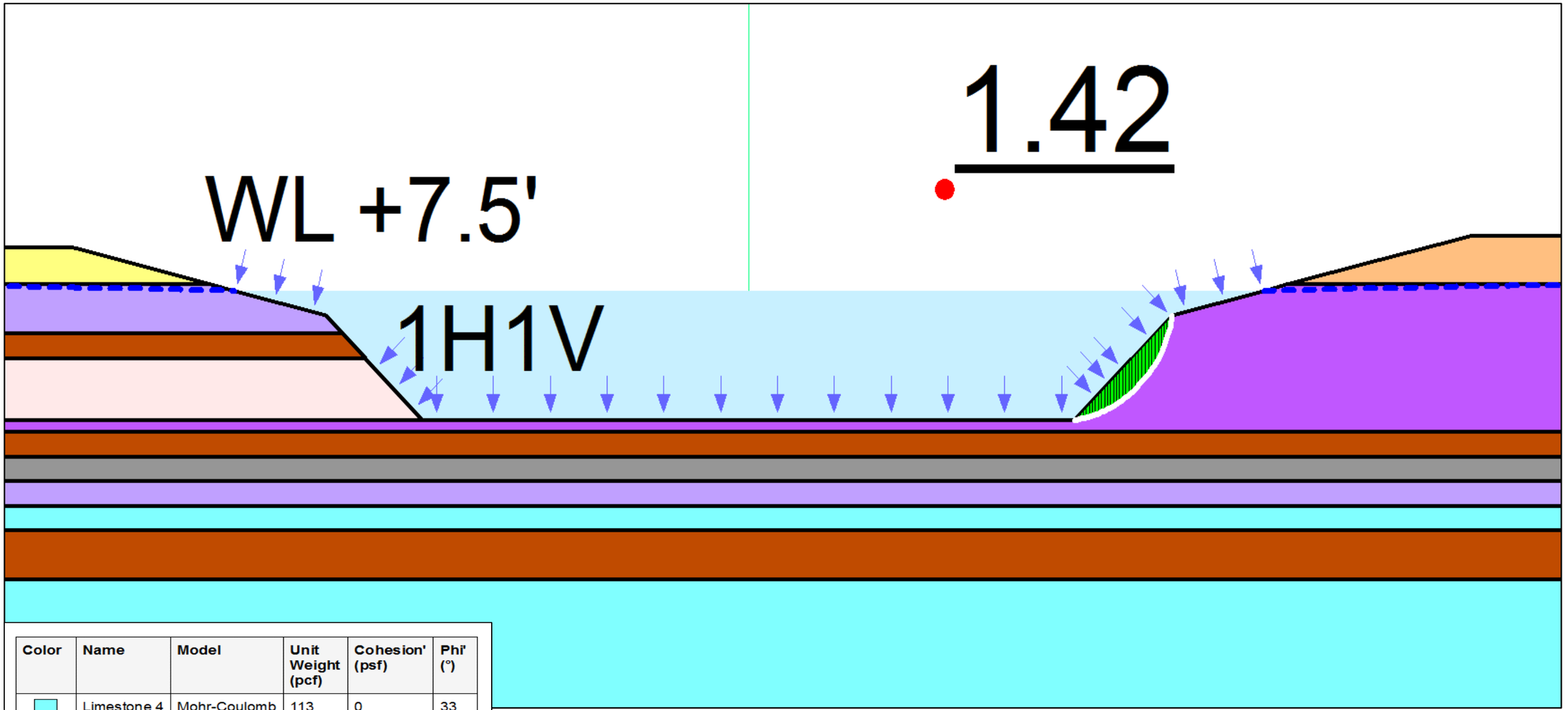

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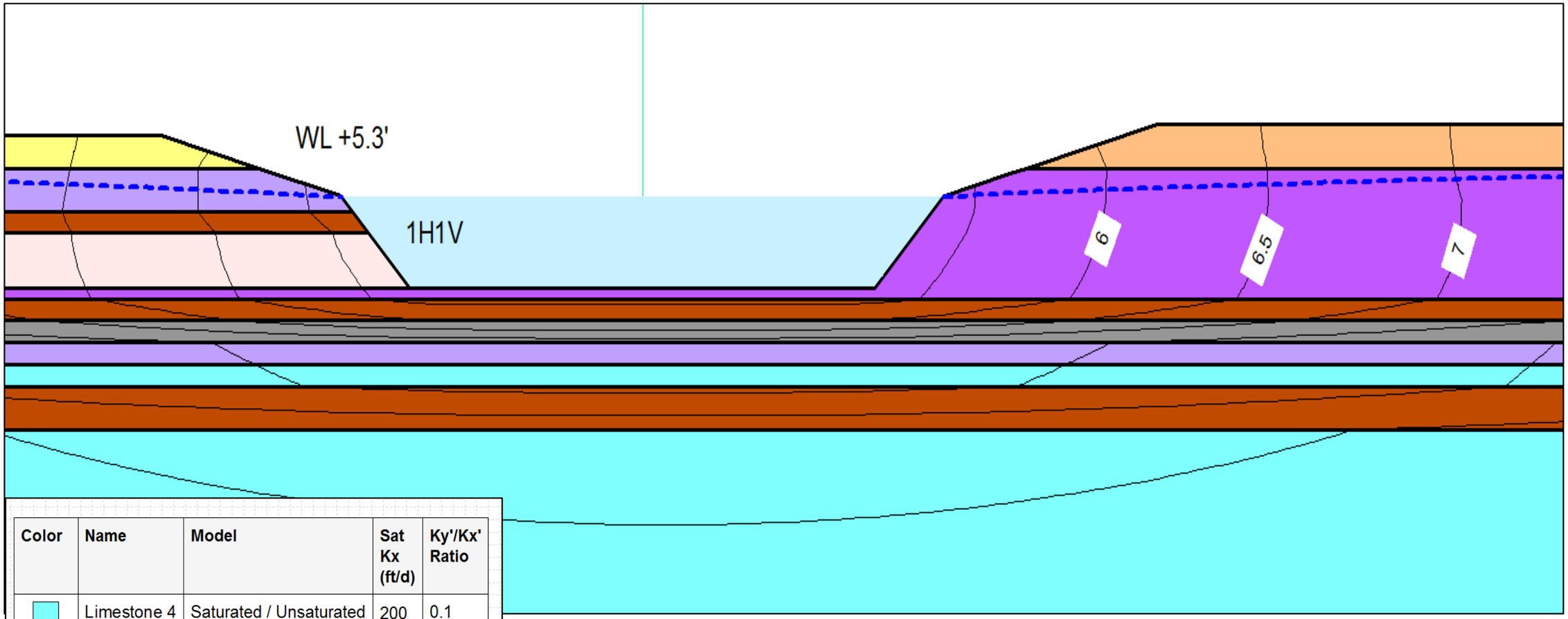

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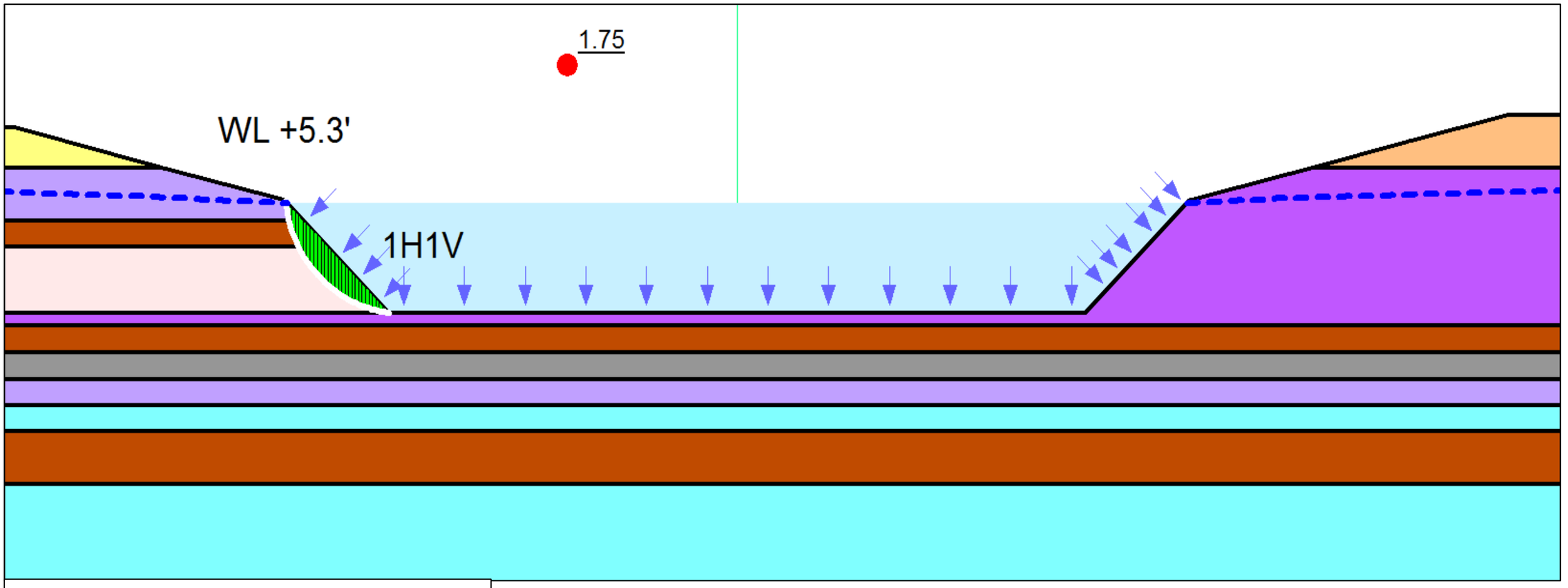

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	Sand 7	Mohr-Coulomb	114	0	33

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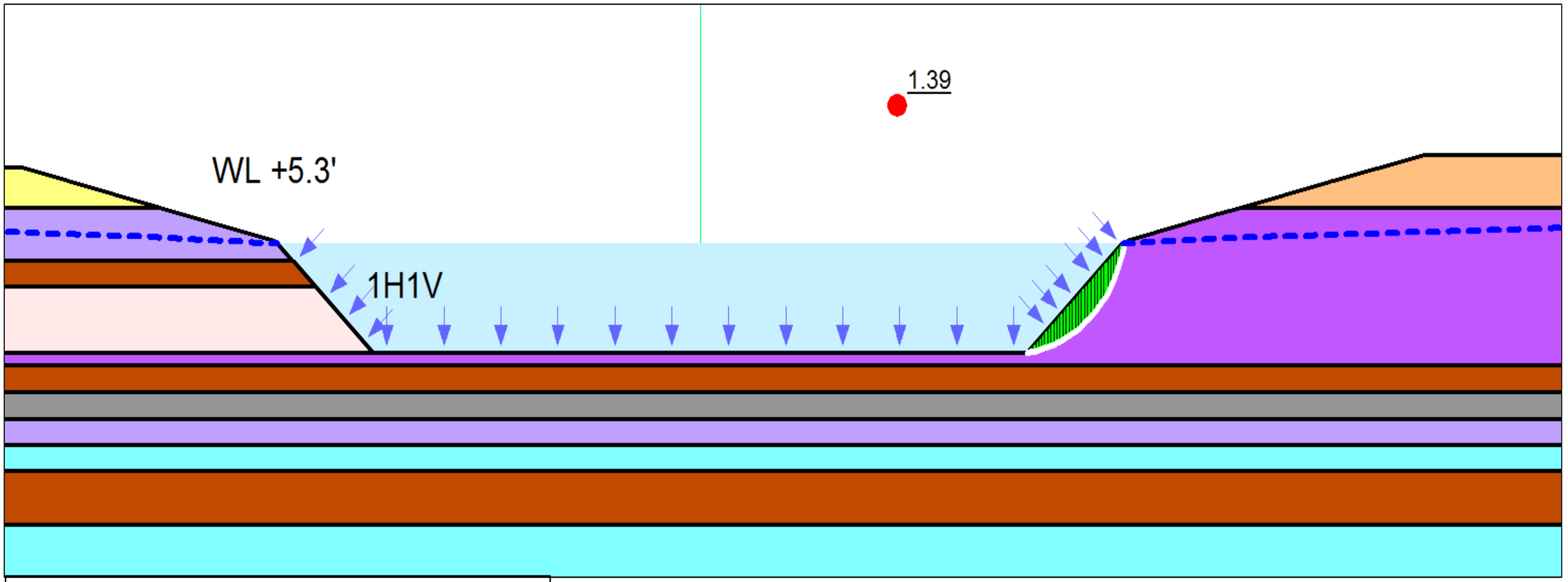
RADISE Project Number: 191007



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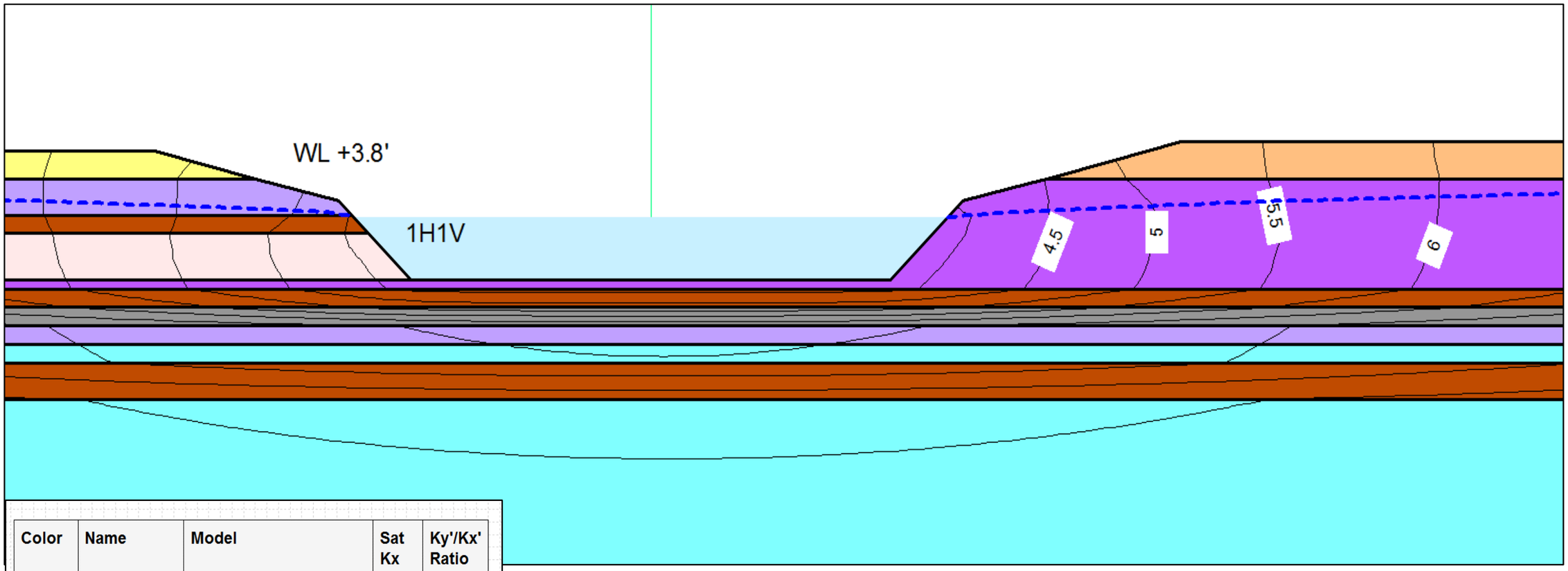

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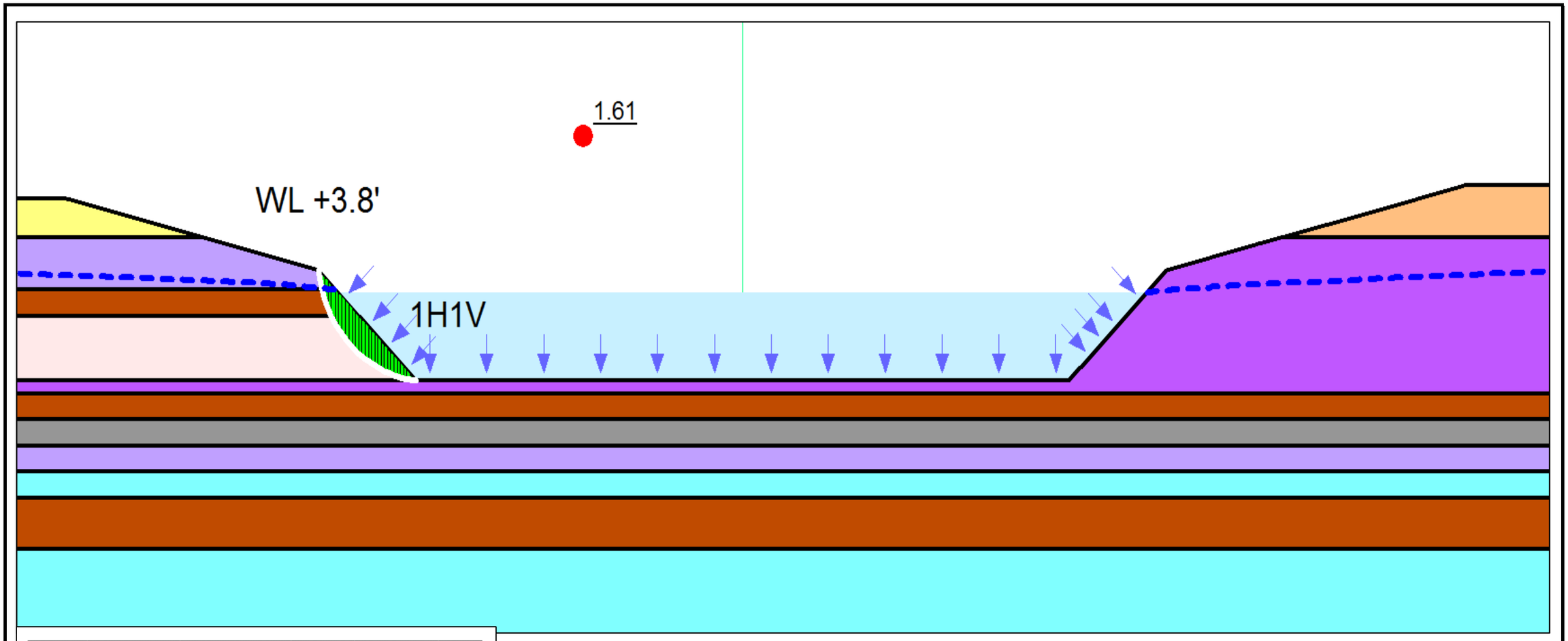

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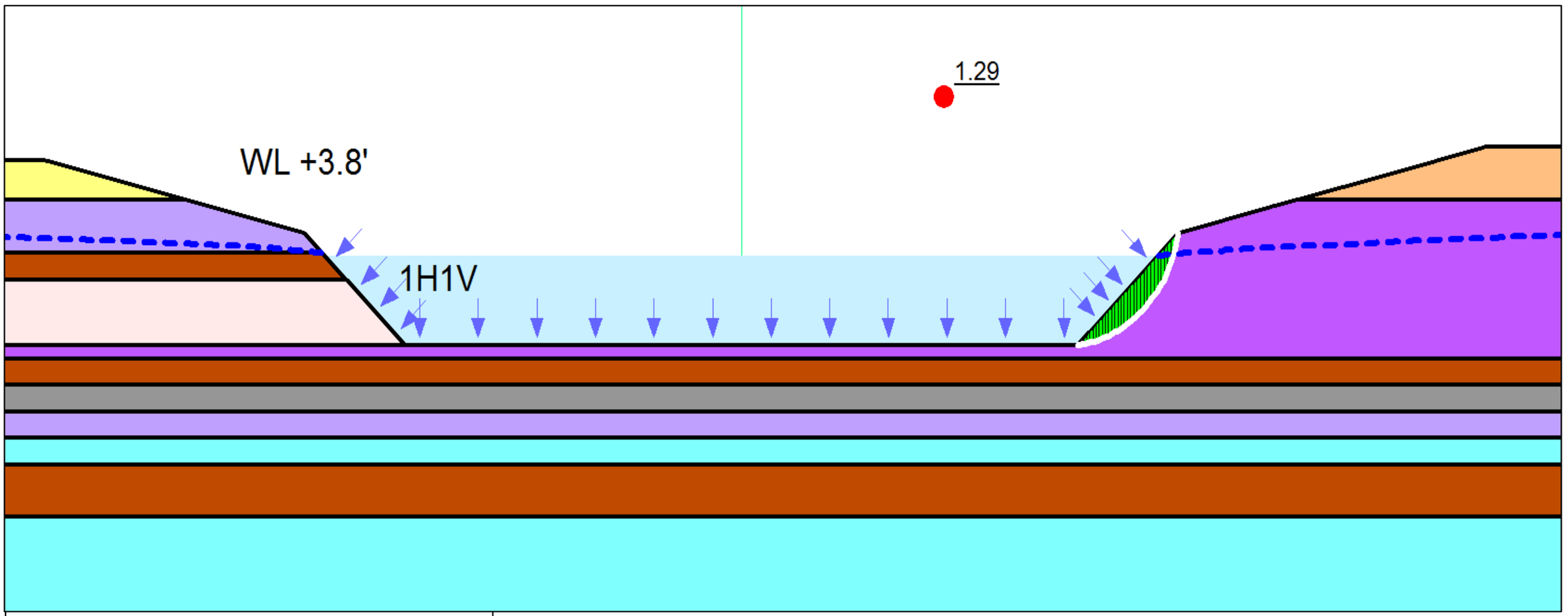

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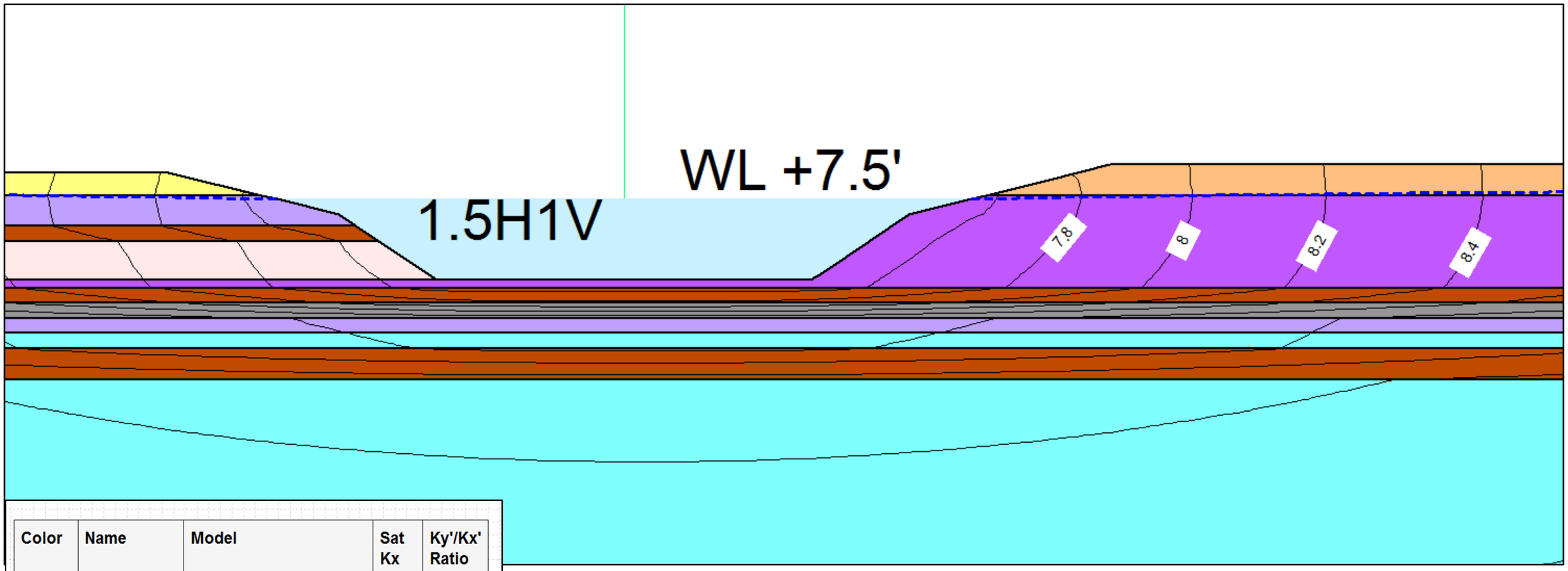

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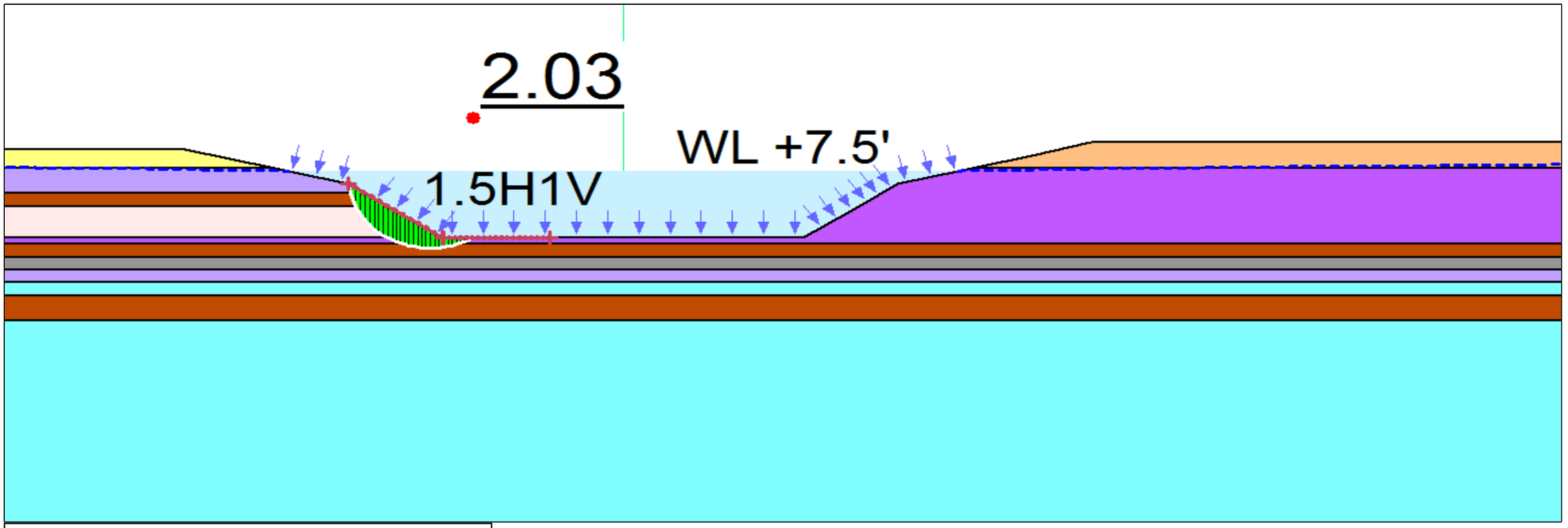

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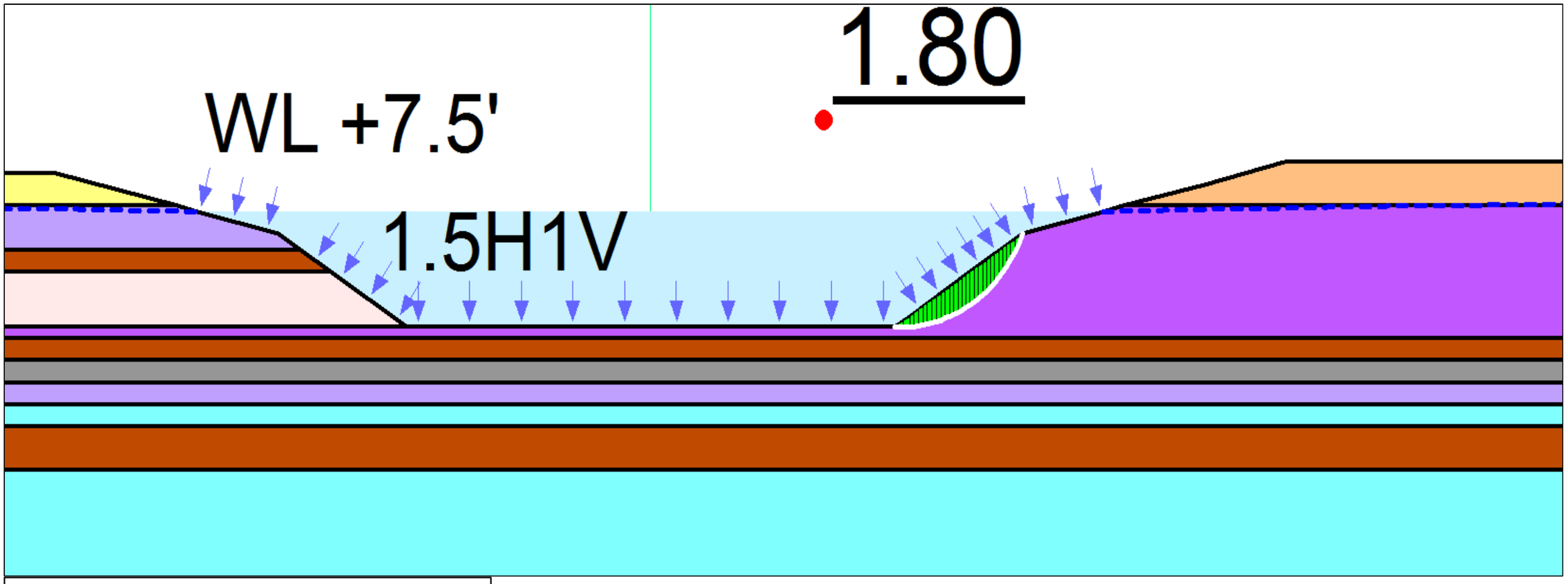
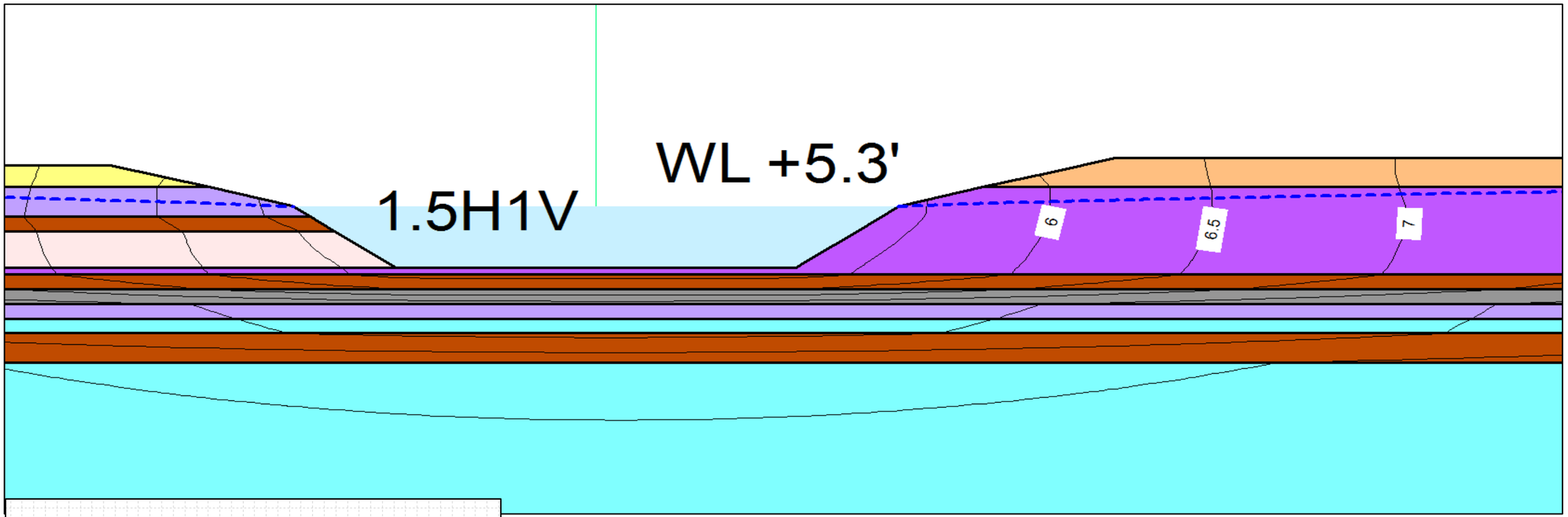


Color	Name	Model	Unit Weight (pcf)	Cohesion' (psf)	Phi' (°)
	Limestone 4	Mohr-Coulomb	113	0	33
	Limestone 5	Mohr-Coulomb	128	200	40
	Limestone 6	Mohr-Coulomb	121	25	36
	Limestone 7	Mohr-Coulomb	118	50	35
	Limestone 8	Mohr-Coulomb	116	25	34
	Sand	Mohr-Coulomb	109	0	31
	Sand 4	Mohr-Coulomb	113	0	32
	Sand 7	Mohr-Coulomb	114	0	33

RADISE Project Number: 191007



Color	Name	Model	Sat Kx (ft/d)	Ky'/Kx' Ratio
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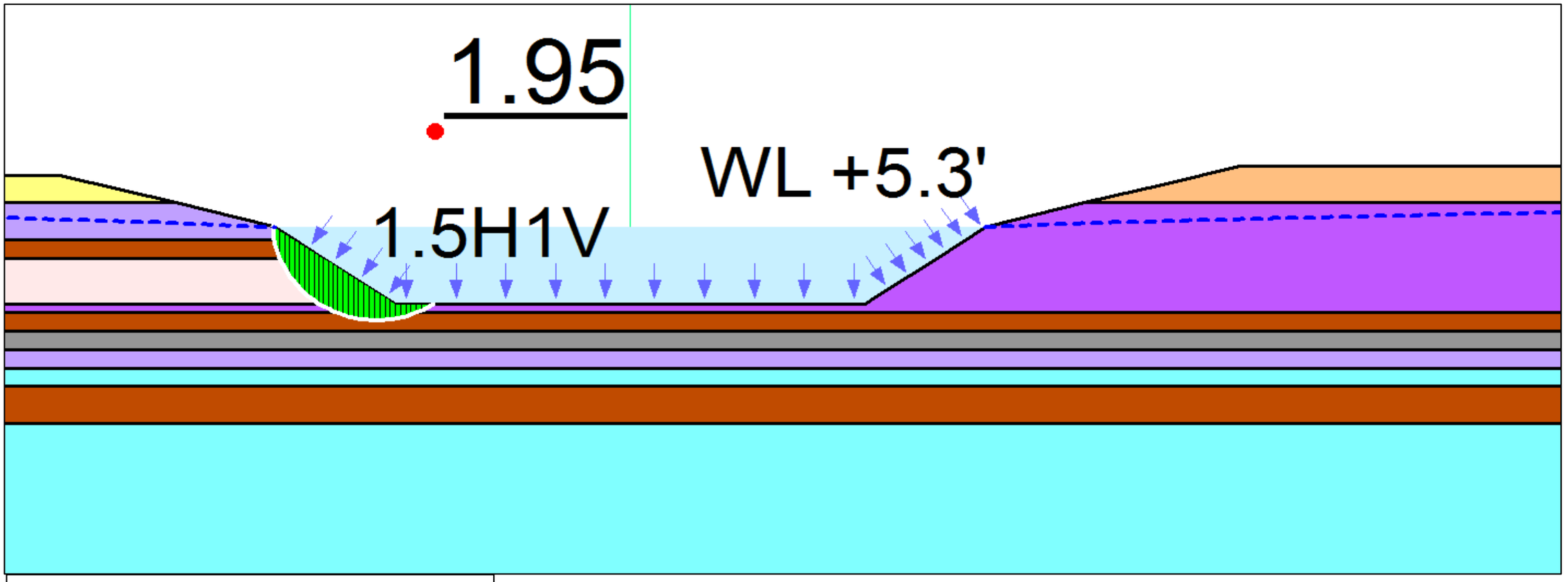
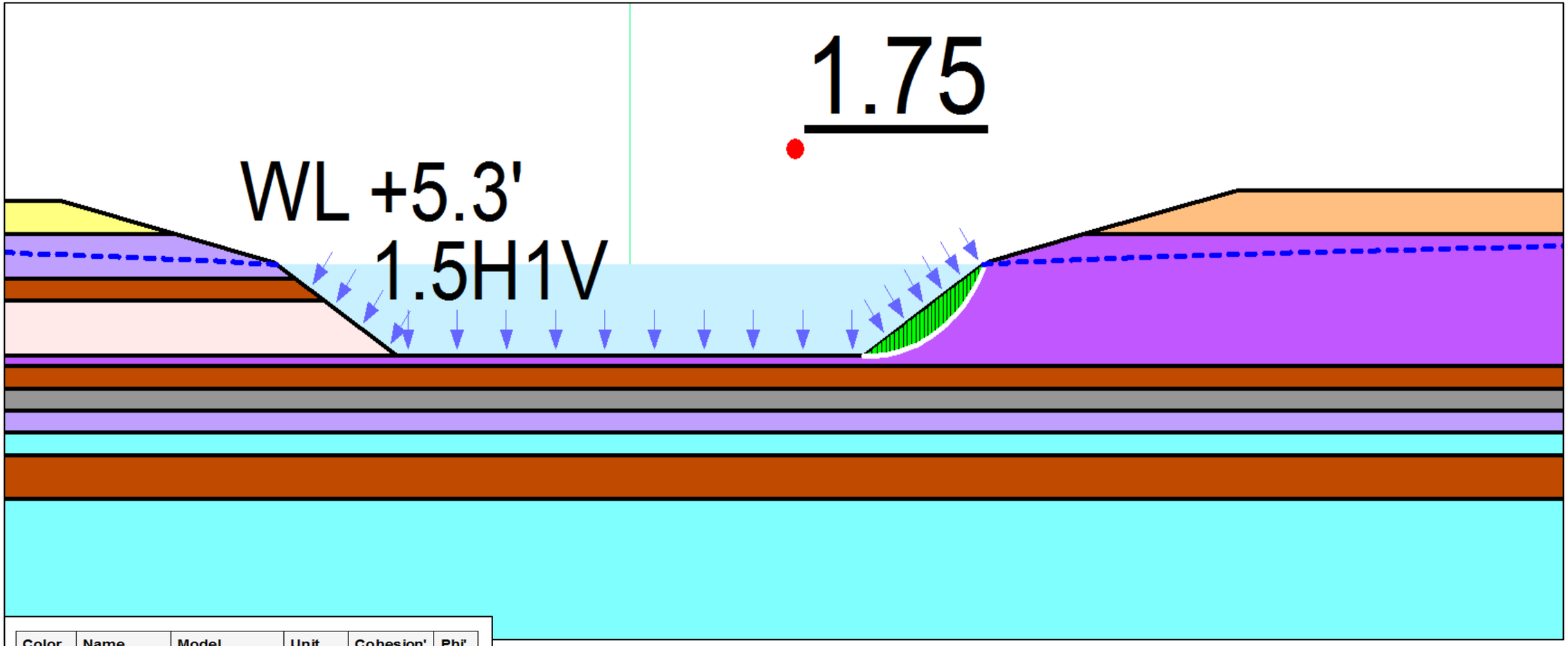
	Limestone 5	Saturated Only	10	0.1
	Limestone 6	Saturated / Unsaturated	200	0.1
	Limestone 7	Saturated / Unsaturated	200	0.1
	Limestone 8	Saturated / Unsaturated	200	0.1
	Sand	Saturated / Unsaturated	20	0.1
	Sand 4	Saturated / Unsaturated	20	0.1
	Sand 7	Saturated / Unsaturated	20	0.1

RADISE Project Number: 191007



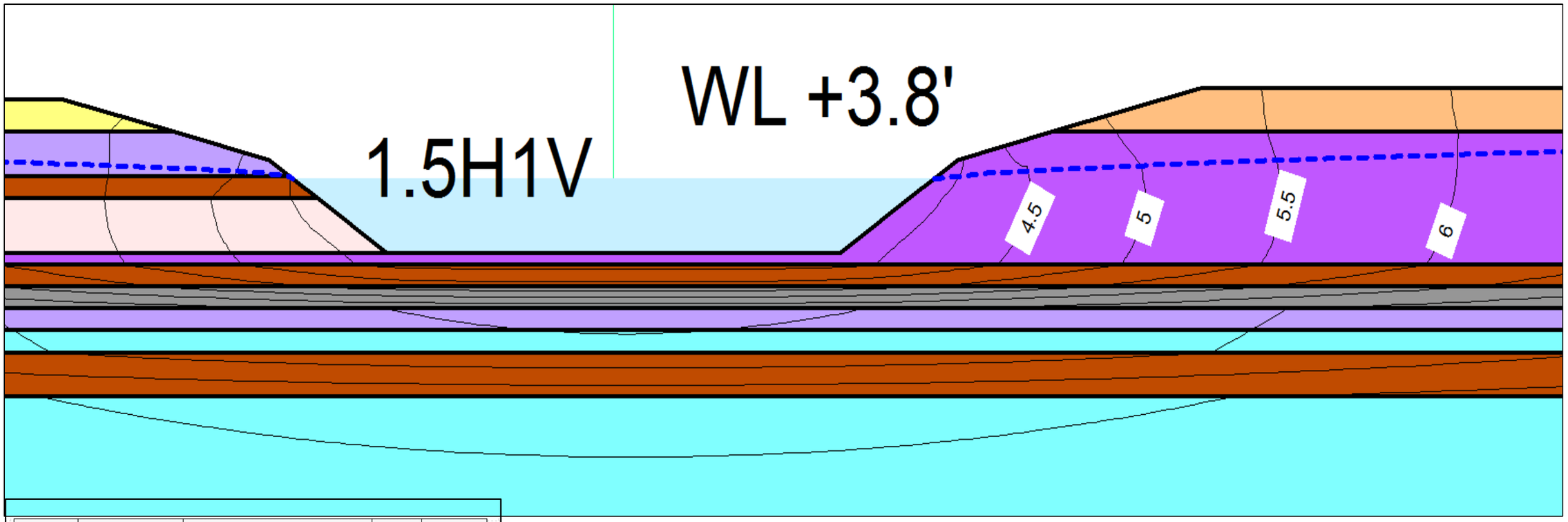
Color	Name	Model	Unit Weight (pcf)	Cohesion' (psf)	Phi' (°)
	Limestone 4	Mohr-Coulomb	113	0	33
	Limestone 5	Mohr-Coulomb	128	200	40
	Limestone 6	Mohr-Coulomb	121	25	36
	Limestone 7	Mohr-Coulomb	118	50	35
	Limestone 8	Mohr-Coulomb	116	25	34
	Sand	Mohr-Coulomb	109	0	31
	Sand 4	Mohr-Coulomb	113	0	32
	Sand 7	Mohr-Coulomb	114	0	33

RADISE Project Number: 191007



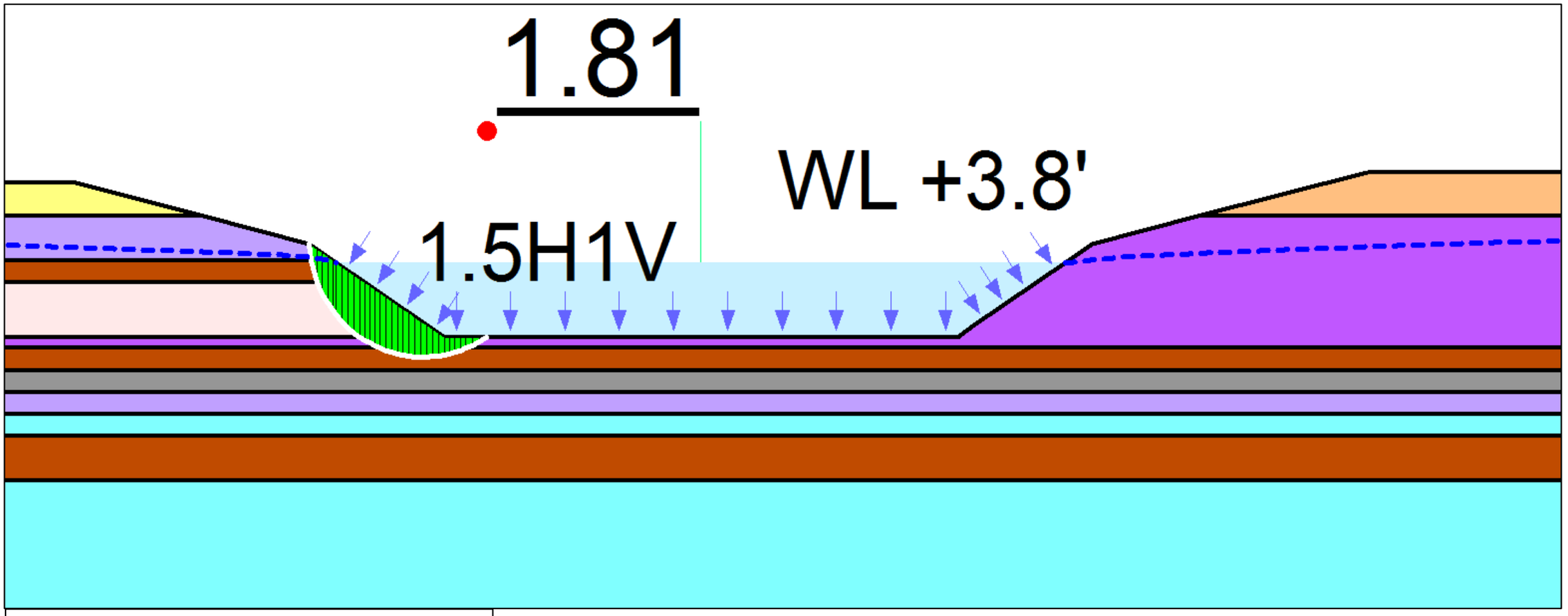
Color	Name	Model	Unit Weight (pcf)	Cohesion' (psf)	Phi' (°)
	Limestone 4	Mohr-Coulomb	113	0	33
	Limestone 5	Mohr-Coulomb	128	200	40
	Limestone 6	Mohr-Coulomb	121	25	36
	Limestone 7	Mohr-Coulomb	118	50	35
	Limestone 8	Mohr-Coulomb	116	25	34
	Sand	Mohr-Coulomb	109	0	31
	Sand 4	Mohr-Coulomb	113	0	32
	Sand 7	Mohr-Coulomb	114	0	33

RADISE Project Number: 191007



Color	Name	Model	Sat Kx (ft/d)	Ky'/Kx' Ratio
	Limestone 4	Saturated / Unsaturated	200	0.1
	Limestone 5	Saturated Only	10	0.1
	Limestone 6	Saturated / Unsaturated	200	0.1
	Limestone 7	Saturated / Unsaturated	200	0.1
	Limestone 8	Saturated / Unsaturated	200	0.1
	Sand	Saturated / Unsaturated	20	0.1
	Sand 4	Saturated / Unsaturated	20	0.1
	Sand 7	Saturated / Unsaturated	20	0.1

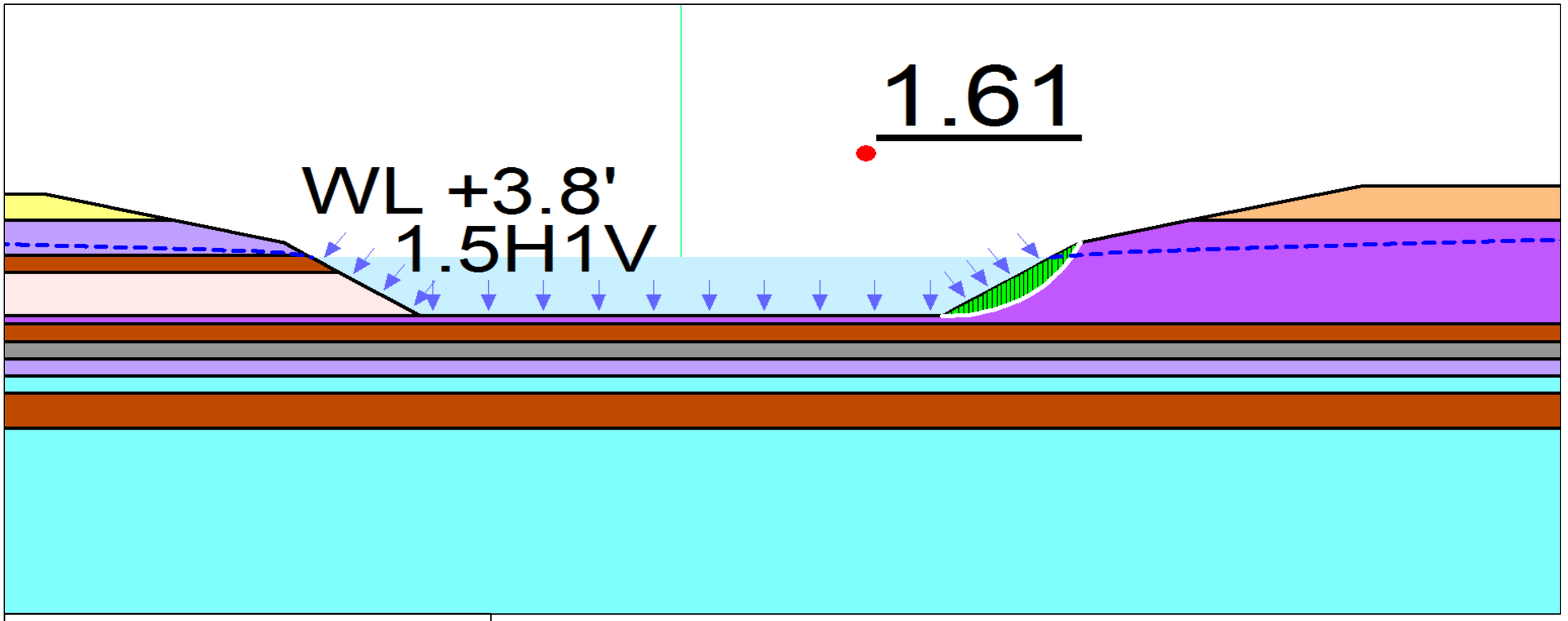
RADISE Project Number: 191007



Color	Name	Model	Unit Weight (pcf)	Cohesion' (psf)	Phi' (°)
	Limestone 4	Mohr-Coulomb	113	0	33
	Limestone 5	Mohr-Coulomb	128	200	40
	Limestone 6	Mohr-Coulomb	121	25	36
	Limestone 7	Mohr-Coulomb	118	50	35
	Limestone 8	Mohr-Coulomb	116	25	34
	Sand	Mohr-Coulomb	109	0	31
	Sand 4	Mohr-Coulomb	113	0	32
	Sand 7	Mohr-Coulomb	114	0	33

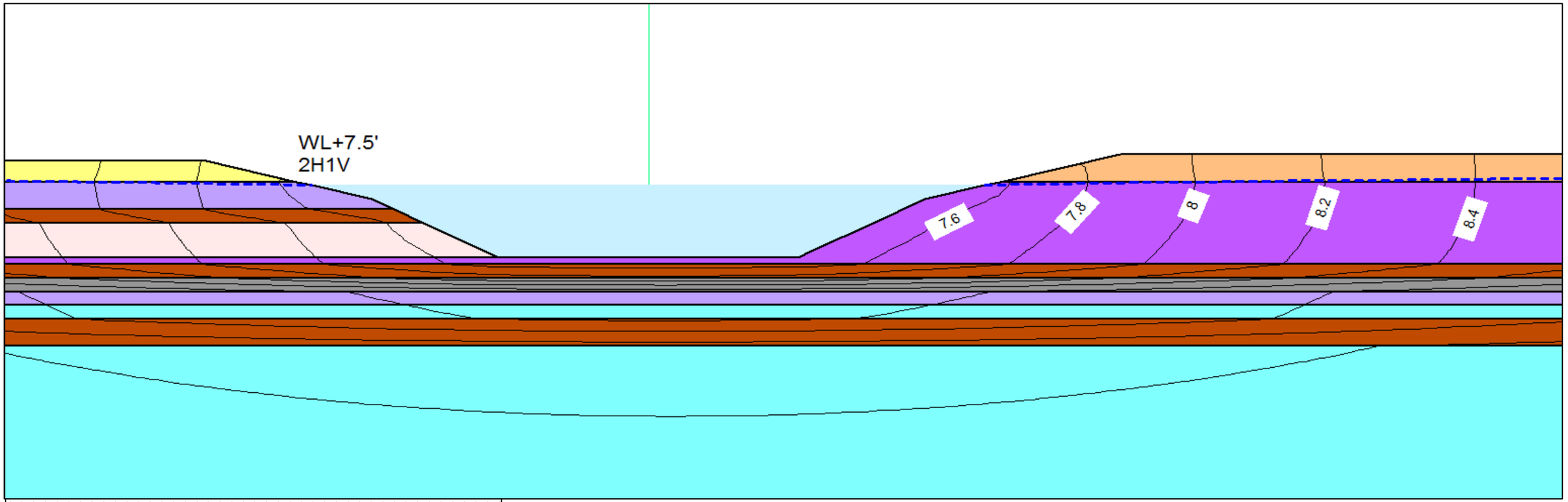
RADISE

RADISE Project Number: 191007



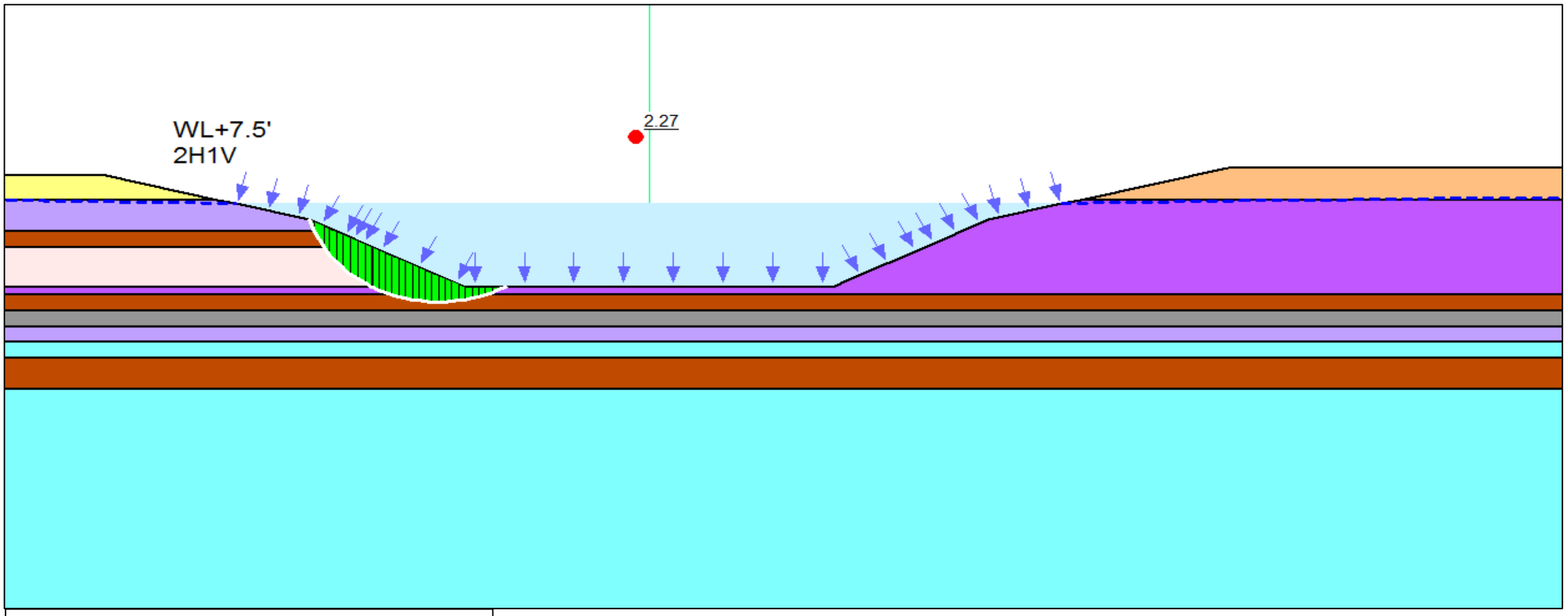
Color	Name	Model	Unit Weight (pcf)	Cohesion' (psf)	Phi' (°)
	Limestone 4	Mohr-Coulomb	113	0	33
	Limestone 5	Mohr-Coulomb	128	200	40
	Limestone 6	Mohr-Coulomb	121	25	36
	Limestone 7	Mohr-Coulomb	118	50	35
	Limestone 8	Mohr-Coulomb	116	25	34
	Sand	Mohr-Coulomb	109	0	31
	Sand 4	Mohr-Coulomb	113	0	32
	Sand 7	Mohr-Coulomb	114	0	33

RADISE Project Number: 191007



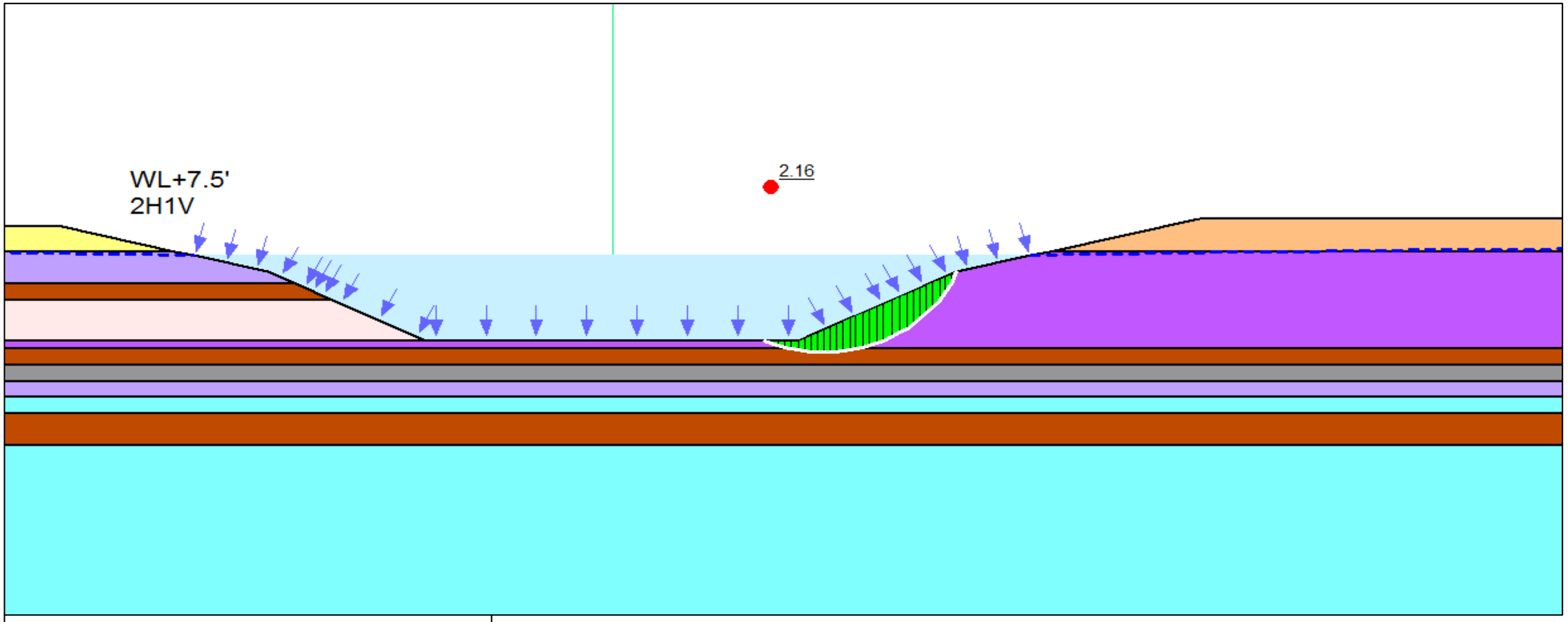
Color	Name	Model	Sat Kx (ft/d)	Ky'/Kx' Ratio
	Limestone 4	Saturated / Unsaturated	200	0.1
	Limestone 5	Saturated Only	10	0.1
	Limestone 6	Saturated / Unsaturated	200	0.1
	Limestone 7	Saturated / Unsaturated	200	0.1
	Limestone 8	Saturated / Unsaturated	200	0.1
	Sand	Saturated / Unsaturated	20	0.1
	Sand 4	Saturated / Unsaturated	20	0.1
	Sand 7	Saturated / Unsaturated	20	0.1

RADISE Project Number: 191007



Color	Name	Model	Unit Weight (pcf)	Cohesion' (psf)	Phi' (°)
	Limestone 4	Mohr-Coulomb	113	0	33
	Limestone 5	Mohr-Coulomb	128	200	40
	Limestone 6	Mohr-Coulomb	121	25	36
	Limestone 7	Mohr-Coulomb	118	50	35
	Limestone 8	Mohr-Coulomb	116	25	34
	Sand	Mohr-Coulomb	109	0	31
	Sand 4	Mohr-Coulomb	113	0	32
	Sand 7	Mohr-Coulomb	114	0	33

RADISE Project Number: 191007



Color	Name	Model	Unit Weight (pcf)	Cohesion' (psf)	Phi' (°)
	Limestone 4	Mohr-Coulomb	113	0	33
	Limestone 5	Mohr-Coulomb	128	200	40
	Limestone 6	Mohr-Coulomb	121	25	36
	Limestone 7	Mohr-Coulomb	118	50	35
	Limestone 8	Mohr-Coulomb	116	25	34
	Sand	Mohr-Coulomb	109	0	31
	Sand 4	Mohr-Coulomb	113	0	32
	Sand 7	Mohr-Coulomb	114	0	33

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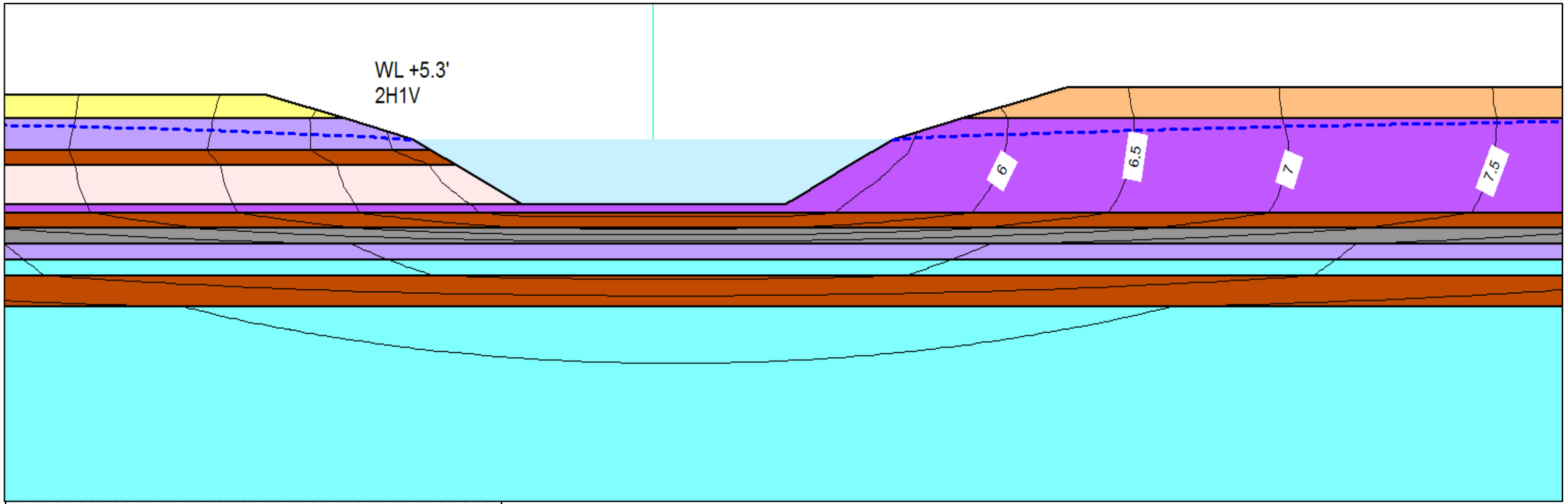
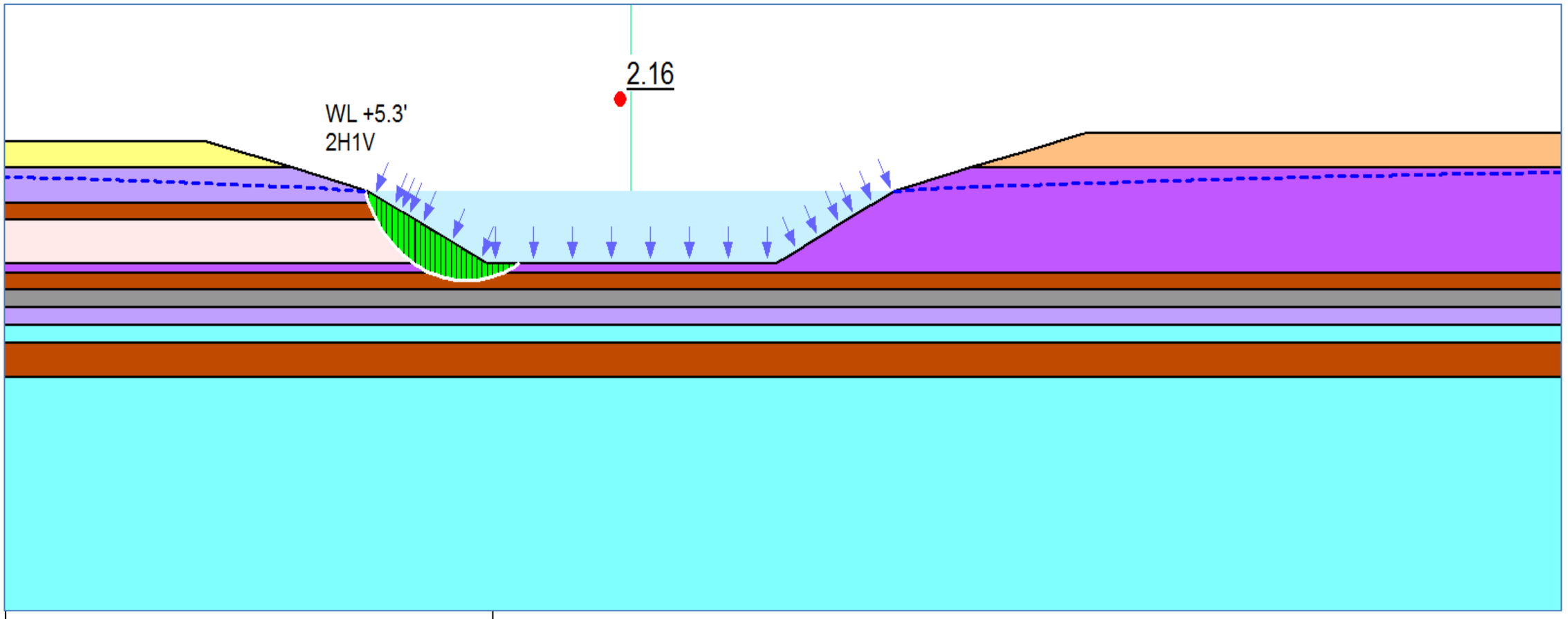


Color	Name	Model	Sat Kx (ft/d)	Ky'/Kx' Ratio
	Limestone 4	Saturated / Unsaturated	200	0.1
	Limestone 5	Saturated Only	10	0.1
	Limestone 6	Saturated / Unsaturated	200	0.1
	Limestone 7	Saturated / Unsaturated	200	0.1
	Limestone 8	Saturated / Unsaturated	200	0.1
	Sand	Saturated / Unsaturated	20	0.1
	Sand 4	Saturated / Unsaturated	20	0.1
	Sand 7	Saturated / Unsaturated	20	0.1

RADISE Project Number: 191007



Color	Name	Model	Unit Weight (pcf)	Cohesion' (psf)	Phi' (°)
	Limestone 4	Mohr-Coulomb	113	0	33
	Limestone 5	Mohr-Coulomb	128	200	40
	Limestone 6	Mohr-Coulomb	121	25	36
	Limestone 7	Mohr-Coulomb	118	50	35
	Limestone 8	Mohr-Coulomb	116	25	34
	Sand	Mohr-Coulomb	109	0	31
	Sand 4	Mohr-Coulomb	113	0	32
	Sand 7	Mohr-Coulomb	114	0	33

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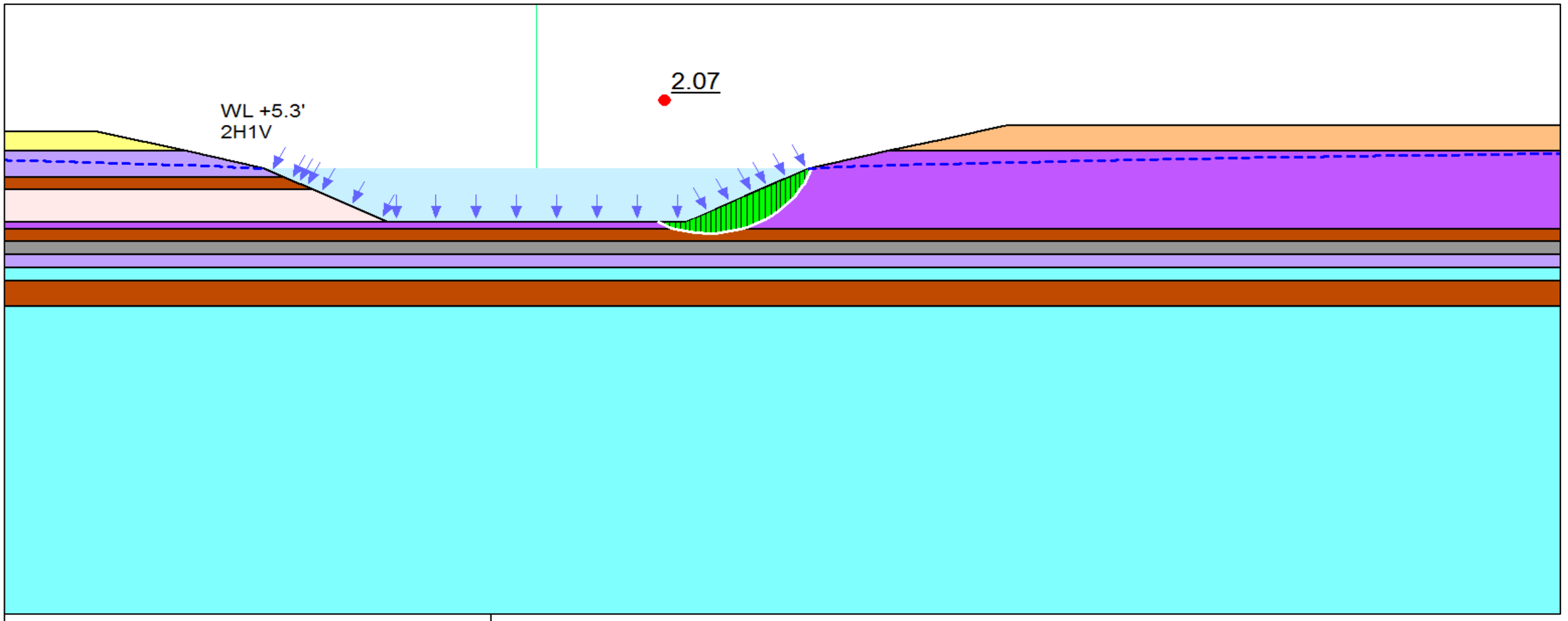

Color	Name	Model	Unit Weight (pcf)	Cohesion' (psf)	Phi' (°)
	Limestone 4	Mohr-Coulomb	113	0	33
	Limestone 5	Mohr-Coulomb	128	200	40
	Limestone 6	Mohr-Coulomb	121	25	36
	Limestone 7	Mohr-Coulomb	118	50	35
	Limestone 8	Mohr-Coulomb	116	25	34
	Sand	Mohr-Coulomb	109	0	31
	Sand 4	Mohr-Coulomb	113	0	32
	Sand 7	Mohr-Coulomb	114	0	33

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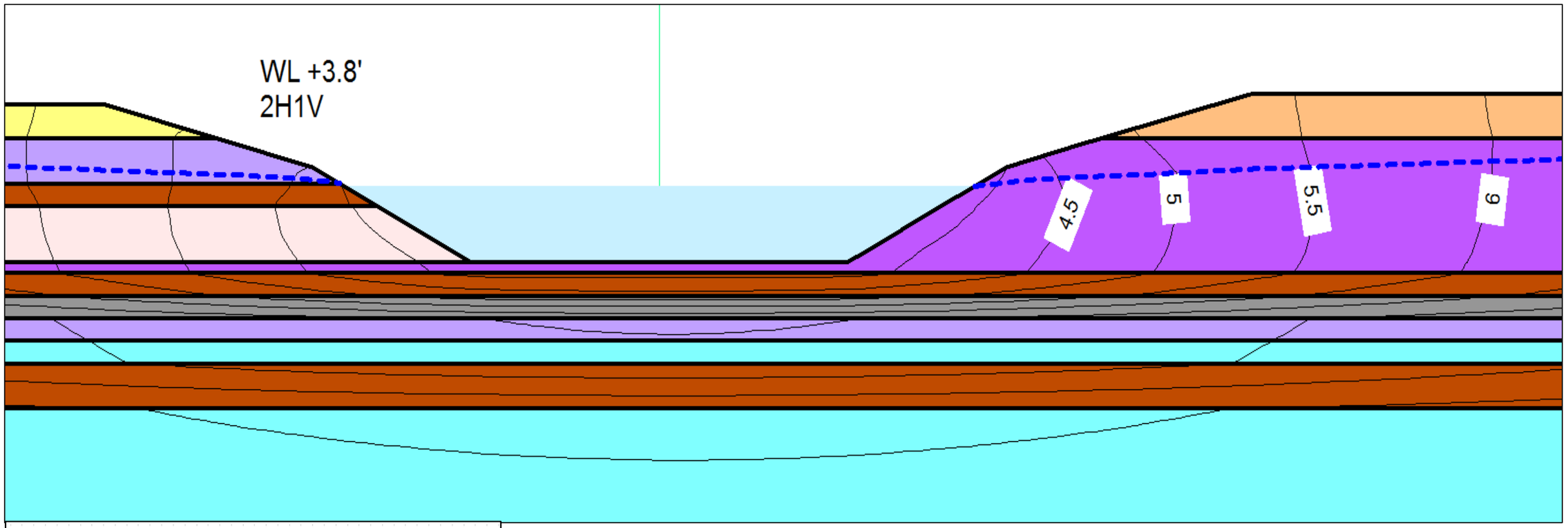

Color	Name	Model	Sat Kx (ft/d)	Ky'/Kx' Ratio
	Limestone 4	Saturated / Unsaturated	200	0.1
	Limestone 5	Saturated Only	10	0.1
	Limestone 6	Saturated / Unsaturated	200	0.1
	Limestone 7	Saturated / Unsaturated	200	0.1
	Limestone 8	Saturated / Unsaturated	200	0.1
	Sand	Saturated / Unsaturated	20	0.1
	Sand 4	Saturated / Unsaturated	20	0.1
	Sand 7	Saturated / Unsaturated	20	0.1

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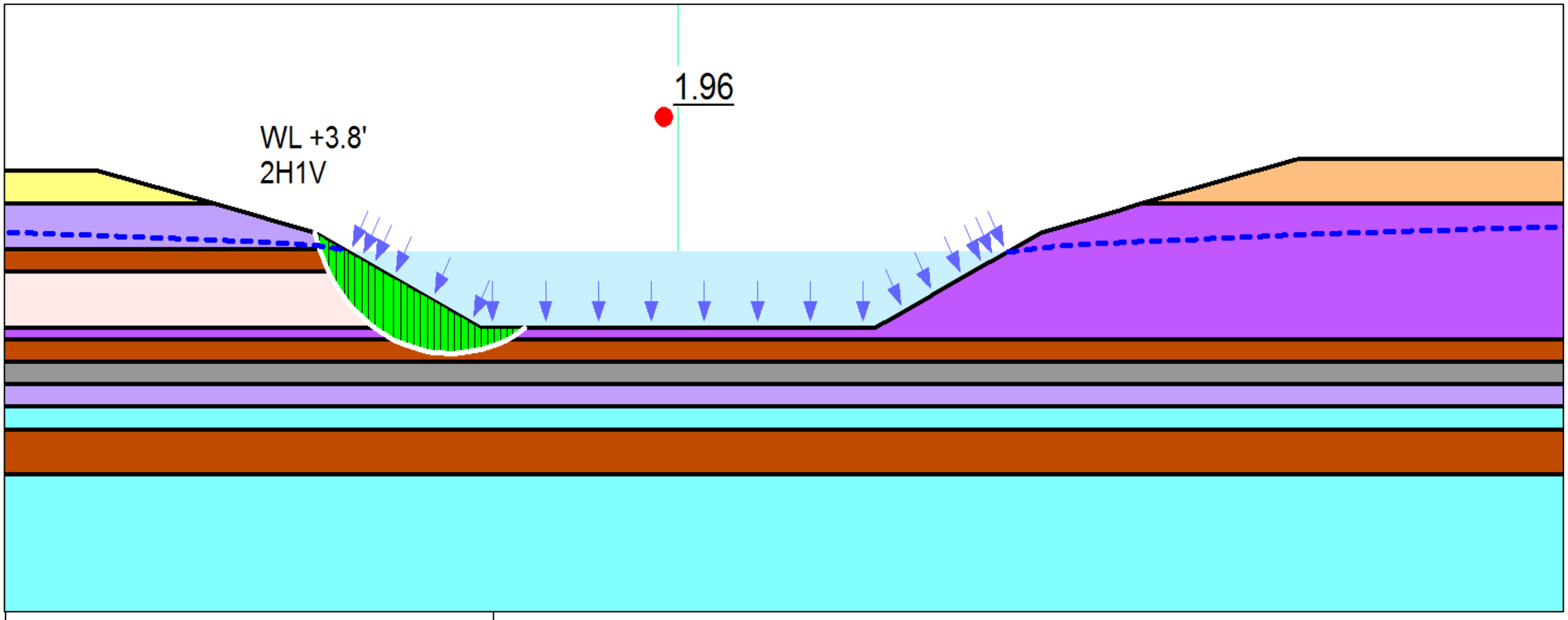

Color	Name	Model	Unit Weight (pcf)	Cohesion' (psf)	Phi' (°)
	Limestone 4	Mohr-Coulomb	113	0	33
	Limestone 5	Mohr-Coulomb	128	200	40
	Limestone 6	Mohr-Coulomb	121	25	36
	Limestone 7	Mohr-Coulomb	118	50	35
	Limestone 8	Mohr-Coulomb	116	25	34
	Sand	Mohr-Coulomb	109	0	31
	Sand 4	Mohr-Coulomb	113	0	32
	Sand 7	Mohr-Coulomb	114	0	33

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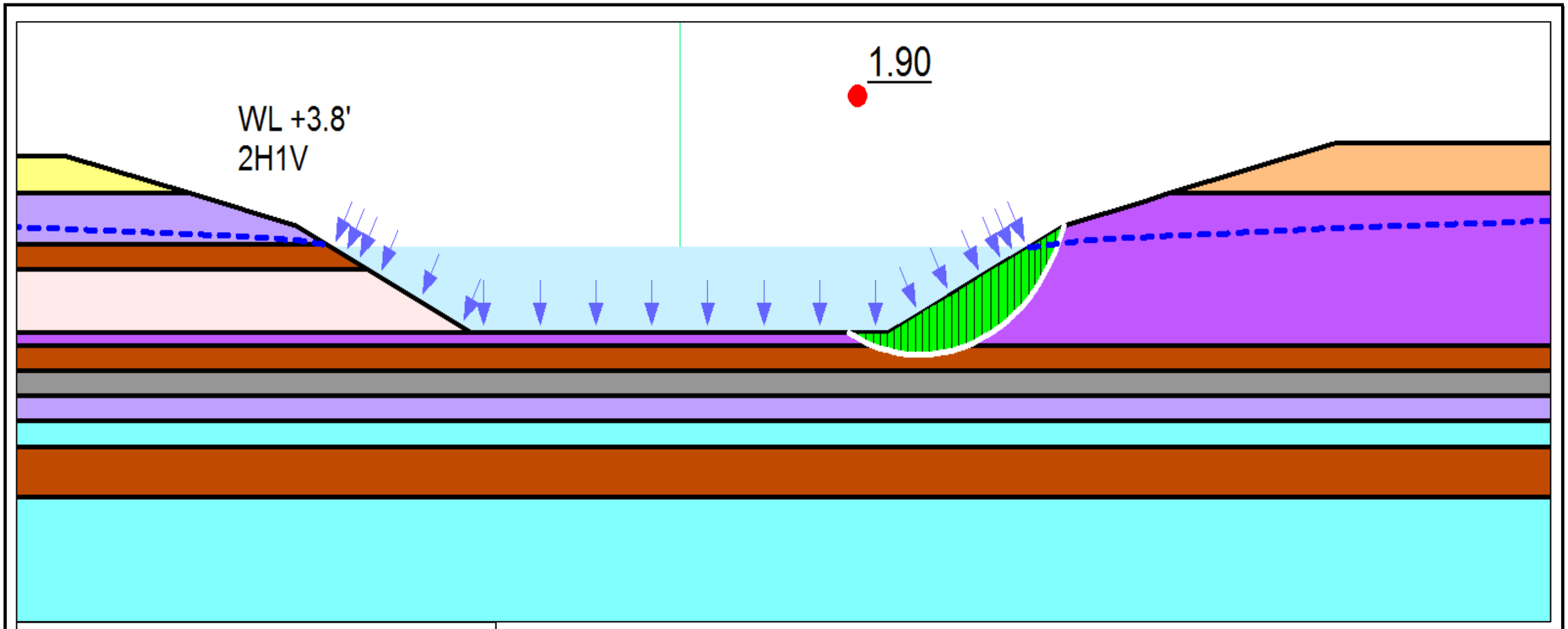

Color	Name	Model	Unit Weight (pcf)	Cohesion' (psf)	Phi' (°)
	Limestone 4	Mohr-Coulomb	113	0	33
	Limestone 5	Mohr-Coulomb	128	200	40
	Limestone 6	Mohr-Coulomb	121	25	36
	Limestone 7	Mohr-Coulomb	118	50	35
	Limestone 8	Mohr-Coulomb	116	25	34
	Sand	Mohr-Coulomb	109	0	31
	Sand 4	Mohr-Coulomb	113	0	32
	Sand 7	Mohr-Coulomb	114	0	33

RADISE INTERNATIONAL

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Appendix B

Cost Estimating Data

RADISE INTERNATIONAL

SWCD Costing Spreadsheet

Bridge ID : Riverside Drive

General Work Item Listing

	ID.	Item	No. of Items	Units/Item	Units	$/Unit	Cost		Notes
General Work Item Listing	1	Submittals	1		ea.	$ 500.00	$ -		
	2	GC Site Mobilization	1		ea.	10%	$ -		
	3a	Dewatering Aqui-Dam	1		Feet	$ 350.00	$ -		
	b	Dewatering/Month	1		Month	$ 68,200.00	$ -		
	4	Canal Excavation in Limestone	2		cy	$ 30.00	$ -		Each side
	5	Lag Board Shoring	2		sf	$ 20.00	$ -		Each side
	6	Tie-Back Equip. Mobilization	1		ea.	$ 10,000.00	$ -		
	7	Tieback Installation	2		LF	$ 41.25	$ -		Each side
	8	Shotcrete Equipment Mob.	2		ea.	$ 10,000.00	$ -		Each side
	9	Shotcrete Facing	2		sf	$ 73.41	$ -		Each side
	10	Concrete Seal Slab	2		sf	$ 14.81	$ -		Each side
	11	Sheetpile Equipment Mob/Setup	0		ea.	$ 10,000.00	$ -		
	12	Sheetpile Wing Walls	4		sf	$ 40.00	$ -		Each Bridge Corner
	13	SheetpileWing Wall Caps	4		LF	$ 120.00	$ -		Each Bridge Corner
	14	Riprap Canal	2		sf	$ 13.50	$ -		Each side
	15	Cleanup and Demob	1		ea.	$ 14,500.00	$ -		
	16	MOT - N.Bound	1		ea.	$ 5,000.00	$ -		
	17	MOT - S.Bound	1		ea.	$ 5,000.00	$ -		
	18	Approach Slab Demolition	2		sf	$ 12.50	$ -		Each side
	19	Utility Terminates	6		ea.	$ 3,666.67	$ -		Estimate
	20	ACIP Equipment Mob/Setup	2		ea.	$ 7,500.00	$ -		Each side
	21	ACIPPiles - End Bent Walls	2		LF	$ 40.00	$ -		Each side
	22	ACIP Piles - Wing Walls	4		LF	$ 40.00	$ -		
	23	ACIP Pile - Wing Wall Caps	4		LF	$ 120.00	$ -		
	24	Sheetpile End Bent Walls	2		sf	$ 54.67	$ -		Each side
	25	Approach Slab Reconstruction	2		sf	$ 26.62	$ -		Each side
	26	Utility Reconnects	6		ea.	$ 3,666.67	$ -		Estimate
	27	Remove Pre-cast Deck Slabs	8		ea.	$ 32,500.00	$ -		Four each side
	28	Reconstruct Pre-cast Deck Slab	8		ea.	$ 347,325.00	$ -		Four each side
	29	Remove MOT	2		ea.	$ 2,500.00	$ -		Each side
	30	Apron/Wall/Footing Removal	2		ea.	$ 50,000.00	$ -		Each side
	31	Pile Integrity Testing	4		ea.	$ 1,500.00			Each side
	32	Profit, Markup, and OH				26%			% of Construction Base Cost
	33	Contingency				15%			% of Construction Base Cost + P/MU/OH
	34	Engineering and Permitting	1			12%			% of Total Construction Est
	35	Bidding & Engr. During Construction	1			10%			% of Total Construction Est

3.3.6.a - Lag Board Shoring Approach — **$1,764,419**

	ID.	Item	No. of Items	Units/Item	Units	$/Unit	Cost		Notes		
Lag Board Shoring Apptoach	1	Submittals	1	20	ea.	$ 500.00	$ 10,000.00				
	2	GC Site Mobilization	1	1	ea.	$ 89,518.60	$ 89,518.60		10% of Construction Cost		
	3a	Dewatering Aqui-Dam	1	100	Feet	$ 350.00	$ 35,000.00		Install and Remove		
	3b	Dewatering/Month	1	6	Month	$ 68,200.00	$ 409,200.00		Assume 6 Months Duration		
	4	Canal Excavation in Limestone	2	150	cy	$ 30.00	$ 9,000.00		((165)/2 cf/f X 50')/27		
	5	Lag Board Shoring	2	420	sf	$ 20.00	$ 16,800.00		7 Sect. (15' high X 4sf/ft)		
	6	Tie-Back Equip. Mobilization	2	1	ea.	$ 10,000.00	$ 20,000.00		1 each bridge abutment		
	7	Tieback Installation	2	320	LF	$ 45.00	$ 28,800.00		Assume 8 X 40' long		
	8	Shotcrete Equipment Mob.	2	1	ea.	$ 10,000.00	$ 20,000.00		Each Bridge Abutment		
	9	Shotcrete Facing	2	600	sf	$ 73.41	$ 88,095.24		Assume 40 Wide X 15' High		
	10	Concrete Seal Slab	2	160	sf	$ 14.81	$ 4,740.74		4 X 40' Each Bridge Abutment		
	11	Sheetpile Equipment Mob/Setup	2	1	ea.	$ 10,000.00	$ 20,000.00		Each Bridge Abutment		
	12	Sheetpile Wing Walls	4	1050	sf	$ 40.00	$ 168,000.00		40' wide X 26.5' long (Avg)		
	13	SheetpileWing Wall Caps	4	40	LF	$ 120.00	$ 19,200.00		40' long		
	14	Riprap Canal	1	3100	sf	$ 13.50	$ 41,850.00		Assume 50' X 62 ' between Seal Slabs		
	15	Cleanup and Demob	1	1	ea.	$ 14,500.00	$ 14,500.00				
	30	Apron/Wall/Footing Removal	2	1	ea.	$ 50,000.00	$ 100,000.00				
							Construction $	**32 - OH, Mu, Profit**	**Subtotal .**	**33 - Contingency**	**Total Constr. Est.**
							$994,705	$258,623	$1,253,328	$187,999	$1,441,327
	31	Pile Integrity Testing	4	1	ea.	$ 1,500.00					$6,000
	34	Engineering and Permitting	1	1	ea.	12%					$172,959
	35	Bidding & Engr. During Construction	1	1	ea.	10%					$144,133
									Total 3.3.6.a Cost Estimate		**$1,764,419**

3.3.6.b - Exterior Retaining Wall Approach — **$2,271,598**

	ID.	Item	No. of Items	Units/Item	Units	$/Unit	Cost		Notes		
Exterior Retaining Wall Approach	1	Submittals	1	20	ea.	$ 500.00	$ 10,000.00				
	2	GC Site Mobilization	1	1	ea.	$ 73,673.26	$ 73,673.26		10% of Construction Cost		
	3a	Dewatering Aqui-Dam	1	100	Feet	$ 350.00	$ 35,000.00				
	3b	Dewatering/Month	1	4	Month	$ 68,200.00	$ 272,800.00				
	16	MOT - N.Side	1	1	ea.	$ 5,000.00	$ 5,000.00		Reroute/Road Closed Signage		
	17	MOT - S.Side	1	1	ea.	$ 5,000.00	$ 5,000.00		Reroute/Road Closed Signage		
	18	Approach Slab Demolition	2	1000	sf	$ 12.50	$ 25,000.00		10' Wide X 40' Long each		
	19	Utility Terminates	6	1	ea.	$ 3,666.67	$ 22,000.00		3 Locations each Side of Bridges		
	20	ACIP Equipment Mob/Setup	2	1	ea.	$ 7,500.00	$ 15,000.00		2 Bridges X 2 Locations/Bridge		
	21	ACIP Piles - End Bent	2	1680	LF	$ 40.00	$ 134,400.00		40 Piles (18" D) X 42 lf/pile		
	22	ACIP Piles - Wing Walls	4	838	LF	$ 40.00	$ 134,080.00		33 Piles X 26.5 lf/pile (Avg.)		
	23	ACIP Pile - Wing Wall Caps	4	40	LF	$ 120.00	$ 19,200.00		40' long		
	25	Approach Slab Reconstruction	4	1000	sf	$ 26.62	$ 106,466.67		10' Wide X 40' Long		
	26	Utility Reconnects	3	2	ea.	$ 3,666.67	$ 22,000.00		Locations each Side of Bridge		
	4	Canal Excavation in Limestone	4	150	cy	$ 30.00	$ 18,000.00		((165)/2 cf/f X 50')/27		
	6	Tie-Back Equip. Mobilization	1	1	ea.	$ 10,000.00	$ 10,000.00				
	7	Tieback Installation	2	320	LF	$ 41.25	$ 26,400.00		Assume 8 X 40' long		
	8	Shotcrete Equipment Mob.	4	1	ea.	$ 10,000.00	$ 40,000.00		Each Bridge Abutment		
	9	Shotcrete Facing	2	600	sf	$ 73.41	$ 88,095.24		Assume 40 Wide X 15' High		
	10	Concrete Seal Slab	2	160	sf	$ 14.81	$ 4,740.74		Each Bridge Abutment		
	14	Riprap Canal	2	1550	sf	$ 13.50	$ 41,850.00		Assume (50' X 62 '/2) each half		
	29	Remove MOT	2	1	ea.	$ 2,500.00	$ 5,000.00				
	15	Cleanup and Demob	1	1	ea.	$ 14,500.00	$ 14,500.00				
	30	Apron/Wall/Footing Removal	2	1	ea.	$ 50,000.00	$ 100,000.00				
							Construction $	**32 - OH, Mu, Profit**	**Subtotal .**	**33 - Contingency**	**Total Constr. Est.**
							$ 1,228,206	$ 319,334	$ 1,547,539	$ 309,508	$ 1,857,047
	31	Pile Integrity Testing	4	1	ea.	$ 1,500.00					$ 6,000
	34	Engineering and Permitting	1	1	ea.	12%					$ 222,846
	35	Bidding & Engr. During Construction	1	1	ea.	10%					$ 185,705
									Total 3.3.6.b Cost Estimate		**$2,271,598**

3.3.6.c - Bridge Deck Removal Approach									$3,099,107		
Remove Bridge Slab Approach	ID.	Item	No. of Items	Units/Item	Units	$/Unit	Cost		Notes		
	1	Submittals	1	20	ea.	$ 500.00	$ 10,000.00				
	2	GC Site Mobilization	1	1	ea.	$ 151,528.00	$ 151,528.00		10% of Construction Cost		
	16	MOT - N.Bound	1	1	ea.	$ 5,000.00	$ 5,000.00		Reroute/Road Closed Signage		
	17	MOT - S.Bound	1	1	ea.	$ 5,000.00	$ 5,000.00		Reroute/Road Closed Signage		
	19	Utility Terminates	6	1	ea.	$ 3,666.67	$ 22,000.00		3 Locations each Side of Bridges		
	27	Remove Pre-cast Deck Slab	2	4	ea.	$ 32,500.00	$ 260,000.00		2 Bridge Halfs X 8-10' Wide Slabs/Bridge		
	11	Sheetpile Equipment Mob/Setup	2	1	ea.	$ 10,000.00	$ 20,000.00				
	24	Sheetpile End Bent	2	1680	sf	$ 54.67	$ 183,680.00		40' wide X 42' long		
	12	Sheetpile Wing Walls	4	1050	sf	$ 40.00	$ 168,000.00		40' wide X 26.5' long (Avg)		
	13	SheetpileWing Wall Caps	4	40	LF	$ 120.00	$ 19,200.00		40' long		
	4	Canal Excavation in Limestone	4	150	cy	$ 30.00	$ 18,000.00		((165)/2 cf/f X 50')/27		
	6	Tie-Back Equip. Mobilization	1	1	ea.	$ 10,000.00	$ 10,000.00				
	7	Tieback Installation	2	320	LF	$ 41.25	$ 26,400.00		Assume 8 X 40' long		
	14	Riprap Canal	2	1550	sf	$ 13.50	$ 41,850.00		Assume (50' X 62 '/2) each half		
	28	Reconstruct Pre-cast Deck Slab	2	1	ea.	$ 347,325.00	$ 694,650.00		2 Bridges X 2 Locations/Bridge		
	26	Utility Reconnects	3	2	ea.	$ 3,666.67	$ 22,000.00		3 Locations each Side of Bridge		
	29	Remove MOT	2	1	ea.	$ 2,500.00	$ 5,000.00				
	15	Cleanup and Demob	1	1	ea.	$ 14,500.00	$ 14,500.00				
	30	Apron/Wall/Footing Removal	2	1	ea.	$ 50,000.00	$ 100,000.00				
							Construction $	**32 - OH, Mu, Profit**	**Subtotal .**	**33 - Contingency**	**Total Constr. Est.**
							$ 1,676,808	$ 435,970	$ 2,112,778	$ 422,556	$ 2,535,334
	31	Pile Integrity Testing	4	1	ea.	$ 1,500.00					$ 6,000
	34	Engineering and Permitting	1	1	ea.	12%					$ 304,240
	35	Bidding & Engr. During Construction	1	1	ea.	10%					$ 253,533
									Total 3.3.6.c Cost Estimate		**$3,099,107**

3.3.6.d - Partial Canal Improvement (PCI) - Approach A									$1,207,291		
Partial Canal Improvement - Approach A	ID.	Item	No. of Items	Units/Item	Units	$/Unit	Cost		Notes		
	1	Submittals	1	20	ea.	$ 26.62	$ 532.33				
	2	GC Site Mobilization	1	1	ea.	$ 14,050.00	$ 14,050.00		10% of Construction Cost		
	3a	Dewatering Aqui-Dam	1	100	Feet	$ 350.00	$ 35,000.00				
	3b	Dewatering/Month	1	4	Month	$ 68,200.00	$ 272,800.00				
	6	Tie-Back Equip. Mobilization	2	1	ea.	$ 10,000.00	$ 20,000.00				
	7	Tieback Installation	2	240	LF	$ 41.25	$ 19,800.00		Assume 8 X 30' long each abutment		
	8	Shotcrete Equipment Mob.	2	1	ea.	$ 10,000.00	$ 20,000.00				
	9	Shotcrete Facing	2	166	sf	$ 73.41	$ 24,373.02		Assume 47.5 Wide X 3.5' High		
	10	Concrete Seal Slab	2	141	sf	$ 14.81	$ 4,177.78		Assume 47.5 long X 3' Wide		
	4	Canal Excavation in Limestone	2	300	cy	$ 30.00	$ 18,000.00		(324sf X 50')/(27X2)		
	14	Riprap Canal	1	3600	sf	$ 30.00	$ 108,000.00		Assume 50' X 62 ' between Seal Slabs		
	15	Cleanup and Demob	1	1	ea.	$ 14,500.00	$ 14,500.00				
	30	Apron/Wall/Footing Removal	2	1	ea.	$ 50,000.00	$ 100,000.00				
							Construction $	**OH, Mu, Profit**	**Subtotal .**	**Contingency**	**Total Est.**
							$651,233	$169,321	$820,554	$164,111	$984,664
	31	Pile Integrity Testing	4	1	ea.	$ 1,500.00					$6,000
	34	Engineering and Permitting	1	1	ea.	12%					$118,160
	35	Bidding & Engr. During Construction	1	1	ea.	10%					$98,466
									Total 3.3.6.d Cost Estimate		**$1,207,291**

3.3.6.e - Partial Canal Improvement (PCI) - Approach B									$539,218		
Partial Canal Improvement - Approach B	ID.	Item	No. of Items	Units/Item	Units	$/Unit	Cost		Notes		
	1	Submittals	1	10	ea.	$ 26.62	$ 266.17				
	2	GC Site Mobilization	1	1	ea.	$ 26,550.00	$ 26,550.00		10% of Construction Cost		
	3a	Dewatering Aqui-Dam	1	100	Feet	$ 350.00	$ 35,000.00				
	3b	Dewatering/Month	1	2	Month	$ 68,200.00	$ 136,400.00				
	4	Canal Excavation in Limestone	2	110	cy	$ 30.00	$ 6,600.00		(115sf X 50')/(27X2)		
	14	Riprap Canal	1	2675	sf	$ 30.00	$ 80,250.00		Assume 50' X 53.5 ' between Aprons		
	15	Cleanup and Demob	1	1	ea.	$ 7,250.00	$ 7,250.00				
	30	Apron/Wall/Footing Removal	2	0	ea.	$ 50,000.00	$ -				
							Construction $	**OH, Mu, Profit**	**Subtotal .**	**Contingency**	**Total Est.**
							$292,316	$76,002	$368,318	$73,664	$441,982
	31	Pile Integrity Testing	4	0	ea.	$ 1,500.00					$0
	34	Engineering and Permitting	1	1	ea.	12%					$53,038
	35	Bidding & Engr. During Construction	1	1	ea.	10%					$44,198
									Total 3.3.6.e Cost Estimate		**$539,218**

CRAIG A. SMITH & ASSOCIATES
A SMART-INFRASTRUCTURE COMPANY

September 6, 2022

Board of Supervisors
Sunshine Water Control District (SWCD)
2300 Glades Road, Suite 410W
Boca Raton, Florida 33073

RE: SWCD Right-of-Way Permit Application
Ladybird Academy - Canal L
CAS PROJECT NO. 15-1826-P31

Dear Board of Supervisors (BOS):

We have reviewed the Right-of-Way permit application submitted by Z Development Services on behalf of CSJ Capital, LLC for the development of an institutional facility (Ladybird Academy) adjacent to Canal "L". The property is currently vacant and the development of the site will also entail demucking work on the adjacent canal as shown on the plans.

The applicant has met SWCD applicable criteria and we recommend that the SWCD BOS issue a Right-of-Way Permit to the applicant, subject to the following Special Conditions to be made part of the Permit on the scheduled September 14, 2022:

1. A copy of Record As-builts and Engineer Certification shall be provided to SWCD upon completion of all work with elevations shown in NAVD datum.
2. All work must be in compliance with the latest SWCD Permit Criteria Manual.
3. All nuisance vegetation within Canal "L" work limits shall be removed and canal banks shall be stabilized with sod.
4. Permittee will ensure that all necessary Sediment & Erosion Control devices will be utilized at the SWCD right-of-way during construction.
5. Trash bond ($2,500) shall be submitted prior to permit issuance and the Contractor shall repair and replace any SWCD facilities damaged during construction at no cost to the District.
6. All applicable permits and approvals for Work shall be obtained.
7. SWCD shall be notified at least 48 hours prior to construction.
8. The Permittee is advised that additional cost recovery fees may be requested.

Sincerely,
CRAIG A. SMITH & ASSOCIATES

Orlando A. Rubio, PE
VP of Stormwater Engineering

cc: SWCD – Cory Selchan (via e-mail)
WHA – Jamie Sanchez, Cindy Cerbone, Debbie Tudor, Gianna Dinofrio, Daphne Gillyard (via e-mail)
Z Development Services - Bob Ziegenfuss, PE, (via e-mail)
CAS – Stephen C. Smith, PE (via e-mail)

\\cas-file\Projects\Districts\Sunshine_Water_Control\15-1826-COST-RECOVERY-PROJECTS\15-1826-P31-LadybirdAcademy\06-Permit\LadybirdAcademyCanalL-Engr_Recommendation.docx

CONTRACTOR'S NOTE:
CONTRACTOR SHALL PROVIDE A COMPREHENSIVE ASBUILT SURVEY FOR THE PROJECT AS REQUIRED BY THE GOVERNING AGENCY. CONTACT THE ENGINEER OF RECORD FOR THE REQUIREMENTS OF THE AS-BUILT SURVEY BEFORE START OF CONSTRUCTION.

LADYBIRD ACADEMY

8950 ROYAL PALM BOULEVARD
CORAL SPRINGS, FLORIDA 33065

FOLIO NO.: 4841-22-07-1030
CASE NO.: DRC19-0012

DEVELOPER & CONSULTANTS

OWNER/DEVELOPER

LADYBIRD GROUP
1515 INTERNATIONAL PARKWAY, SUITE 3001
LAKE MARY, FLORIDA 32746
CONTACT: JERIANN MACLEAN
PHONE: 407-829-8529
EMAIL: JMACLEAN@LADYBIRDGROUP.COM

CIVIL ENGINEER

ROBERT ZIEGENFUSS, PE
708 EAST COLONIAL DRIVE, SUITE 100
ORLANDO, FLORIDA 32803
CONTACT: ROBERT ZIEGENFUSS, PE
PHONE: 407-271-8910
EMAIL: BOB@ZDEVELOPMENTSERVICES.COM

ARCHITECT

RODNEY JEFFERSON ARCHITECT
17301 PAGONIA ROAD, SUITE 230C
CLERMONT, FLORIDA 34711
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PHONE: 407-291-8406
EMAIL: RLJARCHITECT@AOL.COM

LANDSCAPE DESIGNER
CADD SCAPES, INC.
432 NOWELL LOOP
DELAND, FLORIDA 32724
CONTACT: JASON BRIDGEWATER
PHONE: 407-310-5567
EMAIL: JASONBRIDGEWATER@GMAIL.COM

SURVEYOR

NV5
201 SOUTH BUMBY AVENUE
ORLANDO, FLORIDA 32803
CONTACT: CHRISTOPHER A. LABERGE, PSM
PHONE: 407-896-3317
EMAIL: CHRIS.LABERGE@NV5.COM

GEOTECHNICAL ENGINEER

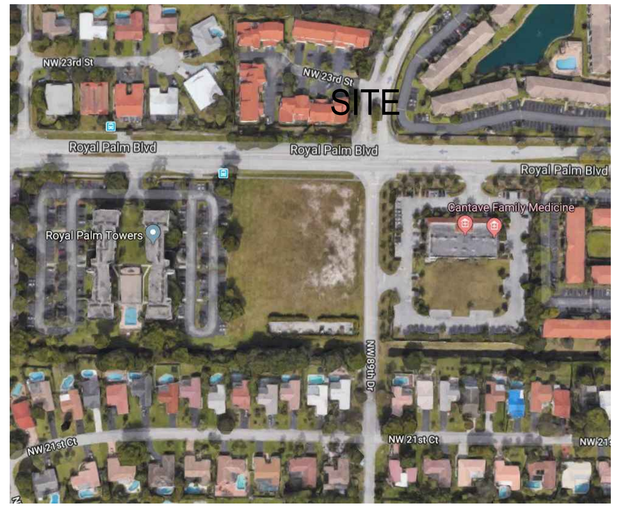
NV5
14486 COMMERCE WAY
MIAMI LAKES, FLORIDA 33016
CONTACT: ALFREDO BUDIK, PE
PHONE: 305-901-2151
EMAIL: ALFREDO.BUDIK@NV5.COM

INDEX OF DRAWINGS

PROJECT REVISIONS

REV. NO.	DATE	DESCRIPTION	SHEETS	BY
1	07-07-22	SFWMD & SWCD COMMENTS	CV, C3, C7.2, C8, C8.1, C8.2, C8.3, C8.4, C8.5	SR
2	08-22-22	SWCD COMMENTS	C3	SR

VICINITY MAP NTS



Z DEVELOPMENT services
708 E. COLONIAL DR., STE. 100
ORLANDO, FL 32803
CA 29354
PH: (407) 271-8910
FAX: (407) 442-0604

REVISION	DATE
SFWMD & SWCD COMMENTS	07-07-22

ROBERT ZIEGENFUSS, P.E., LEED AP
FL REG. # 59752

LADYBIRD ACADEMY
8950 ROYAL PALM BOULEVARD
CORAL SPRINGS, FLORIDA 33065

DATE: 02-22-22
DRAWN: SR
CHECKED: RZ

CV
COVER SHEET

PROJECT NO.: 2019.141

DEMOLITION NOTES

1. PRIOR TO THE START OF CONSTRUCTION THE CONTRACTOR SHALL COORDINATE ACTIVITIES WITH ALL UTILITY SERVICE PROVIDERS IN THE AREA. THE LOCATION OF ALL EXISTING UTILITIES SHOULD BE VERIFIED PRIOR TO ANY EXCAVATION ACTIVITIES.

2. THE CONTRACTOR SHALL COMPLETELY REMOVE AND DISPOSE OF ALL STRUCTURES AND OTHER IMPROVEMENTS AS NOTED ON THE PLANS. THIS INCLUDES FOUNDATIONS, TIMBER, BRUSH, STUMPS, ROOTS, PAVEMENT AND BASE MATERIAL AND OTHER STRUCTURES AS SHOWN OR REASONABLY IMPLIED IN THE DRAWINGS.

3. WHERE EXISTING BUILDINGS ARE TO BE DEMOLISHED, ALL TRACES OF FOUNDATIONS AND UNDERGROUND UTILITIES ARE TO BE REMOVED (UNLESS OTHERWISE NOTED ON PLANS). THE CONTRACTOR IS RESPONSIBLE FOR PROPER DISPOSAL OF ALL WASTE MATERIAL.

4. WHERE PAVING OR STRUCTURES ARE TO BE REMOVED WHICH ABUT OR ARE A PART OF CONNECTED FACILITIES (THAT ARE OFF-SITE), ANY DAMAGE THAT MIGHT RESULT FROM DEMOLITION IS TO BE RESTORED TO A CONDITION EQUAL TO OR BETTER THAN EXISTING UNLESS SPECIFICALLY EXEMPTED BY THE PLANS. THE COST FOR SUCH RESTORATION SHALL BE INCIDENTAL TO OTHER CONSTRUCTION AND NO EXTRA COMPENSATION WILL BE ALLOWED.

5. THE LOCATION OF ALL EXISTING UTILITIES AND TREES SHOWN ON THE PLANS HAVE BEEN DETERMINED BASED UPON THE BEST AVAILABLE INFORMATION. THE ENGINEER AND OWNER ASSUME NO RESPONSIBILITY FOR ACCURACY. ALL UTILITIES, SURFACE IMPROVEMENTS AND TREE LOCATIONS SHOULD BE VERIFIED BY THE CONTRACTOR.

6. THE CONTRACTOR SHALL COORDINATE THE RELOCATION OR REMOVAL OF ALL OVERHEAD/UNDERGROUND UTILITIES, UTILITY POLES, LIGHTS AND LINES IN THE RIGHT-OF-WAY AND ON THE PROPERTY WITH THE APPROPRIATE SERVICE PROVIDER.

7. THE CONTRACTOR SHALL REFERENCE AND RESTORE PROPERTY CORNERS AND LAND MARKERS DISTURBED DURING CONSTRUCTION. (UNDER THE DIRECTION OF A REGISTERED LAND SURVEYOR).

8. ALL EROSION CONTROL MEASURES NOTED BELOW AND IN THE PLANS SHOULD BE IN PLACE PRIOR TO THE START OF DEMOLITION.

EROSION CONTROL NOTES

ALL EROSION CONTROL MEASURES SHALL REMAIN IN PLACE UNTIL COMPLETION OF CONSTRUCTION.

1. ALL EROSION AND SEDIMENT CONTROL WORK SHALL CONFORM WITH LOCAL CITY/COUNTY AND WATER MANAGEMENT DISTRICT SPECIFICATIONS, SUBJECT TO AUTHORIZED AND APPROVED VARIANCES, WAIVERS AND/OR CONDITIONAL CHANGES.

2. EROSION AND SEDIMENT CONTROL MEASURES SHALL BE PLACED PRIOR TO OR AS THE FIRST STEP IN, CONSTRUCTION. SEDIMENT CONTROL PRACTICES WILL BE APPLIED AS A PERIMETER DEFENSE AGAINST ANY TRANSPORTATION OF SILT OFF THE SITE.

3. ALL AREAS AFFECTED BY THIS WORK SHALL BE RESTORED TO A CONDITION EQUAL TO OR BETTER THAN EXISTING CONDITION, UNLESS SPECIFICALLY EXEMPTED BY THE PLANS, THE COST FOR SUCH RESTORATION SHALL BE INCIDENTAL TO OTHER CONSTRUCTION AND NO ADDITIONAL COMPENSATION SHALL BE ALLOWED.

4. THE CONTRACTOR SHALL IMMEDIATELY NOTIFY THE ENGINEER OF ANY DISCREPANCIES BETWEEN THESE PLANS AND FIELD CONDITIONS PRIOR TO CONSTRUCTION.

5. PRIOR TO CONSTRUCTION THE CONTRACTOR SHALL PROVIDE TREE PROTECTION BARRIERS TO MEET THE REQUIREMENTS OF LOCAL SPECIFICATIONS.

6. THE CONTRACTOR SHALL SELECTIVELY CLEAR ONLY THE AREAS REQUIRED FOR CONSTRUCTION AND STABILIZE ANY POTENTIAL EROSION AREAS IMMEDIATELY FOLLOWING COMPLETION OF CONSTRUCTION.

7. CONTRACTOR SHALL KEEP ANY AND ALL SAND, SILT OR OTHER DEBRIS FROM MOVING OFF-SITE. USE AND MAINTAIN SILT FENCE JUST INSIDE THE LIMITS OF CONSTRUCTION.

8. CONTRACTOR SHALL BLOCK INTRUSION OF SAND, SILT OR OTHER DEBRIS INTO ANY DRAINAGE OR SANITARY SEWER STRUCTURE OR PIPING ON OR ADJACENT TO THE SITE.

9. ALL CLEARED AREAS FOR IMPROVEMENT AND/OR CONSTRUCTION SHALL BE WATERED TO PREVENT WIND EROSION.

10. FOR ADDITIONAL INFORMATION AND DETAILS, SEE STATE OF FLORIDA'S EROSION AND SEDIMENT CONTROL MANUAL.

11. UNLESS SPECIFIED, SILT FENCES MAY BE USED IN LIEU OF SYNTHETIC BARRIERS.

12. ADDITIONAL POSTS AND RAILS MAY BE NECESSARY TO SECURE AND SUPPORT BARRIERS.

13. ADDITIONAL BARRIER LENGTHS MAY BE REQUIRED BY THE GOVERNING JURISDICTION OR BY OTHER REGULATORY AGENCIES.

14. FILTER FABRIC MUST BE INSTALLED UNDER ALL INLET GRATES, AT ALL TIMES WHEN INLETS ARE NOT PROTECTED BY SILT FENCE OR SYNTHETIC BALES/WATTLES, UNTIL THE LIMEROCK BASE IS FINISHED AND PRIMED.

15. THE BOTTOM AND SIDE SLOPES OF RETENTION PONDS SHALL BE UNDER EXCAVATED BY ROUGHLY 12 INCHES AT THE BEGINNING OF CONSTRUCTION. ONCE THE ENTIRE SITE IS STABILIZED, THE RETENTION POND SHALL BE EXCAVATED TO THE DESIGN DEPTH AND STABILIZED WITH SEED OR SOD AS SPECIFIED IN THE LANDSCAPING PLANS. NO MUCK GROWN SOD SHALL BE USED.

GENERAL NOTES

THE CONTRACTOR SHALL FAMILIARIZE HIMSELF WITH THE SITE CONDITIONS AND THESE PLANS PRIOR TO THE START OF CONSTRUCTION. ANY CONFLICTS BETWEEN CONDITIONS IN THE FIELD AND THESE PLANS SHALL BE REPORTED TO THE ENGINEER OF RECORD AT ONCE.

A. GENERAL

1. ALL INFRASTRUCTURE AND IMPROVEMENTS SHALL CONFORM TO THE STANDARDS AND SPECIFICATIONS OF THE LOCAL JURISDICTION AND WILL BE SUBJECT TO THEIR INSPECTION AND ACCEPTANCE.

2. SITE LOCATION: 8950 ROYAL PALM BOULEVARD, CORAL SPRINGS, FLORIDA 33065.

3. THIS SITE LIES IN FLOOD ZONE "X", BASED ON FLOOD INSURANCE RATE MAP NO. 12011C0165H, COMMUNITY NO. 120033, PANEL 0165H, CORAL SPRINGS, BROWARD COUNTY, FLORIDA, EFFECTIVE DATE OF AUGUST 18, 2014.

4. BOUNDARY, TOPOGRAPHIC AND TREE SURVEY BY NV5, 201 S. BUMBY AVENUE, ORLANDO, FLORIDA 32708. DATED MAY 15, 2019.

5. BENCHMARK – REFER TO BOUNDARY, TOPOGRAPHIC AND TREE SURVEY BY NV5, DATED MAY 15, 2019. SEE NOTE 4 ABOVE.

6. LEGAL DESCRIPTION SHOWN HEREIN IS FURNISHED BY SURVEYOR, AND IS INCLUDED FOR PERMITTING AND APPROVAL PURPOSES, AND AS A COURTESY FOR THE CONTRACTOR. THE ENGINEER ASSUMES NO LIABILITY FOR ITS ACCURACY OR COMPLETENESS.

7. SITE GEOTECHNICAL INVESTIGATION PERFORMED BY NV5, THE CIVIL ENGINEER ASSUMES NO RESPONSIBILITY FOR THE CORRECTNESS, ACCURACY AND COMPLETENESS OF THEIR WORK. THE CONTRACTOR SHALL OBTAIN A COPY OF THE GEOTECHNICAL ENGINEER'S REPORT FOR THIS SITE AND COMPLY WITH RECOMMENDATIONS CONTAINED THEREIN. IF ADDITIONAL SERVICES ARE REQUIRED, THE CONTRACTOR SHALL MAKE A REQUEST TO THE OWNER.

8. CONTRACTOR SHALL PROVIDE AND INSTALL EROSION CONTROL DEVICES (SILT FENCE OR OTHER METHODS) AT LIMITS OF CONSTRUCTION AND AROUND EACH STORM INLET PRIOR TO CONSTRUCTION, AND SHALL MAINTAIN SAID EROSION CONTROL DEVICES DURING CONSTRUCTION, ALL IN CONFORMANCE WITH CURRENT LOCAL, COUNTY AND STATE CRITERIA.

9. THE SITE SHALL BE CLEARED AS MAY BE NOTED ON THE PLANS, OF ALL OBSTRUCTIONS AND DELETERIOUS MATERIAL SUCH AS FENCES, WALLS, FOUNDATIONS, LOGS, SHRUBS, BRUSH, WEEDS, OTHER VEGETATION, AND ACCUMULATION OF RUBBISH OF WHATEVER NATURE. OFF-SITE DISPOSAL, INCLUDING ANY HAZARDOUS MATERIAL ENCOUNTERED, SHALL BE IN ACCORDANCE WITH APPLICABLE LOCAL, STATE, AND FEDERAL RULES AND REGULATIONS.

10. THE CONTRACTOR SHALL IMMEDIATELY NOTIFY THE ENGINEER OF ANY DISCREPANCIES BETWEEN THE PLANS AND FIELD CONDITIONS PRIOR TO START OF CONSTRUCTION.

11. THE CONTRACTOR SHALL REMAIN SOLELY RESPONSIBLE FOR ANY DESIGN CHANGES WHICH HE MAY INCORPORATE INTO THE PLANS WITHOUT PRIOR WRITTEN CONSENT AND/OR APPROVAL FROM THE OWNER AND THE ENGINEER.

12. THE CONTRACTOR SHALL COORDINATE ALL WORK WITHIN EACH EXISTING RIGHT OF WAY WITH THE CITY OF CORAL SPRINGS AND/OR BROWARD COUNTY.

13. THE CONTRACTOR SHALL RESTORE OFF-SITE AREAS TO A CONDITION EQUAL TO OR BETTER THAN THE CONDITION EXISTING PRIOR TO COMMENCEMENT OF CONSTRUCTION.

14. ALL DISTURBED AREAS SHALL BE SODDED.

15. AT LEAST 30 DAYS PRIOR TO ANTICIPATED COMPLETION OF SITE CONSTRUCTION, THE FINAL CERTIFICATION PROCESS WILL BEGIN. THE CONTRACTOR SHALL PROVIDE DOCUMENTS AND INFORMATION, IN A TIMELY MANNER, TO ENGINEER, INCLUDING, WITHOUT LIMITATION:
   a. SURVEYED "AS-BUILTS" MEETING THE REQUIREMENTS OF THE LOCAL JURISDICTION.
   b. COMPACTION AND DENSITY TEST REPORTS, AND
   c. PRESSURE TESTING AND BACTERIOLOGICAL TESTING RESULTS, AS REQUIRED, FOR WATER DISTRIBUTION AND/OR WASTEWATER COLLECTION/TRANSMISSION SYSTEMS.

THE CONTRACTOR SHALL HAVE TWO (2) SETS OF AS-BUILT PLANS, SIGNED AND SEALED BY SURVEYOR OF RECORD, ON SITE THE DAY OF THE CIVIL ENGINEERING FINAL PUNCH LIST INSPECTION. THE GENERAL CONTRACTOR IS TO GIVE THE TWO AS-BUILT PLANS TO THE REPRESENTATIVE FROM Z DEVELOPMENT SERVICES COMPLETING THE INSPECTION. IF ANY DEFICIENCIES ARE NOTED, ONE SET OF RED-LINED AS-BUILT PLANS WILL BE GIVEN TO THE GC FOR REVISIONS TO BE MADE. REVISED AS-BUILTS WILL NEED TO BE FORWARDED TO THE ENGINEER BEFORE ANY CERTIFICATIONS CAN BE INITIATED.

16. LANDSCAPE SHALL BE TRIMMED TO ENSURE SIGHT VISIBILITY OF TRAFFIC CONTROL DEVICES.

17. ALL PAVEMENT IS DIMENSIONED TO FACE OF CURB.

18. ALL BUILDING DIMENSIONS AND TIES ARE TO FACE OF BUILDING. SEE ARCHITECTURAL PLANS.

19. ALL PARKING LOT CURB RETURN RADII ARE 2' UNLESS OTHERWISE NOTED.

UTILITY NOTES

PRIOR TO COMMENCING ANY CONSTRUCTION, THE CONTRACTOR SHALL FIELD VERIFY ALL EXISTING UTILITIES, INCLUDING WITHOUT LIMITATION POTABLE WATER, RECLAIMED WATER, SANITARY SEWER, AND SERVICE UTILITIES, AT POINTS OF CONNECTION, POINTS OF CROSSING, AND/OR POTENTIAL CONFLICT. NOTIFY ENGINEER OF ANY DISCREPANCIES BETWEEN THE PLANS AND FIELD CONDITIONS.

A. GENERAL

1. THE LOCATIONS OF EXISTING UTILITIES, SUCH AS WATER MAINS, SEWERS, GAS LINES, ETC., SHOWN ON THE PLANS ARE BASED ON THE BEST AVAILABLE INFORMATION AND ARE SHOWN FOR THE CONVENIENCE OF THE CONTRACTOR. THE ENGINEER AND OWNER ASSUME NO LIABILITY FOR ACCURACY AND COMPLETENESS. IT IS THE CONTRACTOR'S RESPONSIBILITY TO CONTACT ALL UTILITY COMPANIES AT LEAST 48 HOURS PRIOR TO COMMENCEMENT OF CONSTRUCTION OR DEMOLITION AND TO HAVE THEIR FACILITIES LOCATED IN THE FIELD PRIOR TO ANY WORK.

2. DUE TO GRAPHIC LIMITATIONS OF THE DRAWING SCALE, ALL STORM SEWER, DRAINAGE, WATER AND SANITARY SEWER MAINS, SERVICES, LATERALS, CONNECTIONS, AND APPURTENANCES DEPICTED HEREIN – UNLESS OTHERWISE LOCATED BY DIMENSIONS – REFLECT SCHEMATIC LOCATIONS ONLY. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE FINAL LOCATIONS DURING THE CONSTRUCTION AND INSTALLATION OF THE PROPOSED IMPROVEMENTS, INCLUDING ANY REQUISITE COORDINATION WITH THE RESPECTIVE GOVERNING AGENCY/UTILITY PROVIDER.

3. ALL WATER AND SEWER CONSTRUCTION SHALL CONFORM TO THE STANDARDS AND SPECIFICATIONS OF THE CITY OF CORAL SPRINGS, AND WILL BE SUBJECT TO THEIR INSPECTION AND ACCEPTANCE.

4. CONTRACTOR SHALL INSPECT PIPING AND MATERIALS BEFORE INSTALLATION TO DETECT APPARENT DEFECTS. MARK DEFECTIVE MATERIALS WITH WHITE PAINT AND PROMPTLY REMOVE FROM SITE.

5. LAY SEWER PIPING BEGINNING AT LOW POINT OF SYSTEM (CONNECTION TO OFF SITE SYSTEM OR PUMP STATION), TRUE TO GRADES AND ALIGNMENT INDICATED WITH UNBROKEN CONTINUITY OF INVERTS. PLACE BELL ENDS OR GROOVE ENDS OF PIPING FACING UPSTREAM.

6. CLEAR INTERIOR OF PIPE OF DIRT AND OTHER SUPERFLUOUS MATERIAL AS WORK PROGRESSES. MAINTAIN SWAB OR DRAG IN LINE AND PULL PAST EACH JOINT AS IT IS COMPLETED. PLACE PLUGS IN ENDS OF UNCOMPLETED CONDUIT WHENEVER WORK STOPS.

7. MAINTAIN 36" COVER OVER MAINS, AND 30" OVER SERVICES/LATERALS UNLESS OTHERWISE NOTED.

8. WHEN PROPOSED CONSTRUCTION OCCURS AT EXISTING MANHOLES, INLETS, VAULTS, AND OTHER STRUCTURES, THE CONTRACTOR SHALL MODIFY THE STRUCTURES, FRAMES, AND GRATES TO MEET THE PROPOSED GRADES UNLESS OTHERWISE DIRECTED.

9. INSTALL CONTINUOUS LOCATOR TAPE/WIRE, LOCATED DIRECTLY OVER POTABLE WATER MAINS AND SANITARY SEWER MAINS AT 6" TO 8" ABOVE PIPE.

10. WHERE APPLICABLE, UTILITY TRENCHES CROSSING PAVEMENT AREAS SHALL BE BACK FILLED WITH COMPACTED GRANULAR MATERIAL IN ACCORDANCE WITH A.A.S.H.T.O.-T-99.

11. CONTRACTOR SHALL PROVIDE SLEEVES FOR IRRIGATION LINES AND SITE LIGHTING UNDER PAVEMENT. COORDINATE WITH GENERAL CONTRACTOR.

12. ALL TRENCHES EXCAVATED FOR THE PURPOSES OF UTILITY/STORM INSTALLATION SHALL BE KEPT DRY FOR THE DURATION OF UTILITY/STORM CONSTRUCTION. DEWATERING OF UTILITY/STORM TRENCHES MAY BE REQUIRED TO PREVENT FLOATATION OF UTILITY/STORM PIPES DURING INSTALLATION.

13. THE CONTRACTOR SHALL NOTIFY THE ENGINEER WHEN CONSTRUCTION IS COMPLETE FOR WATER, WASTEWATER AND STORMWATER SYSTEMS SO TIMELY CERTIFICATIONS MAY BE INITIATED. SATISFACTORY BACTERIOLOGICAL TEST RESULTS, PRESSURE TEST RESULTS, AND AN AS BUILT SURVEY SHALL BE SUBMITTED TO ENGINEER PRIOR TO FINAL CERTIFICATION.

14. SUITABLE COUPLINGS COMPLYING WITH ASTM SPECIFICATIONS ARE REQUIRED FOR JOINING DISSIMILAR MATERIALS.

15. DEFLECTION TESTS ARE REQUIRED FOR ALL FLEXIBLE PIPE. TESTING REQUIREMENTS: 1) NO PIPE SHALL EXCEED A DEFLECTION OF 5%; 2) USING A RIGID BALL OR MANDREL FOR THE DEFLECTION TEST WITH A DIAMETER NOT LESS THAN 95% OF THE BASE INSIDE DIAMETER OR AVERAGE INSIDE DIAMETER OF THE PIPE; 3) PERFORMING THE TEST WITHOUT MECHANICAL PULLING DEVICES.

B. MATERIALS (WATER)

1. SERVICE PIPE SHALL BE POLYETHYLENE (PE) TUBING, DR9 MINIMUM.

2. WATER MAINS SHALL BE DUCTILE IRON PIPE (D.I.P.) SEE NOTE #3 BELOW.

3. DUCTILE IRON PIPE (D.I.P.) SHALL CONFORM TO ANSI/AWWA A21.51/C151, CLASS 50 (MIN.) PIPE FOR ALL SIZES.

4. CORPORATION STOPS SHALL BE BRASS, SIZED TO MATCH THE TAP DIAMETER, EQUIPPED WITH CONNECTIONS COMPATIBLE WITH SERVICE PIPE AND THREADED IN ACCORDANCE WITH SPECIFICATIONS IN AWWA C800. CURB STOPS SHALL BE SIZED TO MATCH THE METER SIZE AND CONFORM WITH AWWA C800 AND AWWA C901.

5. FITTINGS SHALL BE BRASS, CAST AND MACHINED IN ACCORDANCE WITH AWWA C800 AND AWWA C901, WITH COMPATIBLE PIPE CONNECTIONS.

6. TAPPING SADDLES SHALL BE USED FOR ALL SERVICE LINE TAPS. SERVICE SADDLES SHALL BE DOUBLE STRAP, ANCHORED BY A MINIMUM FOUR (4) BOLT PATTERN ON A DUCTILE IRON SADDLE BODY. FOR PVC PIPE, DOUBLE STRAPS SHALL BE CORROSION RESISTANT ALLOY STEEL, SIZED EXACTLY TO THE PIPE OUTSIDE DIAMETER. SEALING GASKETS SHALL BE BUNA-N RUBBER.

7. ALL POTABLE WATER PIPE AND PIPE FITTINGS INSTALLED UNDER THIS PROJECT SHALL BE BLUE IN COLOR VIA INTEGRAL PIPE COLOR, STRIPING, OR OTHER METHODS.

C. MATERIALS (SEWER)

1. ALL GRAVITY SEWER PIPE AND FITTINGS SHALL BE NON-PRESSURE POLYVINYL CHLORIDE PIPE (PVC) CONFORMING TO ASTM D 3034, SDR 26, WITH PUSH-ON RUBBER GASKET JOINTS.

2. ALL FITTINGS AND ACCESSORIES SHALL BE MANUFACTURED OR SUPPLIED BY THE PIPE MANUFACTURER OR PRIOR-APPROVED EQUAL.

3. BEDDING AND INITIAL BACK FILL OVER SEWER MAINS AND SERVICES SHALL BE SAND WITH NO ROCK LARGER THAN 1" IN DIAMETER.

D. MATERIALS (STORM)

1. REINFORCED CONCRETE PIPE (RCP): O-RING PIPE SHALL CONFORM TO ASTM C 76 (CLASS III, UNLESS OTHERWISE SPECIFIED) AND AASHTO M 170 STANDARD SPECIFICATIONS, AND ASTM C 443 STANDARD SPECIFICATION FOR JOINTS FOR RCP USING RUBBER GASKETS.

2. ELLIPTICAL RCP SHALL CONFORM TO ASTM C 507 (CLASS III) AND AASHTO M 207 STANDARD SPECIFICATIONS.

3. HDPE PIPE AND FITTINGS SHALL MEET THE REQUIREMENTS OF AASHTO M-252 (3"-10"), M-294 (12" AND LARGER), TYPE S (CORRUGATED OUTSIDE – SMOOTH INSIDE, 4"-60"), AND MP7 (60" TYPE S).

   A. BELL/SPIGOT GASKET FOR HDPE PIPE SHALL BE SOIL/SILT TIGHT PER AASHTO SECTION 26 WITH RUBBER GASKET MEETING ASTM F-477.

4. PVC STORM SEWER PIPE (12" OR LESS) AND FITTINGS SHALL BE NON-PRESSURE POLYVINYL CHLORIDE PIPE (PVC) CONFORMING TO ASTM D3034, SDR26, WITH PUSH-ON RUBBER GASKET JOINTS.

UTILITY DISINFECTING & TESTING NOTES

WATER MAINS THAT ARE INCLUDED IN THIS PROJECT THAT WILL BE CONSTRUCTED OF POLYVINYL CHLORIDE PIPE WILL BE PRESSURE AND LEAKAGE TESTED IN ACCORDANCE WITH AWWA STANDARD C605. ALL OTHER WATER MAINS INCLUDED IN THIS PROJECT WILL BE PRESSURE AND LEAKAGE TESTED IN ACCORDANCE WITH AWWA STANDARD C600.

LEAKAGE TESTS ARE REQUIRED AS FOLLOWS: 1) THE LEAKAGE EXFILTRATION OR INFILTRATION DOES NOT EXCEED 200 GALLONS PER INCH OF PIPE DIAMETER PER MILE PER DAY FOR ANY SECTION OF THE PIPE; 2) EXFILTRATION OR INFILTRATION TESTS BE PERFORMED WITH A MINIMUM POSITIVE HEAD OF 2 FEET; 3) AIR TESTS, AS A MINIMUM, CONFORM TO THE TEST PROCEDURE DESCRIBED IN ASTM C 828 FOR CLAY PIPE, ASTM C 924 FOR CONCRETE PIPE, ASTM F-1417 FOR PLASTIC PIPE, AND FOR OTHER MATERIALS APPROPRIATE TEST PROCEDURES.

DISINFECTION OF THE WATER DISTRIBUTION SYSTEM SHALL BE PERFORMED IN ACCORDANCE WITH AWWA C651 DISINFECTING WATER MAINS. SATISFACTORY BACTERIOLOGICAL TEST RESULTS SHALL BE SUBMITTED TO ENGINEER PRIOR TO FINAL CERTIFICATION.

THE CONTRACTOR SHALL MAKE PROVISIONS TO PROTECT THE ACTIVE EXISTING MAIN FROM BACKFLOW CONTAMINATION DURING FILLING, FLUSHING, AND TESTING OF THE NEW MAIN, AS SPECIFIED IN AWWA C651-92.

CONTRACTOR SHALL UTILIZE A JUMPER CONNECTION DURING WATER MAIN TESTING. ALTERNATE TYPES OF BACKFLOW PREVENTION MAY BE UTILIZED AS APPROVED BY INSPECTION STAFF AND ENGINEER.

UTILITY SEPARATION NOTES

1. NEW OR RELOCATED, UNDERGROUND WATER MAINS INCLUDED IN THIS PROJECT WILL BE LAID TO PROVIDE A HORIZONTAL DISTANCE OF AT LEAST THREE FEET BETWEEN THE OUTSIDE OF THE WATER MAIN AND THE OUTSIDE OF ANY EXISTING OR PROPOSED VACUUM-TYPE SANITARY SEWER, STORM SEWER, STORMWATER FORCE MAIN, OR PIPELINE CONVEYING RECLAIMED WATER REGULATED UNDER PART III OF CHAPTER 62-610, F.A.C.; A HORIZONTAL DISTANCE OF AT LEAST SIX FEET BETWEEN THE OUTSIDE OF THE WATER MAIN AND THE OUTSIDE OF ANY EXISTING OR PROPOSED GRAVITY-TYPE SANITARY SEWER (OR A HORIZONTAL DISTANCE OF AT LEAST THREE FEET BETWEEN THE OUTSIDE OF THE WATER MAIN AND THE OUTSIDE OF ANY EXISTING OR PROPOSED PRESSURE-TYPE SANITARY SEWER IF THE BOTTOM OF THE WATER MAIN IS LAID AT LEAST SIX INCHES ABOVE THE TOP OF THE SEWER); A HORIZONTAL DISTANCE OF AT LEAST SIX FEET BETWEEN THE OUTSIDE OF THE WATER MAIN AND THE OUTSIDE OF ANY EXISTING OR PROPOSED PRESSURE-TYPE SANITARY SEWER, WASTEWATER FORCE MAIN, OR PIPELINE CONVEYING RECLAIMED WATER NOT REGULATED UNDER PART III OF CHAPTER 62-610, F.A.C.; AND A HORIZONTAL DISTANCE OF AT LEAST TEN FEET BETWEEN THE OUTSIDE OF THE WATER MAIN AND ALL PARTS OF ANY EXISTING OR PROPOSED "ON-SITE SEWAGE TREATMENT AND DISPOSAL SYSTEM."

2. NEW OR RELOCATED, UNDERGROUND WATER MAINS THAT ARE INCLUDED IN THIS PROJECT AND THAT WILL CROSS ANY EXISTING OR PROPOSED GRAVITY – OR VACUUM – TYPE SANITARY SEWER OR STORM SEWER WILL BE LAID SO THE OUTSIDE OF THE WATER MAIN IS AT LEAST SIX INCHES ABOVE THE OTHER PIPELINE OR AT LEAST 12 INCHES BELOW THE OTHER PIPELINE; AND NEW OR RELOCATED, UNDERGROUND WATER MAINS THAT ARE INCLUDED IN THIS PROJECT AND THAT WILL CROSS ANY EXISTING OR PROPOSED PRESSURE-TYPE SANITARY SEWER , WASTEWATER OR STORMWATER FORCE MAIN, OR PIPELINE CONVEYING RECLAIMED WATER WILL BE LAID SO THE OUTSIDE OF THE WATER MAIN IS AT LEAST 12 INCHES ABOVE OR BELOW THE OTHER PIPELINE.

3. AT THE UTILITY CROSSINGS DESCRIBED ABOVE, ONE FULL LENGTH OF WATER MAIN PIPE SHALL BE CENTERED ABOVE OR BELOW THE OTHER PIPELINE SO THE WATER MAIN JOINTS WILL BE AS FAR AS POSSIBLE FROM THE OTHER PIPELINE OR THE PIPES SHALL BE ARRANGED SO THAT ALL WATER MAIN JOINTS ARE AT LEAST THREE FEET FROM ALL JOINTS IN VACUUM-TYPE SANITARY SEWERS, STORM SEWERS, STORMWATER FORCE MAINS, OR PIPELINES CONVEYING RECLAIMED WATER REGULATED UNDER PART III OF CHAPTER 62-610, F.A.C., AND AT LEAST SIX FEET FROM ALL JOINTS IN GRAVITY – OR PRESSURE – TYPE SANITARY SEWERS, WASTEWATER FORCE MAINS, OR PIPELINES CONVEYING RECLAIMED WATER NOT REGULATED UNDER PART III OF CHAPTER 62-610, F.A.C.

UTILITY CONTACTS

SANITARY SEWER	CITY OF CORAL SPRINGS UTILITIES 3800 N.W. 85TH AVENUE CORAL SPRINGS, FLORIDA 33065 PHONE: 954-345-2188
WATER	CITY OF CORAL SPRINGS UTILITIES 3800 N.W. 85TH AVENUE CORAL SPRINGS, FLORIDA 33065 PHONE: 954-345-2188
STORMWATER	SOUTH FLORIDA WATER MANAGEMENT DISTRICT 2535 DAVIE ACCESS ROAD, PLANTATION, FLORIDA 33317 PHONE: 954-452-4814 SUNSHINE WATER CONTROL DISTRICT 6131 LYONS ROAD COCONUT CREEK, FLORIDA 33073 PHONE: 954-426-2105
POWER	FLORIDA POWER & LIGHT 4200 GRIFFIN ROAD, FORT LAUDERDALE, FLORIDA 33314 PHONE: 954-583-2473

CONTRACTOR'S NOTE:
CONTRACTOR SHALL PROVIDE A COMPREHENSIVE ASBUILT SURVEY FOR THE PROJECT AS REQUIRED BY THE GOVERNING AGENCY. CONTACT THE ENGINEER OF RECORD FOR THE REQUIREMENTS OF THE AS-BUILT SURVEY BEFORE START OF CONSTRUCTION.

GENERAL CONTRACTOR NOTE:
A COPY OF THIS SHEET C0 SHALL BE PROVIDED TO ALL BIDDERS AND SUB-CONTRACTORS.

LEGEND

PROPOSED CONTOUR	73.50
MEET EXISTING GRADE	MEG
EDGE OF PAVEMENT	EOP
SIDEWALK	SW
GRADE BREAK	GB
SPOT ELEVATION	12.55
DIRECTION OF FLOW AND PERCENT SLOPE	
STORM SEWER & INLET	
DOWN SPOUT DRAINS	DSD
SANITARY SEWER & MANHOLE	SS
CLEANOUT	C.O.
WATER SERVICE	W
FIRE HYDRANT	
WATER METER	
BACKFLOW PREVENTION DEVICE	
GATE VALVE	
REDUCER	
UNDERGROUND TELEPHONE	T
UNDERGROUND ELECTRIC	UGE
SITE LIGHTING	
TRANSFORMER	T
AIR CONDITIONING UNIT	AC
PARKING SPACE TOTALS	8
6" CURBING WITH DIMENSION (TO FACE OF CURB U.N.O.)	12'
DETAIL NUMBER SHEET NUMBER	3 C4

Z DEVELOPMENT services
CA 29354
708 E. COLONIAL DR., STE. 100
ORLANDO, FL 32803
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FAX: (407) 442-0604

DATE	REVISION
DATE	REVISION
DATE	REVISION

ROBERT ZIEGENFUSS, P.E., LEED AP
FL. REG. # 56752

LADYBIRD ACADEMY
8950 ROYAL PALM BOULEVARD
CORAL SPRINGS, FLORIDA 33065

DATE: 02-22-22
DRAWN: SR
CHECKED: RZ

C0
CIVIL DATA & NOTES

PROJECT NO.: 2019.141

LEGAL DESCRIPTION

(EXHIBIT A OF TITLE COMMITMENT)

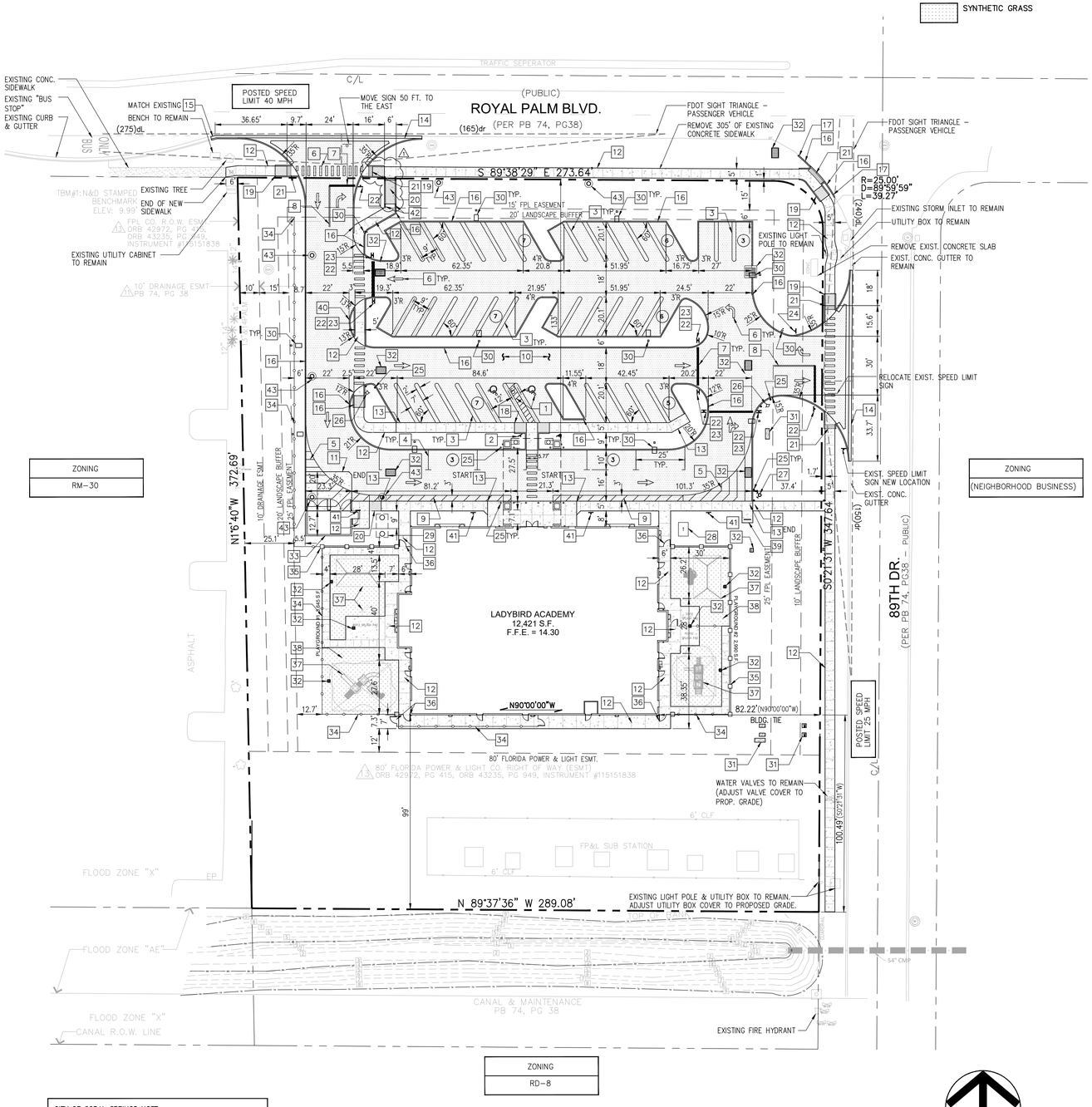
PARCEL "A", OF FOREST HILLS WEST, ACCORDING TO THE PLAT THEREOF, AS RECORDED IN PLAT BOOK 74, PAGE 38, OF THE PUBLIC RECORDS OF BROWARD COUNTY, FLORIDA.

LEGEND

NEW ASPHALT PAVEMENT

CONCRETE PAVEMENT

SYNTHETIC GRASS



CITY OF CORAL SPRINGS NOTE:
ALL SIGNAGE SHALL REQUIRE A SEPARATE BUILDING PERMIT, ALL DUMPSTER ENCLOSURES AND SITE LIGHTING SHALL REQUIRE A SEPARATE BUILDING PERMIT.

SITE DIMENSION PLAN 1 : 30'

NORTH

30' 0 30' 60'

GRAPHIC SCALE

SITE DATA

SITE AREA	109,359 S.F. (2.511 AC.)	
BUILDING HEIGHT	29 FT.	
TOTAL SITE AREA	109,359 S.F. (2.51 AC.)	

SITE AREA CALCULATIONS

PRE DEVELOPMENT		
PERVIOUS AREA	108,694	S.F. (99.4%)
IMPERVIOUS AREA	665	S.F. (0.6%)
POST DEVELOPMENT		
PERVIOUS AREA	60,127	S.F. (55.0%)
IMPERVIOUS AREA	49,232	S.F. (45.0%)
BUILDING	12,421	S.F.
PAVEMENT	36,811	S.F.
FLOOR AREA RATIO	0.11	
ZONING	B1 (NEIGHBORHOOD BUSINESS)	
FUTURE LAND USE	COMMERCIAL	

BUILDING SETBACKS	REQUIRED	PROVIDED
FRONT (NORTH)	65.0 FT.	133.0 FT
SIDE (EAST)	20.0 FT.	77.8 FT
SIDE (WEST)	20.0 FT.	76.7 FT
REAR (SOUTH)	20.0 FT.	99.0 FT

LANDSCAPE BUFFERS	REQUIRED	PROVIDED	PLANTING AREA
FRONT (NORTH)	20.0 FT.	20.5 FT. (MIN.)	5.5 FT. (MIN.)
SIDE (EAST)	10.0 FT.	35.0 FT. (MIN.)	10 FT. (MIN.)
SIDE (WEST)	20.0 FT.	30.6 FT. (MIN.)	5.5 FT. (MIN.)
REAR (SOUTH)	20.0 FT.	12.0 FT. (MIN.)	12.0 FT. (MIN.)

PARKING SPACE CALCULATIONS

PARKING REQUIRED	:1 SPACE PER 200 S.F. OF FLOOR AREA
GROSS FLOOR AREA:	:12,421 S.F.
STORAGE, ELECTRICAL, LOBBY & RISER ROOM	:1,231 S.F.
BLDG. AREA FOR PARKING CALCULATION	:11,190 S.F.

REQUIRED
= 11,190 S.F. / 200
= 56 SPACES

PARKING PROVIDED	
ADA SPACES	2
REGULAR	45
TOTAL	47

BICYCLE PARKING

PARKING REQUIRED : 1 SPACE FOR EVERY 40 PARKING SPACES

REQUIRED
= 47 S.F. / 40
= 1 SPACE

PROVIDED = 3 SPACES

SPECIAL EXCEPTIONS SE19-0010 (RECORDED ON FEB. 19,2020)

- REDUCED PARKING SPACE EXCEPTION
  REQUIRED SPACES: 56, PROVIDED SPACES: 47
- LANDSCAPE BUFFER EXCEPTION
  (SEE LANDSCAPE BUFFER SUMMARY ABOVE)

PEDESTRIAN ZONE CALCULATIONS

NORTH FACE (127 L.F.)
REQUIRED
127 FT. X 13 FT. X 0.25 = 413 S.F.

PROVIDED
LANDSCAPED AREA = 604 S.F.

EAST FACE (96 L.F.)
REQUIRED
96 FT. X 13 FT. X 0.25 = 312 S.F.

PROVIDED
LANDSCAPED AREA: 2,001 S.F.

PLAN KEY NOTES

1 ACCESSIBLE PARKING, STRIPING AND ACCESS AISLE (C7.3)
2 ACCESSIBLE PARKING SIGN (2 PLACES) (C7.3)
3 PARKING STALL STRIPING (C7.3)
4 4" WHITE PAINT PARKING STRIPING
5 4" WHITE PAINT STRIPING AT 4 FT. O.C.
6 PAVEMENT MARKING (C7.3)
7 12" WHITE PAINT STOP BAR (C7.3)
8 6" DOUBLE STRIPING
9 3 FT. WIDE FIRE LANE (C7.3)
10 ASPHALT PAVEMENT (6/C6)
11 CONCRETE APRON (1/C6)
12 CONCRETE WALK WITH EXPANSION JOINTS AND SCORE MARKS (5/C6) (C7)
13 MONOLITHIC CURB AND SIDEWALK (2/C6)
14 VALLEY GUTTER (C7)
15 CURB AND GUTTER (C7)
16 6" VERTICAL CURB (C7)
17 TRANSITION CURB (3/C6)
18 ACCESSIBLE RAMP 1 – CR-C (FDOT INDEX 522-002) (C7)
19 ACCESSIBLE RAMP 2 – CR-F (FDOT INDEX 522-002) (C7)
20 ACCESSIBLE RAMP 3 (4/C6)
21 DETECTABLE WARNING (C7)
22 30" STOP SIGN (R1-1)
23 30" DO NOT ENTER SIGN
24 "RIGHT TURN ONLY" SIGN
25 BOLLARD (C7)
26 FIRE HYDRANT (SEE UTILITY PLAN)
27 FIRE DEPARTMENT CONNECTION WITH BOLLARDS (SEE UTILITY PLAN)
28 TRANSFORMER PAD
29 GREASE TRAP (SEE UTILITY PLAN)
30 LIGHT POLE (SEE SITE PHOTOMETRICS PLAN)
31 WATER METERS AND BACKFLOW PREVENTERS (SEE UTILITY PLAN)
32 STORMWATER STRUCTURE (SEE GRADING & DRAINAGE PLAN)
33 DUMPSTER ENCLOSURE (SEE ARCHITECTURAL PLANS)
34 6 FT. HIGH WHITE PVC FENCE
35 PLAYGROUND FENCE (SEE ARCHITECTURAL PLANS)
36 PLAYGROUND GATE (SEE ARCHITECTURAL PLANS)
37 PLAYGROUND EQUIPMENT (SEE PLAYGROUND PLANS)
38 SYNTHETIC GRASS (SEE PLAYGROUND PLANS)
39 BICYCLE RACK AND 6' X 5.5' CONCRETE PAD (5/C6) (C7.3)
40 6" HIGH CONCRETE ISLAND (4,000 PSI)
41 FIRE LANE SIGN AT 60 FT. O.C. (SEE SHEET C4)
42 PEDESTRIAN RAILING (1/C6.1)
43 SANITARY SEWER MANHOLE (SEE UTILITY PLAN) (1/C7.2)

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REVISION	DATE
SFWMD & SWCD COMMENTS	07-07-22

ROBERT ZIEGENFUSS, P.E., LEED AP
FL REG. # 59752

LADYBIRD ACADEMY
8950 ROYAL PALM BOULEVARD
CORAL SPRINGS, FLORIDA 33065

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C1
SITE DIMENSION PLAN

PROJECT NO.: 2019.141

NEEDED FIRE FLOW (NFF)
(PER TABLE 18.4.5.1.2, NFPA 1, 2012)

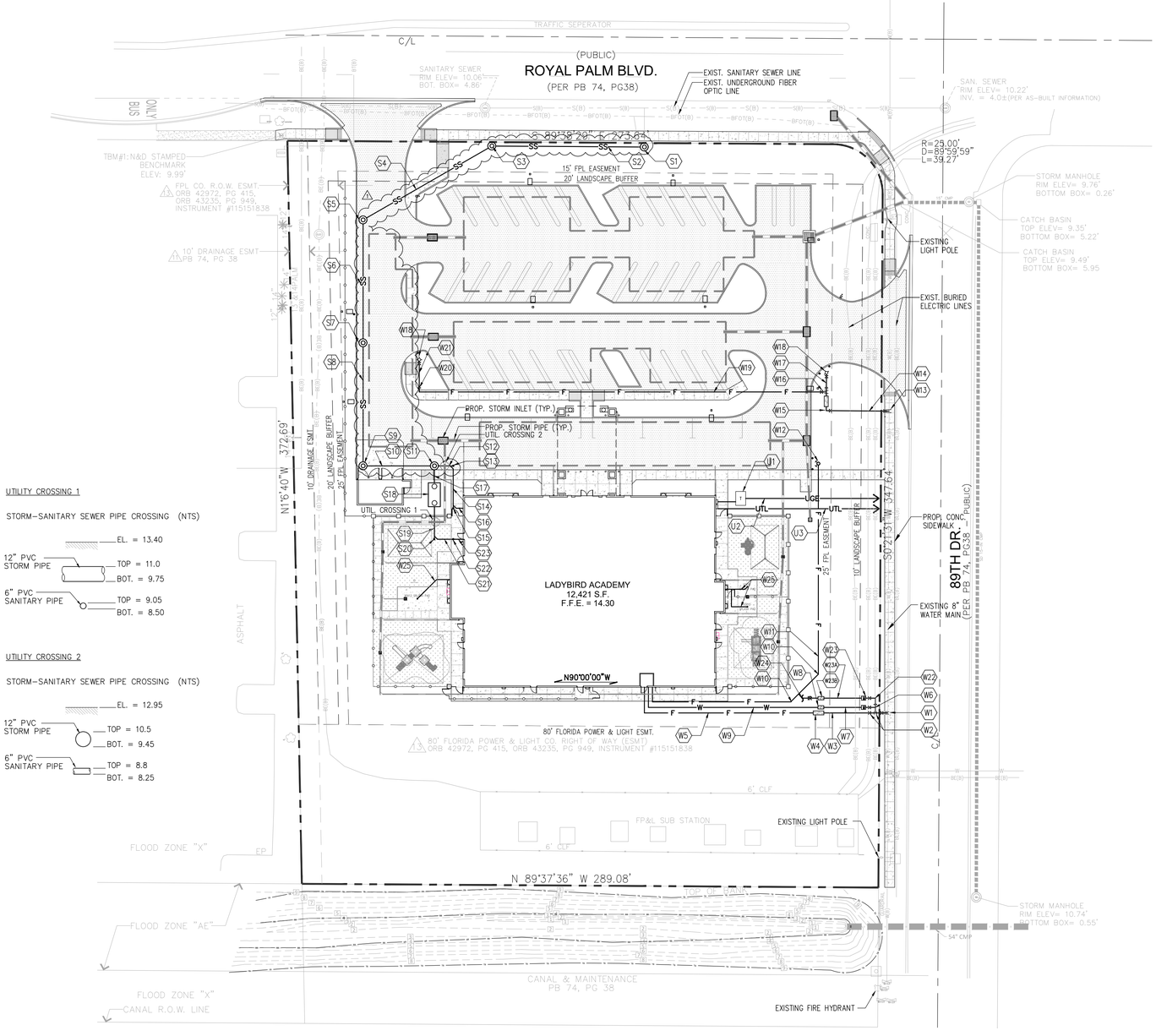
BUILDING AREA (12,421 S.F.)
TYPE OF CONSTRUCTION : TYPE VB (COMBUSTIBLE/UNPROTECTED/SPRINKLED)

NFF = 2,250 GPM (50% REDUCTION FOR FIRE SPRINKLER SYSTEM)
= 1,125 GPM

NUMBER OF FIRE HYDRANTS PROVIDED = 2
(1 EXISTING + 1 PROPOSED)

CONTRACTOR'S NOTE:
CONTRACTOR SHALL PROVIDE A COMPREHENSIVE ASBUILT SURVEY FOR THE PROJECT AS REQUIRED BY THE GOVERNING AGENCY. CONTACT THE ENGINEER OF RECORD FOR THE REQUIREMENTS OF THE AS-BUILT SURVEY BEFORE START OF CONSTRUCTION.

CONTRACTOR'S UTILITY WORK NOTE:
CONTRACTOR SHALL EXERCISE EXTREME CAUTION WORKING NEAR EXISTING UNDERGROUND UTILITIES. CONTRACTOR SHALL CONTACT RESPECTIVE UTILITY SERVICE PROVIDERS FOR INFORMATION BEFORE START OF CONSTRUCTION.



UTILITY CROSSING 1

STORM-SANITARY SEWER PIPE CROSSING (NTS)

UTILITY CROSSING 2

STORM-SANITARY SEWER PIPE CROSSING (NTS)

NORTH
30' 0 30' 60'
GRAPHIC SCALE

UTILITY PLAN

1 : 30'

DRY UTILITIES

U1 POWER TRANSFORMER PAD LOCATION

U2 CONTRACTOR SHALL COORDINATE UNDERGROUND ELECTRIC SERVICE CONNECTION WITH FLORIDA POWER AND LIGHT FOR NUMBER AND SIZE OF CONDUITS AND DEPTH REQUIREMENTS.

U3 UNDERGROUND TELEPHONE SERVICE
CONTRACTOR SHALL COORDINATE NEW UNDERGROUND TELEPHONE SERVICE WITH SERVICE PROVIDER BEFORE START OF CONSTRUCTION.

PLAN KEY NOTES

SANITARY SEWER

S1 REMOVE PORTION OF EXISTING 6" SANITARY SEWER STUB-OUT TO INSTALL SANITARY SEWER MANHOLE.
INVERT IN = 6.40
INVERT OUT = 4.75 (APPROXIMATE)

NOTE: CONTRACTOR SHALL FIELD VERIFY EXISTING SANITARY SEWER PIPE SIZE, LOCATION AND INVERT BEFORE START OF CONSTRUCTION. REPORT IMMEDIATELY TO THE ENGINEER IF ANY CONFLICT IN PIPE SIZE AND INVERT EXISTS.

S2 76 LF - 8" PVC AT 0.5% SLOPE (C7.2) TYP.

S3 SANITARY SEWER MANHOLE (C7.2) TYP.
TOP OF COVER = 11.30
WEST INVERT = 6.85
EAST INVERT = 6.80

S4 74 LF - 8" PVC AT 0.5% SLOPE

S5 SANITARY SEWER MANHOLE
TOP OF COVER = 13.30
NORTH INVERT = 7.25
SOUTH INVERT = 7.30

S6 61 LF - 8" PVC AT 0.5% SLOPE

S7 SANITARY SEWER MANHOLE
TOP OF COVER = 13.25
NORTH INVERT = 7.60
SOUTH INVERT = 7.65

S8 61 LF - 8" PVC AT 0.5% SLOPE

S9 SANITARY SEWER MANHOLE
TOP OF COVER = 13.20
NORTH INVERT = 7.95
EAST INVERT = 8.0

S10 36 LF - 8" PVC AT 0.5% SLOPE

S11 SANITARY SEWER MANHOLE
TOP OF COVER = 12.95
WEST INVERT = 8.20
SOUTH INVERT = 8.25
EAST INVERT = 8.25

S12 9 LF - 6" PVC AT 1.6% SLOPE

S13 CLEANOUT (C7.1) TYP.
INVERT = 8.35

S14 21 LF - 6" PVC AT 1% SLOPE

S15 DROP CLEANOUT (8 / C6) TYP.
INVERT IN = 10.0
INVERT OUT = 8.55

S16 SANITARY SEWER LINE BUILDING EXIT LOCATION

S17 8 LF- 6" PVC AT 1% SLOPE

S18 750 GALLON GREASE INTERCEPTOR (SEE PLUMBING PLANS FOR SIZING CALCS.) (C7.2)
TOP OF COVERS = 13.75
INVERT IN = 8.60
INVERT OUT = 8.35

S19 17 LF- 6" PVC AT 1% SLOPE

S20 CLEANOUT
INVERT = 8.60

S21 9 LF- 6" PVC AT 1% SLOPE

S22 DROP CLEANOUT
INVERT IN = 10.0
INVERT OUT = 8.70

S23 GREASE LINE BUILDING EXIT LOCATION

WATER

W1 8" X 6" TAPPING SLEEVE AND 6" VALVE PER CITY OF CORAL SPRINGS STANDARDS

W2 6" X 4" TEE WITH RESTRAINED JOINTS AND 6" GATE VALVE

W3 32 LF - 6" DIP FIRE PROTECTION SERVICE LINE TO BUILDING

W4 6" DOUBLE DETECTOR CHECK VALVE BACKFLOW PREVENTER

W5 105 LF - 6" DIP FIRE PROTECTION SERVICE LINE TO BUILDING

W6 4 X 2 1/2" TEE, 2 1/2" GATE VALVE, 2" METER & 4" X 1 1/2" REDUCER

W7 30 LF - 2 1/2" BLUE POLYETHYLENE DOMESTIC SERVICE

W8 2 1/2" REDUCED PRESSURE ZONE BACKFLOW PREVENTER

W9 125 LF - 2 1/2" BLUE POLYETHYLENE DOMESTIC SERVICE

W10 4" - 45° BEND

W11 205 LF - 4" DIP

W12 FIRE DEPARTMENT CONNECTION (FDC)

W13 8" X 8" TAPPING SLEEVE AND 8" GATE VALVE PER CITY OF CORAL SPRINGS STANDARDS

W14 32 LF - 8" DIP FIRE LINE

W15 8" GATE VALVE, 8" - 90° BEND AND 8" DOUBLE DETECTOR CHECK VALVE BACKFLOW PREVENTER

W16 8" X 8" TEE, 8" GATE VALVE AND 8" X 6" REDUCER

W17 10 LF - 6" DIP FIRE LINE

W18 FIRE HYDRANT ASSEMBLY WITH BOLLARDS

W19 210 LF - 8" DIP FIRE LINE

W20 8" - 90° BEND AND 8" X 6" REDUCER

W21 20 LF - 6" DIP FIRE LINE

W22 1 1/2" 90° BEND

W23 1" WATER METER AND 1 1/2" GATE VALVE

W23A 30 LF - 1 1/2" PVC FOR IRRIGATION

W23B 1 1/2" REDUCED PRESSURE ZONE BACKFLOW PREVENTER

W24 1 1/2" PVC IRRIGATION LINE (REFER TO IRRIGATION PLAN FOR CONTINUATION)

W25 1" PVC WATER LINE FOR EACH SPLASH PAD SPRAY. INCREASE PIPE SIZE (10 / C6) TO 2" PRIOR TO SPRAY HEAD CONNECTION

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ORLANDO, FL 32803
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REVISION	DATE
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REVISION	DATE

ROBERT ZIEGENFUSS, P.E., LEED AP
FL. REG. # 56752

LADYBIRD ACADEMY
8950 ROYAL PALM BOULEVARD
CORAL SPRINGS, FLORIDA 33065

DATE: 02-22-22
DRAWN: SR
CHECKED: RZ

C2
UTILITY PLAN

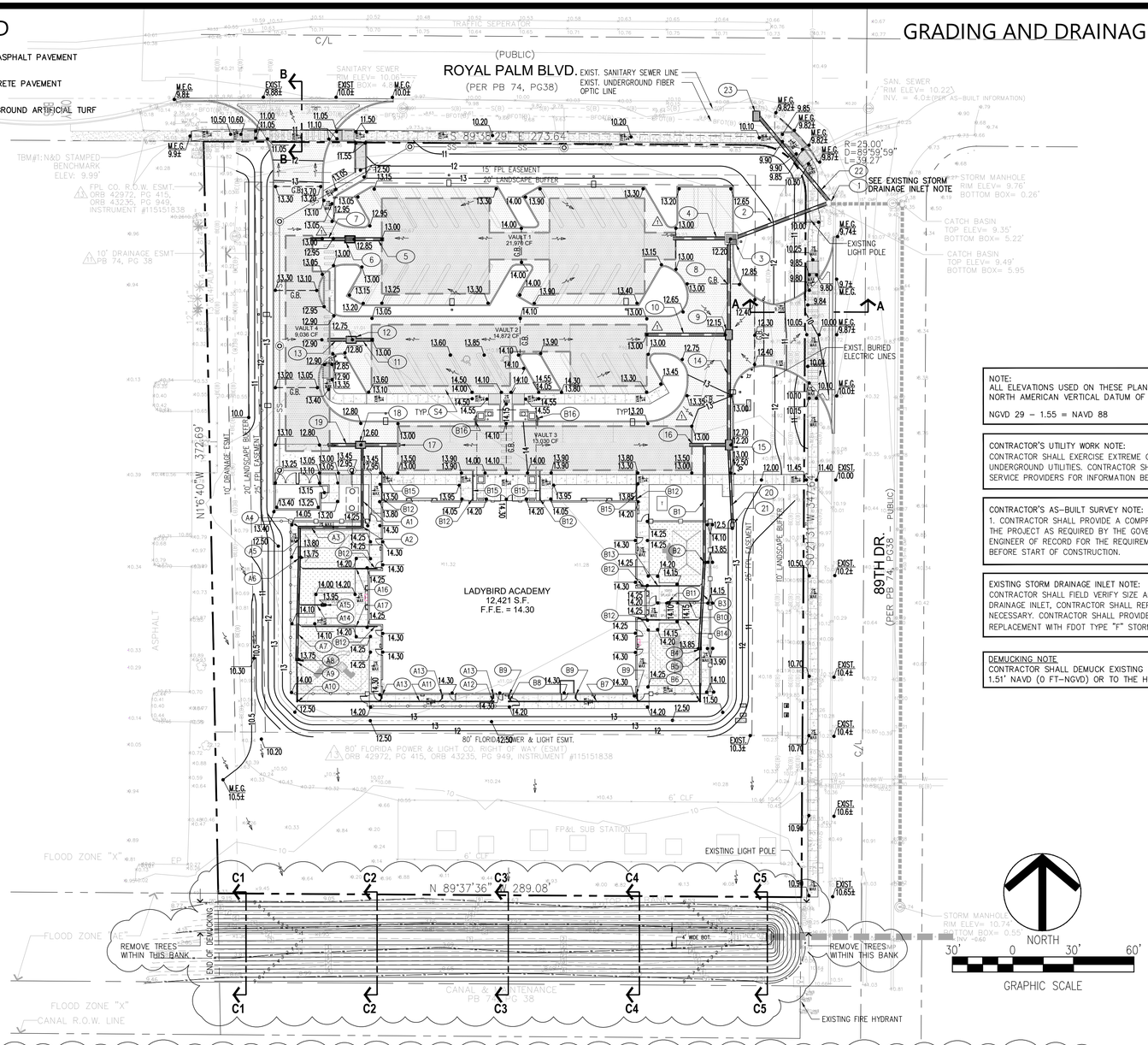
PROJECT NO.: 2019.141

LEGEND

- NEW ASPHALT PAVEMENT
- CONCRETE PAVEMENT
- PLAYGROUND ARTIFICIAL TURF

GRADING AND DRAINAGE PLAN

1 : 30'



NOTE:
ALL ELEVATIONS USED ON THESE PLANS ARE ON NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD 88)

NGVD 29 - 1.55 = NAVD 88

CONTRACTOR'S UTILITY WORK NOTE:
CONTRACTOR SHALL EXERCISE EXTREME CAUTION WORKING NEAR EXISTING UNDERGROUND UTILITIES. CONTRACTOR SHALL CONTACT RESPECTIVE UTILITY SERVICE PROVIDERS FOR INFORMATION BEFORE START OF CONSTRUCTION.

CONTRACTOR'S AS-BUILT SURVEY NOTE:
1. CONTRACTOR SHALL PROVIDE A COMPREHENSIVE ASBUILT SURVEY FOR THE PROJECT AS REQUIRED BY THE GOVERNING AGENCY. CONTACT THE ENGINEER OF RECORD FOR THE REQUIREMENTS OF THE AS-BUILT SURVEY BEFORE START OF CONSTRUCTION.

EXISTING STORM DRAINAGE INLET NOTE:
CONTRACTOR SHALL FIELD VERIFY SIZE AND CONDITION OF EXISTING STORM DRAINAGE INLET, CONTRACTOR SHALL REPLACE EXISTING STORM INLET AS NECESSARY. CONTRACTOR SHALL PROVIDE A BID ALTERNATE FOR POSSIBLE REPLACEMENT WITH FDOT TYPE "f" STORM INLET.

DEMUCKING NOTE
CONTRACTOR SHALL DEMUCK EXISTING CANAL DOWN TO ELEVATION (-) 1.51' NAVD (0 FT-NGVD) OR TO THE HARDPAN, WHICHEVER COMES FIRST

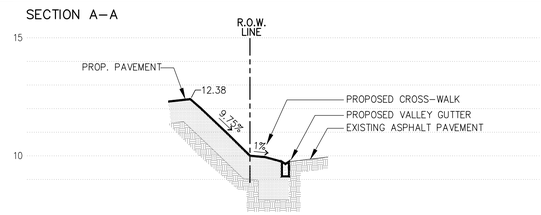
GRADING & DRAINAGE NOTES

1. EXISTING STORMWATER INLET
   TOP OF GRATE = 9.49
   EAST INVERT = 5.95± (EXISTING 15" CMP)
   WEST INVERT = 6.0
   NORTH INVERT = 6.0
   CONTRACTOR SHALL FIELD VERIFY EXISTING INVERTS AND PIPE SIZES BEFORE START OF CONSTRUCTION. CONTRACTOR SHALL REPORT TO ENGINEER IMMEDIATELY IF INCONSISTENCIES IN INVERTS EXISTS.
2. 47 LF - 18" RCP AT 0.2% SLOPE (C7) TYP.
3. CONTROL STRUCTURE - MOD. FDOT TYPE "G" INLET (9/C6)
   (FDOT INDEX 425-053)
   TOP OF GRATE = 12.20
   WEST INVERT = 7.0
   EAST INVERT = 6.1
   SOUTH INVERT = 7.0
   BOTTOM = 6.0
4. 26 LF - 18" PERFORATED HDPE AT 0% SLOPE (C7) TYP.
   WRAPPED IN FILTER FABRIC WITH 2 FT. OVERLAP
5. 14 LF - 18" PERFORATED HDPE AT 0% SLOPE
   WRAPPED IN FILTER FABRIC WITH 2 FT. OVERLAP
6. FDOT TYPE "F" INLET (FDOT INDEX 425-053)
   TOP OF GRATE = 12.85
   EAST INVERT = 7.0
   WEST INVERT = 7.0
   BOTTOM = 6.0
7. 17 LF - 18" PERFORATED HDPE AT 0% SLOPE
   WRAPPED IN FILTER FABRIC WITH 2 FT. OVERLAP
8. 44 LF - 18" PERFORATED HDPE AT 0% SLOPE
   WRAPPED IN FILTER FABRIC WITH 2 FT. OVERLAP
9. FDOT TYPE "F" INLET (FDOT INDEX 425-053)
   TOP OF GRATE = 12.15
   WEST INVERT = 7.0
   NORTH INVERT = 7.0
   SOUTH INVERT = 7.0
   BOTTOM = 6.0
10. 40 LF - 18" PERFORATED HDPE AT 0% SLOPE
11. 9 LF - 18" PERFORATED HDPE AT 0% SLOPE
12. FDOT TYPE "F" INLET (FDOT INDEX 425-053)
    TOP OF GRATE = 12.75
    EAST INVERT = 7.0
    WEST INVERT = 7.0
    BOTTOM = 6.0
13. 10 LF - 18" PERFORATED HDPE AT 0% SLOPE
    WRAPPED IN FILTER FABRIC WITH 2 FT. OVERLAP
14. 51 LF - 18" PERFORATED HDPE AT 0% SLOPE
    WRAPPED IN FILTER FABRIC WITH 2 FT. OVERLAP
15. FDOT TYPE "F" INLET (FDOT INDEX 425-053)
    TOP OF GRATE = 12.20
    WEST INVERT = 7.0
    NORTH INVERT = 7.0
    SOUTH INVERT = 8.0
    BOTTOM = 6.0
16. 18 LF - 18" PERFORATED HDPE AT 0% SLOPE
17. 18 LF - 18" PERFORATED HDPE AT 0% SLOPE
18. FDOT TYPE "F" INLET (FDOT INDEX 425-053)
    TOP OF GRATE = 12.60
    EAST INVERT = 7.0
    WEST INVERT = 7.0
    SOUTH INVERT = 9.50
    BOTTOM = 6.0
19. 15 LF - 18" PERFORATED HDPE AT 0% SLOPE
20. 38 LF - 12" HDPE AT 1% SLOPE
21. 12" NYLOPLAST DRAIN BASIN
    TOP OF GRATE = 12.5
    INVERT = 8.4
22. 54 LF - 15" RCP AT 0.4% SLOPE
23. FDOT TYPE "F" INLET (FDOT INDEX 425-053)
    TOP OF GRATE = 9.7
    INVERT = 6.2

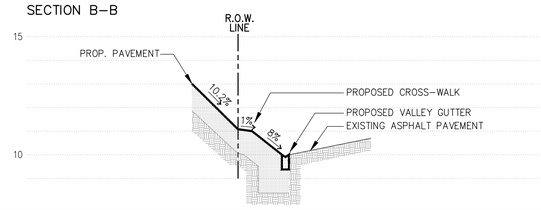
A1. 40 LF - 12" PVC AT 0.6% SLOPE
A2. CLEANOUT (C7.1 TYP.)
    INVERT = 9.75
A3. 30 LF - 12" PVC AT 0.7% SLOPE
A4. CLEANOUT
    INVERT = 10.0
A5. 15 LF - 12" PVC AT 0.7% SLOPE
A6. 12" NYLOPLAST DRAIN BASIN
    TOP OF GRATE = 13.75
    INVERT = 10.1
A7. 51 LF - 12" PVC AT 0.7% SLOPE
A8. 12" NYLOPLAST DRAIN BASIN
    TOP OF GRATE = 13.75
    INVERT = 10.45
A9. 21 LF - 10" PVC AT 0.7% SLOPE
A10. CLEANOUT
    INVERT = 10.6
A11. 98 LF - 10" PVC AT 0.7% SLOPE
A12. CLEANOUT
    INVERT = 11.3
A13. DOWNSPOUT DRAIN PIPE LOCATION FROM BLDG.
    12 LF - 6" PVC AT 1% SLOPE
A14.
A15. 8" NYLOPLAST DRAIN BASIN
    TOP OF GRATE = 13.95
    INVERT = 10.40
A16. 38 LF - 8" PVC AT 1% MINIMUM SLOPE
A17. 38 LF - 8" PVC AT 1% MINIMUM SLOPE

B1. 58 LF - 12" PVC AT 1% MINIMUM SLOPE
B2. 12" NYLOPLAST DRAIN BASIN
    TOP OF GRATE = 13.85
    INVERT = 9.0
B3. 42 LF - 12" PVC AT 1.4% SLOPE
B4. 12" NYLOPLAST DRAIN BASIN
    TOP OF GRATE = 13.85
    INVERT = 9.60
B5. 26 LF - 10" PVC AT 1.4% SLOPE
B6. CLEANOUT
    INVERT = 9.95
B7. 95 LF - 10" PVC AT 1.4% SLOPE
B8. CLEANOUT
    INVERT = 11.30
B9. 8" PVC PIPE AT 1% MINIMUM SLOPE
B10. 17 LF - 6" PVC AT 1% SLOPE
B11. 8" NYLOPLAST DRAIN BASIN
    TOP OF GRATE = 14.1
    INVERT = 9.45
B12. CLEANOUT
    INVERT = 10.5
B13. 30 LF - 8" PVC AT 4.5% SLOPE
B14. 30 LF - 8" PVC AT 3.7% SLOPE
B15. 15 LF - 8" PVC PIPE AT 1% MINIMUM SLOPE
B16. 6 LF - 8" PVC PIPE AT 1% MINIMUM SLOPE

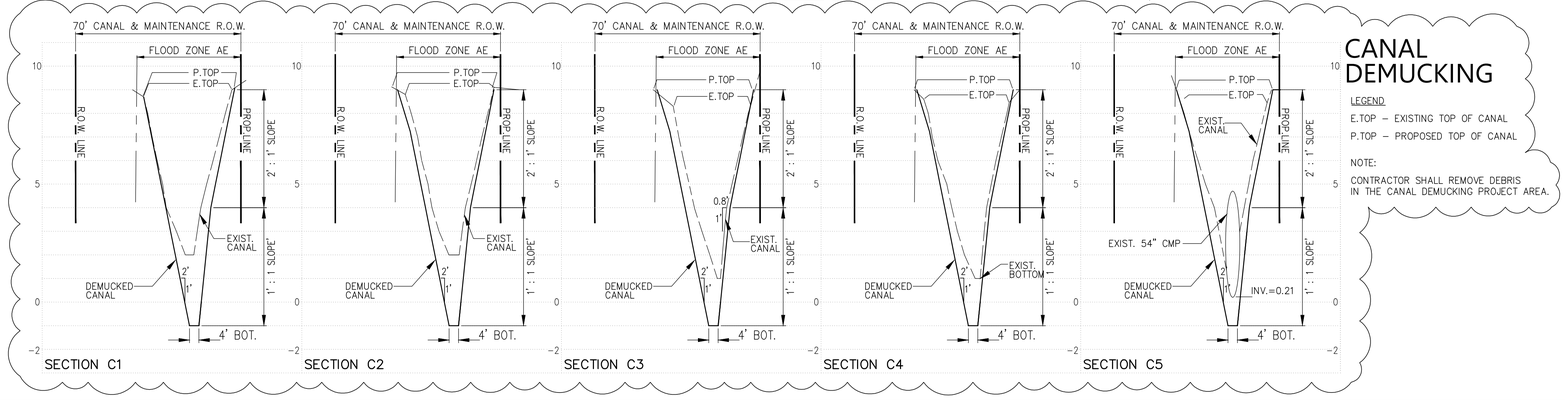
SECTION A-A



SECTION B-B



CANAL DEMUCKING



LEGEND
E.TOP - EXISTING TOP OF CANAL
P.TOP - PROPOSED TOP OF CANAL

NOTE:
CONTRACTOR SHALL REMOVE DEBRIS IN THE CANAL DEMUCKING PROJECT AREA.

Z DEVELOPMENT services
CA 29354
708 E. COLONIAL DR., STE. 100
ORLANDO, FL 32803
PH: (407) 271-8910
FAX: (407) 442-0604

REVISION	DATE
SFWMD & SWCD COMMENTS	07-07-22
SWCD COMMENTS	08-22-22

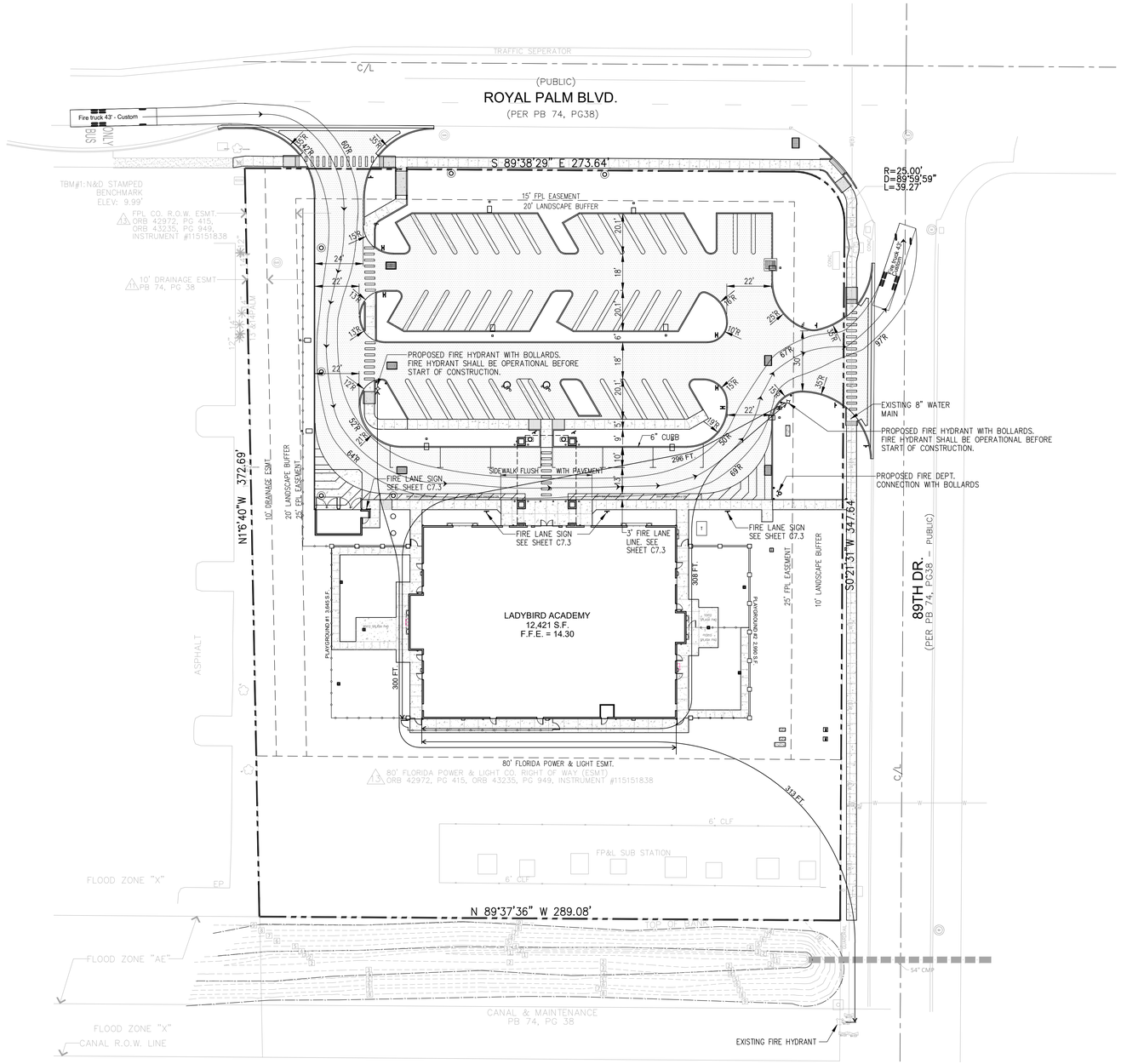
ROBERT ZIEGNFUSS, P.E., LEED AP
FL REG # 85752

LADYBIRD ACADEMY
8950 ROYAL PALM BOULEVARD
CORAL SPRINGS, FLORIDA 33065

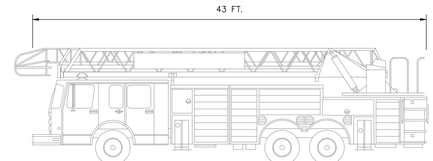
DATE: 02-22-22
DRAWN: SR
CHECKED: RZ

C3
GRADING & DRAINAGE PLAN

PROJECT NO.: 2019.141



FIRE TRUCK TURN PLAN 1 : 30'



DIMENSIONS

WIDTH	:	8.5 FT.
TRACK	:	8.5 FT.
LOCK TO LOCK TIME	:	6.0
STEERING ANGLE	:	33.3°

1 FIRE TRUCK DETAIL NTS

NORTH

30' 0 30' 60'

GRAPHIC SCALE

Z DEVELOPMENT services
CA 29354
708 E. COLONIAL DR., STE. 100 PH: (407) 271-8910
ORLANDO, FL 32803 FAX: (407) 442-0604

REVISION	DATE	REVISION	DATE

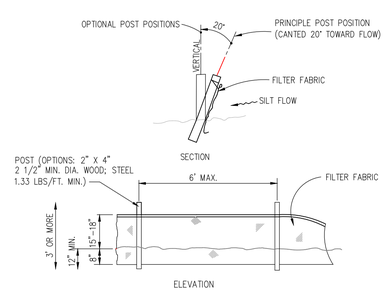
ROBERT ZIEGENFUSS, P.E., LEED AP
FL. REG. # 56752

LADYBIRD ACADEMY
8950 ROYAL PALM BOULEVARD
CORAL SPRINGS, FLORIDA 33065

DATE: 02-22-22
DRAWN: SR
CHECKED: RZ

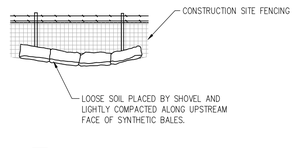
C4
FIRE TRUCK TURN PLAN

PROJECT NO.: 2019.141

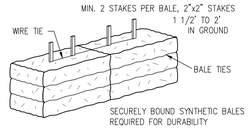


1 SILT FENCE

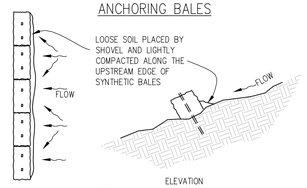
1 EROSION CONTROL DETAILS NTS



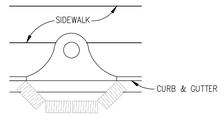
2 BALES BACKED BY FENCE



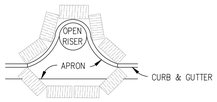
ANCHORING BALES



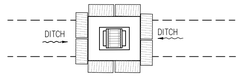
3 BARRIERS FOR SLOPES



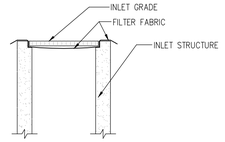
4 PARTIAL INLET



4 COMPLETED INLET



5 DITCH BOTTOM INLET

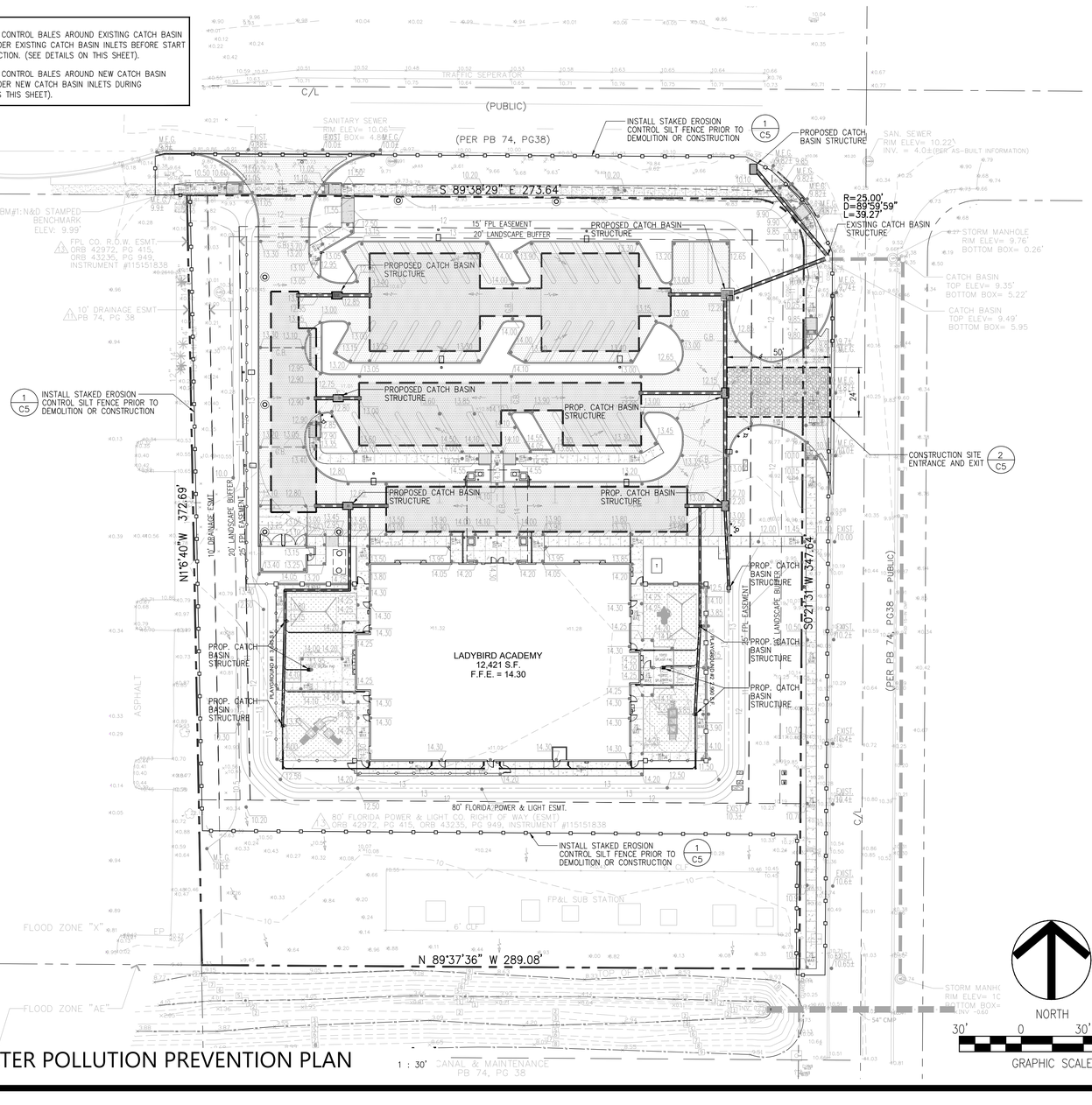


6 EROSION CONTROL SOCK

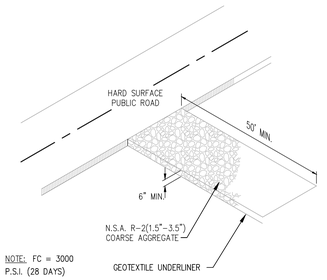
PROTECTION AROUND INLETS OR SIMILAR STRUCTURES

NOTE:
INSTALL SYNTHETIC EROSION CONTROL BALES AROUND EXISTING CATCH BASIN INLETS OR SOCK/FABRIC UNDER EXISTING CATCH BASIN INLETS BEFORE START OF DEMOLITION OR CONSTRUCTION. (SEE DETAILS ON THIS SHEET).

INSTALL SYNTHETIC EROSION CONTROL BALES AROUND NEW CATCH BASIN INLETS OR SOCK/FABRIC UNDER NEW CATCH BASIN INLETS DURING CONSTRUCTION. (SEE DETAILS THIS SHEET).



STORMWATER POLLUTION PREVENTION PLAN



NOTE: FC = 3000 P.S.I. (28 DAYS)

2 CRUSHED STONE CONSTRUCTION EXIT NTS

TOTAL AREA (SF) (AC)	*DISTURBED AREA (SF) AREA (AC)	UNDISTURBED AREA (SF) AREA (AC)	IMPERVIOUS* AREA (SF) AREA (AC)	PERVIOUS* AREA (SF) AREA (AC)
109,359 2.51	86,151 1.977	23,208 0.533	49,232 1.130	60,127 1.380

*IMPERVIOUS + PERVIOUS = DISTURBED

Stormwater Pollution Prevention Plan Inspection Report Form

Inspections must occur at least once a week and within 24 hours of the end of a storm event that is 0.50 inches or greater.

Project Name: LADYBIRD ACADEMY
FDEP NPDES Stormwater Identification Number:

LOCATION	RAIN DATA	TYPE OF CONTROL	DATE INSTALLED	CURRENT CONDITION / CORRECTIVE ACTION

Condition Code:
G = Good M = Marginal, needs maintenance or replacement soon
P = Poor, needs immediate maintenance or replacement C = Needs to be cleaned
O = Other

Control Type Codes

1. Silt Fence	10. Storm drain inlet protection	19. Reinforced soil retaining system
2. Earth dikes	11. Vegetative buffer strip	
3. Structural diversion	12. Vegetative preservation area	20. Gabion
4. Swale	13. Retention Pond	21. Sediment Basin
5. Sediment Trap	14. Construction entrance stabilization	22. Temporary seed / sod
6. Check dam		23. Permanent seed / sod
7. Subsurface drain	15. Perimeter ditch	24. Mulch
8. Pipe slope drain	16. Curb and gutter	25. Hay Bales
9. Level spreaders	17. Paved road surface	26. Geotextile
	18. Rock outlet protection	27. Rip-rap

28. Tree protection	31. Waste disposal/housekeeping	33. Sand Bag
29. Detention pond	32. Dam	34. Other
30. Retention pond		

"I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations."

Name (Responsible Authority) Date

NOTE: THIS EXAMPLE INSPECTION LOG IS GIVEN FOR REFERENCE PURPOSES. THIS OR A SIMILAR FORM IS REQUIRED PER NOTE 16.

POLLUTION CONTROL NOTES

ALL EROSION CONTROL MEASURES SHALL REMAIN IN PLACE UNTIL COMPLETION OF CONSTRUCTION.

1. ALL EROSION AND SEDIMENT CONTROL WORK SHALL CONFORM WITH LOCAL CITY/COUNTY AND WATER MANAGEMENT DISTRICT SPECIFICATIONS, SUBJECT TO AUTHORIZED AND APPROVED VARIANCES, WAIVERS AND/OR CONDITIONS OF SITE PERMITS.

2. EROSION AND SEDIMENT CONTROL MEASURES SHALL BE PLACED PRIOR TO OR AS THE FIRST STEP IN, CONSTRUCTION. SEDIMENT CONTROL PRACTICES WILL BE APPLIED AS A PERIMETER DEFENSE AGAINST ANY TRANSPORTATION OF SILT OFF THE SITE.

3. ALL AREAS AFFECTED BY THIS WORK SHALL BE RESTORED TO A CONDITION EQUAL TO OR BETTER THAN EXISTING CONDITION, UNLESS SPECIFICALLY EXEMPTED BY THE PLANS. THE COST FOR SUCH RESTORATION SHALL BE INCIDENTAL TO OTHER CONSTRUCTION AND NO ADDITIONAL COMPENSATION SHALL BE ALLOWED.

4. THE CONTRACTOR SHALL IMMEDIATELY NOTIFY THE ENGINEER OF ANY DISCREPANCIES BETWEEN THESE PLANS AND FIELD CONDITIONS PRIOR TO CONSTRUCTION.

5. PRIOR TO CONSTRUCTION THE CONTRACTOR SHALL PROVIDE TREE PROTECTION BARRIERS TO MEET THE REQUIREMENTS OF LOCAL SPECIFICATIONS.

6. THE CONTRACTOR SHALL SELECTIVELY CLEAR ONLY THE AREAS REQUIRED FOR CONSTRUCTION AND STABILIZE ANY POTENTIAL EROSION AREAS IMMEDIATELY FOLLOWING COMPLETION OF CONSTRUCTION.

7. CONTRACTOR SHALL KEEP ANY AND ALL SAND, SILT OR OTHER DEBRIS FROM MOVING OFF-SITE. USE AND MAINTAIN SILT FENCE JUST INSIDE OF PROPERTY LINE.

8. CONTRACTOR SHALL BLOCK INTRUSION OF SAND, SILT OR OTHER DEBRIS INTO ANY DRAINAGE OR SANITARY SEWER STRUCTURE OR PIPING ON OR ADJACENT TO SITE.

9. ALL CLEARED AREAS FOR IMPROVEMENT AND/OR CONSTRUCTION SHALL BE WATERED TO PREVENT WIND EROSION.

10. FOR ADDITIONAL INFORMATION AND DETAILS, SEE STATE OF FLORIDA'S EROSION AND SEDIMENT CONTROL MANUAL.

11. UNLESS SPECIFIED, SILT FENCES MAY BE USED IN LIEU OF SYNTHETIC BARRIERS.

12. ADDITIONAL POSTS AND RAILS MAY BE NECESSARY TO SECURE AND SUPPORT BARRIERS.

13. ADDITIONAL BARRIER LENGTHS MAY BE REQUIRED BY THE CITY/COUNTY ENGINEER OR BY REGULATORY AGENCIES.

14. FILTER FABRIC MUST BE INSTALLED UNDER ALL INLET GRATES, AT ALL TIMES WHEN INLETS ARE NOT PROTECTED BY SILT FENCE OR SYNTHETIC BALES, UNTIL THE LIMEROCK BASE IS FINISHED AND PRIMED.

15. THE CONTRACTOR IS REQUIRED TO HAVE THIS PLAN ALONG WITH A COPY OF THE NPDES NOTICE OF INTENT POSTED IN A VISIBLE LOCATION ON THE CONSTRUCTION SITE AT ALL TIMES.

16. "CONTRACTOR IS REQUIRED BY NPDES TO KEEP A LOG ON SITE FOR THE SOIL EROSION AND SEDIMENT CONTROL MEASURES INDICATED ON THE PLAN. THE LOG SHALL CONTAIN DATES FOR: INSTALLATION OF CONTROL MEASURES, MAJOR SITE CONSTRUCTION ACTIVITIES, INSPECTION ON AT LEAST A WEEKLY BASIS AND
INSPECTION AFTER ANY RAINFALL EVENT THAT IS 1/2" OR GREATER".

17. THE CONTRACTOR IS REQUIRED TO SUBMIT A NOTICE OF TERMINATION TO THE FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION UPON THE COMPLETION OF CONSTRUCTION.

18. CONTRACTOR SHALL RETAIN ALL RECORDS FOR A PERIOD OF THREE YEARS FOLLOWING THE NOTICE OF TERMINATION.

19. NON STORMWATER DISCHARGES SUCH AS FIRE HYDRANT FLUSHING, ETC SHALL BE DISCHARGED TO EXISTING UNDERGROUND STORMWATER FACILITY OR ON SITE RETENTION POND.

20. ANY POTENTIALLY HAZARDOUS CHEMICALS BROUGHT ONTO THE JOB SITE WILL BE LIMITED AND KEPT IN ORIGINAL CONTAINER WITH MSDS LABEL.

21. NO SILT SHALL BE TRACKED ONTO PUBLIC ROADWAYS. ANY SILT DEPOSITED ON PUBLIC ROADWAYS SHALL BE REMOVED BY THE END OF THE WORK DAY.

CONTRACTOR(S) AND SUBCONTRACTOR(S) THAT IMPLEMENT ANY PART OF THE EROSION/POLLUTION CONTROL MEASURES REQUIRED BY THE NPDES PERMIT SHALL SIGN BELOW:

"I certify under penalty of law that I understand, and shall comply with, the terms and conditions of the State of Florida Generic Permit for Stormwater Discharge from Large and Small Construction Activities and this Stormwater Pollution Prevention Plan prepared thereunder."

Name	Title	Company Name, Address & phone number	Date

ENGINEER'S CERTIFICATION:

"I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations."

ROBERT ZIEGENFUSS, P.E. #56752 Date

OWNER/AGENT CERTIFICATIONS:

I HAVE REVIEWED THIS PLAN AND AGREE TO COMPLY WITH THE REQUIREMENTS SHOWN HEREON.

OWNER/AUTHORIZED REPRESENTATIVE Date

Z DEVELOPMENT Services
CA 29354
708 E. COLONIAL DR., STE. 100 ORLANDO, FL 32803
PH: (407) 271-8910 FAX: (407) 442-0604

DATE	REVISION	DATE	REVISION

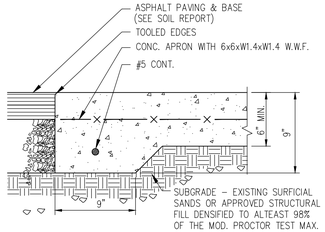
ROBERT ZIEGENFUSS, P.E., LEED AP
FL REG # 56752

LADYBIRD ACADEMY
8950 ROYAL PALM BOULEVARD
CORAL SPRINGS, FLORIDA 33065

DATE: 02-22-22
DRAWN: SR
CHECKED: RZ

C5
STORMWATER POLLUTION PREVENTION PLAN

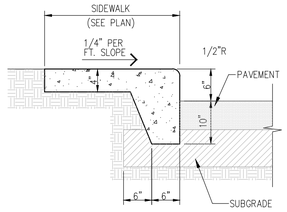
PROJECT NO.: 2019.141



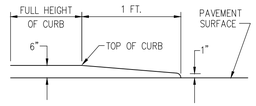
ALL CONCRETE SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH OF 4,000 (PCI) PSI AT 28 DAYS. CONFORMANCE TO STRENGTH REQUIREMENTS SHALL BE DETERMINED BY ACI STANDARD 318, LATEST EDITION, SECTIONS 4.8.2.3 AND 4.8.3.

12" WELL DRAINING GRANULAR SUBGRADE COMPACTED TO A MINIMUM DENSITY OF 98% OF THE MATERIAL'S MODIFIED PROCTOR MAXIMUM DRY DRY DENSITY (ASTM D-1557).

1 CONCRETE APRON NTS

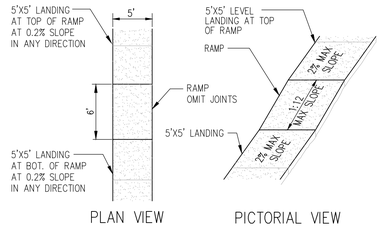


2 MONOLITHIC CURB & SIDEWALK NTS
(3,000 PSI (MIN))

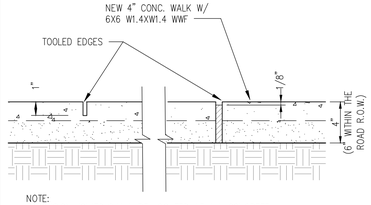


3 TRANSITION CURB NTS

NOTE 1:
REFERENCE FDOT INDEX 522-002, GENERAL AND DESIGN NOTES FOR RAMPS IN R.O.W.
NOTE 2:
CONSTRUCT RAMP TO LEAST POSSIBLE SLOPE (MAX = 1:12). CROSS SLOPE OF RAMP AND LANDING SHALL NOT EXCEED 1:50.
NOTE 3:
RAMP GREATER THAN A 6" RISE REQUIRES HANDRAILS.



4 ACCESSIBLE RAMP DETAIL NTS

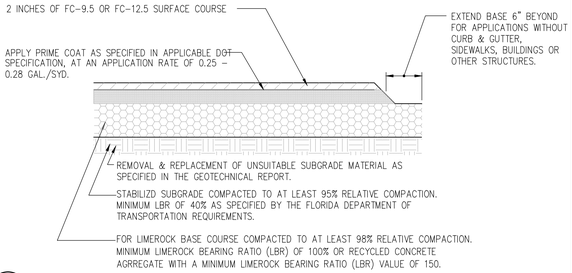


NOTE:
EXPANSION JOINTS SHALL BE LOCATED AT ALL CONCRETE WALK INTERSECTIONS, AT ALL DOOR OPENINGS AND AT 12' O.C. MAXIMUM.

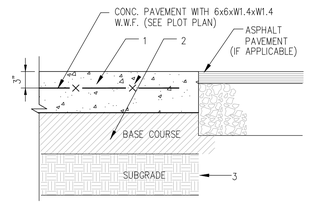
EXPANSION JOINT (1/4" PREMOLDED ASPHALT STRIP) SHALL BE SET 1/8" BELOW TOP OF WALK. SCORE MARK (1" DEPTH) SHALL BE 4' (MAX.) O.C.

5 CONCRETE WALK NTS
(3,000 PSI (MIN))

MINIMUM ASPHALTIC PAVEMENT COMPONENT THICKNESS			
TRAFFIC LEVEL	LAYER COMPONENT (INCHES)		
	SURFACE COURSE	BASE COURSE	STAB.SUBGRADE
HEAVY DUTY	2	7	12



6 TYPICAL PAVEMENT SECTION NTS



1. 6" – 4000 PSI CONCRETE WITH FIBERMESH REINFORCEMENT.
2. 6" LIMEROCK BASE COURSE COMPACTED TO AT LEAST 98% RELATIVE COMPACTION. MINIMUM LIMEROCK BEARING RATIO (LBR) OF 100% (THIS INCLUDES PEDESTRIAN AREAS.)
3. 12" OF STABILIZED SUBGRADE COMPACTED TO AT LEAST 95% RELATIVE COMPACTION. MINIMUM LBR OF 40% AS SPECIFIED BY FDOT REQUIREMENTS.

PORTLAND CEMENT CONC. PAVEMENT

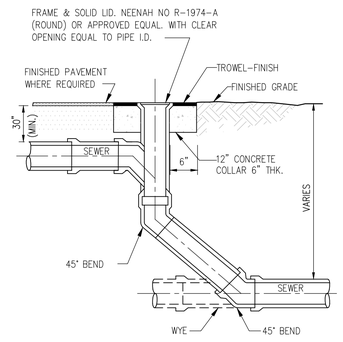
1. GENERAL

RIGID PAVEMENT CONSISTS OF CONSTRUCTING A SPECIFIED PORTLAND CEMENT CONCRETE PAVING ON A PREPARED SUBGRADE. THE UTILITIES AND OTHER ITEMS IN AND BENEATH THE STREET MUST BE PROPERLY COORDINATED WITH THE CONSTRUCTION OF RIGID PAVEMENT TO AVOID CONFLICTS. THE WORK TO BE DONE SHALL INCLUDE THE FURNISHING OF ALL SUPERVISION, LABOR, MATERIALS, EQUIPMENT AND INCIDENTAL NECESSARY FOR THE PROPOSED RIGID PAVEMENT CONSTRUCTION IN ACCORDANCE WITH THE APPROVED DRAWINGS AND SPECIFICATION.

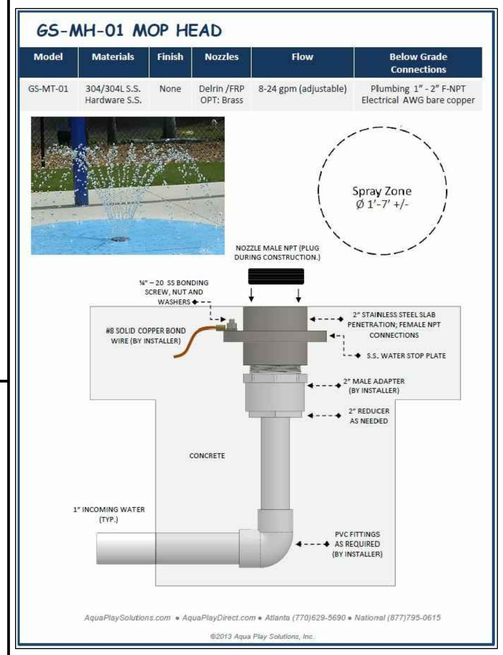
2. CONCRETE STRENGTH REQUIRED:

ALL CONCRETE SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH OF 4,000 (PCI) PSI AT 28 DAYS. CONFORMANCE TO STRENGTH REQUIREMENTS SHALL BE DETERMINED BY ACI STANDARD 318, LATEST EDITION, SECTIONS 4.8.2.3 AND 4.8.3.

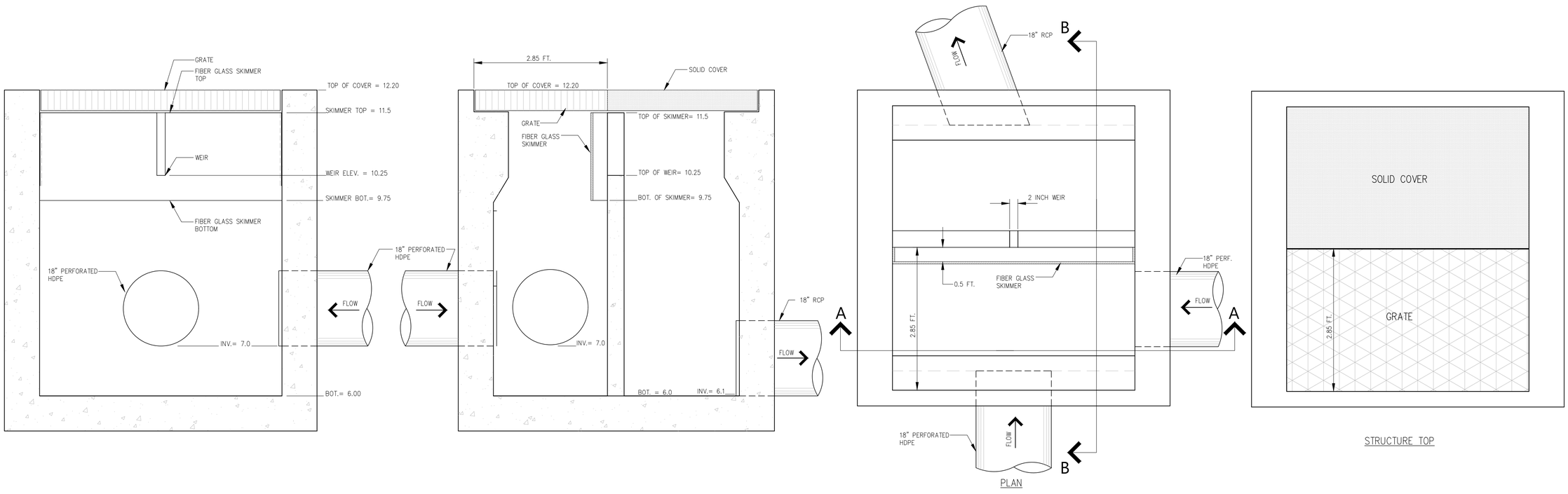
7 CONCRETE PAVEMENT NTS



8 DROP CLEANOUT NTS



10 SPLASH PAD SPRAY DETAIL NTS



9 CONTROL STRUCTURE (MODIFIED FDOT TYPE "G" INLET) 1

NTS

RZ DEVELOPMENT Services
CA 29354
708 E. COLONIAL DR., STE. 100 ORLANDO, FL 32803
PH: (407) 271-8910
FAX: (407) 442-0604

REVISION	DATE
SFWMD & SWCD COMMENTS	07-07-22

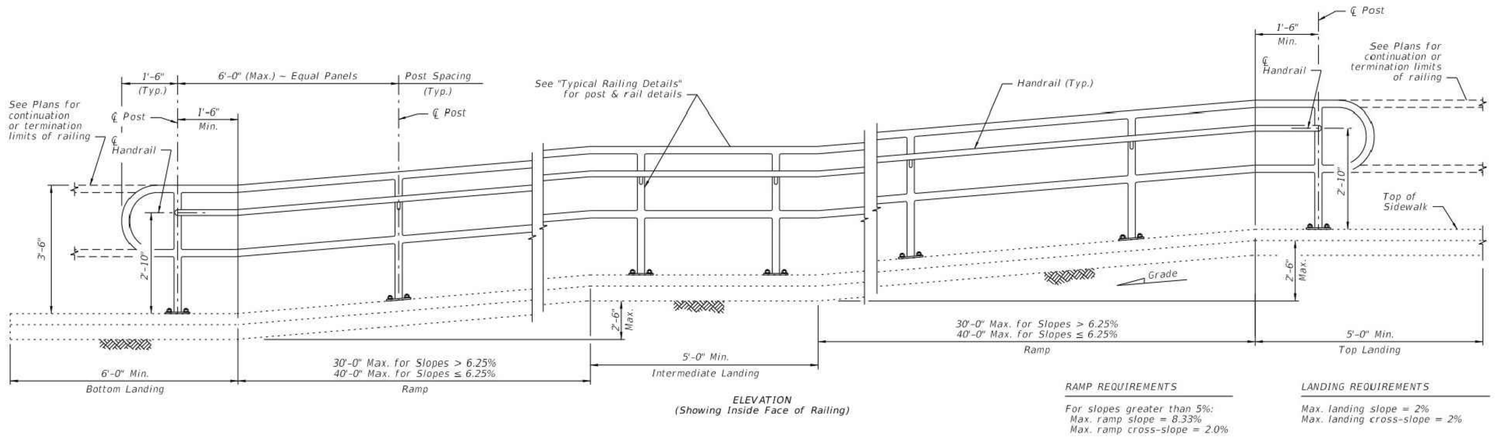
ROBERT ZIEGENFUSS, P.E., LEED AP
FL. REG. # 56752

LADYBIRD ACADEMY
8950 ROYAL PALM BOULEVARD
CORAL SPRINGS, FLORIDA 33065

DATE: 02-22-22
DRAWN: SR
CHECKED: RZ

C6
CONSTRUCTION STANDARD DETAILS

PROJECT NO.: 2019.141



ELEVATION
(Showing Inside Face of Railing)

RAMP REQUIREMENTS

For slopes greater than 5%:
Max. ramp slope = 8.33%
Max. ramp cross-slope = 2.0%

LANDING REQUIREMENTS

Max. landing slope = 2%
Max. landing cross-slope = 2%

RAILINGS ON GRADES STEEPER THAN 5% TO 8.33%

1 PEDESTRIAN RAILING NTS

DEVELOPMENT Services
CA 29354
708 E. COLONIAL DR., STE. 100 ORLANDO, FL 32803
PH: (407) 271-8910
FAX: (407) 442-0604

REVISION	DATE
SFWMD & SWCD COMMENTS	07-07-22

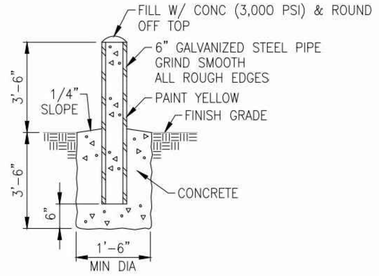
ROBERT ZIEGENFUSS, P.E., LEED AP
FL. REG. # 56752

LADYBIRD ACADEMY
8950 ROYAL PALM BOULEVARD
CORAL SPRINGS, FLORIDA 33065

DATE: 02-22-22
DRAWN: SR
CHECKED: RZ

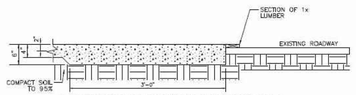
C6.1
CONSTRUCTION STANDARD DETAILS

PROJECT NO.: 2019.141



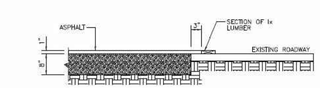
PIPE BOLLARD

STANDARD UTILITY DETAILS			PIPE BOLLARD	
CORAL SPRINGS				DATE APPROVED 12/10/15
	NO.	DATE	REVISIONS	DETAIL NUMBER G-16



1. FORM OVER WELL COMPACTED SOIL 4" THICK, WITH LAST 3'-0" AT ROAD BEING 6" THICK. FIBERMESH CONCRETE.
2. CONCRETE TO BE A MINIMUM 3,000 PSI AT 28 DAYS.
3. NAIL SECTION OF 1x LUMBER ON ASPHALT TO INSURE FINISHED DRIVE WILL BE 3/4" ABOVE ROADWAY.
4. CALL CITY ENGINEER FOR INSPECTION AFTER FORMED AND BEFORE POURING CONCRETE.
5. JOINTS, IF AND WHEN NECESSARY, SHALL BE DESIGNED BY THE ENGINEER OF RECORD.
6. ALL ROOTS, SPRINKLER LINES, ETC., SHALL BE REMOVED FROM THE CONCRETE SLAB AREA BEFORE POURING.

PRIVATE CONCRETE DRIVEWAYS



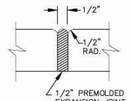
1. PLACE (1") ONE INCH OF ASPHALTIC CONCRETE SURFACE ON A COMPACTED (8") EIGHT INCH LIMEROCK BASE.
2. NAIL SECTION OF 1x LUMBER ON ROADWAY ASPHALT TO INSURE FINISHED DRIVE WILL BE ABOVE ROADWAY.
3. ALL ROOTS, SPRINKLER LINES, ETC., SHALL BE REMOVED FROM THE CONCRETE SLAB AREA BEFORE POURING.

PRIVATE ASPHALT DRIVEWAYS

* ALL DIMENSIONS ARE CONSIDERED MINIMUM DESIGN CONDITIONS UNLESS OTHERWISE APPROVED BY CITY ENGINEER FOR SPECIAL EXCEPTION AREAS

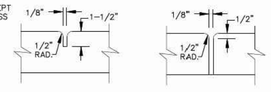
STANDARD DETAILS			STANDARD CONCRETE & ASPHALT DRIVEWAY	
CORAL SPRINGS		MARCH 2008		LAST MODIFIED 07/2014
	NO.	DATE	REVISIONS	DETAIL NUMBER S-13 SHEET 1 OF 1

TABLE OF SIDEWALK JOINTS	
TYPE	LOCATION
"A"	JOINT SHALL BE PLACED AT P.C. AND P.T. OF CURVES, JUNCTION OF EXISTING SIDEWALKS, EVERY 60' ON NEW SIDEWALKS AND WHERE SIDEWALKS ABUT CONCRETE CURBS, DRIVEWAYS AND SIMILAR STRUCTURES.
"B"	JOINT SHALL BE PLACED 5'-0" CENTER
"C"	JOINT SHALL BE PLACED AT 20' INTERVALS

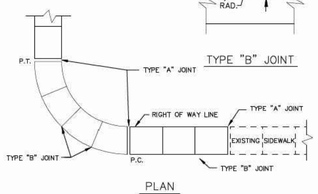


TYPE "A" JOINT

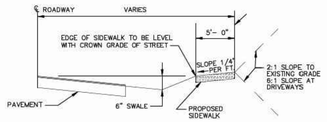
NOTE: SIDEWALK SHALL BE 4" THICK EXCEPT IN DRIVEWAYS WHERE THE THICKNESS SHALL BE 6".



TYPE "B" JOINT TYPE "C" JOINT



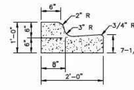
PLAN



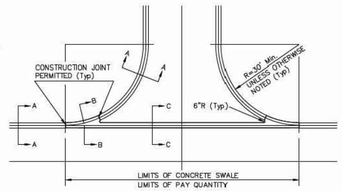
TYPICAL SIDEWALK SECTION

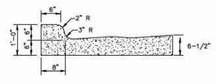
* ALL DIMENSIONS ARE CONSIDERED MINIMUM DESIGN CONDITIONS UNLESS OTHERWISE APPROVED BY CITY ENGINEER FOR SPECIAL EXCEPTION AREAS

STANDARD DETAILS			TYPICAL SIDEWALK CONSTRUCTION	
CORAL SPRINGS		MARCH 2008		LAST MODIFIED 07/2014
	NO.	DATE	REVISIONS	DETAIL NUMBER S-14 SHEET 1 OF 1



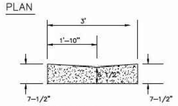
SECTION A–A





SECTION B–B

PLAN



SECTION C–C

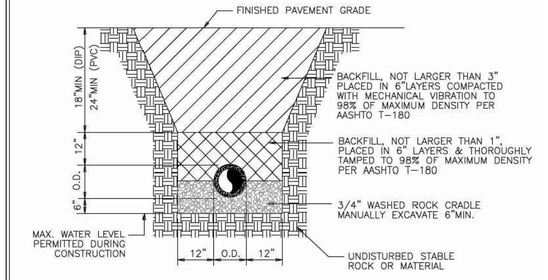
NORMAL VALLEY GUTTER CURB SECTION — SEE DETAIL 3.04

NOTE:

SUBJECT TO CITY ENGINEER'S APPROVAL. TO BE USED ONLY IN UNIQUE SITUATIONS.

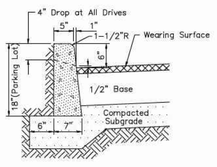
* ALL DIMENSIONS ARE CONSIDERED MINIMUM DESIGN CONDITIONS UNLESS OTHERWISE APPROVED BY CITY ENGINEER FOR SPECIAL EXCEPTION AREAS

STANDARD DETAILS			CONCRETE SWALE DETAIL VALLEY GUTTER CURB	
CORAL SPRINGS		MARCH 2008		LAST MODIFIED 07/2014
	NO.	DATE	REVISIONS	DETAIL NUMBER S-2 SHEET 1 OF 1



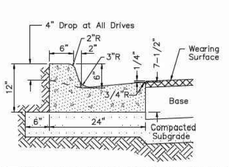
* ALL DIMENSIONS ARE CONSIDERED MINIMUM DESIGN CONDITIONS UNLESS OTHERWISE APPROVED BY CITY ENGINEER FOR SPECIAL EXCEPTION AREAS

STANDARD DETAILS			TYPICAL TRENCH DETAIL	
CORAL SPRINGS		MARCH 2008		LAST MODIFIED 07/2014
	NO.	DATE	REVISIONS	DETAIL NUMBER STM-10 SHEET 1 OF 1



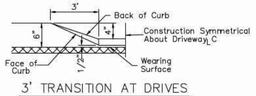
NOTE: "D" Curb is to be used in unique situations. Use of "D" curb is subject to City Engineer's approval. See Detail 3.02.

TYPE "D" CURB



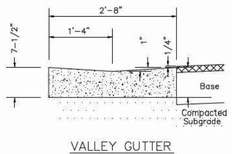
NOTE: When used on high side of roadways, the cross slope of the gutter shall match the cross slope of the adjacent pavement and the thickness of the lip shall be 6", unless otherwise shown on plans.

TYPE "F" CURB



3' TRANSITION AT DRIVES

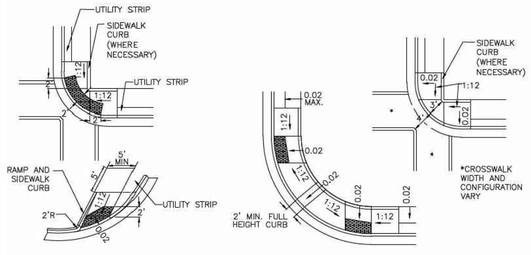
NOTES:
1. There shall be a 1/2" seal joint between back of curb and driveway.
2. Concrete in curbs shall be 3000 psi, with fiber mesh reinforcing.

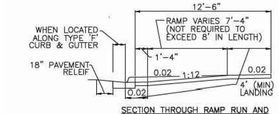


VALLEY GUTTER

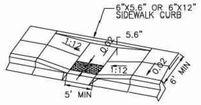
* ALL DIMENSIONS ARE CONSIDERED MINIMUM DESIGN CONDITIONS UNLESS OTHERWISE APPROVED BY CITY ENGINEER FOR SPECIAL EXCEPTION AREAS

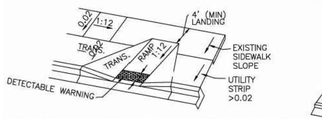
STANDARD DETAILS			TYPICAL CURB CROSS SECTIONS	
CORAL SPRINGS		MARCH 2008		LAST MODIFIED 07/2014
	NO.	DATE	REVISIONS	DETAIL NUMBER S-4 SHEET 1 OF 1

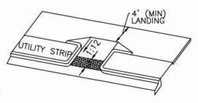




SECTION THROUGH RAMP RUN AND LANDINGS WITH UPPER LANDING AT NORMAL SIDEWALK ELEVATION



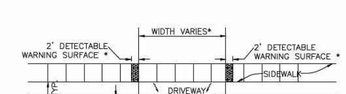




WHERE CURB RAMPS ARE CONSTRUCTED IN EXISTING SIDEWALKS WITH SIDEWALK OR UTILITY STRIP SLOPES GREATER THAN 0.02, THE SIDEWALK SHALL BE RECONSTRUCTED TO REDUCE THE SLOPES TO 0.02 AT THE FLARE POINT.

* ALL DIMENSIONS ARE CONSIDERED MINIMUM DESIGN CONDITIONS UNLESS OTHERWISE APPROVED BY CITY ENGINEER FOR SPECIAL EXCEPTION AREAS

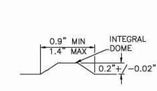
STANDARD DETAILS			TYPICAL SIDEWALK CURB CUT RAMPS	
CORAL SPRINGS		MARCH 2008		LAST MODIFIED 07/2014
	NO.	DATE	REVISIONS	DETAIL NUMBER S-19 SHEET 1 OF 2



NOTES:

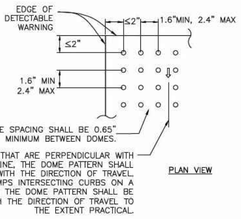
* USE DETECTABLE WARNING SURFACES ONLY FOR DRIVEWAYS 24' OR WIDER.
** 4" FLARED RADIUS OPTIONAL

1. SIDEWALKS SHALL BE CONSTRUCTED IN ACCORDANCE WITH CITY OF CORAL SPRINGS STANDARDS AND SPECIFICATIONS.
2. SIDEWALKS ADJOINING 24' DRIVES, ALLEYWAYS, OR STREETS SHALL HAVE A DETECTABLE WARNING SURFACE THAT EXTENDS THE FULL WIDTH OF THE SIDEWALK IN THE DIRECTION OF TRAVEL. THE MINIMUM LENGTH OF THE DETECTABLE WARNING SURFACE SHALL BE 24" FROM THE EDGE OF DRIVEWAYS, EDGE OF SIDE ROADS, OR STREETS.
3. SIDEWALKS SHALL BE CONTINUOUS THROUGH ALL DRIVEWAYS REGARDLESS OF DRIVEWAY WIDTH.



THE TOP WIDTH OF THE DOME SHALL BE A MINIMUM OF 50% AND A MAXIMUM OF 65% OF THE BASE DIAMETER.

TRUNCATED DOME



BASE–TO–BASE SPACING SHALL BE 0.65" MINIMUM BETWEEN DOMES.

ON RAMPS THAT ARE PERPENDICULAR WITH THE CURB LINE, THE DOME PATTERN SHALL BE IN–LINE WITH THE DIRECTION OF TRAVEL. ON RAMPS INTERSECTING CURBS ON A RADIUS, THE DOME PATTERN SHALL BE IN–LINE WITH THE DIRECTION OF TRAVEL TO THE EXTENT PRACTICAL.

PLAN VIEW

GENERAL NOTES:

1. PUBLIC SIDEWALK CURB RAMPS SHALL BE CONSTRUCTED IN THE PUBLIC RIGHT OF WAY AT LOCATIONS THAT WILL PROVIDE CONTINUOUS UNOBSTRUCTED PEDESTRIAN AREAS, ELEMENTS, AND FACILITIES IN THE PUBLIC RIGHT OF WAY AND TO ACCESSIBLE PEDESTRIAN ROUTES ON ADJACENT SITES. CURBED FACILITIES WITH SIDEWALKS AND THOSE WITHOUT SIDEWALKS ARE TO HAVE CURB RAMPS CONSTRUCTED AT ALL STREET INTERSECTIONS AND AT TURNOUTS THAT HAVE CURBED RETURNS. RAMPS CONSTRUCTED AT LOCATIONS WITHOUT SIDEWALKS SHALL HAVE A LANDING CONSTRUCTED AT THE TOP OF EACH RAMP.
2. THE LOCATION AND ORIENTATION OF CURB RAMPS SHALL BE AS SHOWN IN THE PLANS.
3. CURB RAMP RUNNING SLOPES AT UNRESTRAINED SITES SHALL NOT BE STEEPER THAN 1:12 AND CROSS SLOPE SHALL BE 0.02 OR FLATTER. TRANSITION SLOPES SHALL NOT BE STEEPER THAN 1:12. WHEN ALTERING PEDESTRIAN FACILITIES WHERE EXISTING SITE DEVELOPMENT PRECLUDES THE ACCOMMODATION OF A RAMP SLOPE OF 1:12, A RUNNING SLOPE BETWEEN 1:12 AND 1:10 IS PERMITTED FOR A RISE OF 6" MAXIMUM AND A RUNNING SLOPE OF BETWEEN 1:10 AND 1:8 IS PERMITTED FOR A RISE OF 3" MAXIMUM. WHERE COMPLIANCE WITH THE REQUIREMENTS FOR A CROSS SLOPE CANNOT BE FULLY MET, THE MINIMUM FEASIBLE CROSS SLOPE SHALL BE PROVIDED. RAMP RUNNING SLOPE IS NOT REQUIRED TO EXCEED 8' IN LENGTH, EXCEPT AT SITES WHERE THE PLANS SPECIFY A GREATER LENGTH.
4. IF A CURB RAMP IS LOCATED WHERE PEDESTRIANS MUST WALK ACROSS THE RAMP, THEN THE WALK SHALL HAVE TRANSITION SLOPES TO THE RAMP; THE MAXIMUM SLOPE OF THE TRANSITIONS SHALL BE 1:12. RAMPS WITH CURB RETURNS MAY BE USED AT LOCATIONS WHERE OTHER IMPROVEMENTS PROVIDE GUIDANCE AWAY FROM THAT PORTION OF THE CURB PERPENDICULAR TO THE SIDEWALK; IMPROVEMENTS FOR GUIDANCE ARE NOT REQUIRED AT CURB RAMPS FOR LINEAR PEDESTRIAN TRAFFIC.
5. CURB RAMP DETECTABLE WARNING SURFACE SHALL EXTEND THE FULL WIDTH OF THE RAMP AND IN THE DIRECTION OF TRAVEL 24" FROM THE BACK OF THE CURB. DETECTABLE WARNING SURFACES SHALL BE VANGUARD, ARMOR TILE, OR APPROVED EQUAL.
6. WHERE A RAMP IS CONSTRUCTED WITHIN EXISTING EXISTING CURB, CURB AND GUTTER, AND/OR SIDEWALK, THE EXISTING CURB OR CURB AND GUTTER SHALL BE REMOVED TO THE NEAREST JOINT BEYOND THE CURB TRANSITIONS OR TO THE EXTENT THAT NO REMAINING SECTION OF CURB OR CURB AND GUTTER IS LESS THAN 5' LONG. THE EXISTING SIDEWALK SHALL BE REMOVED TO THE NEAREST JOINT BEYOND THE TRANSITION SLOPE OR WALK AROUND OR TO THE EXTENT THAT NO REMAINING SECTION OF SIDEWALK IS LESS THAN 5' LONG.
7. DETECTABLE WARNING SURFACE COLOR SHALL CONTRAST WITH SURROUNDING SURFACE AS DIRECTED BY CITY ENGINEER (DEFAULT COLOR IS YELLOW).

* ALL DIMENSIONS ARE CONSIDERED MINIMUM DESIGN CONDITIONS UNLESS OTHERWISE APPROVED BY CITY ENGINEER FOR SPECIAL EXCEPTION AREAS

STANDARD DETAILS			TYPICAL SIDEWALK CURB CUT RAMPS	
CORAL SPRINGS		MARCH 2008		LAST MODIFIED 07/2014
	NO.	DATE	REVISIONS	DETAIL NUMBER S-19 SHEET 2 OF 2

Z DEVELOPMENT Services
CA 29354
708 E. COLONIAL DR., STE. 100 ORLANDO, FL 32803
PH: (407) 271-8910 FAX: (407) 442-0604

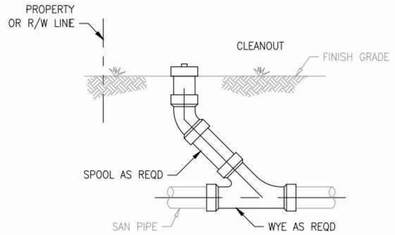
REVISION	DATE	REVISION	DATE

LADYBIRD ACADEMY
8950 ROYAL PALM BOULEVARD
CORAL SPRINGS, FLORIDA 33065

DATE: 02-22-22
DRAWN: SR
CHECKED: RZ

C7
CITY OF CORAL SPRINGS STANDARD DETAILS

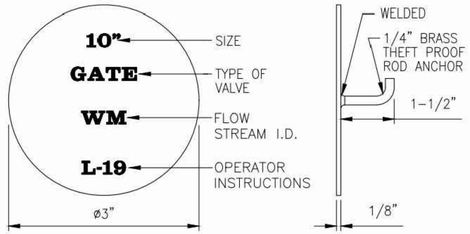
PROJECT NO.: 2019.141



NOTES:
1. PIPING, CLEANOUT CAP AND FITTINGS SHALL BE PVC SDR-35.

CLEANOUT

STANDARD UTILITY DETAILS			CLEANOUT	
CORAL SPRINGS	1	11/23/15	PER CITY COMMENTS	DATE APPROVED 12/10/15
	NO.	DATE	REVISIONS	DETAIL NUMBER SAN-9A



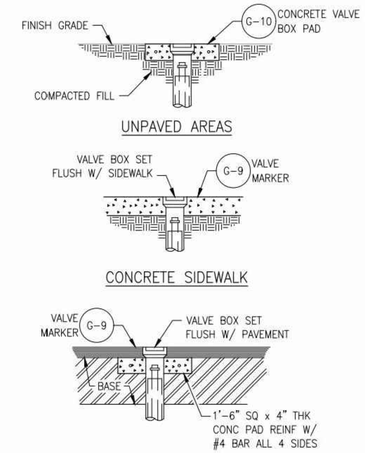
NOTES:

1) TOP OF BRASS MARKER MUST BE FLUSH WITH SURROUNDING SURFACE AND NOT CREATE A 1/8" TRIPPING HAZARD.

2) FLOW STREAM I.D.'S: WM = WATER MAIN
FM = FORCE MAIN

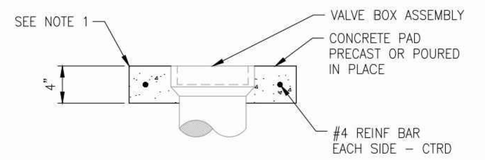
VALVE MARKER

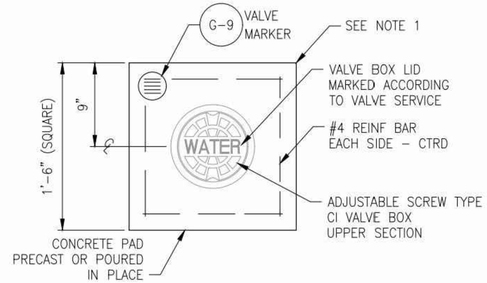
STANDARD UTILITY DETAILS			VALVE MARKER	
CORAL SPRINGS				DATE APPROVED 12/10/15
	NO.	DATE	REVISIONS	DETAIL NUMBER G-9



VALVE BOX SETTINGS

STANDARD UTILITY DETAILS			VALVE BOX SETTING	
CORAL SPRINGS				DATE APPROVED 12/10/15
	NO.	DATE	REVISIONS	DETAIL NUMBER G-11





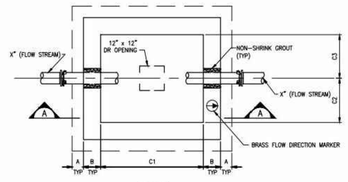
NOTES:
1. UTILIZE 3/8" RADIUS TOOLED EDGES IF PAD IS LOCATED IN UNPAVED AREAS.

CONCRETE VALVE BOX PAD

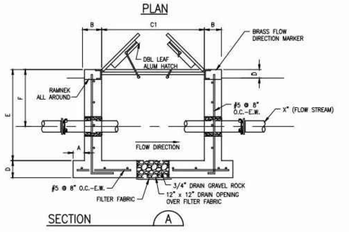
STANDARD UTILITY DETAILS			CONCRETE VALVE BOX PAD	
CORAL SPRINGS				DATE APPROVED 12/10/15
	NO.	DATE	REVISIONS	DETAIL NUMBER G-10

DIMENSIONS SCHEDULE										
METER SIZE/DETAIL #	PIPING DIMENSIONS	VAULT DIMENSIONS								
	X	A	B	C1	C2	C3	D	E	F	
4" / WM-11	4"	4"	8"	6'-0"	30"	30"	8"	36" MAX.	16" MIN.	
6" / WM-11	6"	4"	8"	7'-6"	30"	30"	8"	36" MAX.	16" MIN.	
8" / WM-11	8"	4"	8"	8'-0"	30"	30"	8"	36" MAX.	16" MIN.	
10" / WM-11	10"	4"	8"	9'-6"	30"	30"	8"	36" MAX.	16" MIN.	
3" / WM-12	4"	4"	8"	5'-0"	18"	30"	8"	36" MAX.	16" MIN.	
4" / WM-12	4"	4"	8"	5'-6"	18"	30"	8"	36" MAX.	16" MIN.	
6" / WM-12	8"	4"	8"	6'-6"	18"	30"	8"	36" MAX.	16" MIN.	
6"x8" / WM-12	8"	4"	8"	8'-6"	18"	30"	8"	36" MAX.	16" MIN.	

NOTES:
1. CONFIRM VAULT DIMENSIONS WITH CITY AND ENGINEER.
2. COMPRESSIVE STRENGTH OF PRECAST CONCRETE SHALL BE 4000 PSI AT 28 DAYS.
3. HATCH SHALL BE CENTERED OVER METER. HATCH SPECS SHALL BE AS FOLLOWS: TRAFFIC RATED = U.S.F. A24 (H-20) NON TRAFFIC = U.S.F. APD (300) HATCH DIMENSIONS PER METER REMOVAL REQUIREMENTS.
4. EXTERIOR OF VAULT SHALL BE COATED WITH TWO (2) COATS OF COAL TAR EPOXY, 16 MILS PER COAT.
5. METER NOT SHOWN FOR CLARITY. SEE DETAILS #WM-11 AND #WM-12.
6. VAULT SHALL BE CONSTRUCTED PER ASTM C-478.



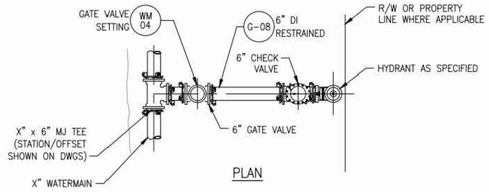
PLAN



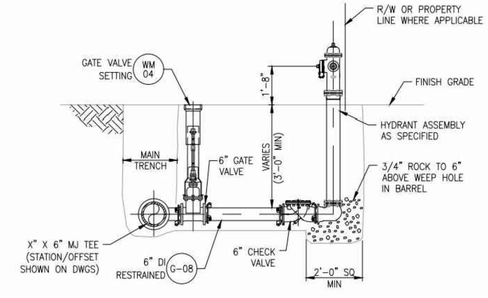
SECTION A

CONCRETE METER VAULT

STANDARD UTILITY DETAILS			CONCRETE METER VAULT	
CORAL SPRINGS				DATE APPROVED 12/10/15
	NO.	DATE	REVISIONS	DETAIL NUMBER WM-13



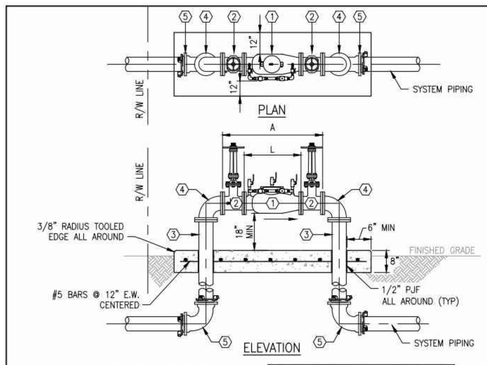
PLAN



SECTION

FIRE HYDRANT (STANDARD)

STANDARD UTILITY DETAILS			FIRE HYDRANT (STANDARD)	
CORAL SPRINGS				DATE APPROVED 12/10/15
	NO.	DATE	REVISIONS	DETAIL NUMBER WM-6



LIST OF MATERIALS

1. DOUBLE CHECK DETECTOR BFP
2. RESILIENT SEATED OS&Y GATE VALVE
3. DI FLG x PE PIPE (LENGTH AS REQD)
4. DI FLG JOINT 90° BEND
5. DI MJ 90° BEND (SEE NOTE 2)

BACKFLOW PREVENTER DIMENSIONS		
BFP SIZE	A	L
4"	40"	22"
6"	48-1/2"	27-1/2"
8"	52-1/2"	29-1/2"
10"	55-1/2"	29-1/2"
12"	57-1/2"	29-1/2"

NOTES

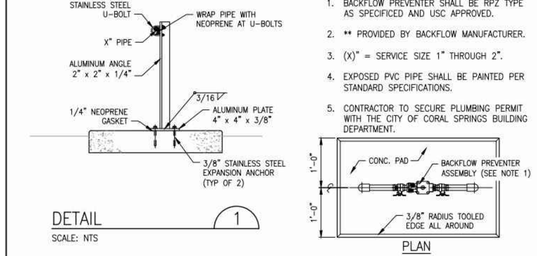
1) BACKFLOW PREVENTER TO MATCH SIZE OF SYSTEM PIPING.

2) ALL MECHANICAL JOINTS TO BE RESTRAINED TYPE, MEGALUGS OR EQUAL ALTERNATE ACCEPTABLE.

3) EXPOSED PIPING AND VALVES TO BE PAINTED RED PER STANDARD SPECIFICATIONS.

LARGE USER – FIRE SERVICE BACKFLOW PREVENTER

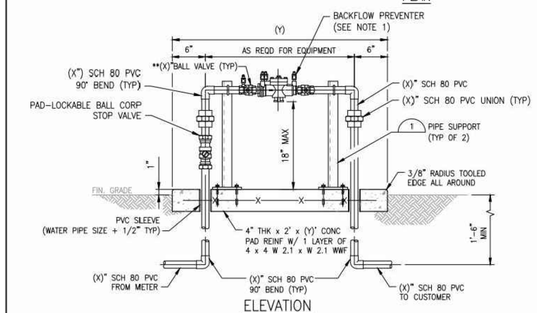
STANDARD UTILITY DETAILS			LARGE USER FIRE SERVICE BACKFLOW PREVENTER	
CORAL SPRINGS				DATE APPROVED 12/10/15
	NO.	DATE	REVISIONS	DETAIL NUMBER WM-10



DETAIL 1
SCALE: NTS

NOTES:
1. BACKFLOW PREVENTER SHALL BE RPZ TYPE AS SPECIFICED AND USC APPROVED.
2. ** PROVIDED BY BACKFLOW MANUFACTURER.
3. (X)" = SERVICE SIZE 1" THROUGH 2".
4. EXPOSED PVC PIPE SHALL BE PAINTED PER STANDARD SPECIFICATIONS.
5. CONTRACTOR TO SECURE PLUMBING PERMIT WITH THE CITY OF CORAL SPRINGS BUILDING DEPARTMENT.

PLAN



ELEVATION

BACKFLOW PREVENTER 1" – 2" (R.P.Z. TYPE)

STANDARD UTILITY DETAILS			BACKFLOW PREVENTER 1-INCH THROUGH 2-INCH (RPZ TYPE)	
CORAL SPRINGS				DATE APPROVED 12/10/15
	NO.	DATE	REVISIONS	DETAIL NUMBER WM-9

Z DEVELOPMENT Services
CA 29354
708 E. COLONIAL DR., STE. 100 ORLANDO, FL 32803
PH: (407) 271-8910 FAX: (407) 442-0604

REVISION	DATE
REVISION	DATE

LADYBIRD ACADEMY
8950 ROYAL PALM BOULEVARD
CORAL SPRINGS, FLORIDA 33065

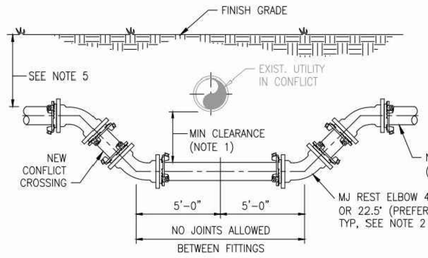
DATE: 02-22-22
DRAWN: SR
CHECKED: RZ

C7.1
CITY OF CORAL SPRINGS STANDARD DETAILS

PROJECT NO.: 2019.141

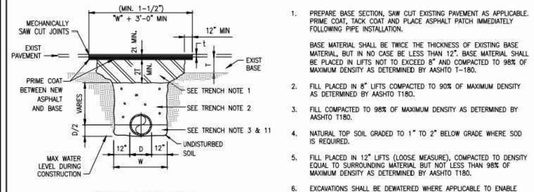
NOTES:

1. MINIMUM VERTICAL CLEARANCES SHALL BE IN ACCORDANCE WITH STANDARD SEPARATION STATEMENT.
2. ALL JOINTS OF CROSSING SHALL BE RESTRAINED PER JOINT RESTRAINT DETAILS. SEE DETAIL #G-08.
3. PIPE JOINTS MAY BE DEFLECTED AS AN ALTERNATIVE TO FITTINGS AT CONTRACTORS DISCRETION WITH CITY APPROVAL. DO NOT EXCEED PIPE MANUFACTURERS SPECIFIED MAXIMUM DEFLECTION.
4. DETAIL MAY BE MODIFIED IN FIELD WHERE TWO (2) OR MORE UTILITY CONFLICTS ARE IN CLOSE PROXIMITY WITH EACH OTHER. COORDINATE IN FIELD WITH CITY AND ENGINEER.
5. MINIMUM COVER SHALL BE 3'-0" FOR PVC AND 2'-6" FOR DIP.

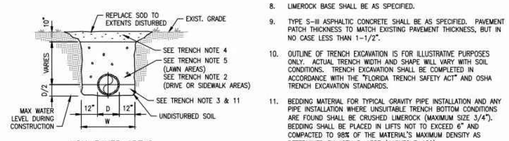


UTILITY CROSSING

STANDARD UTILITY DETAILS			UTILITY CROSSING	
CORAL SPRINGS	NO.	DATE	REVISIONS	DATE APPROVED 12/10/15
				DETAIL NUMBER G-13



EXISTING PAVED AREAS



NON-PAVED AREAS

1. PREPARE BASE SECTION, SAW CUT EXISTING PAVEMENT AS APPLICABLE. PRIME COAT, TACK COAT AND PLACE ASPHALT PATCH IMMEDIATELY FOLLOWING PIPE INSTALLATION.

   BASE MATERIAL SHALL BE TWICE THE THICKNESS OF EXISTING BASE MATERIAL, BUT IN NO CASE BE LESS THAN 12". BASE MATERIAL SHALL BE PLACED IN LIFTS NOT TO EXCEED 8" AND COMPACTED TO 98% OF MAXIMUM DENSITY AS DETERMINED BY AASHTO T-180.
2. FILL PLACED IN 8" LIFTS COMPACTED TO 90% OF MAXIMUM DENSITY AS DETERMINED BY AASHTO T180.
3. FILL COMPACTED TO 98% OF MAXIMUM DENSITY AS DETERMINED BY AASHTO T180.
4. NATURAL TOP SOIL GRADED TO 1" TO 2" BELOW GRADE WHERE SOD IS REQUIRED.
5. FILL PLACED IN 12" LIFTS (LOOSE MEASURE), COMPACTED TO DENSITY EQUAL TO SURROUNDING MATERIAL BUT NOT LESS THAN 98% OF MAXIMUM DENSITY AS DETERMINED BY AASHTO T180.
6. EXCAVATIONS SHALL BE DEWATERED WHERE APPLICABLE TO ENABLE PIPE AND APPURTENANCES TO BE INSTALLED FREE OF WATER.
7. BEDDING AND BACKFILL MATERIAL SHALL BE AS SPECIFIED.
8. LIMEROCK BASE SHALL BE AS SPECIFIED.
9. TYPE S-III ASPHALTIC CONCRETE SHALL BE AS SPECIFIED. PAVEMENT PATCH THICKNESS TO MATCH EXISTING PAVEMENT THICKNESS, BUT IN NO CASE LESS THAN 1-1/2".
10. OUTLINE OF TRENCH EXCAVATION IS FOR ILLUSTRATIVE PURPOSES ONLY. ACTUAL TRENCH WIDTH AND SHAPE WILL VARY WITH SOIL CONDITIONS. TRENCH EXCAVATION SHALL BE COMPLETED IN ACCORDANCE WITH THE "FLORIDA TRENCH SAFETY ACT" AND OSHA TRENCH EXCAVATION STANDARDS.
11. BEDDING MATERIAL FOR TYPICAL GRAVITY PIPE INSTALLATION AND ANY PIPE INSTALLATION WHERE UNSUITABLE TRENCH BOTTOM CONDITIONS ARE FOUND SHALL BE CRUSHED LIMEROCK (MAXIMUM SIZE 3/4"). BEDDING SHALL BE PLACED IN LIFTS NOT TO EXCEED 6" AND COMPACTED TO 98% OF THE MATERIAL'S MAXIMUM DENSITY AS DETERMINED BY ASTM D-1557 (AASHTO T-180).

TYPICAL UTILITY TRENCH BACKFILL AND BEDDING

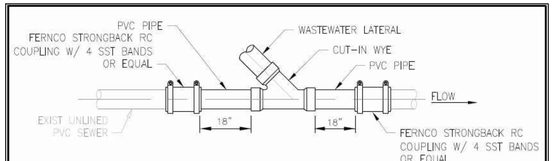
STANDARD UTILITY DETAILS			TYPICAL UTILITY TRENCH BACKFILL AND BEDDING	
CORAL SPRINGS	NO.	DATE	REVISIONS	DATE APPROVED 12/10/15
				DETAIL NUMBER G-12

GENERAL NOTES

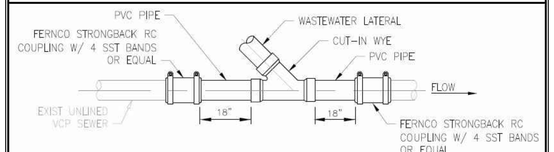
1) CONSTRUCTION AND MATERIALS SHALL CONFORM TO THE STANDARDS AND SPECIFICATIONS OF THE DEPARTMENT OF TRANSPORTATION, FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION, BROWARD COUNTY ENVIRONMENTAL PROTECTION AND GROWTH MANAGEMENT DEPARTMENT, BROWARD COUNTY HEALTH DEPARTMENT, FLORIDA BUILDING CODE (LATEST EDITION) AND ALL OTHER LOCAL AND NATIONAL CODES WHERE APPLICABLE.
2) PERFORM CONSTRUCTION IN A SAFE MANNER, SPECIFICALLY, THE RULES AND REGULATIONS OF THE OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION AND THE MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES SHALL BE STRICTLY OBSERVED.
3) ELEVATIONS ON THE DRAWINGS OR REFERENCED IN THE SPECIFICATIONS ARE BASED ON NATIONAL GEODETIC VERTICAL DATUM OF 1929.
4) THE CONTRACTOR SHALL OBTAIN THE SERVICES OF A UTILITY LOCATION SERVICE SUCH AS "SUNSHINE STATE ONE CALL OF FLA, INC." AT (800) 432-4770 AT LEAST 48 HOURS PRIOR TO BEGINNING ANY EXCAVATION.
5) PRIOR TO BEGINNING CONSTRUCTION, THE CONTRACTOR SHALL VERIFY THE SIZE LOCATION AND MATERIAL OF ALL EXISTING UTILITIES WITHIN THE AREA OF CONSTRUCTION.
6) IF UPON EXCAVATION, AN EXISTING UTILITY IS FOUND TO BE IN CONFLICT WITH THE PROPOSED CONSTRUCTION OR TO BE OF A SIZE OR MATERIAL DIFFERENT FROM THAT SHOWN ON THE DRAWINGS, THE CONTRACTOR SHALL IMMEDIATELY NOTIFY THE CITY.
7) STANDARD SEPARATION STATEMENT:
   A. MAINTAIN A MINIMUM THREE (3) FOOT HORIZONTAL DISTANCE BETWEEN WATER MAINS AND VACUUM SEWER, STORM SEWER OR RECLAIMED WATER MAINS REGULATED UNDER PART III OF CHAPTER 62-610.
   B. MAINTAIN A MINIMUM SIX (6) FOOT HORIZONTAL DISTANCE BETWEEN WATER MAINS AND GRAVITY SEWER, PRESSURE-TYPE SANITARY SEWER OR RECLAIMED WATER MAINS NOT REGULATED UNDER PART III OF CHAPTER 62-610.

      THIS DISTANCE CAN BE REDUCED TO THREE (3) FOOT HORIZONTAL DISTANCE WHEN EITHER PIPE IS ENCLOSED IN A WATERTIGHT CASING OR CONCRETE AND WHEN WATER MAINS ARE LOCATED AT LEAST SIX (6) INCHES ABOVE GRAVITY SEWER MAINS.
   C. MAINTAIN A MINIMUM TEN (10) FOOT HORIZONTAL DISTANCE BETWEEN WATER MAINS AND ON-SITE SEWAGE TREATMENT AND DISPOSAL SYSTEMS.
   D. MAINTAIN SIX (6) INCH VERTICAL SEPARATION WHERE WATER MAINS CROSS ABOVE VACUUM SEWER, GRAVITY SEWER OR STORM SEWER.
   E. MAINTAIN A TWELVE (12) INCH VERTICAL SEPARATION WHERE WATER MAINS CROSS BELOW VACUUM SEWER, GRAVITY SEWER OR STORM SEWER.
   F. MAINTAIN A TWELVE (12) INCH VERTICAL SEPARATION WHERE WATER MAINS CROSS ABOVE OR BELOW PRESSURE-TYPE SANITARY SEWER, FORCE MAIN OR RECLAIMED WATER MAINS.
8) THE CONTRACTOR SHALL PERFORM ALL WORK NECESSARY TO LOCATE, EXCAVATE AND PREPARE FOR CONNECTIONS TO THE EXISTING SYSTEMS ALL AS SHOWN ON THE DRAWINGS. THE COST FOR THIS WORK AND FOR THE ACTUAL CONNECTION TO THE EXISTING SYSTEMS SHALL BE INCLUDED IN THE BID PRICE FOR THE PROJECT AND SHALL NOT RESULT IN ANY ADDITIONAL COST TO THE CITY.
9) CONTRACTOR MUST PROVIDE FOR AND MAINTAIN ADEQUATE ACCESS AT ALL TIMES TO ALL BUSINESSES AND RESIDENCES AFFECTED BY PROGRESS OF THE WORK.
10) PROJECT SITE SAFETY:
   A. THE ENGINEER/CITY OR THEIR EMPLOYEES HAVE NO AUTHORITY TO EXERCISE ANY CONTROL OVER THE CONTRACTOR, ANY SUB-CONTRACTOR OR OTHER ENTITY OR THEIR EMPLOYEES IN CONNECTION WITH THEIR WORK OR ANY JOB SITE HEALTH OR SAFETY PRECAUTIONS.
   B. THE CONTRACTOR IS SOLELY RESPONSIBLE FOR JOB SITE SAFETY, AND WARRANTS THAT THIS INTENT IS MADE EVIDENT BY THE AGREEMENT BETWEEN OWNER AND CONTRACTOR.
   C. ALL EXISTING OVERHEAD AND UNDERGROUND UTILITIES SHOWN ON THESE DRAWINGS OR ENCOUNTERED THROUGH THE PROGRESSION OF WORK AT THIS PROJECT SITE AREA ARE ASSUMED TO BE LIVE. CONTRACTOR SHALL BE RESPONSIBLE FOR ALL SAFETY PRECAUTIONS WHEN WORKING AROUND EXISTING OVERHEAD OR UNDERGROUND UTILITIES.
11) VALVE BOXES AND MANHOLE RIM ELEVATIONS SHOWN ARE APPROXIMATE. CONTRACTOR SHALL ADJUST VALVE BOX AND MANHOLE RIM ELEVATIONS AS REQUIRED TO MEET FINAL GRADES.

STANDARD UTILITY DETAILS			GENERAL NOTES	
CORAL SPRINGS	NO.	DATE	REVISIONS	DATE APPROVED 12/10/15
				DETAIL NUMBER G-1



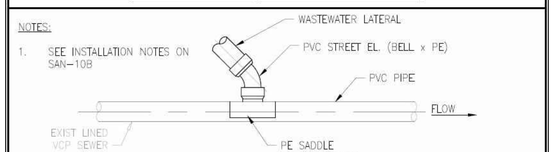
LATERAL CUT-IN (EXISTING UNLINED PVC)



LATERAL CUT-IN (EXISTING UNLINED VCP)

NOTES:

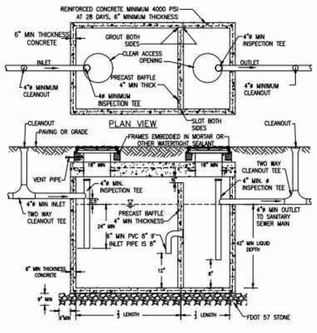
1. SEE INSTALLATION NOTES ON SAN-10B



LATERAL SADDLE (EXISTING LINED VCP)

SANITARY SEWER LATERAL CUT-IN

STANDARD UTILITY DETAILS			SANITARY SEWER LATERAL CUT-IN	
CORAL SPRINGS	NO.	DATE	REVISIONS	DATE APPROVED 12/10/15
				DETAIL NUMBER SAN-10A



NOTES:

1. SPECIFIC DESIGN DETAILS MUST IN ALL ASPECTS MEET APPLICABLE FLORIDA PLUMBING AND ADMINISTRATIVE CODE.
2. SIZE GREASE INTERCEPTOR PER OCU MANUAL, SECTION 2310. MINIMUM SIZE 750 GAL; MAXIMUM SIZE 1250 GAL.
3. INTERCEPTORS SHALL BE WATER AND GAS TIGHT.
4. ALL FIXTURES LOCATED IN FOOD AND BEVERAGE PREPARATION AREAS SHALL BE ROUTED THOUGH GREASE INTERCEPTOR. RESTROOM WASTE SHALL NOT BE ROUTED THROUGH INTERCEPTOR.
5. BAFFLE REQUIRED; ALTERNATIVE DESIGNS ARE ACCEPTABLE. DESIGN MUST MEET FLORIDA PLUMBING AND ADMINISTRATIVE CODE.
6. ALL NEW AND EXISTING BUSINESSES OR INDUSTRIES THAT USE PETROLEUM BASE PRODUCTS IN THEIR DAY TO DAY ACTIVITIES WILL BE REQUIRED TO INSTALL AN OIL/WATER SEPARATOR IF THEY CHOOSE TO OPERATE WITH OPEN FLOOR DRAINS.
7. NO DOMESTIC EFFLUENT SHALL BE ALLOWED TO DISCHARGE THROUGH THE OIL/WATER SEPARATOR.
8. OIL/WATER SEPARATOR MODELS AND WATER RECYCLE UNITS MANUFACTURED BY COMPANIES SUCH AS ZURN, SMITH, LANDA INC. OR RGF ENVIRONMENTAL SYSTEMS INC. AND OTHERS CAN BE SUBSTITUTED FOR THE ABOVE DESIGN WITH THE CITY'S APPROVAL.
9. ALL SIDES OF IN-GROUND OIL/WATER SEPARATOR UNITS (EXCEPT ACCESS DOORS AND MANHOLES) ARE REQUIRED TO BE CONSTRUCTED OF 1/8" INCH (OR GREATER) STEEL OR 6" (OR GREATER) REINFORCED CONCRETE OR FIBERGLASS.
10. IF INSTALLED, ACCESS DOOR TO IN-GROUND OIL/WATER SEPARATOR UNITS SHALL BE CONSTRUCTED OF ALUMINUM WITH H-20 LOADING CAPACITY PER SPECIFICATIONS BY U.S. FOUNDRY, CORP. OR EQUIVALENT.
11. OIL INTERCEPTORS SHALL BE PUMPED OUT COMPLETELY AT A MINIMUM OF ONCE EVERY NINETY (90) DAYS OR MORE FREQUENTLY AS NEEDED TO PREVENT CARRY OVER OF OIL INTO COLLECTION SYSTEM.

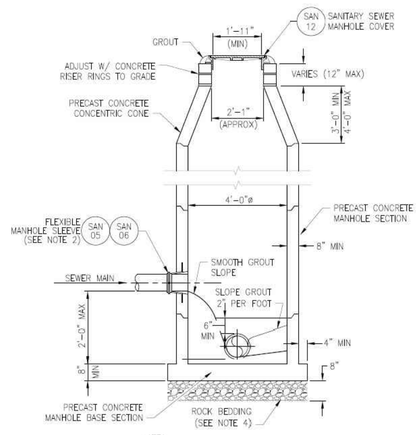
CAR WASH NOTES:

1. ALL NEW AND EXISTING BUSINESSES OR INDUSTRIES THAT WASH CARS WILL BE REQUIRED TO INSTALL AN OIL/WATER SEPARATOR.
2. IF YOU CHOOSE TO WASH CARS OUTSIDE, THE WASH PAD WILL HAVE TO BE SHELTERED SO RAIN WATER WILL NOT BE DISCHARGED TO SANITARY SEWER SYSTEM.
3. TO PREVENT WASH WATER FROM RUNNING OUTSIDE OF WASH AREA, A SPEED BUMP WILL NEED TO BE INSTALLED ALONG THE ENTRANCE TO THE BAYS OF YOUR BUSINESS AND/OR ALONG THE OUTSIDE EDGES OF THE WASH PAD.

OIL/GREASE INTERCEPTOR

STANDARD UTILITY DETAILS			OIL-GREASE INTERCEPTOR	
CORAL SPRINGS	NO.	DATE	REVISIONS	DATE APPROVED 12/10/15
				DETAIL NUMBER MISC-6

1



NOTES:

1. COAT INSIDE & OUTSIDE OF MANHOLE PER SPECIFICATIONS.
2. WHERE EXTERIOR DROP CONNECTION IS ADDED TO EXISTING MANHOLE SUBSTITUTE MANHOLE COUPLING (SAN 04) FOR FLEXIBLE MANHOLE SLEEVE.
3. PRECAST CONCRETE MANHOLES AND ACCESSORIES SHALL BE AS SPECIFIED.
4. FDOT #57 STONE.

SANITARY SEWER MANHOLE DEPTH ≤ 6FT

STANDARD UTILITY DETAILS			SANITARY SEWER MANHOLE (DEPTH LESS THAN 6-FT)	
CORAL SPRINGS	NO.	DATE	REVISIONS	DATE APPROVED 12/10/15
				DETAIL NUMBER SAN-1

RZ DEVELOPMENT Services
CA 29354
708 E. COLONIAL DR., STE. 100 ORLANDO, FL 32803
PH: (407) 271-8910
FAX: (407) 442-0604

REVISION	DATE
SFWMD & SWCD COMMENTS	07-07-22

LADYBIRD ACADEMY
8950 ROYAL PALM BOULEVARD
CORAL SPRINGS, FLORIDA 33065

DATE: 02-22-22
DRAWN: SR
CHECKED: RZ

C7.2
CITY OF CORAL SPRINGS STANDARD DETAILS

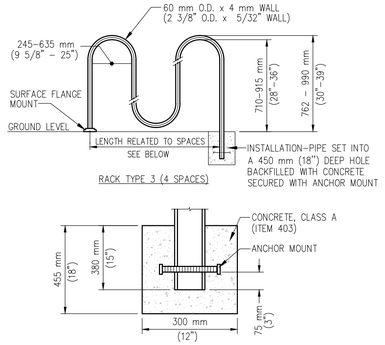
PROJECT NO.: 2019.141

GENERAL NOTES

1. ALL TRAFFIC CONTROL DEVICES, EQUIPMENT AND INSTALLATION SHALL MEET THE REQUIREMENTS OF THE LOCAL JURISDICTION AND/OR FLORIDA DEPARTMENT OF TRANSPORTATION.

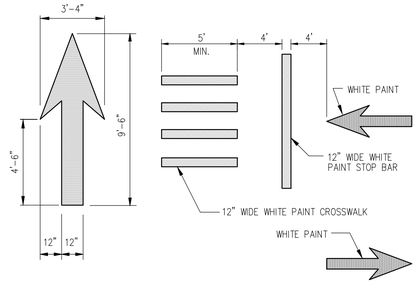
2. VEHICLE PARKING SPACES SHALL CONFORM WITH LOCAL CODE. ACCESSIBLE PARKING SPACES AND ACCESS ROUTES SHALL FURTHER CONFORM WITH CURRENT ADA REQUIREMENTS.

3. ACCESSIBLE PAVEMENT MARKINGS AND SIGNAGE SHALL CONFORM WITH CURRENT ADA REQUIREMENTS AND LOCAL ORDINANCE.

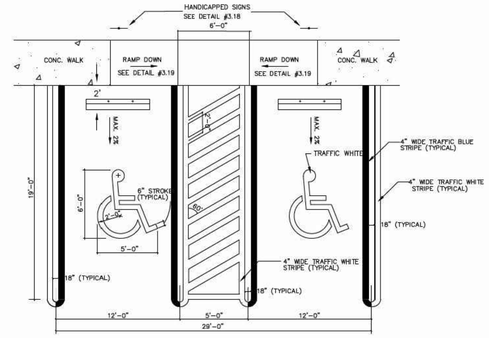


3 SPACES, LENGTH = 0.84–1m (33–41")

BICYCLE RACK NTS



PAVEMENT MARKINGS NTS



NOTE:
All pavement markings to be thermoplastic.

* ALL DIMENSIONS ARE CONSIDERED MINIMUM DESIGN CONDITIONS UNLESS OTHERWISE APPROVED BY CITY ENGINEER FOR SPECIAL EXCEPTION AREAS

STANDARD DETAILS			TYPICAL DOUBLE HANDICAPPED STALL	
CORAL SPRINGS		MARCH 2008		LAST MODIFIED 07/2014
	NO.	DATE	REVISIONS	DETAIL NUMBER S–17 SHEET 1 OF 2

Parking Stall Details

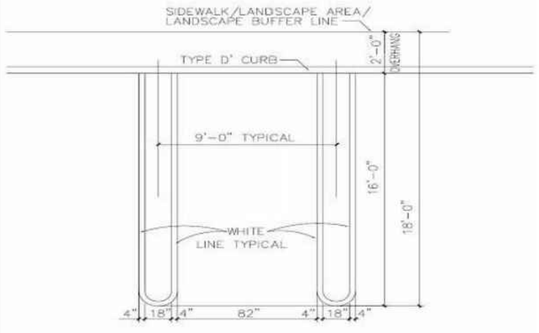
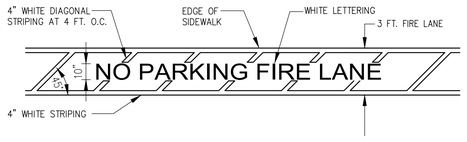
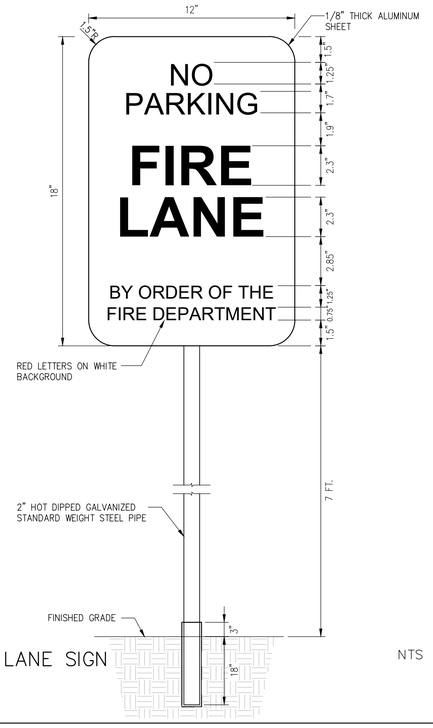


Figure 3b.

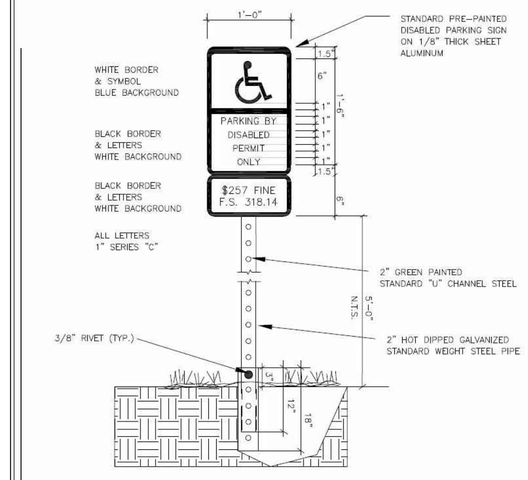
CITY OF CORAL SPRINGS STANDARD PARKING DETAILS



FIRE LANE STRIPING NTS



FIRE LANE SIGN NTS



* ALL DIMENSIONS ARE CONSIDERED MINIMUM DESIGN CONDITIONS UNLESS OTHERWISE APPROVED BY CITY ENGINEER FOR SPECIAL EXCEPTION AREAS

STANDARD DETAILS			HANDICAPPED SIGN DETAIL	
CORAL SPRINGS		MARCH 2008		LAST MODIFIED 07/2014
	NO.	DATE	REVISIONS	DETAIL NUMBER S–18 SHEET 1 OF 1

DEVELOPMENT Services
CA 29354
708 E. COLONIAL DR., STE. 100
ORLANDO, FL 32803
PH: (407) 271-8910
FAX: (407) 442-0604

REVISION	DATE	REVISION	DATE

ROBERT ZIEGENFUSS, P.E., LEED AP
FLA. REG. # 56752

LADYBIRD ACADEMY
8950 ROYAL PALM BOULEVARD
CORAL SPRINGS, FLORIDA 33065

DATE: 02–22–22
DRAWN: SR
CHECKED: RZ

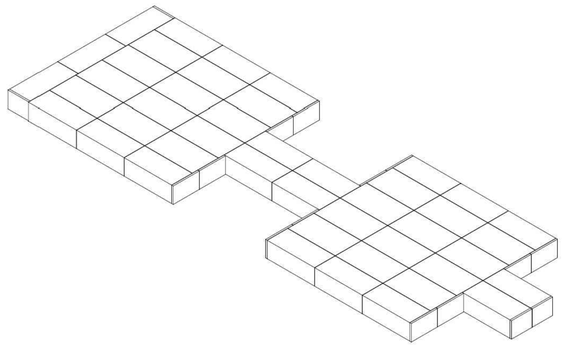
C7.3
PAVEMENT STRIPING AND ADA DETAILS

PROJECT NO.: 2019.141

StormTrap
MODULAR CONCRETE STORMWATER MANAGEMENT

SHEET INDEX	
PAGE	DESCRIPTION
0.0	COVER SHEET
1.0	SINGLETRAP DESIGN CRITERIA
2.0	SINGLETRAP SYSTEM LAYOUT
3.0	SINGLETRAP INSTALLATION SPECIFICATIONS
3.1	SINGLETRAP INSTALLATION SPECIFICATIONS
4.0	SINGLETRAP BACKFILL SPECIFICATIONS
5.0	RECOMMENDED PIPE/ACCESS OPENING SPECIFICATIONS
6.0	SPLASH PAD & GEOWEB DETAILS
7.0	SINGLETRAP MODULE TYPES

STORMTRAP CONTACT INFORMATION	
STORMTRAP SUPPLIER:	STORMTRAP
CONTACT NAME:	GREG DIXON
CELL PHONE:	813-618-2110
SALES EMAIL:	GDIXON@STORMTRAP.COM



LADYBIRD- VAULT 1
CORAL SPRINGS, FL

StormTrap
PATENTS LISTED AT: [HTTP://STORMTRAP.COM/PATENT]
1287 WINDHAM PARKWAY
ROMEOVILLE, IL 60446
P:815-941-4549 / F:331-318-5347

ENGINEER INFORMATION:

Z DEVELOPMENT SERVICES
708 EAST COLONIAL DRIVE
SUITE 100
ORLANDO, FL 32803
407-271-8910

PROJECT INFORMATION:

LADYBIRD
VAULT 1
CORAL SPRINGS, FL

CURRENT ISSUE DATE:

6/30/2022

ISSUED FOR:

PRELIMINARY

REV.	DATE:	ISSUED FOR:	DWN BY:
3	6/30/22	PRELIMINARY	KL
2	5/12/22	PRELIMINARY	KL
1	5/5/22	PRELIMINARY	KL

SCALE: NTS

SHEET TITLE: COVER SHEET

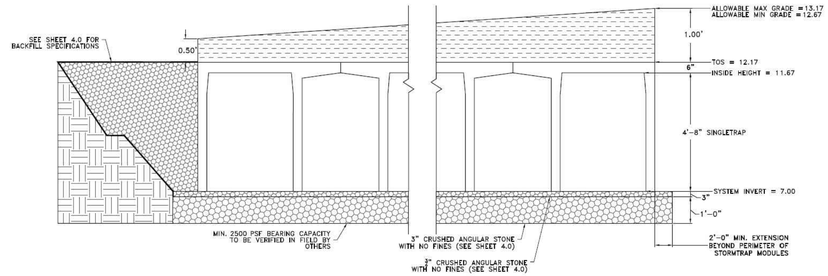
SHEET NUMBER: 0.0

STRUCTURAL DESIGN LOADING CRITERIA	
LIVE LOADING:	AASHTO HS-20 HIGHWAY LOADING
GROUND WATER TABLE:	BELOW INVERT OF SYSTEM
SOIL BEARING PRESSURE:	2500 PSF
SOIL DENSITY:	120 PCF
EQUIVALENT UNSATURATED LATERAL ACTIVE EARTH PRESSURE:	35 PSF / FT.
EQUIVALENT SATURATED LATERAL ACTIVE EARTH PRESSURE:	80 PSF/FT. (IF WATER TABLE PRESENT)
APPLICABLE CODES:	ASTM C857 ACI-318
BACKFILL TYPE:	SEE SHEET 4.0 FOR BACKFILL OPTIONS

STORMTRAP SYSTEM INFORMATION	
WATER STORAGE PROV:	21,969.96 CUBIC FEET
UNIT HEADROOM:	4'-8" SINGLETRAP

SITE SPECIFIC DESIGN CRITERIA

1. STORMTRAP UNITS SHALL BE MANUFACTURED AND INSTALLED ACCORDING TO SHOP DRAWINGS APPROVED BY THE INSTALLING CONTRACTOR AND ENGINEER OF RECORD. THE SHOP DRAWINGS SHALL INDICATE SIZE AND LOCATION OF ROOF OPENINGS AND INLET/ OUTLET PIPE TYPES, SIZES, INVERT ELEVATIONS AND SIZE OF OPENINGS.
2. COVER RANGE: MIN. 0.50' MAX. 1.00' CONSULT STORMTRAP FOR ADDITIONAL COVER OPTIONS.
3. ALL DIMENSIONS AND SOIL CONDITIONS, INCLUDING BUT NOT LIMITED TO GROUNDWATER AND SOIL BEARING CAPACITY ARE REQUIRED TO BE VERIFIED IN THE FIELD BY OTHERS PRIOR TO STORMTRAP INSTALLATION.
4. FOR STRUCTURAL CALCULATIONS THE GROUND WATER TABLE IS ASSUMED TO BE BELOW INVERT OF SYSTEM IF WATER TABLE IS DIFFERENT THAN ASSUMED, CONTACT STORMTRAP.



4'-8" SINGLETRAP

StormTrap
PATENTS LISTED AT: [HTTP://STORMTRAP.COM/PATENT]
1287 WINDHAM PARKWAY
ROMEOVILLE, IL 60446
P:815-941-4549 / F:331-318-5347

ENGINEER INFORMATION:

Z DEVELOPMENT SERVICES
708 EAST COLONIAL DRIVE
SUITE 100
ORLANDO, FL 32803
407-271-8910

PROJECT INFORMATION:

LADYBIRD
VAULT 1
CORAL SPRINGS, FL

CURRENT ISSUE DATE:

6/30/2022

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PRELIMINARY

REV.	DATE:	ISSUED FOR:	DWN BY:
3	6/30/22	PRELIMINARY	KL
2	5/12/22	PRELIMINARY	KL
1	5/5/22	PRELIMINARY	KL

SCALE: NTS

SHEET TITLE: SINGLETRAP DESIGN CRITERIA

SHEET NUMBER: 1.0

BILL OF MATERIALS			
QTY.	UNIT TYPE	DESCRIPTION	WEIGHT
0	I	4'-8" SINGLETRAP	0
24	II	4'-8" SINGLETRAP	17477
0	III	4'-8" SINGLETRAP	0
21	IV	4'-8" SINGLETRAP	16084
0	VII	4'-8" SINGLETRAP	0
1	SPIV	4'-8" SINGLETRAP	VARIES
12	T2 PANEL	6" THICK PANEL	3262
4	T4 PANEL	6" THICK PANEL	2568
0	T7 PANEL	6" THICK PANEL	0
10	JOINTWRAP	150' PER ROLL	
0	JOINTTAPE	14.5' PER ROLL	
TOTAL PIECES = 45			
TOTAL PANELS = 16			
HEAVIEST PICK WEIGHT = 17,477			

LOADING DISCLAIMER:

STORMTRAP IS NOT DESIGNED TO ACCEPT ANY ADDITIONAL LOADINGS FROM NEARBY STRUCTURES NEXT TO OR OVER THE TOP OF STORMTRAP. IF ADDITIONAL LOADING CONSIDERATIONS ARE REQUIRED FOR STRUCTURAL DESIGN OF STORMTRAP, PLEASE CONTACT STORMTRAP IMMEDIATELY.

TREE LOADING DISCLAIMER:

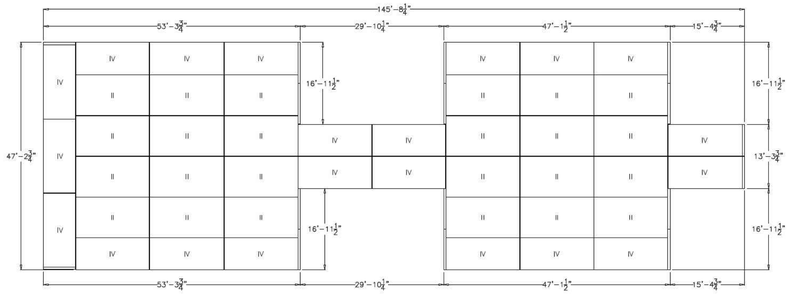
THE STORMTRAP SYSTEM HAS NOT BEEN DESIGNED TO SUPPORT THE ADDITIONAL WEIGHT OF ANY TREES. FURTHERMORE, THE ROOTS OF THE TREES MUST BE CONTAINED TO PREVENT FUTURE DAMAGE TO THE STORMTRAP SYSTEM. STORMTRAP ACCEPTS NO LIABILITY FOR DAMAGES CAUSED BY TREES OR OTHER VEGETATION PLACE AROUND OR ON TOP OF THE SYSTEM.

SEDIMENT/SAND FILTER DISCLAIMER:

FOR SYSTEMS CONTAINING SEDIMENT AND SAND FILTER MODULES; IF REQUIRED TO BE SEALED TO PREVENT SAND AND/OR PRE-TREATED WATER FROM MIGRATING INTO ADJOINING MODULES, IT IS THE SOLE RESPONSIBILITY OF THE INSTALLING CONTRACTOR TO ENSURE THAT THOSE MODULES ARE SEALED.

DESIGN CRITERIA
ALLOWABLE MAX GRADE =13.17
ALLOWABLE MIN GRADE =12.67
INSIDE HEIGHT ELEVATION =11.67
SYSTEM INVERT =7.00

NOTES:
1. DIMENSIONING OF STORMTRAP SYSTEM SHOWN BELOW ALLOW FOR A 3/4" GAP BETWEEN EACH MODULE.
2. ALL DIMENSIONS TO BE VERIFIED IN THE FIELD BY OTHERS.
3. SEE SHEET 3.0 FOR INSTALLATION SPECIFICATIONS.
4. SP - INDICATES A MODULE WITH MODIFICATIONS.
5. P - INDICATES A MODULE WITH A PANEL ATTACHMENT.
6. CONTRACTORS RESPONSIBILITY TO ENSURE CONSISTENCY/ACCURACY TO FINAL ENGINEER OF RECORD PLAN SET.
7. IF A WATERTIGHT SOLUTION IS REQUIRED FOR AN OUTLET CONTROL STRUCTURE, ALL EXTERIOR COLD JOINTS, INCLUDING JOINT BETWEEN TOP AND BASE MODULES, BETWEEN TOP AND BASE OF ADJOINING SYMONS WALLS, AND JOINTS BETWEEN MODULE AND ADJACENT END PANELS WILL BE THE SOLE RESPONSIBILITY OF THE INSTALLING CONTRACTOR TO PROVIDE AND INSTALL THE WATERTIGHT APPLICATION PER THE EOR'S SPECIFICATION.



StormTrap
PATENTS LISTED AT: [HTTP://STORMTRAP.COM/PATENT]
1287 WINDHAM PARKWAY
ROMEOVILLE, IL 60446
P:815-941-4549 / F:331-318-5347

ENGINEER INFORMATION:

Z DEVELOPMENT SERVICES
708 EAST COLONIAL DRIVE
SUITE 100
ORLANDO, FL 32803
407-271-8910

PROJECT INFORMATION:

LADYBIRD
VAULT 1
CORAL SPRINGS, FL

CURRENT ISSUE DATE:

6/30/2022

ISSUED FOR:

PRELIMINARY

REV.	DATE:	ISSUED FOR:	DWN BY:
3	6/30/22	PRELIMINARY	KL
2	5/12/22	PRELIMINARY	KL
1	5/5/22	PRELIMINARY	KL

SCALE: NTS

SHEET TITLE: SINGLETRAP LAYOUT DETAILS

SHEET NUMBER: 2.0

Z DEVELOPMENT Services
CA 29354
708 E. COLONIAL DR., STE. 100
ORLANDO, FL 32803
PH: (407) 271-8910
FAX: (407) 442-0604

REVISION	DATE
3 SFWMD & SWCD COMMENTS	07-07-22

ROBERT ZIEGENFUSS, P.E., LEED AP
FL REG. # 56752

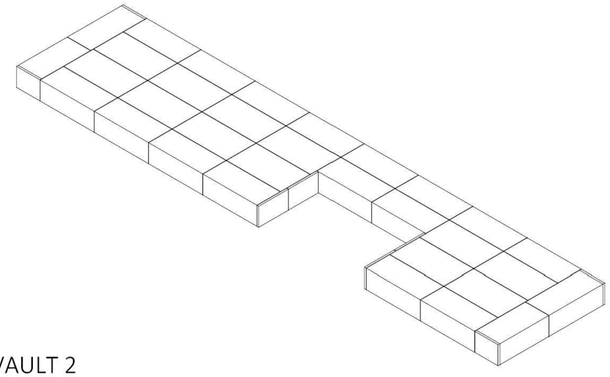
LADYBIRD ACADEMY
8950 ROYAL PALM BOULEVARD
CORAL SPRINGS, FLORIDA 33065

DATE: 02-22-22
DRAWN: SR
CHECKED: RZ

C8
SUBSURFACE STORMWATER SYSTEM DETAILS

PROJECT NO.: 2019.141

StormTrap
MODULAR CONCRETE STORMWATER MANAGEMENT



LADYBIRD- VAULT 2
CORAL SPRINGS , FL

SHEET INDEX

STORMTRAP CONTACT INFORMATION

STORMTRAP SUPPLIER: STORMTRAP
CONTACT NAME: GREG DIXON
CELL PHONE: 813-618-2110
SALES EMAIL: GDIXON@STORMTRAP.COM

StormTrap
PATENTS LISTED AT: [HTTP://STORMTRAP.COM/PATENT]
1287 WINDHAM PARKWAY
ROMEOVILLE, IL 60446
P:815-941-4549 / F:331-318-5347

ENGINEER INFORMATION:

Z DEVELOPMENT SERVICES
708 EAST COLONIAL DRIVE
SUITE 100
ORLANDO, FL 32803
407-271-8910

PROJECT INFORMATION:

LADYBIRD
VAULT 2
CORAL SPRINGS, FL

CURRENT ISSUE DATE:
6/30/2022

ISSUED FOR:
PRELIMINARY

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3	6/30/22	PRELIMINARY	KL
2	5/12/22	PRELIMINARY	KL
1	5/5/22	PRELIMINARY	KL

SCALE: NTS

SHEET TITLE: COVER SHEET

SHEET NUMBER: 0.0

STRUCTURAL DESIGN LOADING CRITERIA

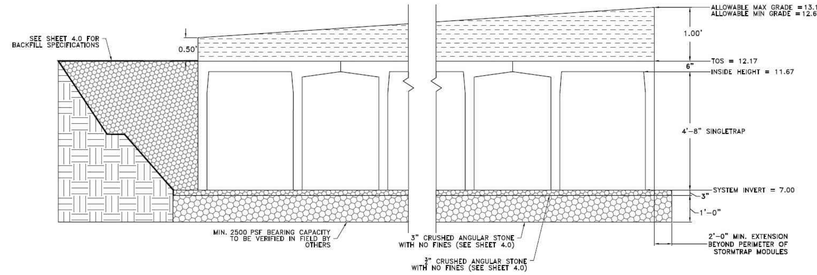
LIVE LOADING: AASHTO HS-20 HIGHWAY LOADING
GROUND WATER TABLE: BELOW INVERT OF SYSTEM
SOIL BEARING PRESSURE: 2500 PSF
SOIL DENSITY: 120 PCF
EQUIVALENT UNSATURATED LATERAL ACTIVE EARTH PRESSURE: 35 PSF / FT.
EQUIVALENT SATURATED LATERAL ACTIVE EARTH PRESSURE: 80 PSF/FT. (IF WATER TABLE PRESENT)
APPLICABLE CODES: ASTM C857, ACI-318
BACKFILL TYPE: SEE SHEET 4.0 FOR BACKFILL OPTIONS

STORMTRAP SYSTEM INFORMATION

WATER STORAGE PROV: 14,871.49 CUBIC FEET
UNIT HEADROOM: 4'-8" SINGLETRAP

SITE SPECIFIC DESIGN CRITERIA

1. STORMTRAP UNITS SHALL BE MANUFACTURED AND INSTALLED ACCORDING TO SHOP DRAWINGS APPROVED BY THE INSTALLING CONTRACTOR AND ENGINEER OF RECORD. THE SHOP DRAWINGS SHALL INDICATE SIZE AND LOCATION OF ROOF OPENINGS AND INLET/ OUTLET PIPE TYPES, SIZES, INVERT ELEVATIONS AND SIZE OF OPENINGS.
2. COVER RANGE: MIN. 0.50' MAX. 1.00' CONSULT STORMTRAP FOR ADDITIONAL COVER OPTIONS.
3. ALL DIMENSIONS AND SOIL CONDITIONS, INCLUDING BUT NOT LIMITED TO GROUNDWATER AND SOIL BEARING CAPACITY ARE REQUIRED TO BE VERIFIED IN THE FIELD BY OTHERS PRIOR TO STORMTRAP INSTALLATION.
4. FOR STRUCTURAL CALCULATIONS THE GROUND WATER TABLE IS ASSUMED TO BE BELOW INVERT OF SYSTEM IF WATER TABLE IS DIFFERENT THAN ASSUMED, CONTACT STORMTRAP.



4'-8" SINGLETRAP

StormTrap
PATENTS LISTED AT: [HTTP://STORMTRAP.COM/PATENT]
1287 WINDHAM PARKWAY
ROMEOVILLE, IL 60446
P:815-941-4549 / F:331-318-5347

ENGINEER INFORMATION:
Z DEVELOPMENT SERVICES
708 EAST COLONIAL DRIVE
SUITE 100
ORLANDO, FL 32803
407-271-8910

PROJECT INFORMATION:
LADYBIRD
VAULT 2
CORAL SPRINGS, FL

CURRENT ISSUE DATE:
6/30/2022

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PRELIMINARY

REV.	DATE:	ISSUED FOR:	DWN BY:
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1	5/5/22	PRELIMINARY	KL

SCALE: NTS

SHEET TITLE: SINGLETRAP DESIGN CRITERIA

SHEET NUMBER: 1.0

BILL OF MATERIALS

QTY.	UNIT TYPE	DESCRIPTION	WEIGHT
0	I	4'-8" SINGLETRAP	0
12	II	4'-8" SINGLETRAP	17477
0	III	4'-8" SINGLETRAP	0
18	IV	4'-8" SINGLETRAP	16084
0	VII	4'-8" SINGLETRAP	0
2	SPIV	4'-8" SINGLETRAP	VARIES
4	T2 PANEL	6" THICK PANEL	3262
4	T4 PANEL	6" THICK PANEL	2568
0	T7 PANEL	6" THICK PANEL	0
7	JOINTWRAP	150' PER ROLL	
0	JOINTTAPE	14.5' PER ROLL	
TOTAL PIECES = 32			
TOTAL PANELS = 8			
HEAVIEST PICK WEIGHT = 17,477			

LOADING DISCLAIMER:

STORMTRAP IS NOT DESIGNED TO ACCEPT ANY ADDITIONAL LOADINGS FROM NEARBY STRUCTURES NEXT TO OR OVER THE TOP OF STORMTRAP. IF ADDITIONAL LOADING CONSIDERATIONS ARE REQUIRED FOR STRUCTURAL DESIGN OF STORMTRAP, PLEASE CONTACT STORMTRAP IMMEDIATELY.

TREE LOADING DISCLAIMER:

THE STORMTRAP SYSTEM HAS NOT BEEN DESIGNED TO SUPPORT THE ADDITIONAL WEIGHT OF ANY TREES. FURTHERMORE, THE ROOTS OF THE TREES MUST BE CONTAINED TO PREVENT FUTURE DAMAGE TO THE STORMTRAP SYSTEM. STORMTRAP ACCEPTS NO LIABILITY FOR DAMAGES CAUSED BY TREES OR OTHER VEGETATION PLACE AROUND OR ON TOP OF THE SYSTEM.

SEDIMENT/SAND FILTER DISCLAIMER:

FOR SYSTEMS CONTAINING SEDIMENT AND SAND FILTER MODULES; IF REQUIRED TO BE SEALED TO PREVENT SAND AND/OR PRE-TREATED WATER FROM MIGRATING INTO ADJOINING MODULES, IT IS THE SOLE RESPONSIBILITY OF THE INSTALLING CONTRACTOR TO ENSURE THAT THOSE MODULES ARE SEALED.

DESIGN CRITERIA
ALLOWABLE MAX GRADE = 13.17
ALLOWABLE MIN GRADE = 12.67
INSIDE HEIGHT ELEVATION = 11.67
SYSTEM INVERT = 7.00

NOTES:
1. DIMENSIONING OF STORMTRAP SYSTEM SHOWN BELOW ALLOW FOR A 3/4" GAP BETWEEN EACH MODULE.
2. ALL DIMENSIONS TO BE VERIFIED IN THE FIELD BY OTHERS.
3. SEE SHEET 3.0 FOR INSTALLATION SPECIFICATIONS.
4. SP - INDICATES A MODULE WITH MODIFICATIONS.
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6. CONTRACTORS RESPONSIBILITY TO ENSURE CONSISTENCY/ACCURACY TO FINAL ENGINEER OF RECORD PLAN SET.
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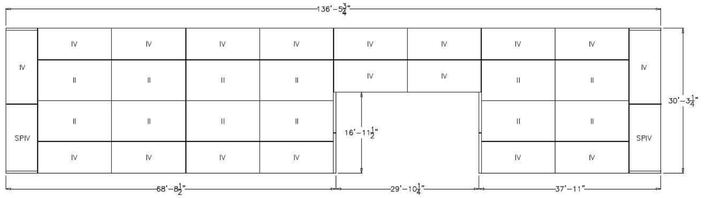


StormTrap
PATENTS LISTED AT: [HTTP://STORMTRAP.COM/PATENT]
1287 WINDHAM PARKWAY
ROMEOVILLE, IL 60446
P:815-941-4549 / F:331-318-5347

ENGINEER INFORMATION:
Z DEVELOPMENT SERVICES
708 EAST COLONIAL DRIVE
SUITE 100
ORLANDO, FL 32803
407-271-8910

PROJECT INFORMATION:
LADYBIRD
VAULT 2
CORAL SPRINGS, FL

CURRENT ISSUE DATE:
6/30/2022

ISSUED FOR:
PRELIMINARY

REV.	DATE:	ISSUED FOR:	DWN BY:
3	6/30/22	PRELIMINARY	KL
2	5/12/22	PRELIMINARY	KL
1	5/5/22	PRELIMINARY	KL

SCALE: NTS

SHEET TITLE: SINGLETRAP LAYOUT DETAILS

SHEET NUMBER: 2.0

Z DEVELOPMENT Services
CA 29354
708 E. COLONIAL DR., STE. 100
ORLANDO, FL 32803
PH: (407) 271-8910
FAX: (407) 442-0604

REVISION	DATE
SFWMD & SWCD COMMENTS	07-07-22

ROBERT ZIEGENFUSS, P.E., LEED AP
FL REG. # 56752

LADYBIRD ACADEMY
8950 ROYAL PALM BOULEVARD
CORAL SPRINGS, FLORIDA 33065

DATE: 02-22-22
DRAWN: SR
CHECKED: RZ

C8.1
SUBSURFACE STORMWATER SYSTEM DETAILS

PROJECT NO.: 2019.141

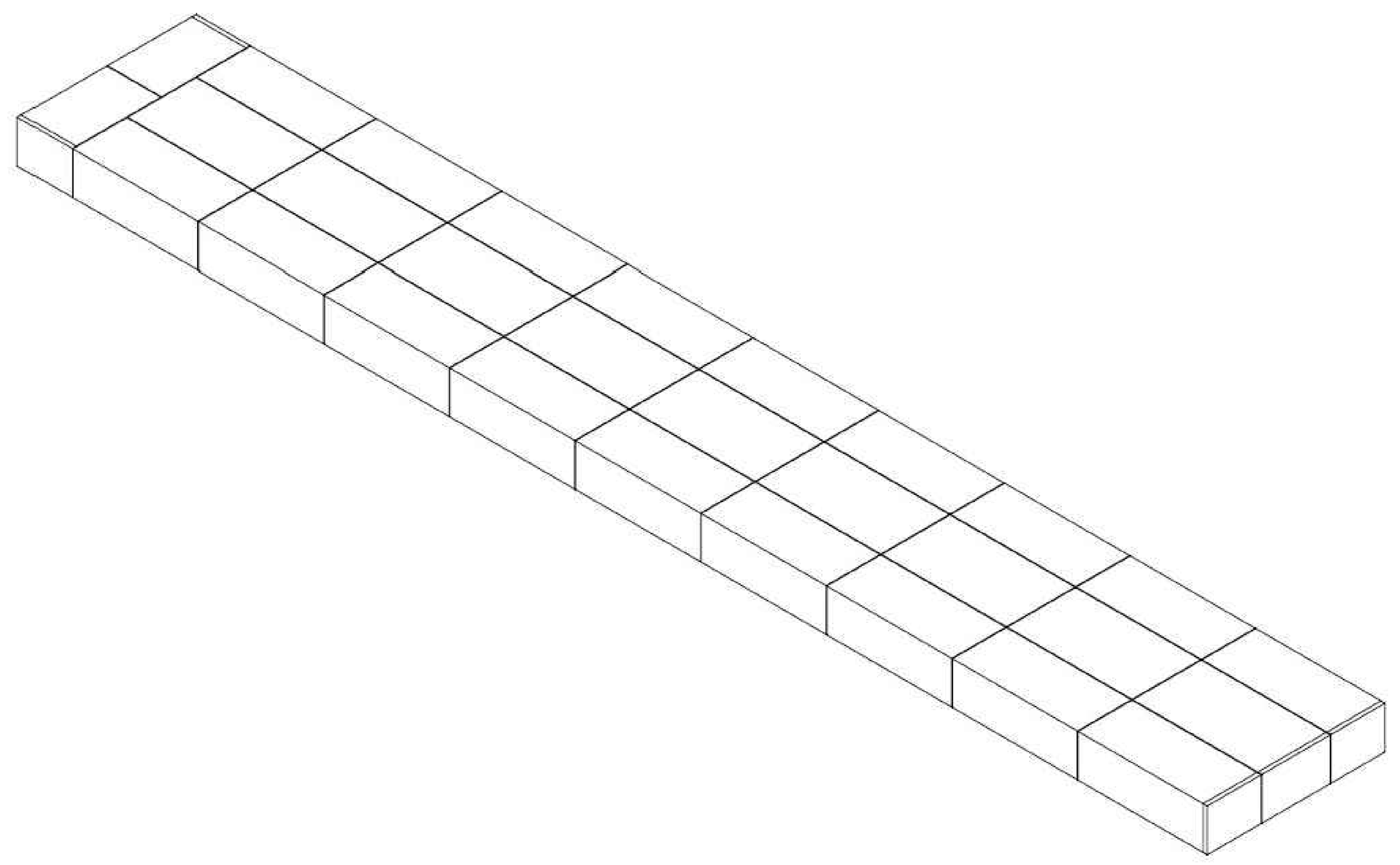
StormTrap®
MODULAR CONCRETE
STORMWATER MANAGEMENT

THE STORMTRAP DRAWINGS SHALL NOT BE ALTERED OR MANIPULATED IN WHOLE OR IN PART WITHOUT WRITTEN CONSENT OF STORMTRAP. USE OF THESE DRAWINGS IS STRICTLY GRANTED TO YOU, OUR CLIENT, FOR THE SPECIFIED AND NAMED PROJECT ONLY. THESE DRAWINGS ARE FOR YOUR REFERENCE ONLY AND SHALL NOT BE USED FOR CONSTRUCTION PURPOSES.

SHEET INDEX	
PAGE	DESCRIPTION
0.0	COVER SHEET
1.0	SINGLETRAP DESIGN CRITERIA
2.0	SINGLETRAP SYSTEM LAYOUT
3.0	SINGLETRAP INSTALLATION SPECIFICATIONS
3.1	SINGLETRAP INSTALLATION SPECIFICATIONS
4.0	SINGLETRAP BACKFILL SPECIFICATIONS
5.0	RECOMMENDED PIPE/ACCESS OPENING SPECIFICATIONS
6.0	SPLASH PAD & GEOWEB DETAILS
7.0	SINGLETRAP MODULE TYPES

STORMTRAP CONTACT INFORMATION

STORMTRAP SUPPLIER: STORMTRAP
CONTACT NAME: GREG DIXON
CELL PHONE: 813-618-0110
SALES EMAIL: GDIXON@STORMTRAP.COM



LADYBIRD- VAULT 3
CORAL SPRINGS, FL

StormTrap®
PATENTS LISTED AT: [HTTP://STORMTRAP.COM/PATENT]
1287 WINDHAM PARKWAY
ROMEOVILLE, IL 60446
P:815-941-4549 / F:331-318-5347

ENGINEER INFORMATION:
Z DEVELOPMENT SERVICES
708 EAST COLONIAL DRIVE
SUITE 100
ORLANDO, FL 32803
407-271-8910

PROJECT INFORMATION:
LADYBIRD
VAULT 3
CORAL SPRINGS, FL

CURRENT ISSUE DATE: 6/30/2022

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REV.	DATE:	ISSUED FOR:	DWN BY:
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2	5/12/22	PRELIMINARY	KL
1	5/5/22	PRELIMINARY	KL

SCALE: NTS

SHEET TITLE: COVER SHEET

SHEET NUMBER: 0.0

STRUCTURAL DESIGN LOADING CRITERIA

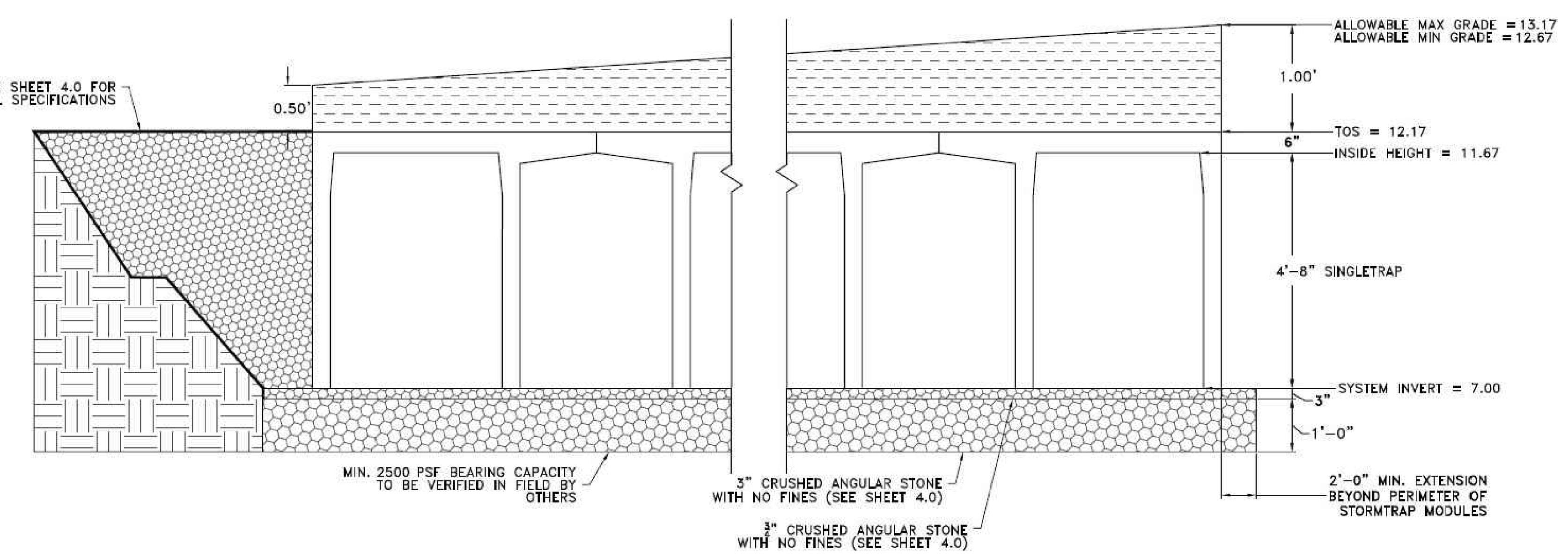
LIVE LOADING: AASHTO HS-20 HIGHWAY LOADING
GROUND WATER TABLE: BELOW INVERT OF SYSTEM
SOIL BEARING PRESSURE: 2500 PSF
SOIL DENSITY: 120 PCF
EQUIVALENT UNSATURATED LATERAL ACTIVE EARTH PRESSURE: 35 PSF / FT.
EQUIVALENT SATURATED LATERAL ACTIVE EARTH PRESSURE: 80 PSF/FT. (IF WATER TABLE PRESENT)
APPLICABLE CODES: ASTM C857
ACI-318
BACKFILL TYPE: SEE SHEET 4.0 FOR BACKFILL OPTIONS

STORMTRAP SYSTEM INFORMATION

WATER STORAGE PROV: 13,030.02 CUBIC FEET
UNIT HEADROOM: 4'-8" SINGLETRAP

SITE SPECIFIC DESIGN CRITERIA

1. STORMTRAP UNITS SHALL BE MANUFACTURED AND INSTALLED ACCORDING TO SHOP DRAWINGS APPROVED BY THE INSTALLING CONTRACTOR AND ENGINEER OF RECORD. THE SHOP DRAWINGS SHALL INDICATE SIZE AND LOCATION OF ROOF OPENINGS AND INLET/ OUTLET PIPE TYPES, SIZES, INVERT ELEVATIONS AND SIZE OF OPENINGS.
2. COVER RANGE: MIN. 0.50' MAX. 1.00' CONSULT STORMTRAP FOR ADDITIONAL COVER OPTIONS.
3. ALL DIMENSIONS AND SOIL CONDITIONS, INCLUDING BUT NOT LIMITED TO GROUNDWATER AND SOIL BEARING CAPACITY ARE REQUIRED TO BE VERIFIED IN THE FIELD BY OTHERS PRIOR TO STORMTRAP INSTALLATION.
4. FOR STRUCTURAL CALCULATIONS THE GROUND WATER TABLE IS ASSUMED TO BE BELOW INVERT OF SYSTEM IF WATER TABLE IS DIFFERENT THAN ASSUMED, CONTACT STORMTRAP.



4'-8" SINGLETRAP

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ROMEOVILLE, IL 60446
P:815-941-4549 / F:331-318-5347

ENGINEER INFORMATION:
Z DEVELOPMENT SERVICES
708 EAST COLONIAL DRIVE
SUITE 100
ORLANDO, FL 32803
407-271-8910

PROJECT INFORMATION:
LADYBIRD
VAULT 3
CORAL SPRINGS, FL

CURRENT ISSUE DATE: 6/30/2022

ISSUED FOR: PRELIMINARY

REV.	DATE:	ISSUED FOR:	DWN BY:
3	6/30/22	PRELIMINARY	KL
2	5/12/22	PRELIMINARY	KL
1	5/5/22	PRELIMINARY	KL

SCALE: NTS

SHEET TITLE: SINGLETRAP DESIGN CRITERIA

SHEET NUMBER: 1.0

BILL OF MATERIALS			
QTY.	UNIT TYPE	DESCRIPTION	WEIGHT
0	I	4'-8" SINGLETRAP	0
9	II	4'-8" SINGLETRAP	17477
0	III	4'-8" SINGLETRAP	0
18	IV	4'-8" SINGLETRAP	16084
0	VII	4'-8" SINGLETRAP	0
2	SPIV	4'-8" SINGLETRAP	VARIES
1	T2 PANEL	6" THICK PANEL	3262
4	T4 PANEL	6" THICK PANEL	2568
0	T7 PANEL	6" THICK PANEL	0
6	JOINTWRAP	150' PER ROLL	
0	JOINTTAPE	14.5' PER ROLL	
TOTAL PIECES = 29			
TOTAL PANELS = 5			
HEAVIEST PICK WEIGHT = 17,477			

LOADING DISCLAIMER:

STORMTRAP IS NOT DESIGNED TO ACCEPT ANY ADDITIONAL LOADINGS FROM NEARBY STRUCTURES NEXT TO OR OVER THE TOP OF STORMTRAP. IF ADDITIONAL LOADING CONSIDERATIONS ARE REQUIRED FOR STRUCTURAL DESIGN OF STORMTRAP, PLEASE CONTACT STORMTRAP IMMEDIATELY.

TREE LOADING DISCLAIMER:

THE STORMTRAP SYSTEM HAS NOT BEEN DESIGNED TO SUPPORT THE ADDITIONAL WEIGHT OF ANY TREES. FURTHERMORE, THE ROOTS OF THE TREES MUST BE CONTAINED TO PREVENT FUTURE DAMAGE TO THE STORMTRAP SYSTEM. STORMTRAP ACCEPTS NO LIABILITY FOR DAMAGES CAUSED BY TREES OR OTHER VEGETATION PLACE AROUND OR ON TOP OF THE SYSTEM.

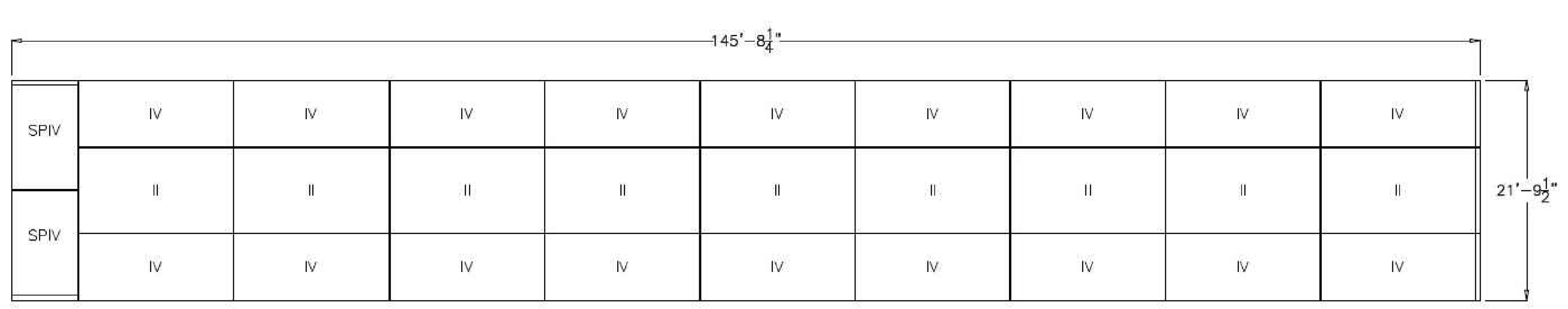
SEDIMENT/SAND FILTER DISCLAIMER:

FOR SYSTEMS CONTAINING SEDIMENT AND SAND FILTER MODULES; IF REQUIRED TO BE SEALED TO PREVENT SAND AND/OR PRE-TREATED WATER FROM MIGRATING INTO ADJOINING MODULES, IT IS THE SOLE RESPONSIBILITY OF THE INSTALLING CONTRACTOR TO ENSURE THAT THOSE MODULES ARE SEALED.

DESIGN CRITERIA
ALLOWABLE MAX GRADE = 13.17
ALLOWABLE MIN GRADE = 12.67
INSIDE HEIGHT ELEVATION = 11.67
SYSTEM INVERT = 7.00

NOTES:
1. DIMENSIONING OF STORMTRAP SYSTEM SHOWN BELOW ALLOW FOR A 3/4" GAP BETWEEN EACH MODULE.
2. ALL DIMENSIONS TO BE VERIFIED IN THE FIELD BY OTHERS.
3. SEE SHEET 3.0 FOR INSTALLATION SPECIFICATIONS.
4. SP - INDICATES A MODULE WITH MODIFICATIONS.
5. P - INDICATES A MODULE WITH A PANEL ATTACHMENT.
6. CONTRACTORS RESPONSIBILITY TO ENSURE CONSISTENCY/ACCURACY TO FINAL ENGINEER OF RECORD PLAN SET.
7. IF A WATERTIGHT SOLUTION IS REQUIRED FOR AN OUTLET CONTROL STRUCTURE, ALL EXTERIOR COLD JOINTS, INCLUDING JOINT BETWEEN TOP AND BASE MODULES, BETWEEN TOP AND BASE OF ADJOINING SYMONS WALLS, AND JOINTS BETWEEN MODULE AND ADJACENT END PANELS WILL BE THE SOLE RESPONSIBILITY OF THE INSTALLING CONTRACTOR TO PROVIDE AND INSTALL THE WATERTIGHT APPLICATION PER THE EOR'S SPECIFICATION.

N



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SCALE: NTS

SHEET TITLE: SINGLETRAP LAYOUT DETAILS

SHEET NUMBER: 2.0

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1 SFWMD & SWCD COMMENTS	07-07-22

REVISION	DATE

ROBERT ZIEGENFUSS, P.E., LEED AP
FL. REG. # 56752

LADYBIRD ACADEMY
8950 ROYAL PALM BOULEVARD
CORAL SPRINGS, FLORIDA 33065

DATE: 02-22-22
DRAWN: SR
CHECKED: RZ

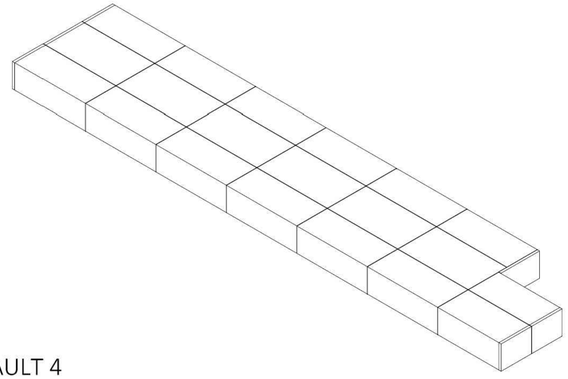
C8.2
SUBSURFACE STORMWATER SYSTEM DETAILS

PROJECT NO.: 2019.141

StormTrap
MODULAR CONCRETE STORMWATER MANAGEMENT

SHEET INDEX	
PAGE	DESCRIPTION
0.0	COVER SHEET
1.0	SINGLETRAP DESIGN CRITERIA
2.0	SINGLETRAP SYSTEM LAYOUT
3.0	SINGLETRAP INSTALLATION SPECIFICATIONS
3.1	SINGLETRAP INSTALLATION SPECIFICATIONS
4.0	SINGLETRAP BACKFILL SPECIFICATIONS
5.0	RECOMMENDED PIPE/ACCESS OPENING SPECIFICATIONS
6.0	SPLASH PAD & GEOWEB DETAILS
7.0	SINGLETRAP MODULE TYPES

STORMTRAP CONTACT INFORMATION	
STORMTRAP SUPPLIER:	STORMTRAP
CONTACT NAME:	GREG DIXON
CELL PHONE:	813-618-0110
SALES EMAIL:	GDIXON@STORMTRAP.COM



LADYBIRD- VAULT 4
CORAL SPRINGS, FL

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SCALE: NTS

SHEET TITLE: COVER SHEET

SHEET NUMBER: 0.0

STRUCTURAL DESIGN LOADING CRITERIA	
LIVE LOADING:	AASHTO HS-20 HIGHWAY LOADING
GROUND WATER TABLE:	BELOW INVERT OF SYSTEM
SOIL BEARING PRESSURE:	2500 PSF
SOIL DENSITY:	120 PCF
EQUIVALENT UNSATURATED LATERAL ACTIVE EARTH PRESSURE:	35 PSF / FT.
EQUIVALENT SATURATED LATERAL ACTIVE EARTH PRESSURE:	80 PSF/FT. (IF WATER TABLE PRESENT)
APPLICABLE CODES:	ASTM C857 ACI-318
BACKFILL TYPE:	SEE SHEET 4.0 FOR BACKFILL OPTIONS

STORMTRAP SYSTEM INFORMATION	
WATER STORAGE PROV:	9,036.48 CUBIC FEET
UNIT HEADROOM:	4'-8" SINGLETRAP

SITE SPECIFIC DESIGN CRITERIA

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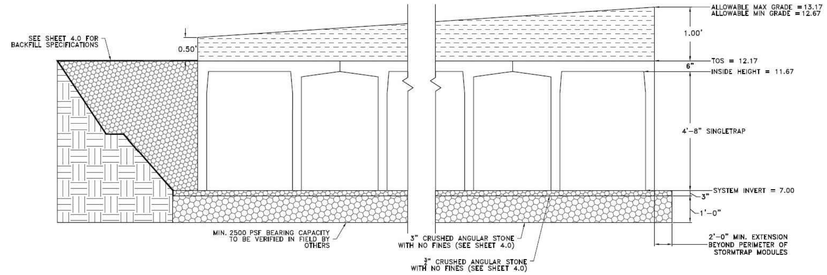

4'-8" SINGLETRAP

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TOTAL PANELS = 6			
HEAVIEST PICK WEIGHT = 17,477			

LOADING DISCLAIMER:

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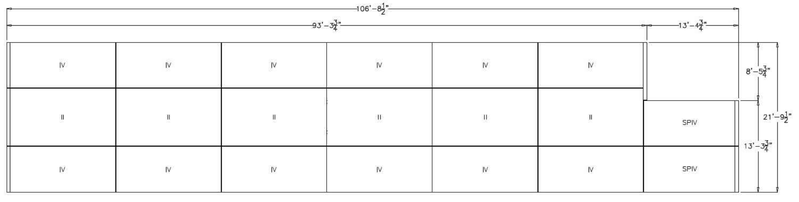

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VAULT 4
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ROBERT ZIEGENFUSS, P.E., LEED AP
FL REG. # 56752

LADYBIRD ACADEMY
8950 ROYAL PALM BOULEVARD
CORAL SPRINGS, FLORIDA 33065

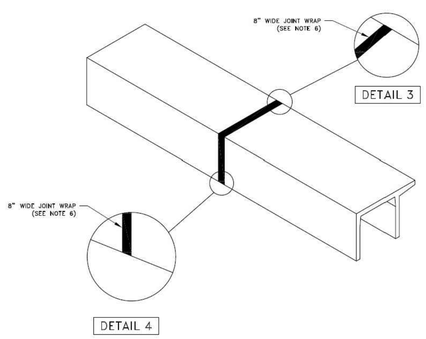
DATE: 02-22-22
DRAWN: SR
CHECKED: RZ

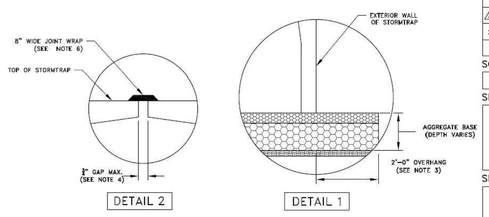
C8.3
SUBSURFACE STORMWATER SYSTEM DETAILS

PROJECT NO.: 2019.141

STORMTRAP INSTALLATION SPECIFICATIONS

1. STORMTRAP SHALL BE INSTALLED IN ACCORDANCE WITH ASTM C891 STANDARD PRACTICE FOR INSTALLATION OF UNDERGROUND PRE-CAST CONCRETE UTILITY STRUCTURES. THE FOLLOWING ADDITIONS AND/OR EXCEPTIONS SHALL APPLY:
2. IT IS THE RESPONSIBILITY OF THE INSTALLING CONTRACTOR TO ENSURE THAT PROPER/ADEQUATE EQUIPMENT IS USED TO SET/INSTALL THE MODULES.
3. THE AGGREGATE FOUNDATION HAS BEEN DESIGNED BASED ON THE FOLLOWING ASSUMPTIONS. THESE ASSUMPTIONS WILL NEED TO BE VERIFIED BY A GEOTECHNICAL ENGINEER WHICH WILL NEED TO BE EMPLOYED BY THE OWNER.
   - 3.1. A QUALIFIED GEOTECHNICAL ENGINEER WILL BE EMPLOYED, BY OWNER, TO PROVIDE ASSISTANCE IN EVALUATING THE EXISTING SOIL CONDITIONS BELOW THE PROPOSED ENGINEERED STONE FOUNDATION. IF A STONE FOUNDATION DESIGN IS TO BE USED, THE BEARING PRESSURE OF THE SOILS BELOW THE STONE WILL NEED TO MEET OR EXCEED ALLOWABLE CAPACITY. IF THIS IS NOT POSSIBLE, THE STONE FOUNDATION MAY NOT BE AN OPTION FOR THIS LOCATION.
   - 3.2. A QUALIFIED GEOTECHNICAL ENGINEER WILL BE EMPLOYED, BY OWNER, TO EVALUATE A SOURCE OF STONE AGGREGATES THAT WILL BE PLACED ON PROPERLY COMPACTED SOILS (SEE SHEET 1.0 FOR SOIL BEARING CAPACITY REQUIREMENTS). THE AGGREGATE BASE COURSE FOR WHICH THE STORMTRAP SYSTEM WILL BEAR DIRECTLY ON SHALL CONSIST OF A 3" THICK BED OF ¾" DIAMETER ANGULAR STONE, WELL COMPACTED AND SEATED, WITH NO FINES, AND A 1'-0" THICK BED OF 3" DIAMETER STONE AGGREGATE (SEE SHEET 4.0 FOR FURTHER DESCRIPTION/EXPLANATION). PLEASE NOTE THAT THESE ARE ONLY MINIMUM RECOMMENDATIONS AND A QUALIFIED GEOTECHNICAL ENGINEER SHALL BE USED TO DETERMINE THE EXACT REQUIREMENTS FOR THE LOCATIONS THAT THE STORMTRAP SYSTEM IS TO BE LOCATED.
   - 3.3. THE CONTRACTOR SHALL REMOVE ANY AND ALL EXPANDABLE OR COLLAPSIBLE SOILS AT THE DIRECTION OF A QUALIFIED GEOTECHNICAL ENGINEER.
   - 3.4. THE AGGREGATE FOUNDATION SHALL BE INSTALLED SUCH THAT THE AGGREGATE EXTENDS A MINIMUM OF 2'-0" PAST THE OUTSIDE OF THE SYSTEM (SEE DETAIL 1).
   - 3.5. THE ¾" AGGREGATE SHALL BE COMPACTED USING A VIBRATING ROLLER WITH ITS' FULL DYNAMIC FORCE APPLIED TO ACHIEVE A FLAT SURFACE.
   - 3.6. DISK, DRY AND COMPACT THE TOP 8" OF THE SUBGRADE SOILS TO 95% OF THE STANDARD DRY DENSITY AND 110% OPTIMUM MOISTURE CONTENT.
   - 3.7. AGGREGATE SHALL BE GRADED WITHIN +/- ½" OF THE GRADE SHOWN ON THE PLANS.
   - 3.8. MINIMUM SOIL BEARING CAPACITY LISTED ON SHEET 1.0 SHALL BE VERIFIED IN FIELD BY OTHERS.
4. THE STORMTRAP MODULES SHALL BE PLACED SUCH THAT THE MAXIMUM SPACE BETWEEN ADJACENT MODULES DOES NOT EXCEED 3" (SEE DETAIL 2). IF THE SPACE EXCEEDS 3", THE MODULES SHALL BE RESET WITH APPROPRIATE ADJUSTMENT MADE TO LINE AND GRADE TO BRING THE SPACE INTO SPECIFICATION.
5. STORMTRAP MODULES ARE NOT WATERTIGHT. IF A WATERTIGHT SOLUTION IS REQUIRED, CONTACT STORMTRAP FOR RECOMMENDATIONS. THE WATERTIGHT APPLICATION IS TO BE PROVIDED AND IMPLEMENTED BY THE CONTRACTOR. THE CONTRACTOR IS RESPONSIBLE TO ENSURE THAT THE SELECTED WATERTIGHT SOLUTION PERFORMS AS SPECIFIED BY THE MANUFACTURER.
6. ALL EXTERIOR ROOF AND EXTERIOR VERTICAL WALL JOINTS BETWEEN ADJACENT STORMTRAP MODULES SHALL BE SEALED WITH 8" WIDE PRE-FORMED, COLD-APPLIED, SELF-ADHERING ELASTOMERIC RESIN, BONDED TO A WOVEN , HIGHLY PUNCTURE RESISTANT POLYMER WRAP, CONFORMING TO ASTM C891 AND SHALL BE INTEGRATED WITH PRIMER SEALANT AS APPROVED BY STORMTRAP (SEE DETAILS 2, 3, & 4). THE JOINT WRAP DOES NOT PROVIDE A WATERTIGHT SEAL. THE SOLE PURPOSE OF THE JOINT WRAP IS TO PROVIDE A SILT AND SOIL TIGHT SYSTEM. THE ADHESIVE EXTERIOR JOINT WRAP SHALL BE INSTALLED ACCORDING TO THE FOLLOWING INSTALLATION INSTRUCTIONS:
   - 6.1. USE A BRUSH OR WET CLOTH TO THOROUGHLY CLEAN THE OUTSIDE SURFACE AT THE POINT WHERE THE JOINT WRAP IS TO BE APPLIED.
   - 6.2. A RELEASE PAPER PROTECTS THE ADHESIVE SIDE OF THE JOINT WRAP. PLACE THE ADHESIVE TAPE (ADHESIVE SIDE DOWN) AROUND THE STRUCTURE, REMOVING THE RELEASE PAPER AS YOU GO. PRESS THE JOINT WRAP FIRMLY AGAINST THE STORMTRAP MODULE SURFACE WHEN APPLYING.
7. IF THE CONTRACTOR NEEDS TO CANCEL ANY SHIPMENTS, THEY MUST DO SO 48 HOURS PRIOR TO THEIR SCHEDULED ARRIVAL AT THE JOB SITE. IF CANCELED AFTER THAT TIME, PLEASE CONTACT THE PROJECT MANAGER.
8. IF THE STORMTRAP MODULE(S) IS DAMAGED IN ANY WAY PRIOR, DURING, OR AFTER INSTALL STORMTRAP, MUST BE CONTACTED IMMEDIATELY TO ASSESS THE DAMAGE AND TO DETERMINE WHETHER OR NOT THE MODULE(S) WILL NEED TO BE REPLACED. IF ANY MODULE ARRIVES AT THE JOBSITE DAMAGED DO NOT UNLOAD IT; CONTACT STORMTRAP, IMMEDIATELY. ANY DAMAGE NOT REPORTED BEFORE THE TRUCK IS UNLOADED WILL BE THE CONTRACTOR'S RESPONSIBILITY.
9. STORMTRAP MODULES CANNOT BE ALTERED IN ANY WAY AFTER MANUFACTURING WITHOUT WRITTEN CONSENT FROM STORMTRAP.





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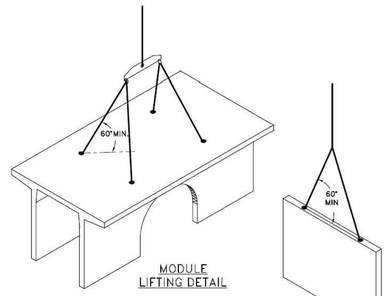
SCALE: NTS

SHEET TITLE: SINGLETRAP INSTALLATION SPECIFICATIONS

SHEET NUMBER: 3.0

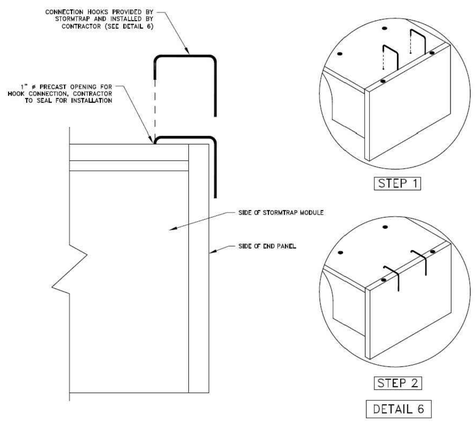
STORMTRAP MODULE LIFTING INSTALLATION NOTES

1. IT IS THE CONTRACTOR'S RESPONSIBILITY TO ENSURE THAT ALL (4) CHAINS/CABLES ARE SECURED PROPERLY TO THE LIFTING ANCHORS AND IN EQUAL TENSION WHEN LIFTING THE STORMTRAP MODULE (SEE RECOMMENDATIONS 2 & 3).
2. MINIMUM 7'-0" CHAIN/CABLE LENGTH TO BE USED TO LIFT STORMTRAP MODULES (SUPPLIED BY CONTRACTOR).
3. CONTRACTOR TO ENSURE MINIMUM LIFTING ANGLE IS 60° FROM TOP SURFACE OF STORMTRAP MODULE. SEE DETAIL.
4. IT IS UNDERSTOOD AND AGREED THAT AT ALL TIMES DURING WHICH HOISTING AND RIGGING EQUIPMENT IS BEING SUPPLIED TO THE PURCHASER, OPERATOR OF SUCH EQUIPMENT SHALL BE IN CHARGE OF HIS ENTIRE EQUIPMENT AND SHALL AT ALL TIMES BE THE JUDGE OF THE SAFETY AND PROPERTY OF ANY SUGGESTION TO HIM FROM THE SELLER, ITS AGENTS OR EMPLOYEES. PURCHASER AGREES TO SAVE, INDEMNIFY AND HOLD HARMLESS SELLER FROM ALL LOSS, CLAIMS, DEMANDS OR CAUSES OF ACTION, WHICH MAY ARISE FROM THE EXISTENCE OR OPERATION OF SAID EQUIPMENT.



END PANEL ERECTION/INSTALLATION NOTES

1. END PANELS WILL BE SUPPLIED TO CLOSE OFF OPEN ENDS OF ROWS.
2. PANELS SHALL BE INSTALLED IN A TILT UP FASHION DIRECTLY ADJACENT TO OPEN END OF MODULE (REFER TO SHEET 2.0 FOR END PANEL LOCATIONS).
3. CONNECTION HOOKS WILL BE SUPPLIED WITH END PANELS TO SECURELY CONNECT PANEL TO ADJACENT STORMTRAP MODULE (SEE PANEL CONNECTION ELEVATION VIEW).
4. ONCE CONNECTION HOOK IS ATTACHED, LIFTING CLUTCHES MAY BE REMOVED.
5. JOINT WRAP SHALL BE PLACED AROUND PERIMETER JOINT PANEL (SEE SHEET 3.0).



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ENGINEER INFORMATION:
Z DEVELOPMENT SERVICES
708 EAST COLONIAL DRIVE
SUITE 100
ORLANDO, FL 32803
407-271-8910

PROJECT INFORMATION:
LADYBIRD
CORAL SPRINGS, FL

CURRENT ISSUE DATE:
6/30/2022

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1	5/5/22	PRELIMINARY	KL

SCALE: NTS

SHEET TITLE: SINGLETRAP INSTALLATION SPECIFICATIONS

SHEET NUMBER: 3.1

ZONE CHART		
ZONES	ZONE DESCRIPTIONS	REMARKS
ZONE 1 A	FOUNDATION AGGREGATE	#5 (3") STONE AGGREGATE (SEE NOTE 4 FOR DESCRIPTION)
ZONE 1 B	FOUNDATION AGGREGATE	3" STONE AGGREGATE (SEE NOTE 5 FOR DESCRIPTION)
ZONE 2	BACKFILL	UNIFIED SOILS CLASSIFICATION (GW, GP, SW, SP) OR SEE BELOW FOR APPROVED BACKFILL OPTIONS
ZONE 3	FINAL COVER OVERTOP	MATERIALS NOT TO EXCEED 120 PCF

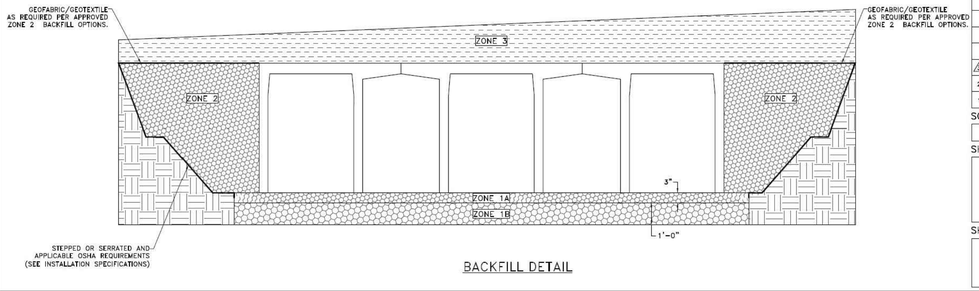
APPROVED ZONE 2 BACKFILL OPTIONS	
OPTION	REMARKS
¾" STONE AGGREGATE	THE STONE AGGREGATE SHALL CONSIST OF CLEAN AND FREE DRAINING ANGULAR MATERIAL THE SIZE OF THIS MATERIAL SHALL HAVE 100% PASSING THE 1" SIEVE WITH 0% TO 5% PASSING THE #8 SIEVE. THIS MATERIAL SHALL BE SEPARATED FROM NATIVE MATERIAL USING GEOFABRIC AROUND THE PERIMETER OF THE BACKFILL (ASTM SIZE #57) AS DETERMINED BY THE GEOTECHNICAL ENGINEER.
SAND	IMPORTED PURE SAND IS PERMITTED TO BE USED AS BACKFILL IF IT IS CLEAN AND FREE DRAINING. THE SAND USED FOR BACKFILLING SHALL HAVE LESS THAN 40% PASSING #40 SIEVE AND LESS THAN 5% PASSING #200 SIEVE. THIS MATERIAL SHALL BE SEPARATED FROM NATIVE MATERIAL USING GEOFABRIC AROUND THE PERIMETER OF THE SAND BACKFILL.
CRUSHED CONCRETE AGGREGATE	CLEAN, FREE DRAINING CRUSHED CONCRETE AGGREGATE MATERIAL CAN BE USED AS BACKFILL FOR STORMTRAP'S MODULES. THE SIZE OF THIS MATERIAL SHALL HAVE 100% PASSING THE 1" SIEVE WITH 0% TO 5% PASSING THE #8 SIEVE. THIS MATERIAL SHALL BE SEPARATED FROM NATIVE MATERIAL USING GEOFABRIC AROUND THE PERIMETER OF THE BACKFILL.
ROAD PACK	STONE AGGREGATE 100% PASSING THE 1-1/2" SIEVE WITH LESS THAN 12% PASSING THE #200 SIEVE (ASTM SIZE #467). GEOFABRIC AS PER GEOTECHNICAL ENGINEER RECOMMENDATION.

FILL DEPTH	TRACK WIDTH	MAX VEHICLE WEIGHT (KIPS)	MAX GROUND PRESSURE
12"	12"	51.8	1690 psf
	18"	56.1	1219 psf
	24"	68.1	1111 psf
	30"	76.7	1000 psf
	36"	85.0	924 psf

NOTE:
TRACK LENGTH NOT TO EXCEED 15'-4".
ONLY TWO TRACKS PER VEHICLE.

STORMTRAP ZONE INSTALLATION SPECIFICATIONS/PROCEDURES

1. THE FILL PLACED AROUND THE STORMTRAP MODULES MUST DEPOSITED ON BOTH SIDES AT THE SAME TIME AND TO APPROXIMATELY THE SAME ELEVATION, AT NO TIME SHALL THE FILL BEHIND ONE SIDE WALL BE MORE THAN 2'-0" HIGHER THAN THE FILL ON THE OPPOSITE SIDE. BACKFILL SHALL EITHER BE COMPACTED AND/OR VIBRATED TO ENSURE THAT BACKFILL AGGREGATE/STONE MATERIAL IS WELL SEATED AND PROPERLY INTER LOCKED. CARE SHALL BE TAKEN TO PREVENT ANY WEDGING ACTION AGAINST THE STRUCTURE, AND ALL SLOPES WITHIN THE AREA TO BE BACKFILLED MUST BE STEPPED OR SERRATED TO PREVENT WEDGING ACTION. CARE SHALL ALSO BE TAKEN AS NOT TO DISRUPT THE JOINT WRAP FROM THE JOINT DURING THE BACKFILL PROCESS. BACKFILL MUST BE FREE-DRAINING MATERIAL. SEE ZONE 2 BACKFILL CHART ON THIS PAGE FOR APPROVED BACKFILL OPTIONS. IF NATIVE EARTH IS SUSCEPTIBLE TO MIGRATION, CONFIRM WITH GEOTECHNICAL ENGINEER AND PROVIDE PROTECTION AS REQUIRED (PROVIDED BY OTHERS).
2. DURING PLACEMENT OF MATERIAL OVERTOP THE SYSTEM, AT NO TIME SHALL MACHINERY BE USED OVERTOP THAT EXCEEDS THE DESIGN LIMITATIONS OF THE SYSTEM. WHEN PLACEMENT OF MATERIAL OVERTOP, MATERIAL SHALL BE PLACED SUCH THAT THE DIRECTION OF PLACEMENT IS PARALLEL WITH THE OVERALL LONGITUDINAL DIRECTION OF THE SYSTEM WHENEVER POSSIBLE.
3. THE FILL PLACED OVERTOP THE SYSTEM SHALL BE PLACED AT A MINIMUM OF 6" LIFTS. AT NO TIME SHALL MACHINERY OR VEHICLES GREATER THAN THE DESIGN HS-20 LOADING CRITERIA TRAVEL OVERTOP THE SYSTEM WITHOUT THE MINIMUM DESIGN COVERAGE. IF TRAVEL IS NECESSARY OVERTOP THE SYSTEM PRIOR TO ACHIEVING THE MINIMUM DESIGN COVER, IT MAY BE NECESSARY TO REDUCE THE ULTIMATE LOAD/BURDEN OF THE OPERATING MACHINERY SO AS TO NOT EXCEED THE DESIGN CAPACITY OF THE SYSTEM. IN SOME CASES, IN ORDER TO ACHIEVE REQUIRED COMPACTION, HAND COMPACTION MAY BE NECESSARY IN ORDER NOT TO EXCEED THE ALLOTTED DESIGN LOADING. SEE CHART FOR TRACKED VEHICLE WIDTH AND ALLOWABLE MAXIMUM PRESSURE PER TRACK.
4. FREE DRAINING AGGREGATE – 80% AGGREGATE RETAINED ON ¾" SIEVE MAJORITY OF AGGREGATE SIZE BETWEEN ¾" AND 1" ONLY 5% OF MATERIAL PASSING #8 SIEVE.
5. FREE DRAINING, NO FINES, 3" AGGREGATE – MAJORITY OF STONE SIZE IN BETWEEN 1½" AND 3" – VERY SIMILAR TO AASHTO (#1, #2, #3, & #24) STONE AGGREGATE GRADATION.



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SCALE: NTS

SHEET TITLE: SINGLETRAP BACKFILL SPECIFICATIONS

SHEET NUMBER: 4.0

RECOMMENDED ACCESS OPENING SPECIFICATION

1. A TYPICAL ACCESS OPENING FOR THE STORMTRAP SYSTEM ARE 2'-0" IN DIAMETER. ACCESS OPENINGS LARGER THAN 3'-0" IN DIAMETER NEED TO BE APPROVED BY STORMTRAP. ALL OPENINGS MUST RETAIN AT LEAST 1'-0" OF CLEARANCE FROM THE END OF THE STORMTRAP MODULE UNLESS NOTED OTHERWISE. ALL ACCESS OPENINGS TO BE LOCATED ON INSIDE LEG UNLESS OTHERWISE SPECIFIED.
2. PLASTIC COATED STEEL STEPS PRODUCED BY M.A. INDUSTRIES PART #PS3-PFC OR APPROVED EQUAL (SEE STEP DETAIL) ARE PROVIDED INSIDE ANY MODULE WHERE DEEMED NECESSARY. THE HIGHEST STEP IN THE MODULE IS TO BE PLACED A DISTANCE OF 1'-0" FROM THE INSIDE EDGE OF THE STORMTRAP MODULES. ALL ENSUING STEPS SHALL BE PLACED AT A DISTANCE BETWEEN 10" MIN AND 14" MAX BETWEEN THEM. STEPS MAY BE MOVED OR ALTERED TO AVOID OPENINGS OR OTHER IRREGULARITIES IN THE MODULE.
3. STORMTRAP LIFTING INSERTS MAY BE RELOCATED TO AVOID INTERFERENCE WITH ACCESS OPENINGS OR THE CENTER OF GRAVITY OF THE MODULE AS NEEDED.
4. STORMTRAP ACCESS OPENINGS MAY BE RELOCATED TO AVOID INTERFERENCE WITH INLET AND/OR OUTLET PIPE OPENINGS SO PLACEMENT OF STEPS IS ATTAINABLE.
5. ACCESS OPENINGS SHOULD BE LOCATED IN ORDER TO MEET THE APPROPRIATE MUNICIPAL REQUIREMENTS. STORMTRAP RECOMMENDS AT LEAST TWO ACCESS OPENINGS PER SYSTEM FOR ACCESS AND INSPECTION.
6. USE PRECAST ADJUSTING RINGS AS NEEDED TO MEET GRADE. STORMTRAP RECOMMENDS FOR COVER OVER 2' TO USE PRECAST BARREL OR CONE SECTIONS. (PROVIDED BY OTHERS)

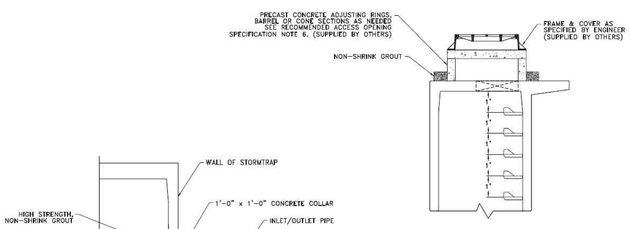
RECOMMENDED PIPE OPENING SPECIFICATION

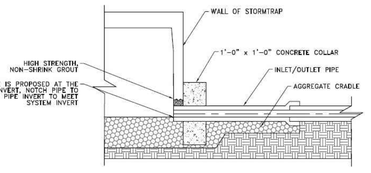
1. MINIMUM EDGE DISTANCE FOR AN OPENING ON THE OUTSIDE WALL SHALL BE NO LESS THAN 1'-0".
2. MAXIMUM OPENING SIZE TO BE DETERMINED BY THE MODULE HEIGHT. PREFERRED OPENING SIZE IS # 36" OR LESS. ANY OPENING NEEDED THAT DOES NOT FIT THIS CRITERIA SHALL BE BROUGHT TO THE ATTENTION OF STORMTRAP FOR REVIEW.
3. CONNECTING PIPES SHALL BE INSTALLED WITH A 1'-0" CONCRETE COLLAR, AND AN AGGREGATE CRADLE FOR AT LEAST ONE PIPE LENGTH (SEE PIPE CONNECTION DETAIL). A STRUCTURAL GRADE CONCRETE OR HIGH STRENGTH, NON-SHRINK GROUT WITH A MINIMUM 28 DAY COMPRESSIVE STRENGTH OF 3000 PSI SHALL BE USED.
4. THE ANNULAR SPACE BETWEEN THE PIPE AND THE HOLE SHALL BE FILLED WITH HIGH STRENGTH NON-SHRINK GROUT.

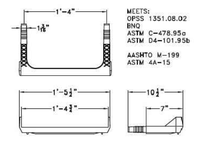
RECOMMENDED PIPE INSTALLATION INSTRUCTIONS

1. CLEAN AND LIGHTLY LUBRICATE ALL OF THE PIPE TO BE INSERTED INTO STORMTRAP.
2. IF PIPE IS CUT, CARE SHOULD BE TAKEN TO ALLOW NO SHARP EDGES. BEVEL AND LUBRICATE LEAD END OF PIPE.
3. ALIGN CENTER OF PIPE TO CORRECT ELEVATION AND INSERT INTO OPENING.

NOTE: ALL ANCILLARY PRODUCTS/SPECIFICATIONS RECOMMENDED AND SHOWN ON THIS SHEET ARE RECOMMENDATIONS ONLY AND SUBJECT TO CHANGE PER THE INSTALLING CONTRACTOR AND/OR PER LOCAL MUNICIPAL CODE/REQUIREMENTS.







*** NOTICE *** 03-25-2022

DUE TO CURRENT INCONSISTENCIES IN THE 16" STEP SUPPLY, STORMTRAP MAY SUBSTITUTE THE 16" STEP WITH THE CLOSEST ALTERNATIVE LENGTH STEP UNTIL THE SUPPLY CHAIN ISSUE IS RESOLVED.

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SFWMD & SWCD COMMENTS	07-07-22

ROBERT ZIEGENFUSS, P.E., LEED AP
FL REG. # 56752

LADYBIRD ACADEMY
8950 ROYAL PALM BOULEVARD
CORAL SPRINGS, FLORIDA 33065

DATE: 02-22-22
DRAWN: SR
CHECKED: RZ

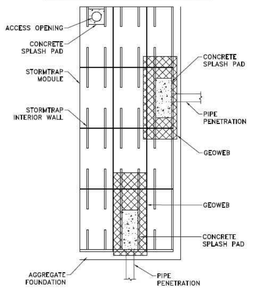
C8.4
SUBSURFACE STORMWATER SYSTEM DETAILS

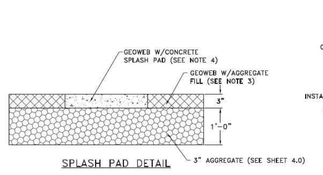
PROJECT NO.: 2019.141

NOTES:

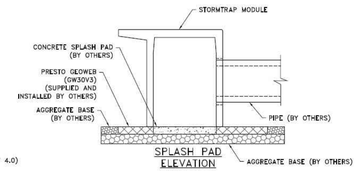
1. THE APPROVED GEOWEB SHALL BE PRESTO GEOWEB (GW30V3). THE GEOWEB NOMINAL DIMENSIONS SHALL BE 9-FT x 25-FT.
2. THE CONCRETE SPLASH PAD AND GEOWEB SHALL BE INSTALLED PRIOR TO INSTALLATION OF THE STORMTRAP MODULES.
3. THE GEOWEB INFILL MATERIAL SHALL BE #5 AGGREGATE.
4. THE CONCRETE SPLASH PAD SHALL BE INSTALLED WITHIN THE GEOWEB AND IS REQUIRED AT ALL PIPE ENTRY LOCATIONS.
5. THE GEOWEB EDGE SHALL BE INSTALLED 1-FT BEYOND THE OUTER PERIMETER OF THE STORMTRAP SYSTEM.
6. THE GEOWEB LONGITUDINAL DIMENSION (25-FT) SHALL BE INSTALLED PARALLEL TO THE STORMTRAP LEGS.
7. THE CONCRETE SPLASH PAD AND GEOWEB SHALL BE CENTERED AT THE PIPE PENETRATION.
8. REFER TO SPLASH PAD LAYOUT FOR CONCRETE SPLASH PAD DIMENSIONS.
9. IF ANY PRODUCT OTHER THAN PRESTO GEOWEB IS TO BE INSTALLED, THE PRODUCT MANUFACTURER IS REQUIRED TO SUBMIT A LETTER STATING THAT THE PRODUCT IS EQUAL OR BETTER THEN PRESTO GEOWEB, BOTH IN PERFORMANCE AND IN STRUCTURAL CAPACITY.
10. ALL GEOWEB AND SPLASH PADS TO BE SUPPLIED AND INSTALLED BY CONTRACTOR.
11. A CONCRETE SPLASH PAD IS REQUIRED AT ANY ACCESS OPENING THAT HAS AN OPEN GRATE FOR DRAINAGE. THE CONCRETE SPLASH PAD SHALL EXTEND BETWEEN THE UNIT LEG WALLS AND 3'-0" FROM THE CENTERLINE OF THE OPENING ON BOTH SIDES UNLESS SPECIFIED OTHERWISE ON THE SPLASH PAD LAYOUT. GEOWEB IS NOT REQUIRED UNDER ACCESS OPENINGS.

SPLASH PAD CONFIGURATION

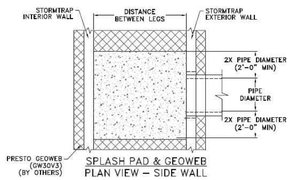




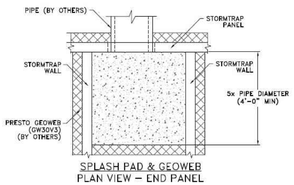
SPLASH PAD DETAIL



SPLASH PAD ELEVATION



SPLASH PAD & GEOWEB
PLAN VIEW – SIDE WALL



SPLASH PAD & GEOWEB
PLAN VIEW – END PANEL

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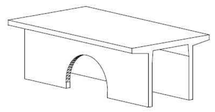
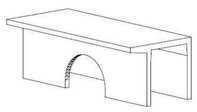
SCALE:
NTS

SHEET TITLE:
SPLASH PAD & GEOWEB DETAILS

SHEET NUMBER:
6.0



TYPE II



TYPE IV

TYPE II
END PANEL

TYPE IV
END PANEL

NOTES:
1. OPENING LOCATIONS AND SHAPES MAY VARY.
2. SP – INDICATES A MODULE WITH MODIFICATIONS.
3. P – INDICATES A MODULE WITH A PANEL ATTACHMENT.
4. POCKET WINDOW OPENINGS ARE OPTIONAL.

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SCALE:
NTS

SHEET TITLE:
SINGLETRAP MODULE TYPES

SHEET NUMBER:
7.0

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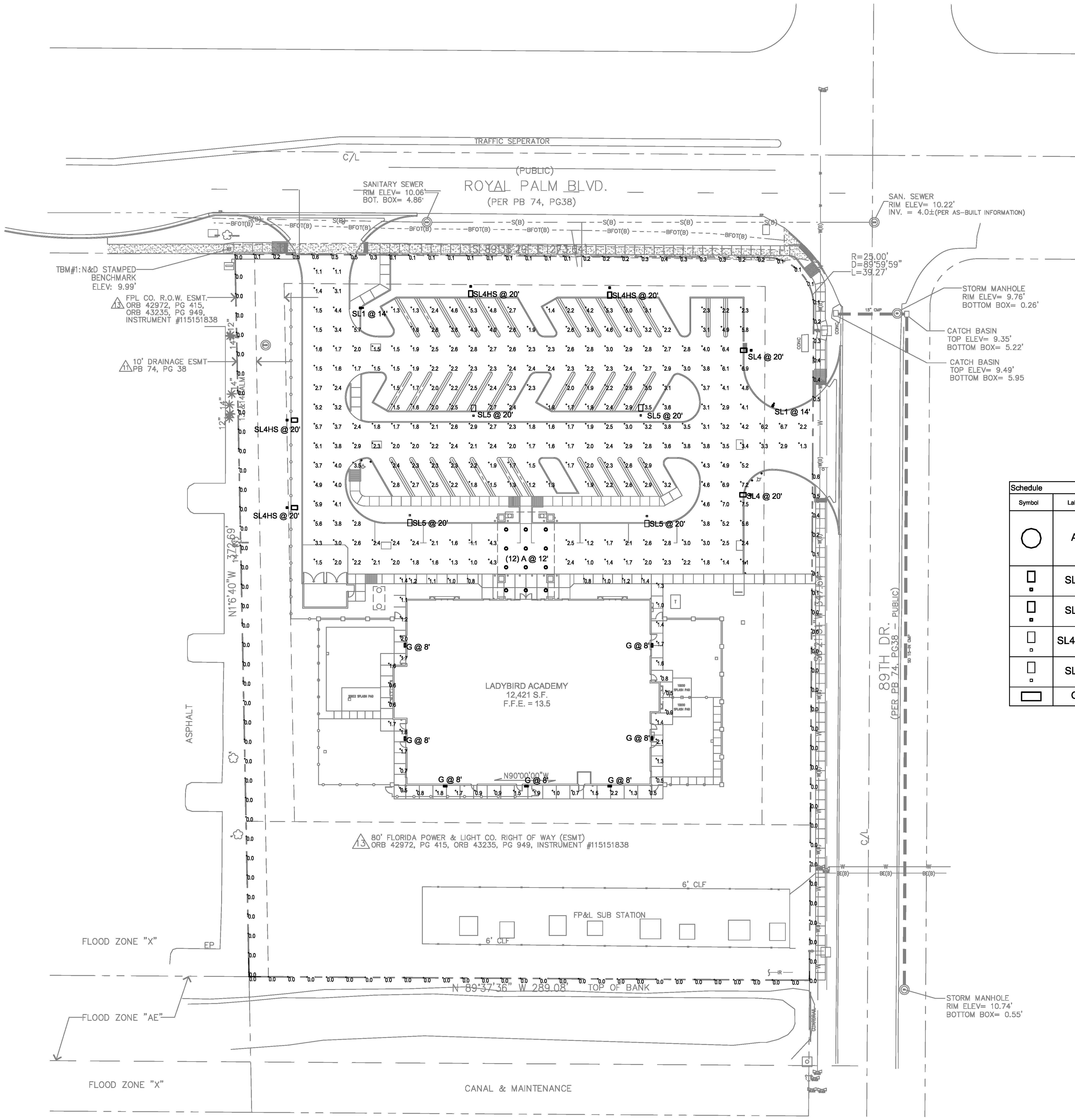

A SITE LIGHTING PHOTOMETRIC PLAN
SCALE: 1" = 30'-0"

Should The Fire Department Two-Way Radio Communications Prove To Be Inadequate For Any Reason, An In-Building Public Safety Radio Enhancement System Is To Be Provided In Accordance With NFPA 1, 11.10

LIGHTING PLAN REQUIREMENTS

A Certified Report From A Licensed Electrical Or Lighting Engineer And Or Contractor To Verify That The Photometric Plan Meets The Approved Plan Shall Be Provided Prior To The Issuance Of Any Certificate Of Completion And Or Occupancy.

Statistics

Description	Symbol	Avg	Max	Min	Max/Min	Avg/Min
PARKING AREA	+	2.8 fc	7.5 fc	1.0 fc	7.5:1	2.8:1
PROPERTY LINE	+	0.1 fc	1.0 fc	0.0 fc	N/A	N/A
WALKWAY	+	1.2 fc	2.2 fc	0.5 fc	4.4:1	2.4:1

Schedule

Symbol	Label	QTY	Manufacturer	Catalog Number	Description	Lamp	Number Lamps	Filename	Lumens per Lamp	LLF	Wattage
	A	12	ATLANTIC LIGHTING	6100MHO1-6610CL	FORMED STEEL HOUSING, SPUN SPECULAR ALUMINUM REFLECTOR, NO ENCLOSURE.	ONE COATED SYLVANIA M100/C/U 100 WATT ED17 METAL HALIDE RATED AT 7,800 LUMENS.	1	LTL06372.ies	7800	0.81	100
	SL1	2	Hubbell Outdoor	ASL-8L-4K-210-4	ASL Area/Site Lighter	8 High Brightness LEDs - - 4000K - 70 CRI	1	ASL-8L-4K-210-4.IES	5757	1	61.5
	SL4	2	Hubbell Outdoor	ASL-16L-4K-210--4	ASL Area/Site Lighter	16 High Brightness LEDs - - 4000K - 70 CRI	1	ASL-16L-4K-210-4.IES	11418	1	122.7
	SL4HS	4	HUBBELL OUTDOOR	ASL-16L-4K-210--4-EHS	ASL Area/Roadway	16LEDs - 4000K - - 70 CRI	1	ASL-16L-4K-210-4-EHS.IES	7917	1	175.2
	SL5	4	Hubbell Outdoor	ASL-16L-4K-210--5	ASL Area/Site Lighter	16 High Brightness LEDs - - 4000K - 70 CRI	1	ASL-16L-4K-210-5.IES	11254	1	122.7
	G	7	Hubbell Outdoor	LNC-5LU-4K-3-X	WALLMOUNT LED TYPE 3	5- NICHIA 4K LEDS	1	LNC-5LU-4K-3--X.ies	1077	1	12.9

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Ladybird Daycare

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SITE LIGHTING PHOTOMETRIC PLAN

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drawn by: MD
date: PERMIT 02/23/22
revisions:
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2
3
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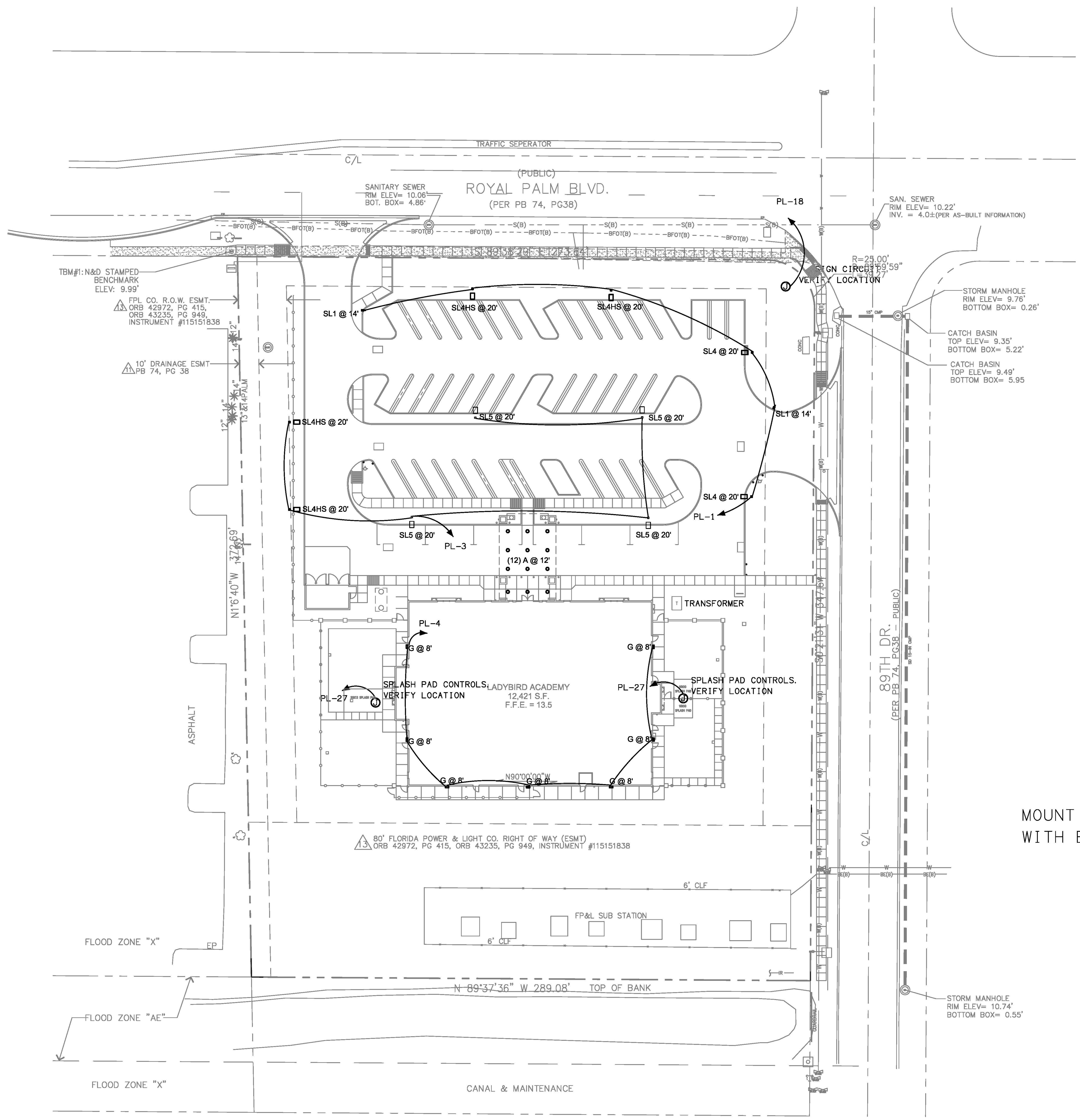

MOUNT 'G' FIXTURES
WITH BOTTOM AT 8'-4"

(A) **SITE LIGHTING POWER PLAN**
SCALE: 1" = 30'-0"

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PROJECT #: 19095

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Ladybird Daycare
LADYBIRD ACADEMY OF CORAL SPRINGS
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SITE LIGHTING POWER PLAN

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job no: RJ05419
drawn by: MD
date: PERMIT 02/23/22
revisions:

sheet number
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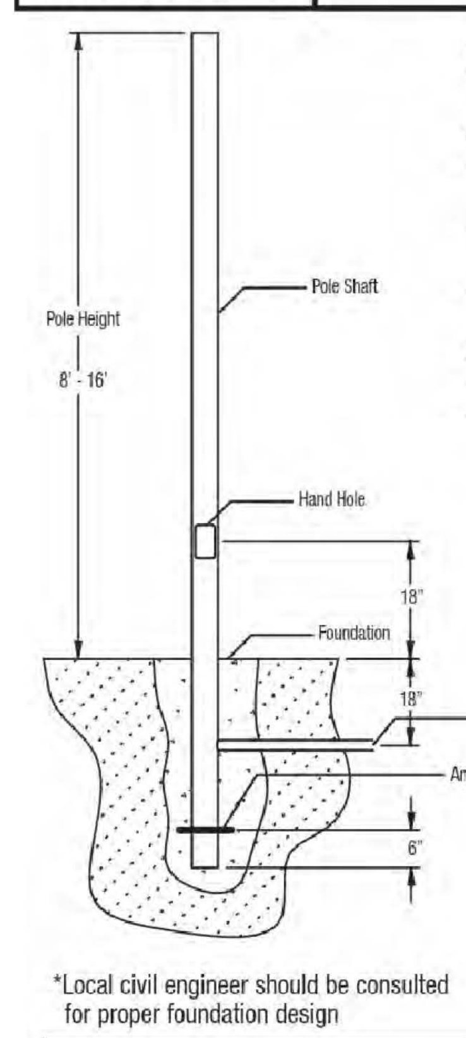
cadd filename
19095-E-SITE

RSA-S-DBE SERIES POLES
ROUND STRAIGHT ALUMINUM

SPAULDING LIGHTING



APPLICATIONS
- Lighting installations for side and top mounting of luminaires with effective projected area (EPA) not exceeding maximum allowable loading of the specified pole in its installed geographic location

CONSTRUCTION
- SHAFT: One-piece straight aluminum with round cross section; Extruded shafts of 6061-T6 aluminum in 1/8" or 3/16" thickness.
- POLE CAP: Pole shaft supplied with removable cover when applicable; Tenon and post-top configurations also available
- HAND HOLE: Rectangular 3x5 aluminum hand hole frame (2.38" x 4.38" opening); Mounting provisions for grounding lug located behind gasketed cover

FINISH
- Durable thermoset polyester powder coat paint finish with nominal 3.0 mil thickness
- Powder paint finish coat available in seven standard colors; Custom colors available; RAL number preferable.

*Local civil engineer should be consulted for proper foundation design

ORDERING EXAMPLE: RSA-S-DBE - 16 - 40 - A/B/C - 2L - S2 - DB - VM2

MOUNTING ORIENTATION

ACCESSORIES- Order Separately

Catalog Number	Description
VM2SXX	2nd mode vibration damper

ORDERING INFORMATION Cont.

Catalog Number	Pole Height Feet	Pole Height Meters	Nominal Shaft Dimensions	Wall Thickness	Pole weight (lbs)
RSA-S-DBE-08-40-A	08	2.4	4" Round	0.125"	20
RSA-S-DBE-10-40-A	10	3.0	4" Round	0.125"	24
RSA-S-DBE-12-40-A	12	3.7	4" Round	0.125"	29
RSA-S-DBE-14-40-A	14	4.3	4" Round	0.125"	34
RSA-S-DBE-16-40-A	16	4.9	4" Round	0.125"	39
RSA-S-DBE-08-50-B	08	2.4	5" Round	0.188"	36
RSA-S-DBE-10-50-B	10	3.0	5" Round	0.188"	45
RSA-S-DBE-12-50-B	12	3.7	5" Round	0.188"	54
RSA-S-DBE-14-50-B	14	4.3	5" Round	0.188"	63
RSA-S-DBE-16-50-B	16	4.9	5" Round	0.188"	71
RSA-S-DBE-10-60-A	10	3.0	6" Round	0.125"	37
RSA-S-DBE-12-60-A	12	3.7	6" Round	0.125"	44
RSA-S-DBE-14-60-A	14	4.3	6" Round	0.125"	51
RSA-S-DBE-16-60-A	16	4.9	6" Round	0.125"	58

EHH - EXTRA HANDHOLE | C05 - C07 - C20 - COUPLING | VM2 - VIBRATION DAMPER 2ND MODE | VM2SXX - VIBRATION DAMPER 2ND MODE | OPTION ORIENTATION

GFI - 20 AMP GFCI RECEPTACLE & COVER

Due to our continued efforts to improve our products, product specifications are subject to change without notice.

LNC SERIES

HUBBELL Outdoor Lighting

PRODUCT IMAGE(S)

DIMENSIONS

A	B	C	D
4.81" (122 mm)	1.55" (39 mm)	8.22" (209 mm)	5.25" (133 mm)

SHIPPING INFORMATION

Catalog Number	G.W(kg)/ CTN	Length Inch (cm)	Width Inch (cm)	Height Inch (cm)	Carton Qty. per Master Pack
LNC-5LU	9.6 (4.36)	14.5 (37)	9.6 (24.5)	6.8 (17.5)	2
LNC-7LU	9.6 (4.36)	14.5 (37)	9.6 (24.5)	6.8 (17.5)	2
LNC-9LU	9.6 (4.36)	14.5 (37)	9.6 (24.5)	6.8 (17.5)	2

SPECIFICATIONS

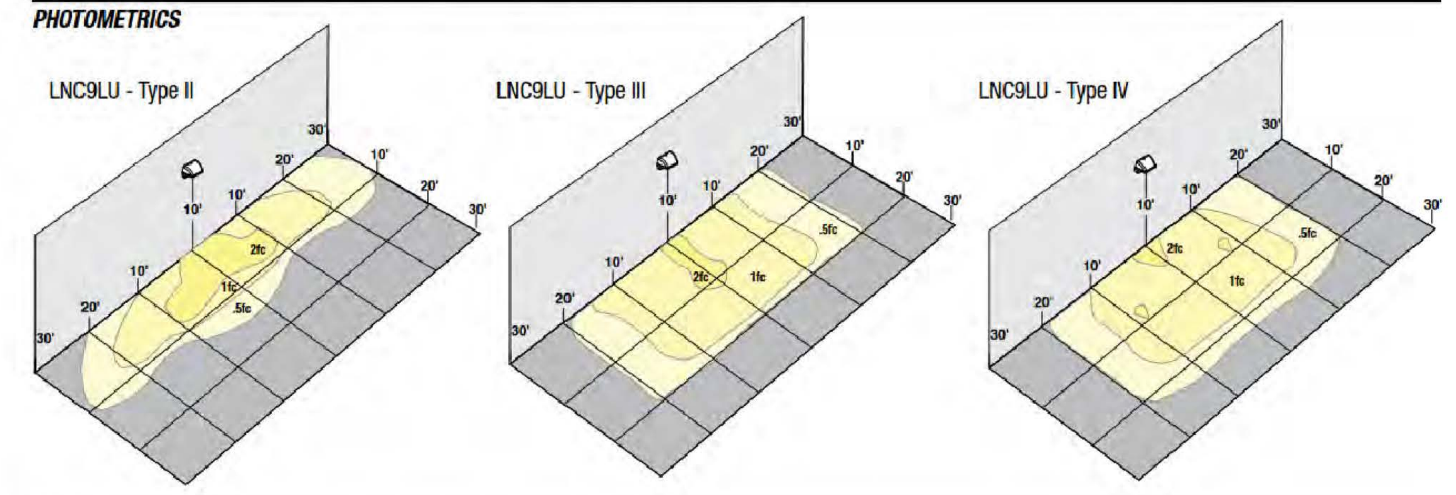
CERTIFICATIONS/LISTINGS

ORDERING INFORMATION

ORDERING EXAMPLE: LNC-9LU-5K-3-1-PC1

REPLACEMENT PART

PHOTOMETRICS



PERFORMANCE DATA

# OF LEDS	DRIVE CURRENT	SYSTEM WATTS	DIST. TYPE	5K (5000K nominal, 70 CRI) LUMENS	5K LPW[1]	4K (4000K nominal, 70 CRI) LUMENS	4K LPW[1]	3K (3000K nominal, 80 CRI) LUMENS	3K LPW[1]	AM (<580 nm wave-length) LUMENS	AM SYSTEM WATTS	AM LPW[1]
5	STD. (700mA) AM (350mA)	13W	2	1,150	88.5	1,052	81	883	68			
			3	1,132	87	1,077	83	833	64			
			4	1,146	88	1,053	81	849	65			
7		17W	2	1,515	89	1,369	80.5	1,272	75			
			3	1,500	88	1,539	90.5	1,392	82	268	6.6	59
			4	1,557	91.5	1,535	90	1,425	84			
9		22W	2	2,069	94	2,033	92	1,588	72			
			3	2,024	92	1,989	90	1,623	74			
			4	2,095	95	2,059	93.5	1,680	76	382	8.3	46

Lumen values are from photometric tests performed in accordance with IESNA LM-79-08. Data is considered to be representative of the configurations shown. Actual performance may differ as a result of end-user environment and application. Please consult IES files for BUG ratings.

PROJECTED LUMEN MAINTENANCE

Ambient Temp.	0	25,000	50,000	TM-21-11[1] L96 60,000	100,000	L70 (hours)
25°C / 77°F	1.00	0.98	0.97	0.96	0.95	>791,000
40°C / 104°F	0.99	0.98	0.96	0.96	0.94	>635,000

1. Projected per IESNA TM-21-11 * (Nichia 219B, 700mA, 85°C Ts, 10,000hrs)
Data references the extrapolated performance projections for the LNC-12LU-5K base model in a 40°C ambient, based on 10,000 hours of LED testing per IESNA LM-80-08.

LUMINAIRE AMBIENT TEMPERATURE FACTOR (LATF)

AMBIENT TEMPERATURE		LUMEN MULTIPLIER
0° C	32° F	1.02
10° C	50° F	1.01
20° C	68° F	1.00
25° C	77° F	1.00
30° C	86° F	1.00
40° C	104° F	0.99
50° C	122° F	0.98

Use these factors to determine relative lumen output for average ambient temperatures from 0-50°C (32-122°F).

ELECTRICAL DATA

# OF LEDS	DRIVE CURRENT (mA)	DRIVE CURRENT (mA)	INPUT VOLTAGE (V)	CURRENT (Amps)	SYSTEM POWER (w)
5	1	STD. (700mA)	120	0.11	13
			277	0.05	13
7	1	STD. (700mA)	120	0.14	17
			277	0.07	17
9	1	STD. (700mA)	120	0.17	22
			277	0.09	22

AIRO LED SERIES
AREA/SITE/ROAD LIGHTER

HUBBELL Outdoor Lighting

PRODUCT IMAGE(S)

SPECIFICATIONS

- Photo control, occupancy sensor and wireless available for complete on/off and dimming control
- IP65 optical assembly
- IDA approved

CERTIFICATIONS/LISTINGS

SHIPPING INFORMATION

Catalog Number	G.W(kg)/ CTN	Length Inch (cm)	Width Inch (cm)	Height Inch (cm)
ASL-8L	15 (6.8)	20.75 (52.7)	15.125 (38.4)	6.9375 (17.6)
ASL-16L	19 (8.6)	25 (63.5)	15.125 (38.4)	6.9375 (17.6)
ASL-24L	24 (10.8)	25 (63.5)	15.125 (38.4)	6.9375 (17.6)

ORDERING INFORMATION - STOCK CONFIGURATIONS

Catalog Number	Description	Mtg.	Distribution	Wattage	# Drivers Drive Current	Voltage	CCT	Lumens	LPW	Weight lbs. (kg)
ASL-16L-3	Medium size 16 LED configuration, Dark Bronze	Arm	Type III	123	1@2100mA	120V-277V	4000K	11,153	91	18 (8.16)
ASL-16L-4	Medium size 16 LED configuration, Dark Bronze	Arm	Type IV	123	1@2100mA	120V-277V	4000K	11,417	93	18 (8.16)
ASL-24L-3	Large size 24 LED configuration, Dark Bronze	Arm	Type III	181	1@2100mA	120V-277V	4000K	16,364	91	20 (9.07)
ASL-24L-4	Large size 24 LED configuration, Dark Bronze	Arm	Type IV	181	1@2100mA	120V-277V	4000K	16,752	93	20 (9.07)
ASL-24L-3-HO	Large size 24 LED configuration, Dark Bronze	Arm	Type III	225	1@700mA	120V-277V	4000K	20,927	93	20 (9.07)
ASL-24L-4-HO	Large size 24 LED configuration, Dark Bronze	Arm	Type IV	225	1@700mA	120V-277V	4000K	21,073	93	20 (9.07)

CONFIGURABLE ORDERING INFORMATION NEXT PAGE

ORDERING INFORMATION

ORDERING EXAMPLE: ASL-A-24L4K-210-4-U-DB

1 – Order poles with #2 drill pattern
2 – 7-pin ANSI C136.41—2013 receptacle for use with standard Twist-Lock® photo controls, shorting caps, and ANSI C136.41 external wireless control devices with and without motion/occupancy override
3 – For 24L configurations only
4 – 347V-480V not for 24L, 210 - 2100mA option
5 – Contact factory for minimum order quantities
6 – Not available with 347V or 480V
7 – Not available with 480V
8 – Not available with Occupancy/Motion Sensors

ACCESSORIES - Order Separately

Catalog Number	Description
ASL-MAF	Mast arm kit with wildlife shield for mounting on 2 3/8" OD arms
SETA2-XX[1]	Square pole tenon adapter (4 at 90 degrees) (2 3/8" OD tenon)
RETA2-XX[1]	Round pole tenon adapter (4 at 90 degrees) (2 3/8" OD tenon), requires CL1S-RPA4-ACC-XX for each luminaire
TETA2-XX[1]	Hexagonal pole tenon adapter (3 at 120 degrees) (2 3/8" OD tenon)
ASL-EHS-BL	External house side shield (Kit Qtys. ASL8L - 1, ASL16L - 2, ASL24L - 3)
ASL-ESS-BL	External side shield (Kit Qtys. ASL8L - 1, ASL16L - 2, ASL24L - 3)
ASL-ARMMTG-XX[1]	Arm mounting kit for side of pole attachment
RATA-XX[1]	Single round arm tenon fits 2 3/8" OD, requires ASL-MAF accessory kit for stocked configurations
SCP-REMOTE	Remote control for SCPW option. Order at least one per project to program and control
CL1S-RPA(*)-ACC-XX[1]	Round Pole Adapter (* denotes pole diameter; 3 = 3 ¼" -3 ¾"; 4 = 3 7/8" – 6")
WB-AREA-XX[1]	Wall bracket. Requires universal mounting block option.
PTL-1	Photocontrol - twist-lock cell (120V) - Requires 7PR option
PTL-8	Photocontrol - twist-lock cell (120-277V) - Requires 7PR option
PSC	Shorting cap - twist-lock - Requires 7PR option
ASL8L2LENS	Type II, 2 lenses included (see table to right for kit quantities)
ASL8L3LENS	Type III, 2 lenses included (see table to right for kit quantities)
ASL8L4LENS	Type IV, 2 lenses included (see table to right for kit quantities)
ASL8L5LENS	Type V, 2 lenses included (see table to right for kit quantities)

1 - Replace XX with color choice, eg.: DB for Dark Bronze

RATA | ROUND POLE ADAPTER | WB-AREA-XX

ASL8L2LENS | ASL8L3LENS | ASL8L4LENS | ASL8L5LENS

ASL-MAF installed

ASL-MAF – Fits 2-3/8" OD arms

Wall Mount Accessory

MiGre Engineers LLC
760 FLORIDA CENTRAL PKWY
SUITE 224
LONGWOOD, FL 32750
PH: 407.636.7999
PROJECT #: 19095

MICHAEL L. DODANE
FL-PE# 0044665

SEAL

Ladybird ACADEMY
1515 Int'l Pkwy, Suite 3001
Lake Mary, Florida 32746

Ladybird Daycare
LADYBIRD ACADEMY OF CORAL SPRINGS
8950 Royal Palm Boulevard
Coral Springs, Florida 33065

SITE LIGHTING FIXTURE SPECIFICATIONS

Rodney Jefferson Architect
AIA / NCARB
Florida-AR0014517
Georgia-RA011238 Virginia-7443
17301 Pagonia Rd, Ste 230C
Clermont, Florida 34711
ph (407) 291-8406 fax (407) 293-5015
email RLJArchitect@aol.com
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National Council of Architectural Registration Boards

job no: RJ05419
drawn by: MD
date: PERMIT 02/23/22
revisions: 1 2 3 4

sheet number
E1.3

cadd filename
19095-E-SITE

SIGHT VISIBILITY TRIANGLE

SIGHT VISIBILITY TRIANGLE

SIGHT VISIBILITY TRIANGLE

SIGHT VISIBILITY TRIANGLE

(PUBLIC)

(PER PB 74, PG38)

(275)dL

(165)dr

(210)dr

(159)dr

(PER PB 74, PG38 – PUBLIC)

13 FPL CO. R.O.W. ESMT. ORB 42972, PG 415, ORB 43235, PG 949, INSTRUMENT #115151838

11 10' DRAINAGE ESMT PB 74, PG 38

10' DRAINAGE ESMT

20' LANDSCAPE BUFFER

10' LANDSCAPE BUFFER

FPL EASEMENT

12' FPL EASEMENT

80' FLORIDA POWER & LIGHT ESMT

80' FLORIDA POWER & LIGHT ESMT (R/W ESMT) ORB 42972, PG 415, ORB 43235, PG 949, INSTRUMENT #115151838

FP&L SUB STATION

LADYBIRD ACADEMY
12,421 S.F.
F.F.E. = 14.30

ARTIFICIAL TURF

FIRE RISER ROOM ACCESS

LAMPPOST (TYPICAL)

N90°00'00"W

VAULT 1
21,978 CF
399 SF G.B.

VAULT 2
14,872 CF G.B.

VAULT 3
19,030 CF G.B.

VAULT 4
9,036 CF G.B.

A = 2,545 SF

A = 2,232 SF

A=177 SF

A = 358 SF

A = 2,089 SF

A = 1,393 SF

A = 3,179 SF

A = 2,174 SF

POND GEOMETRY DATA
POND WIDTH = 24.7 FT.
POND LENGTH = 606.8 FT.

SOD

"OOD ZONE "X"

TREE FALLS WITHIN 6 FEET OF PUBLIC INFRASTRUCTURE AND REQUIRES ROOT BARRIER SYSTEM ALONG ALL UTILITIES THAT FALL WITHIN 6 FEET OF THIS TREE.

MULCH ALL AREAS BETWEEN CURBING AND HEDGE MATERIALS

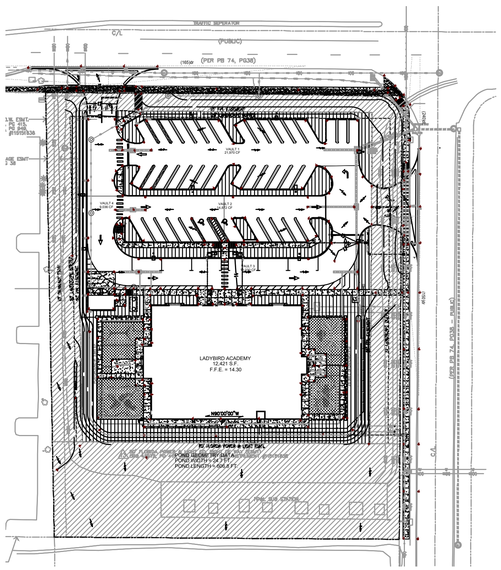
GRAPHIC SCALE
20 0 10 20 40
(IN FEET)
1 inch = 20 ft.

LANDSCAPE CONTRACTOR TO SOD ALL DISTURBED AREAS TO THE EDGE OF PUBLIC STREET AND ALL LIMITS OF PROPERTY LINE AS WELL AS SOD TO STREET EDGE

FPL EASEMENT, ZERO TREES, SHRUBS, OR GROUNDCOVER ALLOWED IN EASEMENT OTHER THAN SOD.

NOTE TO REVIEWER: THERE ARE ZERO OVERHEAD POWER LINES AT THIS PROPERTY.

PROJECT PLANTABLE AREA
DIMENSIONS SHOWN FOR PLANTABLE AREA



48 HOURS BEFORE YOU DIG
CALL SUNSHINE
1-800-432-4770 or 811
IT'S THE LAW IN FLORIDA
FLORIDA LAW REQUIRES EXCAVATORS TO NOTIFY OWNERS OF UNDERGROUND FACILITIES NO LESS THAN TWO (2) DAYS PRIOR TO EXCAVATION

CADDSCAPES, INC.
Florida Landscape Architecture Firm
432 Nowell Loop, Deland, FL 32724
Office: 407 310-5567
Landscape Architect: Jason Bridgewater, RLA
Florida Water Star AP
jasonbridgewater@gmail.com

Z DEVELOPMENT Services
CA 29354
708 E. COLONIAL DR., STE. 100
ORLANDO, FL 32803
PH: (407) 271-8910
FAX: (407) 442-0604

REVISION	DATE
CITY COMMENTS	8/12/20
ADDED LS TAGS	9/16/20
REMOVED FPL	3/4/22
REVISED BASE	7/10/22

DATE: 2022-07-12

REGISTERED LANDSCAPE ARCHITECT JASON BRIDGEWATER 6667308 STATE OF FLORIDA

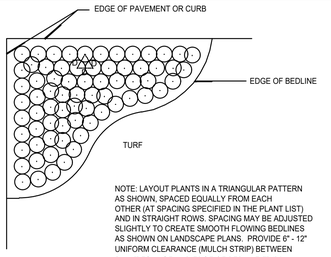
Jason C. Bridgewater
Registered Landscape Architect
FL. Registration -LA 6667308

LADYBIRD ACADEMY
8950 ROYAL PALM BOULEVARD
CORAL SPRINGS. FLORIDA 33065

DATE: 02-22-22
DRAWN: JB
CHECKED: JB

LANDSCAPE PLAN
L-1

PROJECT NO.: 2019.141



NOTE: LAYOUT PLANTS IN A TRIANGULAR PATTERN AS SHOWN, SPACED EQUALLY FROM EACH OTHER (AT SPACING SPECIFIED IN THE PLANT LIST) AND IN STRAIGHT ROWS. SPACING MAY BE ADJUSTED SLIGHTLY TO CREATE SMOOTH FLOWING BEDLINES AS SHOWN ON LANDSCAPE PLANS. PROVIDE 6" - 12" UNIFORM CLEARANCE (MULCH STRIP) BETWEEN PLANT FOLIAGE AND EDGE OF BEDLINE (TYP.).

SHRUB/GROUNDCOVER SPACING DETAIL

NOT TO SCALE

PROVIDE AGRIFORM (20-10-5) FERTILIZER TABLETS AT THE FOLLOWING RATES:
3 GAL / 2 TABLETS: 1 GAL./1 TABLET.

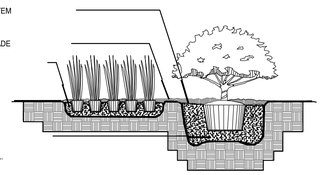
PROVIDE 6" MINIMUM CLEARANCE AROUND ROOT BALL (SIDES AND BOTTOM).

2" MULCH MINIMUM - DO NOT COVER MAIN STEM

SET TOP OF ROOTBALL 1" ABOVE FINISH GRADE

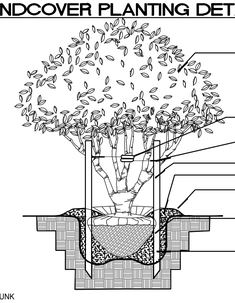
12" MINIMUM DEPTH OF PLANTING SOIL MIX IN SHRUB/GROUNDCOVER PLANTING BEDS.

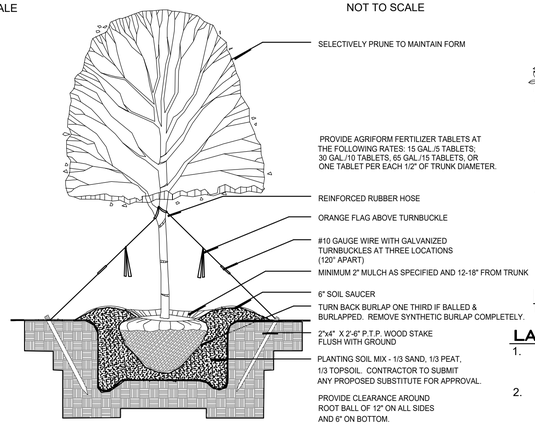
PLANTING SOIL MIX - 1/3 SAND, 1/3 PEAT, 1/3 TOPSOIL. CONTRACTOR TO SUBMIT ANY PROPOSED SUBSTITUTE FOR APPROVAL.



SHRUB AND GROUNDCOVER PLANTING DETAIL

NOT TO SCALE





MULTI-TRUNK TREE PLANTING DETAIL

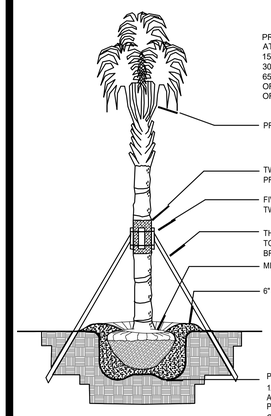
NOT TO SCALE

TREE PLANTING DETAIL

NOT TO SCALE

LANDSCAPE PLANTING NOTES:

1. ALL PLANTS MUST BE HEALTHY, VIGOROUS MATERIAL FREE OF PESTS AND DISEASES.
2. ALL PLANTS SHALL BE FLORIDA FANCY, AS GRADED IN FLORIDA GRADES AND STANDARDS FOR NURSERY PLANTS.
3. ALL PLANTS ARE SUBJECT TO APPROVAL BY THE LANDSCAPE ARCHITECT AND OWNER BEFORE, DURING, AND AFTER INSTALLATION.
4. ALL SINGLE-TRUNKED TREES SHALL BE STRAIGHT TRUNKED WITH ONE CENTRAL LEADER AND HAVE A FULL, DENSE CROWN.
5. ALL TREES SHALL BE STAKED AND GUYED AS SHOWN IN PLANTING DETAILS.
6. ALL MULCH PLANTING AREAS SHALL BE A MINIMUM OF 2" IN DEPTH.
7. ALL PLANTING AREAS SHALL HAVE A MINIMUM OF 3" TOPSOIL.
8. ALL TREES SHALL BE FREE OF OPEN WOUNDS AND WOUND SCARS IN THE CLEAR TRUNK AREA.
9. ANY SYNTHETIC BURLAP AND/OR WIRE BASKETS MUST BE TOTALLY REMOVED PRIOR TO INSTALLATION OF PLANT MATERIAL. IF NATURAL BURLAP IS USED, IT MAY BE TURNED DOWN 1/3 OF THE ROOTBALL.



PALM PLANTING DETAIL

NOT TO SCALE

LANDSCAPE CONTRACTOR NOTES:

1. THE LANDSCAPE CONTRACTOR IS RESPONSIBLE FOR MAINTAINING, IN FULL, ALL LANDSCAPE PLANTING AREAS, UNTIL THE JOB IS ACCEPTED IN FULL BY THE OWNER. "IN FULL" MEANS WATERING, PEST CONTROL, MULCHING, MOWING, FERTILIZING AND RESETTING TREES THAT ARE OUT OF PLUMB.
2. THE LANDSCAPE CONTRACTOR SHALL COMPLETELY GUARANTEE ALL INSTALLED PLANT MATERIAL FOR A PERIOD OF ONE CALENDAR YEAR BEGINNING ON THE DATE OF 100% COMPLETION. ANY AND ALL REQUIRED PLANT REPLACEMENTS SHALL BE MADE PROMPTLY AND AT NO ADDITIONAL COST TO THE OWNER.
3. THE LANDSCAPE CONTRACTOR SHALL STAKE THE LOCATIONS OF ALL PLANT MATERIAL AND PLANTING BED LINES FOR REVIEW BY THE LANDSCAPE ARCHITECT AND OWNER.
4. THE LANDSCAPE CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFICATION OF ALL WRITTEN PLANT QUANITIES PRIOR TO INITIATION OF THE WORK. IN THE EVENT THAT THE PLANS CONTRADICT THE PLANT LIST, THE PLANS SHALL RULE.
5. THE LANDSCAPE CONTRACTOR SHALL BE FAMILIAR WITH AND ACCEPT THE EXISTING SITE CONDITIONS PRIOR TO INITIATION OF THE WORK. ANY VARIATION FROM THE SPECIFIED WORK SHALL BE THE RESPONSIBILITY OF THE LANDSCAPE CONTRACTOR.
6. THE LANDSCAPE CONTRACTOR SHALL BE RESPONSIBLE FOR LOCATING ALL UNDERGROUND UTILITIES, DRAINAGE STRUCTURES, CURBS, SIDEWALKS, AND ANY OTHER OBJECTS WHICH MIGHT BE DAMAGED DURING THE WORK.
7. THE LANDSCAPE CONTRACTOR SHALL BE RESPONSIBLE TO MAKE ANY AND ALL NECESSARY REPAIRS TO DAMAGE CAUSED BY HIS WORK AT NO ADDITIONAL COST TO THE OWNER OR LANDSCAPE ARCHITECT.
8. THE LANDSCAPE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS, AND FOLLOWING ALL APPLICABLE LOCAL CODES PERTAINING TO THE PROJECT DURING THE COURSE. OF HIS WORK.

PLANT LIST

SYMBOL	QUANTITY	BOTANICAL NAME	COMMON NAME	DESCRIPTION	WATER REQUIREMENTS	REMARKS
TREES						
AR	15	ACER RUBRUM	RED MAPLE	12' - 14' OVERALL HT, 4-5' SPR., 3" CAL	LOW	SPACE AS SHOWN GUY
BS	18	BURSERA SIMARUBA	GUMBO LIMBO	12' - 14' OVERALL HT, 4-5' SPR., 3" CAL	LOW	SPACE AS SHOWN GUY
CE	18	CONOCARPUS ERECTUS	GREEN BUTTONWOOD	12' - 14' OVERALL HT, 4-5' SPR., 3" CAL	LOW	SPACE AS SHOWN GUY
CR	11	CLUSIA ROSEA	CLUSIA TREE	12' - 14' OVERALL HT, 4-5' SPR., 3" CAL	LOW	SPACE AS SHOWN GUY
ES	12	EUGENIA SPECIES	STOPPERS TREE	12' - 14' OVERALL HT, 4-5' SPR., 3" CAL	LOW	SPACE AS SHOWN GUY
LB	18	LYSILOMA BAHAMENSIS	WILD TAMARIND	12' - 14' OVERALL HT, 4-5' SPR., 3" CAL	LOW	SPACE AS SHOWN GUY
RR	4	ROYSTONEA REGIA	ROYAL PALM	12' - 14' CLEAR TRUNK	LOW	SPACE AS SHOWN GUY
SHRUBS						
CI	530	CHRYSOBALANUS ICACO 'RED TIP'	COCOPLUM RED TIP	18" HT. x 24" SPRD. / FULL	LOW	30" O.C.
CI2	32	CHRYSOBALANUS ICACO 'RED TIP'	COCOPLUM RED TIP	40" HT. x 30" SPRD. / FULL	LOW	30" O.C.
GROUNDCOYERS						
FM	151	FICUS MICROCARPA	GREEN ISLAND FICUS	10" HT. / FULL	MEDIUM	24" O.C.
SOD						
ALL AREAS	SEE PLANS	STENOTAPHRUM SECUNDATUM	ST. AUGUSTINE SOD NEW SOD TO ROADS EDGE	SOLID, FREE OF PESTS AND DISEASES 89TH DRIVE AND ROYAL PALM BLVD	HIGH	FIELD VERIFY QTY.
MULCH	NOTE: ALL SOD THAT IS DISTURBED DURING CONSTRUCTION WILL BE RESTORED.					
	SEE PLANS	MINI PINE BARK NUGGETS	MINI PINE BARK NUGGETS	FREE OF DIRT AND DEBRIS		FIELD VERIFY QTY.

LANDSCAPE CODE NOTES:

50% NATIVE TREE REQUIREMENT:
PROVIDED: 100% NATIVE
50% NATIVE SHRUB REQUIREMENT:
PROVIDED: 100% NATIVE
75% NATIVE PARKING ISLAND TREES:
PROVIDED: 100% NATIVE
PERIMETER LINEAR FOOTAGE CALCULATIONS:
NORTH PROPERTY LINE: 274' LINEAR FEET - 65' = 209' / 40 = 5.225 X 3 = 15.675 TREES REQUIRED
PROVIDED: 11 CANOPY AND 5 UNDERSTORY
WEST PROPERTY LINE: 373' LINEAR FEET - 95' = 278' / 40 = 6.95 X 3 = 20.85 TREES REQUIRED
PROVIDED: 14 CANOPY AND 7 UNDERSTORY
SOUTH PROPERTY LINE 289' LINEAR FEET - 50' = 239' / 40 = 5.975 X 3 = 17.925 TREES REQUIRED
PROVIDED: 12 CANOPY AND 6 UNDERSTORY
EAST PROPERTY LINE: 348' LINEAR FEET - 125' = 223' / 40 = 5.575 X 3 = 16.725 TREES REQUIRED
PROVIDED: 12 CANOPY AND 5 UNDERSTORY
STREET LINEAR FOOTAGE CALCULATIONS
NORTH PROPERTY LINE: 274' LINEAR FEET - 30' = 244' / 40 = 6.1 TREES REQUIRED
PROVIDED: 7 CANOPY TREES
EAST PROPERTY LINE: 348' LINEAR FEET - 30' = 318' / 40 = 7.95 TREES REQUIRED
PROVIDED: 8 CANOPY TREES

NOTE:
1, A PRE-PLANTING MEETING SHALL BE SCHEDULED WITH THE CITY FORESTER OF LANDSCAPE INSPECTOR AND THE LANDSCAPE CONTRACTOR BEFORE ANY INSTALLATION BEGINS.
2. THE USE OF CYPRESS MULCH IS DISCOURAGED AND ALL MULCH IS TO BE KEPT AT A MINIMUM OF 6 INCHES FROM THE BASE OF ALL PLANT MATERIAL.
3. LANDSCAPE MATERIALS PLANTED ADJACENT TO CURBING SHALL BE PLANTED 3-FEET BACK FROM FACE OF CURBS.
4. POLES AND TIES ARE TO BE REMOVED FROM TREES PRIOR TO PLANTING. TREES ARE TO BE ABLE TO STAND WITHOUT SUPPORT. THOSE THAT CANNOT STAND UPRIGHT ALONE WILL BE REJECTED.
5. THE ERADICATION OF NUISANCE VEGETATION, AKA EXOTICS, IS REQUIRED ON ALL SITES, INCLUDING ABUTTING RIGHTS-OF-WAY, PRIOR TO THE ISSUANCE OF A CERTIFICATE OF OCCUPANCY. PRIVATELY OWNED NATURAL AREAS SHALL BE INCLUDED IN THIS REQUIREMENT. EXISTING NATURAL FEATURES SHALL BE PRESERVED TO THE MAXIMUM EXTENT POSSIBLE IN THE DESIGN OF THE IMPROVEMENT. NATURAL FEATURES SHALL BE DEFINED AS BEING TREES, HAMMOCKS, BODIES OF WATER, HISTORICAL SPOTS AND SIMILAR ASSETS. FACTORS USED IN EVALUATION NATURAL FEATURES SHALL INCLUDE SIZE AND SHAPE, TOPOGRAPHY, GEOLOGY, TREE COVER, ACCESS AND LOCATION.
6. THE USE OF SISAL STRAPPING/ROPE IS REQUIRED TO BE INCORPORATED AROUND THE TREE WHEN WELLINGTON TAPE IS USED TO STABILIZE THE PLANTING.
7. TO ACCOMMODATE THE GROWTH HABIT OF THE SELECTED TREES AND PALMS AND TO MINIMIZE FUTURE MAINTENANCE, THE PLANTS INDICATED ADJACENT TO THE BUILDING SHOULD BE PLANTED AN APPROPRIATE DISTANCE FROM THE STRUCTURE.

NOTE: INSTALL PER MANUFACTURER SPECIFICATIONS

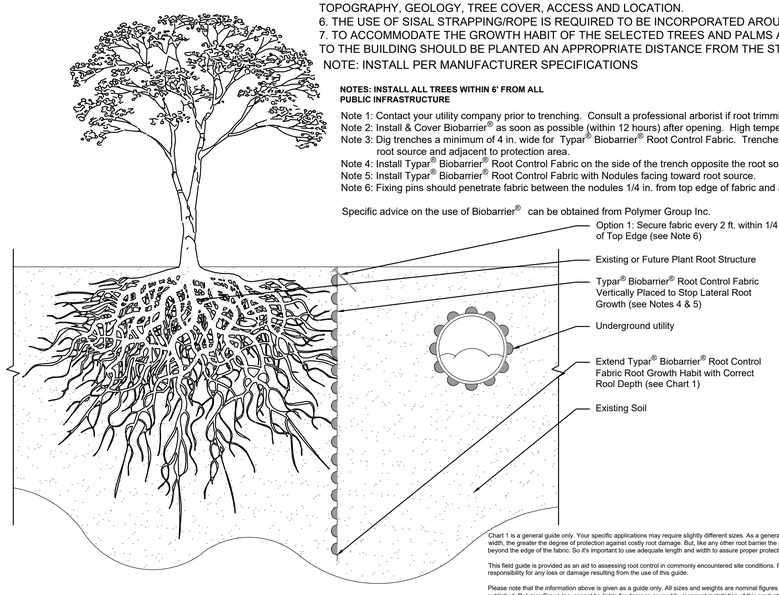
Table 1 : Biobarrier® Specifications

Description	Data	
Product	Biobarrier® Root Control System	
Chemical Family	Thermoplastic Polyolefin	
Composition	Polypropylene	> 74.8%
	UV Stabilizer	< 5%
	Trifluralin	< 20%
	Pigment Masterbatch[1]	< 0.5%
Appearance	Gray Fabric	
Physical State	Solid	
Vapor Pressure[2]	13.7 mPa @ 25°C	
Boiling Point	Not Applicable	
Solubility (H_2O)[2]	0.2 ppm @ 25°C	
Vapor Density	Not Applicable	
Packing Density	Not Applicable	
Odor	Aromatic (Solvent)	
pH	Not Applicable	
Evaporation Rate	Not Applicable	
Melting Point[2]	> 48.5°C	
Specific Gravity	0.88-0.99	
Percent Volatiles	Nil	
UV resistance	High	
Corrosivity	None	
Flamability	Non-Flammable	
Toxicity	IV	
Hygroscopicity	None	
Explosivity	None	
Fabric		
Unit Weight	4.0	
Tensile Strength (lbs.)	45.0	
Elongation at Break (%)	> 70.0	
Mullen Burst Strength (psi)	175.0	
Puncture Strength (lbs.)	50.0	
Coefficient of Permeability (cm/sec.)	3 x 10^{-2}	
Nodule		
Base Diameter (in.)	7/16	
Height	1/4	
Weight (os.)	0.013	
Spacing (in.)	1-1/2	

[1]Contains Carbon Black : < 0.1%
[2]Trifluralin (CAS # 1582-09-8)
*Additional Information May Be Obtained From Polymer Group Inc. Upon Request

Chart 1: Examples of Intended Biobarrier® Root Control Applications & Roll Widths

Application	Root Control Width in. (cm)					
	12 (30)	19.5 (50)	24 (61)	29 (74)	39 (99)	58.5 (149)
Underground Pipes/Cables	X	X	X	X	X	X
Biobarrier® Root Control is available in 20 ft. (6.1 m) or 100 ft. (30.5m) Roll Lengths						



NOTES: INSTALL ALL TREES WITHIN 6' FROM ALL PUBLIC INFRASTRUCTURE

Note 1: Contact your utility company prior to trenching. Consult a professional arborist if root trimming is required.
Note 2: Install & Cover Biobarrier® as soon as possible (within 12 hours) after opening. High temperatures and direct sunlight can reduce effective product life.
Note 3: Dig trenches a minimum of 4 in. wide for Typar® Biobarrier® Root Control Fabric. Trenches must be a minimum length of mature plant canopy plus(+) 10 ft., centered on the root source and adjacent to protection area.
Note 4: Install Typar® Biobarrier® Root Control Fabric on the side of the trench opposite the root source.
Note 5: Install Typar® Biobarrier® Root Control Fabric with Nodules facing toward root source.
Note 6: Fixing pins should penetrate fabric between the nodules 1/4 in. from top edge of fabric and at a 45° angle to the trench wall.

Specific advice on the use of Biobarrier® can be obtained from Polymer Group Inc.

① **Biobarrier® : Drain Line Application**
Scale: N.T.S.

Chart 1 is a general guide only. Your specific applications may require slightly different sizes. As a general rule, the greater the fabric width, the greater the degree of protection against costly root damage. But, like any other root barrier the protection does not extend beyond the edge of the fabric. So it's important to use adequate length and width to assure proper protection.

This field guide is provided as an aid to assessing root control in commonly encountered site conditions. Polymer Group Inc. accepts no responsibility for any loss or damage resulting from the use of this guide.

Please note that the information above is given as a guide only. All sizes and weights are nominal figures and may vary to what is published. Polymer Group Inc. cannot be liable for damage caused by incorrect installation of this product. Final determination of the suitability of any information or material for the use contemplated and the manner of its use is the sole responsibility of the user and the user must assume all risk and responsibility in connection therewith.

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FAX: (407) 442-0604
CA 29354

REVISION	DATE
CITY COMMENTS	8/12/20
ADDED LS TAGS	9/16/20
REMOVED FPL	3/4/22
REVISED BASE	7/10/22

DATE: 2022-07-12

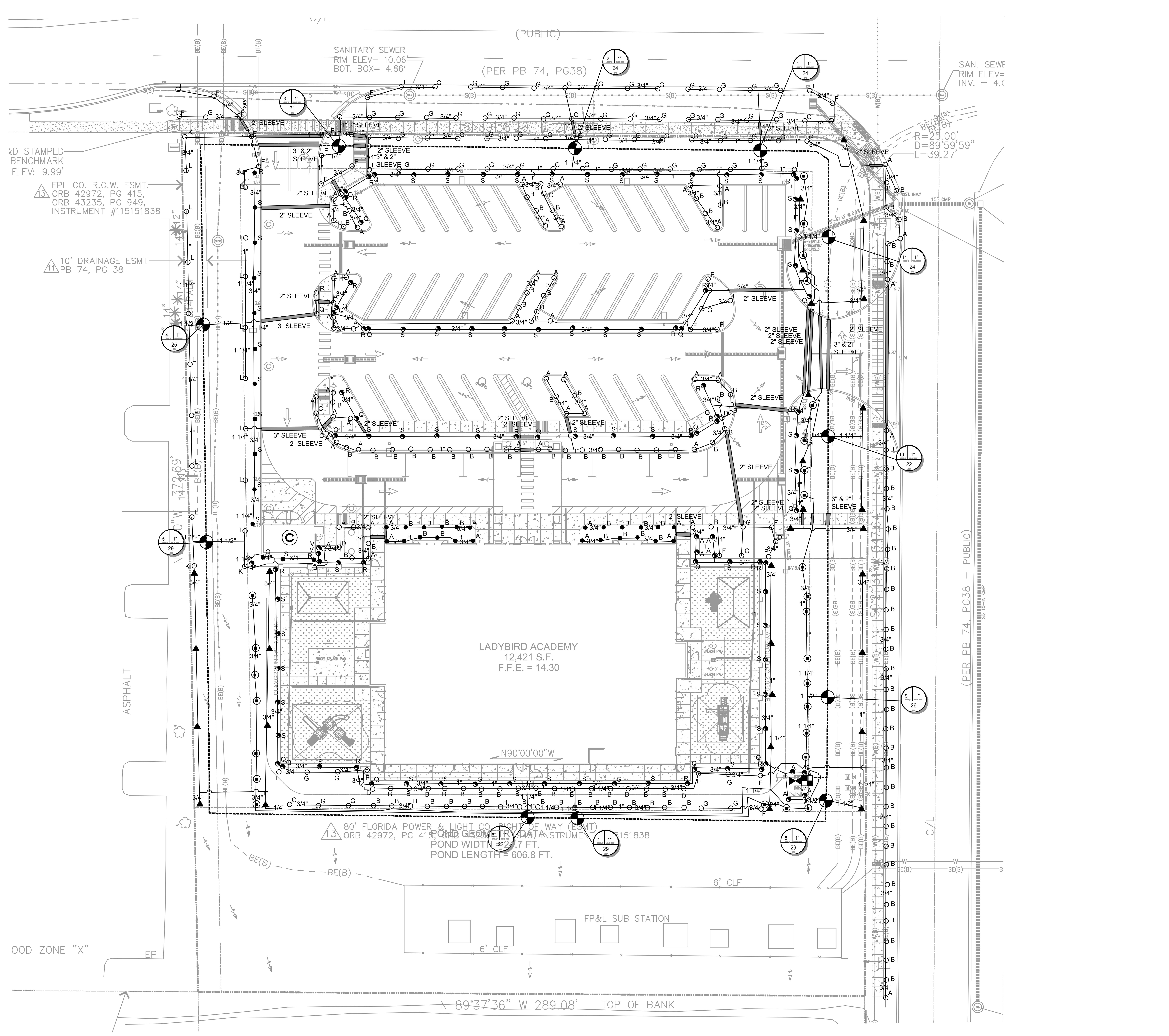
REGISTERED LANDSCAPE ARCHITECT JASON BRIDGEWATER 6667308 STATE OF FLORIDA
Jason B. Bridgewater
Registered Landscape Architect
FL. Registration -LA 6667308

LADYBIRD ACADEMY
8950 ROYAL PALM BOULEVARD
CORAL SPRINGS. FLORIDA 33065

DATE: 02-22-22
DRAWN: JB
CHECKED: JB

LANDSCAPE DETAILS
L2

PROJECT NO.: 2019.141



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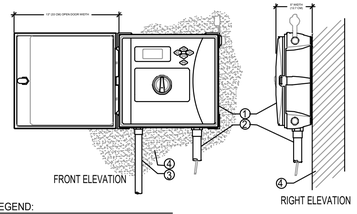
IRRIGATION PLAN
L-3

PROJECT NO.: 2019.141

IRRIGATION DETAILS



LEGEND:

① IRRIGATION CONTROLLER (12C-800-PL) PER PLAN

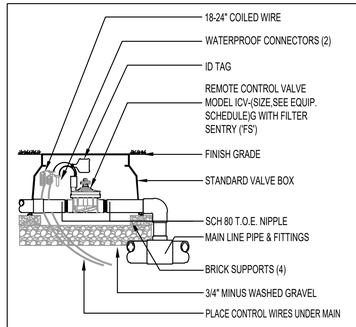
② IRRIGATION CONTROL WIRE IN CONDUIT SIZE AND TYPE PER LOCAL CODES

③ ELECTRICAL SUPPLY CONDUIT CONNECT TO POWER SOURCE, J-BOX INSIDE CONTROLLER

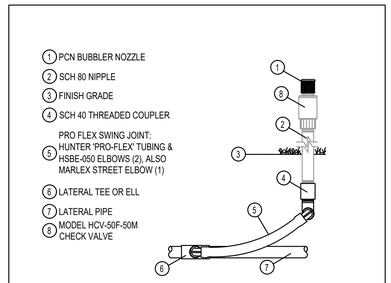
④ ADJACENT SURFACE TO MOUNT CONTROLLER PER PLAN

NOTE
MOUNT CONTROLLER LCD SCREEN AT EYE LEVEL. CONTROLLER SHALL BE HARD-WIRED TO GROUNDED 110 VAC POWER SOURCE

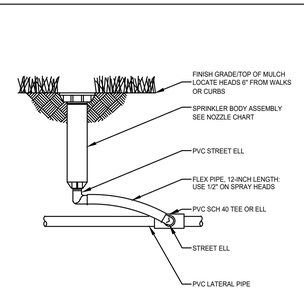
(A) ICC2 WALL MOUNT CONTROLLER



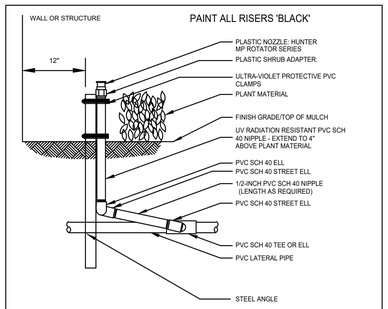
(B) ICV-151 OR 201 GLOBE VALVE



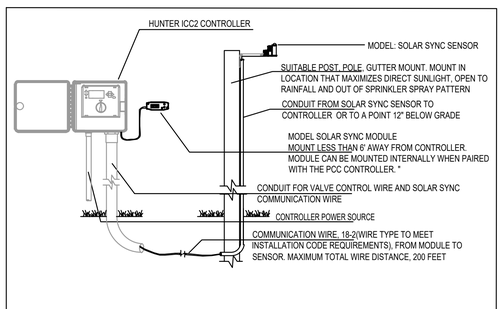
(C) PCN BUBBLER



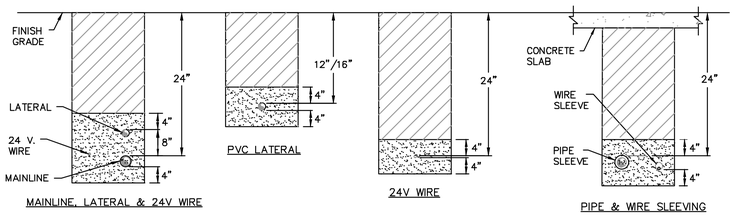
(D) HEAD DETAIL



(E) SHRUB RISER DETAIL



(F) HUNTER SOLAR SYNC SYSTEM



NOTES:
1. BEDDING SHALL BE PLACED AND LEVELED PRIOR TO INSTALLATION OF BURY ITEM.
2. BACKFILL SHALL BE PLACED IN MAXIMUM 6" LIFTS.
3. SLEEVE ALL PIPE AND WIRE SEPARATELY. SLEEVE 2 X DIA. OF PIPE (MIN 2"). ONE PIPE PER SLEEVE. SLEEVES TO BE PRIMED AND SOLVENT WELDED.
4. ALL PIPE TO BE INSTALLED PER MANUFACTURES SPECIFICATIONS WITH PIPE LABELING FACING UP FOR INSPECTION PURPOSES. PROVIDE A MINIMUM OF 2" CLEARANCE TO SIDE OF TRENCH AND BETWEEN PIPES.
5. ALL 120 V. WIRING SHALL BE INSTALLED IN ACCORDANCE WITH LOCAL CODE REQUIREMENTS.
6. TAPE AND BUNDLE IRRIGATION CONTROL WIRES EVERY 10'. PROVIDE LOOSE 20" LOOP AT ALL CHANGES OF DIRECTION OVER 30°.
7. ALL REMOTE CONTROL VALVE WIRING NOT INSTALLED WITH MAINLINE PIPE SHALL BE INSTALLED IN A MINIMUM 2" SCHEDULE 40 GREY ELECTRICAL CONDUIT OR AS APPROVED.
8. "NON-POTABLE" WARNING TAPE TO BE INSTALLED ON ALL PRESSURIZED MAINLINES 12" ABOVE THE PIPE.
9. INSTALL ONE ADDITIONAL SLEEVE SIZED TO MATCH THE LARGEST REQUIRED SLEEVE WITH ENDS TAPED FOR FUTURE USE.
10. SLEEVES TO EXTEND A MINIMUM OF 12" PAST HARDSCAPE PLANTERS, CURBS, SIDEWALKS, ETC. SLEEVES TO BE STAGGERED/OFFSET SO THAT SLEEVE USE IS NOT OBSTRUCTED BY OTHER PIPES.
11. WHERE PRESSURE SUPPLY PIPING IS INSTALLED WITHOUT CONTROL WIRING, A 14 GA. TRACKING WIRE SHALL BE INSTALLED.

(G) TRENCHING DETAILS

SPRAY NOZZLE CHART

	SYM	NOZZLE	NOZZLE PATTERN	GPM
MP1000 8'-15' radius	A	MAROON	90° ADJUSTABLE ARC	.19
	B	MAROON	180° ADJUSTABLE ARC	.37
	C	LT. BLUE	210° ADJUSTABLE ARC	.43
	D	LT. BLUE	270° ADJUSTABLE ARC	.57
	E	OLIVE	360° ARC	.75
MP2000 13'-21' radius	F	BLACK	90° ADJUSTABLE ARC	.40
	G	BLACK	180° ADJUSTABLE ARC	.74
	H	GREEN	210° ADJUSTABLE ARC	.86
	I	GREEN	270° ADJUSTABLE ARC	1.10
	J	RED	360° ARC	1.47
MP3000 22'-30' radius	K	BLUE	90° ADJUSTABLE ARC	.86
	L	BLUE	180° ADJUSTABLE ARC	1.82
	M	YELLOW	210° ADJUSTABLE ARC	2.12
	N	YELLOW	270° ADJUSTABLE ARC	2.73
	O	GRAY	360° ARC	3.64
STRIPS & CORNERS	P	TURQOUISE	45°-105° ADJUSTABLE ARC	.45
	Q	IVORY	5'x15' LEFT STRIP	.22
	R	COPPER	5'x15' RIGHT STRIP	.22
	S	BROWN	5'x30' SIDE STRIP	.44
BUBBLERS AND MICRO-SPRAYS	T	PCN10	1.00 GPM FLOOD BUBBLER	1.00
	U	PCN50	.50 GPM FLOOD BUBBLER	.50
	V	SR-2Q	90° 2' RADIUS	.11
	W	SR-2H	180° 2' RADIUS	.16
	X	MS-F	360° 5' RADIUS	.50

IRRIGATION NOTES

1) REFER TO THE LANDSCAPE PLANS WHEN TRENCHING TO AVOID TREES AND SHRUBS.

2) ALL MAINLINE PIPING SHALL BE BURIED TO A MINIMUM DEPTH OF 18" OF COVER. ALL LATERAL PIPING SHALL BE BURIED TO A MINIMUM DEPTH OF 12" OF COVER.

3) ALL POP-UP ROTORS AND SPRAY HEADS SHALL BE INSTALLED USING AN 18" P.V.C. FLEX PIPE CONNECTION. DO NOT USE FUNNY PIPE.

4) ADJUST ALL NOZZLES TO REDUCE WATER WASTE ON HARD SURFACES AND BUILDING WALLS.

5) THROTTLE ALL VALVES ON SHRUB LINES AS REQUIRED TO PREVENT FOGGING.

6) ALL RISERS SHALL BE PAINTED BLACK.

7) ALL RISERS SHALL BE STAKED WITH A STEEL ANGLE AND SECURED WITH ULTRA-VIOLET LIGHT PROTECTED P.V.C. CLAMPS.

8) ALL CONTROL WIRE SPLICES SHALL BE MADE IN VALVE BOXES USING SNAP-TITE CONNECTORS AND SEALANT.

9) THE CONTRACTOR SHALL PREPARE AN AS-BUILT DRAWING ON A REPRODUCIBLE PAPER (SEPIA OR MYLAR) SHOWING ALL INSTALLED IRRIGATION. A MYLAR OR SEPIA OF THE ORIGINAL PLAN MAY BE OBTAINED FROM THE LANDSCAPE ARCHITECT FOR A FEE. THE DRAWING SHALL LOCATE ALL MAINLINE AND VALVES BY SHOWING EXACT MEASUREMENTS FROM HARD SURFACES.

10) ALL VALVES, GATE VALVES AND QUICK COUPLERS SHALL BE INSTALLED IN VALVE BOXES.

11) ANY PIPING SHOWN OUTSIDE THE PROPERTY LINE OR RUNNING OUTSIDE A LANDSCAPE AREA IS SHOWN THERE FOR CLARITY ONLY. ALL LINES SHALL BE INSTALLED ON THE PROPERTY AND INSIDE THE LANDSCAPE AREAS.

12) ALL RISERS SHALL BE INSTALLED 12" FROM ANY WALL AND A MINIMUM OF 36" FROM ANY SIDEWALK, PATIO OR ROAD.

13) THE EXACT HEIGHT OF ANY 12" POP-UP THAT IS SHOWN IN A SHRUB BED SHALL BE DETERMINED BY THE LANDSCAPE ARCHITECT IN THE FIELD.

14) THE CONTRACTOR SHALL EXERCISE CARE SO AS NOT TO DAMAGE ANY EXISTING UTILITIES. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE IMMEDIATE REPAIRS AND COST OF ANY DAMAGE CAUSED BY HIS WORK.

15) ALL WORK SHALL BE GUARANTEED FOR ONE YEAR FROM THE DATE OF FINAL ACCEPTANCE AGAINST ALL DEFECTS IN EQUIPMENT AND WORKMANSHIP.

16) CONTRACTOR TO USE MIN. OF 12 GAUGE WIRE FOR ALL COMMON WIRES AND 14 GAUGE WIRE FOR ALL CONTROL WIRES. CONTRACTOR ALSO TO PROVIDE 3 SPARE CONTROL WIRES FOR ANY FUTURE USE.

17) CONCRETE THRUST BLOCKS ARE TO BE UTULIZED AT ALL MAINLINE DIRECTION CHANGES.

18) ALL IRRIGATION SHOWN ON PLANS IS SCHEMATIC AND DOES NOT REFLECT ALL FITTINGS AND APPURTENANCES WHICH SHALL BE INCLUDED TO PROVIDE A FULLY FUNCTIONAL IRRIGATION SYSTEM CAPABLE OF PROVIDING 100 PERCENT COVERAGE WITH A 50 PERCENT OVERLAP.

EQUIPMENT LIST

SYMBOL	DESCRIPTION	QUANTITY
	0.50 GPM BUBBLER (2 PER TREE)	52
	6" POP-UP SPRAY - HUNTER INDUSTRIES MPR40 W/MP2000 NOZZELS	287
	12" POP-UP SPRAY - HUNTER INDUSTRIES MPR40 W/MP2000 NOZZELS	38
	SPRAY ON RISER - HUNTER INDUSTRIES INST-00-CV-MP2000	106
	HUNTER INDUSTRIES - 4" POP-UP PGP ROTORS- PART RADIUS	30
	HUNTER INDUSTRIES - 4" POP-UP PGP ROTORS- FULL RADIUS	0
	HUNTER INDUSTRIES - I-40 ROTORS - PART 60' RADIUS	0
	HUNTER 'ICV' SERIES ELECTRIC VALVE WITH ACCU-SET PRESSURE REGULATOR 1"	11
	HUNTER 'ICV' SERIES ELECTRIC VALVE WITH ACCU-SET PRESSURE REGULATOR 1 1/2"	0
(C)	HUNTER ICC2 16 STATION CONTROLLER, 120VOLT INSTALL WITH A SOLAR SYNC (WITH EVAPOTRANSPIRATION SENSOR AND RAIN SENSOR AND BY-PASS BOX.) GROUND WITH AN 8' COPPER CLAD ROD. CONTROL SYSTEM TO MAINTAIN TIME DURING POWER OUTAGES FOR A MINIMUM OF 3 DAYS.	1
	1" POTABLE IRRIGATION METER TO PROVIDE 30 GPM AT 40 PSI	1
	1" DOUBLE CHECK VALVE BACKFLOW PREVENTOR	1
	LATERAL LINE SIZE PER PLAN	SEE PLAN
	1-1/2" MAINLINE CLASS 200 P.V.C. SIZE PER PLAN	SEE PLAN
	SLEEVING - SCH. 40 P.V.C. MIN. DEPTH OF 24" (ALL 3" SLEEVES TO HAVE ACCOMPANYING 2" SLEEVE FOR WIRES)	SEE PLAN

INSTALLER IS REQUIRED TO CONDUCT FINAL TESTING AND ADJUSTMENT TO ACHIEVE DESIGN SPECIFICATION PRIOR TO COMPLETION OF THE SYSTEM AND ACCEPTANCE BY THE OWNER OR OWNERS REPRESENTATIVE.

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REVISION	DATE
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DATE: 2022-07-12

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IRRIGATION DETAILS
L4

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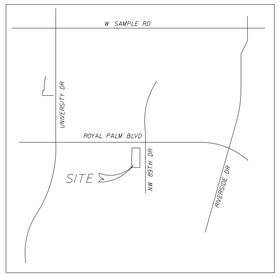
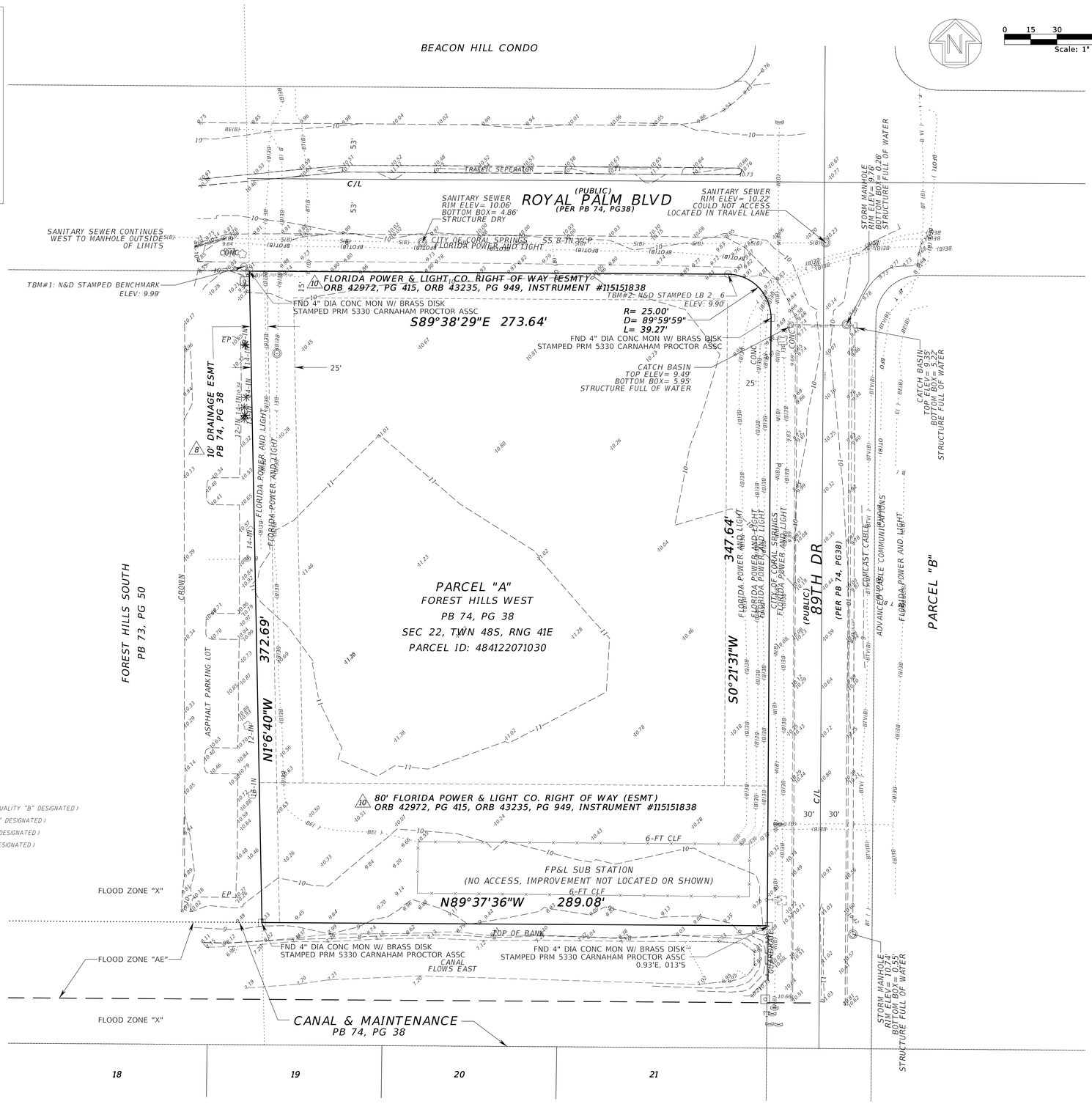


VICINITY MAP
NOT TO SCALE

LEGEND AND ABBREVIATIONS:

ORB	OFFICIAL RECORD BOOK
N&D	NAIL AND DISK
CLF	CHAIN LINK FENCE
ENT.	ENTRANCE
CONC.	CONCRETE
SD	STORM SEWER
SAN	SANITARY SEWER
MH	MANHOLE
WM	WATER METER
TYP	TYPICAL
ESMT	EASEMENT
N/V	NOT FIELD VERIFIED
R/W	RIGHT-OF-WAY
WV	WATER VALVE
PB	PLAT BOOK
B.C.	BROWARD COUNTY
TWN	TOWNSHIP
RNG	RANGE
SEC	SECTION
PG	PAGE
R	RADIUS
D	DELTA
L	LENGTH
ELEV	ELEVATION
	UTILITY POLE
	LIGHT POLE
	GUY WIRE
	FIRE HYDRANT
	SIGN
	MAILBOX
	REC. CONCRETE MONUMENT AS NOTED
	WATER METER
	REC NAIL & DISK "LB 2856" UNLESS OTHERWISE NOTED
	MANHOLE
	VALVE
	METER
	WIRE PULL BOX
	TREE
	PALM TREE
C/L	CENTERLINE
	TITLE COMMITMENT ITEM NUMBER
S(B)	SUBSURFACE SANITARY SEWER PIPE (QUALITY "B" DESIGNATED)
W(B)	SUBSURFACE WATER PIPE (QUALITY "B" DESIGNATED)
BTV(B)	BURIED TELEVISION LINE (QUALITY "B" DESIGNATED)
BE(B)	BURIED ELECTRIC LINE (QUALITY "B" DESIGNATED)



NO.	REVISION	DATE
1	REVISE SURVEY TO ADDRESS REVISED TITLE COMMITMENT	11-14-2019
2	REVISE SURVEY TO ADDRESS REVISED TITLE COMMITMENT	06-08-2020

LEGAL DESCRIPTION:

(EXHIBIT A OF TITLE COMMITMENT)

Parcel "A", of FOREST HILLS WEST, according to the Plat thereof, as recorded in Plat Book 74, Page 38, of the Public Records of Broward County, Florida.

SURVEYOR'S NOTES:

1) Bearings shown are based on the record plat Forest Hills West, as recorded in Plat Book 74, Page 38, public records of Broward County, Florida, resulting in the bearing of S89°38'29"E for the north line of Parcel "A".

2) According to the Federal Emergency Management Agency Flood Insurance Rate Map, Community Panel No. 12011C0165H, dated August 18, 2014. This property lies within Flood Zone "X" , designated as "areas of 0.2% annual chance flood; areas of 1% annual chance flood with average depths of less than 1 foot or with drainage areas less than 1 square mile; and areas protected by levees from 1% annual chance flood". The flood zone delineation lines shown hereon were scaled from said community panel and are approximate in nature.

3) The site contains 2.511 acres, more or less.

4) This survey was prepared with the benefit of a Title Commitment by Old Republic National Title Insurance Company, Office File Number 20-1749 with a commitment effective date June 8, 2020 at 5:00 PM. Easements or Restrictions are shown hereon or referred to below. Unless otherwise noted, all documents referred to in the title report are per Public Records of Broward County, Florida. [Surveyor comments shown In brackets]

Item #7: Reservations contained in Deed from Trustees of the Internal Improvement Fund of the State of Florida, filed April 12, 1913 in Deed Book 40, Page 42, Public Records of Palm Beach County, Florida. Note: The right of entry and exploration running with the above reservation of an interest in phosphate, minerals, metals, and/or petroleum has been released pursuant to S270.11, F.S.

Item #8: Restrictions, conditions, reservations, easements, dedications and other matters contained on the Plat of FOREST HILLS WEST, recorded December 17, 1971 in Plat Book 74, Page 38. [Plottable easements as shown hereon]

Item #9: Order O7-ZR-96 by the City of Coral Springs, Florida recorded April 24, 1997 in Official Record Book 26328, Page 122. [Denial to rezone subject property]

Item #10: Easement in favor of Florida Power & Light Company, a Florida corporation recorded October 19, 2006 in Official Record Book 42972, Page 415 and re-recorded December 7, 2006 in Official Record Book 43235, Page 949; and Amendment to Easement recorded June 20, 2018 in Official Record Instrument No. 115151838. [As shown hereon]

Item #11: Covenants, conditions, and other matters contained in Order SE19-0010 by the City of Coral Springs, Florida, recorded in Official Record Instrument No. 116390887. [No additional easements specifically described in instrument]

5) Elevations as shown hereon are based on Broward County Benchmark BM 2279, a PK nail in the northwest corner of an inlet at the northwest corner of the intersection of Northwest 89th Drive and Royal Palm Boulevard, elevation = 8.43 feet (NAVD 88).

6) Utility Companies responding to Sunshine 811 call:
Advanced Cable Communications 954-752-7244, ext 221
AT&T Distribution 561-997-0240
City of Coral Springs 954-345-2188 (Water, Sewer, Drainage)
Florida Power & Light 386-586-6403
Comcast Cable 800-778-9140

7) There are no buildings on the subject property.

SURVEYOR'S CERTIFICATION:

CERTIFIED TO:

CSJ CAPITAL LLC, A FLORIDA LIMITED LIABILITY COMPANY
OLD REPUBLIC NATIONAL TITLE INSURANCE COMPANY
CIPPARONE & CIPPARONE
SYNOVUS BANK

CHRISTOPHER A. LABERGE, P.S.M. No. 6014

- NOT VALID WITHOUT THE SIGNATURE AND THE ORIGINAL RAISED SEAL OF A FLORIDA LICENSED SURVEYOR AND MAPPER -

PROJ. NO. 19-112619-0016490
DATE SURVEYED 5/15/2019
DATE DRAWN 5/28/2019 CAL
DRAWN BY RAL CKD. CAL
SCALE 1"=30' FIELD 15.07'

SURVEYOR: CHRISTOPHER A. LABERGE P.S.M. No. 6014

PARCEL "A" FOREST HILLS WEST
FOR
LADYBIRD & GENIUS CHILD ACADEMIES
CORAL SPRINGS, BROWARD COUNTY, FLORIDA

BOUNDARY & TOPOGRAPHIC SURVEY

201 S. BUMBY AVE.
ORLANDO, FL
(407) 896-3317
WWW.NV5.COM
LICENSED BUSINESS No. 8246

SHEET — OF —

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CRAIG A. SMITH & ASSOCIATES
A SMART-INFRASTRUCTURE COMPANY

September 6, 2022

Board of Supervisors
Sunshine Water Control District (SWCD)
2300 Glades Road, Suite 410W
Boca Raton, Florida 33073

RE: SWCD Right-of-Way Permit Application
Foundry Commercial Acquisition (Waste Transfer Station) Culvert Crossing - Canal RR
CAS PROJECT NO. 15-1826-P33

Dear Board of Supervisors (BOS):

We have reviewed the Right-of-Way permit application submitted by Chem Moore and Associates on behalf of Foundry Commercial Acquisition, LLC for culverting a segment of Canal RR to allow an access driveway to the permittee's property on the south side of the canal. Proposed is the installation of a paved driveway canal crossing with F-curb, sidewalk on the west side, guardrails on both sides, and 72 LF of 84" RCP with FDOT standard concrete headwalls. The installation of the 84" RCP has been demonstrated to have sufficient capacity serving that northerly area of the SWCD. The permittee will access the property via the City's waste transfer station from the north via a proposed public access easement from the City of Coral Springs. SWCD staff will utilize this easement to access Canal RR as necessary.

Note this project was previously approved on August 10, 2020 under SWCD ROW Permit 2022-12 issued to Sawgrass Development Partners, LLC. The construction never started, the permit has expired, and the property is now under new ownership. As such, a new permit will be issued for the same activity.

The applicant has met SWCD applicable criteria and we recommend that the SWCD BOS issue a Right-of-Way Permit to the applicant, subject to the following Special Conditions to be made part of the Permit on the scheduled September 14, 2022:

1. Prior to the start of construction, the Permittee shall submit a copy of the executed "Development Agreement and Access Easement."
2. As noted on the Engineering drawings, construction is to be scheduled during the dry season to avoid high water levels and reduce bypass flows.
3. The permittee shall coordinate with the SWCD the intended dewatering operation prior to construction mobilization after the selection of a contractor with said contractor having a demonstrated experience with similar projects.
4. Under emergency flood conditions, canal ditch-blocking that is part of the construction operation shall be removed by the Permittee in a reasonable time upon the request of the SWCD.
5. Shop drawings of the project's components shall be submitted to SWCD.
6. A copy of Record As-builts and Engineer Certification shall be provided to SWCD upon completion of all work with elevations shown in NAVD datum.
7. Copies of engineer certified density tests shall be submitted to the SWCD (Engineer) with the project engineer's certification and all failing density tests are to be remedied.
8. In the event the concrete headwalls are proposed to be cast-in-place, copies of engineer certified concrete strength tests shall be submitted demonstrating compliance with FDOT standards for an 84" Headwall per Index 430-034 or equivalent as approved by the Permittee's structural engineer.
9. All work must be in compliance with the latest SWCD Permit Criteria Manual.
10. All nuisance vegetation within Canal RR work limits shall be removed and canal banks shall be stabilized with sod.

11. Permittee will ensure that all necessary Sediment & Erosion Control devices will be utilized at the SWCD right-of-way during construction.
12. Trash bond ($2,500) shall be submitted prior to permit issuance and the Contractor shall repair and replace any SWCD facilities damaged during construction at no cost to the District.
13. All applicable permits and approvals for Work shall be obtained.
14. SWCD shall be notified at least 48 hours prior to construction.
15. The Permittee is advised that additional cost recovery fees may be requested.

Sincerely,

CRAIG A. SMITH & ASSOCIATES

Orlando A. Rubio, PE
VP of Stormwater Engineering

cc: SWCD – Cory Selchan (via e-mail)
WHA – Jamie Sanchez, Cindy Cerbone, Debbie Tudor, Gianna Dinofrio, Daphne Gillyard (via e-mail)
CMA – Daniel Davila, PE (via e-mail)
CAS – Stephen C. Smith, PE (via e-mail)

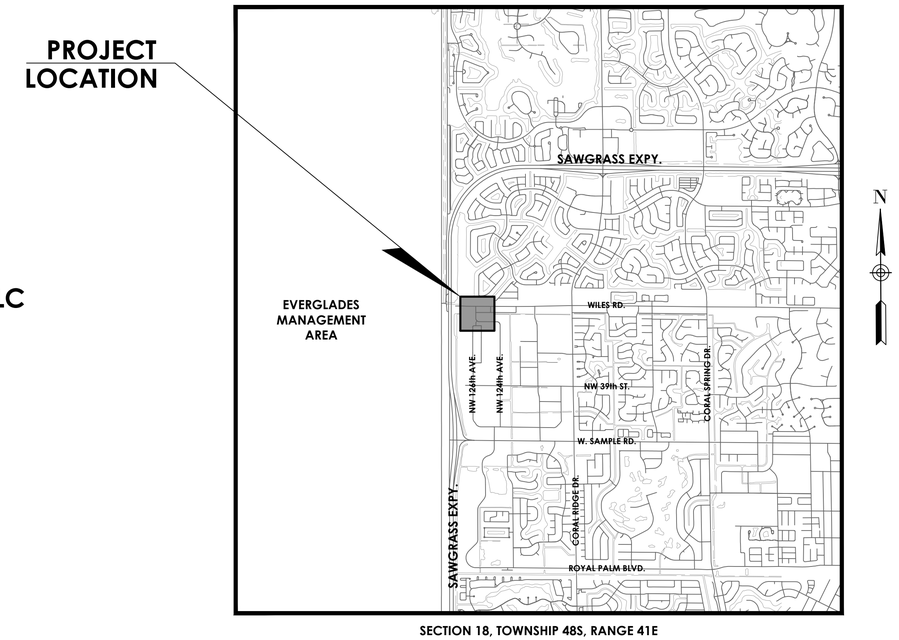
\\cas-file\projects\districts\sunshine_water_control\15-1826-cost-recovery-projects\15-1826-p33-canal_rr-crossing\06-permit\waste transfer station canal rr-engr_recommendation.docx

WASTE TRANSFER STATION
CULVERT CROSSING

CITY OF CORAL SPRINGS, FLORIDA

CONSTRUCTION SET

DATE OF ISSUE: 08/10/22



SECTION 18, TOWNSHIP 48S, RANGE 41E

LOCATION MAP

N.T.S

INDEX OF DRAWINGS

SHT #	DWG #
01	COV-1
02	GN-1
03	CS-1
04	D-1
05	SWPP-1
06	C-1
07	TBP-1

CLIENT:
Foundry Commercial Acquisition LLC
420 S. Orange Ave. Suite 400
Orlando, Florida 32801
Phone: 561.508.3708

PREPARED BY:

chen moore and associates

500 West Cypress Creek Road,
Suite 630
Ft. Lauderdale, FL 33309
954.730.0707
www.chenmoore.com
CERTIFICATES OF AUTHORIZATION
EB4593 LC26000425

Sunshine811

Call 811 or www.sunshine811.com two full business days before digging to have utilities located and marked.

Check positive response codes before you dig!

Plot Date: 8/10/2022 3:33:34 PM Username: lTamo Layout Name: COV-1
Folder Path: V:\Projects\2022\22-0743.00001 - sawgrass expressway & wiles road parcel\Design\CAD\Sheets Filename: 22-0743.00001 Cover Sheet.dwg

APPLICABLE CODES

A. GENERAL
ALL CONSTRUCTION AND MATERIALS SHALL CONFORM TO THE STANDARDS AND SPECIFICATIONS OF CITY OF CORAL SPRINGS, SOUTH FLORIDA WATER MANAGEMENT DISTRICT (SFWMD), SUNSHINE WATER CONTROL DISTRICT (SWCD), AND ALL OTHER LOCAL AND NATIONAL CODES WHERE APPLICABLE.
B. CONSTRUCTION SAFETY
ALL CONSTRUCTION SHALL BE PERFORMED IN A SAFE MANNER, SPECIFICALLY, THE RULES AND REGULATIONS OF THE OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION (OSHA) AND THE MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES (MUTCD) SHALL BE STRICTLY OBSERVED.
C. TRENCH SAFETY ACT
1. CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR COMPLIANCE WITH THE STATE OF FLORIDA TRENCH SAFETY ACT.
2. WHERE EXCAVATIONS TO A DEPTH IN EXCESS OF FIVE FEET (5') ARE REQUIRED, THE CONTRACTOR SHALL INCLUDE THE FOLLOWING INFORMATION IN THE BID:
   a. A REFERENCE TO THE TRENCH SAFETY STANDARDS THAT WILL BE IN EFFECT DURING THE PERIOD OF CONSTRUCTION OF THE PROJECT.
   b. WRITTEN ASSURANCES BY THE CONTRACTOR PERFORMING THE TRENCH EXCAVATION THAT SUCH CONTRACTOR WILL COMPLY WITH THE APPLICABLE TRENCH SAFETY STANDARDS.
   c. A SEPARATE ITEM IDENTIFYING THE COST OF COMPLIANCE WITH THE APPLICABLE TRENCH SAFETY STANDARDS.
3. WHEN A BID IS NOT SUBMITTED, THE CONTRACTOR SHALL SUBMIT THE INFORMATION LISTED IN ITEM 2 TO THE ENGINEER PRIOR TO STARTING WORK.
D. SURVEY DATA
ALL ELEVATIONS ON THE PLANS REFERENCED IN THE SPECIFICATIONS ARE BASED ON NORTH AMERICAN VERTICAL DATUM (NAVD) 1988.

PRECONSTRUCTION RESPONSIBILITIES

A. UPON RECEIPT OF NOTICE OF AWARD AND AFTER OBTAINING AN ENGINEERING CONSTRUCTION PERMIT FROM SWCD AND CITY OF CORAL SPRINGS, THE CONTRACTOR SHALL ARRANGE A PRECONSTRUCTION CONFERENCE TO INCLUDE THE ADJACENT PROPERTY OWNERS OR REPRESENTATIVES, ENGINEER, THE OWNER, A UTILITY REPRESENTATIVE, AND THE ENGINEER OF RECORD.
B. THE CONTRACTOR SHALL OBTAIN A "SUNSHINE ONE CALL" CERTIFICATION NUMBER AND NOTIFY THE UTILITIES DEPARTMENT AT LEAST 48 HOURS PRIOR TO BEGINNING ANY EXCAVATION.
C. PRIOR TO BEGINNING CONSTRUCTION, THE CONTRACTOR SHALL VERIFY THE SIZE, LOCATION, ELEVATION, AND MATERIAL OF ALL EXISTING UTILITIES WITHIN THE AREA OF CONSTRUCTION.
D. EXISTING UTILITY LOCATIONS SHOWN ON THESE PLANS ARE APPROXIMATE. THE ENGINEER ASSUMES NO RESPONSIBILITY FOR THE ACCURACY OF EXISTING UTILITIES SHOWN OR FOR ANY EXISTING UTILITIES NOT SHOWN.
E. THE CONTRACTOR SHALL BE RESPONSIBLE FOR DAMAGE TO ANY EXISTING UTILITIES FOR WHICH IT FAILS TO REQUEST LOCATIONS FROM THE UTILITY OWNER. THE CONTRACTOR IS ALSO RESPONSIBLE FOR DAMAGE TO ANY EXISTING UTILITIES WHICH ARE PROPERLY LOCATED.
F. IF UPON EXCAVATION, AN EXISTING UTILITY IS FOUND TO BE IN CONFLICT WITH THE PROPOSED CONSTRUCTION OR TO BE OF A SIZE OR MATERIAL DIFFERENT FROM THAT SHOWN ON THE PLANS, THE CONTRACTOR SHALL STOP WORK IN THE AREA AND IMMEDIATELY CONTACT AND NOTIFY THE ENGINEER BEFORE CONTINUING WITH CONSTRUCTION.
G. THE CONTRACTOR SHALL PROVIDE ALL EMERGENCY PERSONNEL CONTACT INFORMATION TO THE ENGINEER, THE CITY OF CORAL SPRINGS, AND SWCD, PRIOR TO COMMENCING CONSTRUCTION ACTIVITIES

INSPECTIONS

A. THE CONTRACTOR SHALL NOTIFY THE OWNER, AND THE ENGINEER OF RECORD AT LEAST 48 HOURS PRIOR TO BEGINNING CONSTRUCTION AND PRIOR TO THE INSPECTION OF THE FOLLOWING ITEMS:
1. SANITARY SEWER
2. STORM DRAINAGE
3. WATER SYSTEM
4. SUB-GRADE
5. LIMEROCK BASE
6. ASPHALTIC CONCRETE
7. FINAL
B. ALL INSPECTIONS WILL BE MADE BY THE OWNER. THE ENGINEER OF RECORD WILL PROVIDE CONSTRUCTION OBSERVATION SERVICE.

SHOP DRAWINGS

A. PRIOR TO CONSTRUCTION OR INSTALLATION, SHOP DRAWINGS SHALL BE SUBMITTED TO AND REVIEWED BY THE ENGINEER OF RECORD FOR SANITARY MANHOLES, CATCH BASINS, FIRE HYDRANTS, VALVES AND OTHER ACCESSORIES. CATALOGUE LITERATURE SHALL BE SUBMITTED FOR WATER AND SEWER PIPES, FITTINGS, AND APPURTENANCES.
B. PRIOR TO SUBMITTING SHOP DRAWINGS TO THE ENGINEER, THE CONTRACTOR SHALL REVIEW AND APPROVE THE DRAWINGS, AND SHALL NOTE IN RED ANY DEVIATIONS FROM THE ENGINEER'S PLANS OR SPECIFICATIONS.
C. INDIVIDUAL SHOP DRAWINGS FOR ALL PRECAST STRUCTURES ARE REQUIRED. CATALOGUE LITERATURE WILL NOT BE ACCEPTED FOR PRECAST STRUCTURES.

TEMPORARY FACILITIES

A. TEMPORARY UTILITIES SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO ARRANGE FOR OR SUPPLY TEMPORARY WATER SERVICE, SANITARY FACILITIES AND ELECTRICITY TO ITS EMPLOYEES AND SUBCONTRACTORS FOR THEIR USE DURING CONSTRUCTION.
B. TRAFFIC REGULATION
1. MAINTENANCE OF TRAFFIC IN THE PUBLIC RIGHT-OF-WAY SHALL BE IN ACCORDANCE WITH THE MUTCD, FDOT AND APPROVED CITY OF CORAL SPRINGS.
2. ALL OPEN TRENCHES AND HOLES ADJACENT TO ROADWAYS OR WALKWAYS SHALL BE PROPERLY MARKED AND BARRICADED TO ASSURE THE SAFETY OF BOTH VEHICULAR AND PEDESTRIAN TRAFFIC.
3. NO TRENCHES OR HOLES NEAR WALKWAYS OR IN ROADWAYS OR THEIR SHOULDERS ARE TO BE LEFT OPEN DURING NIGHTTIME HOURS WITHOUT EXPRESS PERMISSION OF CITY OF CORAL SPRINGS.

PROJECT CLOSEOUT

A. CLEANING UP
1. DURING CONSTRUCTION, THE PROJECT SITE AND ALL ADJACENT AREAS SHALL BE MAINTAINED IN A NEAT AND CLEAN MANNER. UPON FINAL CLEAN UP, THE PROJECT SITE SHALL BE LEFT CLEAR OF ALL SURPLUS MATERIAL OR TRASH. THE PAVED AREAS SHALL BE SWEPT BROOM CLEAN.
2. THE CONTRACTOR SHALL RESTORE OR REPLACE, WHEN AND AS DIRECTED BY THE ENGINEER, OR CITY OF CORAL SPRINGS ANY PUBLIC OR PRIVATE PROPERTY DAMAGED BY ITS WORK, EQUIPMENT, EMPLOYEES OR THOSE OF ITS SUBCONTRACTORS TO A CONDITION AT LEAST EQUAL OR BETTER TO THE EXISTING CONDITION IMMEDIATELY PRIOR TO THE BEGINNING OF OPERATIONS. TO THIS END, THE CONTRACTOR SHALL DO ALL NECESSARY HIGHWAY OR DRIVEWAY, WALK AND LANDSCAPING WORK. SUITABLE MATERIALS AND METHODS SHALL BE USED FOR SUCH RESTORATION.
3. WHERE MATERIAL OR DEBRIS HAS WASHED OR FLOWED INTO OR BEEN PLACED IN WATER COURSES, DITCHES, DRAINS, CATCH BASINS, OR ELSEWHERE AS A RESULT OF THE CONTRACTOR'S OPERATIONS, SUCH MATERIAL OR DEBRIS SHALL BE REMOVED AND SATISFACTORILY DISPOSED OF DURING PROGRESS OF THE WORK, AND THE AREA KEPT IN A CLEAN AND NEAT CONDITION.
B. PROJECT RECORD DOCUMENTS
1. THE CONTRACTOR SHALL MAINTAIN ACCURATE AND COMPLETE RECORDS OF WORK ITEMS COMPLETED.
2. PRIOR TO THE PLACEMENT OF ANY ASPHALT OR CONCRETE PAVEMENT, THE CONTRACTOR SHALL SUBMIT TO THE ENGINEER "AS-BUILT" PLANS SHOWING LIMEROCK BASE GRADES, ALL DRAINAGE AND WATER IMPROVEMENTS. PAVING OPERATIONS SHALL NOT COMMENCE UNTIL THE ENGINEER HAS REVIEWED THE "AS- BUILTS".
3. ALL REQUIRED DENSITY AND LBR TEST RESULTS FOR SUB- GRADE SHALL BE PROVIDED TO THE ENGINEER PRIOR TO PLACING LIMEROCK BASE MATERIAL.
4. ALL REQUIRED DENSITY AND LBR TEST RESULTS FOR LIMEROCK SHALL BE PROVIDED TO THE ENGINEER PRIOR TO PLACING ASPHALT.
5. ALL "AS-BUILT" INFORMATION SUBMITTED TO THE ENGINEER SHALL BE SUFFICIENTLY ACCURATE, CLEAR AND LEGIBLE TO SATISFY THE ENGINEER THAT THE INFORMATION PROVIDES A TRUE REPRESENTATION OF THE IMPROVEMENTS CONSTRUCTED.
6. UPON COMPLETION OF CONSTRUCTION, THE CONTRACTOR SHALL SUBMIT TO THE ENGINEER OF RECORD COMPLETE SETS OF "AS-BUILT" CONSTRUCTION DRAWINGS AS REQUIRED FOR SUBMITTAL AND APPROVAL. THESE DRAWINGS SHALL BE MARKED TO SHOW "AS-BUILT" CONSTRUCTION CHANGES AND DIMENSIONED LOCATIONS AND ELEVATIONS OF ALL IMPROVEMENTS AND SHALL BE SIGNED AND SEALED BY A REGISTERED LAND SURVEYOR.
7. ALL "AS-BUILT" INFORMATION ON ELEVATIONS OF WATER, PAVING, AND DRAINAGE SHALL BE CERTIFIED BY A REGISTERED LAND SURVEYOR.
8. AS-BUILT INFORMATION ON THE WATER SYSTEM SHALL INCLUDE LOCATIONS OF ALL VALVES, FITTINGS, FIRE HYDRANTS, WATER SERVICES AND TOP OF PIPE ELEVATIONS AT ALL FITTINGS AND AT A MINIMUM OF 100' SPACING.
9. AS-BUILT INFORMATION ON THE SANITARY SEWER SYSTEM SHALL INCLUDE LOCATIONS OF ALL VALUES, FITTINGS, CLEANOUTS, AND TOP OF PIPE ELEVATIONS AT ALL FITTINGS AND AT A MINIMUM SPACING OF 50' BETWEEN ELEVATIONS.

EARTHWORK

A. GENERAL
1. NONE OF THE EXISTING MATERIAL IS TO BE INCORPORATED IN THE LIMEROCK BASE.
2. ALL SUB-GRADE UNDER PAVED AREAS SHALL BE 12" THICK AND HAVE A MINIMUM LBR VALUE OF 40 AND SHALL BE COMPACTED TO 98% OF THE MAXIMUM DENSITY AS DETERMINED BY AASHTO T-180.
3. ALL FILL MATERIAL IN AREAS NOT TO BE PAVED SHALL BE COMPACTED TO 95% OF THE MAXIMUM DENSITY AS DETERMINED BY AASHTO T-180.
4. A 2" BLANKET OF TOP SOIL SHALL BE PLACED OVER ALL AREAS TO BE SODDED.
5. SOD SHALL BE AS SPECIFIED ON THE LANDSCAPE ARCHITECTURE PLANS AND SHALL BE PLACED ON THE GRADED TOP SOIL AND WATERED TO INSURE SATISFACTORY CONDITION UPON FINAL ACCEPTANCE OF THE PROJECT.
6. WHEN WORKING IN AND AROUND EXISTING DRAINAGE CANALS OR LAKES, APPROPRIATE SILT BARRIERS SHALL BE INSTALLED.
B. ON-SITE
1. ALL ORGANIC AND OTHER UNSUITABLE MATERIAL UNDER THOSE AREAS TO BE PAVED SHALL BE REMOVED TO A DEPTH OF THREE (3) FEET BELOW FINISHED GRADE AND FOR THREE (3) FEET BEYOND THE PERIMETER OF THE PAVING.
2. SUITABLE BACKFILL SHALL BE MINIMUM LBR 40 MATERIAL COMPACTED TO 98% OF THE MAXIMUM DENSITY AS DETERMINED BY AASHTO T-180 THREE (3) FEET BEYOND THE PERIMETER OF THE PAVING.

STORM DRAINAGE

A. CONCRETE PIPE FOR STORM SEWERS SHALL CONFORM TO ASTM L76-79, TABLE III, WALL B, OR LATEST REVISION. ALL PIPE SHALL HAVE MODIFIED TONGUE AND GROOVE JOINTS, AND HAVE RUBBER GASKETS, UNLESS OTHERWISE SPECIFIED.
B. BEDDING AND INITIAL BACKFILL OVER DRAINAGE PIPE SHALL BE SAND WITH NO ROCK LARGER THAN 1" DIAMETER.
C. BACKFILL MATERIAL UNDER PAVED AREAS SHALL BE COMPACTED TO 98% OF THE MAXIMUM DENSITY AS DETERMINED BY AASHTO T-180.
D. BACKFILL MATERIAL UNDER AREAS NOT TO BE PAVED SHALL BE COMPACTED TO 95% OF THE MAXIMUM DENSITY AS DETERMINED BY AASHTO T-180.
E. DRAINAGE STRUCTURES AND LINES TO BE CLEANED PRIOR TO ENGINEER'S ACCEPTANCE.
F. DRAINAGE STRUCTURES TO BE CLEANED PRIOR TO BROWARD COUNTY OR FDOT ACCEPTANCE IF LOCATED WITHIN THE PUBLIC RIGHT-OF-WAY.
G. NO CATCH BASINS OR JUNCTION BOXES SHALL BE LOCATED IN DRIVEWAYS.

PAVING

A. GENERAL
1. ALL UNDERGROUND UTILITIES SHALL BE COMPLETED PRIOR TO THE CONSTRUCTION OF THE LIMEROCK BASE AND PRIOR TO THE PLACEMENT OF THE PAVEMENT.
2. CONCRETE SIDEWALKS SHALL BE FOUR (4) INCHES THICK. SIDEWALK SUB-GRADE SHALL BE GRUBBED, COMPLETELY DEMUCKED AND COMPACTED TO 98% OF MAXIMUM DRY DENSITY AS DETERMINED BY AASHTO T-180. OPEN TYPE EXPANSION JOINTS SHALL BE USED. SIDEWALK MUST BE SEPARATE FROM THE TRAVEL WAY AND CONSTRUCTED IN ACCORDANCE WITH THE FDOT ROADWAY AND TRAFFIC DESIGNS STANDARDS INDEX 310.
3. MINIMUM LONGITUDINAL SLOPE OF PAVEMENT SHALL BE 0.5%.
4. MINIMUM TRANSVERSE SLOPE OF PAVEMENT SHALL BE AT 1.5% FOR ROADWAYS AND GENERALLY 0.5% FOR PARKING AREAS.
B. MATERIALS
1. SUBGRADE MATERIAL SUPPORTING THE ROADWAY AND SHOULDERS SHALL HAVE A MINIMUM LIMEROCK BEARING RATIO (LBR) OF 40. THE STABILIZED SUB-GRADE SHALL BE TWELVE (12) INCHES COMPACTED TO 98% OF MAXIMUM DRY DENSITY AS PER ASHTO T-180.
2. LIMEROCK BASE MATERIAL SHALL HAVE A MINIMUM OF 60% CARBONATES (CALCIUM AND MAGNESIUM) WITH A MINIMUM LBR OF 100.
3. PRIME COAT SHALL BE APPLIED AT THE RATE OF 0.25 GAL/YD SQ. AND TACK COAT SHALL MEET FLORIDA DEPARTMENT OF TRANSPORTATION (FDOT) STANDARDS.
4. SURFACE COURSE SHALL BE EQUAL TO FDOT TYPE S-1 AND S-3 ASPHALTIC CONCRETE.
C. INSTALLATION
1. LIMEROCK BASE MATERIAL SHALL BE 8" THICK AND COMPACTED TO 98% OF THE MAXIMUM DENSITY AS DETERMINED BY AASHTO T-180.
2. LIMEROCK BASE MATERIAL SHALL BE PLACED IN MAXIMUM 6" LIFTS. BASES GREATER THAN 6" SHALL BE PLACED IN TWO OR MORE EQUAL LIFTS. LIMEROCK BASE SHALL BE COMPACTED TO 98% OF THE MAXIMUM DENSITY AS DETERMINED BY AASHTO T-180.
3. ASPHALTIC CONCRETE SHALL BE (2) 3/4" LIFTS OF TYPE S-3 ASPHALTIC CONCRETE.
4. FOR ASPHALT CONCRETE INSTALLED WITHIN PUBLIC RIGHT OF WAY THE WEARING SURFACE SHALL BE TWO (2) INCHES APPLIED IN TWO LIFTS. FIRST LIFT TO BE 1-1/4" TYPE S1. SECOND LIFT TO BE 3/4" TYPE S3. TACK COAT TO BE USED BETWEEN PAVING LIFTS.
5. PRIME COAT SHALL BE PLACED ON ALL LIMEROCK BASES IN ACCORDANCE WITH FDOT STANDARDS.
6. TACK COAT SHALL BE PLACED AS REQUIRED IN ACCORDANCE WITH FDOT STANDARDS.
D. TESTING ALL SUB-GRADE, LIMEROCK AND ASPHALT TESTS REQUIRED SHALL BE TAKEN AT THE DIRECTION OF THE ENGINEER. LABORATORY PROCTOR COMPACTION TESTS (T-180) SHALL BE PERFORMED ON ALL MATERIAL, SUB-GRADE AND BASE AND ANY SUBSEQUENT CHANGES IN MATERIALS. LIMEROCK BEARING RATIOS, SIEVE ANALYSIS AND DENSITIES REQUIRED BY THE CONTRACT DOCUMENTS SHALL BE SUBMITTED TO THE ENGINEER.

AS-BUILTS

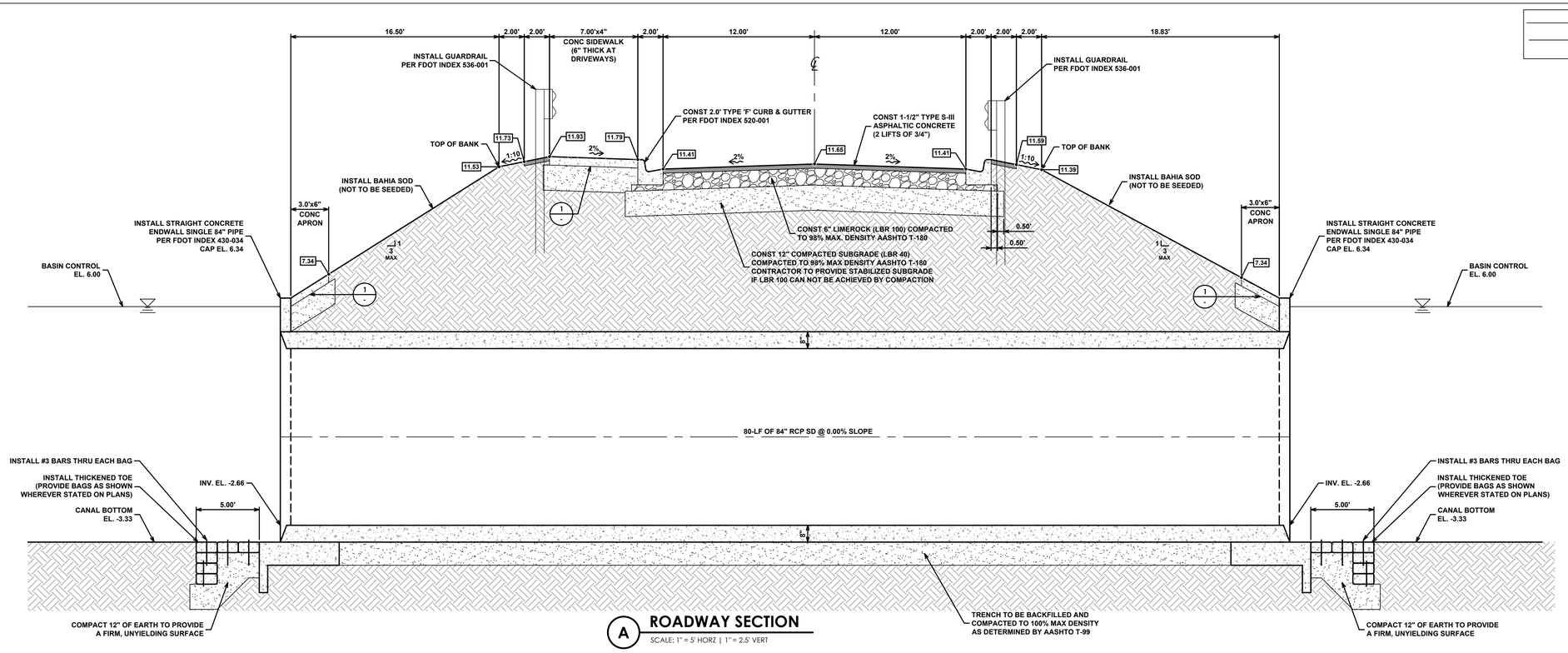
1. CONTRACTOR TO PROVIDE NECESSARY AS-BUILTS AS REQUIRED BY CITY OF CORAL SPRINGS FOR ALL THE UTILITIES AND BROWARD COUNTY FOR THE PAVING, GRADING AND DRAINAGE SYSTEM. IT IS THE CONTRACTOR'S RESPONSIBILITY TO RESEARCH AND UNDERSTAND THE AS-BUILT CRITERIA AND PROVIDE THE NECESSARY DOCUMENTION FOR THE CERTIFICATION OF THE SYSTEM.
2. CONTRACTOR TO PROVIDE NECESSARY AS-BUILTS TO SUNSHINE WATER CONTROL DISTRICT WITH COPIES OF ALL CONCRETE TESTS, PASSING LABORATORY PROCTOR COMPACTION TESTS, LIMEROCK BEARING RATIOS, SIEVE ANALYSIS AND DENSITIES FOR CERTIFICATION OF THE SYSTEM.

EXISTING CONDITIONS NOTES

1. EXISTING CONDITIONS PRESENTED ARE BASED ON A TOPOGRAPHIC SURVEY PROVIDED BY STONER & ASSOCIATES, 18-8788 TOPO, DATED 2/15/2019). ADDITIONAL INFORMATION WAS OBTAINED FROM AS-BUILTS AND RECORD DRAWINGS PROVIDED BY UTILITY COMPANIES, G.I.S. INFORMATION AND FIELD VISITS.
2. THE BEARINGS SHOWN HEREON ARE BASED ON S.89°34'16"E., ALONG THE SOUTH LINE OF THE N.W.1/4 SECTION 18, TOWNSHIP 48 SOUTH, RANGE 41 EAST, AS SHOWN ON THE STONER/KEITH RESURVEY OF SAID TOWNSHIP, RECORDED IN MISCELLANEOUS PLAT BOOK 3, AT PAGES 44, OF THE PUBLIC RECORDS OF BROWARD COUNTY, FLORIDA.
3. THE ELEVATIONS SHOWN HEREON ARE BASED ON NORTH AMERICAN VERTICAL DATUM OF 1988 (N.A.V.D. 88), ESTABLISHED FROM BROWARD COUNTY ENGINEERING DEPARTMENT BENCHMARK 3189, DESCRIBED AS A DEPARTMENT OF TRANSPORTATION DISK SET ON THE SOUTH END OF CONCRETE WALL, EAST SIDE OF THE NORTH BOUND FOR THE SAWGRASS EXPRESSWAY AT THE WEST OF WILES ROAD. ELEVATION 17.448'.
4. THIS SITE WAS FORMERLY UTILIZED AS A LAND FILL, SEE DECLARATION OF LAND FILL CLOSURE RECORDED IN OFFICIAL RECORDS BOOK 302325, PAGE 1124 AND 31176, PAGE 404, OF THE PUBLIC RECORDS OF BROWARD COUNTY, FLORIDA.
5. CONTRACTOR IS TO PROTECT ALL EXISTING TREES, SIGNS, AND ABOVE GROUND UTILITIES NOT IMPACTED BY THIS PLAN.

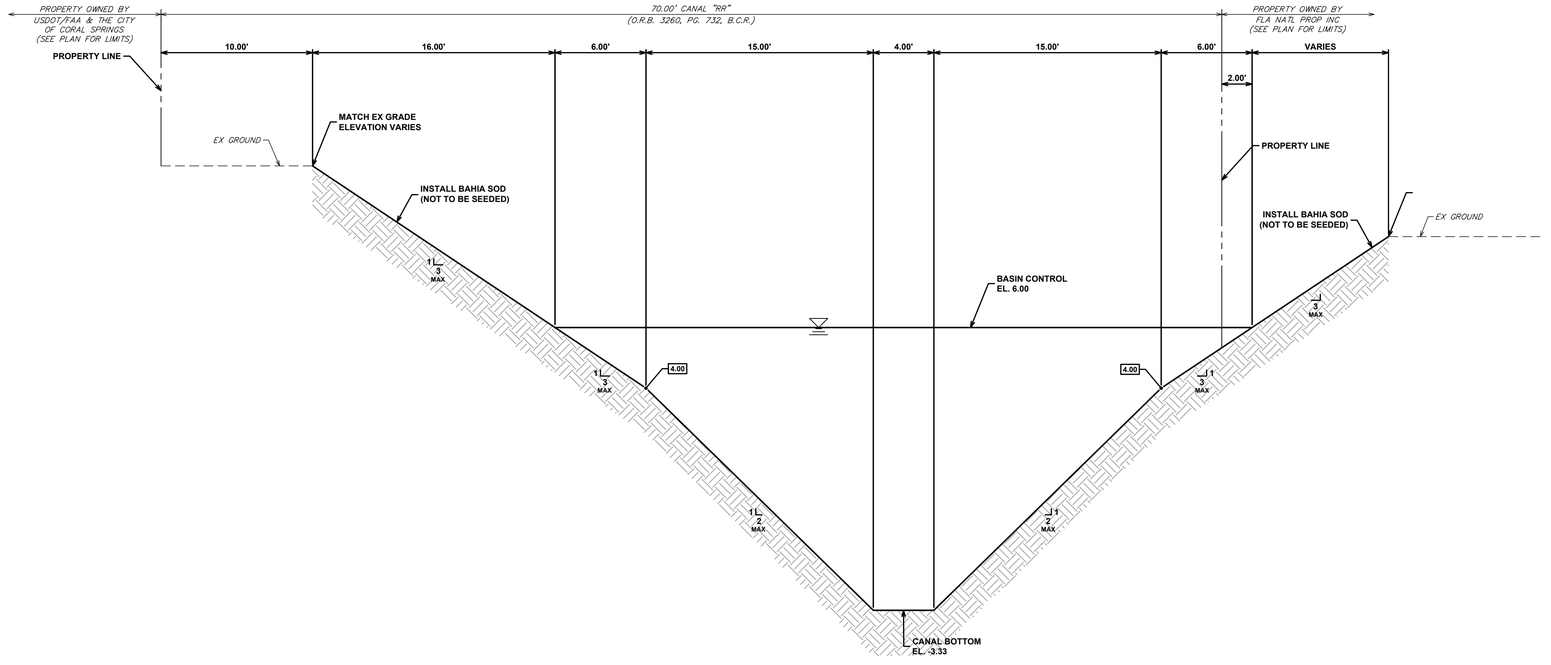
cma
chen moore and associates

Plot Date: 8/10/2022 3:33:45 PM Username: ITamo Layout Name: GN-1
Folder Path: V:\Projects\2022\22-0743.00001 - sawgrass expressway & wiles road parcel\Design\CAD\Sheets Filename: 22-0743.00001 General Notes.dwg



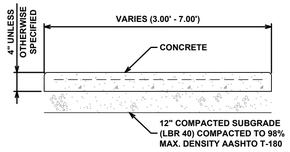
A ROADWAY SECTION

SCALE: 1" = 5' HORZ | 1" = 2.5' VERT



B CANAL SECTION

SCALE: 1" = 5' HORZ | 1" = 2.5' VERT LOOKING EAST



NOTES

1. CONCRETE TO BE CLASS 1, 3,000 PSI IN 28 DAYS.
2. USE OF FIBER REINFORCED CONCRETE IS PROHIBITED.
3. SIDEWALK SLOPES SHALL MEET THE REQUIREMENTS OF THE AMERICAN WITH DISABILITIES ACT.
4. INCLUDES ANY CUT AND/OR FILL TO ACHIEVE DESIGN SLOPES.
5. PROVIDE 1/8" CONSTRUCTION JOINTS AT 5' c.c., MINIMUM DEPTH 1/2".
6. PROVIDE 1/2" EXPANSION JOINTS W/ NON-RISING FILLER AT 30'c.c.
7. CURE ALL CONCRETE WITH CLEAN SAND, PLASTIC MEMBRANE, OR OTHER APPROVED METHOD.
8. PROVIDE 6"X6"-W4XW4 W.W.F.

1 CONCRETE SLAB

N.T.S.

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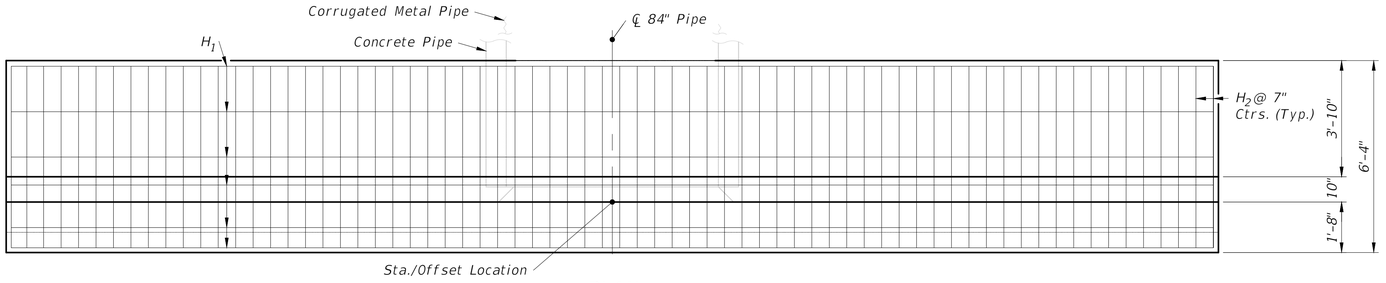
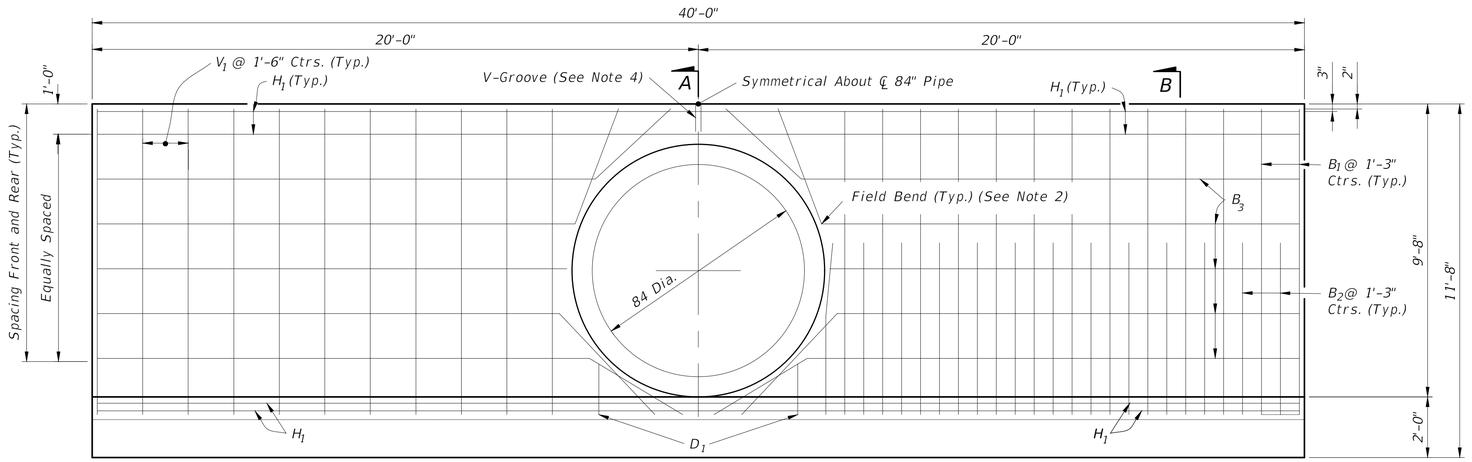


PLAN
(Showing Bars In Footing)



HALF ELEVATION
(Showing Bars in Front Face of Wall)
A

HALF ELEVATION
(Showing Bars in Back Face of Wall)
B

NOTES:

1. 2" clearance on all reinforcement, unless otherwise shown.
2. Cut and/or bend B_3 Bars as shown.
3. All bar dimensions are out to out.
4. Install a ¾" V-Groove at the top, front and back.

SINGLE 84" PIPE ENDWALL ESTIMATED QUANTITIES

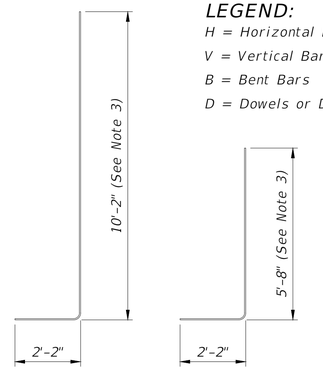
ITEM	UNIT		
Class II Concrete	Cu. Yd.		
Reinforcing Steel	Lb.	2,095	

BILL OF REINFORCING STEEL

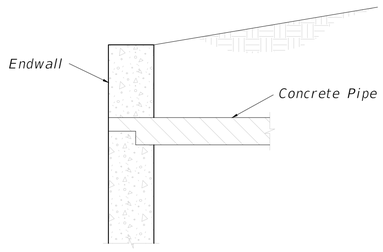
MARK	SIZE	NO. REQD.	
H_1	4	6	
H_2	6	69	
V_1	4	22	
B_1	6	26	
B_2	6	26	
B_3	4	14	
D_1	4	4	

LEGEND:

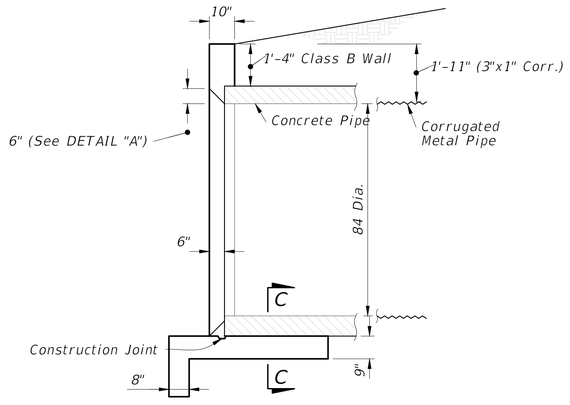
H = Horizontal Bars
V = Vertical Bars
B = Bent Bars
D = Dowels or Diagonal Bars



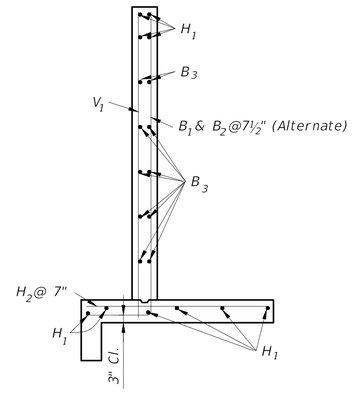
BAR B_1 BAR B_2
BENDING DIAGRAM



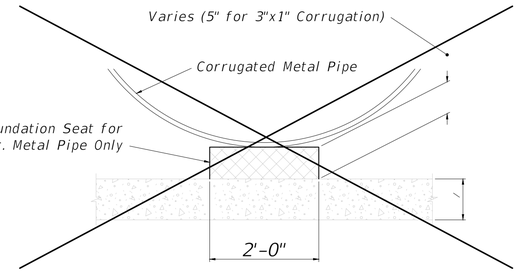
DETAIL "A"
(Concrete Pipe Optional Entrance)



SECTION A-A
(Rebar Not Shown)



SECTION B-B
(Typical Section)



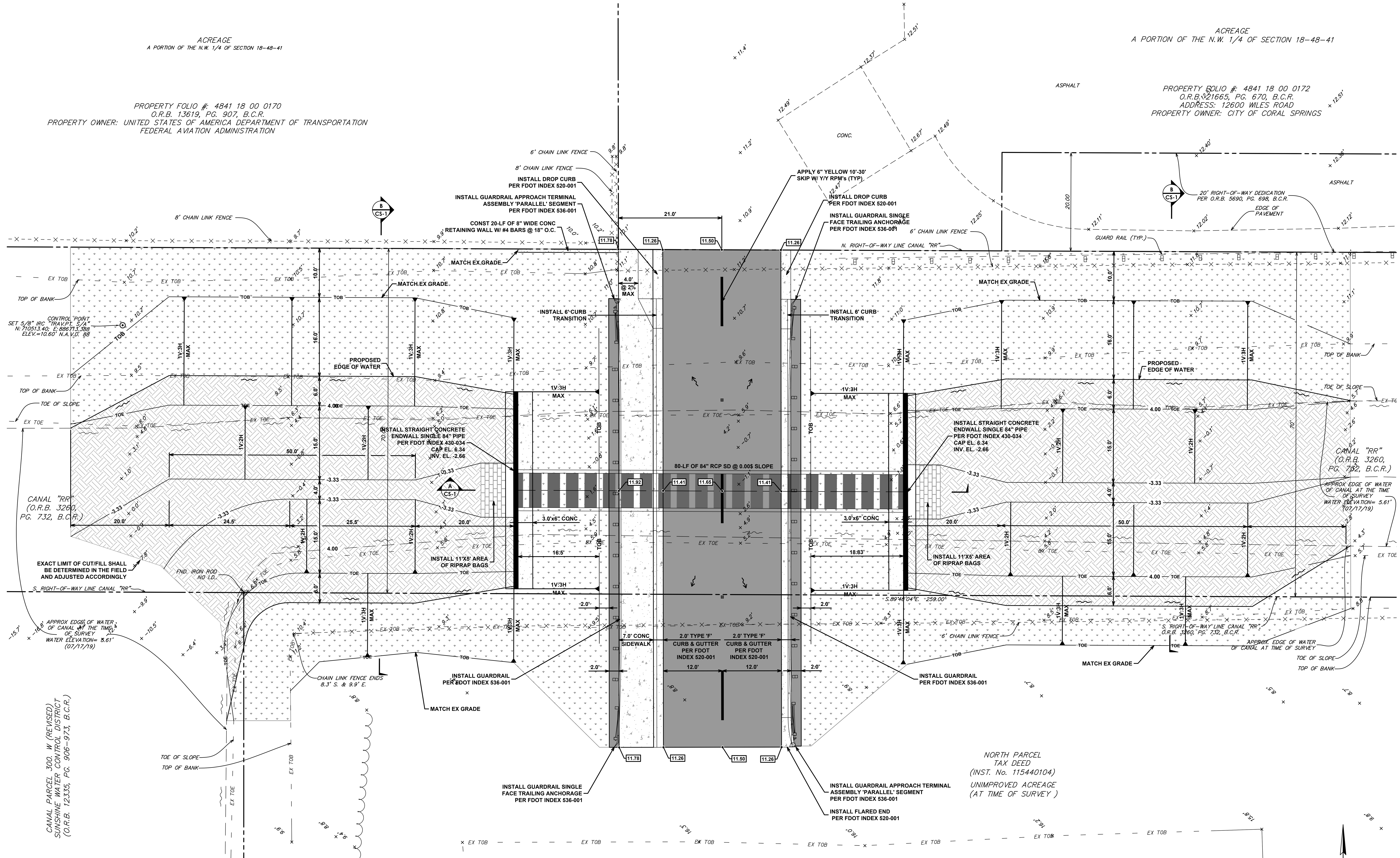
SECTION C-C

SINGLE 84" PIPE ENDWALL DETAILS

STRAIGHT CONCRETE ENDWALLS
SINGLE 84" PIPE

N.T.S. FDOT STANDARD PLANS FY-2020-21 - INDEX 430-034

Plot Date: 8/10/2022 3:34:01 PM Username: lTamo Layout Name: D-1
Folder Path: V:\Projects\2022\22-0743.00001 - sawgrass expressway & wiles road parcel\Design\CAD\Sheets Filename: 22-0743.00001 Details.dwg


ACREAGE
A PORTION OF THE N.W. 1/4 OF SECTION 18-48-41
PROPERTY FOLIO #: 4841 18 00 0170
O.R.B. 13619, PG. 907, B.C.R.
PROPERTY OWNER: UNITED STATES OF AMERICA DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION
ACREAGE
A PORTION OF THE N.W. 1/4 OF SECTION 18-48-41
PROPERTY FOLIO #: 4841 18 00 0172
O.R.B. 21665, PG. 670, B.C.R.
ADDRESS: 12600 WILES ROAD
PROPERTY OWNER: CITY OF CORAL SPRINGS
ASPHALT
CONC.
6' CHAIN LINK FENCE
8' CHAIN LINK FENCE
INSTALL DROP CURB
PER FDOT INDEX 520-001
INSTALL GUARDRAIL APPROACH TERMINAL
ASSEMBLY 'PARALLEL' SEGMENT
PER FDOT INDEX 536-001
CONST 20-LF OF 8" WIDE CONC
RETAINING WALL W/ #4 BARS @ 18" O.C.
APPLY 6" YELLOW 10'-30'
SKIP W/ Y/Y RPM's (TYP)
INSTALL GUARDRAIL SINGLE
FACE TRAILING ANCHORAGE
PER FDOT INDEX 536-001
20' RIGHT-OF-WAY DEDICATION
PER O.R.B. 5690, PG. 698, B.C.R.
EDGE OF PAVEMENT
GUARD RAIL (TYP.)
N. RIGHT-OF-WAY LINE CANAL "RR"
MATCH EX GRADE
INSTALL 6' CURB TRANSITION
CONTROL POINT
SET 5/8" IRC "TRAV.PT. S/A"
N: 710513.40 E: 886713.198
ELEV.=10.60' N.A.V.D. 88
TOP OF BANK
TOE OF SLOPE
PROPOSED EDGE OF WATER
INSTALL STRAIGHT CONCRETE
ENDWALL SINGLE 84" PIPE
PER FDOT INDEX 430-034
CAP EL. 6.34
INV. EL. -2.66
80-LF OF 84" RCP SD @ 0.00$ SLOPE
CANAL "RR"
(O.R.B. 3260, PG. 732, B.C.R.)
APPROX EDGE OF WATER OF CANAL AT THE TIME OF SURVEY
WATER ELEVATION= 5.61' (07/17/19)
3.0'x6" CONC
INSTALL 11'X5' AREA OF RIPRAP BAGS
EXACT LIMIT OF CUT/FILL SHALL
BE DETERMINED IN THE FIELD
AND ADJUSTED ACCORDINGLY
FND. IRON ROD NO I.D.
S. RIGHT-OF-WAY LINE CANAL "RR"
S.89°46'04"E. 259.00'
7.0' CONC SIDEWALK
2.0' TYPE 'F' CURB & GUTTER PER FDOT INDEX 520-001
INSTALL GUARDRAIL PER FDOT INDEX 536-001
CHAIN LINK FENCE ENDS 8.3' S. & 9.9' E.
MATCH EX GRADE
TOE OF SLOPE
TOP OF BANK
CANAL PARCEL 300. W (REVISED)
SUNSHINE WATER CONTROL DISTRICT
(O.R.B. 12335, PG. 906-973, B.C.R.)
NORTH PARCEL
TAX DEED
(INST. No. 115440104)
UNIMPROVED ACREAGE
(AT TIME OF SURVEY)
INSTALL FLARED END
PER FDOT INDEX 520-001
EX TOB
EX TOE

VERTICAL DATUM INFORMATION
ALL ELEVATIONS SHOWN ARE IN NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD88)
CONVERSION FACTOR:
NAVD88 + 1.53 = NGVD29 IN THIS AREA

Sunshine 811
Call 811 or www.sunshine811.com two full business days before digging to have utilities located and marked.
Check positive response codes before you dig!

LEGEND

- PROPOSED ELEVATION
- PROPOSED SURFACE FLOW ARROW
- PROPOSED SIDE SLOPE
- PROPOSED TOP OF BANK
- PROPOSED WATER'S EDGE
- PROPOSED GUARDRAIL
- PROPOSED ASPHALT
- PROPOSED CONCRETE
- PROPOSED BAHIA SOD (NOT SEEDED)
- PROPOSED EARTHWORK

Plot Date: 8/10/2022 3:34:22 PM Username: JTamo Layout Name: C-1
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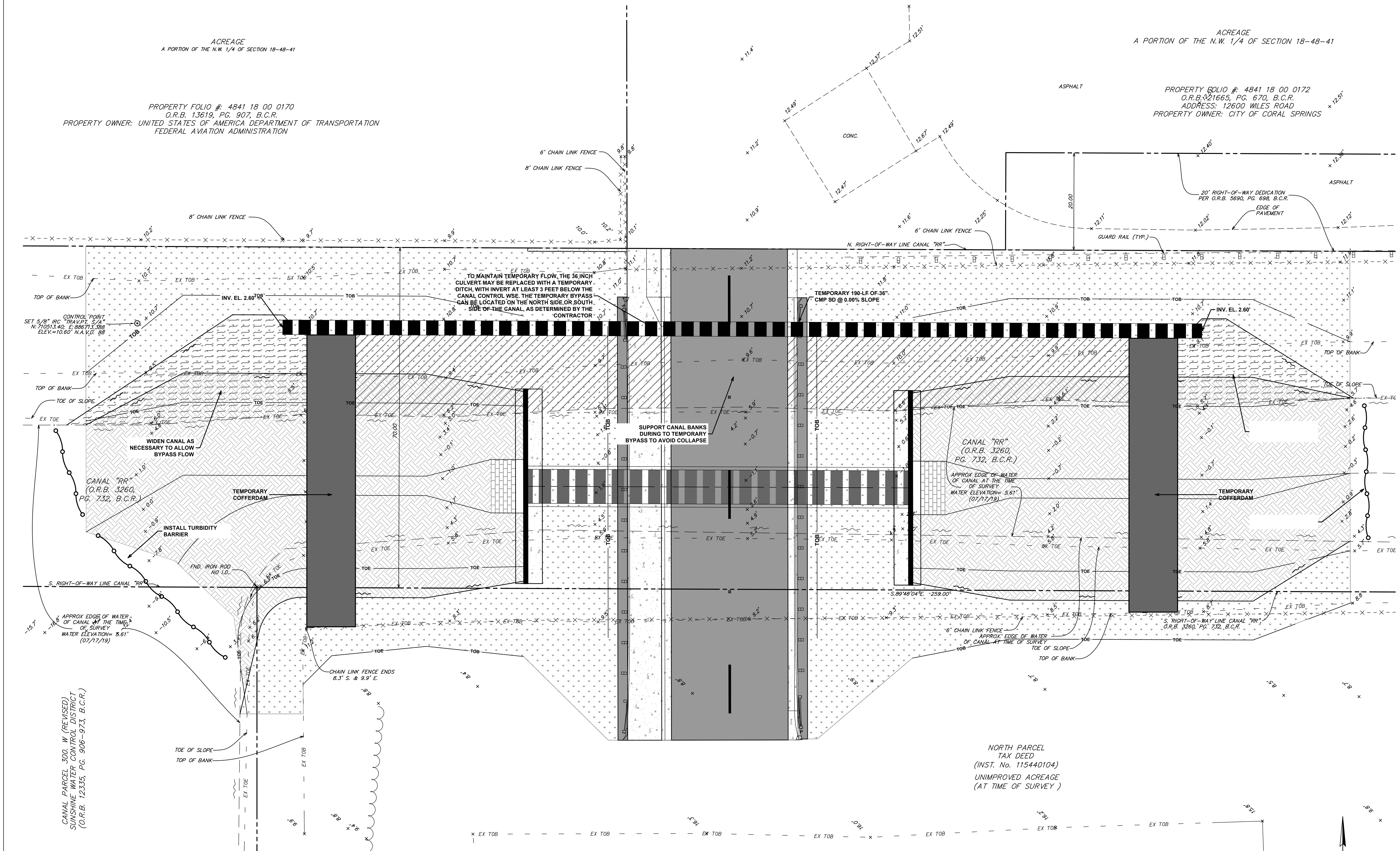

NOTES:

1. THE SCHEMATIC DRAWING ON THIS SHEET IS NOT INTENDED FOR CONSTRUCTION. CONTRACTOR TO FURTHER DEVELOP THE SCHEMATIC OR PROVIDE A DIFFERENT TEMPORARY BYPASS PLAN THAT WORKS BETTER FOR THE PROJECT. THE CONTRACTOR SHALL REQUEST APPROVAL FROM THE ENGINEER AND SWCD BEFORE COMMENCING CONSTRUCTION ACTIVITIES.
2. CONSTRUCTION TO BE SCHEDULED DURING DRY SEASON TO AVOID HIGH WATER LEVELS AND REDUCE BYPASS FLOW.
3. IN THE EVENT OF SEVER WEATHER, CANAL DAMMING MAY BE REQUIRED TO BE REMOVED IF TEMPORARY BYPASS FLOW OPTIONS PROVE TO BE INEFFECTIVE; REGARDLESS OF CONSTRUCTION STATUS.
4. CONTRACTOR TO HAVE BYPASS PUMPS IN STANDBY TO SUPPLEMENT TEMPORARY BYPASS FLOWS DURING SEVERE WEATHER CONDITIONS.
5. THE CONTRACT SHALL PROVIDE ALL EMERGENCY CONTACT PERSONNEL INFORMATION TO THE ENGINEER AND SWCD, PRIOR TO COMMENCING CONSTRUCTION ACTIVITIES.
6. EROSION AND SEDIMENTATION CONTROL MEASURES SHALL BE IMPLEMENTED AS NECESSARY DURING TEMPORARY BYPASS AND CONSTRUCTION ACTIVITIES.

LEGEND

- TEMPORARY STORM DRAIN PIPE
- TEMPORARY SURFACE WATER
- TEMPORARY WATER'S EDGE

VERTICAL DATUM INFORMATION
ALL ELEVATIONS SHOWN ARE IN NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD88)
CONVERSION FACTOR:
NAVD88 + 1.53 = NGVD29 IN THIS AREA

Sunshine811

Call 811 or www.sunshine811.com two full business days before digging to have utilities located and marked.

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chen moore and associates

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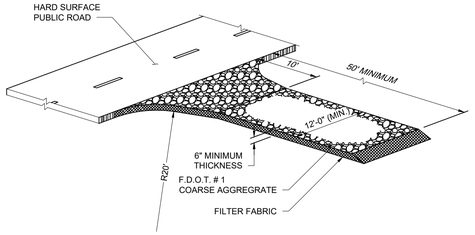


NOTES:

1. THE ENTRANCE SHALL BE MAINTAINED IN A CONDITION THAT WILL PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO PUBLIC RIGHTS-OF-WAY. THIS MAY REQUIRE TOP DRESSING, REPAIR AND/OR CLEANOUT OF ANY MEASURES USED TO TRAP SEDIMENT.
2. WHEN NECESSARY, WHEELS SHALL BE CLEANED PRIOR TO ENTRANCE ONTO PUBLIC RIGHT-OF-WAY.
3. WHEN WASHING IS REQUIRED, IT SHALL BE DONE ON AN AREA STABLIZED WITH CRUSHED STONE THAT DRAINS INTO AN APPROVED SEDIMENT TRAP OR SEDIMENT BASIN.

GRAVEL CONSTRUCTION ENTRANCE

N.T.S.

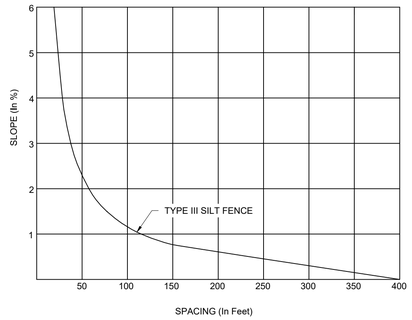
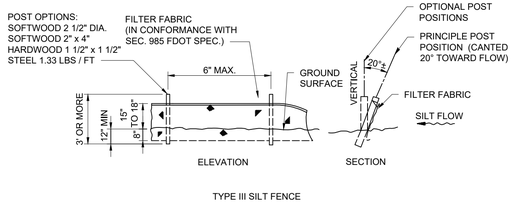
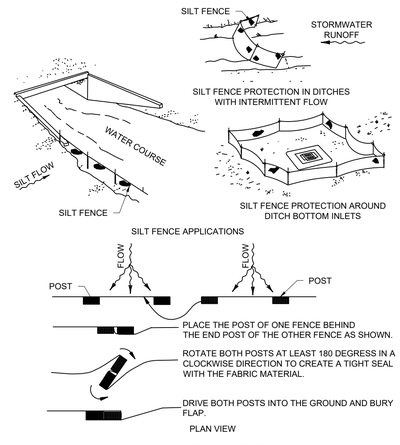


CHART 1: SILT FENCE SPACING



TYPE III SILT FENCE



JOINING TWO SILT FENCES

NOTES:

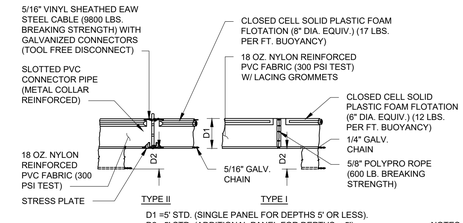
1. WHERE USED IN DITCHES, THE SPACING FOR TYPE III SILT FENCE SHALL BE IN ACCORDANCE WITH CHART 1.
2. DO NOT CONSTRUCT SILT FENCES ACROSS PERMANENT FLOWING WATERCOURSES. SILT FENCES ARE TO BE AT UPLAND LOCATIONS AND TURBIDITY BARRIERS USED AT PERMANENT BODIES OF WATER.
3. WHERE USED AS SLOPE PROTECTION . SILT FENCE IS TO BE CONSTRUCTED ON 0% LONGITUDINAL GRADE TO AVOID CHANNELIZING RUNOFF ALONG THE LENGTH OF THE FENCE.

SILT FENCE

N.T.S.

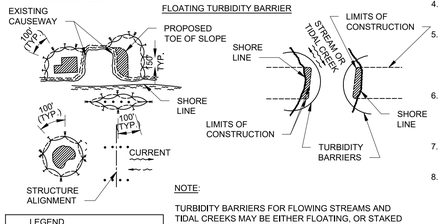
EROSION AND SEDIMENT CONTROL:

1. CONTRACTOR TO EMPLOY BEST MANAGEMENT PRACTICES THROUGHOUT CONSTRUCTION IN ORDER TO ENSURE POLLUTION PREVENTION. CONTRACTOR TO COMPLY WITH ALL LOCAL STATE AND OTHER GOVERNMENTAL ENVIRONMENTAL REGULATIONS THROUGHOUT CONSTRUCTION.
2. DURING CONSTRUCTION ALL CATCH BASIN INLETS SHALL BE PROTECTED TO PREVENT SEDIMENT AND DEBRIS FROM ENTERING THE CATCH BASIN.
3. SILT FENCES SHALL BE INSTALLED AS NECESSARY TO CONTROL OR PREVENT DISCHARGE OF SEDIMENT ONTO ADJACENT UNDISTURBED AREAS, OR OFF-SITE AREAS.
4. ALL AREAS DISTURBED DURING CONSTRUCTION SHALL BE STABILIZED WITHIN A REASONABLE PERIOD OF TIME TO ASSURE MINIMUM EROSION OF SOILS.
5. NO LAND CLEARING OR GRADING SHALL BEGIN UNTIL ALL EROSION CONTROL MEASURES HAVE BEEN INSTALLED.
6. ALL EXPOSED AREAS SHALL BE SODDED AS SPECIFIED WITHIN 30 DAYS OF FINAL GRADING.
7. MAINTAIN EROSION CONTROL MEASURES AFTER EACH RAIN AND AT LEAST ONCE A WEEK.
8. THE CONTRACTOR SHALL TAKE ALL NECESSARY PRECAUTIONS TO PREVENT SOIL SEDIMENT FROM LEAVING THE SITE.
9. CONTRACTOR SHALL COMPLY WITH ALL STATE AND LOCAL ORDINANCES THAT APPLY.
10. ADDITIONAL EROSION AND SEDIMENT CONTROL MEASURES WILL BE INSTALLED IF DEEMED NECESSARY BY CITY, COUNTY, AND STATE OF FLORIDA ON SITE INSPECTION, AT NO ADDITIONAL COST TO THE OWNER.
11. LAND DISTURBING ACTIVITIES SHALL NOT COMMENCE UNTIL APPROVAL TO DO SO HAS BEEN RECEIVED BY GOVERNING AUTHORITIES.
12. IF INSTALLATION OF STORM DRAINAGE SYSTEM SHOULD BE INTERRUPTED BY WEATHER OR NIGHTFALL, THE PIPE ENDS SHALL BE COVERED WITH FILTER FABRIC.
13. BURNING OF DEBRIS WILL NOT BE ALLOWED.
14. CONTRACTOR SHALL BE RESPONSIBLE TO TAKE WHATEVER MEANS NECESSARY TO ESTABLISH PERMANENT SOIL STABILIZATION.
15. CONTRACTOR IS TO PROVIDE EROSION CONTROL/SEDIMENTATION BARRIER (HAY BALES OR SILTATION CURTAIN) TO PREVENT SILTATION OF ADJACENT PROPERTY, STREETS, STORM SEWERS AND WATER WAYS. IN ADDITION CONTRACTOR SHALL PLACE STRAW, MULCH OR OTHER SUITABLE MATERIAL ON GROUND IN AREAS WHERE CONSTRUCTION RELATED TRAFFIC IS TO ENTER AND EXIT SITE IF IN THE OPINION OF THE ENGINEER AND/OR LOCAL AUTHORITIES IF EXCESSIVE QUANTITIES OF EARTH ARE TRANSPORTED OFF-SITE EITHER BY NATURAL DRAINAGE OR BY VEHICULAR TRAFFIC. THE CONTRACTOR IS TO REMOVE AND CLEAN SAID EARTH TO THE SATISFACTION OF THE ENGINEER AND/OR AUTHORITIES. EROSION CONTROL BARRIER SHALL BE ESTABLISHED AS THE FIRST ITEM OF WORK.
16. THE NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES) FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION'S STORMWATER PERMITTING PROGRAM APPLIES TO ALL CONSTRUCTION ACTIVITY THAT: 1) CONTRIBUTE STORMWATER DISCHARGES TO SURFACE WATER OF THE STATE OR INTO A MUNICIPAL SEPARATE STORM SEWER SYSTEM (MS4); 2) DISTURBS ONE OR MORE ACRES OF LAND; OR 3) LESS THAN ONE ACRE IS INCLUDED IF THE ACTIVITY IS PART OF A LARGER COMMON PLAN OF DEVELOPMENT THAT WILL MEET OR EXCEED THE ONCE ACRE THRESHOLD. DISTURB INCLUDES CLEARING, GRADING AND EXCAVATING.
17. FOR CONSTRUCTION ACTIVITY THAT IS SUBJECT TO THE NPDES FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION'S STORMWATER PERMITTING PROGRAM, THE CONTRACTOR SHALL:
    - 17.1.OBTAIN A GENERIC PERMIT FOR STORMWATER DISCHARGE FROM LARGE AND SMALL CONSTRUCTION ACTIVITIES FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION DOCUMENT 62-621.300(4)(A).
    - 17.2.COMPLY WITH ALL REQUIREMENTS OF THE GENERIC PERMIT.
    - 17.3.DEVELOP AND IMPLEMENT A STORMWATER POLLUTION PREVENTION PLAN (SWPPP).
    - 17.4.COMPLETE A NOTICE OF INTENT (NOI) FLORIDA DEPARTMENT OF ENVIORNMENTAL PROTECTION FORM 62-621.300(4)(B) IN ITS ENTIRETY USING THE FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION'S WEBSITE.
18. SUBMIT COPIES OF THE SWPPP AND THE NOI TO THE ENGINEER AS INFORMATIONAL RECORDS. THESE SUBMITTALS WILL NOT BE REVIEWED BY THE ENGINEER.
19. CONTRACTOR TO CLEAN AND REPAIR ALL EXISTING STORMWATER INFRASTRUCTURE THAT IS IMPACTED BY CONSTRUCTION ACTIVITIES, BEFORE LEAVING THE JOBSITE.
20. CONTRACTOR TO REMOVE ALL FILTER FABRIC AND POLLUTION PREVENTION ITEMS BEFORE THE FINAL WALK-THROUGH.



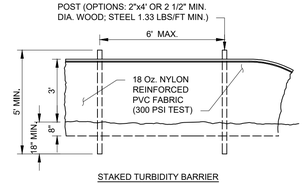
D1 =5' STD. (SINGLE PANEL FOR DEPTHS 5' OR LESS).
D2 =5' STD. (ADDITIONAL PANEL FOR DEPTHS > 5').
CURTAIN TO REACH BOTTOM UP TO DEPTHS OF 10 FEET.
TWO (2) PANELS TO BE USED FOR DEPTHS GREATER THAN 10 FEET UNLESS SPECIAL DEPTH CURTAINS SPECIFICALLY CALLED FOR IN THE PLANS OR AS DETERMINED BY THE ENGINEER.

NOTE:
COMPONENTS OF TYPES I AND II MAY BE SIMILAR OR IDENTICAL TO PROPRIETARY DESIGNS. ANY INFRINGEMENT ON THE PROPRIETARY RIGHTS OF THE DESIGNER SHALL BE THE SOLE RESPONSIBILITY OF THE USER. SUBSTITUTIONS FOR TYPES I AND II SHALL BE AS APPROVED BY THE ENGINEER.



NOTE:
TURBIDITY BARRIERS FOR FLOWING STREAMS AND TIDAL CREEKS MAY BE EITHER FLOATING, OR STAKED TYPES OR ANY COMBINATIONS OF TYPES THAT WILL SUIT SITE CONDITIONS AND MEET EROSION CONTROL AND WATER QUALITY REQUIREMENTS. THE BARRIER TYPE(S) WILL BE AT THE CONTRACTOR'S OPTION UNLESS OTHERWISE SPECIFIED IN THE PLANS. POSTS IN STAKED TURBIDITY BARRIERS TO BE INSTALLED IN VERTICAL POSITION UNLESS OTHERWISE DIRECTED BY THE ENGINEER.

TURBIDITY APPLICATIONS



STAKED TURBIDITY BARRIER

NOTES:

1. TURBIDITY BARRIERS ARE TO BE USED IN ALL PERMANENT BODIES OF WATER REGARDLESS OF WATER DEPTH.
2. NUMBER AND SPACING OF ANCHORS DEPENDENT ON CURRENT VELOCITIES.
3. DEPLOYMENT OF BARRIER AROUND PILE LOCATIONS MAY VARY TO ACCOMMODATE CONSTRUCTION OPERATIONS.
4. NAVIGATION MAY REQUIRE SEGMENTING BARRIER DURING CONSTRUCTION OPERATIONS.
5. TYPE I TURBIDITY BARRIERS SHALL BE DESIGNED BY THE MANUFACTURER FOR USE IN CALM WATER AREAS SUCH AS SWALES, DITCHES, CANALS, SMALL PONDS, LAKES AND HARBORS. TYPE I TURBIDITY BARRIERS SHALL BE USED IN AREAS WHERE THERE IS NO CURRENT AND THE AREA IS SHELTERED FROM WIND AND WAVES.
6. TYPE II TURBIDITY BARRIERS ARE DESIGNED BY THE MANUFACTURER FOR AREAS WITH MOVING WATER, CURRENTS, WAVES OR TIDE. TYPE II TURBIDITY BARRIERS SHALL BE USED IN WATER LOCATIONS WITH WAVES UP TO TWO FEET (2'), MODERATE WIND, AND CURRENTS UP TO 2 KNOTS OR 3.5 FEET PER SECOND.
7. STAKED BARRIERS ARE CONTINUOUS PANELS OF PVC FABRIC THAT CONTAIN STORMWATER RUNOFF OR RE-DIRECT IT TO CHANNELS OR RETENTION AREAS.
8. CONSTRUCTION SPECIFICATIONS: THE AREA OF INSTALLATION FOR THE PROPOSED TURBIDITY BARRIER SHALL BE INSPECTED FOR OBSTACLES AND IMPEDIMENTS THAT COULD DAMAGE THE BARRIER OR IMPAIR ITS EFFECTIVENESS TO RETAIN SEDIMENTS. REMOVE MATERIALS, OBSTACLES AND IMPEDIMENTS THAT COULD DAMAGE OR IMPAIR THE EFFECTIVENESS OF THE TURBIDITY BARRIER.
9. MAINTENANCE: THE TURBIDITY BARRIER SHALL BE INSPECTED DAILY AND REPAIRED OR REPLACED IMMEDIATELY IF DAMAGED. IT IS NOT NORMALLY NECESSARY TO REMOVE SEDIMENT DEPOSITED BEHIND THE CURTAIN. HOWEVER, WHEN NECESSARY, REMOVAL SHALL BE DONE BY HAND PRIOR TO REMOVAL OF THE BARRIER. ALL REMOVED SILT SHALL BE STABILIZED AWAY FROM THE WATERBODY. THE BARRIER SHALL BE REMOVED SLOWLY AND BY CAREFULLY PULLING IT TOWARD THE CONSTRUCTION SITE TO MINIMIZE THE RELEASE OF SEDIMENTS.

TURBIDITY BARRIER - FLOATING

N.T.S.

cma
chen moore and associates

SUNSHINE
WATER CONTROL DISTRICT

STAFF REPORTS BIIa

CRAIG A. SMITH & ASSOCIATES
A SMART-INFRASTRUCTURE COMPANY

September 6, 2022

Board of Supervisors
Sunshine Water Control District (SWCD)
2300 Glades Road, Suite 410W
Boca Raton, Florida 33073

RE: SWCD Right-of-Way Permit Application
Ladybird Academy - Canal L
CAS PROJECT NO. 15-1826-P31

Dear Board of Supervisors (BOS):

We have reviewed the Right-of-Way permit application submitted by Z Development Services on behalf of CSJ Capital, LLC for the development of an institutional facility (Ladybird Academy) adjacent to Canal "L". The property is currently vacant and the development of the site will also entail demucking work on the adjacent canal as shown on the plans.

The applicant has met SWCD applicable criteria and we recommend that the SWCD BOS issue a Right-of-Way Permit to the applicant, subject to the following Special Conditions to be made part of the Permit on the scheduled September 14, 2022:

1. A copy of Record As-builts and Engineer Certification shall be provided to SWCD upon completion of all work with elevations shown in NAVD datum.
2. All work must be in compliance with the latest SWCD Permit Criteria Manual.
3. All nuisance vegetation within Canal "L" work limits shall be removed and canal banks shall be stabilized with sod.
4. Permittee will ensure that all necessary Sediment & Erosion Control devices will be utilized at the SWCD right-of-way during construction.
5. Trash bond ($2,500) shall be submitted prior to permit issuance and the Contractor shall repair and replace any SWCD facilities damaged during construction at no cost to the District.
6. All applicable permits and approvals for Work shall be obtained.
7. SWCD shall be notified at least 48 hours prior to construction.
8. The Permittee is advised that additional cost recovery fees may be requested.

Sincerely,
CRAIG A. SMITH & ASSOCIATES

Orlando A. Rubio, PE
VP of Stormwater Engineering

cc: SWCD – Cory Selchan (via e-mail)
WHA – Jamie Sanchez, Cindy Cerbone, Debbie Tudor, Gianna Dinofrio, Daphne Gillyard (via e-mail)
Z Development Services - Bob Ziegenfuss, PE, (via e-mail)
CAS – Stephen C. Smith, PE (via e-mail)

\\cas-file\Projects\Districts\Sunshine_Water_Control\15-1826-COST-RECOVERY-PROJECTS\15-1826-P31-LadybirdAcademy\06-Permit\LadybirdAcademyCanalL-Engr_Recommendation.docx

561.314.4445
21045 Commercial Trail
Boca Raton, FL 33486

CONTRACTOR'S NOTE:
CONTRACTOR SHALL PROVIDE A COMPREHENSIVE ASBUILT SURVEY FOR THE PROJECT AS REQUIRED BY THE GOVERNING AGENCY. CONTACT THE ENGINEER OF RECORD FOR THE REQUIREMENTS OF THE AS-BUILT SURVEY BEFORE START OF CONSTRUCTION.

LADYBIRD ACADEMY

8950 ROYAL PALM BOULEVARD
CORAL SPRINGS, FLORIDA 33065

FOLIO NO.: 4841-22-07-1030
CASE NO.: DRC19-0012

DEVELOPER & CONSULTANTS

OWNER/DEVELOPER

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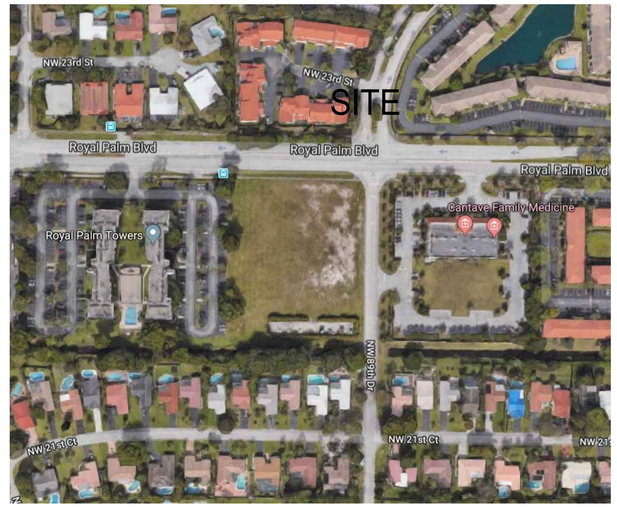
INDEX OF DRAWINGS

PROJECT REVISIONS

REV. NO.	DATE	DESCRIPTION	SHEETS	BY
1	07-07-22	SFWMD & SWCD COMMENTS	CV, C3, C7.2, C8, C8.1, C8.2, C8.3, C8.4, C8.5	SR
2	08-22-22	SWCD COMMENTS	C3	SR

VICINITY MAP NTS



Z DEVELOPMENT services
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ORLANDO, FL 32803
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FAX: (407) 442-0604

REVISION	DATE
SFWMD & SWCD COMMENTS	07-07-22

ROBERT ZIEGENFUSS, P.E., LEED AP
FL REG. # 59752

LADYBIRD ACADEMY
8950 ROYAL PALM BOULEVARD
CORAL SPRINGS, FLORIDA 33065

DATE: 02-22-22
DRAWN: SR
CHECKED: RZ

CV
COVER SHEET

PROJECT NO.: 2019.141

DEMOLITION NOTES

1. PRIOR TO THE START OF CONSTRUCTION THE CONTRACTOR SHALL COORDINATE ACTIVITIES WITH ALL UTILITY SERVICE PROVIDERS IN THE AREA. THE LOCATION OF ALL EXISTING UTILITIES SHOULD BE VERIFIED PRIOR TO ANY EXCAVATION ACTIVITIES.

2. THE CONTRACTOR SHALL COMPLETELY REMOVE AND DISPOSE OF ALL STRUCTURES AND OTHER IMPROVEMENTS AS NOTED ON THE PLANS. THIS INCLUDES FOUNDATIONS, TIMBER, BRUSH, STUMPS, ROOTS, PAVEMENT AND BASE MATERIAL AND OTHER STRUCTURES AS SHOWN OR REASONABLY IMPLIED IN THE DRAWINGS.

3. WHERE EXISTING BUILDINGS ARE TO BE DEMOLISHED, ALL TRACES OF FOUNDATIONS AND UNDERGROUND UTILITIES ARE TO BE REMOVED (UNLESS OTHERWISE NOTED ON PLANS). THE CONTRACTOR IS RESPONSIBLE FOR PROPER DISPOSAL OF ALL WASTE MATERIAL.

4. WHERE PAVING OR STRUCTURES ARE TO BE REMOVED WHICH ABUT OR ARE A PART OF CONNECTED FACILITIES (THAT ARE OFF-SITE), ANY DAMAGE THAT MIGHT RESULT FROM DEMOLITION IS TO BE RESTORED TO A CONDITION EQUAL TO OR BETTER THAN EXISTING UNLESS SPECIFICALLY EXEMPTED BY THE PLANS. THE COST FOR SUCH RESTORATION SHALL BE INCIDENTAL TO OTHER CONSTRUCTION AND NO EXTRA COMPENSATION WILL BE ALLOWED.

5. THE LOCATION OF ALL EXISTING UTILITIES AND TREES SHOWN ON THE PLANS HAVE BEEN DETERMINED BASED UPON THE BEST AVAILABLE INFORMATION. THE ENGINEER AND OWNER ASSUME NO RESPONSIBILITY FOR ACCURACY. ALL UTILITIES, SURFACE IMPROVEMENTS AND TREE LOCATIONS SHOULD BE VERIFIED BY THE CONTRACTOR.

6. THE CONTRACTOR SHALL COORDINATE THE RELOCATION OR REMOVAL OF ALL OVERHEAD/UNDERGROUND UTILITIES, UTILITY POLES, LIGHTS AND LINES IN THE RIGHT-OF-WAY AND ON THE PROPERTY WITH THE APPROPRIATE SERVICE PROVIDER.

7. THE CONTRACTOR SHALL REFERENCE AND RESTORE PROPERTY CORNERS AND LAND MARKERS DISTURBED DURING CONSTRUCTION. (UNDER THE DIRECTION OF A REGISTERED LAND SURVEYOR).

8. ALL EROSION CONTROL MEASURES NOTED BELOW AND IN THE PLANS SHOULD BE IN PLACE PRIOR TO THE START OF DEMOLITION.

EROSION CONTROL NOTES

ALL EROSION CONTROL MEASURES SHALL REMAIN IN PLACE UNTIL COMPLETION OF CONSTRUCTION.

1. ALL EROSION AND SEDIMENT CONTROL WORK SHALL CONFORM WITH LOCAL CITY/COUNTY AND WATER MANAGEMENT DISTRICT SPECIFICATIONS, SUBJECT TO AUTHORIZED AND APPROVED VARIANCES, WAIVERS AND/OR CONDITIONAL CHANGES.

2. EROSION AND SEDIMENT CONTROL MEASURES SHALL BE PLACED PRIOR TO OR AS THE FIRST STEP IN, CONSTRUCTION. SEDIMENT CONTROL PRACTICES WILL BE APPLIED AS A PERIMETER DEFENSE AGAINST ANY TRANSPORTATION OF SILT OFF THE SITE.

3. ALL AREAS AFFECTED BY THIS WORK SHALL BE RESTORED TO A CONDITION EQUAL TO OR BETTER THAN EXISTING CONDITION, UNLESS SPECIFICALLY EXEMPTED BY THE PLANS, THE COST FOR SUCH RESTORATION SHALL BE INCIDENTAL TO OTHER CONSTRUCTION AND NO ADDITIONAL COMPENSATION SHALL BE ALLOWED.

4. THE CONTRACTOR SHALL IMMEDIATELY NOTIFY THE ENGINEER OF ANY DISCREPANCIES BETWEEN THESE PLANS AND FIELD CONDITIONS PRIOR TO CONSTRUCTION.

5. PRIOR TO CONSTRUCTION THE CONTRACTOR SHALL PROVIDE TREE PROTECTION BARRIERS TO MEET THE REQUIREMENTS OF LOCAL SPECIFICATIONS.

6. THE CONTRACTOR SHALL SELECTIVELY CLEAR ONLY THE AREAS REQUIRED FOR CONSTRUCTION AND STABILIZE ANY POTENTIAL EROSION AREAS IMMEDIATELY FOLLOWING COMPLETION OF CONSTRUCTION.

7. CONTRACTOR SHALL KEEP ANY AND ALL SAND, SILT OR OTHER DEBRIS FROM MOVING OFF-SITE. USE AND MAINTAIN SILT FENCE JUST INSIDE THE LIMITS OF CONSTRUCTION.

8. CONTRACTOR SHALL BLOCK INTRUSION OF SAND, SILT OR OTHER DEBRIS INTO ANY DRAINAGE OR SANITARY SEWER STRUCTURE OR PIPING ON OR ADJACENT TO THE SITE.

9. ALL CLEARED AREAS FOR IMPROVEMENT AND/OR CONSTRUCTION SHALL BE WATERED TO PREVENT WIND EROSION.

10. FOR ADDITIONAL INFORMATION AND DETAILS, SEE STATE OF FLORIDA'S EROSION AND SEDIMENT CONTROL MANUAL.

11. UNLESS SPECIFIED, SILT FENCES MAY BE USED IN LIEU OF SYNTHETIC BARRIERS.

12. ADDITIONAL POSTS AND RAILS MAY BE NECESSARY TO SECURE AND SUPPORT BARRIERS.

13. ADDITIONAL BARRIER LENGTHS MAY BE REQUIRED BY THE GOVERNING JURISDICTION OR BY OTHER REGULATORY AGENCIES.

14. FILTER FABRIC MUST BE INSTALLED UNDER ALL INLET GRATES, AT ALL TIMES WHEN INLETS ARE NOT PROTECTED BY SILT FENCE OR SYNTHETIC BALES/WATTLES, UNTIL THE LIMEROCK BASE IS FINISHED AND PRIMED.

15. THE BOTTOM AND SIDE SLOPES OF RETENTION PONDS SHALL BE UNDER EXCAVATED BY ROUGHLY 12 INCHES AT THE BEGINNING OF CONSTRUCTION. ONCE THE ENTIRE SITE IS STABILIZED, THE RETENTION POND SHALL BE EXCAVATED TO THE DESIGN DEPTH AND STABILIZED WITH SEED OR SOD AS SPECIFIED IN THE LANDSCAPING PLANS. NO MUCK GROWN SOD SHALL BE USED.

GENERAL NOTES

THE CONTRACTOR SHALL FAMILIARIZE HIMSELF WITH THE SITE CONDITIONS AND THESE PLANS PRIOR TO THE START OF CONSTRUCTION. ANY CONFLICTS BETWEEN CONDITIONS IN THE FIELD AND THESE PLANS SHALL BE REPORTED TO THE ENGINEER OF RECORD AT ONCE.

A. GENERAL

1. ALL INFRASTRUCTURE AND IMPROVEMENTS SHALL CONFORM TO THE STANDARDS AND SPECIFICATIONS OF THE LOCAL JURISDICTION AND WILL BE SUBJECT TO THEIR INSPECTION AND ACCEPTANCE.

2. SITE LOCATION: 8950 ROYAL PALM BOULEVARD, CORAL SPRINGS, FLORIDA 33065.

3. THIS SITE LIES IN FLOOD ZONE "X", BASED ON FLOOD INSURANCE RATE MAP NO. 12011C0165H, COMMUNITY NO. 120033, PANEL 0165H, CORAL SPRINGS, BROWARD COUNTY, FLORIDA, EFFECTIVE DATE OF AUGUST 18, 2014.

4. BOUNDARY, TOPOGRAPHIC AND TREE SURVEY BY NV5, 201 S. BUMBY AVENUE, ORLANDO, FLORIDA 32708. DATED MAY 15, 2019.

5. BENCHMARK – REFER TO BOUNDARY, TOPOGRAPHIC AND TREE SURVEY BY NV5, DATED MAY 15, 2019. SEE NOTE 4 ABOVE.

6. LEGAL DESCRIPTION SHOWN HEREIN IS FURNISHED BY SURVEYOR, AND IS INCLUDED FOR PERMITTING AND APPROVAL PURPOSES, AND AS A COURTESY FOR THE CONTRACTOR. THE ENGINEER ASSUMES NO LIABILITY FOR ITS ACCURACY OR COMPLETENESS.

7. SITE GEOTECHNICAL INVESTIGATION PERFORMED BY NV5, THE CIVIL ENGINEER ASSUMES NO RESPONSIBILITY FOR THE CORRECTNESS, ACCURACY AND COMPLETENESS OF THEIR WORK. THE CONTRACTOR SHALL OBTAIN A COPY OF THE GEOTECHNICAL ENGINEER'S REPORT FOR THIS SITE AND COMPLY WITH RECOMMENDATIONS CONTAINED THEREIN. IF ADDITIONAL SERVICES ARE REQUIRED, THE CONTRACTOR SHALL MAKE A REQUEST TO THE OWNER.

8. CONTRACTOR SHALL PROVIDE AND INSTALL EROSION CONTROL DEVICES (SILT FENCE OR OTHER METHODS) AT LIMITS OF CONSTRUCTION AND AROUND EACH STORM INLET PRIOR TO CONSTRUCTION, AND SHALL MAINTAIN SAID EROSION CONTROL DEVICES DURING CONSTRUCTION, ALL IN CONFORMANCE WITH CURRENT LOCAL, COUNTY AND STATE CRITERIA.

9. THE SITE SHALL BE CLEARED AS MAY BE NOTED ON THE PLANS, OF ALL OBSTRUCTIONS AND DELETERIOUS MATERIAL SUCH AS FENCES, WALLS, FOUNDATIONS, LOGS, SHRUBS, BRUSH, WEEDS, OTHER VEGETATION, AND ACCUMULATION OF RUBBISH OF WHATEVER NATURE. OFF-SITE DISPOSAL, INCLUDING ANY HAZARDOUS MATERIAL ENCOUNTERED, SHALL BE IN ACCORDANCE WITH APPLICABLE LOCAL, STATE, AND FEDERAL RULES AND REGULATIONS.

10. THE CONTRACTOR SHALL IMMEDIATELY NOTIFY THE ENGINEER OF ANY DISCREPANCIES BETWEEN THE PLANS AND FIELD CONDITIONS PRIOR TO START OF CONSTRUCTION.

11. THE CONTRACTOR SHALL REMAIN SOLELY RESPONSIBLE FOR ANY DESIGN CHANGES WHICH HE MAY INCORPORATE INTO THE PLANS WITHOUT PRIOR WRITTEN CONSENT AND/OR APPROVAL FROM THE OWNER AND THE ENGINEER.

12. THE CONTRACTOR SHALL COORDINATE ALL WORK WITHIN EACH EXISTING RIGHT OF WAY WITH THE CITY OF CORAL SPRINGS AND/OR BROWARD COUNTY.

13. THE CONTRACTOR SHALL RESTORE OFF-SITE AREAS TO A CONDITION EQUAL TO OR BETTER THAN THE CONDITION EXISTING PRIOR TO COMMENCEMENT OF CONSTRUCTION.

14. ALL DISTURBED AREAS SHALL BE SODDED.

15. AT LEAST 30 DAYS PRIOR TO ANTICIPATED COMPLETION OF SITE CONSTRUCTION, THE FINAL CERTIFICATION PROCESS WILL BEGIN. THE CONTRACTOR SHALL PROVIDE DOCUMENTS AND INFORMATION, IN A TIMELY MANNER, TO ENGINEER, INCLUDING, WITHOUT LIMITATION:
   a. SURVEYED "AS-BUILTS" MEETING THE REQUIREMENTS OF THE LOCAL JURISDICTION.
   b. COMPACTION AND DENSITY TEST REPORTS, AND
   c. PRESSURE TESTING AND BACTERIOLOGICAL TESTING RESULTS, AS REQUIRED, FOR WATER DISTRIBUTION AND/OR WASTEWATER COLLECTION/TRANSMISSION SYSTEMS.

THE CONTRACTOR SHALL HAVE TWO (2) SETS OF AS-BUILT PLANS, SIGNED AND SEALED BY SURVEYOR OF RECORD, ON SITE THE DAY OF THE CIVIL ENGINEERING FINAL PUNCH LIST INSPECTION. THE GENERAL CONTRACTOR IS TO GIVE THE TWO AS-BUILT PLANS TO THE REPRESENTATIVE FROM Z DEVELOPMENT SERVICES COMPLETING THE INSPECTION. IF ANY DEFICIENCIES ARE NOTED, ONE SET OF RED-LINED AS-BUILT PLANS WILL BE GIVEN TO THE GC FOR REVISIONS TO BE MADE. REVISED AS-BUILTS WILL NEED TO BE FORWARDED TO THE ENGINEER BEFORE ANY CERTIFICATIONS CAN BE INITIATED.

16. LANDSCAPE SHALL BE TRIMMED TO ENSURE SIGHT VISIBILITY OF TRAFFIC CONTROL DEVICES.

17. ALL PAVEMENT IS DIMENSIONED TO FACE OF CURB.

18. ALL BUILDING DIMENSIONS AND TIES ARE TO FACE OF BUILDING. SEE ARCHITECTURAL PLANS.

19. ALL PARKING LOT CURB RETURN RADII ARE 2' UNLESS OTHERWISE NOTED.

UTILITY NOTES

PRIOR TO COMMENCING ANY CONSTRUCTION, THE CONTRACTOR SHALL FIELD VERIFY ALL EXISTING UTILITIES, INCLUDING WITHOUT LIMITATION POTABLE WATER, RECLAIMED WATER, SANITARY SEWER, AND SERVICE UTILITIES, AT POINTS OF CONNECTION, POINTS OF CROSSING, AND/OR POTENTIAL CONFLICT. NOTIFY ENGINEER OF ANY DISCREPANCIES BETWEEN THE PLANS AND FIELD CONDITIONS.

A. GENERAL

1. THE LOCATIONS OF EXISTING UTILITIES, SUCH AS WATER MAINS, SEWERS, GAS LINES, ETC., SHOWN ON THE PLANS ARE BASED ON THE BEST AVAILABLE INFORMATION AND ARE SHOWN FOR THE CONVENIENCE OF THE CONTRACTOR. THE ENGINEER AND OWNER ASSUME NO LIABILITY FOR ACCURACY AND COMPLETENESS. IT IS THE CONTRACTOR'S RESPONSIBILITY TO CONTACT ALL UTILITY COMPANIES AT LEAST 48 HOURS PRIOR TO COMMENCEMENT OF CONSTRUCTION OR DEMOLITION AND TO HAVE THEIR FACILITIES LOCATED IN THE FIELD PRIOR TO ANY WORK.

2. DUE TO GRAPHIC LIMITATIONS OF THE DRAWING SCALE, ALL STORM SEWER, DRAINAGE, WATER AND SANITARY SEWER MAINS, SERVICES, LATERALS, CONNECTIONS, AND APPURTENANCES DEPICTED HEREIN – UNLESS OTHERWISE LOCATED BY DIMENSIONS – REFLECT SCHEMATIC LOCATIONS ONLY. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE FINAL LOCATIONS DURING THE CONSTRUCTION AND INSTALLATION OF THE PROPOSED IMPROVEMENTS, INCLUDING ANY REQUISITE COORDINATION WITH THE RESPECTIVE GOVERNING AGENCY/UTILITY PROVIDER.

3. ALL WATER AND SEWER CONSTRUCTION SHALL CONFORM TO THE STANDARDS AND SPECIFICATIONS OF THE CITY OF CORAL SPRINGS, AND WILL BE SUBJECT TO THEIR INSPECTION AND ACCEPTANCE.

4. CONTRACTOR SHALL INSPECT PIPING AND MATERIALS BEFORE INSTALLATION TO DETECT APPARENT DEFECTS. MARK DEFECTIVE MATERIALS WITH WHITE PAINT AND PROMPTLY REMOVE FROM SITE.

5. LAY SEWER PIPING BEGINNING AT LOW POINT OF SYSTEM (CONNECTION TO OFF SITE SYSTEM OR PUMP STATION), TRUE TO GRADES AND ALIGNMENT INDICATED WITH UNBROKEN CONTINUITY OF INVERTS. PLACE BELL ENDS OR GROOVE ENDS OF PIPING FACING UPSTREAM.

6. CLEAR INTERIOR OF PIPE OF DIRT AND OTHER SUPERFLUOUS MATERIAL AS WORK PROGRESSES. MAINTAIN SWAB OR DRAG IN LINE AND PULL PAST EACH JOINT AS IT IS COMPLETED. PLACE PLUGS IN ENDS OF UNCOMPLETED CONDUIT WHENEVER WORK STOPS.

7. MAINTAIN 36" COVER OVER MAINS, AND 30" OVER SERVICES/LATERALS UNLESS OTHERWISE NOTED.

8. WHEN PROPOSED CONSTRUCTION OCCURS AT EXISTING MANHOLES, INLETS, VAULTS, AND OTHER STRUCTURES, THE CONTRACTOR SHALL MODIFY THE STRUCTURES, FRAMES, AND GRATES TO MEET THE PROPOSED GRADES UNLESS OTHERWISE DIRECTED.

9. INSTALL CONTINUOUS LOCATOR TAPE/WIRE, LOCATED DIRECTLY OVER POTABLE WATER MAINS AND SANITARY SEWER MAINS AT 6" TO 8" ABOVE PIPE.

10. WHERE APPLICABLE, UTILITY TRENCHES CROSSING PAVEMENT AREAS SHALL BE BACK FILLED WITH COMPACTED GRANULAR MATERIAL IN ACCORDANCE WITH A.A.S.H.T.O.-T-99.

11. CONTRACTOR SHALL PROVIDE SLEEVES FOR IRRIGATION LINES AND SITE LIGHTING UNDER PAVEMENT. COORDINATE WITH GENERAL CONTRACTOR.

12. ALL TRENCHES EXCAVATED FOR THE PURPOSES OF UTILITY/STORM INSTALLATION SHALL BE KEPT DRY FOR THE DURATION OF UTILITY/STORM CONSTRUCTION. DEWATERING OF UTILITY/STORM TRENCHES MAY BE REQUIRED TO PREVENT FLOATATION OF UTILITY/STORM PIPES DURING INSTALLATION.

13. THE CONTRACTOR SHALL NOTIFY THE ENGINEER WHEN CONSTRUCTION IS COMPLETE FOR WATER, WASTEWATER AND STORMWATER SYSTEMS SO TIMELY CERTIFICATIONS MAY BE INITIATED. SATISFACTORY BACTERIOLOGICAL TEST RESULTS, PRESSURE TEST RESULTS, AND AN AS BUILT SURVEY SHALL BE SUBMITTED TO ENGINEER PRIOR TO FINAL CERTIFICATION.

14. SUITABLE COUPLINGS COMPLYING WITH ASTM SPECIFICATIONS ARE REQUIRED FOR JOINING DISSIMILAR MATERIALS.

15. DEFLECTION TESTS ARE REQUIRED FOR ALL FLEXIBLE PIPE. TESTING REQUIREMENTS: 1) NO PIPE SHALL EXCEED A DEFLECTION OF 5%; 2) USING A RIGID BALL OR MANDREL FOR THE DEFLECTION TEST WITH A DIAMETER NOT LESS THAN 95% OF THE BASE INSIDE DIAMETER OR AVERAGE INSIDE DIAMETER OF THE PIPE; 3) PERFORMING THE TEST WITHOUT MECHANICAL PULLING DEVICES.

B. MATERIALS (WATER)

1. SERVICE PIPE SHALL BE POLYETHYLENE (PE) TUBING, DR9 MINIMUM.

2. WATER MAINS SHALL BE DUCTILE IRON PIPE (D.I.P.) SEE NOTE #3 BELOW.

3. DUCTILE IRON PIPE (D.I.P.) SHALL CONFORM TO ANSI/AWWA A21.51/C151, CLASS 50 (MIN.) PIPE FOR ALL SIZES.

4. CORPORATION STOPS SHALL BE BRASS, SIZED TO MATCH THE TAP DIAMETER, EQUIPPED WITH CONNECTIONS COMPATIBLE WITH SERVICE PIPE AND THREADED IN ACCORDANCE WITH SPECIFICATIONS IN AWWA C800. CURB STOPS SHALL BE SIZED TO MATCH THE METER SIZE AND CONFORM WITH AWWA C800 AND AWWA C901.

5. FITTINGS SHALL BE BRASS, CAST AND MACHINED IN ACCORDANCE WITH AWWA C800 AND AWWA C901, WITH COMPATIBLE PIPE CONNECTIONS.

6. TAPPING SADDLES SHALL BE USED FOR ALL SERVICE LINE TAPS. SERVICE SADDLES SHALL BE DOUBLE STRAP, ANCHORED BY A MINIMUM FOUR (4) BOLT PATTERN ON A DUCTILE IRON SADDLE BODY. FOR PVC PIPE, DOUBLE STRAPS SHALL BE CORROSION RESISTANT ALLOY STEEL, SIZED EXACTLY TO THE PIPE OUTSIDE DIAMETER. SEALING GASKETS SHALL BE BUNA-N RUBBER.

7. ALL POTABLE WATER PIPE AND PIPE FITTINGS INSTALLED UNDER THIS PROJECT SHALL BE BLUE IN COLOR VIA INTEGRAL PIPE COLOR, STRIPING, OR OTHER METHODS.

C. MATERIALS (SEWER)

1. ALL GRAVITY SEWER PIPE AND FITTINGS SHALL BE NON-PRESSURE POLYVINYL CHLORIDE PIPE (PVC) CONFORMING TO ASTM D 3034, SDR 26, WITH PUSH-ON RUBBER GASKET JOINTS.

2. ALL FITTINGS AND ACCESSORIES SHALL BE MANUFACTURED OR SUPPLIED BY THE PIPE MANUFACTURER OR PRIOR-APPROVED EQUAL.

3. BEDDING AND INITIAL BACK FILL OVER SEWER MAINS AND SERVICES SHALL BE SAND WITH NO ROCK LARGER THAN 1" IN DIAMETER.

D. MATERIALS (STORM)

1. REINFORCED CONCRETE PIPE (RCP): O-RING PIPE SHALL CONFORM TO ASTM C 76 (CLASS III, UNLESS OTHERWISE SPECIFIED) AND AASHTO M 170 STANDARD SPECIFICATIONS, AND ASTM C 443 STANDARD SPECIFICATION FOR JOINTS FOR RCP USING RUBBER GASKETS.

2. ELLIPTICAL RCP SHALL CONFORM TO ASTM C 507 (CLASS III) AND AASHTO M 207 STANDARD SPECIFICATIONS.

3. HDPE PIPE AND FITTINGS SHALL MEET THE REQUIREMENTS OF AASHTO M-252 (3"-10"), M-294 (12" AND LARGER), TYPE S (CORRUGATED OUTSIDE – SMOOTH INSIDE, 4"-60"), AND MP7 (60" TYPE S).

   A. BELL/SPIGOT GASKET FOR HDPE PIPE SHALL BE SOIL/SILT TIGHT PER AASHTO SECTION 26 WITH RUBBER GASKET MEETING ASTM F-477.

4. PVC STORM SEWER PIPE (12" OR LESS) AND FITTINGS SHALL BE NON-PRESSURE POLYVINYL CHLORIDE PIPE (PVC) CONFORMING TO ASTM D3034, SDR26, WITH PUSH-ON RUBBER GASKET JOINTS.

UTILITY DISINFECTING & TESTING NOTES

WATER MAINS THAT ARE INCLUDED IN THIS PROJECT THAT WILL BE CONSTRUCTED OF POLYVINYL CHLORIDE PIPE WILL BE PRESSURE AND LEAKAGE TESTED IN ACCORDANCE WITH AWWA STANDARD C605. ALL OTHER WATER MAINS INCLUDED IN THIS PROJECT WILL BE PRESSURE AND LEAKAGE TESTED IN ACCORDANCE WITH AWWA STANDARD C600.

LEAKAGE TESTS ARE REQUIRED AS FOLLOWS: 1) THE LEAKAGE EXFILTRATION OR INFILTRATION DOES NOT EXCEED 200 GALLONS PER INCH OF PIPE DIAMETER PER MILE PER DAY FOR ANY SECTION OF THE PIPE; 2) EXFILTRATION OR INFILTRATION TESTS BE PERFORMED WITH A MINIMUM POSITIVE HEAD OF 2 FEET; 3) AIR TESTS, AS A MINIMUM, CONFORM TO THE TEST PROCEDURE DESCRIBED IN ASTM C 828 FOR CLAY PIPE, ASTM C 924 FOR CONCRETE PIPE, ASTM F-1417 FOR PLASTIC PIPE, AND FOR OTHER MATERIALS APPROPRIATE TEST PROCEDURES.

DISINFECTION OF THE WATER DISTRIBUTION SYSTEM SHALL BE PERFORMED IN ACCORDANCE WITH AWWA C651 DISINFECTING WATER MAINS. SATISFACTORY BACTERIOLOGICAL TEST RESULTS SHALL BE SUBMITTED TO ENGINEER PRIOR TO FINAL CERTIFICATION.

THE CONTRACTOR SHALL MAKE PROVISIONS TO PROTECT THE ACTIVE EXISTING MAIN FROM BACKFLOW CONTAMINATION DURING FILLING, FLUSHING, AND TESTING OF THE NEW MAIN, AS SPECIFIED IN AWWA C651-92.

CONTRACTOR SHALL UTILIZE A JUMPER CONNECTION DURING WATER MAIN TESTING. ALTERNATE TYPES OF BACKFLOW PREVENTION MAY BE UTILIZED AS APPROVED BY INSPECTION STAFF AND ENGINEER.

UTILITY SEPARATION NOTES

1. NEW OR RELOCATED, UNDERGROUND WATER MAINS INCLUDED IN THIS PROJECT WILL BE LAID TO PROVIDE A HORIZONTAL DISTANCE OF AT LEAST THREE FEET BETWEEN THE OUTSIDE OF THE WATER MAIN AND THE OUTSIDE OF ANY EXISTING OR PROPOSED VACUUM-TYPE SANITARY SEWER, STORM SEWER, STORMWATER FORCE MAIN, OR PIPELINE CONVEYING RECLAIMED WATER REGULATED UNDER PART III OF CHAPTER 62-610, F.A.C.; A HORIZONTAL DISTANCE OF AT LEAST SIX FEET BETWEEN THE OUTSIDE OF THE WATER MAIN AND THE OUTSIDE OF ANY EXISTING OR PROPOSED GRAVITY-TYPE SANITARY SEWER (OR A HORIZONTAL DISTANCE OF AT LEAST THREE FEET BETWEEN THE OUTSIDE OF THE WATER MAIN AND THE OUTSIDE OF ANY EXISTING OR PROPOSED PRESSURE-TYPE SANITARY SEWER IF THE BOTTOM OF THE WATER MAIN IS LAID AT LEAST SIX INCHES ABOVE THE TOP OF THE SEWER); A HORIZONTAL DISTANCE OF AT LEAST SIX FEET BETWEEN THE OUTSIDE OF THE WATER MAIN AND THE OUTSIDE OF ANY EXISTING OR PROPOSED PRESSURE-TYPE SANITARY SEWER, WASTEWATER FORCE MAIN, OR PIPELINE CONVEYING RECLAIMED WATER NOT REGULATED UNDER PART III OF CHAPTER 62-610, F.A.C.; AND A HORIZONTAL DISTANCE OF AT LEAST TEN FEET BETWEEN THE OUTSIDE OF THE WATER MAIN AND ALL PARTS OF ANY EXISTING OR PROPOSED "ON-SITE SEWAGE TREATMENT AND DISPOSAL SYSTEM."

2. NEW OR RELOCATED, UNDERGROUND WATER MAINS THAT ARE INCLUDED IN THIS PROJECT AND THAT WILL CROSS ANY EXISTING OR PROPOSED GRAVITY – OR VACUUM – TYPE SANITARY SEWER OR STORM SEWER WILL BE LAID SO THE OUTSIDE OF THE WATER MAIN IS AT LEAST SIX INCHES ABOVE THE OTHER PIPELINE OR AT LEAST 12 INCHES BELOW THE OTHER PIPELINE; AND NEW OR RELOCATED, UNDERGROUND WATER MAINS THAT ARE INCLUDED IN THIS PROJECT AND THAT WILL CROSS ANY EXISTING OR PROPOSED PRESSURE-TYPE SANITARY SEWER , WASTEWATER OR STORMWATER FORCE MAIN, OR PIPELINE CONVEYING RECLAIMED WATER WILL BE LAID SO THE OUTSIDE OF THE WATER MAIN IS AT LEAST 12 INCHES ABOVE OR BELOW THE OTHER PIPELINE.

3. AT THE UTILITY CROSSINGS DESCRIBED ABOVE, ONE FULL LENGTH OF WATER MAIN PIPE SHALL BE CENTERED ABOVE OR BELOW THE OTHER PIPELINE SO THE WATER MAIN JOINTS WILL BE AS FAR AS POSSIBLE FROM THE OTHER PIPELINE OR THE PIPES SHALL BE ARRANGED SO THAT ALL WATER MAIN JOINTS ARE AT LEAST THREE FEET FROM ALL JOINTS IN VACUUM-TYPE SANITARY SEWERS, STORM SEWERS, STORMWATER FORCE MAINS, OR PIPELINES CONVEYING RECLAIMED WATER REGULATED UNDER PART III OF CHAPTER 62-610, F.A.C., AND AT LEAST SIX FEET FROM ALL JOINTS IN GRAVITY – OR PRESSURE – TYPE SANITARY SEWERS, WASTEWATER FORCE MAINS, OR PIPELINES CONVEYING RECLAIMED WATER NOT REGULATED UNDER PART III OF CHAPTER 62-610, F.A.C.

UTILITY CONTACTS

SANITARY SEWER	CITY OF CORAL SPRINGS UTILITIES 3800 N.W. 85TH AVENUE CORAL SPRINGS, FLORIDA 33065 PHONE: 954-345-2188
WATER	CITY OF CORAL SPRINGS UTILITIES 3800 N.W. 85TH AVENUE CORAL SPRINGS, FLORIDA 33065 PHONE: 954-345-2188
STORMWATER	SOUTH FLORIDA WATER MANAGEMENT DISTRICT 2535 DAVIE ACCESS ROAD, PLANTATION, FLORIDA 33317 PHONE: 954-452-4814 SUNSHINE WATER CONTROL DISTRICT 6131 LYONS ROAD COCONUT CREEK, FLORIDA 33073 PHONE: 954-426-2105
POWER	FLORIDA POWER & LIGHT 4200 GRIFFIN ROAD, FORT LAUDERDALE, FLORIDA 33314 PHONE: 954-583-2473

CONTRACTOR'S NOTE:
CONTRACTOR SHALL PROVIDE A COMPREHENSIVE ASBUILT SURVEY FOR THE PROJECT AS REQUIRED BY THE GOVERNING AGENCY. CONTACT THE ENGINEER OF RECORD FOR THE REQUIREMENTS OF THE AS-BUILT SURVEY BEFORE START OF CONSTRUCTION.

GENERAL CONTRACTOR NOTE:
A COPY OF THIS SHEET C0 SHALL BE PROVIDED TO ALL BIDDERS AND SUB-CONTRACTORS.

LEGEND

PROPOSED CONTOUR	73.50
MEET EXISTING GRADE	MEG
EDGE OF PAVEMENT	EOP
SIDEWALK	SW
GRADE BREAK	GB
SPOT ELEVATION	12.55
DIRECTION OF FLOW AND PERCENT SLOPE	
STORM SEWER & INLET	
DOWN SPOUT DRAINS	DSD
SANITARY SEWER & MANHOLE	SS
CLEANOUT	C.O.
WATER SERVICE	W
FIRE HYDRANT	
WATER METER	
BACKFLOW PREVENTION DEVICE	
GATE VALVE	
REDUCER	
UNDERGROUND TELEPHONE	T
UNDERGROUND ELECTRIC	UGE
SITE LIGHTING	
TRANSFORMER	T
AIR CONDITIONING UNIT	AC
PARKING SPACE TOTALS	8
6" CURBING WITH DIMENSION (TO FACE OF CURB U.N.O.)	12'
DETAIL NUMBER SHEET NUMBER	3 C4

Z DEVELOPMENT services
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DATE	REVISION
DATE	REVISION
DATE	REVISION

ROBERT ZIEGENFUSS, P.E., LEED AP
FL. REG. # 56752

LADYBIRD ACADEMY
8950 ROYAL PALM BOULEVARD
CORAL SPRINGS, FLORIDA 33065

DATE: 02-22-22
DRAWN: SR
CHECKED: RZ

C0
CIVIL DATA & NOTES

PROJECT NO.: 2019.141

LEGAL DESCRIPTION

(EXHIBIT A OF TITLE COMMITMENT)

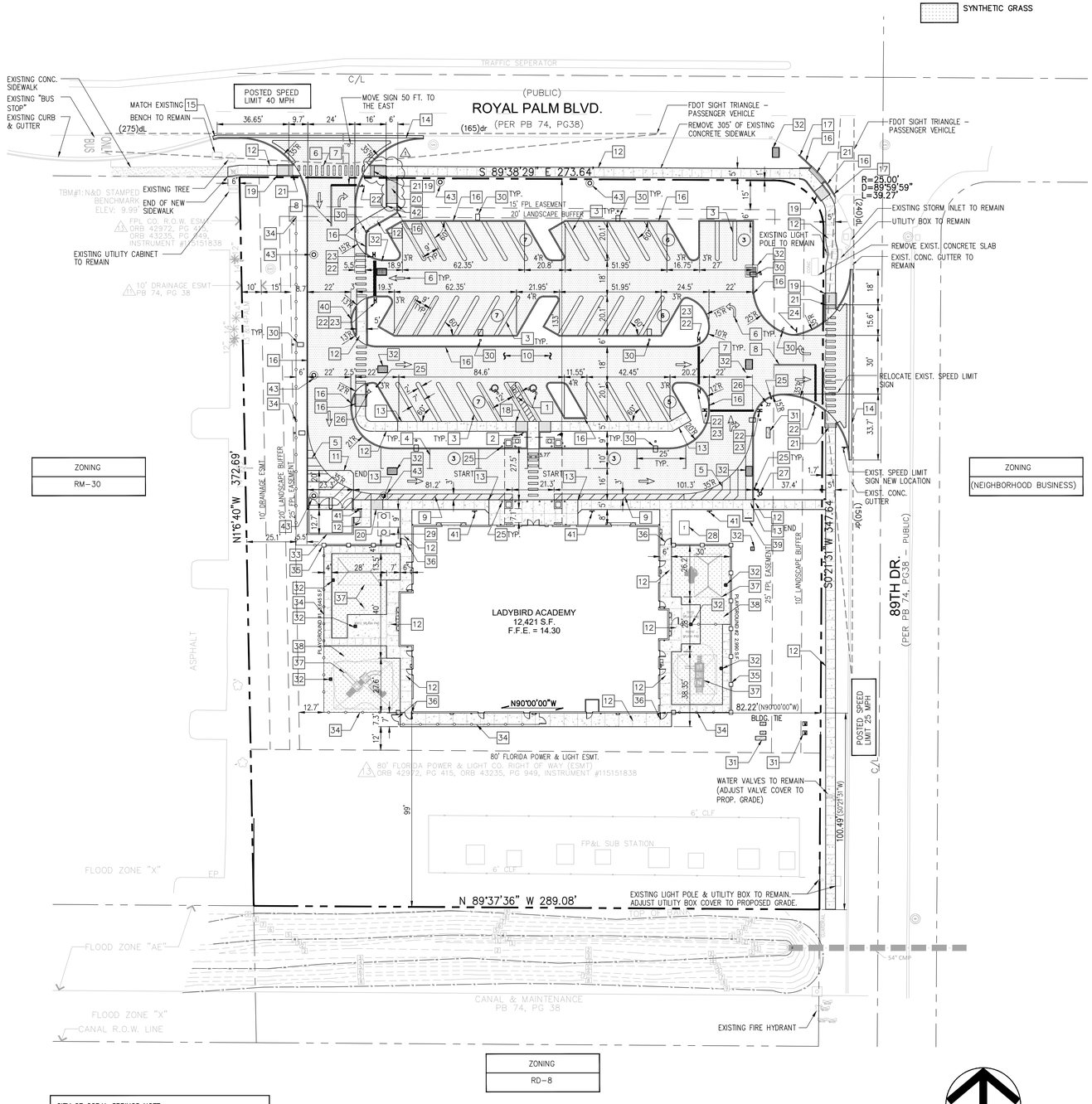
PARCEL "A", OF FOREST HILLS WEST, ACCORDING TO THE PLAT THEREOF, AS RECORDED IN PLAT BOOK 74, PAGE 38, OF THE PUBLIC RECORDS OF BROWARD COUNTY, FLORIDA.

LEGEND

NEW ASPHALT PAVEMENT

CONCRETE PAVEMENT

SYNTHETIC GRASS



CITY OF CORAL SPRINGS NOTE:
ALL SIGNAGE SHALL REQUIRE A SEPARATE BUILDING PERMIT, ALL DUMPSTER ENCLOSURES AND SITE LIGHTING SHALL REQUIRE A SEPARATE BUILDING PERMIT.

NORTH

30' 0 30' 60'

GRAPHIC SCALE

SITE DIMENSION PLAN 1 : 30'

SITE DATA

SITE AREA	109,359 S.F. (2.511 AC.)	
BUILDING HEIGHT	29 FT.	
TOTAL SITE AREA	109,359 S.F. (2.51 AC.)	
SITE AREA CALCULATIONS		
PRE DEVELOPMENT		
PERVIOUS AREA	108,694	S.F. (99.4%)
IMPERVIOUS AREA	665	S.F. (0.6%)
POST DEVELOPMENT		
PERVIOUS AREA	60,127	S.F. (55.0%)
IMPERVIOUS AREA	49,232	S.F. (45.0%)
BUILDING	12,421	S.F.
PAVEMENT	36,811	S.F.
FLOOR AREA RATIO	0.11	
ZONING	B1 (NEIGHBORHOOD BUSINESS)	
FUTURE LAND USE	COMMERCIAL	

BUILDING SETBACKS	REQUIRED	PROVIDED
FRONT (NORTH)	65.0 FT.	133.0 FT
SIDE (EAST)	20.0 FT.	77.8 FT
SIDE (WEST)	20.0 FT.	76.7 FT
REAR (SOUTH)	20.0 FT.	99.0 FT

LANDSCAPE BUFFERS	REQUIRED	PROVIDED	PLANTING AREA
FRONT (NORTH)	20.0 FT.	20.5 FT. (MIN.)	5.5 FT. (MIN.)
SIDE (EAST)	10.0 FT.	35.0 FT. (MIN.)	10 FT. (MIN.)
SIDE (WEST)	20.0 FT.	30.6 FT. (MIN.)	5.5 FT. (MIN.)
REAR (SOUTH)	20.0 FT.	12.0 FT. (MIN.)	12.0 FT. (MIN.)

PARKING SPACE CALCULATIONS

PARKING REQUIRED :1 SPACE PER 200 S.F. OF FLOOR AREA
GROSS FLOOR AREA: :12,421 S.F.
STORAGE, ELECTRICAL, LOBBY & RISER ROOM :1,231 S.F.
BLDG. AREA FOR PARKING CALCULATION :11,190 S.F.

REQUIRED
= 11,190 S.F. / 200
= 56 SPACES

PARKING PROVIDED	
ADA SPACES	2
REGULAR	45
TOTAL	47

BICYCLE PARKING

PARKING REQUIRED : 1 SPACE FOR EVERY 40 PARKING SPACES

REQUIRED
= 47 S.F. / 40
= 1 SPACE

PROVIDED = 3 SPACES

SPECIAL EXCEPTIONS SE19-0010 (RECORDED ON FEB. 19,2020)

- REDUCED PARKING SPACE EXCEPTION
  REQUIRED SPACES: 56, PROVIDED SPACES: 47
- LANDSCAPE BUFFER EXCEPTION
  (SEE LANDSCAPE BUFFER SUMMARY ABOVE)

PEDESTRIAN ZONE CALCULATIONS

NORTH FACE (127 L.F.)
REQUIRED
127 FT. X 13 FT. X 0.25 = 413 S.F.

PROVIDED
LANDSCAPED AREA = 604 S.F.

EAST FACE (96 L.F.)
REQUIRED
96 FT. X 13 FT. X 0.25 = 312 S.F.

PROVIDED
LANDSCAPED AREA: 2,001 S.F.

PLAN KEY NOTES

1 ACCESSIBLE PARKING, STRIPING AND ACCESS AISLE (C7.3)
2 ACCESSIBLE PARKING SIGN (2 PLACES) (C7.3)
3 PARKING STALL STRIPING (C7.3)
4 4" WHITE PAINT PARKING STRIPING
5 4" WHITE PAINT STRIPING AT 4 FT. O.C.
6 PAVEMENT MARKING (C7.3)
7 12" WHITE PAINT STOP BAR (C7.3)
8 6" DOUBLE STRIPING
9 3 FT. WIDE FIRE LANE (C7.3)
10 ASPHALT PAVEMENT (6/C6)
11 CONCRETE APRON (1/C6)
12 CONCRETE WALK WITH EXPANSION JOINTS AND SCORE MARKS (5/C6) (C7)
13 MONOLITHIC CURB AND SIDEWALK (2/C6)
14 VALLEY GUTTER (C7)
15 CURB AND GUTTER (C7)
16 6" VERTICAL CURB (C7)
17 TRANSITION CURB (3/C6)
18 ACCESSIBLE RAMP 1 – CR-C (FDOT INDEX 522-002) (C7)
19 ACCESSIBLE RAMP 2 – CR-F (FDOT INDEX 522-002) (C7)
20 ACCESSIBLE RAMP 3 (4/C6)
21 DETECTABLE WARNING (C7)
22 30" STOP SIGN (R1-1)
23 30" DO NOT ENTER SIGN
24 "RIGHT TURN ONLY" SIGN
25 BOLLARD (C7)
26 FIRE HYDRANT (SEE UTILITY PLAN)
27 FIRE DEPARTMENT CONNECTION WITH BOLLARDS (SEE UTILITY PLAN)
28 TRANSFORMER PAD
29 GREASE TRAP (SEE UTILITY PLAN)
30 LIGHT POLE (SEE SITE PHOTOMETRICS PLAN)
31 WATER METERS AND BACKFLOW PREVENTERS (SEE UTILITY PLAN)
32 STORMWATER STRUCTURE (SEE GRADING & DRAINAGE PLAN)
33 DUMPSTER ENCLOSURE (SEE ARCHITECTURAL PLANS)
34 6 FT. HIGH WHITE PVC FENCE
35 PLAYGROUND FENCE (SEE ARCHITECTURAL PLANS)
36 PLAYGROUND GATE (SEE ARCHITECTURAL PLANS)
37 PLAYGROUND EQUIPMENT (SEE PLAYGROUND PLANS)
38 SYNTHETIC GRASS (SEE PLAYGROUND PLANS)
39 BICYCLE RACK AND 6' X 5.5' CONCRETE PAD (5/C6) (C7.3)
40 6" HIGH CONCRETE ISLAND (4,000 PSI)
41 FIRE LANE SIGN AT 60 FT. O.C. (SEE SHEET C4)
42 PEDESTRIAN RAILING (1/C6.1)
43 SANITARY SEWER MANHOLE (SEE UTILITY PLAN) (1/C7.2)

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C1
SITE DIMENSION PLAN

PROJECT NO.: 2019.141

NEEDED FIRE FLOW (NFF)
(PER TABLE 18.4.5.1.2, NFPA 1, 2012)

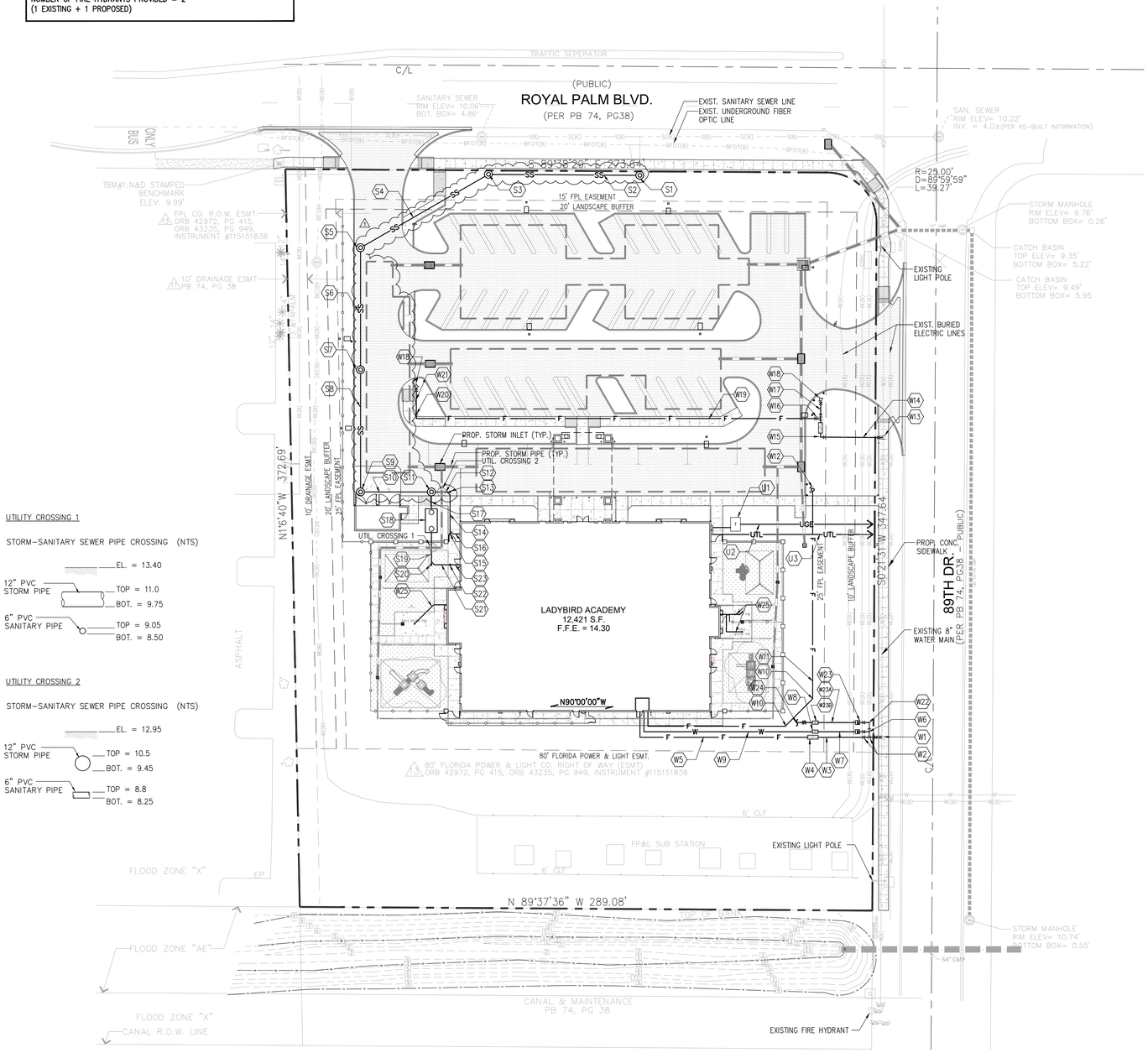
BUILDING AREA (12,421 S.F.)
TYPE OF CONSTRUCTION : TYPE VB (COMBUSTIBLE/UNPROTECTED/SPRINKLED)

NFF = 2,250 GPM (50% REDUCTION FOR FIRE SPRINKLER SYSTEM)
= 1,125 GPM

NUMBER OF FIRE HYDRANTS PROVIDED = 2
(1 EXISTING + 1 PROPOSED)

CONTRACTOR'S NOTE:
CONTRACTOR SHALL PROVIDE A COMPREHENSIVE ASBUILT SURVEY FOR THE PROJECT AS REQUIRED BY THE GOVERNING AGENCY. CONTACT THE ENGINEER OF RECORD FOR THE REQUIREMENTS OF THE AS-BUILT SURVEY BEFORE START OF CONSTRUCTION.

CONTRACTOR'S UTILITY WORK NOTE:
CONTRACTOR SHALL EXERCISE EXTREME CAUTION WORKING NEAR EXISTING UNDERGROUND UTILITIES. CONTRACTOR SHALL CONTACT RESPECTIVE UTILITY SERVICE PROVIDERS FOR INFORMATION BEFORE START OF CONSTRUCTION.



UTILITY CROSSING 1

STORM-SANITARY SEWER PIPE CROSSING (NTS)

UTILITY CROSSING 2

STORM-SANITARY SEWER PIPE CROSSING (NTS)

NORTH
30' 0 30' 60'
GRAPHIC SCALE

UTILITY PLAN 1 : 30'

DRY UTILITIES

U1 POWER TRANSFORMER PAD LOCATION

U2 CONTRACTOR SHALL COORDINATE UNDERGROUND ELECTRIC SERVICE CONNECTION WITH FLORIDA POWER AND LIGHT FOR NUMBER AND SIZE OF CONDUITS AND DEPTH REQUIREMENTS.

U3 UNDERGROUND TELEPHONE SERVICE
CONTRACTOR SHALL COORDINATE NEW UNDERGROUND TELEPHONE SERVICE WITH SERVICE PROVIDER BEFORE START OF CONSTRUCTION.

PLAN KEY NOTES

SANITARY SEWER

S1 REMOVE PORTION OF EXISTING 6" SANITARY SEWER STUB-OUT TO INSTALL SANITARY SEWER MANHOLE.
INVERT IN = 6.40
INVERT OUT = 4.75 (APPROXIMATE)

NOTE: CONTRACTOR SHALL FIELD VERIFY EXISTING SANITARY SEWER PIPE SIZE, LOCATION AND INVERT BEFORE START OF CONSTRUCTION. REPORT IMMEDIATELY TO THE ENGINEER IF ANY CONFLICT IN PIPE SIZE AND INVERT EXISTS.

S2 76 LF - 8" PVC AT 0.5% SLOPE (C7.2) TYP.

S3 SANITARY SEWER MANHOLE (C7.2) TYP.
TOP OF COVER = 11.30
WEST INVERT = 6.85
EAST INVERT = 6.80

S4 74 LF - 8" PVC AT 0.5% SLOPE

S5 SANITARY SEWER MANHOLE
TOP OF COVER = 13.30
NORTH INVERT = 7.25
SOUTH INVERT = 7.30

S6 61 LF - 8" PVC AT 0.5% SLOPE

S7 SANITARY SEWER MANHOLE
TOP OF COVER = 13.25
NORTH INVERT = 7.60
SOUTH INVERT = 7.65

S8 61 LF - 8" PVC AT 0.5% SLOPE

S9 SANITARY SEWER MANHOLE
TOP OF COVER = 13.20
NORTH INVERT = 7.95
EAST INVERT = 8.0

S10 36 LF - 8" PVC AT 0.5% SLOPE

S11 SANITARY SEWER MANHOLE
TOP OF COVER = 12.95
WEST INVERT = 8.20
SOUTH INVERT = 8.25
EAST INVERT = 8.25

S12 9 LF - 6" PVC AT 1.6% SLOPE

S13 CLEANOUT (C7.1) TYP.
INVERT = 8.35

S14 21 LF - 6" PVC AT 1% SLOPE

S15 DROP CLEANOUT (8 / C6) TYP.
INVERT IN = 10.0
INVERT OUT = 8.55

S16 SANITARY SEWER LINE BUILDING EXIT LOCATION

S17 8 LF- 6" PVC AT 1% SLOPE

S18 750 GALLON GREASE INTERCEPTOR (SEE PLUMBING PLANS FOR SIZING CALCS.) (C7.2)
TOP OF COVERS = 13.75
INVERT IN = 8.60
INVERT OUT = 8.35

S19 17 LF- 6" PVC AT 1% SLOPE

S20 CLEANOUT
INVERT = 8.60

S21 9 LF- 6" PVC AT 1% SLOPE

S22 DROP CLEANOUT
INVERT IN = 10.0
INVERT OUT = 8.70

S23 GREASE LINE BUILDING EXIT LOCATION

WATER

W1 8" X 6" TAPPING SLEEVE AND 6" VALVE PER CITY OF CORAL SPRINGS STANDARDS

W2 6" X 4" TEE WITH RESTRAINED JOINTS AND 6" GATE VALVE

W3 32 LF - 6" DIP FIRE PROTECTION SERVICE LINE TO BUILDING

W4 6" DOUBLE DETECTOR CHECK VALVE BACKFLOW PREVENTER

W5 105 LF - 6" DIP FIRE PROTECTION SERVICE LINE TO BUILDING

W6 4 X 2 1/2" TEE, 2 1/2" GATE VALVE, 2" METER & 4" X 1 1/2" REDUCER

W7 30 LF - 2 1/2" BLUE POLYETHYLENE DOMESTIC SERVICE

W8 2 1/2" REDUCED PRESSURE ZONE BACKFLOW PREVENTER

W9 125 LF - 2 1/2" BLUE POLYETHYLENE DOMESTIC SERVICE

W10 4" - 45° BEND

W11 205 LF - 4" DIP

W12 FIRE DEPARTMENT CONNECTION (FDC)

W13 8" X 8" TAPPING SLEEVE AND 8" GATE VALVE PER CITY OF CORAL SPRINGS STANDARDS

W14 32 LF - 8" DIP FIRE LINE

W15 8" GATE VALVE, 8" - 90° BEND AND 8" DOUBLE DETECTOR CHECK VALVE BACKFLOW PREVENTER

W16 8" X 8" TEE, 8" GATE VALVE AND 8" X 6" REDUCER

W17 10 LF - 6" DIP FIRE LINE

W18 FIRE HYDRANT ASSEMBLY WITH BOLLARDS

W19 210 LF - 8" DIP FIRE LINE

W20 8" - 90° BEND AND 8" X 6" REDUCER

W21 20 LF - 6" DIP FIRE LINE

W22 1 1/2" 90° BEND

W23 1" WATER METER AND 1 1/2" GATE VALVE

W23A 30 LF - 1 1/2" PVC FOR IRRIGATION

W23B 1 1/2" REDUCED PRESSURE ZONE BACKFLOW PREVENTER

W24 1 1/2" PVC IRRIGATION LINE (REFER TO IRRIGATION PLAN FOR CONTINUATION)

W25 1" PVC WATER LINE FOR EACH SPLASH PAD SPRAY. INCREASE PIPE SIZE (10 / C6) TO 2" PRIOR TO SPRAY HEAD CONNECTION

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C2
UTILITY PLAN

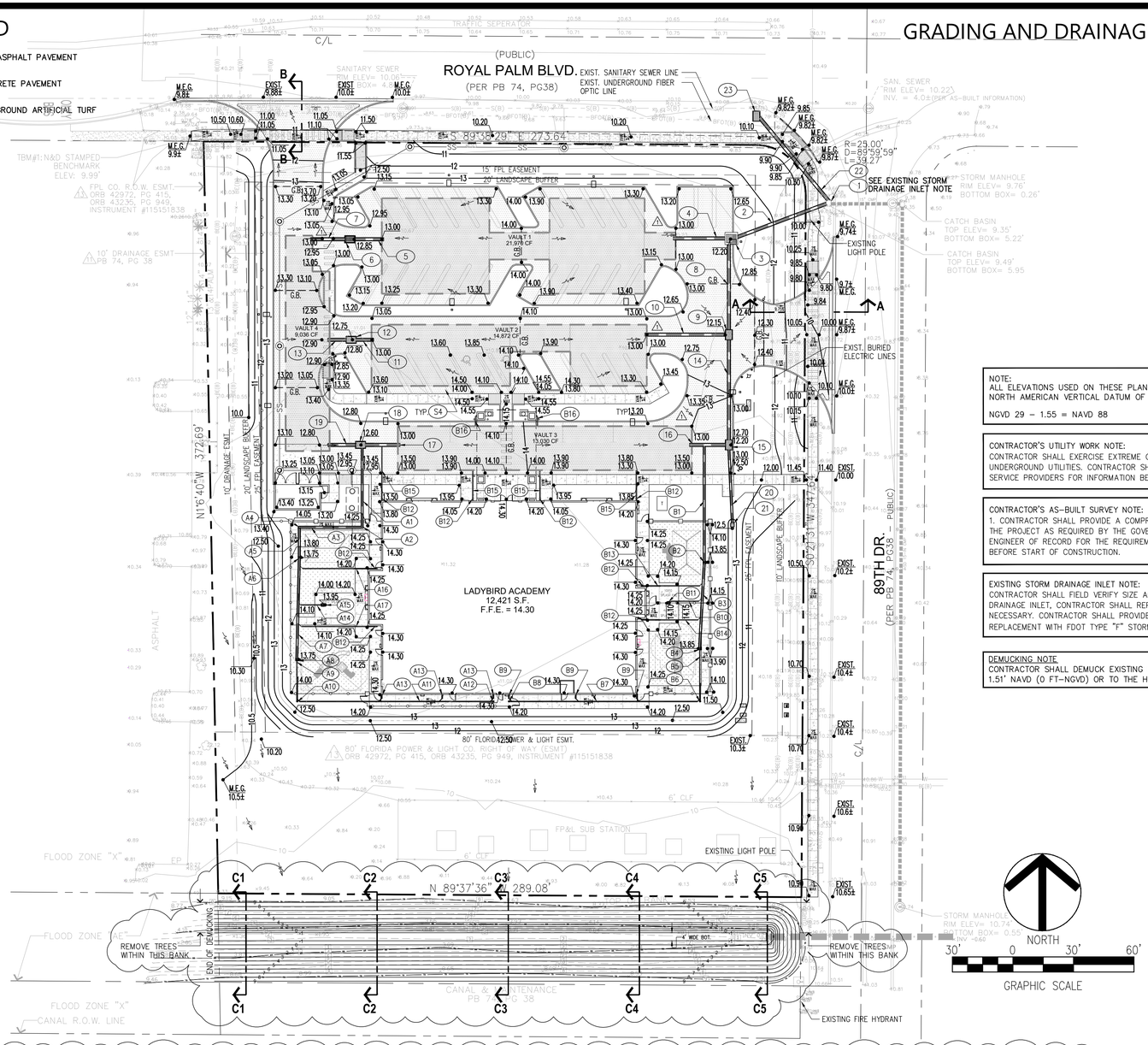
PROJECT NO.: 2019.141

LEGEND

- NEW ASPHALT PAVEMENT
- CONCRETE PAVEMENT
- PLAYGROUND ARTIFICIAL TURF

GRADING AND DRAINAGE PLAN

1 : 30'



NOTE:
ALL ELEVATIONS USED ON THESE PLANS ARE ON NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD 88)

NGVD 29 – 1.55 = NAVD 88

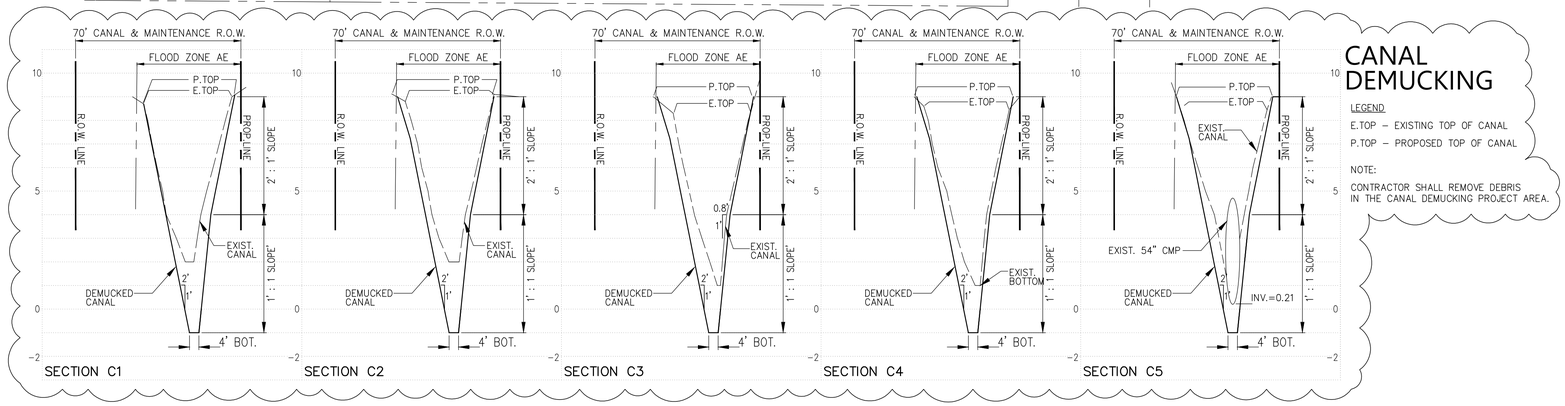
CONTRACTOR'S UTILITY WORK NOTE:
CONTRACTOR SHALL EXERCISE EXTREME CAUTION WORKING NEAR EXISTING UNDERGROUND UTILITIES. CONTRACTOR SHALL CONTACT RESPECTIVE UTILITY SERVICE PROVIDERS FOR INFORMATION BEFORE START OF CONSTRUCTION.

CONTRACTOR'S AS-BUILT SURVEY NOTE:
1. CONTRACTOR SHALL PROVIDE A COMPREHENSIVE ASBUILT SURVEY FOR THE PROJECT AS REQUIRED BY THE GOVERNING AGENCY. CONTACT THE ENGINEER OF RECORD FOR THE REQUIREMENTS OF THE AS-BUILT SURVEY BEFORE START OF CONSTRUCTION.

EXISTING STORM DRAINAGE INLET NOTE:
CONTRACTOR SHALL FIELD VERIFY SIZE AND CONDITION OF EXISTING STORM DRAINAGE INLET, CONTRACTOR SHALL REPLACE EXISTING STORM INLET AS NECESSARY. CONTRACTOR SHALL PROVIDE A BID ALTERNATE FOR POSSIBLE REPLACEMENT WITH FDOT TYPE "F" STORM INLET.

DEMUCKING NOTE
CONTRACTOR SHALL DEMUCK EXISTING CANAL DOWN TO ELEVATION (–) 1.51' NAVD (0 FT–NGVD) OR TO THE HARDPAN, WHICHEVER COMES FIRST

CANAL DEMUCKING



LEGEND

E.TOP – EXISTING TOP OF CANAL

P.TOP – PROPOSED TOP OF CANAL

NOTE:

CONTRACTOR SHALL REMOVE DEBRIS IN THE CANAL DEMUCKING PROJECT AREA.

GRADING & DRAINAGE NOTES

1. EXISTING STORMWATER INLET
TOP OF GRATE = 9.49
EAST INVERT = 5.95± (EXISTING 15" CMP)
WEST INVERT = 6.0
NORTH INVERT = 6.0

CONTRACTOR SHALL FIELD VERIFY EXISTING INVERTS AND PIPE SIZES BEFORE START OF CONSTRUCTION. CONTRACTOR SHALL REPORT TO ENGINEER IMMEDIATELY IF INCONSISTENCIES IN INVERTS EXISTS.

2. 47 LF – 18" RCP AT 0.2% SLOPE (C7 TYP.)

3. CONTROL STRUCTURE – MOD. FDOT TYPE "G" INLET (9 C6)
(FDOT INDEX 425–053)
TOP OF GRATE = 12.20
WEST INVERT = 7.0
EAST INVERT = 6.1
SOUTH INVERT = 7.0
BOTTOM = 6.0

4. 26 LF – 18" PERFORATED HDPE AT 0% SLOPE (C7 TYP.)
WRAPPED IN FILTER FABRIC WITH 2 FT. OVERLAP

5. 14 LF – 18" PERFORATED HDPE AT 0% SLOPE
WRAPPED IN FILTER FABRIC WITH 2 FT. OVERLAP

6. FDOT TYPE "F" INLET (FDOT INDEX 425–053)
TOP OF GRATE = 12.85
EAST INVERT = 7.0
WEST INVERT = 7.0
BOTTOM = 6.0

7. 17 LF – 18" PERFORATED HDPE AT 0% SLOPE
WRAPPED IN FILTER FABRIC WITH 2 FT. OVERLAP

8. 44 LF – 18" PERFORATED HDPE AT 0% SLOPE
WRAPPED IN FILTER FABRIC WITH 2 FT. OVERLAP

9. FDOT TYPE "F" INLET (FDOT INDEX 425–053)
TOP OF GRATE = 12.15
WEST INVERT = 7.0
NORTH INVERT = 7.0
SOUTH INVERT = 7.0
BOTTOM = 6.0

10. 40 LF – 18" PERFORATED HDPE AT 0% SLOPE

11. 9 LF – 18" PERFORATED HDPE AT 0% SLOPE

12. FDOT TYPE "F" INLET (FDOT INDEX 425–053)
TOP OF GRATE = 12.75
EAST INVERT = 7.0
WEST INVERT = 7.0
BOTTOM = 6.0

13. 10 LF – 18" PERFORATED HDPE AT 0% SLOPE
WRAPPED IN FILTER FABRIC WITH 2 FT. OVERLAP

14. 51 LF – 18" PERFORATED HDPE AT 0% SLOPE
WRAPPED IN FILTER FABRIC WITH 2 FT. OVERLAP

15. FDOT TYPE "F" INLET (FDOT INDEX 425–053)
TOP OF GRATE = 12.20
WEST INVERT = 7.0
NORTH INVERT = 7.0
SOUTH INVERT = 8.0
BOTTOM = 6.0

16. 18 LF – 18" PERFORATED HDPE AT 0% SLOPE

17. 18 LF – 18" PERFORATED HDPE AT 0% SLOPE

18. FDOT TYPE "F" INLET (FDOT INDEX 425–053)
TOP OF GRATE = 12.60
EAST INVERT = 7.0
WEST INVERT = 7.0
SOUTH INVERT = 9.50
BOTTOM = 6.0

19. 15 LF – 18" PERFORATED HDPE AT 0% SLOPE

20. 38 LF – 12" HDPE AT 1% SLOPE

21. 12" NYLOPLAST DRAIN BASIN
TOP OF GRATE = 12.5
INVERT = 8.4

22. 54 LF – 15" RCP AT 0.4% SLOPE

23. FDOT TYPE "F" INLET (FDOT INDEX 425–053)
TOP OF GRATE = 9.7
INVERT = 6.2

A1. 40 LF – 12" PVC AT 0.6% SLOPE

A2. CLEANOUT (C7.1 TYP.)
INVERT = 9.75

A3. 30 LF – 12" PVC AT 0.7% SLOPE

A4. CLEANOUT
INVERT = 10.0

A5. 15 LF – 12" PVC AT 0.7% SLOPE

A6. 12" NYLOPLAST DRAIN BASIN
TOP OF GRATE = 13.75
INVERT = 10.1

A7. 51 LF – 12" PVC AT 0.7% SLOPE

A8. 12" NYLOPLAST DRAIN BASIN
TOP OF GRATE = 13.75
INVERT = 10.45

A9. 21 LF – 10" PVC AT 0.7% SLOPE

A10. CLEANOUT
INVERT = 10.6

A11. 98 LF – 10" PVC AT 0.7% SLOPE

A12. CLEANOUT
INVERT = 11.3

A13. DOWNSPOUT DRAIN PIPE LOCATION FROM BLDG.
12 LF – 6" PVC AT 1% SLOPE

A14.

A15. 8" NYLOPLAST DRAIN BASIN
TOP OF GRATE = 13.95
INVERT = 10.40

A16. 38 LF – 8" PVC AT 1% MINIMUM SLOPE

A17. 38 LF – 8" PVC AT 1% MINIMUM SLOPE

B1. 58 LF – 12" PVC AT 1% MINIMUM SLOPE

B2. 12" NYLOPLAST DRAIN BASIN
TOP OF GRATE = 13.85
INVERT = 9.0

B3. 42 LF – 12" PVC AT 1.4% SLOPE

B4. 12" NYLOPLAST DRAIN BASIN
TOP OF GRATE = 13.85
INVERT = 9.60

B5. 26 LF – 10" PVC AT 1.4% SLOPE

B6. CLEANOUT
INVERT = 9.95

B7. 95 LF – 10" PVC AT 1.4% SLOPE

B8. CLEANOUT
INVERT = 11.30

B9. 8" PVC PIPE AT 1% MINIMUM SLOPE

B10. 17 LF – 6" PVC AT 1% SLOPE

B11. 8" NYLOPLAST DRAIN BASIN
TOP OF GRATE = 14.1
INVERT = 9.45

B12. CLEANOUT
INVERT = 10.5

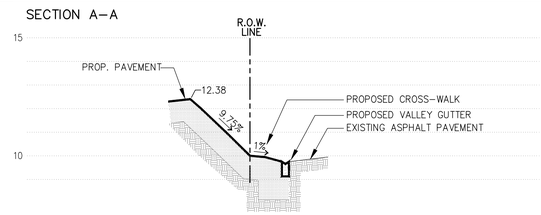
B13. 30 LF – 8" PVC AT 4.5% SLOPE

B14. 30 LF – 8" PVC AT 3.7% SLOPE

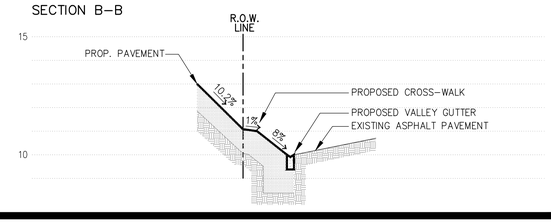
B15. 15 LF – 8" PVC PIPE AT 1% MINIMUM SLOPE

B16. 6 LF – 8" PVC PIPE AT 1% MINIMUM SLOPE

SECTION A–A



SECTION B–B



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GRADING & DRAINAGE PLAN

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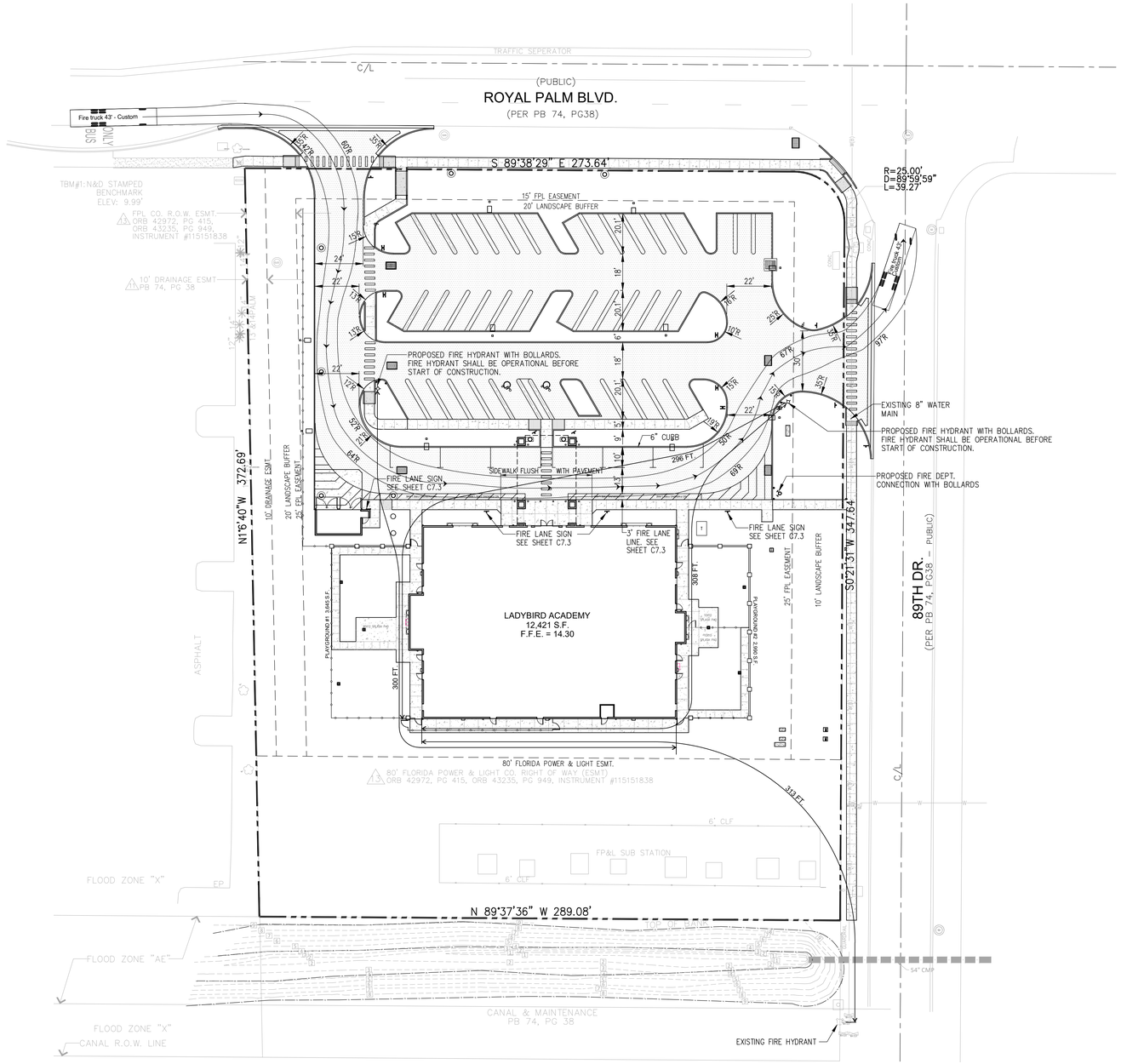
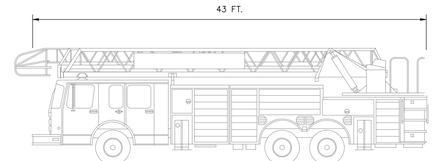


FIRE TRUCK TURN PLAN 1 : 30'



DIMENSIONS

WIDTH	:	8.5 FT.
TRACK	:	8.5 FT.
LOCK TO LOCK TIME	:	6.0
STEERING ANGLE	:	33.3°

1 FIRE TRUCK DETAIL NTS

NORTH

30' 0 30' 60'

GRAPHIC SCALE

Z DEVELOPMENT services
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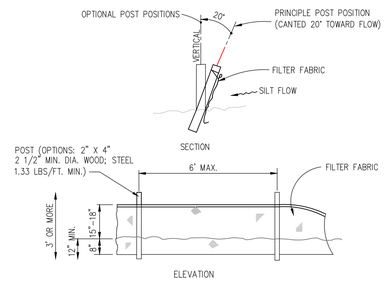
ROBERT ZIEGENFUSS, P.E., LEED AP
FL REG # 56752

LADYBIRD ACADEMY
8950 ROYAL PALM BOULEVARD
CORAL SPRINGS, FLORIDA 33065

DATE: 02-22-22
DRAWN: SR
CHECKED: RZ

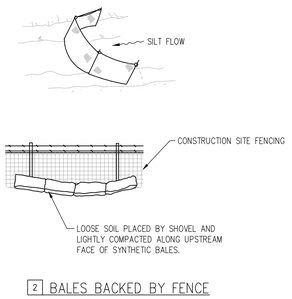
C4
FIRE TRUCK TURN PLAN

PROJECT NO.: 2019.141

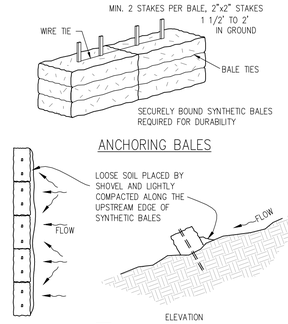


1 SILT FENCE

1 EROSION CONTROL DETAILS NTS

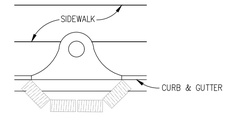


2 BALES BACKED BY FENCE

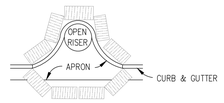


ANCHORING BALES

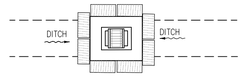
3 BARRIERS FOR SLOPES



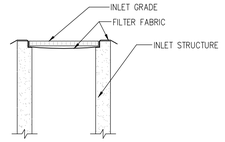
4 PARTIAL INLET



4 COMPLETED INLET



5 DITCH BOTTOM INLET

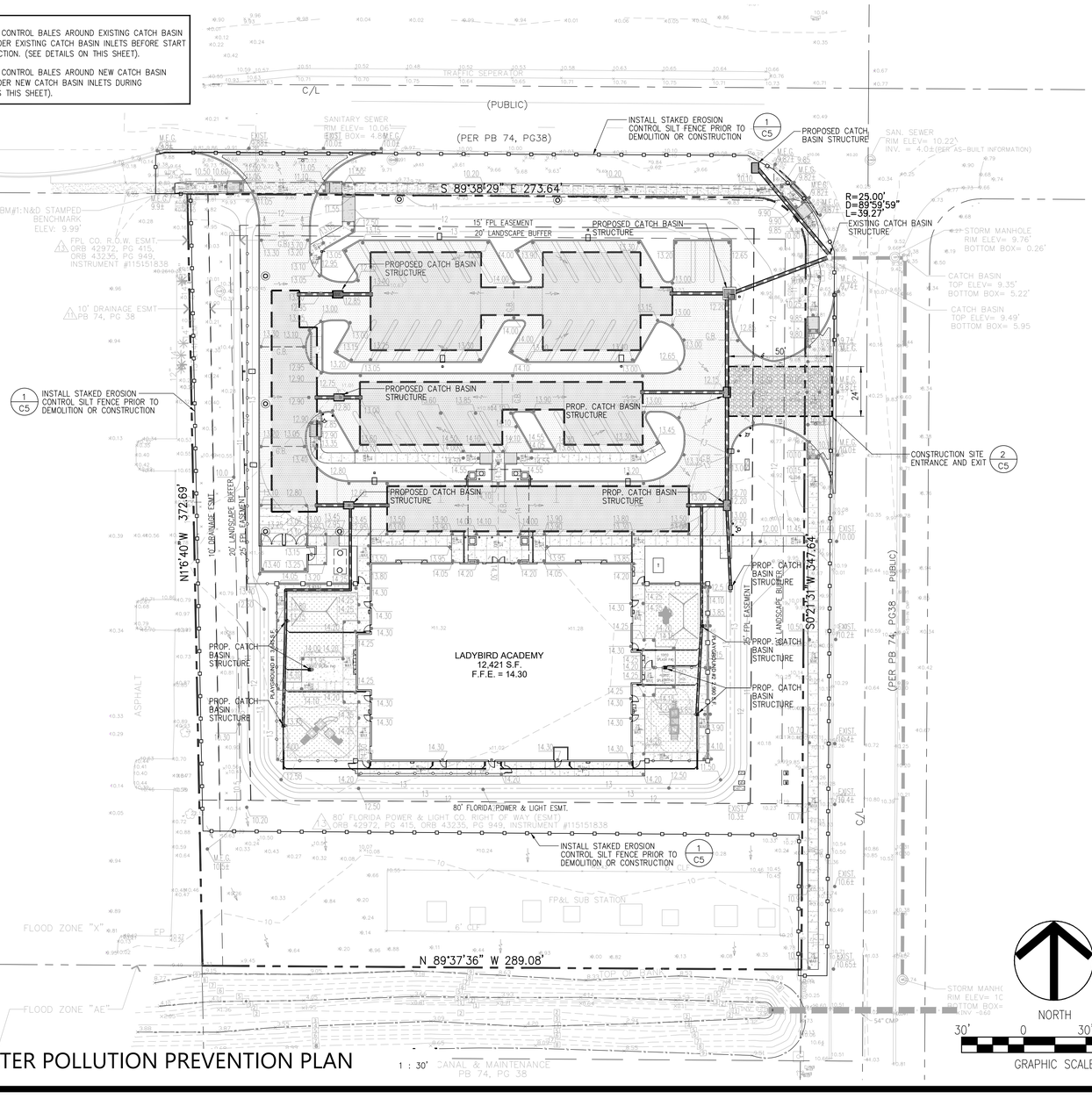


6 EROSION CONTROL SOCK

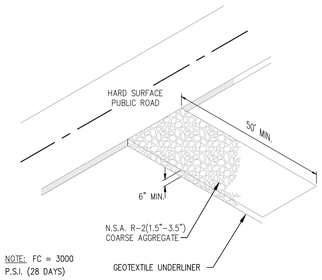
PROTECTION AROUND INLETS OR SIMILAR STRUCTURES

NOTE:
INSTALL SYNTHETIC EROSION CONTROL BALES AROUND EXISTING CATCH BASIN INLETS OR SOCK/FABRIC UNDER EXISTING CATCH BASIN INLETS BEFORE START OF DEMOLITION OR CONSTRUCTION. (SEE DETAILS ON THIS SHEET).

INSTALL SYNTHETIC EROSION CONTROL BALES AROUND NEW CATCH BASIN INLETS OR SOCK/FABRIC UNDER NEW CATCH BASIN INLETS DURING CONSTRUCTION. (SEE DETAILS THIS SHEET).



STORMWATER POLLUTION PREVENTION PLAN



NOTE: FC = 3000 P.S.I. (28 DAYS)

2 CRUSHED STONE CONSTRUCTION EXIT NTS

TOTAL AREA (SF) (AC)	*DISTURBED AREA (SF) AREA (AC)	UNDISTURBED AREA (SF) AREA (AC)	IMPERVIOUS* AREA (SF) AREA (AC)	PERVIOUS* AREA (SF) AREA (AC)
109,359 2.51	86,151 1.977	23,208 0.533	49,232 1.130	60,127 1.380

*IMPERVIOUS + PERVIOUS = DISTURBED
Stormwater Pollution Prevention Plan Inspection Report Form

Inspections must occur at least once a week and within 24 hours of the end of a storm event that is 0.50 inches or greater.

Project Name: LADYBIRD ACADEMY
FDEP NPDES Stormwater Identification Number:

LOCATION	RAIN DATA	TYPE OF CONTROL	DATE INSTALLED	CURRENT CONDITION / CORRECTIVE ACTION

Condition Code:
G = Good M = Marginal, needs maintenance or replacement soon
P = Poor, needs immediate maintenance or replacement C = Needs to be cleaned
O = Other

Control Type Codes

1. Silt Fence	10. Storm drain inlet protection	19. Reinforced soil retaining system
2. Earth dikes	11. Vegetative buffer strip	20. Gabion
3. Structural diversion	12. Vegetative preservation area	21. Sediment Basin
4. Swale	13. Retention Pond	22. Temporary seed / sod
5. Sediment Trap	14. Construction entrance stabilization	23. Permanent seed / sod
6. Check dam	15. Perimeter ditch	24. Mulch
7. Subsurface drain	16. Curb and gutter	25. Hay Bales
8. Pipe slope drain	17. Paved road surface	26. Geotextile
9. Level spreaders	18. Rock outlet protection	27. Rip-rap

28. Tree protection	31. Waste disposal/housekeeping	33. Sand Bag
29. Detention pond	32. Dam	34. Other
30. Retention pond		

"I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations."

Name (Responsible Authority) Date

NOTE: THIS EXAMPLE INSPECTION LOG IS GIVEN FOR REFERENCE PURPOSES. THIS OR A SIMILAR FORM IS REQUIRED PER NOTE 16.

POLLUTION CONTROL NOTES

ALL EROSION CONTROL MEASURES SHALL REMAIN IN PLACE UNTIL COMPLETION OF CONSTRUCTION.

1. ALL EROSION AND SEDIMENT CONTROL WORK SHALL CONFORM WITH LOCAL CITY/COUNTY AND WATER MANAGEMENT DISTRICT SPECIFICATIONS, SUBJECT TO AUTHORIZED AND APPROVED VARIANCES, WAIVERS AND/OR CONDITIONS OF SITE PERMITS.

2. EROSION AND SEDIMENT CONTROL MEASURES SHALL BE PLACED PRIOR TO OR AS THE FIRST STEP IN, CONSTRUCTION. SEDIMENT CONTROL PRACTICES WILL BE APPLIED AS A PERIMETER DEFENSE AGAINST ANY TRANSPORTATION OF SILT OFF THE SITE.

3. ALL AREAS AFFECTED BY THIS WORK SHALL BE RESTORED TO A CONDITION EQUAL TO OR BETTER THAN EXISTING CONDITION, UNLESS SPECIFICALLY EXEMPTED BY THE PLANS. THE COST FOR SUCH RESTORATION SHALL BE INCIDENTAL TO OTHER CONSTRUCTION AND NO ADDITIONAL COMPENSATION SHALL BE ALLOWED.

4. THE CONTRACTOR SHALL IMMEDIATELY NOTIFY THE ENGINEER OF ANY DISCREPANCIES BETWEEN THESE PLANS AND FIELD CONDITIONS PRIOR TO CONSTRUCTION.

5. PRIOR TO CONSTRUCTION THE CONTRACTOR SHALL PROVIDE TREE PROTECTION BARRIERS TO MEET THE REQUIREMENTS OF LOCAL SPECIFICATIONS.

6. THE CONTRACTOR SHALL SELECTIVELY CLEAR ONLY THE AREAS REQUIRED FOR CONSTRUCTION AND STABILIZE ANY POTENTIAL EROSION AREAS IMMEDIATELY FOLLOWING COMPLETION OF CONSTRUCTION.

7. CONTRACTOR SHALL KEEP ANY AND ALL SAND, SILT OR OTHER DEBRIS FROM MOVING OFF-SITE. USE AND MAINTAIN SILT FENCE JUST INSIDE OF PROPERTY LINE.

8. CONTRACTOR SHALL BLOCK INTRUSION OF SAND, SILT OR OTHER DEBRIS INTO ANY DRAINAGE OR SANITARY SEWER STRUCTURE OR PIPING ON OR ADJACENT TO SITE.

9. ALL CLEARED AREAS FOR IMPROVEMENT AND/OR CONSTRUCTION SHALL BE WATERED TO PREVENT WIND EROSION.

10. FOR ADDITIONAL INFORMATION AND DETAILS, SEE STATE OF FLORIDA'S EROSION AND SEDIMENT CONTROL MANUAL.

11. UNLESS SPECIFIED, SILT FENCES MAY BE USED IN LIEU OF SYNTHETIC BARRIERS.

12. ADDITIONAL POSTS AND RAILS MAY BE NECESSARY TO SECURE AND SUPPORT BARRIERS.

13. ADDITIONAL BARRIER LENGTHS MAY BE REQUIRED BY THE CITY/COUNTY ENGINEER OR BY REGULATORY AGENCIES.

14. FILTER FABRIC MUST BE INSTALLED UNDER ALL INLET GRATES, AT ALL TIMES WHEN INLETS ARE NOT PROTECTED BY SILT FENCE OR SYNTHETIC BALES, UNTIL THE LIMEROCK BASE IS FINISHED AND PRIMED.

15. THE CONTRACTOR IS REQUIRED TO HAVE THIS PLAN ALONG WITH A COPY OF THE NPDES NOTICE OF INTENT POSTED IN A VISIBLE LOCATION ON THE CONSTRUCTION SITE AT ALL TIMES.

16. "CONTRACTOR IS REQUIRED BY NPDES TO KEEP A LOG ON SITE FOR THE SOIL EROSION AND SEDIMENT CONTROL MEASURES INDICATED ON THE PLAN. THE LOG SHALL CONTAIN DATES FOR: INSTALLATION OF CONTROL MEASURES, MAJOR SITE CONSTRUCTION ACTIVITIES, INSPECTION ON AT LEAST A WEEKLY BASIS AND
INSPECTION AFTER ANY RAINFALL EVENT THAT IS 1/2" OR GREATER".

17. THE CONTRACTOR IS REQUIRED TO SUBMIT A NOTICE OF TERMINATION TO THE FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION UPON THE COMPLETION OF CONSTRUCTION.

18. CONTRACTOR SHALL RETAIN ALL RECORDS FOR A PERIOD OF THREE YEARS FOLLOWING THE NOTICE OF TERMINATION.

19. NON STORMWATER DISCHARGES SUCH AS FIRE HYDRANT FLUSHING, ETC SHALL BE DISCHARGED TO EXISTING UNDERGROUND STORMWATER FACILITY OR ON SITE RETENTION POND.

20. ANY POTENTIALLY HAZARDOUS CHEMICALS BROUGHT ONTO THE JOB SITE WILL BE LIMITED AND KEPT IN ORIGINAL CONTAINER WITH MSDS LABEL.

21. NO SILT SHALL BE TRACKED ONTO PUBLIC ROADWAYS. ANY SILT DEPOSITED ON PUBLIC ROADWAYS SHALL BE REMOVED BY THE END OF THE WORK DAY.

CONTRACTOR(S) AND SUBCONTRACTOR(S) THAT IMPLEMENT ANY PART OF THE EROSION/POLLUTION CONTROL MEASURES REQUIRED BY THE NPDES PERMIT SHALL SIGN BELOW:

"I certify under penalty of law that I understand, and shall comply with, the terms and conditions of the State of Florida Generic Permit for Stormwater Discharge from Large and Small Construction Activities and this Stormwater Pollution Prevention Plan prepared thereunder."

Name	Title	Company Name, Address & phone number	Date

ENGINEER'S CERTIFICATION:

"I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations."

ROBERT ZIEGENFUSS, P.E. #56752 Date

OWNER/AGENT CERTIFICATIONS:

I HAVE REVIEWED THIS PLAN AND AGREE TO COMPLY WITH THE REQUIREMENTS SHOWN HEREON.

OWNER/AUTHORIZED REPRESENTATIVE Date

Z DEVELOPMENT Services
CA 29354
708 E. COLONIAL DR., STE. 100 ORLANDO, FL 32803
PH: (407) 271-8910 FAX: (407) 442-0604

DATE	REVISION	DATE	REVISION

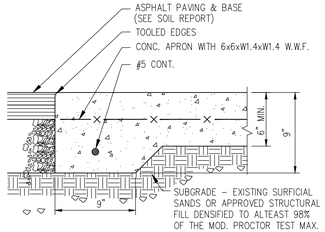
ROBERT ZIEGENFUSS, P.E., LEED AP FL REG # 56752

LADYBIRD ACADEMY
8950 ROYAL PALM BOULEVARD
CORAL SPRINGS, FLORIDA 33065

DATE: 02-22-22
DRAWN: SR
CHECKED: RZ

C5
STORMWATER POLLUTION PREVENTION PLAN

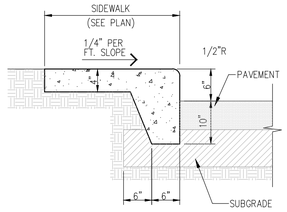
PROJECT NO.: 2019.141



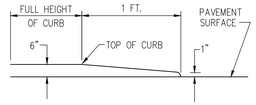
ALL CONCRETE SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH OF 4,000 (PCI) PSI AT 28 DAYS. CONFORMANCE TO STRENGTH REQUIREMENTS SHALL BE DETERMINED BY ACI STANDARD 318, LATEST EDITION, SECTIONS 4.8.2.3 AND 4.8.3.

12" WELL DRAINING GRANULAR SUBGRADE COMPACTED TO A MINIMUM DENSITY OF 98% OF THE MATERIAL'S MODIFIED PROCTOR MAXIMUM DRY DRY DENSITY (ASTM D-1557).

1 CONCRETE APRON NTS

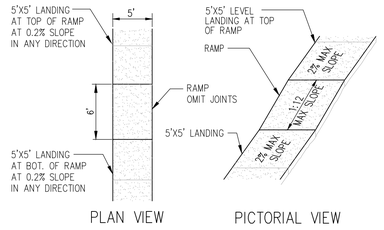


2 MONOLITHIC CURB & SIDEWALK NTS
(3,000 PSI (MIN))

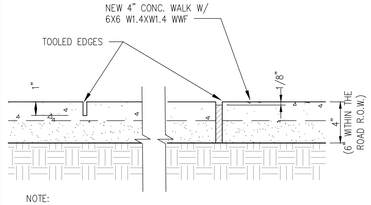


3 TRANSITION CURB NTS

NOTE 1:
REFERENCE FDOT INDEX 522-002, GENERAL AND DESIGN NOTES FOR RAMPS IN R.O.W.
NOTE 2:
CONSTRUCT RAMP TO LEAST POSSIBLE SLOPE (MAX = 1:12). CROSS SLOPE OF RAMP AND LANDING SHALL NOT EXCEED 1:50.
NOTE 3:
RAMP GREATER THAN A 6" RISE REQUIRES HANDRAILS.



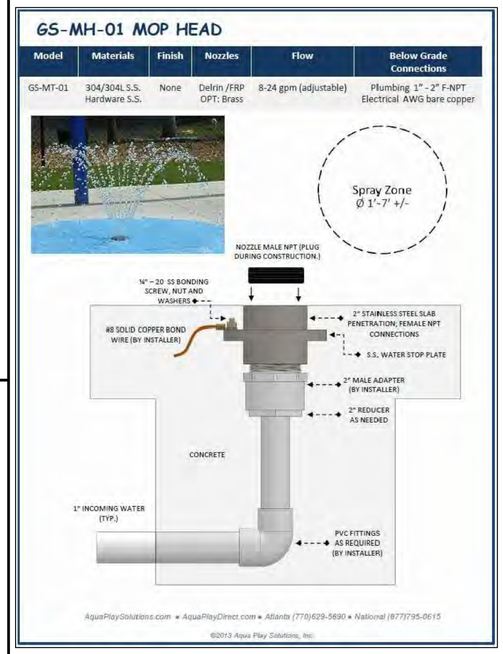
4 ACCESSIBLE RAMP DETAIL NTS



NOTE:
EXPANSION JOINTS SHALL BE LOCATED AT ALL CONCRETE WALK INTERSECTIONS, AT ALL DOOR OPENINGS AND AT 12' O.C. MAXIMUM.

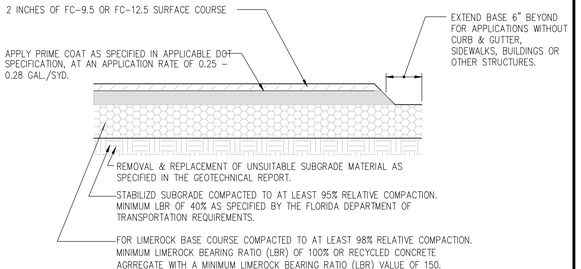
EXPANSION JOINT (1/4" PREMOLDED ASPHALT STRIP) SHALL BE SET 1/8" BELOW TOP OF WALK. SCORE MARK (1" DEPTH) SHALL BE 4' (MAX.) O.C.

5 CONCRETE WALK NTS
(3,000 PSI (MIN))

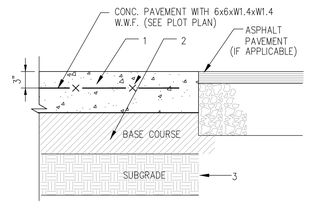


10 SPLASH PAD SPRAY DETAIL NTS

MINIMUM ASPHALTIC PAVEMENT COMPONENT THICKNESS			
TRAFFIC LEVEL	LAYER COMPONENT (INCHES)		
	SURFACE COURSE	BASE COURSE	STAB.SUBGRADE
HEAVY DUTY	2	7	12



6 TYPICAL PAVEMENT SECTION NTS



1. 6" – 4000 PSI CONCRETE WITH FIBERMESH REINFORCEMENT.
2. 6" LIMEROCK BASE COURSE COMPACTED TO AT LEAST 98% RELATIVE COMPACTION. MINIMUM LIMEROCK BEARING RATIO (LBR) OF 100% (THIS INCLUDES PEDESTRIAN AREAS.)
3. 12" OF STABILIZED SUBGRADE COMPACTED TO AT LEAST 95% RELATIVE COMPACTION. MINIMUM LBR OF 40% AS SPECIFIED BY FDOT REQUIREMENTS.

PORTLAND CEMENT CONC. PAVEMENT

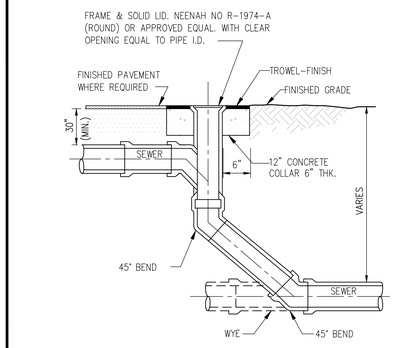
1. GENERAL

RIGID PAVEMENT CONSISTS OF CONSTRUCTING A SPECIFIED PORTLAND CEMENT CONCRETE PAVING ON A PREPARED SUBGRADE. THE UTILITIES AND OTHER ITEMS IN AND BENEATH THE STREET MUST BE PROPERLY COORDINATED WITH THE CONSTRUCTION OF RIGID PAVEMENT TO AVOID CONFLICTS. THE WORK TO BE DONE SHALL INCLUDE THE FURNISHING OF ALL SUPERVISION, LABOR, MATERIALS, EQUIPMENT AND INCIDENTAL NECESSARY FOR THE PROPOSED RIGID PAVEMENT CONSTRUCTION IN ACCORDANCE WITH THE APPROVED DRAWINGS AND SPECIFICATION.

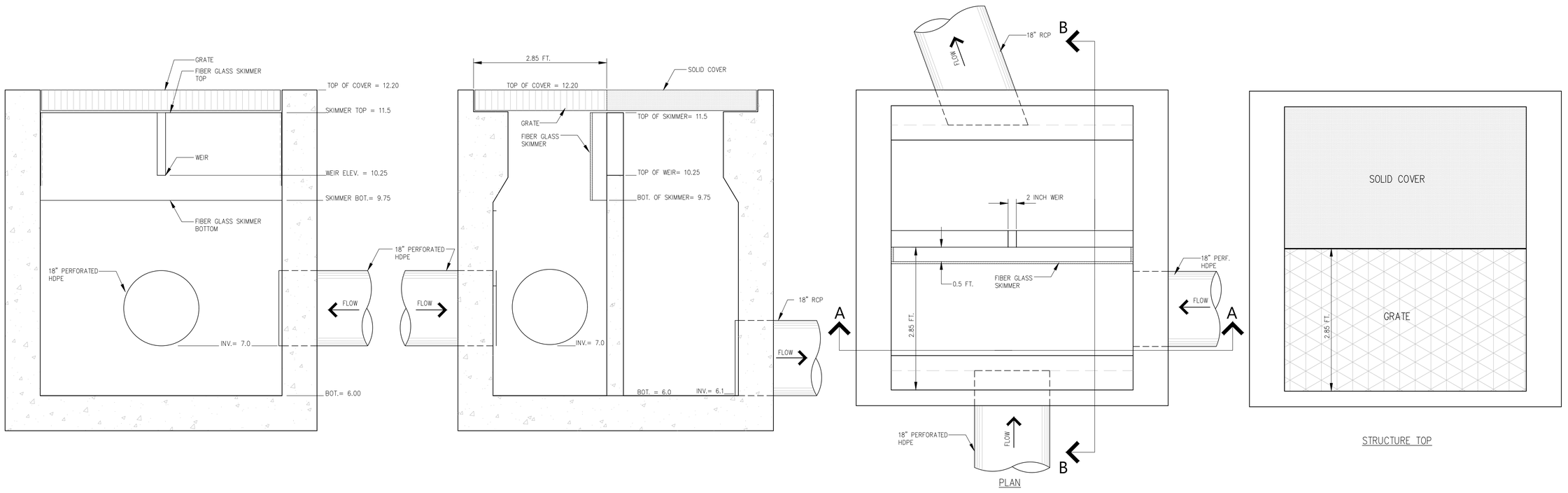
2. CONCRETE STRENGTH REQUIRED:

ALL CONCRETE SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH OF 4,000 (PCI) PSI AT 28 DAYS. CONFORMANCE TO STRENGTH REQUIREMENTS SHALL BE DETERMINED BY ACI STANDARD 318, LATEST EDITION, SECTIONS 4.8.2.3 AND 4.8.3.

7 CONCRETE PAVEMENT NTS



8 DROP CLEANOUT NTS



SECTION A-A

SECTION B-B

PLAN

STRUCTURE TOP

9 CONTROL STRUCTURE (MODIFIED FDOT TYPE "G" INLET) 1

NTS

RZ DEVELOPMENT Services
CA 29354
708 E. COLONIAL DR., STE. 100 ORLANDO, FL 32803
PH: (407) 271-8910
FAX: (407) 442-0604

REVISION	DATE
1 SFWMD & SWCD COMMENTS	07-07-22

ROBERT ZIEGENFUSS, P.E., LEED AP
FL. REG. # 56752

LADYBIRD ACADEMY
8950 ROYAL PALM BOULEVARD
CORAL SPRINGS, FLORIDA 33065

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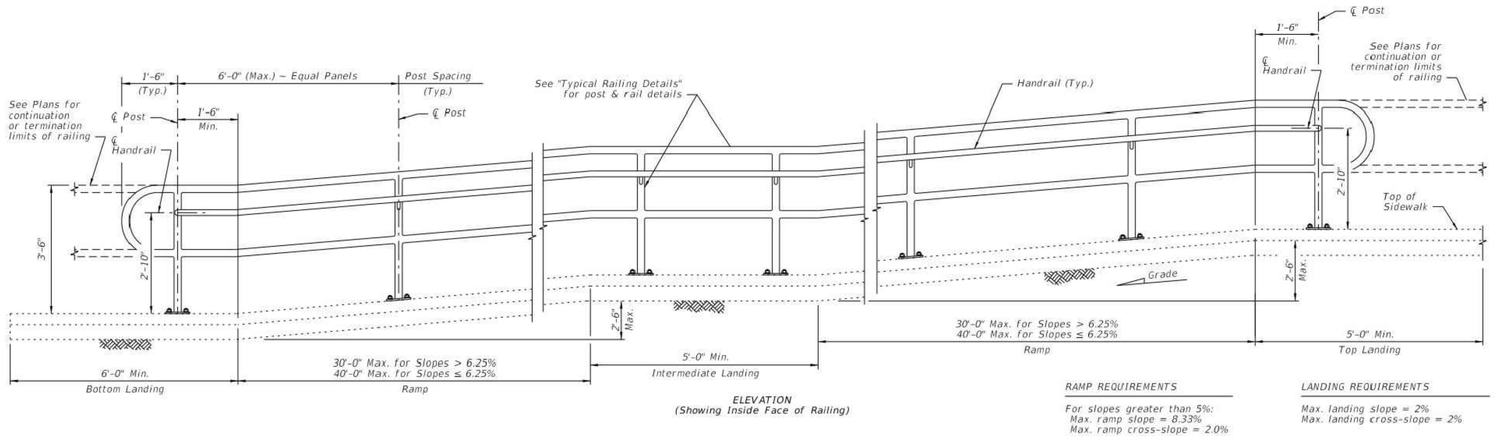
C6
CONSTRUCTION STANDARD DETAILS

PROJECT NO.: 2019.141



ELEVATION
(Showing Inside Face of Railing)

RAMP REQUIREMENTS

For slopes greater than 5%:
Max. ramp slope = 8.33%
Max. ramp cross-slope = 2.0%

LANDING REQUIREMENTS

Max. landing slope = 2%
Max. landing cross-slope = 2%

RAILINGS ON GRADES STEEPER THAN 5% TO 8.33%

1 PEDESTRIAN RAILING NTS

DEVELOPMENT Services
CA 29354
708 E. COLONIAL DR., STE. 100 ORLANDO, FL 32803
PH: (407) 271-8910
FAX: (407) 442-0604

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SFWMD & SWCD COMMENTS	07-07-22

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C6.1
CONSTRUCTION STANDARD DETAILS

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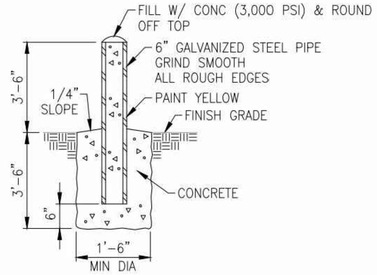
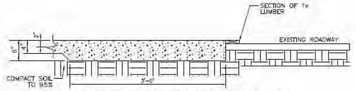


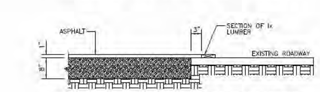
PIPE BOLLARD

STANDARD UTILITY DETAILS			PIPE BOLLARD	
CORAL SPRINGS				DATE APPROVED 12/10/15
	NO.	DATE	REVISIONS	DETAIL NUMBER G-16



1. FORM OVER WELL COMPACTED SOIL 4" THICK, WITH LAST 5'-0" AT ROAD BEING 8" THICK. FIBERMESH CONCRETE.
2. CONCRETE TO BE A MINIMUM 3,000 PSI AT 28 DAYS.
3. NAIL SECTION OF 1x LUMBER ON ASPHALT TO INSURE FINISHED DRIVE WILL BE 3/4" ABOVE ROADWAY.
4. CALL CITY ENGINEER FOR INSPECTION AFTER FORMED AND BEFORE POURING CONCRETE.
5. JOINTS, IF AND WHEN NECESSARY, SHALL BE DESIGNED BY THE ENGINEER OF RECORD.
6. ALL ROOTS, SPRINKLER LINES, ETC. SHALL BE REMOVED FROM THE CONCRETE SLAB AREA BEFORE POURING.

PRIVATE CONCRETE DRIVEWAYS



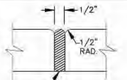
1. PLACE (1") ONE INCH OF ASPHALTIC CONCRETE SURFACE ON A COMPACTED (6") SIXINCH LIMEROCK BASE.
2. NAIL SECTION OF 1x LUMBER ON ROADWAY ASPHALT TO INSURE FINISHED DRIVE WILL BE ABOVE ROADWAY.
3. ALL ROOTS, SPRINKLER LINES, ETC. SHALL BE REMOVED FROM THE CONCRETE SLAB AREA BEFORE POURING.

PRIVATE ASPHALT DRIVEWAYS

* ALL DIMENSIONS ARE CONSIDERED MINIMUM DESIGN CONDITIONS UNLESS OTHERWISE APPROVED BY CITY ENGINEER FOR SPECIAL EXCEPTION AREAS

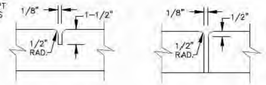
STANDARD DETAILS			STANDARD CONCRETE & ASPHALT DRIVEWAY	
CORAL SPRINGS		MARCH 2008		LAST MODIFIED 07/2014
	NO.	DATE	REVISIONS	DETAIL NUMBER S-13 SHEET 1 OF 1

TABLE OF SIDEWALK JOINTS	
TYPE	LOCATION
"A"	JOINT SHALL BE PLACED AT P.C. AND P.T. OF CURVES, JUNCTION OF EXISTING SIDEWALKS, EVERY 60' ON NEW SIDEWALKS AND WHERE SIDEWALKS ABUT CONCRETE CURBS, DRIVEWAYS AND SIMILAR STRUCTURES.
"B"	JOINT SHALL BE PLACED 5'-0" CENTER
"C"	JOINT SHALL BE PLACED AT 20' INTERVALS



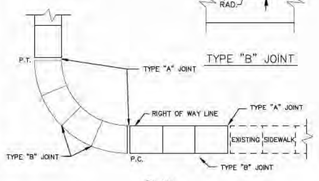
TYPE "A" JOINT

NOTE: SIDEWALK SHALL BE 4" THICK EXCEPT IN DRIVEWAYS WHERE THE THICKNESS SHALL BE 6".

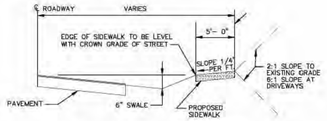


TYPE "B" JOINT

TYPE "C" JOINT



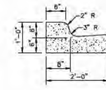
PLAN



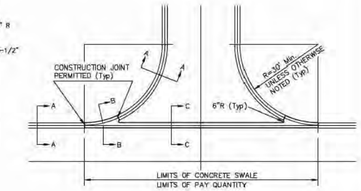
TYPICAL SIDEWALK SECTION

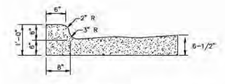
* ALL DIMENSIONS ARE CONSIDERED MINIMUM DESIGN CONDITIONS UNLESS OTHERWISE APPROVED BY CITY ENGINEER FOR SPECIAL EXCEPTION AREAS

STANDARD DETAILS			TYPICAL SIDEWALK CONSTRUCTION	
CORAL SPRINGS		MARCH 2008		LAST MODIFIED 07/2014
	NO.	DATE	REVISIONS	DETAIL NUMBER S-14 SHEET 1 OF 1



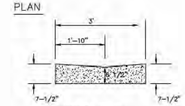
SECTION A-A





SECTION B-B

PLAN



SECTION C-C

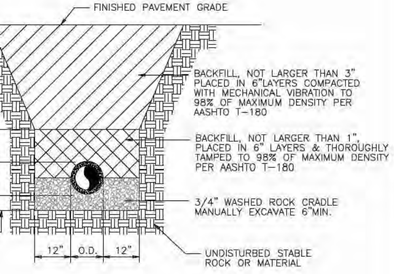
NORMAL VALLEY GUTTER CURB SECTION — SEE DETAIL 3.04

NOTE:

SUBJECT TO CITY ENGINEER'S APPROVAL. TO BE USED ONLY IN UNIQUE SITUATIONS.

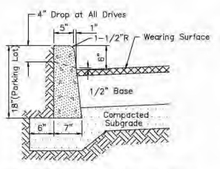
* ALL DIMENSIONS ARE CONSIDERED MINIMUM DESIGN CONDITIONS UNLESS OTHERWISE APPROVED BY CITY ENGINEER FOR SPECIAL EXCEPTION AREAS

STANDARD DETAILS			CONCRETE SWALE DETAIL VALLEY GUTTER CURB	
CORAL SPRINGS		MARCH 2008		LAST MODIFIED 07/2014
	NO.	DATE	REVISIONS	DETAIL NUMBER S-2 SHEET 1 OF 1



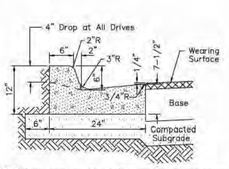
* ALL DIMENSIONS ARE CONSIDERED MINIMUM DESIGN CONDITIONS UNLESS OTHERWISE APPROVED BY CITY ENGINEER FOR SPECIAL EXCEPTION AREAS

STANDARD DETAILS			TYPICAL TRENCH DETAIL	
CORAL SPRINGS		MARCH 2008		LAST MODIFIED 07/2014
	NO.	DATE	REVISIONS	DETAIL NUMBER STM-10 SHEET 1 OF 1



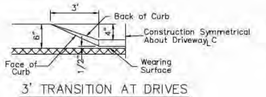
NOTE: "D" Curb is to be used in unique situations. Use of "D" curb is subject to City Engineer's approval. See Detail 3.02.

TYPE "D" CURB



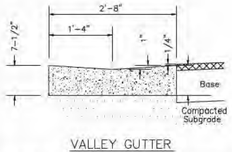
NOTE: When used on high side of roadways, the cross slope of the gutter shall match the cross slope of the adjacent pavement and the thickness of the lip shall be 6", unless otherwise shown on plans.

TYPE "F" CURB



3' TRANSITION AT DRIVES

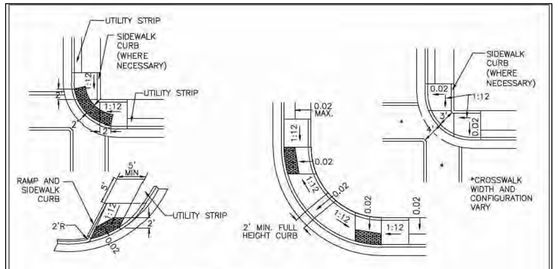
NOTES:
1. There shall be a 1/2" seal joint between back of curb and driveway.
2. Concrete in curbs shall be 3000 psi, with fiber mesh reinforcing.

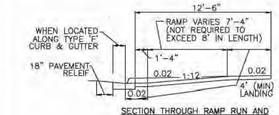


VALLEY GUTTER

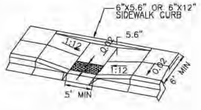
* ALL DIMENSIONS ARE CONSIDERED MINIMUM DESIGN CONDITIONS UNLESS OTHERWISE APPROVED BY CITY ENGINEER FOR SPECIAL EXCEPTION AREAS

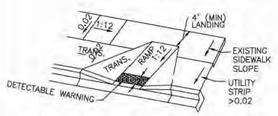
STANDARD DETAILS			TYPICAL CURB CROSS SECTIONS	
CORAL SPRINGS		MARCH 2008		LAST MODIFIED 07/2014
	NO.	DATE	REVISIONS	DETAIL NUMBER S-4 SHEET 1 OF 1



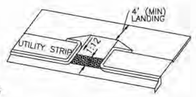


SECTION THROUGH RAMP RUN AND LANDINGS WITH UPPER LANDING AT NORMAL SIDEWALK ELEVATION



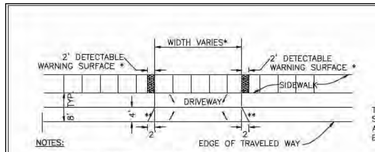


WHERE CURB RAMPS ARE CONSTRUCTED IN EXISTING SIDEWALKS WITH SIDEWALK OR UTILITY STRIP SLOPES GREATER THAN 0.02, THE SIDEWALK SHALL BE RECONSTRUCTED TO REDUCE THE SLOPES TO 0.02 AT THE FLARE POINT.



* ALL DIMENSIONS ARE CONSIDERED MINIMUM DESIGN CONDITIONS UNLESS OTHERWISE APPROVED BY CITY ENGINEER FOR SPECIAL EXCEPTION AREAS

STANDARD DETAILS			TYPICAL SIDEWALK CURB CUT RAMPS	
CORAL SPRINGS		MARCH 2008		LAST MODIFIED 07/2014
	NO.	DATE	REVISIONS	DETAIL NUMBER S-19 SHEET 1 OF 2



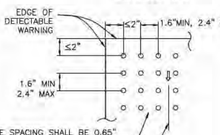
THE TOP WIDTH OF THE DOME SHALL BE A MINIMUM OF 50% AND A MAXIMUM OF 65% OF THE BASE DIAMETER.

NOTES:

* USE DETECTABLE WARNING SURFACES ONLY FOR DRIVEWAYS 24' OR WIDER.
** 4" FLARED RADIUS OPTIONAL

1. SIDEWALKS SHALL BE CONSTRUCTED IN ACCORDANCE WITH CITY OF CORAL SPRINGS STANDARDS AND SPECIFICATIONS.
2. SIDEWALKS ADJOINING 24' DRIVES, ALLEYWAYS, OR STREETS SHALL HAVE A DETECTABLE WARNING SURFACE THAT EXTENDS THE FULL WIDTH OF THE SIDEWALK IN THE DIRECTION OF TRAVEL. THE MINIMUM LENGTH OF THE DETECTABLE WARNING SURFACE SHALL BE 24" FROM THE EDGE OF DRIVEWAYS, EDGE OF SIDE ROADS, OR STREETS.
3. SIDEWALKS SHALL BE CONTINUOUS THROUGH ALL DRIVEWAYS REGARDLESS OF DRIVEWAY WIDTH.

TRUNCATED DOME



PLAN VIEW

GENERAL NOTES:

1. PUBLIC SIDEWALK CURB RAMPS SHALL BE CONSTRUCTED IN THE PUBLIC RIGHT OF WAY AT LOCATIONS THAT WILL PROVIDE CONTINUOUS UNOBSTRUCTED PEDESTRIAN AREAS, ELEMENTS, AND FACILITIES IN THE PUBLIC RIGHT OF WAY AND TO ACCESSIBLE PEDESTRIAN ROUTES ON ADJACENT SITES. CURBED FACILITIES WITH SIDEWALKS AND THOSE WITHOUT SIDEWALKS ARE TO HAVE CURB RAMPS CONSTRUCTED AT ALL STREET INTERSECTIONS AND AT TURNOUTS THAT HAVE CURBED RETURNS. RAMPS CONSTRUCTED AT LOCATIONS WITHOUT SIDEWALKS SHALL HAVE A LANDING CONSTRUCTED AT THE TOP OF EACH RAMP.

2. THE LOCATION AND ORIENTATION OF CURB RAMPS SHALL BE AS SHOWN IN THE PLANS.

3. CURB RAMP RUNNING SLOPES AT UNRESTRAINED SITES SHALL NOT BE STEEPER THAN 1:12 AND CROSS SLOPE SHALL BE 0.02 OR FLATTER. TRANSITION SLOPES SHALL NOT BE STEEPER THAN 1:12. WHEN ALTERING PEDESTRIAN FACILITIES WHERE EXISTING SITE DEVELOPMENT PRECLUDES THE ACCOMMODATION OF A RAMP SLOPE OF 1:12, A RUNNING SLOPE BETWEEN 1:12 AND 1:10 IS PERMITTED FOR A RISE OF 6" MAXIMUM AND A RUNNING SLOPE OF BETWEEN 1:10 AND 1:8 IS PERMITTED FOR A RISE OF 3" MAXIMUM. WHERE COMPLIANCE WITH THE REQUIREMENTS FOR A CROSS SLOPE CANNOT BE FULLY MET, THE MINIMUM FEASIBLE CROSS SLOPE SHALL BE PROVIDED. RAMP RUNNING SLOPE IS NOT REQUIRED TO EXCEED 8' IN LENGTH, EXCEPT AT SITES WHERE THE PLANS SPECIFY A GREATER LENGTH.

4. IF A CURB RAMP IS LOCATED WHERE PEDESTRIANS MUST WALK ACROSS THE RAMP, THEN THE WALK SHALL HAVE TRANSITION SLOPES TO THE RAMP; THE MAXIMUM SLOPE OF THE TRANSITIONS SHALL BE 1:12. RAMPS WITH CURB RETURNS MAY BE USED AT LOCATIONS WHERE OTHER IMPROVEMENTS PROVIDE GUIDANCE AWAY FROM THAT PORTION OF THE CURB PERPENDICULAR TO THE SIDEWALK; IMPROVEMENTS FOR GUIDANCE ARE NOT REQUIRED AT CURB RAMPS FOR LINEAR PEDESTRIAN TRAFFIC.

5. CURB RAMP DETECTABLE WARNING SURFACE SHALL EXTEND THE FULL WIDTH OF THE RAMP AND IN THE DIRECTION OF TRAVEL 24" FROM THE BACK OF THE CURB. DETECTABLE WARNING SURFACES SHALL BE VANGUARD, ARMOR TILE, OR APPROVED EQUAL.

6. WHERE A RAMP IS CONSTRUCTED WITHIN EXISTING EXISTING CURB, CURB AND GUTTER, AND/OR SIDEWALK, THE EXISTING CURB OR CURB AND GUTTER SHALL BE REMOVED TO THE NEAREST JOINT BEYOND THE CURB TRANSITIONS OR TO THE EXTENT THAT NO REMAINING SECTION OF CURB OR CURB AND GUTTER IS LESS THAN 5' LONG. THE EXISTING SIDEWALK SHALL BE REMOVED TO THE NEAREST JOINT BEYOND THE TRANSITION SLOPE OR WALK AROUND OR TO THE EXTENT THAT NO REMAINING SECTION OF SIDEWALK IS LESS THAN 5' LONG.

7. DETECTABLE WARNING SURFACE COLOR SHALL CONTRAST WITH SURROUNDING SURFACE AS DIRECTED BY CITY ENGINEER (DEFAULT COLOR IS YELLOW).

* ALL DIMENSIONS ARE CONSIDERED MINIMUM DESIGN CONDITIONS UNLESS OTHERWISE APPROVED BY CITY ENGINEER FOR SPECIAL EXCEPTION AREAS

STANDARD DETAILS			TYPICAL SIDEWALK CURB CUT RAMPS	
CORAL SPRINGS		MARCH 2008		LAST MODIFIED 07/2014
	NO.	DATE	REVISIONS	DETAIL NUMBER S-19 SHEET 2 OF 2

Z DEVELOPMENT Services
CA 29354
708 E. COLONIAL DR., STE. 100 ORLANDO, FL 32803
PH: (407) 271-8910 FAX: (407) 442-0604

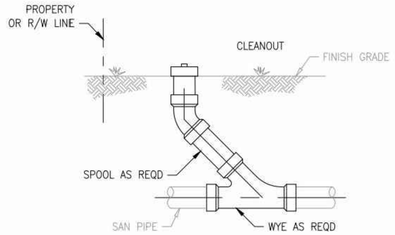
REVISION	DATE	REVISION	DATE

LADYBIRD ACADEMY
8950 ROYAL PALM BOULEVARD
CORAL SPRINGS, FLORIDA 33065

DATE: 02-22-22
DRAWN: SR
CHECKED: RZ

C7
CITY OF CORAL SPRINGS STANDARD DETAILS

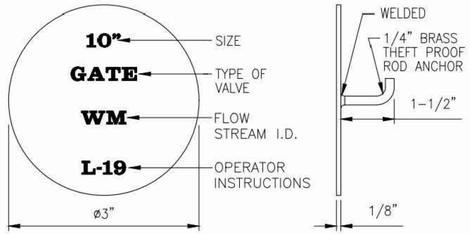
PROJECT NO.: 2019.141



NOTES:
1. PIPING, CLEANOUT CAP AND FITTINGS SHALL BE PVC SDR-35.

CLEANOUT

STANDARD UTILITY DETAILS			CLEANOUT	
CORAL SPRINGS	1	11/23/15	PER CITY COMMENTS	DATE APPROVED 12/10/15
	NO.	DATE	REVISIONS	DETAIL NUMBER SAN-9A



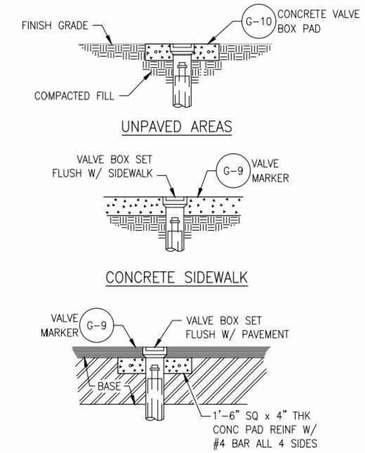
NOTES:

1) TOP OF BRASS MARKER MUST BE FLUSH WITH SURROUNDING SURFACE AND NOT CREATE A 1/8" TRIPPING HAZARD.

2) FLOW STREAM I.D.'S: WM = WATER MAIN
FM = FORCE MAIN

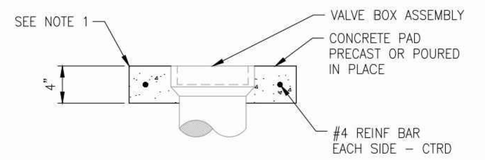
VALVE MARKER

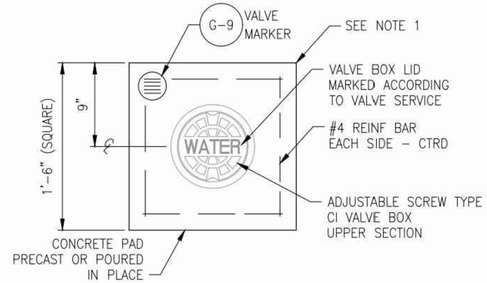
STANDARD UTILITY DETAILS			VALVE MARKER	
CORAL SPRINGS				DATE APPROVED 12/10/15
	NO.	DATE	REVISIONS	DETAIL NUMBER G-9



VALVE BOX SETTINGS

STANDARD UTILITY DETAILS			VALVE BOX SETTING	
CORAL SPRINGS				DATE APPROVED 12/10/15
	NO.	DATE	REVISIONS	DETAIL NUMBER G-11





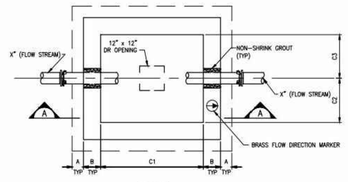
NOTES:
1. UTILIZE 3/8" RADIUS TOOLED EDGES IF PAD IS LOCATED IN UNPAVED AREAS.

CONCRETE VALVE BOX PAD

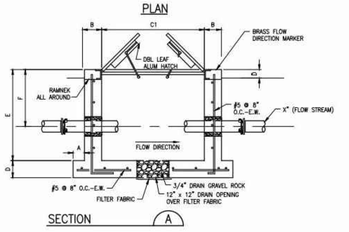
STANDARD UTILITY DETAILS			CONCRETE VALVE BOX PAD	
CORAL SPRINGS				DATE APPROVED 12/10/15
	NO.	DATE	REVISIONS	DETAIL NUMBER G-10

DIMENSIONS SCHEDULE										
METER SIZE/DETAIL #	PIPING DIMENSIONS	VAULT DIMENSIONS								
	X	A	B	C1	C2	C3	D	E	F	
4" / WM-11	4"	4"	8"	6'-0"	30"	30"	8"	36" MAX.	16" MIN.	
6" / WM-11	6"	4"	8"	7'-6"	30"	30"	8"	36" MAX.	16" MIN.	
8" / WM-11	8"	4"	8"	8'-0"	30"	30"	8"	36" MAX.	16" MIN.	
10" / WM-11	10"	4"	8"	9'-6"	30"	30"	8"	36" MAX.	16" MIN.	
3" / WM-12	4"	4"	8"	5'-0"	18"	30"	8"	36" MAX.	16" MIN.	
4" / WM-12	4"	4"	8"	5'-6"	18"	30"	8"	36" MAX.	16" MIN.	
6" / WM-12	8"	4"	8"	6'-6"	18"	30"	8"	36" MAX.	16" MIN.	
6"x8" / WM-12	8"	4"	8"	8'-6"	18"	30"	8"	36" MAX.	16" MIN.	

NOTES:
1. CONFIRM VAULT DIMENSIONS WITH CITY AND ENGINEER.
2. COMPRESSIVE STRENGTH OF PRECAST CONCRETE SHALL BE 4000 PSI AT 28 DAYS.
3. HATCH SHALL BE CENTERED OVER METER. HATCH SPECS SHALL BE AS FOLLOWS: TRAFFIC RATED = U.S.F. A24 (H-20) NON TRAFFIC = U.S.F. APD (300) HATCH DIMENSIONS PER METER REMOVAL REQUIREMENTS.
4. EXTERIOR OF VAULT SHALL BE COATED WITH TWO (2) COATS OF COAL TAR EPOXY, 16 MILS PER COAT.
5. METER NOT SHOWN FOR CLARITY. SEE DETAILS #WM-11 AND #WM-12.
6. VAULT SHALL BE CONSTRUCTED PER ASTM C-478.



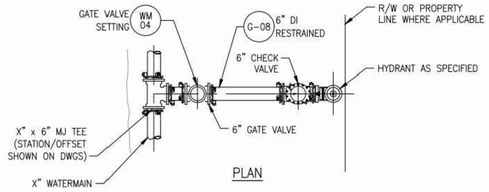
PLAN



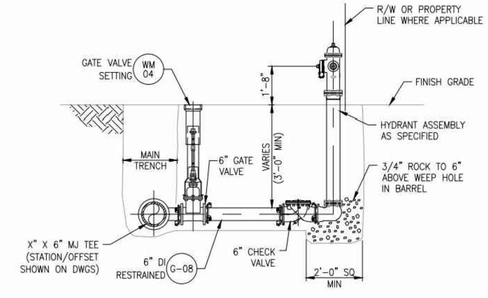
SECTION A

CONCRETE METER VAULT

STANDARD UTILITY DETAILS			CONCRETE METER VAULT	
CORAL SPRINGS				DATE APPROVED 12/10/15
	NO.	DATE	REVISIONS	DETAIL NUMBER WM-13



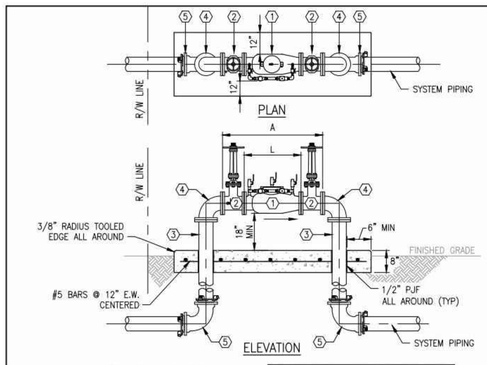
PLAN



SECTION

FIRE HYDRANT (STANDARD)

STANDARD UTILITY DETAILS			FIRE HYDRANT (STANDARD)	
CORAL SPRINGS				DATE APPROVED 12/10/15
	NO.	DATE	REVISIONS	DETAIL NUMBER WM-6



LIST OF MATERIALS

1. DOUBLE CHECK DETECTOR BFP
2. RESILIENT SEATED OS&Y GATE VALVE
3. DI FLG x PE PIPE (LENGTH AS REQD)
4. DI FLG JOINT 90° BEND
5. DI MJ 90° BEND (SEE NOTE 2)

BACKFLOW PREVENTER DIMENSIONS		
BFP SIZE	A	L
4"	40"	22"
6"	48-1/2"	27-1/2"
8"	52-1/2"	29-1/2"
10"	55-1/2"	29-1/2"
12"	57-1/2"	29-1/2"

NOTES

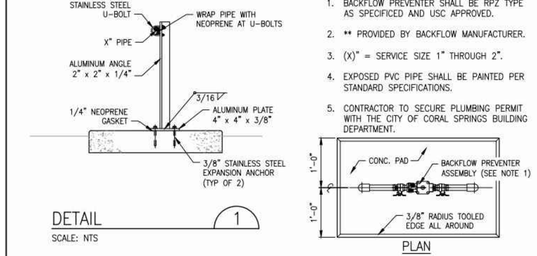
1) BACKFLOW PREVENTER TO MATCH SIZE OF SYSTEM PIPING.

2) ALL MECHANICAL JOINTS TO BE RESTRAINED TYPE, MEGALUGS OR EQUAL ALTERNATE ACCEPTABLE.

3) EXPOSED PIPING AND VALVES TO BE PAINTED RED PER STANDARD SPECIFICATIONS.

LARGE USER – FIRE SERVICE BACKFLOW PREVENTER

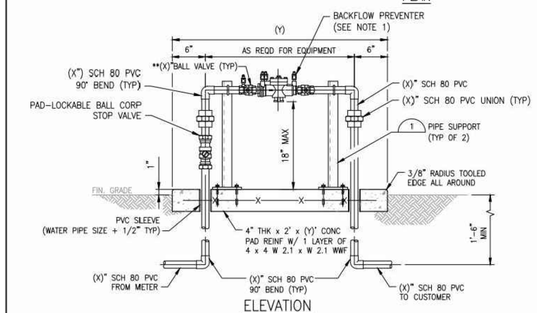
STANDARD UTILITY DETAILS			LARGE USER FIRE SERVICE BACKFLOW PREVENTER	
CORAL SPRINGS				DATE APPROVED 12/10/15
	NO.	DATE	REVISIONS	DETAIL NUMBER WM-10



DETAIL 1
SCALE: NTS

NOTES:
1. BACKFLOW PREVENTER SHALL BE RPZ TYPE AS SPECIFICED AND USC APPROVED.
2. ** PROVIDED BY BACKFLOW MANUFACTURER.
3. (X)" = SERVICE SIZE 1" THROUGH 2".
4. EXPOSED PVC PIPE SHALL BE PAINTED PER STANDARD SPECIFICATIONS.
5. CONTRACTOR TO SECURE PLUMBING PERMIT WITH THE CITY OF CORAL SPRINGS BUILDING DEPARTMENT.

PLAN



ELEVATION

BACKFLOW PREVENTER 1" – 2" (R.P.Z. TYPE)

STANDARD UTILITY DETAILS			BACKFLOW PREVENTER 1-INCH THROUGH 2-INCH (RPZ TYPE)	
CORAL SPRINGS				DATE APPROVED 12/10/15
	NO.	DATE	REVISIONS	DETAIL NUMBER WM-9

Z DEVELOPMENT Services
CA 29354
708 E. COLONIAL DR., STE. 100 ORLANDO, FL 32803
PH: (407) 271-8910 FAX: (407) 442-0604

REVISION	DATE
REVISION	DATE

LADYBIRD ACADEMY
8950 ROYAL PALM BOULEVARD
CORAL SPRINGS, FLORIDA 33065

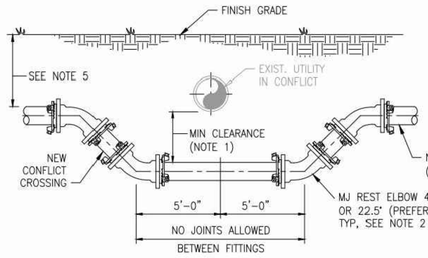
DATE: 02-22-22
DRAWN: SR
CHECKED: RZ

C7.1
CITY OF CORAL SPRINGS STANDARD DETAILS

PROJECT NO.: 2019.141

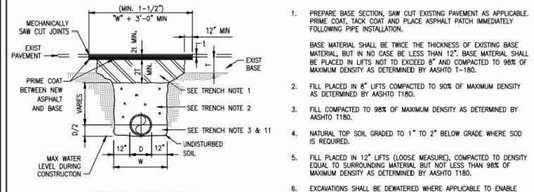
NOTES:

1. MINIMUM VERTICAL CLEARANCES SHALL BE IN ACCORDANCE WITH STANDARD SEPARATION STATEMENT.
2. ALL JOINTS OF CROSSING SHALL BE RESTRAINED PER JOINT RESTRAINT DETAILS. SEE DETAIL #G-08.
3. PIPE JOINTS MAY BE DEFLECTED AS AN ALTERNATIVE TO FITTINGS AT CONTRACTORS DISCRETION WITH CITY APPROVAL. DO NOT EXCEED PIPE MANUFACTURERS SPECIFIED MAXIMUM DEFLECTION.
4. DETAIL MAY BE MODIFIED IN FIELD WHERE TWO (2) OR MORE UTILITY CONFLICTS ARE IN CLOSE PROXIMITY WITH EACH OTHER. COORDINATE IN FIELD WITH CITY AND ENGINEER.
5. MINIMUM COVER SHALL BE 3'-0" FOR PVC AND 2'-6" FOR DIP.

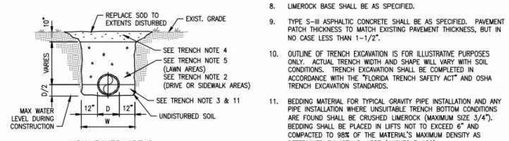


UTILITY CROSSING

STANDARD UTILITY DETAILS			UTILITY CROSSING	
CORAL SPRINGS	NO.	DATE	REVISIONS	DATE APPROVED 12/10/15
				DETAIL NUMBER G-13



EXISTING PAVED AREAS



NON-PAVED AREAS

1. PREPARE BASE SECTION, SAW CUT EXISTING PAVEMENT AS APPLICABLE. PRIME COAT, TACK COAT AND PLACE ASPHALT PATCH IMMEDIATELY FOLLOWING PIPE INSTALLATION.

   BASE MATERIAL SHALL BE TWICE THE THICKNESS OF EXISTING BASE MATERIAL, BUT IN NO CASE BE LESS THAN 12". BASE MATERIAL SHALL BE PLACED IN LIFTS NOT TO EXCEED 8" AND COMPACTED TO 98% OF MAXIMUM DENSITY AS DETERMINED BY AASHTO T-180.
2. FILL PLACED IN 8" LIFTS COMPACTED TO 90% OF MAXIMUM DENSITY AS DETERMINED BY AASHTO T180.
3. FILL COMPACTED TO 98% OF MAXIMUM DENSITY AS DETERMINED BY AASHTO T180.
4. NATURAL TOP SOIL GRADED TO 1" TO 2" BELOW GRADE WHERE SOD IS REQUIRED.
5. FILL PLACED IN 12" LIFTS (LOOSE MEASURE), COMPACTED TO DENSITY EQUAL TO SURROUNDING MATERIAL BUT NOT LESS THAN 98% OF MAXIMUM DENSITY AS DETERMINED BY AASHTO T180.
6. EXCAVATIONS SHALL BE DEWATERED WHERE APPLICABLE TO ENABLE PIPE AND APPURTENANCES TO BE INSTALLED FREE OF WATER.
7. BEDDING AND BACKFILL MATERIAL SHALL BE AS SPECIFIED.
8. LIMEROCK BASE SHALL BE AS SPECIFIED.
9. TYPE S-III ASPHALTIC CONCRETE SHALL BE AS SPECIFIED. PAVEMENT PATCH THICKNESS TO MATCH EXISTING PAVEMENT THICKNESS, BUT IN NO CASE LESS THAN 1-1/2".
10. OUTLINE OF TRENCH EXCAVATION IS FOR ILLUSTRATIVE PURPOSES ONLY. ACTUAL TRENCH WIDTH AND SHAPE WILL VARY WITH SOIL CONDITIONS. TRENCH EXCAVATION SHALL BE COMPLETED IN ACCORDANCE WITH THE "FLORIDA TRENCH SAFETY ACT" AND OSHA TRENCH EXCAVATION STANDARDS.
11. BEDDING MATERIAL FOR TYPICAL GRAVITY PIPE INSTALLATION AND ANY PIPE INSTALLATION WHERE UNSUITABLE TRENCH BOTTOM CONDITIONS ARE FOUND SHALL BE CRUSHED LIMEROCK (MAXIMUM SIZE 3/4"). BEDDING SHALL BE PLACED IN LIFTS NOT TO EXCEED 6" AND COMPACTED TO 98% OF THE MATERIAL'S MAXIMUM DENSITY AS DETERMINED BY ASTM D-1557 (AASHTO T-180).

TYPICAL UTILITY TRENCH BACKFILL AND BEDDING

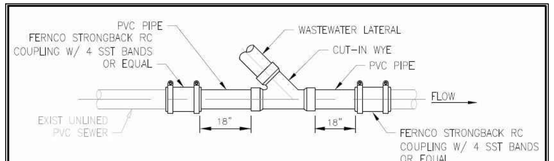
STANDARD UTILITY DETAILS			TYPICAL UTILITY TRENCH BACKFILL AND BEDDING	
CORAL SPRINGS	NO.	DATE	REVISIONS	DATE APPROVED 12/10/15
				DETAIL NUMBER G-12

GENERAL NOTES

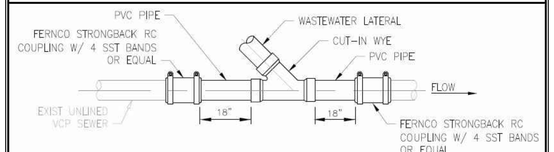
1) CONSTRUCTION AND MATERIALS SHALL CONFORM TO THE STANDARDS AND SPECIFICATIONS OF THE DEPARTMENT OF TRANSPORTATION, FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION, BROWARD COUNTY ENVIRONMENTAL PROTECTION AND GROWTH MANAGEMENT DEPARTMENT, BROWARD COUNTY HEALTH DEPARTMENT, FLORIDA BUILDING CODE (LATEST EDITION) AND ALL OTHER LOCAL AND NATIONAL CODES WHERE APPLICABLE.
2) PERFORM CONSTRUCTION IN A SAFE MANNER, SPECIFICALLY, THE RULES AND REGULATIONS OF THE OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION AND THE MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES SHALL BE STRICTLY OBSERVED.
3) ELEVATIONS ON THE DRAWINGS OR REFERENCED IN THE SPECIFICATIONS ARE BASED ON NATIONAL GEODETIC VERTICAL DATUM OF 1929.
4) THE CONTRACTOR SHALL OBTAIN THE SERVICES OF A UTILITY LOCATION SERVICE SUCH AS "SUNSHINE STATE ONE CALL OF FLA, INC." AT (800) 432-4770 AT LEAST 48 HOURS PRIOR TO BEGINNING ANY EXCAVATION.
5) PRIOR TO BEGINNING CONSTRUCTION, THE CONTRACTOR SHALL VERIFY THE SIZE LOCATION AND MATERIAL OF ALL EXISTING UTILITIES WITHIN THE AREA OF CONSTRUCTION.
6) IF UPON EXCAVATION, AN EXISTING UTILITY IS FOUND TO BE IN CONFLICT WITH THE PROPOSED CONSTRUCTION OR TO BE OF A SIZE OR MATERIAL DIFFERENT FROM THAT SHOWN ON THE DRAWINGS, THE CONTRACTOR SHALL IMMEDIATELY NOTIFY THE CITY.
7) STANDARD SEPARATION STATEMENT:
   A. MAINTAIN A MINIMUM THREE (3) FOOT HORIZONTAL DISTANCE BETWEEN WATER MAINS AND VACUUM SEWER, STORM SEWER OR RECLAIMED WATER MAINS REGULATED UNDER PART III OF CHAPTER 62-610.
   B. MAINTAIN A MINIMUM SIX (6) FOOT HORIZONTAL DISTANCE BETWEEN WATER MAINS AND GRAVITY SEWER, PRESSURE-TYPE SANITARY SEWER OR RECLAIMED WATER MAINS NOT REGULATED UNDER PART III OF CHAPTER 62-610.

      THIS DISTANCE CAN BE REDUCED TO THREE (3) FOOT HORIZONTAL DISTANCE WHEN EITHER PIPE IS ENCLOSED IN A WATERTIGHT CASING OR CONCRETE AND WHEN WATER MAINS ARE LOCATED AT LEAST SIX (6) INCHES ABOVE GRAVITY SEWER MAINS.
   C. MAINTAIN A MINIMUM TEN (10) FOOT HORIZONTAL DISTANCE BETWEEN WATER MAINS AND ON-SITE SEWAGE TREATMENT AND DISPOSAL SYSTEMS.
   D. MAINTAIN SIX (6) INCH VERTICAL SEPARATION WHERE WATER MAINS CROSS ABOVE VACUUM SEWER, GRAVITY SEWER OR STORM SEWER.
   E. MAINTAIN A TWELVE (12) INCH VERTICAL SEPARATION WHERE WATER MAINS CROSS BELOW VACUUM SEWER, GRAVITY SEWER OR STORM SEWER.
   F. MAINTAIN A TWELVE (12) INCH VERTICAL SEPARATION WHERE WATER MAINS CROSS ABOVE OR BELOW PRESSURE-TYPE SANITARY SEWER, FORCE MAIN OR RECLAIMED WATER MAINS.
8) THE CONTRACTOR SHALL PERFORM ALL WORK NECESSARY TO LOCATE, EXCAVATE AND PREPARE FOR CONNECTIONS TO THE EXISTING SYSTEMS ALL AS SHOWN ON THE DRAWINGS. THE COST FOR THIS WORK AND FOR THE ACTUAL CONNECTION TO THE EXISTING SYSTEMS SHALL BE INCLUDED IN THE BID PRICE FOR THE PROJECT AND SHALL NOT RESULT IN ANY ADDITIONAL COST TO THE CITY.
9) CONTRACTOR MUST PROVIDE FOR AND MAINTAIN ADEQUATE ACCESS AT ALL TIMES TO ALL BUSINESSES AND RESIDENCES AFFECTED BY PROGRESS OF THE WORK.
10) PROJECT SITE SAFETY:
   A. THE ENGINEER/CITY OR THEIR EMPLOYEES HAVE NO AUTHORITY TO EXERCISE ANY CONTROL OVER THE CONTRACTOR, ANY SUB-CONTRACTOR OR OTHER ENTITY OR THEIR EMPLOYEES IN CONNECTION WITH THEIR WORK OR ANY JOB SITE HEALTH OR SAFETY PRECAUTIONS.
   B. THE CONTRACTOR IS SOLELY RESPONSIBLE FOR JOB SITE SAFETY, AND WARRANTS THAT THIS INTENT IS MADE EVIDENT BY THE AGREEMENT BETWEEN OWNER AND CONTRACTOR.
   C. ALL EXISTING OVERHEAD AND UNDERGROUND UTILITIES SHOWN ON THESE DRAWINGS OR ENCOUNTERED THROUGH THE PROGRESSION OF WORK AT THIS PROJECT SITE AREA ARE ASSUMED TO BE LIVE. CONTRACTOR SHALL BE RESPONSIBLE FOR ALL SAFETY PRECAUTIONS WHEN WORKING AROUND EXISTING OVERHEAD OR UNDERGROUND UTILITIES.
11) VALVE BOXES AND MANHOLE RIM ELEVATIONS SHOWN ARE APPROXIMATE. CONTRACTOR SHALL ADJUST VALVE BOX AND MANHOLE RIM ELEVATIONS AS REQUIRED TO MEET FINAL GRADES.

STANDARD UTILITY DETAILS			GENERAL NOTES	
CORAL SPRINGS	NO.	DATE	REVISIONS	DATE APPROVED 12/10/15
				DETAIL NUMBER G-1



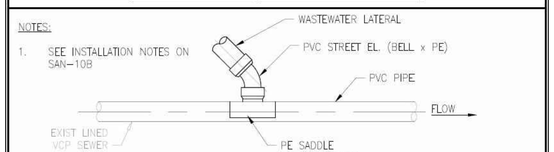
LATERAL CUT-IN (EXISTING UNLINED PVC)



LATERAL CUT-IN (EXISTING UNLINED VCP)

NOTES:

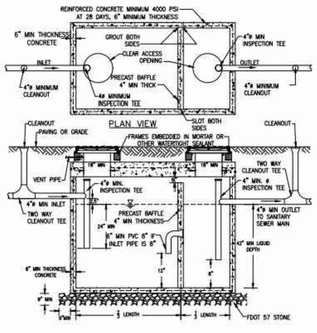
1. SEE INSTALLATION NOTES ON SAN-10B



LATERAL SADDLE (EXISTING LINED VCP)

SANITARY SEWER LATERAL CUT-IN

STANDARD UTILITY DETAILS			SANITARY SEWER LATERAL CUT-IN	
CORAL SPRINGS	NO.	DATE	REVISIONS	DATE APPROVED 12/10/15
				DETAIL NUMBER SAN-10A



NOTES:

1. SPECIFIC DESIGN DETAILS MUST IN ALL ASPECTS MEET APPLICABLE FLORIDA PLUMBING AND ADMINISTRATIVE CODE.
2. SIZE GREASE INTERCEPTOR PER OCU MANUAL, SECTION 2310. MINIMUM SIZE 750 GAL; MAXIMUM SIZE 1250 GAL.
3. INTERCEPTORS SHALL BE WATER AND GAS TIGHT.
4. ALL FIXTURES LOCATED IN FOOD AND BEVERAGE PREPARATION AREAS SHALL BE ROUTED THOUGH GREASE INTERCEPTOR. RESTROOM WASTE SHALL NOT BE ROUTED THROUGH INTERCEPTOR.
5. BAFFLE REQUIRED; ALTERNATIVE DESIGNS ARE ACCEPTABLE. DESIGN MUST MEET FLORIDA PLUMBING AND ADMINISTRATIVE CODE.
6. ALL NEW AND EXISTING BUSINESSES OR INDUSTRIES THAT USE PETROLEUM BASE PRODUCTS IN THEIR DAY TO DAY ACTIVITIES WILL BE REQUIRED TO INSTALL AN OIL/WATER SEPARATOR IF THEY CHOOSE TO OPERATE WITH OPEN FLOOR DRAINS.
7. NO DOMESTIC EFFLUENT SHALL BE ALLOWED TO DISCHARGE THROUGH THE OIL/WATER SEPARATOR.
8. OIL/WATER SEPARATOR MODELS AND WATER RECYCLE UNITS MANUFACTURED BY COMPANIES SUCH AS ZURN, SMITH, LANDA INC. OR RGF ENVIRONMENTAL SYSTEMS INC. AND OTHERS CAN BE SUBSTITUTED FOR THE ABOVE DESIGN WITH THE CITY'S APPROVAL.
9. ALL SIDES OF IN-GROUND OIL/WATER SEPARATOR UNITS (EXCEPT ACCESS DOORS AND MANHOLES) ARE REQUIRED TO BE CONSTRUCTED OF 1/8" INCH (OR GREATER) STEEL OR 6" (OR GREATER) REINFORCED CONCRETE OR FIBERGLASS.
10. IF INSTALLED, ACCESS DOOR TO IN-GROUND OIL/WATER SEPARATOR UNITS SHALL BE CONSTRUCTED OF ALUMINUM WITH H-20 LOADING CAPACITY PER SPECIFICATIONS BY U.S. FOUNDRY, CORP. OR EQUIVALENT.
11. OIL INTERCEPTORS SHALL BE PUMPED OUT COMPLETELY AT A MINIMUM OF ONCE EVERY NINETY (90) DAYS OR MORE FREQUENTLY AS NEEDED TO PREVENT CARRY OVER OF OIL INTO COLLECTION SYSTEM.

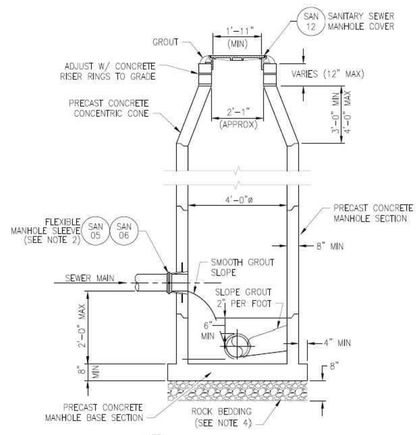
CAR WASH NOTES:

1. ALL NEW AND EXISTING BUSINESSES OR INDUSTRIES THAT WASH CARS WILL BE REQUIRED TO INSTALL AN OIL/WATER SEPARATOR.
2. IF YOU CHOOSE TO WASH CARS OUTSIDE, THE WASH PAD WILL HAVE TO BE SHELTERED SO RAIN WATER WILL NOT BE DISCHARGED TO SANITARY SEWER SYSTEM.
3. TO PREVENT WASH WATER FROM RUNNING OUTSIDE OF WASH AREA, A SPEED BUMP WILL NEED TO BE INSTALLED ALONG THE ENTRANCE TO THE BAYS OF YOUR BUSINESS AND/OR ALONG THE OUTSIDE EDGES OF THE WASH PAD.

OIL/GREASE INTERCEPTOR

STANDARD UTILITY DETAILS			OIL-GREASE INTERCEPTOR	
CORAL SPRINGS	NO.	DATE	REVISIONS	DATE APPROVED 12/10/15
				DETAIL NUMBER MISC-6

1



NOTES:

1. COAT INSIDE & OUTSIDE OF MANHOLE PER SPECIFICATIONS.
2. WHERE EXTERIOR DROP CONNECTION IS ADDED TO EXISTING MANHOLE SUBSTITUTE MANHOLE COUPLING (SAN 04) FOR FLEXIBLE MANHOLE SLEEVE.
3. PRECAST CONCRETE MANHOLES AND ACCESSORIES SHALL BE AS SPECIFIED.
4. FDOT #57 STONE.

SANITARY SEWER MANHOLE DEPTH ≤ 6FT

STANDARD UTILITY DETAILS			SANITARY SEWER MANHOLE (DEPTH LESS THAN 6-FT)	
CORAL SPRINGS	NO.	DATE	REVISIONS	DATE APPROVED 12/10/15
				DETAIL NUMBER SAN-1

RZ DEVELOPMENT Services
CA 29354
708 E. COLONIAL DR., STE. 100 ORLANDO, FL 32803
PH: (407) 271-8910
FAX: (407) 442-0604

REVISION	DATE
SFWMD & SWCD COMMENTS	07-07-22

LADYBIRD ACADEMY
8950 ROYAL PALM BOULEVARD
CORAL SPRINGS, FLORIDA 33065

DATE: 02-22-22
DRAWN: SR
CHECKED: RZ

C7.2
CITY OF CORAL SPRINGS STANDARD DETAILS

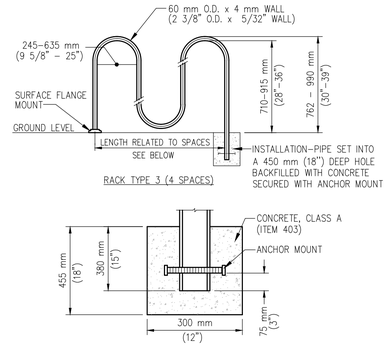
PROJECT NO.: 2019.141

GENERAL NOTES

1. ALL TRAFFIC CONTROL DEVICES, EQUIPMENT AND INSTALLATION SHALL MEET THE REQUIREMENTS OF THE LOCAL JURISDICTION AND/OR FLORIDA DEPARTMENT OF TRANSPORTATION.

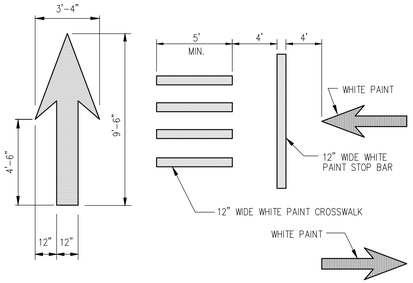
2. VEHICLE PARKING SPACES SHALL CONFORM WITH LOCAL CODE. ACCESSIBLE PARKING SPACES AND ACCESS ROUTES SHALL FURTHER CONFORM WITH CURRENT ADA REQUIREMENTS.

3. ACCESSIBLE PAVEMENT MARKINGS AND SIGNAGE SHALL CONFORM WITH CURRENT ADA REQUIREMENTS AND LOCAL ORDINANCE.

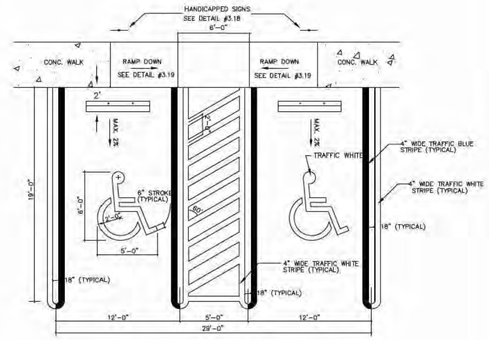


3 SPACES, LENGTH = 0.84–1m (33–41")

BICYCLE RACK NTS



PAVEMENT MARKINGS NTS



NOTE:
All pavement markings to be thermoplastic.

* ALL DIMENSIONS ARE CONSIDERED MINIMUM DESIGN CONDITIONS UNLESS OTHERWISE APPROVED BY CITY ENGINEER FOR SPECIAL EXCEPTION AREAS

STANDARD DETAILS			TYPICAL DOUBLE HANDICAPPED STALL
CORAL SPRINGS		MARCH 2008	LAST MODIFIED 07/2014
	NO.	DATE	REVISIONS
			DETAIL NUMBER S–17 SHEET 1 OF 2

Parking Stall Details

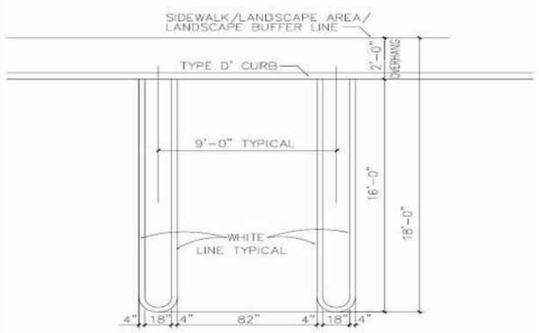
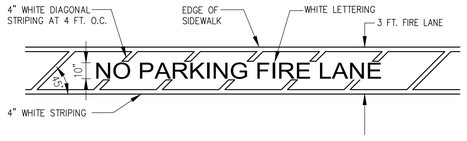
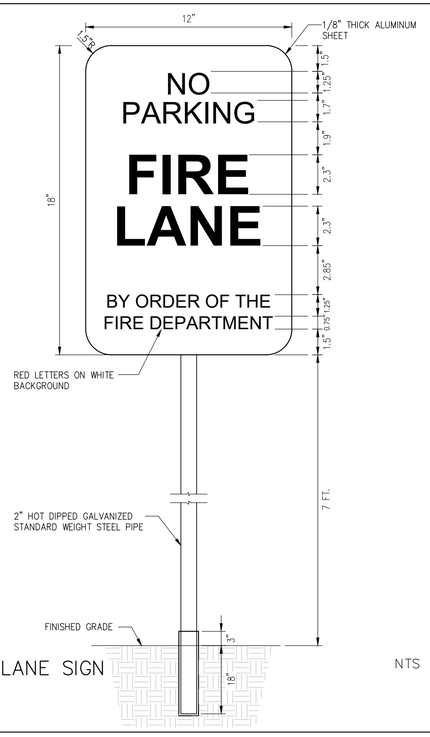


Figure 3b.

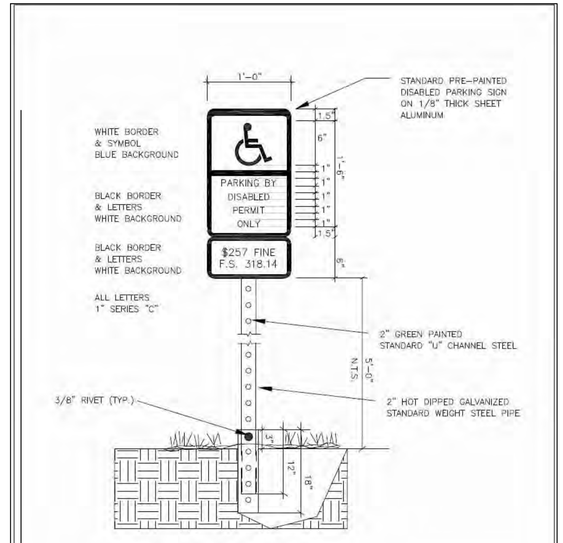
CITY OF CORAL SPRINGS STANDARD PARKING DETAILS



FIRE LANE STRIPING NTS



FIRE LANE SIGN NTS



* ALL DIMENSIONS ARE CONSIDERED MINIMUM DESIGN CONDITIONS UNLESS OTHERWISE APPROVED BY CITY ENGINEER FOR SPECIAL EXCEPTION AREAS

STANDARD DETAILS			HANDICAPPED SIGN DETAIL
CORAL SPRINGS		MARCH 2008	LAST MODIFIED 07/2014
	NO.	DATE	REVISIONS
			DETAIL NUMBER S–18 SHEET 1 OF 1

DEVELOPMENT Services
CA 29354
708 E. COLONIAL DR., STE. 100
ORLANDO, FL 32803
PH: (407) 271-8910
FAX: (407) 442-0604

REVISION	DATE	REVISION	DATE

ROBERT ZIEGENFUSS, P.E., LEED AP
FLA. REG. # 56752

LADYBIRD ACADEMY
8950 ROYAL PALM BOULEVARD
CORAL SPRINGS, FLORIDA 33065

DATE: 02–22–22
DRAWN: SR
CHECKED: RZ

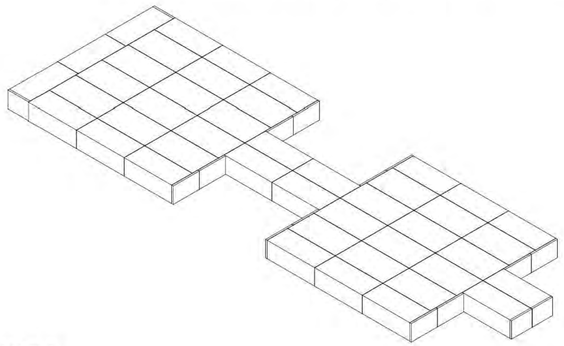
C7.3
PAVEMENT STRIPING AND ADA DETAILS

PROJECT NO.: 2019.141

StormTrap
MODULAR CONCRETE STORMWATER MANAGEMENT

SHEET INDEX	
PAGE	DESCRIPTION
0.0	COVER SHEET
1.0	SINGLETRAP DESIGN CRITERIA
2.0	SINGLETRAP SYSTEM LAYOUT
3.0	SINGLETRAP INSTALLATION SPECIFICATIONS
3.1	SINGLETRAP INSTALLATION SPECIFICATIONS
4.0	SINGLETRAP BACKFILL SPECIFICATIONS
5.0	RECOMMENDED PIPE/ACCESS OPENING SPECIFICATIONS
6.0	SPLASH PAD & GEOWEB DETAILS
7.0	SINGLETRAP MODULE TYPES

STORMTRAP CONTACT INFORMATION	
STORMTRAP SUPPLIER:	STORMTRAP
CONTACT NAME:	GREG DIXON
CELL PHONE:	813-618-2110
SALES EMAIL:	GDIXON@STORMTRAP.COM



LADYBIRD- VAULT 1
CORAL SPRINGS, FL

StormTrap
PAVERS USED AS [HTTP://STORMTRAP.COM/PAVERS]
1287 WINDHAM PARKWAY
ROMEOVILLE, IL 60446
P:815-941-4549 / F:331-318-5347

ENGINEER INFORMATION:

Z DEVELOPMENT SERVICES
708 EAST COLONIAL DRIVE
SUITE 100
ORLANDO, FL 32803
407-271-8910

PROJECT INFORMATION:

LADYBIRD
VAULT 1
CORAL SPRINGS, FL

CURRENT ISSUE DATE:

6/30/2022

ISSUED FOR:

PRELIMINARY

REV.	DATE:	ISSUED FOR:	DWN BY:
3	6/30/22	PRELIMINARY	KL
2	5/12/22	PRELIMINARY	KL
1	5/3/22	PRELIMINARY	KL

SCALE:

NTS

SHEET TITLE:

COVER SHEET

SHEET NUMBER:

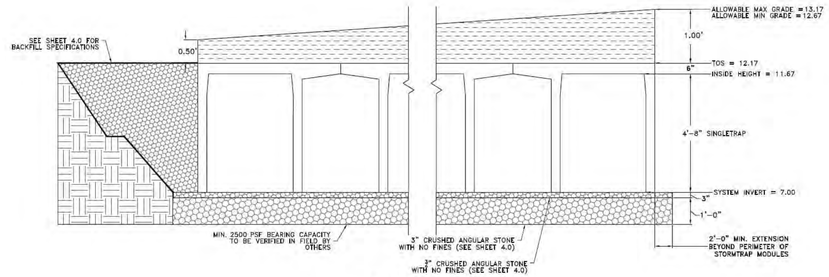
0.0

STRUCTURAL DESIGN LOADING CRITERIA	
LIVE LOADING:	AASHTO HS-20 HIGHWAY LOADING
GROUND WATER TABLE:	BELOW INVERT OF SYSTEM
SOIL BEARING PRESSURE:	2500 PSF
SOIL DENSITY:	120 PCF
EQUIVALENT UNSATURATED LATERAL ACTIVE EARTH PRESSURE:	35 PSF / FT.
EQUIVALENT SATURATED LATERAL ACTIVE EARTH PRESSURE:	80 PSF/FT. (IF WATER TABLE PRESENT)
APPLICABLE CODES:	ASTM C857 ACI-318
BACKFILL TYPE:	SEE SHEET 4.0 FOR BACKFILL OPTIONS

STORMTRAP SYSTEM INFORMATION	
WATER STORAGE PROV:	21,969.96 CUBIC FEET
UNIT HEADROOM:	4'-8" SINGLETRAP

SITE SPECIFIC DESIGN CRITERIA

1. STORMTRAP UNITS SHALL BE MANUFACTURED AND INSTALLED ACCORDING TO SHOP DRAWINGS APPROVED BY THE INSTALLING CONTRACTOR AND ENGINEER OF RECORD. THE SHOP DRAWINGS SHALL INDICATE SIZE AND LOCATION OF ROOF OPENINGS AND INLET/ OUTLET PIPE TYPES, SIZES, INVERT ELEVATIONS AND SIZE OF OPENINGS.
2. COVER RANGE: MIN. 0.50" MAX. 1.00" CONSULT STORMTRAP FOR ADDITIONAL COVER OPTIONS.
3. ALL DIMENSIONS AND SOIL CONDITIONS, INCLUDING BUT NOT LIMITED TO GROUNDWATER AND SOIL BEARING CAPACITY ARE REQUIRED TO BE VERIFIED IN THE FIELD BY OTHERS PRIOR TO STORMTRAP INSTALLATION.
4. FOR STRUCTURAL CALCULATIONS THE GROUND WATER TABLE IS ASSUMED TO BE BELOW INVERT OF SYSTEM IF WATER TABLE IS DIFFERENT THAN ASSUMED, CONTACT STORMTRAP.



4'-8" SINGLETRAP

StormTrap
PAVERS USED AS [HTTP://STORMTRAP.COM/PAVERS]
1287 WINDHAM PARKWAY
ROMEOVILLE, IL 60446
P:815-941-4549 / F:331-318-5347

ENGINEER INFORMATION:

Z DEVELOPMENT SERVICES
708 EAST COLONIAL DRIVE
SUITE 100
ORLANDO, FL 32803
407-271-8910

PROJECT INFORMATION:

LADYBIRD
VAULT 1
CORAL SPRINGS, FL

CURRENT ISSUE DATE:

6/30/2022

ISSUED FOR:

PRELIMINARY

REV.	DATE:	ISSUED FOR:	DWN BY:
3	6/30/22	PRELIMINARY	KL
2	5/12/22	PRELIMINARY	KL
1	5/3/22	PRELIMINARY	KL

SCALE:

NTS

SHEET TITLE:

SINGLETRAP DESIGN CRITERIA

SHEET NUMBER:

1.0

BILL OF MATERIALS			
QTY.	UNIT TYPE	DESCRIPTION	WEIGHT
0	I	4'-8" SINGLETRAP	0
24	II	4'-8" SINGLETRAP	17477
0	III	4'-8" SINGLETRAP	0
21	IV	4'-8" SINGLETRAP	16084
0	VII	4'-8" SINGLETRAP	0
1	SPIV	4'-8" SINGLETRAP	VARIES
12	T2 PANEL	6" THICK PANEL	3262
4	T4 PANEL	8" THICK PANEL	2568
0	T7 PANEL	8" THICK PANEL	0
10	JOINTWRAP	150' PER ROLL	
0	JOINTTAPE	14.5' PER ROLL	
TOTAL PIECES = 45			
TOTAL PANELS = 16			
HEAVIEST PICK WEIGHT = 17,477			

LOADING DISCLAIMER:

STORMTRAP IS NOT DESIGNED TO ACCEPT ANY ADDITIONAL LOADINGS FROM NEARBY STRUCTURES NEXT TO OR OVER THE TOP OF STORMTRAP. IF ADDITIONAL LOADING CONSIDERATIONS ARE REQUIRED FOR STRUCTURAL DESIGN OF STORMTRAP, PLEASE CONTACT STORMTRAP IMMEDIATELY.

TREE LOADING DISCLAIMER:

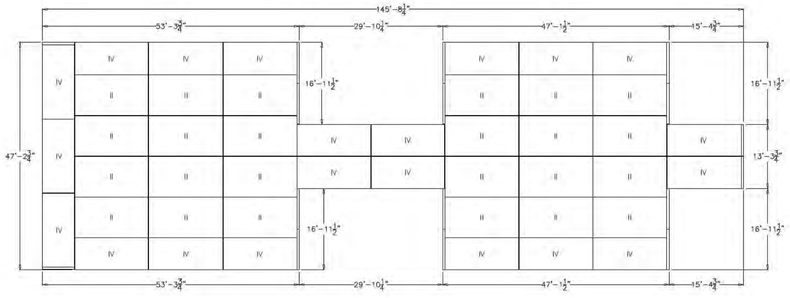
THE STORMTRAP SYSTEM HAS NOT BEEN DESIGNED TO SUPPORT THE ADDITIONAL WEIGHT OF ANY TREES. FURTHERMORE, THE ROOTS OF THE TREES MUST BE CONTAINED TO PREVENT FUTURE DAMAGE TO THE STORMTRAP SYSTEM. STORMTRAP ACCEPTS NO LIABILITY FOR DAMAGES CAUSED BY TREES OR OTHER VEGETATION PLACE AROUND OR ON TOP OF THE SYSTEM.

SEDIMENT/SAND FILTER DISCLAIMER:

FOR SYSTEMS CONTAINING SEDIMENT AND SAND FILTER MODULES; IF REQUIRED TO BE SEALED TO PREVENT SAND AND/OR PRE-TREATED WATER FROM MIGRATING INTO ADJOINING MODULES, IT IS THE SOLE RESPONSIBILITY OF THE INSTALLING CONTRACTOR TO ENSURE THAT THOSE MODULES ARE SEALED.

DESIGN CRITERIA
ALLOWABLE MAX GRADE =13.17
ALLOWABLE MIN GRADE =12.67
INSIDE HEIGHT ELEVATION =11.67
SYSTEM INVERT =7.00

NOTES:
1. DIMENSIONING OF STORMTRAP SYSTEM SHOWN BELOW ALLOW FOR A 3/4" GAP BETWEEN EACH MODULE.
2. ALL DIMENSIONS TO BE VERIFIED IN THE FIELD BY OTHERS.
3. SEE SHEET 3.0 FOR INSTALLATION SPECIFICATIONS.
4. SP - INDICATES A MODULE WITH MODIFICATIONS.
5. P - INDICATES A MODULE WITH A PANEL ATTACHMENT.
6. CONTRACTORS RESPONSIBILITY TO ENSURE CONSISTENCY/ACCURACY TO FINAL ENGINEER OF RECORD PLAN SET.
7. IF A WATERTIGHT SOLUTION IS REQUIRED FOR AN OUTLET CONTROL STRUCTURE, ALL EXTERIOR COLD JOINTS, INCLUDING JOINT BETWEEN TOP AND BASE MODULES, BETWEEN TOP AND BASE OF ADJOINING SYMONS WALLS, AND JOINTS BETWEEN MODULE AND ADJACENT END PANELS WILL BE THE SOLE RESPONSIBILITY OF THE INSTALLING CONTRACTOR TO PROVIDE AND INSTALL THE WATERTIGHT APPLICATION PER THE EOR'S SPECIFICATION.



StormTrap
PAVERS USED AS [HTTP://STORMTRAP.COM/PAVERS]
1287 WINDHAM PARKWAY
ROMEOVILLE, IL 60446
P:815-941-4549 / F:331-318-5347

ENGINEER INFORMATION:

Z DEVELOPMENT SERVICES
708 EAST COLONIAL DRIVE
SUITE 100
ORLANDO, FL 32803
407-271-8910

PROJECT INFORMATION:

LADYBIRD
VAULT 1
CORAL SPRINGS, FL

CURRENT ISSUE DATE:

6/30/2022

ISSUED FOR:

PRELIMINARY

REV.	DATE:	ISSUED FOR:	DWN BY:
3	6/30/22	PRELIMINARY	KL
2	5/12/22	PRELIMINARY	KL
1	5/3/22	PRELIMINARY	KL

SCALE:

NTS

SHEET TITLE:

SINGLETRAP LAYOUT DETAILS

SHEET NUMBER:

2.0

Z DEVELOPMENT Services
CA 29354
708 E. COLONIAL DR., STE. 100
ORLANDO, FL 32803
PH: (407) 271-8910
FAX: (407) 442-0604

REVISION	DATE
△ SFWMD & SWCD COMMENTS	07-07-22

ROBERT ZIEGENFUSS, P.E., LEED AP
FL REG. # 56752

LADYBIRD ACADEMY
8950 ROYAL PALM BOULEVARD
CORAL SPRINGS, FLORIDA 33065

DATE: 02-22-22
DRAWN: SR
CHECKED: RZ

C8
SUBSURFACE STORMWATER SYSTEM DETAILS

PROJECT NO.: 2019.141

StormTrap®
MODULAR CONCRETE STORMWATER MANAGEMENT

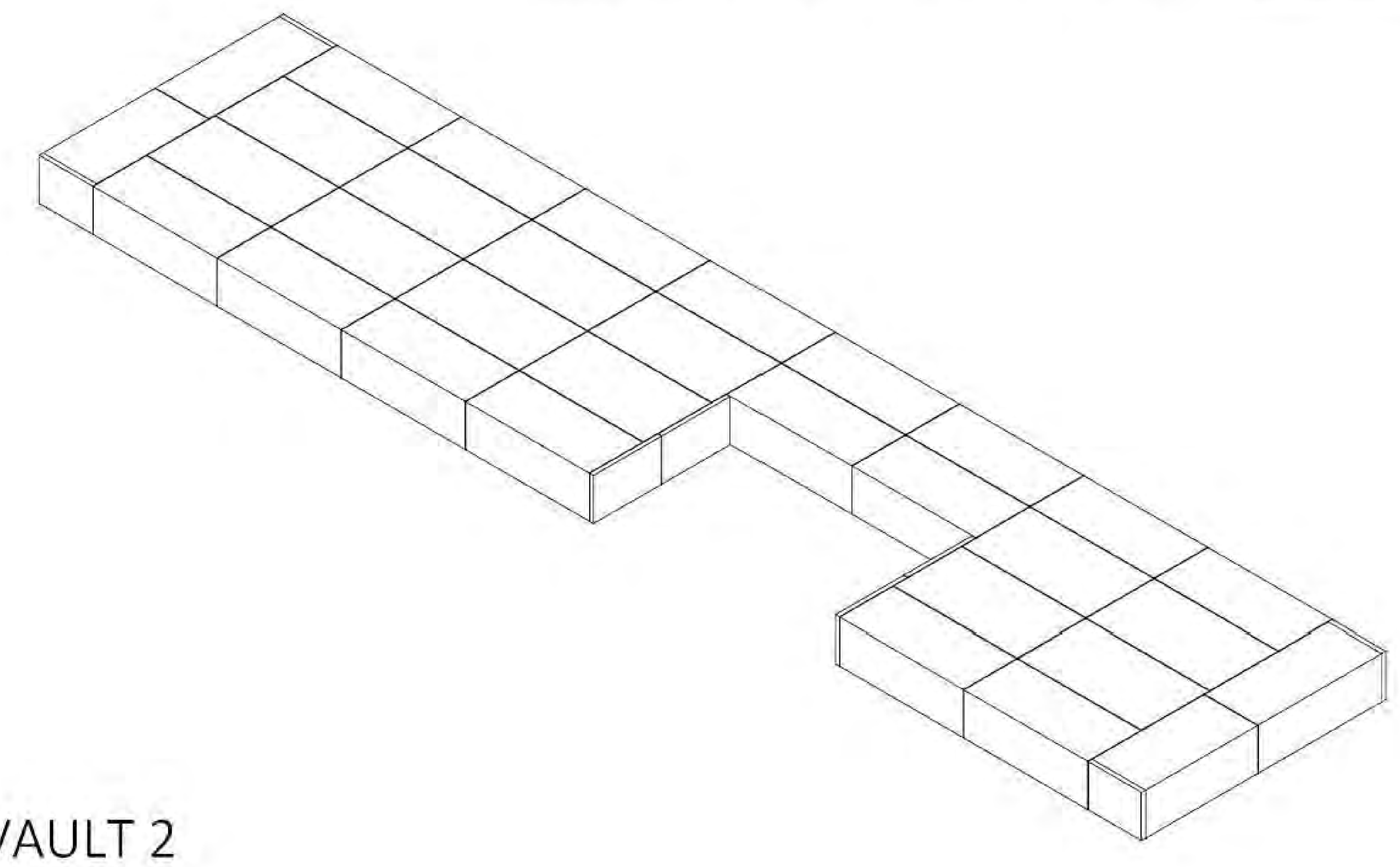
THE STORMTRAP DRAWINGS SHALL NOT BE ALTERED OR MANIPULATED IN WHOLE OR IN PART WITHOUT WRITTEN CONSENT OF STORMTRAP. USE OF THESE DRAWINGS IS STRICTLY GRANTED TO YOU, OUR CLIENT, FOR THE SPECIFIED AND NAMED PROJECT ONLY. THESE DRAWINGS ARE FOR YOUR REFERENCE ONLY AND SHALL NOT BE USED FOR CONSTRUCTION PURPOSES.

SHEET INDEX

PAGE	DESCRIPTION
0.0	COVER SHEET
1.0	SINGLETRAP DESIGN CRITERIA
2.0	SINGLETRAP SYSTEM LAYOUT
3.0	SINGLETRAP INSTALLATION SPECIFICATIONS
3.1	SINGLETRAP INSTALLATION SPECIFICATIONS
4.0	SINGLETRAP BACKFILL SPECIFICATIONS
5.0	RECOMMENDED PIPE/ACCESS OPENING SPECIFICATIONS
6.0	SPLASH PAD & GEOWEB DETAILS
7.0	SINGLETRAP MODULE TYPES

STORMTRAP CONTACT INFORMATION

STORMTRAP SUPPLIER: STORMTRAP
CONTACT NAME: GREG DIXON
CELL PHONE: 813-618-0110
SALES EMAIL: GDIXON@STORMTRAP.COM



LADYBIRD- VAULT 2
CORAL SPRINGS, FL

StormTrap®
1287 WINDHAM PARKWAY
ROMEOVILLE, IL 60446
P:815-941-4549 / F:331-318-5347

ENGINEER INFORMATION:
Z DEVELOPMENT SERVICES
708 EAST COLONIAL DRIVE
SUITE 100
ORLANDO, FL 32803
407-271-8910

PROJECT INFORMATION:
LADYBIRD
VAULT 2
CORAL SPRINGS, FL

CURRENT ISSUE DATE: 6/30/2022
ISSUED FOR: PRELIMINARY

REV.	DATE:	ISSUED FOR:	DWN BY:
3	6/30/22	PRELIMINARY	KL
2	5/12/22	PRELIMINARY	KL
1	5/5/22	PRELIMINARY	KL

SCALE: NTS
SHEET TITLE: COVER SHEET
SHEET NUMBER: 0.0

STRUCTURAL DESIGN LOADING CRITERIA

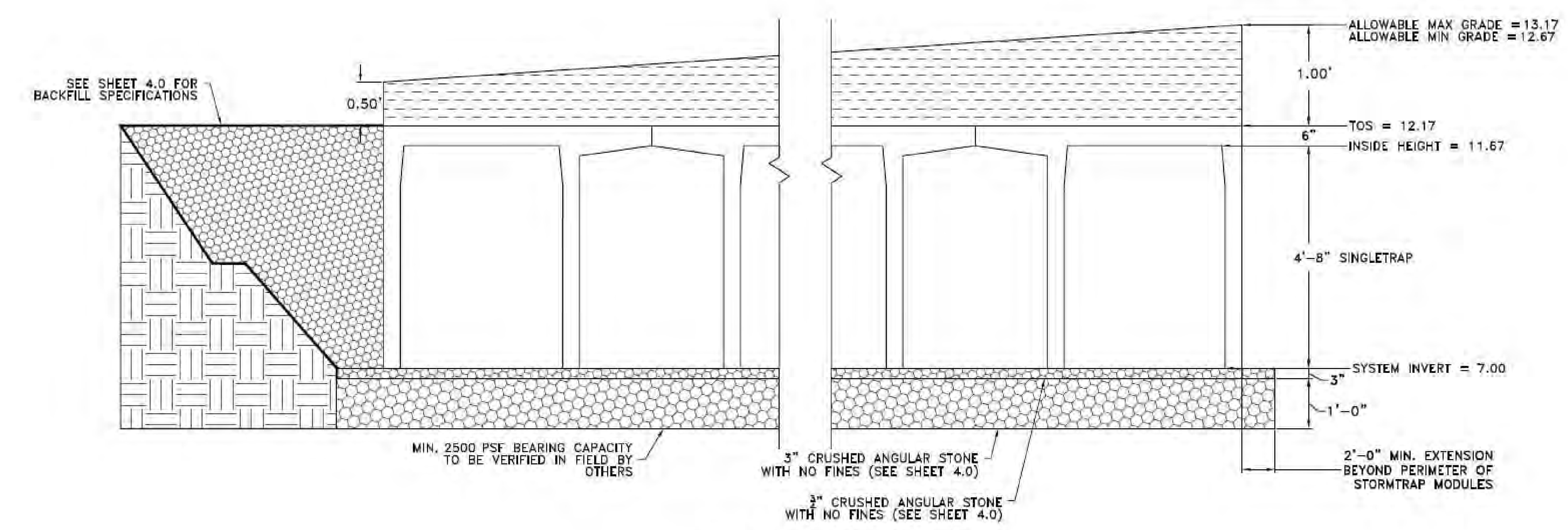
LIVE LOADING: AASHTO HS-20 HIGHWAY LOADING
GROUND WATER TABLE: BELOW INVERT OF SYSTEM
SOIL BEARING PRESSURE: 2500PSF
SOIL DENSITY: 120 PCF
EQUIVALENT UNSATURATED LATERAL ACTIVE EARTH PRESSURE: 35 PSF / FT.
EQUIVALENT SATURATED LATERAL ACTIVE EARTH PRESSURE: 80 PSF/FT. (IF WATER TABLE PRESENT)
APPLICABLE CODES: ASTM C857, ACI-318
BACKFILL TYPE: SEE SHEET 4.0 FOR BACKFILL OPTIONS

STORMTRAP SYSTEM INFORMATION

WATER STORAGE PROV: 14,871.49 CUBIC FEET
UNIT HEADROOM: 4'-8" SINGLETRAP

SITE SPECIFIC DESIGN CRITERIA

1. STORMTRAP UNITS SHALL BE MANUFACTURED AND INSTALLED ACCORDING TO SHOP DRAWINGS APPROVED BY THE INSTALLING CONTRACTOR AND ENGINEER OF RECORD. THE SHOP DRAWINGS SHALL INDICATE SIZE AND LOCATION OF ROOF OPENINGS AND INLET/ OUTLET PIPE TYPES, SIZES, INVERT ELEVATIONS AND SIZE OF OPENINGS.
2. COVER RANGE: MIN. 0.50' MAX. 1.00' CONSULT STORMTRAP FOR ADDITIONAL COVER OPTIONS.
3. ALL DIMENSIONS AND SOIL CONDITIONS, INCLUDING BUT NOT LIMITED TO GROUNDWATER AND SOIL BEARING CAPACITY ARE REQUIRED TO BE VERIFIED IN THE FIELD BY OTHERS PRIOR TO STORMTRAP INSTALLATION.
4. FOR STRUCTURAL CALCULATIONS THE GROUND WATER TABLE IS ASSUMED TO BE BELOW INVERT OF SYSTEM IF WATER TABLE IS DIFFERENT THAN ASSUMED, CONTACT STORMTRAP.



4'-8" SINGLETRAP

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ENGINEER INFORMATION:
Z DEVELOPMENT SERVICES
708 EAST COLONIAL DRIVE
SUITE 100
ORLANDO, FL 32803
407-271-8910

PROJECT INFORMATION:
LADYBIRD
VAULT 2
CORAL SPRINGS, FL

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1	5/5/22	PRELIMINARY	KL

SCALE: NTS
SHEET TITLE: SINGLETRAP DESIGN CRITERIA
SHEET NUMBER: 1.0

BILL OF MATERIALS

QTY.	UNIT TYPE	DESCRIPTION	WEIGHT
0	I	4'-8" SINGLETRAP	0
12	II	4'-8" SINGLETRAP	17477
0	III	4'-8" SINGLETRAP	0
18	IV	4'-8" SINGLETRAP	16084
0	VII	4'-8" SINGLETRAP	0
2	SPIV	4'-8" SINGLETRAP	VARIES
4	T2 PANEL	6" THICK PANEL	3262
4	T4 PANEL	6" THICK PANEL	2568
0	T7 PANEL	6" THICK PANEL	0
7	JOINTWRAP	150' PER ROLL	
0	JOINTTAPE	14.5' PER ROLL	
TOTAL PIECES = 32			
TOTAL PANELS = 8			
HEAVIEST PICK WEIGHT = 17,477			

LOADING DISCLAIMER:

STORMTRAP IS NOT DESIGNED TO ACCEPT ANY ADDITIONAL LOADINGS FROM NEARBY STRUCTURES NEXT TO OR OVER THE TOP OF STORMTRAP. IF ADDITIONAL LOADING CONSIDERATIONS ARE REQUIRED FOR STRUCTURAL DESIGN OF STORMTRAP, PLEASE CONTACT STORMTRAP IMMEDIATELY.

TREE LOADING DISCLAIMER:

THE STORMTRAP SYSTEM HAS NOT BEEN DESIGNED TO SUPPORT THE ADDITIONAL WEIGHT OF ANY TREES. FURTHERMORE, THE ROOTS OF THE TREES MUST BE CONTAINED TO PREVENT FUTURE DAMAGE TO THE STORMTRAP SYSTEM. STORMTRAP ACCEPTS NO LIABILITY FOR DAMAGES CAUSED BY TREES OR OTHER VEGETATION PLACE AROUND OR ON TOP OF THE SYSTEM.

SEDIMENT/SAND FILTER DISCLAIMER:

FOR SYSTEMS CONTAINING SEDIMENT AND SAND FILTER MODULES; IF REQUIRED TO BE SEALED TO PREVENT SAND AND/OR PRE-TREATED WATER FROM MIGRATING INTO ADJOINING MODULES, IT IS THE SOLE RESPONSIBILITY OF THE INSTALLING CONTRACTOR TO ENSURE THAT THOSE MODULES ARE SEALED.

DESIGN CRITERIA

ALLOWABLE MAX GRADE = 13.17
ALLOWABLE MIN GRADE = 12.67
INSIDE HEIGHT ELEVATION = 11.67
SYSTEM INVERT = 7.00

NOTES:

1. DIMENSIONING OF STORMTRAP SYSTEM SHOWN BELOW ALLOW FOR A 3/4" GAP BETWEEN EACH MODULE.
2. ALL DIMENSIONS TO BE VERIFIED IN THE FIELD BY OTHERS.
3. SEE SHEET 3.0 FOR INSTALLATION SPECIFICATIONS.
4. SP – INDICATES A MODULE WITH MODIFICATIONS.
5. P – INDICATES A MODULE WITH A PANEL ATTACHMENT.
6. CONTRACTORS RESPONSIBILITY TO ENSURE CONSISTENCY/ACCURACY TO FINAL ENGINEER OF RECORD PLAN SET.
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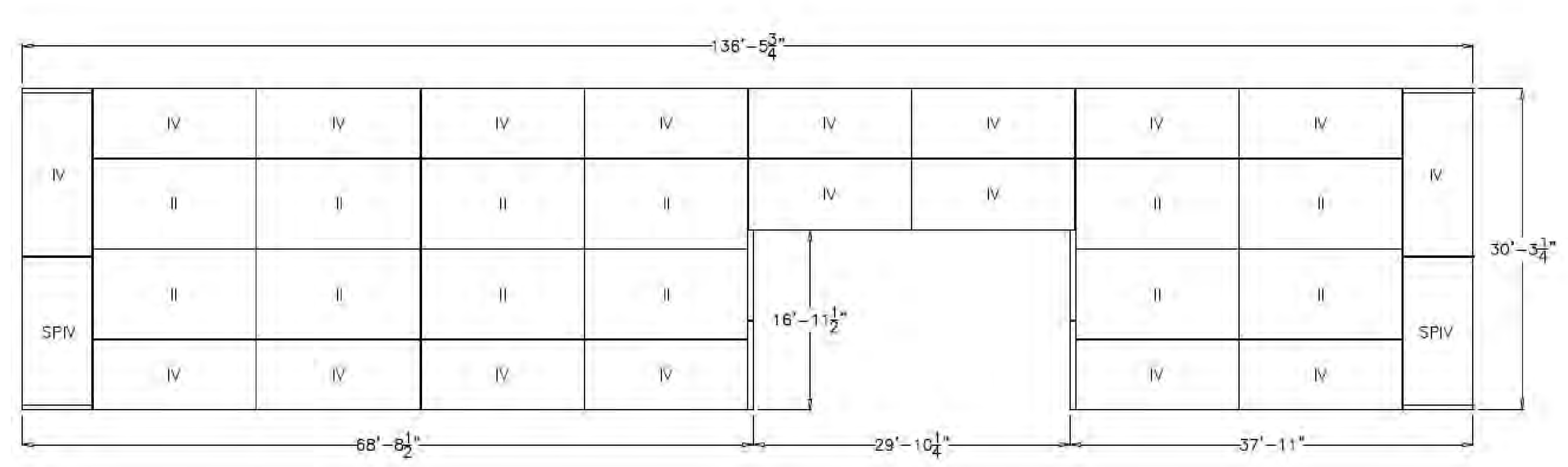

StormTrap®
1287 WINDHAM PARKWAY
ROMEOVILLE, IL 60446
P:815-941-4549 / F:331-318-5347

ENGINEER INFORMATION:
Z DEVELOPMENT SERVICES
708 EAST COLONIAL DRIVE
SUITE 100
ORLANDO, FL 32803
407-271-8910

PROJECT INFORMATION:
LADYBIRD
VAULT 2
CORAL SPRINGS, FL

CURRENT ISSUE DATE: 6/30/2022
ISSUED FOR: PRELIMINARY

REV.	DATE:	ISSUED FOR:	DWN BY:
3	6/30/22	PRELIMINARY	KL
2	5/12/22	PRELIMINARY	KL
1	5/5/22	PRELIMINARY	KL

SCALE: NTS
SHEET TITLE: SINGLETRAP LAYOUT DETAILS
SHEET NUMBER: 2.0

Z DEVELOPMENT services
CA 29354
708 E. COLONIAL DR., STE. 100
ORLANDO, FL 32803
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FAX: (407) 442-0604

REVISION	DATE	REVISION	DATE
SFWMD & SWCD COMMENTS	07-07-22		

ROBERT ZIEGENFUSS, P.E., LEED AP
FL. REG. # 56752

LADYBIRD ACADEMY
8950 ROYAL PALM BOULEVARD
CORAL SPRINGS, FLORIDA 33065

DATE: 02-22-22
DRAWN: SR
CHECKED: RZ

C8.1
SUBSURFACE STORMWATER SYSTEM DETAILS

PROJECT NO.: 2019.141

StormTrap
MODULAR CONCRETE STORMWATER MANAGEMENT

SHEET INDEX	
PAGE	DESCRIPTION
0.0	COVER SHEET
1.0	SINGLETRAP DESIGN CRITERIA
2.0	SINGLETRAP SYSTEM LAYOUT
3.0	SINGLETRAP INSTALLATION SPECIFICATIONS
3.1	SINGLETRAP INSTALLATION SPECIFICATIONS
4.0	SINGLETRAP BACKFILL SPECIFICATIONS
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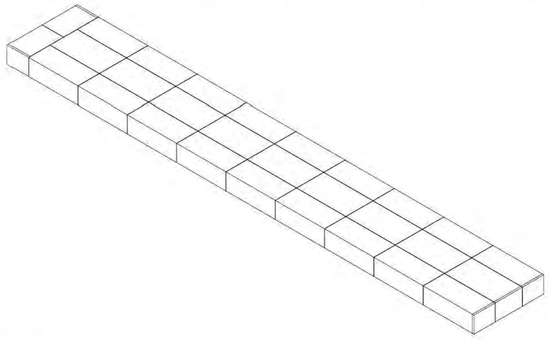
6.0	SPLASH PAD & GEOWEB DETAILS
7.0	SINGLETRAP MODULE TYPES

STORMTRAP CONTACT INFORMATION

STORMTRAP SUPPLIER: STORMTRAP
CONTACT NAME: GREG DIXON
CELL PHONE: 813-618-7110
SALES EMAIL: GDIXON@STORMTRAP.COM



LADYBIRD- VAULT 3
CORAL SPRINGS, FL

StormTrap
1287 WINDHAM PARKWAY
ROMEOVILLE, IL 60446
P:815-941-4549 / F:331-318-5347

ENGINEER INFORMATION:
Z DEVELOPMENT SERVICES
708 EAST COLONIAL DRIVE
SUITE 100
ORLANDO, FL 32803
407-271-8910

PROJECT INFORMATION:
LADYBIRD
VAULT 3
CORAL SPRINGS, FL

CURRENT ISSUE DATE:
6/30/2022

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PRELIMINARY

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3	6/30/22	PRELIMINARY	KL
2	5/12/22	PRELIMINARY	KL
1	5/3/22	PRELIMINARY	KL

SCALE:
NTS

SHEET TITLE:
COVER SHEET

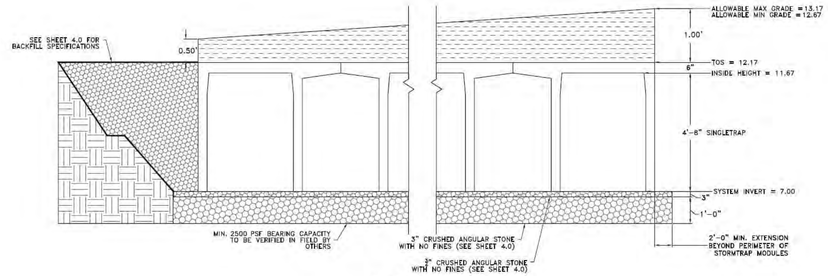
SHEET NUMBER:
0.0

STRUCTURAL DESIGN LOADING CRITERIA	
LIVE LOADING:	AASHTO HS-20 HIGHWAY LOADING
GROUND WATER TABLE:	BELOW INVERT OF SYSTEM
SOIL BEARING PRESSURE:	2500 PSF
SOIL DENSITY:	120 PCF
EQUIVALENT UNSATURATED LATERAL ACTIVE EARTH PRESSURE:	35 PSF / FT.
EQUIVALENT SATURATED LATERAL ACTIVE EARTH PRESSURE:	80 PSF/FT. (IF WATER TABLE PRESENT)
APPLICABLE CODES:	ASTM C857 ACI-318
BACKFILL TYPE:	SEE SHEET 4.0 FOR BACKFILL OPTIONS

STORMTRAP SYSTEM INFORMATION	
WATER STORAGE PROV:	13,030.02 CUBIC FEET
UNIT HEADROOM:	4'-8" SINGLETRAP

SITE SPECIFIC DESIGN CRITERIA

1. STORMTRAP UNITS SHALL BE MANUFACTURED AND INSTALLED ACCORDING TO SHOP DRAWINGS APPROVED BY THE INSTALLING CONTRACTOR AND ENGINEER OF RECORD. THE SHOP DRAWINGS SHALL INDICATE SIZE AND LOCATION OF ROOF OPENINGS AND INLET/ OUTLET PIPE TYPES, SIZES, INVERT ELEVATIONS AND SIZE OF OPENINGS.
2. COVER RANGE: MIN. 0.50" MAX. 1.00" CONSULT STORMTRAP FOR ADDITIONAL COVER OPTIONS.
3. ALL DIMENSIONS AND SOIL CONDITIONS, INCLUDING BUT NOT LIMITED TO GROUNDWATER AND SOIL BEARING CAPACITY ARE REQUIRED TO BE VERIFIED IN THE FIELD BY OTHERS PRIOR TO STORMTRAP INSTALLATION.
4. FOR STRUCTURAL CALCULATIONS THE GROUND WATER TABLE IS ASSUMED TO BE BELOW INVERT OF SYSTEM IF WATER TABLE IS DIFFERENT THAN ASSUMED, CONTACT STORMTRAP.



4'-8" SINGLETRAP

StormTrap
1287 WINDHAM PARKWAY
ROMEOVILLE, IL 60446
P:815-941-4549 / F:331-318-5347

ENGINEER INFORMATION:
Z DEVELOPMENT SERVICES
708 EAST COLONIAL DRIVE
SUITE 100
ORLANDO, FL 32803
407-271-8910

PROJECT INFORMATION:
LADYBIRD
VAULT 3
CORAL SPRINGS, FL

CURRENT ISSUE DATE:
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REV.	DATE:	ISSUED FOR:	DWN BY:
3	6/30/22	PRELIMINARY	KL
2	5/12/22	PRELIMINARY	KL
1	5/3/22	PRELIMINARY	KL

SCALE:
NTS

SHEET TITLE:
SINGLETRAP DESIGN CRITERIA

SHEET NUMBER:
1.0

BILL OF MATERIALS			
QTY.	UNIT TYPE	DESCRIPTION	WEIGHT
0	I	4'-8" SINGLETRAP	0
9	II	4'-8" SINGLETRAP	17477
0	III	4'-8" SINGLETRAP	0
18	IV	4'-8" SINGLETRAP	16084
0	VII	4'-8" SINGLETRAP	0
2	SPIV	4'-8" SINGLETRAP	VARIES
1	T2 PANEL	6" THICK PANEL	3262
4	T4 PANEL	6" THICK PANEL	2568
0	T7 PANEL	6" THICK PANEL	0
6	JOINTWRAP	150' PER ROLL	
0	JOINTTAPE	14.5' PER ROLL	
TOTAL PIECES = 29			
TOTAL PANELS = 5			
HEAVIEST PICK WEIGHT = 17,477			

LOADING DISCLAIMER:

STORMTRAP IS NOT DESIGNED TO ACCEPT ANY ADDITIONAL LOADINGS FROM NEARBY STRUCTURES NEXT TO OR OVER THE TOP OF STORMTRAP. IF ADDITIONAL LOADING CONSIDERATIONS ARE REQUIRED FOR STRUCTURAL DESIGN OF STORMTRAP, PLEASE CONTACT STORMTRAP IMMEDIATELY.

TREE LOADING DISCLAIMER:

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DESIGN CRITERIA
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ALLOWABLE MIN GRADE =12.67
INSIDE HEIGHT ELEVATION =11.67
SYSTEM INVERT =7.00

NOTES:
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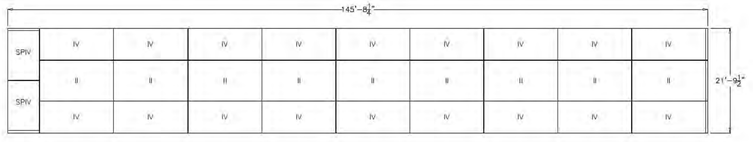


StormTrap
1287 WINDHAM PARKWAY
ROMEOVILLE, IL 60446
P:815-941-4549 / F:331-318-5347

ENGINEER INFORMATION:
Z DEVELOPMENT SERVICES
708 EAST COLONIAL DRIVE
SUITE 100
ORLANDO, FL 32803
407-271-8910

PROJECT INFORMATION:
LADYBIRD
VAULT 3
CORAL SPRINGS, FL

CURRENT ISSUE DATE:
6/30/2022

ISSUED FOR:
PRELIMINARY

REV.	DATE:	ISSUED FOR:	DWN BY:
3	6/30/22	PRELIMINARY	KL
2	5/12/22	PRELIMINARY	KL
1	5/3/22	PRELIMINARY	KL

SCALE:
NTS

SHEET TITLE:
SINGLETRAP LAYOUT DETAILS

SHEET NUMBER:
2.0

Z DEVELOPMENT Services
CA 29354
708 E. COLONIAL DR., STE. 100
ORLANDO, FL 32803
PH: (407) 271-8910
FAX: (407) 442-0604

REVISION	DATE
3 SFWMD & SWCD COMMENTS	07-07-22

ROBERT ZIEGENFUSS, P.E., LEED AP
FL REG. # 56752

LADYBIRD ACADEMY
8950 ROYAL PALM BOULEVARD
CORAL SPRINGS, FLORIDA 33065

DATE: 02-22-22
DRAWN: SR
CHECKED: RZ

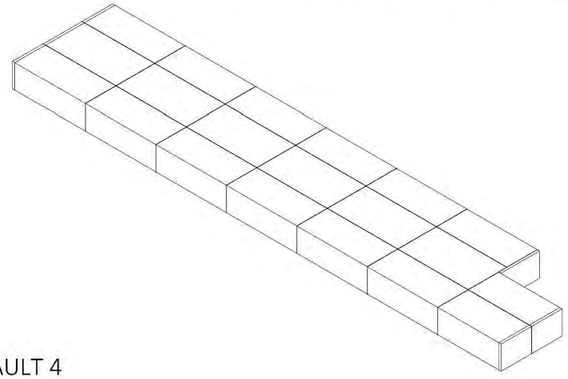
C8.2
SUBSURFACE STORMWATER SYSTEM DETAILS

PROJECT NO.: 2019.141

StormTrap
MODULAR CONCRETE STORMWATER MANAGEMENT

SHEET INDEX	
PAGE	DESCRIPTION
0.0	COVER SHEET
1.0	SINGLETRAP DESIGN CRITERIA
2.0	SINGLETRAP SYSTEM LAYOUT
3.0	SINGLETRAP INSTALLATION SPECIFICATIONS
3.1	SINGLETRAP INSTALLATION SPECIFICATIONS
4.0	SINGLETRAP BACKFILL SPECIFICATIONS
5.0	RECOMMENDED PIPE/ACCESS OPENING SPECIFICATIONS
6.0	SPLASH PAD & GEOWEB DETAILS
7.0	SINGLETRAP MODULE TYPES

STORMTRAP CONTACT INFORMATION	
STORMTRAP SUPPLIER:	STORMTRAP
CONTACT NAME:	GREG DIXON
CELL PHONE:	813-618-0110
SALES EMAIL:	GDIXON@STORMTRAP.COM



LADYBIRD- VAULT 4
CORAL SPRINGS, FL

StormTrap
PATENTS LISTED AT: [HTTPS://STORMTRAP.COM/PATENTS]
12187 WINDHAM PARKWAY
ROMEOVILLE, IL 60446
P:815-941-4549 / F:331-318-5347

ENGINEER INFORMATION:
Z DEVELOPMENT SERVICES
708 EAST COLONIAL DRIVE
SUITE 100
ORLANDO, FL 32803
407-271-8910

PROJECT INFORMATION:
LADYBIRD
VAULT 4
CORAL SPRINGS, FL

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1	5/5/22	PRELIMINARY	KL

SCALE: NTS

SHEET TITLE: COVER SHEET

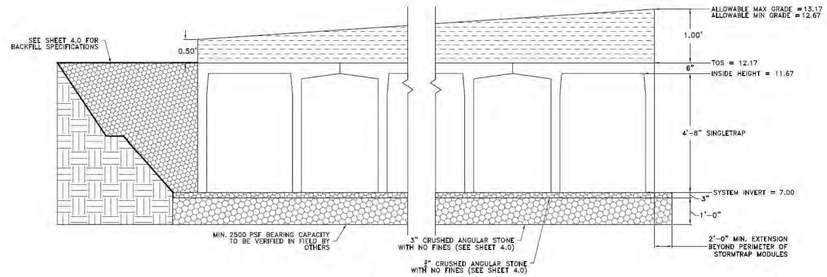
SHEET NUMBER: 0.0

STRUCTURAL DESIGN LOADING CRITERIA	
LIVE LOADING:	AASHTO HS-20 HIGHWAY LOADING
GROUND WATER TABLE:	BELOW INVERT OF SYSTEM
SOIL BEARING PRESSURE:	2500 PSF
SOIL DENSITY:	120 PCF
EQUIVALENT UNSATURATED LATERAL ACTIVE EARTH PRESSURE:	35 PSF / FT.
EQUIVALENT SATURATED LATERAL ACTIVE EARTH PRESSURE:	80 PSF/FT. (IF WATER TABLE PRESENT)
APPLICABLE CODES:	ASTM C857 ACI-318
BACKFILL TYPE:	SEE SHEET 4.0 FOR BACKFILL OPTIONS

STORMTRAP SYSTEM INFORMATION	
WATER STORAGE PROV:	9,036.48 CUBIC FEET
UNIT HEADROOM:	4'-8" SINGLETRAP

SITE SPECIFIC DESIGN CRITERIA

1. STORMTRAP UNITS SHALL BE MANUFACTURED AND INSTALLED ACCORDING TO SHOP DRAWINGS APPROVED BY THE INSTALLING CONTRACTOR AND ENGINEER OF RECORD. THE SHOP DRAWINGS SHALL INDICATE SIZE AND LOCATION OF ROOF OPENINGS AND INLET/ OUTLET PIPE TYPES, SIZES, INVERT ELEVATIONS AND SIZE OF OPENINGS.
2. COVER RANGE: MIN. 0.50' MAX. 1.00' CONSULT STORMTRAP FOR ADDITIONAL COVER OPTIONS.
3. ALL DIMENSIONS AND SOIL CONDITIONS, INCLUDING BUT NOT LIMITED TO GROUNDWATER AND SOIL BEARING CAPACITY ARE REQUIRED TO BE VERIFIED IN THE FIELD BY OTHERS PRIOR TO STORMTRAP INSTALLATION.
4. FOR STRUCTURAL CALCULATIONS THE GROUND WATER TABLE IS ASSUMED TO BE BELOW INVERT OF SYSTEM IF WATER TABLE IS DIFFERENT THAN ASSUMED, CONTACT STORMTRAP.



4'-8" SINGLETRAP

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ENGINEER INFORMATION:
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407-271-8910

PROJECT INFORMATION:
LADYBIRD
VAULT 4
CORAL SPRINGS, FL

CURRENT ISSUE DATE:
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SCALE: NTS

SHEET TITLE: SINGLETRAP DESIGN CRITERIA

SHEET NUMBER: 1.0

BILL OF MATERIALS			
QTY.	UNIT TYPE	DESCRIPTION	WEIGHT
0	I	4'-8" SINGLETRAP	0
6	II	4'-8" SINGLETRAP	17477
0	III	4'-8" SINGLETRAP	0
12	IV	4'-8" SINGLETRAP	16084
0	VII	4'-8" SINGLETRAP	0
2	SPIV	4'-8" SINGLETRAP	VARIES
2	T2 PANEL	6" THICK PANEL	3262
4	T4 PANEL	6" THICK PANEL	2568
0	T7 PANEL	6" THICK PANEL	0
4	JOINTWRAP	150' PER ROLL	
0	JOINTTAPE	14.5' PER ROLL	
TOTAL PIECES = 20			
TOTAL PANELS = 6			
HEAVIEST PICK WEIGHT = 17,477			

LOADING DISCLAIMER:

STORMTRAP IS NOT DESIGNED TO ACCEPT ANY ADDITIONAL LOADINGS FROM NEARBY STRUCTURES NEXT TO OR OVER THE TOP OF STORMTRAP. IF ADDITIONAL LOADING CONSIDERATIONS ARE REQUIRED FOR STRUCTURAL DESIGN OF STORMTRAP, PLEASE CONTACT STORMTRAP IMMEDIATELY.

TREE LOADING DISCLAIMER:

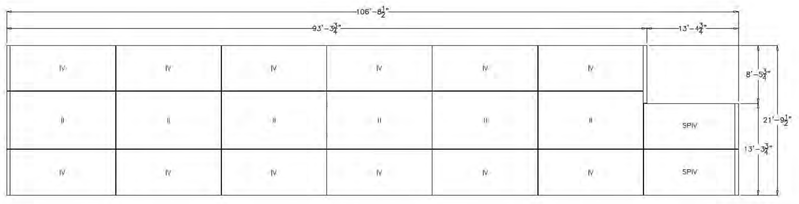
THE STORMTRAP SYSTEM HAS NOT BEEN DESIGNED TO SUPPORT THE ADDITIONAL WEIGHT OF ANY TREES. FURTHERMORE, THE ROOTS OF THE TREES MUST BE CONTAINED TO PREVENT FUTURE DAMAGE TO THE STORMTRAP SYSTEM. STORMTRAP ACCEPTS NO LIABILITY FOR DAMAGES CAUSED BY TREES OR OTHER VEGETATION PLACE AROUND OR ON TOP OF THE SYSTEM.

SEDIMENT/SAND FILTER DISCLAIMER:

FOR SYSTEMS CONTAINING SEDIMENT AND SAND FILTER MODULES; IF REQUIRED TO BE SEALED TO PREVENT SAND AND/OR PRE-TREATED WATER FROM MIGRATING INTO ADJOINING MODULES, IT IS THE SOLE RESPONSIBILITY OF THE INSTALLING CONTRACTOR TO ENSURE THAT THOSE MODULES ARE SEALED.

DESIGN CRITERIA
ALLOWABLE MAX GRADE =13.17
ALLOWABLE MIN GRADE =12.67
INSIDE HEIGHT ELEVATION =11.67
SYSTEM INVERT =7.00

NOTES:
1. DIMENSIONING OF STORMTRAP SYSTEM SHOWN BELOW ALLOW FOR A 3/4" GAP BETWEEN EACH MODULE.
2. ALL DIMENSIONS TO BE VERIFIED IN THE FIELD BY OTHERS.
3. SEE SHEET 3.0 FOR INSTALLATION SPECIFICATIONS.
4. SP – INDICATES A MODULE WITH MODIFICATIONS.
5. P – INDICATES A MODULE WITH A PANEL ATTACHMENT.
6. CONTRACTORS RESPONSIBILITY TO ENSURE CONSISTENCY/ACCURACY TO FINAL ENGINEER OF RECORD PLAN SET.
7. IF A WATERTIGHT SOLUTION IS REQUIRED FOR AN OUTLET CONTROL STRUCTURE, ALL EXTERIOR COLD JOINTS, INCLUDING JOINT BETWEEN TOP AND BASE MODULES, BETWEEN TOP AND BASE OF ADJOINING SYMONS WALLS, AND JOINTS BETWEEN MODULE AND ADJACENT END PANELS WILL BE THE SOLE RESPONSIBILITY OF THE INSTALLING CONTRACTOR TO PROVIDE AND INSTALL THE WATERTIGHT APPLICATION PER THE EOR'S SPECIFICATION.



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SHEET TITLE: SINGLETRAP LAYOUT DETAILS

SHEET NUMBER: 2.0

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REVISION	DATE
3 SFWMD & SWCD COMMENTS	07-07-22

ROBERT ZIEGENFUSS, P.E., LEED AP
FL REG. # 56752

LADYBIRD ACADEMY
8950 ROYAL PALM BOULEVARD
CORAL SPRINGS, FLORIDA 33065

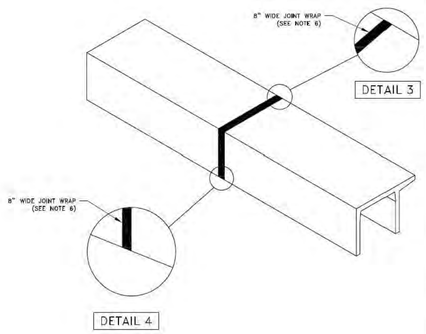
DATE: 02-22-22
DRAWN: SR
CHECKED: RZ

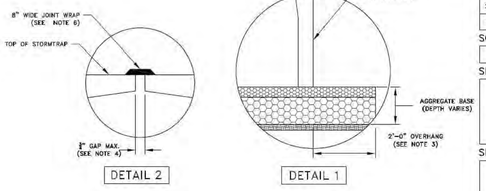
C8.3
SUBSURFACE STORMWATER SYSTEM DETAILS

PROJECT NO.: 2019.141

STORMTRAP INSTALLATION SPECIFICATIONS

1. STORMTRAP SHALL BE INSTALLED IN ACCORDANCE WITH ASTM C891 STANDARD PRACTICE FOR INSTALLATION OF UNDERGROUND PRE-CAST CONCRETE UTILITY STRUCTURES. THE FOLLOWING ADDITIONS AND/OR EXCEPTIONS SHALL APPLY:
2. IT IS THE RESPONSIBILITY OF THE INSTALLING CONTRACTOR TO ENSURE THAT PROPER/ADEQUATE EQUIPMENT IS USED TO SET/INSTALL THE MODULES.
3. THE AGGREGATE FOUNDATION HAS BEEN DESIGNED BASED ON THE FOLLOWING ASSUMPTIONS. THESE ASSUMPTIONS WILL NEED TO BE VERIFIED BY A GEOTECHNICAL ENGINEER WHICH WILL NEED TO BE EMPLOYED BY THE OWNER.
   - 3.1. A QUALIFIED GEOTECHNICAL ENGINEER WILL BE EMPLOYED, BY OWNER, TO PROVIDE ASSISTANCE IN EVALUATING THE EXISTING SOIL CONDITIONS BELOW THE PROPOSED ENGINEERED STONE FOUNDATION. IF A STONE FOUNDATION DESIGN IS TO BE USED, THE BEARING PRESSURE OF THE SOILS BELOW THE STONE WILL NEED TO MEET OR EXCEED ALLOWABLE CAPACITY. IF THIS IS NOT POSSIBLE, THE STONE FOUNDATION MAY NOT BE AN OPTION FOR THIS LOCATION.
   - 3.2. A QUALIFIED GEOTECHNICAL ENGINEER WILL BE EMPLOYED, BY OWNER, TO EVALUATE A SOURCE OF STONE AGGREGATES THAT WILL BE PLACED ON PROPERLY COMPACTED SOILS (SEE SHEET 1.0 FOR SOIL BEARING CAPACITY REQUIREMENTS). THE AGGREGATE BASE COURSE FOR WHICH THE STORMTRAP SYSTEM WILL REAR DIRECTLY ON SHALL CONSIST OF A 3" THICK BED OF $\frac{3}{4}$" DIAMETER ANGULAR STONE, WELL COMPACTED AND SEATED, WITH NO FINES, AND A 1'-0" THICK BED OF 3" DIAMETER STONE AGGREGATE (SEE SHEET 4.0 FOR FURTHER DESCRIPTION/EXPLANATION). PLEASE NOTE THAT THESE ARE ONLY MINIMUM RECOMMENDATIONS AND A QUALIFIED GEOTECHNICAL ENGINEER SHALL BE USED TO DETERMINE THE EXACT REQUIREMENTS FOR THE LOCATIONS THAT THE STORMTRAP SYSTEM IS TO BE LOCATED.
   - 3.3. THE CONTRACTOR SHALL REMOVE ANY AND ALL EXPANDABLE OR COLLAPSIBLE SOILS AT THE DIRECTION OF A QUALIFIED GEOTECHNICAL ENGINEER.
   - 3.4. THE AGGREGATE FOUNDATION SHALL BE INSTALLED SUCH THAT THE AGGREGATE EXTENDS A MINIMUM OF 2'-0" PAST THE OUTSIDE OF THE SYSTEM (SEE DETAIL 1).
   - 3.5. THE $\frac{3}{4}$" AGGREGATE SHALL BE COMPACTED USING A VIBRATING ROLLER WITH ITS' FULL DYNAMIC FORCE APPLIED TO ACHIEVE A FLAT SURFACE.
   - 3.6. DISK, DRY AND COMPACT THE TOP 8" OF THE SUBGRADE SOILS TO 95% OF THE STANDARD DRY DENSITY AND 110% OPTIMUM MOISTURE CONTENT.
   - 3.7. AGGREGATE SHALL BE GRADED WITHIN +/- $\frac{1}{2}$" OF THE GRADE SHOWN ON THE PLANS.
   - 3.8. MINIMUM SOIL BEARING CAPACITY LISTED ON SHEET 1.0 SHALL BE VERIFIED IN FIELD BY OTHERS.
4. THE STORMTRAP MODULES SHALL BE PLACED SUCH THAT THE MAXIMUM SPACE BETWEEN ADJACENT MODULES DOES NOT EXCEED $\frac{3}{4}$" (SEE DETAIL 2). IF THE SPACE EXCEEDS $\frac{3}{4}$", THE MODULES SHALL BE RESET WITH APPROPRIATE ADJUSTMENT MADE TO LINE AND GRADE TO BRING THE SPACE INTO SPECIFICATION.
5. STORMTRAP MODULES ARE NOT WATERTIGHT. IF A WATERTIGHT SOLUTION IS REQUIRED, CONTACT STORMTRAP FOR RECOMMENDATIONS. THE WATERTIGHT APPLICATION IS TO BE PROVIDED AND IMPLEMENTED BY THE CONTRACTOR. THE CONTRACTOR IS RESPONSIBLE TO ENSURE THAT THE SELECTED WATERTIGHT SOLUTION PERFORMS AS SPECIFIED BY THE MANUFACTURER.
6. ALL EXTERIOR ROOF AND EXTERIOR VERTICAL WALL JOINTS BETWEEN ADJACENT STORMTRAP MODULES SHALL BE SEALED WITH 8" WIDE PRE-FORMED, COLD-APPLIED, SELF-ADHERING ELASTOMERIC RESIN, BONDED TO A WOVEN , HIGHLY PUNCTURE RESISTANT POLYMER WRAP, CONFORMING TO ASTM C891 AND SHALL BE INTEGRATED WITH PRIMER SEALANT AS APPROVED BY STORMTRAP (SEE DETAILS 2, 3, & 4). THE JOINT WRAP DOES NOT PROVIDE A WATERTIGHT SEAL THE SOLE PURPOSE OF THE JOINT WRAP IS TO PROVIDE A SILT AND SOIL TIGHT SYSTEM. THE ADHESIVE EXTERIOR JOINT WRAP SHALL BE INSTALLED ACCORDING TO THE FOLLOWING INSTALLATION INSTRUCTIONS:
   - 6.1. USE A BRUSH OR WET CLOTH TO THOROUGHLY CLEAN THE OUTSIDE SURFACE AT THE POINT WHERE THE JOINT WRAP IS TO BE APPLIED.
   - 6.2. A RELEASE PAPER PROTECTS THE ADHESIVE SIDE OF THE JOINT WRAP. PLACE THE ADHESIVE TAPE (ADHESIVE SIDE DOWN) AROUND THE STRUCTURE, REMOVING THE RELEASE PAPER AS YOU GO. PRESS THE JOINT WRAP FIRMLY AGAINST THE STORMTRAP MODULE SURFACE WHEN APPLYING.
7. IF THE CONTRACTOR NEEDS TO CANCEL ANY SHIPMENTS, THEY MUST DO SO 48 HOURS PRIOR TO THEIR SCHEDULED ARRIVAL AT THE JOB SITE. IF CANCELED AFTER THAT TIME, PLEASE CONTACT THE PROJECT MANAGER.
8. IF THE STORMTRAP MODULE(S) IS DAMAGED IN ANY WAY PRIOR, DURING, OR AFTER INSTALL, STORMTRAP, MUST BE CONTACTED IMMEDIATELY TO ASSESS THE DAMAGE AND TO DETERMINE WHETHER OR NOT THE MODULE(S) WILL NEED TO BE REPLACED. IF ANY MODULE ARRIVES AT THE JOBSITE DAMAGED DO NOT UNLOAD IT; CONTACT STORMTRAP, IMMEDIATELY. ANY DAMAGE NOT REPORTED BEFORE THE TRUCK IS UNLOADED WILL BE THE CONTRACTOR'S RESPONSIBILITY.
9. STORMTRAP MODULES CANNOT BE ALTERED IN ANY WAY AFTER MANUFACTURING WITHOUT WRITTEN CONSENT FROM STORMTRAP.





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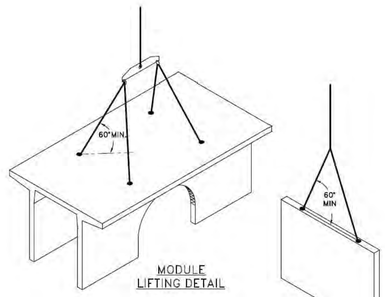
SINGLETRAP INSTALLATION SPECIFICATIONS

SHEET NUMBER:

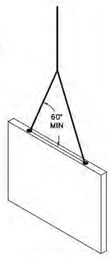
3.0

STORMTRAP MODULE LIFTING INSTALLATION NOTES

1. IT IS THE CONTRACTOR'S RESPONSIBILITY TO ENSURE THAT ALL (4) CHAINS/CABLES ARE SECURED PROPERLY TO THE LIFTING ANCHORS AND IN EQUAL TENSION WHEN LIFTING THE STORMTRAP MODULE (SEE RECOMMENDATIONS 2 & 3).
2. MINIMUM 7'-0" CHAIN/CABLE LENGTH TO BE USED TO LIFT STORMTRAP MODULES (SUPPLIED BY CONTRACTOR).
3. CONTRACTOR TO ENSURE MINIMUM LIFTING ANGLE IS 60° FROM TOP SURFACE OF STORMTRAP MODULE. SEE DETAIL.
4. IT IS UNDERSTOOD AND AGREED THAT AT ALL TIMES DURING WHICH HOISTING AND RIGGING EQUIPMENT IS BEING SUPPLIED TO THE PURCHASER, OPERATOR OF SUCH EQUIPMENT SHALL BE IN CHARGE OF HIS ENTIRE EQUIPMENT AND SHALL AT ALL TIMES BE THE JUDGE OF THE SAFETY AND PROPERTY OF ANY SUGGESTION TO HIM FROM THE SELLER, ITS AGENTS OR EMPLOYEES. PURCHASER AGREES TO SAVE, INDEMNIFY AND HOLD HARMLESS SELLER FROM ALL LOSS, CLAIMS, DEMANDS OR CAUSES OF ACTION, WHICH MAY ARISE FROM THE EXISTENCE OR OPERATION OF SAID EQUIPMENT.



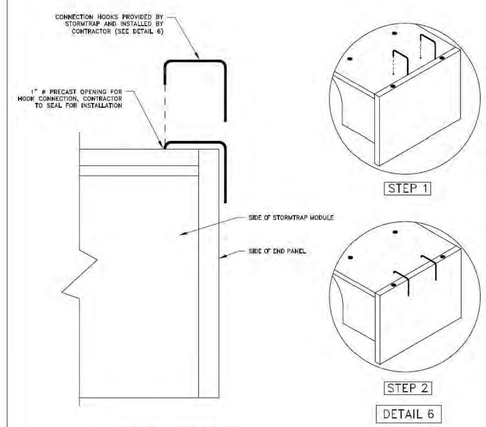
MODULE LIFTING DETAIL



END PANEL LIFTING DETAIL

END PANEL ERECTION/INSTALLATION NOTES

1. END PANELS WILL BE SUPPLIED TO CLOSE OFF OPEN ENDS OF ROWS.
2. PANELS SHALL BE INSTALLED IN A TILT UP FASHION DIRECTLY ADJACENT TO OPEN END OF MODULE (REFER TO SHEET 2.0 FOR END PANEL LOCATIONS).
3. CONNECTION HOOKS WILL BE SUPPLIED WITH END PANELS TO SECURELY CONNECT PANEL TO ADJACENT STORMTRAP MODULE (SEE PANEL CONNECTION ELEVATION VIEW).
4. ONCE CONNECTION HOOK IS ATTACHED, LIFTING CLUTCHES MAY BE REMOVED.
5. JOINT WRAP SHALL BE PLACED AROUND PERIMETER JOINT PANEL (SEE SHEET 3.0).



PANEL CONNECTION ELEVATION VIEW

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SHEET NUMBER:

3.1

ZONE CHART		
ZONES	ZONE DESCRIPTIONS	REMARKS
ZONE 1 A	FOUNDATION AGGREGATE	#5 (3") STONE AGGREGATE (SEE NOTE 4 FOR DESCRIPTION)
ZONE 1 B	FOUNDATION AGGREGATE	3" STONE AGGREGATE (SEE NOTE 5 FOR DESCRIPTION)
ZONE 2	BACKFILL	UNIFIED SOILS CLASSIFICATION (GW, GP, SW, SP) OR SEE BELOW FOR APPROVED BACKFILL OPTIONS
ZONE 3	FINAL COVER OVERTOP	MATERIALS NOT TO EXCEED 120 PCF

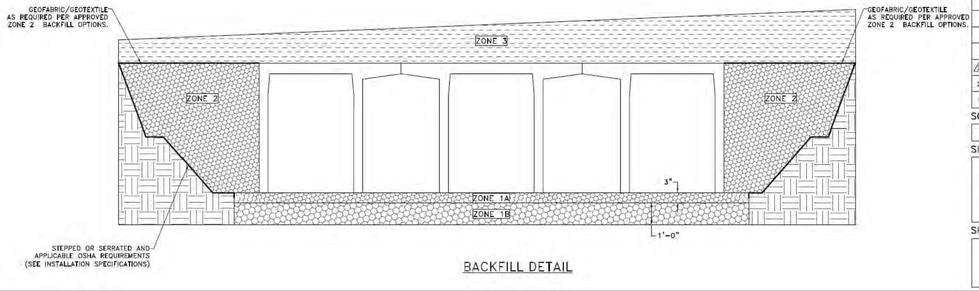
APPROVED ZONE 2 BACKFILL OPTIONS	
OPTION	REMARKS
$\frac{3}{4}$" STONE AGGREGATE	THE STONE AGGREGATE SHALL CONSIST OF CLEAN AND FREE DRAINING ANGULAR MATERIAL THE SIZE OF THIS MATERIAL SHALL HAVE 100% PASSING THE 1" SIEVE WITH 0% TO 5% PASSING THE #8 SIEVE. THIS MATERIAL SHALL BE SEPARATED FROM NATIVE MATERIAL USING GEOFABRIC AROUND THE PERIMETER OF THE BACKFILL (ASTM SIZE #57) AS DETERMINED BY THE GEOTECHNICAL ENGINEER.
SAND	IMPORTED PURE SAND IS PERMITTED TO BE USED AS BACKFILL IF IT IS CLEAN AND FREE DRAINING. THE SAND USED FOR BACKFILLING SHALL HAVE LESS THAN 40% PASSING #40 SIEVE AND LESS THAN 5% PASSING #200 SIEVE. THIS MATERIAL SHALL BE SEPARATED FROM NATIVE MATERIAL USING GEOFABRIC AROUND THE PERIMETER OF THE SAND BACKFILL.
CRUSHED CONCRETE AGGREGATE	CLEAN, FREE DRAINING CRUSHED CONCRETE AGGREGATE MATERIAL CAN BE USED AS BACKFILL FOR STORMTRAP'S MODULES. THE SIZE OF THIS MATERIAL SHALL HAVE 100% PASSING THE 1" SIEVE WITH 0% TO 5% PASSING THE #8 SIEVE. THIS MATERIAL SHALL BE SEPARATED FROM NATIVE MATERIAL USING GEOFABRIC AROUND THE PERIMETER OF THE BACKFILL.
ROAD PACK	STONE AGGREGATE, 100% PASSING THE 1-$\frac{1}{2}$" SIEVE WITH LESS THAN 12% PASSING THE #200 SIEVE, (ASTM SIZE #467). GEOFABRIC AS PER GEOTECHNICAL ENGINEER RECOMMENDATION.

FILL DEPTH	TRACK WIDTH	MAX VEHICLE WEIGHT (KIPS)	MAX GROUND PRESSURE
12"	12"	51.8	1690 psf
	18"	56.1	1219 psf
	24"	68.1	1111 psf
	30"	76.7	1000 psf
	36"	85.0	924 psf

NOTE:
TRACK LENGTH NOT TO EXCEED 15'-4".
ONLY TWO TRACKS PER VEHICLE.

STORMTRAP ZONE INSTALLATION SPECIFICATIONS/PROCEDURES

1. THE FILL PLACED AROUND THE STORMTRAP MODULES MUST DEPOSITED ON BOTH SIDES AT THE SAME TIME AND TO APPROXIMATELY THE SAME ELEVATION, AT NO TIME SHALL THE FILL BEHIND ONE SIDE WALL BE MORE THAN 2'-0" HIGHER THAN THE FILL ON THE OPPOSITE SIDE. BACKFILL SHALL EITHER BE COMPACTED AND/OR VIBRATED TO ENSURE THAT BACKFILL AGGREGATE/STONE MATERIAL IS WELL SEATED AND PROPERLY INTER LOCKED. CARE SHALL BE TAKEN TO PREVENT ANY WEDGING ACTION AGAINST THE STRUCTURE, AND ALL SLOPES WITHIN THE AREA TO BE BACKFILLED MUST BE STEPPED OR SERRATED TO PREVENT WEDGING ACTION. CARE SHALL ALSO BE TAKEN AS NOT TO DISRUPT THE JOINT WRAP FROM THE JOINT DURING THE BACKFILL PROCESS. BACKFILL MUST BE FREE-DRAINING MATERIAL, SEE ZONE 2 BACKFILL CHART ON THIS PAGE FOR APPROVED BACKFILL OPTIONS. IF NATIVE EARTH IS SUSCEPTIBLE TO MIGRATION, CONFIRM WITH GEOTECHNICAL ENGINEER AND PROVIDE PROTECTION AS REQUIRED (PROVIDED BY OTHERS).
2. DURING PLACEMENT OF MATERIAL OVERTOP THE SYSTEM, AT NO TIME SHALL MACHINERY BE USED OVERTOP THAT EXCEEDS THE DESIGN LIMITATIONS OF THE SYSTEM. WHEN PLACEMENT OF MATERIAL OVERTOP, MATERIAL SHALL BE PLACED SUCH THAT THE DIRECTION OF PLACEMENT IS PARALLEL WITH THE OVERALL LONGITUDINAL DIRECTION OF THE SYSTEM WHENEVER POSSIBLE.
3. THE FILL PLACED OVERTOP THE SYSTEM SHALL BE PLACED AT A MINIMUM OF 6" LIFTS. AT NO TIME SHALL MACHINERY OR VEHICLES GREATER THAN THE DESIGN HS-20 LOADING CRITERIA TRAVEL OVERTOP THE SYSTEM WITHOUT THE MINIMUM DESIGN COVERAGE. IF TRAVEL IS NECESSARY OVERTOP THE SYSTEM PRIOR TO ACHIEVING THE MINIMUM DESIGN COVER, IT MAY BE NECESSARY TO REDUCE THE ULTIMATE LOAD/BURDEN OF THE OPERATING MACHINERY SO AS TO NOT EXCEED THE DESIGN CAPACITY OF THE SYSTEM. IN SOME CASES, IN ORDER TO ACHIEVE REQUIRED COMPACTION, HAND COMPACTION MAY BE NECESSARY IN ORDER NOT TO EXCEED THE ALLOTTED DESIGN LOADING. SEE CHART FOR TRACKED VEHICLE WIDTH AND ALLOWABLE MAXIMUM PRESSURE PER TRACK.
4. FREE DRAINING AGGREGATE – 80% AGGREGATE RETAINED ON $\frac{3}{4}$" SIEVE MAJORITY OF AGGREGATE SIZE BETWEEN $\frac{3}{4}$" AND 1" ONLY 5% OF MATERIAL PASSING #8 SIEVE.
5. FREE DRAINING, NO FINES, 3" AGGREGATE – MAJORITY OF STONE SIZE IN BETWEEN 1$\frac{1}{2}$" AND 3" – VERY SIMILAR TO AASHTO (#1, #2, #3, & #24) STONE AGGREGATE GRADATION.



BACKFILL DETAIL

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4.0

RECOMMENDED ACCESS OPENING SPECIFICATION

1. A TYPICAL ACCESS OPENING FOR THE STORMTRAP SYSTEM ARE 2'-0" IN DIAMETER. ACCESS OPENINGS LARGER THAN 3'-0" IN DIAMETER NEED TO BE APPROVED BY STORMTRAP. ALL OPENINGS MUST RETAIN AT LEAST 1'-0" OF CLEARANCE FROM THE END OF THE STORMTRAP MODULE UNLESS NOTED OTHERWISE. ALL ACCESS OPENINGS TO BE LOCATED ON INSIDE LEG UNLESS OTHERWISE SPECIFIED.
2. PLASTIC COATED STEEL STEPS PRODUCED BY M.A. INDUSTRIES PART #PS3-PFC OR APPROVED EQUAL (SEE STEP DETAIL) ARE PROVIDED INSIDE ANY MODULE WHERE DEEMED NECESSARY. THE HIGHEST STEP IN THE MODULE IS TO BE PLACED A DISTANCE OF 1'-0" FROM THE INSIDE EDGE OF THE STORMTRAP MODULES. ALL ENSUING STEPS SHALL BE PLACED AT A DISTANCE BETWEEN 10" MIN AND 14" MAX BETWEEN THEM. STEPS MAY BE MOVED OR ALTERED TO AVOID OPENINGS OR OTHER IRREGULARITIES IN THE MODULE.
3. STORMTRAP LIFTING INSERTS MAY BE RELOCATED TO AVOID INTERFERENCE WITH ACCESS OPENINGS OR THE CENTER OF GRAVITY OF THE MODULE AS NEEDED.
4. STORMTRAP ACCESS OPENINGS MAY BE RELOCATED TO AVOID INTERFERENCE WITH INLET AND/OR OUTLET PIPE OPENINGS SO PLACEMENT OF STEPS IS ATTAINABLE.
5. ACCESS OPENINGS SHOULD BE LOCATED IN ORDER TO MEET THE APPROPRIATE MUNICIPAL REQUIREMENTS. STORMTRAP RECOMMENDS AT LEAST TWO ACCESS OPENINGS PER SYSTEM FOR ACCESS AND INSPECTION.
6. USE PRECAST ADJUSTING RINGS AS NEEDED TO MEET GRADE. STORMTRAP RECOMMENDS FOR COVER OVER 2' TO USE PRECAST BARREL OR CONE SECTIONS. (PROVIDED BY OTHERS)

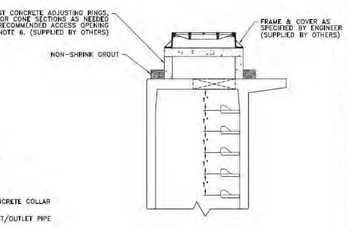
RECOMMENDED PIPE OPENING SPECIFICATION

1. MINIMUM EDGE DISTANCE FOR AN OPENING ON THE OUTSIDE WALL SHALL BE NO LESS THAN 1'-0".
2. MAXIMUM OPENING SIZE TO BE DETERMINED BY THE MODULE HEIGHT. PREFERRED OPENING SIZE IS ø 36" OR LESS. ANY OPENING NEEDED THAT DOES NOT FIT THIS CRITERIA SHALL BE BROUGHT TO THE ATTENTION OF STORMTRAP FOR REVIEW.
3. CONNECTING PIPES SHALL BE INSTALLED WITH A 1'-0" CONCRETE COLLAR, AND AN AGGREGATE CRADLE FOR AT LEAST ONE PIPE LENGTH (SEE PIPE CONNECTION DETAIL). A STRUCTURAL GRADE CONCRETE OR HIGH STRENGTH, NON-SHRINK GROUT WITH A MINIMUM 28 DAY COMPRESSIVE STRENGTH OF 3000 PSI SHALL BE USED.
4. THE ANNULAR SPACE BETWEEN THE PIPE AND THE HOLE SHALL BE FILLED WITH HIGH STRENGTH NON-SHRINK GROUT.

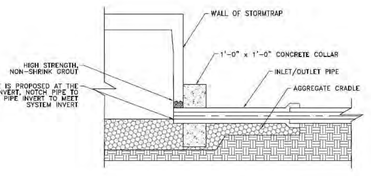
RECOMMENDED PIPE INSTALLATION INSTRUCTIONS

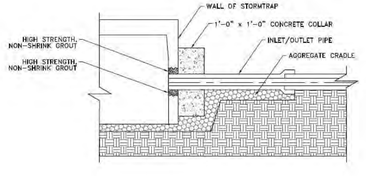
1. CLEAN AND LIGHTLY LUBRICATE ALL OF THE PIPE TO BE INSERTED INTO STORMTRAP.
2. IF PIPE IS CUT, CARE SHOULD BE TAKEN TO ALLOW NO SHARP EDGES. BEVEL AND LUBRICATE LEAD END OF PIPE.
3. ALIGN CENTER OF PIPE TO CORRECT ELEVATION AND INSERT INTO OPENING.

NOTE: ALL ANCILLARY PRODUCTS/SPECIFICATIONS RECOMMENDED AND SHOWN ON THIS SHEET ARE RECOMMENDATIONS ONLY AND SUBJECT TO CHANGE PER THE INSTALLING CONTRACTOR AND/OR PER LOCAL MUNICIPAL CODE/REQUIREMENTS.

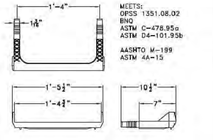


RISER / STAIR DETAIL





PIPE CONNECTION DETAIL



STEP DETAIL

*** NOTICE *** 03-25-2022

DUE TO CURRENT INCONSISTENCIES IN THE 16" STEP SUPPLY, STORMTRAP MAY SUBSTITUTE THE 16" STEP WITH THE CLOSEST ALTERNATIVE LENGTH STEP UNTIL THE SUPPLY CHAIN ISSUE IS RESOLVED.

StormTrap
PAGES USED AS [HTTP://STORMTRAP.COM/PAGE]
1287 WINDHAM PARKWAY
ROMEOVILLE, IL 60446
P:815-941-4549 / F:331-318-5347

ENGINEER INFORMATION:

Z DEVELOPMENT SERVICES
708 EAST COLONIAL DRIVE
SUITE 100
ORLANDO, FL 32803
407-271-8910

PROJECT INFORMATION:

LADYBIRD

CORAL SPRINGS, FL

CURRENT ISSUE DATE:

6/30/2022

ISSUED FOR:

PRELIMINARY

REV.	DATE:	ISSUED FOR:	DWN BY:
⚠3	6/30/22	PRELIMINARY	KL
2	5/12/22	PRELIMINARY	KL
1	5/5/22	PRELIMINARY	KL

SCALE:

NTS

SHEET TITLE:

RECOMMENDED PIPE / ACCESS OPENING SPECIFICATIONS

SHEET NUMBER:

5.0

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REVISION	DATE
⚠3 SFWMD & SWCD COMMENTS	07-07-22

ROBERT ZIEGENFUSS, P.E., LEED AP
FL REG. # 56752

LADYBIRD ACADEMY
8950 ROYAL PALM BOULEVARD
CORAL SPRINGS, FLORIDA 33065

DATE: 02-22-22
DRAWN: SR
CHECKED: RZ

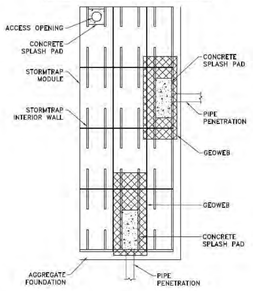
C8.4
SUBSURFACE STORMWATER SYSTEM DETAILS

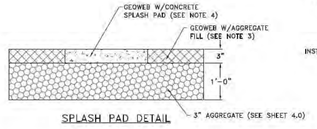
PROJECT NO.: 2019.141

NOTES:

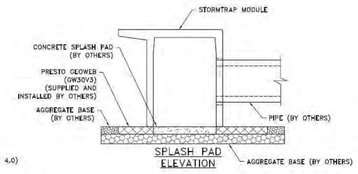
1. THE APPROVED GEOWEB SHALL BE PRESTO GEOWEB (GW30V3). THE GEOWEB NOMINAL DIMENSIONS SHALL BE 9-FT x 25-FT.
2. THE CONCRETE SPLASH PAD AND GEOWEB SHALL BE INSTALLED PRIOR TO INSTALLATION OF THE STORMTRAP MODULES.
3. THE GEOWEB INFILL MATERIAL SHALL BE #5 AGGREGATE.
4. THE CONCRETE SPLASH PAD SHALL BE INSTALLED WITHIN THE GEOWEB AND IS REQUIRED AT ALL PIPE ENTRY LOCATIONS.
5. THE GEOWEB EDGE SHALL BE INSTALLED 1-FT BEYOND THE OUTER PERIMETER OF THE STORMTRAP SYSTEM.
6. THE GEOWEB LONGITUDINAL DIMENSION (25-FT) SHALL BE INSTALLED PARALLEL TO THE STORMTRAP LEGS.
7. THE CONCRETE SPLASH PAD AND GEOWEB SHALL BE CENTERED AT THE PIPE PENETRATION.
8. REFER TO SPLASH PAD LAYOUT FOR CONCRETE SPLASH PAD DIMENSIONS.
9. IF ANY PRODUCT OTHER THAN PRESTO GEOWEB IS TO BE INSTALLED, THE PRODUCT MANUFACTURER IS REQUIRED TO SUBMIT A LETTER STATING THAT THE PRODUCT IS EQUAL OR BETTER THEN PRESTO GEOWEB, BOTH IN PERFORMANCE AND IN STRUCTURAL CAPACITY.
10. ALL GEOWEB AND SPLASH PADS TO BE SUPPLIED AND INSTALLED BY CONTRACTOR.
11. A CONCRETE SPLASH PAD IS REQUIRED AT ANY ACCESS OPENING THAT HAS AN OPEN GRATE FOR DRAINAGE. THE CONCRETE SPLASH PAD SHALL EXTEND BETWEEN THE UNIT LEG WALLS AND 3'-0" FROM THE CENTERLINE OF THE OPENING ON BOTH SIDES UNLESS SPECIFIED OTHERWISE ON THE SPLASH PAD LAYOUT. GEOWEB IS NOT REQUIRED UNDER ACCESS OPENINGS.

SPLASH PAD CONFIGURATION

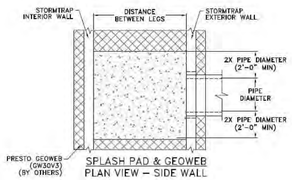




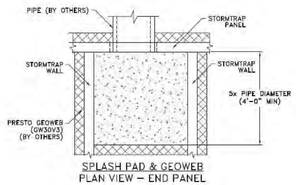
SPLASH PAD DETAIL



SPLASH PAD ELEVATION



SPLASH PAD & GEOWEB
PLAN VIEW – SIDE WALL



SPLASH PAD & GEOWEB
PLAN VIEW – END PANEL

StormTrap
PRESTO LICENSED A/E (HTTP://STORMTRAP.COM/PRESTO)
1287 WINDHAM PARKWAY
ROMEOVILLE, IL 60446
P:815-941-4549 / F:331-318-5347

ENGINEER INFORMATION:
Z DEVELOPMENT SERVICES
708 EAST COLONIAL DRIVE
SUITE 100
ORLANDO, FL 32803
407-271-8910

PROJECT INFORMATION:
LADYBIRD
CORAL SPRINGS, FL

CURRENT ISSUE DATE:
6/30/2022

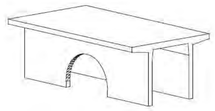
ISSUED FOR:
PRELIMINARY

REV.	DATE:	ISSUED FOR:	DWN BY:
⚠	6/30/22	PRELIMINARY	KL
2	5/12/22	PRELIMINARY	KL
1	5/5/22	PRELIMINARY	KL

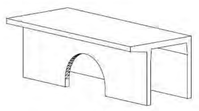
SCALE:
NTS

SHEET TITLE:
SPLASH PAD & GEOWEB DETAILS

SHEET NUMBER:
6.0



TYPE II



TYPE IV

TYPE II
END PANEL

TYPE IV
END PANEL

NOTES:
1. OPENING LOCATIONS AND SHAPES MAY VARY.
2. SP – INDICATES A MODULE WITH MODIFICATIONS.
3. P – INDICATES A MODULE WITH A PANEL ATTACHMENT.
4. POCKET WINDOW OPENINGS ARE OPTIONAL.

StormTrap
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PRELIMINARY

REV.	DATE:	ISSUED FOR:	DWN BY:
⚠	6/30/22	PRELIMINARY	KL
2	5/12/22	PRELIMINARY	KL
1	5/5/22	PRELIMINARY	KL

SCALE:
NTS

SHEET TITLE:
SINGLETRAP MODULE TYPES

SHEET NUMBER:
7.0

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REVISION	DATE
⚠ SFWMD & SWCD COMMENTS	07-07-22

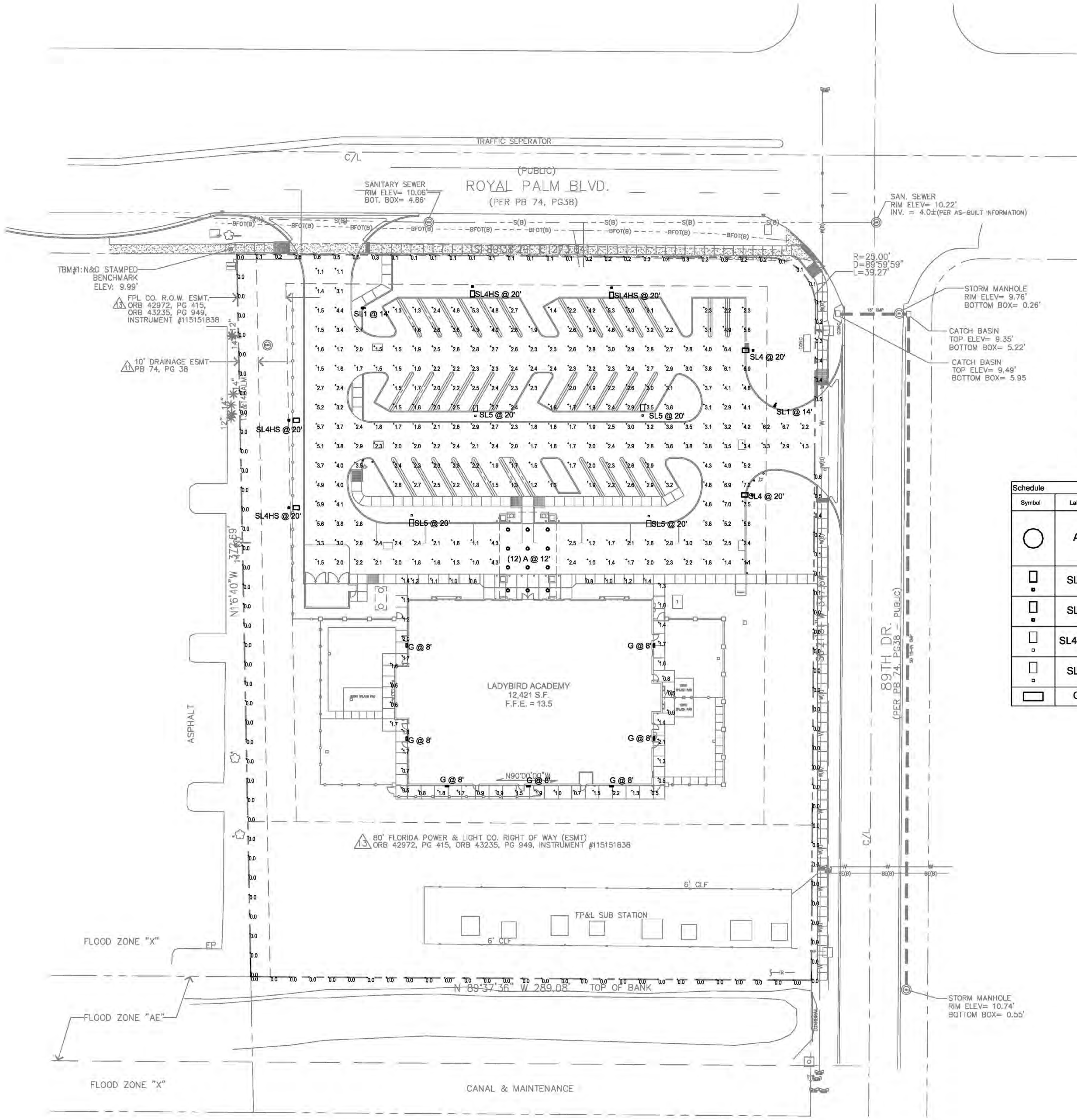
ROBERT ZIEGENFUSS, P.E., LEED AP
FL. REG. # 56752

LADYBIRD ACADEMY
8950 ROYAL PALM BOULEVARD
CORAL SPRINGS, FLORIDA 33065

DATE: 02-22-22
DRAWN: SR
CHECKED: RZ

C8.5
SUBSURFACE STORMWATER SYSTEM DETAILS

PROJECT NO.: 2019.141



A SITE LIGHTING PHOTOMETRIC PLAN
SCALE: 1" = 30'-0"

Should The Fire Department Two-Way Radio Communications Prove To Be Inadequate For Any Reason, An In-Building Public Safety Radio Enhancement System Is To Be Provided In Accordance With NFPA 1, 11.10

LIGHTING PLAN REQUIREMENTS

A Certified Report From A Licensed Electrical Or Lighting Engineer And Or Contractor To Verify That The Photometric Plan Meets The Approved Plan Shall Be Provided Prior To The Issuance Of Any Certificate Of Completion And Or Occupancy.

Statistics

Description	Symbol	Avg	Max	Min	Max/Min	Avg/Min
PARKING AREA	+	2.8 fc	7.5 fc	1.0 fc	7.5:1	2.8:1
PROPERTY LINE	+	0.1 fc	1.0 fc	0.0 fc	N/A	N/A
WALKWAY	+	1.2 fc	2.2 fc	0.5 fc	4.4:1	2.4:1

Schedule

Symbol	Label	QTY	Manufacturer	Catalog Number	Description	Lamp	Number Lamps	Filename	Lumens per Lamp	LLF	Wattage
○	A	12	ATLANTIC LIGHTING	6100MHO1-6610CL	FORMED STEEL HOUSING, SPUN SPECULAR ALUMINUM REFLECTOR, NO ENCLOSURE.	ONE COATED SYLVANIA M100/C/U 100 WATT ED17 METAL HALIDE RATED AT 7,800 LUMENS.	1	LTL06372.ies	7800	0.81	100
□	SL1	2	Hubbell Outdoor	ASL-8L-4K-210-4	ASL Area/Site Lighter	8 High Brightness LEDs - - 4000K - 70 CRI	1	ASL-8L-4K-210-4.IES	5757	1	61.5
□	SL4	2	Hubbell Outdoor	ASL-16L-4K-210--4	ASL Area/Site Lighter	16 High Brightness LEDs - - 4000K - 70 CRI	1	ASL-16L-4K-210-4.IES	11418	1	122.7
□	SL4HS	4	HUBBELL OUTDOOR	ASL-16L-4K-210--4-EHS	ASL Area/Roadway	16LEDs - 4000K - - 70 CRI	1	ASL-16L-4K-210-4-EHS.IES	7917	1	175.2
□	SL5	4	Hubbell Outdoor	ASL-16L-4K-210--5	ASL Area/Site Lighter	16 High Brightness LEDs - - 4000K - 70 CRI	1	ASL-16L-4K-210-5.IES	11254	1	122.7
▭	G	7	Hubbell Outdoor	LNC-5LU-4K-3-X	WALLMOUNT LED TYPE 3	5- NICHIA 4K LEDS	1	LNC-5LU-4K-3--X.ies	1077	1	12.9

MiGre Engineers LLC
760 FLORIDA CENTRAL PKWY
SUITE 224
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PH: 407.636.7999
PROJECT #: 19095

MICHAEL L. DODANE
FL-PE# 0044665

SEAL

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Lake Mary, Florida 32746

Ladybird Daycare
LADYBIRD ACADEMY OF CORAL SPRINGS
8950 Royal Palm Boulevard
Coral Springs, Florida 33065

SITE LIGHTING PHOTOMETRIC PLAN

Rodney Jefferson Architect
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job no: RJ05419
drawn by: MD
date: PERMIT 02/23/22
revisions:
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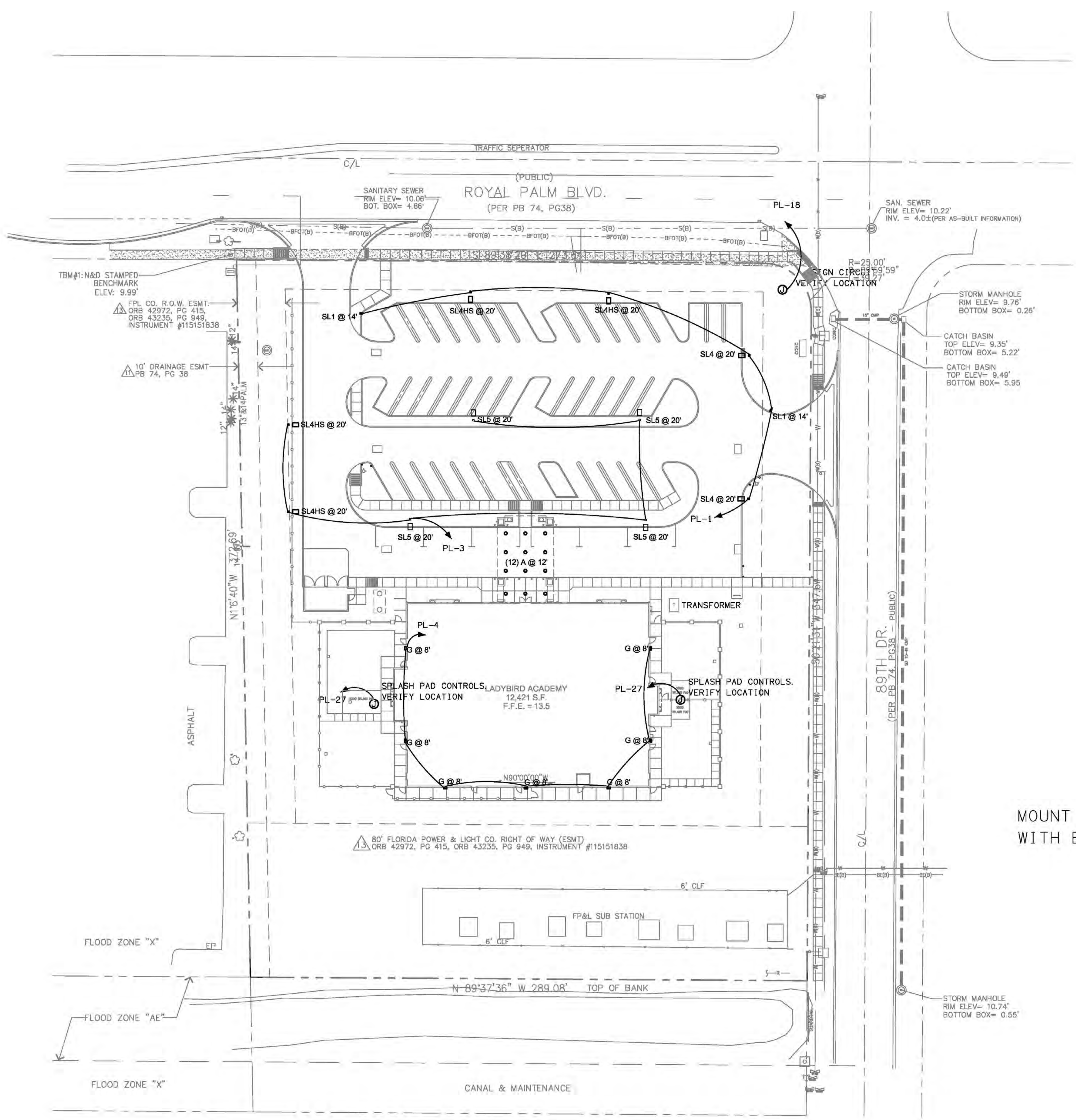
19095-E-SITE



MOUNT 'G' FIXTURES
WITH BOTTOM AT 8'-4"

A **SITE LIGHTING POWER PLAN**
SCALE: 1" = 30'-0"

MiGre Engineers LLC
760 FLORIDA CENTRAL PKWY
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SITE LIGHTING POWER PLAN

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American Institute of Architects
National Council of Architectural Registration Boards

job no: RJ05419
drawn by: MD
date: PERMIT 02/23/22
revisions:

sheet number
E1.2
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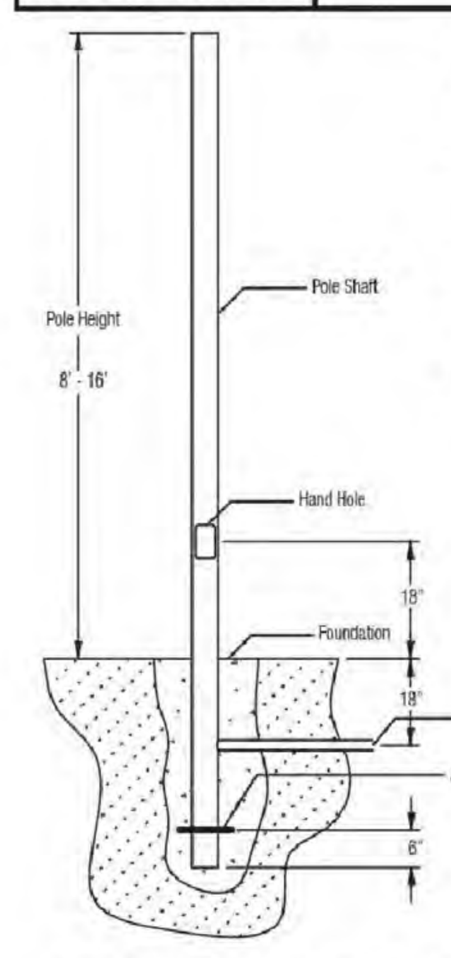
19095-E-SITE

RSA-S-DBE SERIES POLES
ROUND STRAIGHT ALUMINUM

Cat.# | Job | Type | Approvals

SPAULDING LIGHTING



APPLICATIONS
- Lighting installations for side and top mounting of luminaires with effective projected area (EPA) not exceeding maximum allowable loading of the specified pole in its installed geographic location

CONSTRUCTION
- SHAFT: One-piece straight aluminum with round cross section; Extruded shafts of 6061-T6 aluminum in 1/8" or 3/16" thickness.
- POLE CAP: Pole shaft supplied with removable cover when applicable; Tenon and post-top configurations also available
- HAND HOLE: Rectangular 3x5 aluminum hand hole frame (2.38" x 4.38" opening); Mounting provisions for grounding lug located behind gasketed cover

FINISH
- Durable thermoset polyester powder coat paint finish with nominal 3.0 mil thickness
- Powder paint finish coat available in seven standard colors; Custom colors available; RAL number preferable.

POLE CAP | TENON

*Local civil engineer should be consulted for proper foundation design

ORDERING EXAMPLE: RSA-S-DBE - 16 - 40 - A/B/C - 2L - S2 - DB - VM2

MOUNTING ORIENTATION

ACCESSORIES- Order Separately

Catalog Number	Description
VM2SXX	2nd mode vibration damper

ORDERING INFORMATION Cont.

Catalog Number	Pole Height Feet	Pole Height Meters	Nominal Shaft Dimensions	Wall Thickness	Pole weight (lbs)
RSA-S-DBE-08-40-A	08	2.4	4" Round	0.125"	20
RSA-S-DBE-10-40-A	10	3.0	4" Round	0.125"	24
RSA-S-DBE-12-40-A	12	3.7	4" Round	0.125"	29
RSA-S-DBE-14-40-A	14	4.3	4" Round	0.125"	34
RSA-S-DBE-16-40-A	16	4.9	4" Round	0.125"	39
RSA-S-DBE-08-50-B	08	2.4	5" Round	0.188"	36
RSA-S-DBE-10-50-B	10	3.0	5" Round	0.188"	45
RSA-S-DBE-12-50-B	12	3.7	5" Round	0.188"	54
RSA-S-DBE-14-50-B	14	4.3	5" Round	0.188"	63
RSA-S-DBE-16-50-B	16	4.9	5" Round	0.188"	71
RSA-S-DBE-10-60-A	10	3.0	6" Round	0.125"	37
RSA-S-DBE-12-60-A	12	3.7	6" Round	0.125"	44
RSA-S-DBE-14-60-A	14	4.3	6" Round	0.125"	51
RSA-S-DBE-16-60-A	16	4.9	6" Round	0.125"	58

EHH - EXTRA HANDHOLE | C05 - C07 - C20 - COUPLING | VM2 - VIBRATION DAMPER 2ND MODE | VM2SXX - VIBRATION DAMPER 2ND MODE | OPTION ORIENTATION

VM2: Factory installed, internal damper designed to alter pole resonance to reduce movement and material fatigue caused by 2nd mode vibration.

VM2SXX: Field installed, internal damper designed to alter pole resonance to reduce movement and material fatigue caused by 2nd mode vibration.

GFI - 20 AMP GFCI RECEPTACLE & COVER

For more information about pole vibration and vibration dampers, please consult
Due to our continued efforts to improve our products, product specifications are subject to change without notice.

LNC SERIES

Cat.# | Job | Type | Approvals

HUBBELL Outdoor Lighting

SPECIFICATIONS

Intended Use:
The compact LED LNC is designed for entry/perimeter illumination for safety, security and identity. Typical mounting height is up to 12 feet with 40ft fixture spacing (without acrylic diffuser) and 30ft spacing with acrylic diffuser installed. Photocontrol option is available to provide dusk-to-dawn control for additional energy savings.

Construction:
Decorative die-cast aluminum housing and door. Rugged design protects internal components and provides excellent thermal management for long life – 60,000 hours minimum LED life at L96 rating per IESNA TM-21-11. Powder paint finishes provide lasting appearance in outdoor environments.

Optics/Electrical
LED:
Drivers are 120-277V, 50/60Hz Type II, III and Type IV lenses provide wide lateral spread.
0-10V dimming 120-277V only.
- LNC5L – 5 LEDs, Types II, III or IV available, see page 2 for electrical details
- LNC7L – 7 LEDs, Type II, III or IV available, see page 2 for electrical details
- LNC9L – 9 LEDs, Types II, III or IV available, see page 2 for electrical details
- 3000K - 80 CRI, 4000K - 70 CRI, and 5000K - 70 CRI, CCT nominal
- Minimum operating temperature is -40°C/-40°F
- Drivers have greater than .90 power factor and less than 20% Total Harmonic Distortion

Lenses:
Full cut-off distribution; Ambient diffuser included, use for applications near enterances or locations where reduced brightness is desired.

Installation:
Quick mount adapter provides quick installation, designed for recessed box 4" square junction box.

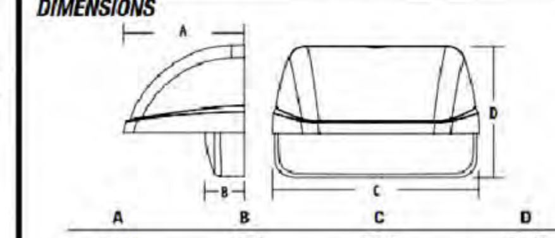
Listings:
Listed and labeled to UL 1598 for wet locations, 25° C ambient environments. Some models meet DesignLights Consortium (DLC) qualifications, consult DLC website for more details: http://www.designlights.org/QPL

- IES Progress Award Winner - 2012

Warranty:
Five year limited warranty (for more information visit: http://www.hubbelloutdoor.com/resources/warranty/

PRODUCT IMAGE(S)

DIMENSIONS



A	B	C	D
4.81" (122 mm)	1.55" (39 mm)	8.22" (209 mm)	5.25" (133 mm)

SHIPPING INFORMATION

Catalog Number	G.W(kg)/ CTN	Carton Dimensions Length Inch (cm)	Width Inch (cm)	Height Inch (cm)	Carton Qty. per Master Pack
LNC-5LU	9.6 (4.36)	14.5 (37)	9.6 (24.5)	6.8 (17.5)	2
LNC-7LU	9.6 (4.36)	14.5 (37)	9.6 (24.5)	6.8 (17.5)	2
LNC-9LU	9.6 (4.36)	14.5 (37)	9.6 (24.5)	6.8 (17.5)	2

CERTIFICATIONS/LISTINGS
*3000K and warmer CCTs only

ORDERING INFORMATION
ORDERING EXAMPLE: LNC-9LU-5K-3-1-PC1

LNC - [ ] [ ] - [ ] - [ ] - [ ] - [ ]

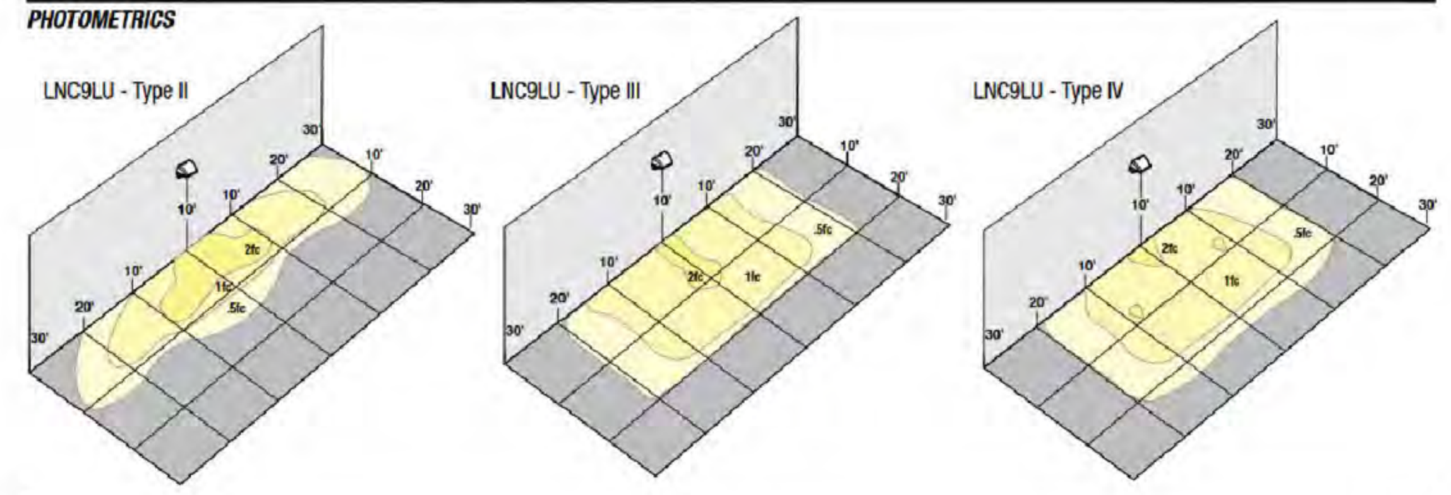
SERIES | NUMBER OF LEDS | VOLTAGE | CCT | IES DISTRIBUTION | FINISH | OPTIONS

LNC LNC zero uplight | 5L 5 LEDs, 7L 7 LEDs, 9L 9 LEDs | U 120V-277V, 1 120V, 2 208V, 3 240V, 4 277V | 3K 3000K nominal, 70 CRI; 4K 4000K nominal, 70 CRI; 5K 5000K nominal; AM Amber | 2 Type II, 3 Type III, 4 Type IV | 1 Bronze, 2 Black, 3 Gray, 4 White, 5 Platinum | PC(X) Button photocontrol, replace X with voltage

REPLACEMENT PART

CATALOG NUMBER	DESCRIPTION
93039574	Frosted comfort shield, improved uniformity with only 5% reduction

PHOTOMETRICS



PERFORMANCE DATA

# OF LEDS	DRIVE CURRENT	SYSTEM WATTS	DIST. TYPE	5K (5000K nominal, 70 CRI) LUMENS	5K LPW[1]	4K (4000K nominal, 70 CRI) LUMENS	4K LPW[1]	3K (3000K nominal, 80 CRI) LUMENS	3K LPW[1]	AM (<580 nm wave-length) LUMENS	AM SYSTEM WATTS	AM LPW[1]
5	STD. (700mA) AM (350mA)	13W	2	1,150	88.5	1,052	81	883	68			
			3	1,132	87	1,077	83	833	64			
			4	1,146	88	1,053	81	849	65			
7		17W	2	1,515	89	1,369	80.5	1,272	75			
			3	1,500	88	1,539	90.5	1,392	82	268	6.6	59
			4	1,557	91.5	1,535	90	1,425	84			
9		22W	2	2,069	94	2,033	92	1,588	72			
			3	2,024	92	1,989	90	1,623	74			
			4	2,095	95	2,059	93.5	1,680	76	382	8.3	46

Lumen values are from photometric tests performed in accordance with IESNA LM-79-08. Data is considered to be representative of the configurations shown. Actual performance may differ as a result of end-user environment and application. Please consult IES files for BUG ratings.

PROJECTED LUMEN MAINTENANCE

Ambient Temp.	0	25,000	50,000	TM-21-11[1] L96 60,000	100,000	L70 (hours)
25°C / 77°F	1.00	0.98	0.97	0.96	0.95	>791,000
40°C / 104°F	0.99	0.98	0.96	0.96	0.94	>635,000

1. Projected per IESNA TM-21-11 * (Nichia 219B, 700mA, 85°C Ts, 10,000hrs)
Data references the extrapolated performance projections for the LNC-12LU-5K base model in a 40°C ambient, based on 10,000 hours of LED testing per IESNA LM-80-08.

LUMINAIRE AMBIENT TEMPERATURE FACTOR (LATF)

AMBIENT TEMPERATURE		LUMEN MULTIPLIER
0° C	32° F	1.02
10° C	50° F	1.01
20° C	68° F	1.00
25° C	77° F	1.00
30° C	86° F	1.00
40° C	104° F	0.99
50° C	122° F	0.98

Use these factors to determine relative lumen output for average ambient temperatures from 0-50°C (32-122°F).

ELECTRICAL DATA

# OF LEDS	DRIVE CURRENT (mA)	DRIVE CURRENT (mA)	INPUT VOLTAGE (V)	CURRENT (Amps)	SYSTEM POWER (w)
5	1	STD. (700mA)	120	0.11	13
			277	0.05	13
7	1	STD. (700mA)	120	0.14	17
			277	0.07	17
9	1	STD. (700mA)	120	0.17	22
			277	0.09	22

AIRO LED SERIES
AREA/SITE/ROAD LIGHTER

Cat.# | Job | Type | Approvals

HUBBELL Outdoor Lighting

SPECIFICATIONS

Construction:
- Stylish vertically finned die-cast and extruded aluminum for maximum heat dissipation
- Separate optical and electrical compartment for improved thermal management and optimum component operation
- EPA: 8L – .50ft², 16L – .62 ft², 24L – .74 ft²

Optics:
- Premium engineered individual acrylic lenses deliver IES Type II, III, IV and V distributions
- Lens distributions are field rotatable (in 90° increments) or exchangeable for job site fine-tuning
- 3000K, 4000K, or 5000K (70 CRI) CCT
- Zero uplight

Electrical:
- Configured with 8, 16, or 24 high current and high output LEDs to replace 150, 250 and 400wHID respectively
- Universal 120-277 VAC or 347-480 VAC input voltage, 50/60 Hz
- Ambient operating temperature -40° C to 40° C
- Drivers have greater than 90% power factor and less than 20% THD
- LED drivers have output power over-voltage, over-current protection and short circuit protection with auto recovery
- Field replaceable surge protection device provides 10KA and 10KV protection meeting ANSI/IEEE C62.41.2 Category C High and Surge Location Category C3; Automatically takes fixture off-line for protection when device is consumed

Controls:
- Photo control, occupancy sensor and wireless available for complete on/off and dimming control
- 7-pin ANSI C136.41-2013 photocontrol receptacle option available for twist lock photocontrols or wireless control modules (control accessories sold separately)
- 0-10V dimming leads available for use with control devices (provided by others)
- In addition, AIRO can be specified with SiteSync™ wireless control system for reduction in energy and maintenance cost while optimizing light quality 24/7. See ordering information or visit www.hubbelllighting.com/sitesync for more details.

Installation:
- Tool-less entry to wiring/driver compartment
- Universal mounting block works with #2 drill pattern (See page 4 illustration)
- Fixture ships with slotted mounting block to accomodates wide range of drill patterns for easy retrofit opportunities (See page 4 illustration for dimensions)
- Mast arm fitter accessory or option available for 2-3/8" OD brackets

Finish:
- TGIC thermoset polyester powder paint finish applied at nominal 2.5 mil thickness

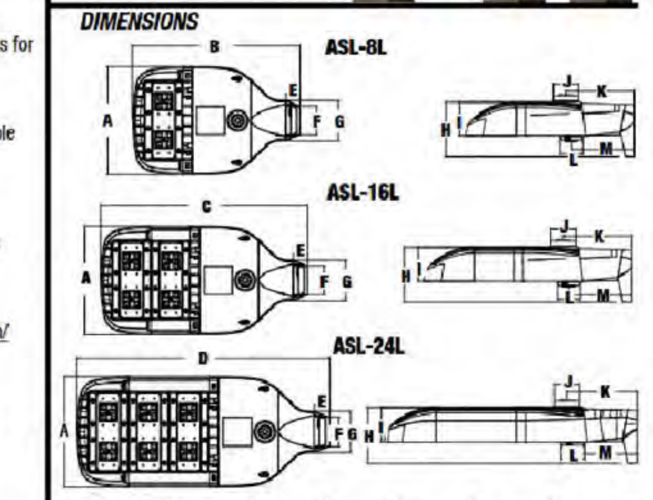
Warranty:
Five year limited warranty (for more information visit: http://www.hubbelloutdoor.com/resources/warranty/

Listings:
- DesignLights Consortium (DLC) qualified, consult DLC website for more details: http://www.designlights.org/QPL
- Listed to UL1598 and CSA C22.2#250.0-24 for wet locations and 40°C ambient temperatures
- 3G rated for ANSI C136.31 high vibration applications
- IP65 optical assembly
- IDA approved

CERTIFICATIONS/LISTINGS

PRODUCT IMAGE(S)

DIMENSIONS



SHIPPING INFORMATION

Catalog Number	G.W(kg)/ CTN	Carton Dimensions Length Inch (cm)	Width Inch (cm)	Height Inch (cm)
ASL-8L	15 (6.8)	20.75 (52.7)	15.125 (38.4)	6.9375 (17.6)
ASL-16L	19 (8.6)	25 (63.5)	15.125 (38.4)	6.9375 (17.6)
ASL-24L	24 (10.8)	25 (63.5)	15.125 (38.4)	6.9375 (17.6)

ORDERING INFORMATION - STOCK CONFIGURATIONS

Catalog Number	Description	Mtg.	Distribution	Wattage	# Drivers Drive Current	Voltage	CCT	Lumens	LPW	Weight lbs. (kg)
ASL-16L-3	Medium size 16 LED configuration, Dark Bronze	Arm	Type III	123	1@2100mA	120V-277V	4000K	11,153	91	18 (8.16)
ASL-16L-4	Medium size 16 LED configuration, Dark Bronze	Arm	Type IV	123	1@2100mA	120V-277V	4000K	11,417	93	18 (8.16)
ASL-24L-3	Large size 24 LED configuration, Dark Bronze	Arm	Type III	181	1@2100mA	120V-277V	4000K	16,364	91	20 (9.07)
ASL-24L-4	Large size 24 LED configuration, Dark Bronze	Arm	Type IV	181	1@2100mA	120V-277V	4000K	16,752	93	20 (9.07)
ASL-24L-3-HO	Large size 24 LED configuration, Dark Bronze	Arm	Type III	225	1@700mA	120V-277V	4000K	20,927	93	20 (9.07)
ASL-24L-4-HO	Large size 24 LED configuration, Dark Bronze	Arm	Type IV	225	1@700mA	120V-277V	4000K	21,073	93	20 (9.07)

CONFIGURABLE ORDERING INFORMATION NEXT PAGE

ORDERING INFORMATION
ORDERING EXAMPLE: ASL-A-24L4K-210-4-U-DB

FAMILY | MOUNTING | # LEDS | CCT | DRIVE CURRENT | DISTRIBUTION | VOLTAGE | COLOR | OPTIONS

24L 24 High brightness LEDs

Voltage: 3 240, 4 277, 5[4] 480, F[4] 347

1 – Order poles with #2 drill pattern
2 – 7-pin ANSI C136.41—2013 receptacle for use with standard Twist-Lock® photo controls, shorting caps, and ANSI C136.41 external wireless control devices with and without motion/occupancy override
3 – For 24L configurations only
4 – 347V-480V not for 24L, 210 - 2100mA option
5 – Contact factory for minimum order quantities
6 – Not available with 347V or 480V
7 – Not available with 480V
8 – Not available with Occupancy/Motion Sensors

Accessories and Services (Ordered Separately)

ACCESSORIES - Order Separately

Catalog Number	Description
ASL-MAF	Mast arm kit with wildlife shield for mounting on 2 3/8" OD arms
SETA2-XX[1]	Square pole tenon adapter (4 at 90 degrees) (2 3/8" OD tenon)
RETA2-XX[1]	Round pole tenon adapter (4 at 90 degrees) (2 3/8" OD tenon), requires CL1S-RPA4-ACC-XX for each luminaire
TETA2-XX[1]	Hexagonal pole tenon adapter (3 at 120 degrees) (2 3/8" OD tenon)
ASL-EHS-BL	External house side shield (Kit Qtys. ASL8L - 1, ASL16L - 2, ASL24L - 3)
ASL-ESS-BL	External side shield (Kit Qtys. ASL8L - 1, ASL16L - 2, ASL24L - 3)
ASL-ARMMTG-XX[1]	Arm mounting kit for side of pole attachment
RATA-XX[1]	Single round arm tenon fits 2 3/8" OD, requires ASL-MAF accessory kit for stocked configurations
SCP-REMOTE	Remote control for SCPW option. Order at least one per project to program and control
CL1S-RPA(*)-ACC-XX[1]	Round Pole Adapter (* denotes pole diameter; 3 = 3 ¼" -3 ¾"; 4 = 3 7/8" – 6")
WB-AREA-XX[1]	Wall bracket. Requires universal mounting block option.
PTL-1	Photocontrol - twist-lock cell (120V) - Requires 7PR option
PTL-8	Photocontrol - twist-lock cell (120-277V) - Requires 7PR option
PSC	Shorting cap - twist-lock - Requires 7PR option
ASL8L2LENS	Type II, 2 lenses included (see table to right for kit quantities)
ASL8L3LENS	Type III, 2 lenses included (see table to right for kit quantities)
ASL8L4LENS	Type IV, 2 lenses included (see table to right for kit quantities)
ASL8L5LENS	Type V, 2 lenses included (see table to right for kit quantities)

1 - Replace XX with color choice, eg.: DB for Dark Bronze

ASL-MAF installed
ASL-MAF – Fits 2-3/8" OD arms

Wall Mount Accessory
WB-AREA-XX wall mount bracket designed for building mount applications

760 FLORIDA CENTRAL PKWY
SUITE 224
LONGWOOD, FL 32750
PH: 407.636.7999
PROJECT #: 19095
MiGre Engineers LLC
MICHAEL L. DODANE
FL-PE# 0044665

SEAL

Ladybird ACADEMY
1515 Int'l Pkwy, Suite 3001
Lake Mary, Florida 32746

Ladybird Daycare
LADYBIRD ACADEMY OF CORAL SPRINGS
8950 Royal Palm Boulevard
Coral Springs, Florida 33065

SITE LIGHTING FIXTURE SPECIFICATIONS

Rodney Jefferson Architect
AIA / NCARB
Florida-AR0014517
Georgia-RA011238 Virginia-7443
17301 Pagonia Rd. Ste 230C
Clermont, Florida 34711
ph (407) 291-8406 fax (407) 293-5015
email RJArchitect@aol.com
American Institute of Architects
National Council of Architectural Registration Boards

job no: RJ05419
drawn by: MD
date: PERMIT 02/23/22
revisions:
1
2
3
4

sheet number
E1.3
cadd filename
19095-E-SITE

SIGHT VISIBILITY TRIANGLE

SIGHT VISIBILITY TRIANGLE

SIGHT VISIBILITY TRIANGLE

SIGHT VISIBILITY TRIANGLE

(PUBLIC)

(PER PB 74, PG38)

(275)dL

(165)dr

(210)dr

(159)dr

(PER PB 74, PG38 – PUBLIC)

13 FPL CO. R.O.W. ESMT. ORB 42972, PG 415, ORB 43235, PG 949, INSTRUMENT #115151838

11 10' DRAINAGE ESMT PB 74, PG 38

10' DRAINAGE ESMT

20' LANDSCAPE BUFFER

10' LANDSCAPE BUFFER

FPL EASEMENT

12' FPL EASEMENT

80' FLORIDA POWER & LIGHT ESMT

80' FLORIDA POWER & LIGHT ESMT (R/W ESMT) ORB 42972, PG 415, ORB 43235, PG 949, INSTRUMENT #115151838

FP&L SUB STATION

LADYBIRD ACADEMY
12,421 S.F.
F.F.E. = 14.30

ARTIFICIAL TURF

FIRE RISER ROOM ACCESS

LAMPPOST (TYPICAL)

N90°00'00"W

VAULT 1
21,978 CF
399 SF G.B.

VAULT 2
14,872 CF G.B.

VAULT 3
19,030 CF G.B.

VAULT 4
9,036 CF G.B.

A = 2,545 SF

A = 2,232 SF

A=177 SF

A = 358 SF

A = 2,089 SF

A = 1,393 SF

A = 3,179 SF

A = 2,174 SF

POND GEOMETRY DATA
POND WIDTH = 24.7 FT.
POND LENGTH = 606.8 FT.

SOD

"OOD ZONE "X"

TREE FALLS WITHIN 6 FEET OF PUBLIC INFRASTRUCTURE AND REQUIRES ROOT BARRIER SYSTEM ALONG ALL UTILITIES THAT FALL WITHIN 6 FEET OF THIS TREE.

MULCH ALL AREAS BETWEEN CURBING AND HEDGE MATERIALS

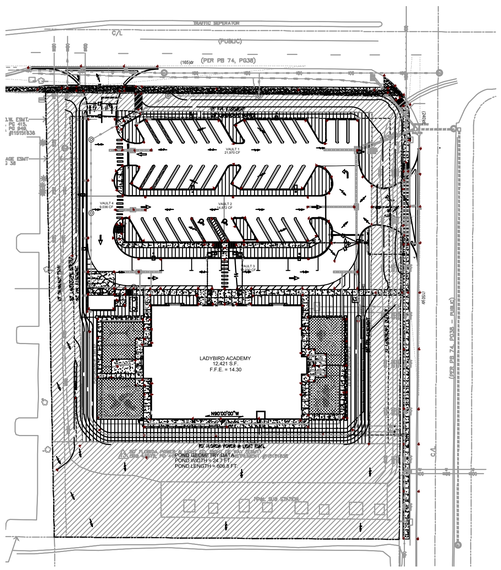
GRAPHIC SCALE
20 0 10 20 40
(IN FEET)
1 inch = 20 ft.

LANDSCAPE CONTRACTOR TO SOD ALL DISTURBED AREAS TO THE EDGE OF PUBLIC STREET AND ALL LIMITS OF PROPERTY LINE AS WELL AS SOD TO STREET EDGE

FPL EASEMENT, ZERO TREES, SHRUBS, OR GROUNDCOVER ALLOWED IN EASEMENT OTHER THAN SOD.

NOTE TO REVIEWER: THERE ARE ZERO OVERHEAD POWER LINES AT THIS PROPERTY.

PROJECT PLANTABLE AREA
DIMENSIONS SHOWN FOR PLANTABLE AREA



48 HOURS BEFORE YOU DIG
CALL SUNSHINE
1-800-432-4770 or 811
IT'S THE LAW IN FLORIDA
FLORIDA LAW REQUIRES EXCAVATORS TO NOTIFY OWNERS OF UNDERGROUND FACILITIES NO LESS THAN TWO (2) DAYS PRIOR TO EXCAVATION

CADDSCAPES, INC.
Florida Landscape Architecture Firm
432 Nowell Loop, Deland, FL 32724
Office: 407 310-5567
Landscape Architect: Jason Bridgewater, RLA
Florida Water Star AP
jasonbridgewater@gmail.com

Z DEVELOPMENT Services
CA 29354
708 E. COLONIAL DR., STE. 100
ORLANDO, FL 32803
PH: (407) 271-8910
FAX: (407) 442-0604

REVISION	DATE
CITY COMMENTS	8/12/20
ADDED LS TAGS	9/16/20
REMOVED FPL	3/4/22
REVISED BASE	7/10/22

DATE: 2022-07-12

REGISTERED LANDSCAPE ARCHITECT JASON BRIDGEWATER 6667308 STATE OF FLORIDA

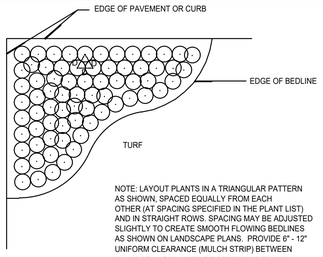
Jason C. Bridgewater
Registered Landscape Architect
FL. Registration -LA 6667308

LADYBIRD ACADEMY
8950 ROYAL PALM BOULEVARD
CORAL SPRINGS. FLORIDA 33065

DATE: 02-22-22
DRAWN: JB
CHECKED: JB

LANDSCAPE PLAN
L-1

PROJECT NO.: 2019.141



NOTE: LAYOUT PLANTS IN A TRIANGULAR PATTERN AS SHOWN, SPACED EQUALLY FROM EACH OTHER (AT SPACING SPECIFIED IN THE PLANT LIST) AND IN STRAIGHT ROWS. SPACING MAY BE ADJUSTED SLIGHTLY TO CREATE SMOOTH FLOWING BEDLINES AS SHOWN ON LANDSCAPE PLANS. PROVIDE 6" - 12" UNIFORM CLEARANCE (MULCH STRIP) BETWEEN PLANT FOLIAGE AND EDGE OF BEDLINE (TYP.).

SHRUB/GROUNDCOVER SPACING DETAIL

NOT TO SCALE

PROVIDE AGRIFORM (20-10-5) FERTILIZER TABLETS AT THE FOLLOWING RATES:
3 GAL / 2 TABLETS: 1 GAL./1 TABLET.

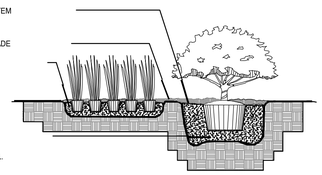
PROVIDE 6" MINIMUM CLEARANCE AROUND ROOT BALL (SIDES AND BOTTOM).

2" MULCH MINIMUM - DO NOT COVER MAIN STEM

SET TOP OF ROOTBALL 1" ABOVE FINISH GRADE

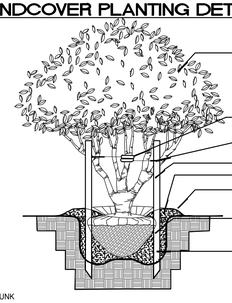
12" MINIMUM DEPTH OF PLANTING SOIL MIX IN SHRUB/GROUNDCOVER PLANTING BEDS.

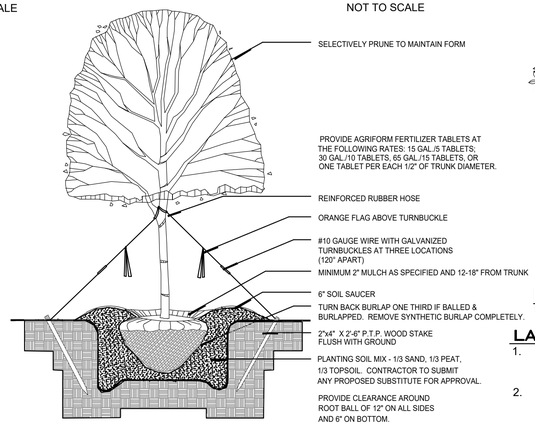
PLANTING SOIL MIX - 1/3 SAND, 1/3 PEAT, 1/3 TOPSOIL. CONTRACTOR TO SUBMIT ANY PROPOSED SUBSTITUTE FOR APPROVAL.



SHRUB AND GROUNDCOVER PLANTING DETAIL

NOT TO SCALE





MULTI-TRUNK TREE PLANTING DETAIL

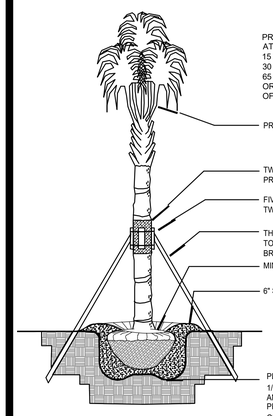
NOT TO SCALE

TREE PLANTING DETAIL

NOT TO SCALE

LANDSCAPE PLANTING NOTES:

1. ALL PLANTS MUST BE HEALTHY, VIGOROUS MATERIAL FREE OF PESTS AND DISEASES.
2. ALL PLANTS SHALL BE FLORIDA FANCY, AS GRADED IN FLORIDA GRADES AND STANDARDS FOR NURSERY PLANTS.
3. ALL PLANTS ARE SUBJECT TO APPROVAL BY THE LANDSCAPE ARCHITECT AND OWNER BEFORE, DURING, AND AFTER INSTALLATION.
4. ALL SINGLE-TRUNKED TREES SHALL BE STRAIGHT TRUNKED WITH ONE CENTRAL LEADER AND HAVE A FULL, DENSE CROWN.
5. ALL TREES SHALL BE STAKED AND GUYED AS SHOWN IN PLANTING DETAILS.
6. ALL MULCH PLANTING AREAS SHALL BE A MINIMUM OF 2" IN DEPTH.
7. ALL PLANTING AREAS SHALL HAVE A MINIMUM OF 3" TOPSOIL.
8. ALL TREES SHALL BE FREE OF OPEN WOUNDS AND WOUND SCARS IN THE CLEAR TRUNK AREA.
9. ANY SYNTHETIC BURLAP AND/OR WIRE BASKETS MUST BE TOTALLY REMOVED PRIOR TO INSTALLATION OF PLANT MATERIAL. IF NATURAL BURLAP IS USED, IT MAY BE TURNED DOWN 1/3 OF THE ROOTBALL.



PALM PLANTING DETAIL

NOT TO SCALE

LANDSCAPE CONTRACTOR NOTES:

1. THE LANDSCAPE CONTRACTOR IS RESPONSIBLE FOR MAINTAINING, IN FULL, ALL LANDSCAPE PLANTING AREAS, UNTIL THE JOB IS ACCEPTED IN FULL BY THE OWNER. "IN FULL" MEANS WATERING, PEST CONTROL, MULCHING, MOWING, FERTILIZING AND RESETTING TREES THAT ARE OUT OF PLUMB.
2. THE LANDSCAPE CONTRACTOR SHALL COMPLETELY GUARANTEE ALL INSTALLED PLANT MATERIAL FOR A PERIOD OF ONE CALENDAR YEAR BEGINNING ON THE DATE OF 100% COMPLETION. ANY AND ALL REQUIRED PLANT REPLACEMENTS SHALL BE MADE PROMPTLY AND AT NO ADDITIONAL COST TO THE OWNER.
3. THE LANDSCAPE CONTRACTOR SHALL STAKE THE LOCATIONS OF ALL PLANT MATERIAL AND PLANTING BED LINES FOR REVIEW BY THE LANDSCAPE ARCHITECT AND OWNER.
4. THE LANDSCAPE CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFICATION OF ALL WRITTEN PLANT QUANITIES PRIOR TO INITIATION OF THE WORK. IN THE EVENT THAT THE PLANS CONTRADICT THE PLANT LIST, THE PLANS SHALL RULE.
5. THE LANDSCAPE CONTRACTOR SHALL BE FAMILIAR WITH AND ACCEPT THE EXISTING SITE CONDITIONS PRIOR TO INITIATION OF THE WORK. ANY VARIATION FROM THE SPECIFIED WORK SHALL BE THE RESPONSIBILITY OF THE LANDSCAPE CONTRACTOR.
6. THE LANDSCAPE CONTRACTOR SHALL BE RESPONSIBLE FOR LOCATING ALL UNDERGROUND UTILITIES, DRAINAGE STRUCTURES, CURBS, SIDEWALKS, AND ANY OTHER OBJECTS WHICH MIGHT BE DAMAGED DURING THE WORK.
7. THE LANDSCAPE CONTRACTOR SHALL BE RESPONSIBLE TO MAKE ANY AND ALL NECESSARY REPAIRS TO DAMAGE CAUSED BY HIS WORK AT NO ADDITIONAL COST TO THE OWNER OR LANDSCAPE ARCHITECT.
8. THE LANDSCAPE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS, AND FOLLOWING ALL APPLICABLE LOCAL CODES PERTAINING TO THE PROJECT DURING THE COURSE. OF HIS WORK.

PLANT LIST

SYMBOL	QUANTITY	BOTANICAL NAME	COMMON NAME	DESCRIPTION	WATER REQUIREMENTS	REMARKS
TREES						
AR	15	ACER RUBRUM	RED MAPLE	12' - 14' OVERALL HT, 4-5' SPR., 3" CAL	LOW	SPACE AS SHOWN GUY
BS	18	BURSERA SIMARUBA	GUMBO LIMBO	12' - 14' OVERALL HT, 4-5' SPR., 3" CAL	LOW	SPACE AS SHOWN GUY
CE	18	CONOCARPUS ERECTUS	GREEN BUTTONWOOD	12' - 14' OVERALL HT, 4-5' SPR., 3" CAL	LOW	SPACE AS SHOWN GUY
CR	11	CLUSIA ROSEA	CLUSIA TREE	12' - 14' OVERALL HT, 4-5' SPR., 3" CAL	LOW	SPACE AS SHOWN GUY
ES	12	EUGENIA SPECIES	STOPPERS TREE	12' - 14' OVERALL HT, 4-5' SPR., 3" CAL	LOW	SPACE AS SHOWN GUY
LB	18	LYSILOMA BAHAMENSIS	WILD TAMARIND	12' - 14' OVERALL HT, 4-5' SPR., 3" CAL	LOW	SPACE AS SHOWN GUY
RR	4	ROYSTONEA REGIA	ROYAL PALM	12' - 14' CLEAR TRUNK	LOW	SPACE AS SHOWN GUY
SHRUBS						
CI	530	CHRYSOBALANUS ICACO 'RED TIP'	COCOPLUM RED TIP	18" HT. x 24" SPRD. / FULL	LOW	30" O.C.
CI2	32	CHRYSOBALANUS ICACO 'RED TIP'	COCOPLUM RED TIP	40" HT. x 30" SPRD. / FULL	LOW	30" O.C.
GROUNDCOYERS						
FM	151	FICUS MICROCARPA	GREEN ISLAND FICUS	10" HT. / FULL	MEDIUM	24" O.C.
SOD						
ALL AREAS	SEE PLANS	STENOTAPHRUM SECUNDATUM	ST. AUGUSTINE SOD NEW SOD TO ROADS EDGE	SOLID, FREE OF PESTS AND DISEASES 89TH DRIVE AND ROYAL PALM BLVD	HIGH	FIELD VERIFY QTY.
MULCH	NOTE: ALL SOD THAT IS DISTURBED DURING CONSTRUCTION WILL BE RESTORED.					
	SEE PLANS	MINI PINE BARK NUGGETS	MINI PINE BARK NUGGETS	FREE OF DIRT AND DEBRIS		FIELD VERIFY QTY.

LANDSCAPE CODE NOTES:

50% NATIVE TREE REQUIREMENT:
PROVIDED: 100% NATIVE
50% NATIVE SHRUB REQUIREMENT:
PROVIDED: 100% NATIVE
75% NATIVE PARKING ISLAND TREES:
PROVIDED: 100% NATIVE
PERIMETER LINEAR FOOTAGE CALCULATIONS:
NORTH PROPERTY LINE: 274' LINEAR FEET - 65' = 209' / 40 = 5.225 X 3 = 15.675 TREES REQUIRED
PROVIDED: 11 CANOPY AND 5 UNDERSTORY
WEST PROPERTY LINE: 373' LINEAR FEET - 95' = 278' / 40 = 6.95 X 3 = 20.85 TREES REQUIRED
PROVIDED: 14 CANOPY AND 7 UNDERSTORY
SOUTH PROPERTY LINE 289' LINEAR FEET - 50' = 239' / 40 = 5.975 X 3 = 17.925 TREES REQUIRED
PROVIDED: 12 CANOPY AND 6 UNDERSTORY
EAST PROPERTY LINE: 348' LINEAR FEET - 125' = 223' / 40 = 5.575 X 3 = 16.725 TREES REQUIRED
PROVIDED: 12 CANOPY AND 5 UNDERSTORY
STREET LINEAR FOOTAGE CALCULATIONS
NORTH PROPERTY LINE: 274' LINEAR FEET - 30' = 244' / 40 = 6.1 TREES REQUIRED
PROVIDED: 7 CANOPY TREES
EAST PROPERTY LINE: 348' LINEAR FEET - 30' = 318' / 40 = 7.95 TREES REQUIRED
PROVIDED: 8 CANOPY TREES

NOTE:
1, A PRE-PLANTING MEETING SHALL BE SCHEDULED WITH THE CITY FORESTER OF LANDSCAPE INSPECTOR AND THE LANDSCAPE CONTRACTOR BEFORE ANY INSTALLATION BEGINS.
2. THE USE OF CYPRESS MULCH IS DISCOURAGED AND ALL MULCH IS TO BE KEPT AT A MINIMUM OF 6 INCHES FROM THE BASE OF ALL PLANT MATERIAL.
3. LANDSCAPE MATERIALS PLANTED ADJACENT TO CURBING SHALL BE PLANTED 3-FEET BACK FROM FACE OF CURBS.
4. POLES AND TIES ARE TO BE REMOVED FROM TREES PRIOR TO PLANTING. TREES ARE TO BE ABLE TO STAND WITHOUT SUPPORT. THOSE THAT CANNOT STAND UPRIGHT ALONE WILL BE REJECTED.
5. THE ERADICATION OF NUISANCE VEGETATION, AKA EXOTICS, IS REQUIRED ON ALL SITES, INCLUDING ABUTTING RIGHTS-OF-WAY, PRIOR TO THE ISSUANCE OF A CERTIFICATE OF OCCUPANCY. PRIVATELY OWNED NATURAL AREAS SHALL BE INCLUDED IN THIS REQUIREMENT. EXISTING NATURAL FEATURES SHALL BE PRESERVED TO THE MAXIMUM EXTENT POSSIBLE IN THE DESIGN OF THE IMPROVEMENT. NATURAL FEATURES SHALL BE DEFINED AS BEING TREES, HAMMOCKS, BODIES OF WATER, HISTORICAL SPOTS AND SIMILAR ASSETS. FACTORS USED IN EVALUATION NATURAL FEATURES SHALL INCLUDE SIZE AND SHAPE, TOPOGRAPHY, GEOLOGY, TREE COVER, ACCESS AND LOCATION.
6. THE USE OF SISAL STRAPPING/ROPE IS REQUIRED TO BE INCORPORATED AROUND THE TREE WHEN WELLINGTON TAPE IS USED TO STABILIZE THE PLANTING.
7. TO ACCOMMODATE THE GROWTH HABIT OF THE SELECTED TREES AND PALMS AND TO MINIMIZE FUTURE MAINTENANCE, THE PLANTS INDICATED ADJACENT TO THE BUILDING SHOULD BE PLANTED AN APPROPRIATE DISTANCE FROM THE STRUCTURE.

NOTE: INSTALL PER MANUFACTURER SPECIFICATIONS

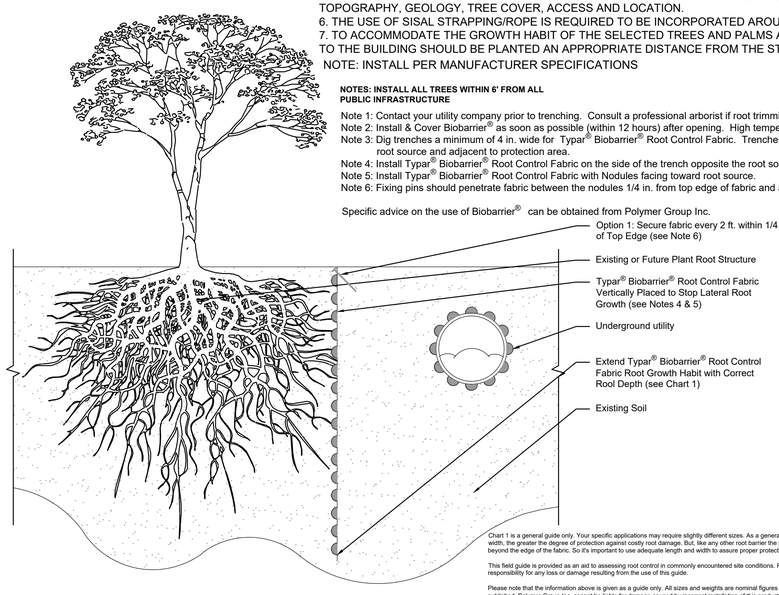
Table 1 : Biobarrier® Specifications

Description	Data	
Product	Biobarrier® Root Control System	
Chemical Family	Thermoplastic Polyolefin	
Composition	Polypropylene	> 74.8%
	UV Stabilizer	< 5%
	Trifluralin	< 20%
	Pigment Masterbatch[1]	< 0.5%
Appearance	Gray Fabric	
Physical State	Solid	
Vapor Pressure[2]	13.7 mPa @ 25°C	
Boiling Point	Not Applicable	
Solubility (H_2O)[2]	0.2 ppm @ 25°C	
Vapor Density	Not Applicable	
Packing Density	Not Applicable	
Odor	Aromatic (Solvent)	
pH	Not Applicable	
Evaporation Rate	Not Applicable	
Melting Point[2]	> 48.5°C	
Specific Gravity	0.88-0.99	
Percent Volatiles	Nil	
UV resistance	High	
Corrosivity	None	
Flamability	Non-Flammable	
Toxicity	IV	
Hygroscopicity	None	
Explosivity	None	
Fabric		
Unit Weight	4.0	
Tensile Strength (lbs.)	45.0	
Elongation at Break (%)	> 70.0	
Mullen Burst Strength (psi)	175.0	
Puncture Strength (lbs.)	50.0	
Coefficient of Permeability (cm/sec.)	3 x 10^{-2}	
Nodule		
Base Diameter (in.)	7/16	
Height	1/4	
Weight (os.)	0.013	
Spacing (in.)	1-1/2	

[1]Contains Carbon Black : < 0.1%
[2]Trifluralin (CAS # 1582-09-8)
*Additional Information May Be Obtained From Polymer Group Inc. Upon Request

Chart 1: Examples of Intended Biobarrier® Root Control Applications & Roll Widths

Application	Root Control Width in. (cm)					
	12 (30)	19.5 (50)	24 (61)	29 (74)	39 (99)	58.5 (149)
Underground Pipes/Cables	X	X	X	X	X	X
Biobarrier® Root Control is available in 20 ft. (6.1 m) or 100 ft. (30.5m) Roll Lengths						



① **Biobarrier® : Drain Line Application**
Scale: N.T.S.

Chart 1 is a general guide only. Your specific applications may require slightly different sizes. As a general rule, the greater the fabric width, the greater the degree of protection against costly root damage. But, like any other root barrier the protection does not extend beyond the edge of the fabric. So it's important to use adequate length and width to assure proper protection.

This field guide is provided as an aid to assessing root control in commonly encountered site conditions. Polymer Group Inc. accepts no responsibility for any loss or damage resulting from the use of this guide.

Please note that the information above is given as a guide only. All sizes and weights are nominal figures and may vary to what is published. Polymer Group Inc. cannot be liable for damage caused by incorrect installation of this product. Final determination of the suitability of any information or material for the use contemplated and the manner of its use is the sole responsibility of the user and the user must assume all risk and responsibility in connection therewith.

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FLORIDA LAW REQUIRES EXCAVATORS TO NOTIFY OWNERS OF UNDERGROUND FACILITIES NO LESS THAN TWO (2) DAYS PRIOR TO EXCAVATION

CADDSCAPES, INC.
Florida Landscape Architecture Firm
432 Nowell Loop, Deland, FL 32724
Office: 407 310-5567
Landscape Architect: Jason Bridgewater, RLA
Florida Water Star AP
jasonbridgewater@gmail.com

Z DEVELOPMENT Services
708 E. COLONIAL DR., STE. 100
ORLANDO, FL 32803
PH: (407) 271-8910
FAX: (407) 442-0604
CA 29354

REVISION	DATE
CITY COMMENTS	8/12/20
ADDED LS TAGS	9/16/20
REMOVED FPL	3/4/22
REVISED BASE	7/10/22

DATE: 2022-07-12

REGISTERED LANDSCAPE ARCHITECT JASON BRIDGEWATER 6667308 STATE OF FLORIDA

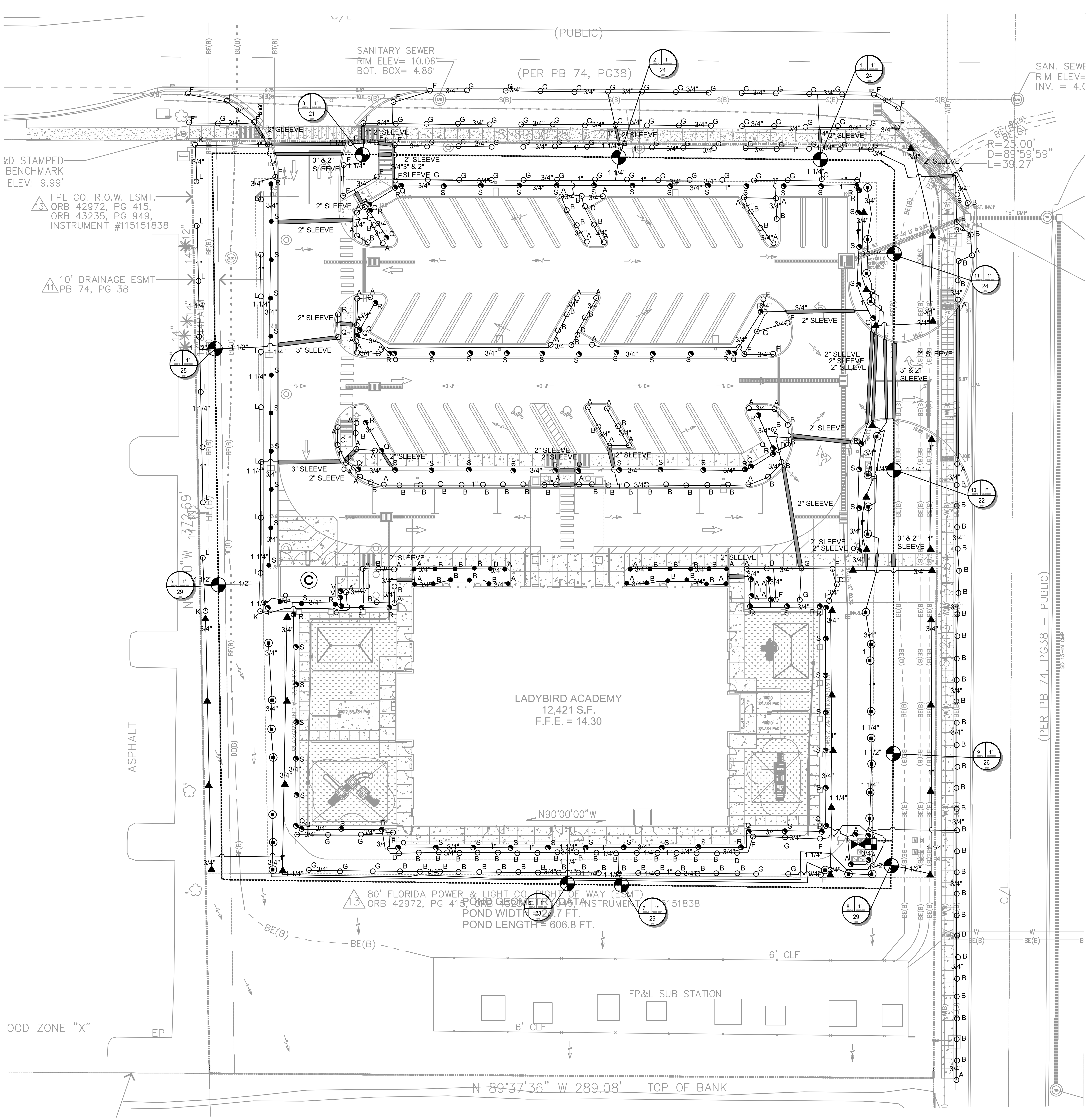
Jason B. Bridgewater
Registered Landscape Architect
FL. Registration -LA 6667308

LADYBIRD ACADEMY
8950 ROYAL PALM BOULEVARD
CORAL SPRINGS. FLORIDA 33065

DATE: 02-22-22
DRAWN: JB
CHECKED: JB

LANDSCAPE DETAILS
L2

PROJECT NO.: 2019.141



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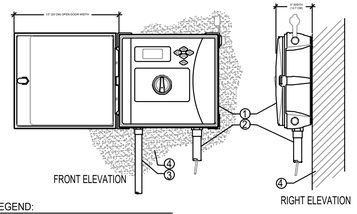
IRRIGATION PLAN
L-3

PROJECT NO.: 2019.141

IRRIGATION DETAILS



LEGEND:

① IRRIGATION CONTROLLER (12C-800-PL) PER PLAN

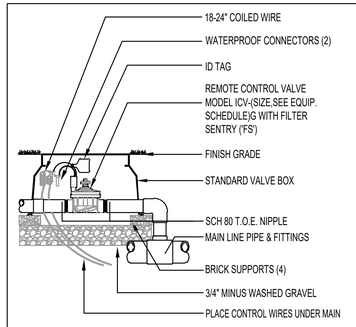
② IRRIGATION CONTROL WIRE IN CONDUIT SIZE AND TYPE PER LOCAL CODES

③ ELECTRICAL SUPPLY CONDUIT CONNECT TO POWER SOURCE, J-BOX INSIDE CONTROLLER

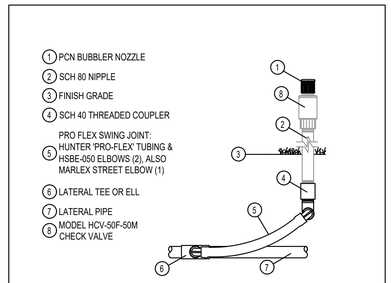
④ ADJACENT SURFACE TO MOUNT CONTROLLER PER PLAN

NOTE
MOUNT CONTROLLER LCD SCREEN AT EYE LEVEL. CONTROLLER SHALL BE HARD-WIRED TO GROUNDED 110 VAC POWER SOURCE

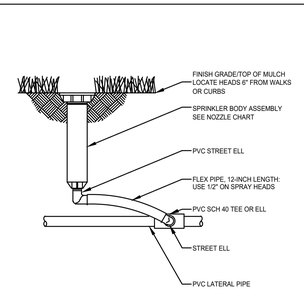
(A) ICC2 WALL MOUNT CONTROLLER



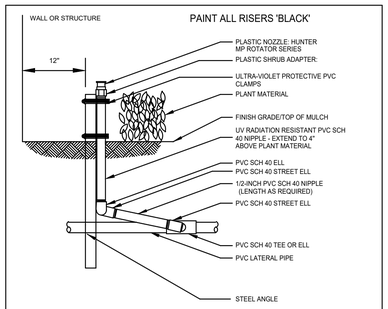
(B) ICV-151 OR 201 GLOBE VALVE



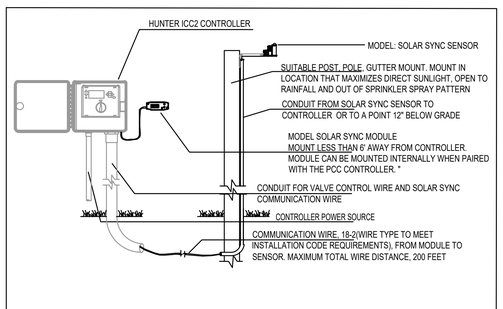
(C) PCN BUBBLER



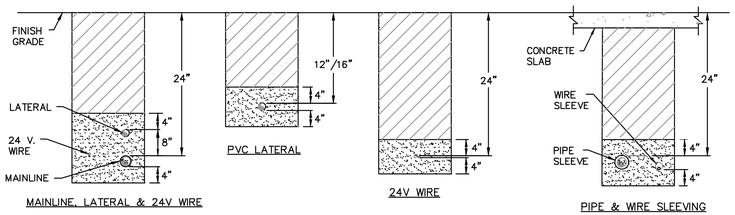
(D) HEAD DETAIL



(E) SHRUB RISER DETAIL



(F) HUNTER SOLAR SYNC SYSTEM



NOTES:
1. BEDDING SHALL BE PLACED AND LEVELED PRIOR TO INSTALLATION OF BURY ITEM.
2. BACKFILL SHALL BE PLACED IN MAXIMUM 6" LIFTS.
3. SLEEVE ALL PIPE AND WIRE SEPARATELY. SLEEVE 2 X DIA. OF PIPE (MIN 2"). ONE PIPE PER SLEEVE. SLEEVES TO BE PRIMED AND SOLVENT WELDED.
4. ALL PIPE TO BE INSTALLED PER MANUFACTURES SPECIFICATIONS WITH PIPE LABELING FACING UP FOR INSPECTION PURPOSES. PROVIDE A MINIMUM OF 2" CLEARANCE TO SIDE OF TRENCH AND BETWEEN PIPES.
5. ALL 120 V. WIRING SHALL BE INSTALLED IN ACCORDANCE WITH LOCAL CODE REQUIREMENTS.
6. TAPE AND BUNDLE IRRIGATION CONTROL WIRES EVERY 10'. PROVIDE LOOSE 20" LOOP AT ALL CHANGES OF DIRECTION OVER 30°.
7. ALL REMOTE CONTROL VALVE WIRING NOT INSTALLED WITH MAINLINE PIPE SHALL BE INSTALLED IN A MINIMUM 2" SCHEDULE 40 GREY ELECTRICAL CONDUIT OR AS APPROVED.
8. "NON-POTABLE" WARNING TAPE TO BE INSTALLED ON ALL PRESSURIZED MAINLINES 12" ABOVE THE PIPE.
9. INSTALL ONE ADDITIONAL SLEEVE SIZED TO MATCH THE LARGEST REQUIRED SLEEVE WITH ENDS TAPED FOR FUTURE USE.
10. SLEEVES TO EXTEND A MINIMUM OF 12" PAST HARDSCAPE PLANTERS, CURBS, SIDEWALKS, ETC. SLEEVES TO BE STAGGERED/OFFSET SO THAT SLEEVE USE IS NOT OBSTRUCTED BY OTHER PIPES.
11. WHERE PRESSURE SUPPLY PIPING IS INSTALLED WITHOUT CONTROL WIRING, A 14 GA. TRACKING WIRE SHALL BE INSTALLED.

(G) TRENCHING DETAILS

SPRAY NOZZLE CHART

	SYM	NOZZLE	NOZZLE PATTERN	GPM
MP1000 8'-15' radius	A	MAROON	90° ADJUSTABLE ARC	.19
	B	MAROON	180° ADJUSTABLE ARC	.37
	C	LT. BLUE	210° ADJUSTABLE ARC	.43
	D	LT. BLUE	270° ADJUSTABLE ARC	.57
	E	OLIVE	360° ARC	.75
MP2000 13'-21' radius	F	BLACK	90° ADJUSTABLE ARC	.40
	G	BLACK	180° ADJUSTABLE ARC	.74
	H	GREEN	210° ADJUSTABLE ARC	.86
	I	GREEN	270° ADJUSTABLE ARC	1.10
	J	RED	360° ARC	1.47
MP3000 22'-30' radius	K	BLUE	90° ADJUSTABLE ARC	.86
	L	BLUE	180° ADJUSTABLE ARC	1.82
	M	YELLOW	210° ADJUSTABLE ARC	2.12
	N	YELLOW	270° ADJUSTABLE ARC	2.73
	O	GRAY	360° ARC	3.64
STRIPS & CORNERS	P	TURQOUISE	45°-105° ADJUSTABLE ARC	.45
	Q	IVORY	5'x15' LEFT STRIP	.22
	R	COPPER	5'x15' RIGHT STRIP	.22
	S	BROWN	5'x30' SIDE STRIP	.44
BUBBLERS AND MICRO-SPRAYS	T	PCN10	1.00 GPM FLOOD BUBBLER	1.00
	U	PCN50	.50 GPM FLOOD BUBBLER	.50
	V	SR-2Q	90° 2' RADIUS	.11
	W	SR-2H	180° 2' RADIUS	.16
	X	MS-F	360° 5' RADIUS	.50

IRRIGATION NOTES

1) REFER TO THE LANDSCAPE PLANS WHEN TRENCHING TO AVOID TREES AND SHRUBS.

2) ALL MAINLINE PIPING SHALL BE BURIED TO A MINIMUM DEPTH OF 18" OF COVER. ALL LATERAL PIPING SHALL BE BURIED TO A MINIMUM DEPTH OF 12" OF COVER.

3) ALL POP-UP ROTORS AND SPRAY HEADS SHALL BE INSTALLED USING AN 18" P.V.C. FLEX PIPE CONNECTION. DO NOT USE FUNNY PIPE.

4) ADJUST ALL NOZZLES TO REDUCE WATER WASTE ON HARD SURFACES AND BUILDING WALLS.

5) THROTTLE ALL VALVES ON SHRUB LINES AS REQUIRED TO PREVENT FOGGING.

6) ALL RISERS SHALL BE PAINTED BLACK.

7) ALL RISERS SHALL BE STAKED WITH A STEEL ANGLE AND SECURED WITH ULTRA-VIOLET LIGHT PROTECTED P.V.C. CLAMPS.

8) ALL CONTROL WIRE SPLICES SHALL BE MADE IN VALVE BOXES USING SNAP-TITE CONNECTORS AND SEALANT.

9) THE CONTRACTOR SHALL PREPARE AN AS-BUILT DRAWING ON A REPRODUCIBLE PAPER (SEPIA OR MYLAR) SHOWING ALL INSTALLED IRRIGATION. A MYLAR OR SEPIA OF THE ORIGINAL PLAN MAY BE OBTAINED FROM THE LANDSCAPE ARCHITECT FOR A FEE. THE DRAWING SHALL LOCATE ALL MAINLINE AND VALVES BY SHOWING EXACT MEASUREMENTS FROM HARD SURFACES.

10) ALL VALVES, GATE VALVES AND QUICK COUPLERS SHALL BE INSTALLED IN VALVE BOXES.

11) ANY PIPING SHOWN OUTSIDE THE PROPERTY LINE OR RUNNING OUTSIDE A LANDSCAPE AREA IS SHOWN THERE FOR CLARITY ONLY. ALL LINES SHALL BE INSTALLED ON THE PROPERTY AND INSIDE THE LANDSCAPE AREAS.

12) ALL RISERS SHALL BE INSTALLED 12" FROM ANY WALL AND A MINIMUM OF 36" FROM ANY SIDEWALK, PATIO OR ROAD.

13) THE EXACT HEIGHT OF ANY 12" POP-UP THAT IS SHOWN IN A SHRUB BED SHALL BE DETERMINED BY THE LANDSCAPE ARCHITECT IN THE FIELD.

14) THE CONTRACTOR SHALL EXERCISE CARE SO AS NOT TO DAMAGE ANY EXISTING UTILITIES. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE IMMEDIATE REPAIRS AND COST OF ANY DAMAGE CAUSED BY HIS WORK.

15) ALL WORK SHALL BE GUARANTEED FOR ONE YEAR FROM THE DATE OF FINAL ACCEPTANCE AGAINST ALL DEFECTS IN EQUIPMENT AND WORKMANSHIP.

16) CONTRACTOR TO USE MIN. OF 12 GAUGE WIRE FOR ALL COMMON WIRES AND 14 GAUGE WIRE FOR ALL CONTROL WIRES. CONTRACTOR ALSO TO PROVIDE 3 SPARE CONTROL WIRES FOR ANY FUTURE USE.

17) CONCRETE THRUST BLOCKS ARE TO BE UTULIZED AT ALL MAINLINE DIRECTION CHANGES.

18) ALL IRRIGATION SHOWN ON PLANS IS SCHEMATIC AND DOES NOT REFLECT ALL FITTINGS AND APPURTENANCES WHICH SHALL BE INCLUDED TO PROVIDE A FULLY FUNCTIONAL IRRIGATION SYSTEM CAPABLE OF PROVIDING 100 PERCENT COVERAGE WITH A 50 PERCENT OVERLAP.

EQUIPMENT LIST

SYMBOL	DESCRIPTION	QUANTITY
	0.50 GPM BUBBLER (2 PER TREE)	52
	6" POP-UP SPRAY - HUNTER INDUSTRIES MPR40 W/MP2000 NOZZELS	287
	12" POP-UP SPRAY - HUNTER INDUSTRIES MPR40 W/MP2000 NOZZELS	38
	SPRAY ON RISER - HUNTER INDUSTRIES INST-00-CV-MP2000	106
	HUNTER INDUSTRIES - 4" POP-UP PGP ROTORS- PART RADIUS	30
	HUNTER INDUSTRIES - 4" POP-UP PGP ROTORS- FULL RADIUS	0
	HUNTER INDUSTRIES - I-40 ROTORS - PART 60' RADIUS	0
	HUNTER 'ICV' SERIES ELECTRIC VALVE WITH ACCU-SET PRESSURE REGULATOR 1"	11
	HUNTER 'ICV' SERIES ELECTRIC VALVE WITH ACCU-SET PRESSURE REGULATOR 1 1/2"	0
(C)	HUNTER ICC2 16 STATION CONTROLLER, 120VOLT INSTALL WITH A SOLAR SYNC (WITH EVAPOTRANSPIRATION SENSOR AND RAIN SENSOR AND BY-PASS BOX.) GROUND WITH AN 8' COPPER CLAD ROD. CONTROL SYSTEM TO MAINTAIN TIME DURING POWER OUTAGES FOR A MINIMUM OF 3 DAYS.	1
	1" POTABLE IRRIGATION METER TO PROVIDE 30 GPM AT 40 PSI	1
	1" DOUBLE CHECK VALVE BACKFLOW PREVENTOR	1
	LATERAL LINE SIZE PER PLAN	SEE PLAN
	1-1/2" MAINLINE CLASS 200 P.V.C. SIZE PER PLAN	SEE PLAN
	SLEEVING - SCH. 40 P.V.C. MIN. DEPTH OF 24" (ALL 3" SLEEVES TO HAVE ACCOMPANYING 2" SLEEVE FOR WIRES)	SEE PLAN

INSTALLER IS REQUIRED TO CONDUCT FINAL TESTING AND ADJUSTMENT TO ACHIEVE DESIGN SPECIFICATION PRIOR TO COMPLETION OF THE SYSTEM AND ACCEPTANCE BY THE OWNER OR OWNERS REPRESENTATIVE.

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FL. Registration -LA 6667308

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CORAL SPRINGS. FLORIDA 33065

DATE: 02-22-22
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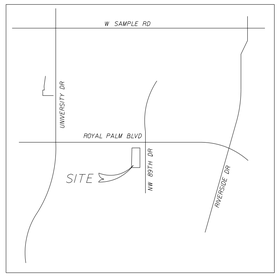
IRRIGATION DETAILS
L4

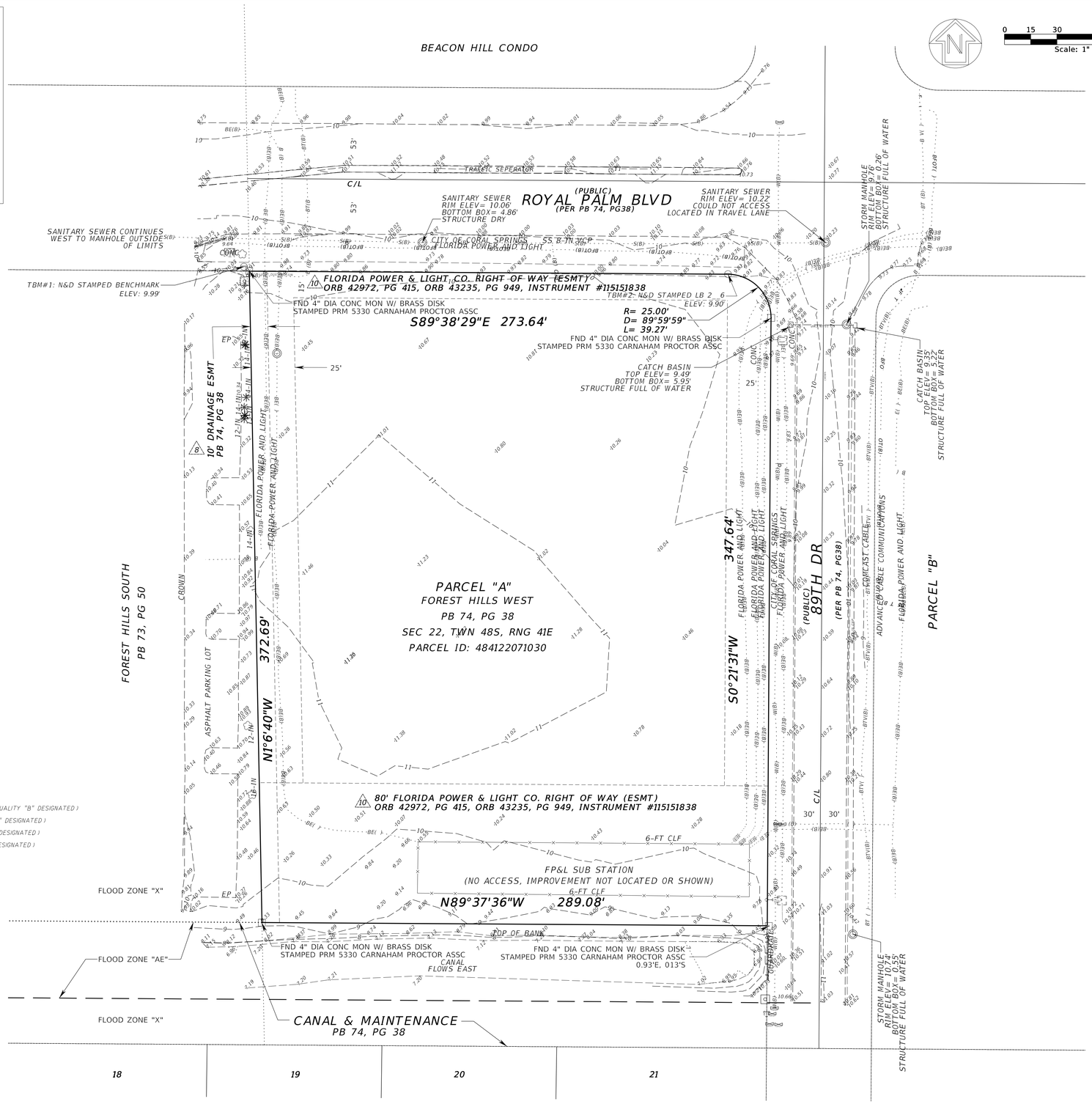
PROJECT NO.: 2019.141



VICINITY MAP
NOT TO SCALE

LEGEND AND ABBREVIATIONS:

ORB	OFFICIAL RECORD BOOK
N&D	NAIL AND DISK
CLF	CHAIN LINK FENCE
ENT.	ENTRANCE
CONC.	CONCRETE
SD	STORM SEWER
SAN	SANITARY SEWER
MH	MANHOLE
WM	WATER METER
TYP	TYPICAL
ESMT	EASEMENT
N/V	NOT FIELD VERIFIED
R/W	RIGHT-OF-WAY
WV	WATER VALVE
PB	PLAT BOOK
B.C.	BROWARD COUNTY
TWN	TOWNSHIP
RNG	RANGE
SEC	SECTION
PG	PAGE
R	RADIUS
D	DELTA
L	LENGTH
ELEV	ELEVATION
	UTILITY POLE
	LIGHT POLE
	GUY WIRE
	FIRE HYDRANT
	SIGN
	MAILBOX
	REC. CONCRETE MONUMENT AS NOTED
	WATER METER
	REC NAIL & DISK "LB 2856" UNLESS OTHERWISE NOTED
	MANHOLE
	VALVE
	METER
	WIRE PULL BOX
	TREE
	PALM TREE
C/L	CENTERLINE
	TITLE COMMITMENT ITEM NUMBER
S(B)	SUBSURFACE SANITARY SEWER PIPE (QUALITY "B" DESIGNATED)
W(B)	SUBSURFACE WATER PIPE (QUALITY "B" DESIGNATED)
BTV(B)	BURIED TELEVISION LINE (QUALITY "B" DESIGNATED)
BE(B)	BURIED ELECTRIC LINE (QUALITY "B" DESIGNATED)



NO.	REVISION	DATE
1	REVISE SURVEY TO ADDRESS REVISED TITLE COMMITMENT	11-14-2019
2	REVISE SURVEY TO ADDRESS REVISED TITLE COMMITMENT	06-08-2020

LEGAL DESCRIPTION:

(EXHIBIT A OF TITLE COMMITMENT)

Parcel "A", of FOREST HILLS WEST, according to the Plat thereof, as recorded in Plat Book 74, Page 38, of the Public Records of Broward County, Florida.

SURVEYOR'S NOTES:

1) Bearings shown are based on the record plat Forest Hills West, as recorded in Plat Book 74, Page 38, public records of Broward County, Florida, resulting in the bearing of S89°38'29"E for the north line of Parcel "A".

2) According to the Federal Emergency Management Agency Flood Insurance Rate Map, Community Panel No. 12011C0165H, dated August 18, 2014. This property lies within Flood Zone "X" , designated as "areas of 0.2% annual chance flood; areas of 1% annual chance flood with average depths of less than 1 foot or with drainage areas less than 1 square mile; and areas protected by levees from 1% annual chance flood". The flood zone delineation lines shown hereon were scaled from said community panel and are approximate in nature.

3) The site contains 2.511 acres, more or less.

4) This survey was prepared with the benefit of a Title Commitment by Old Republic National Title Insurance Company, Office File Number 20-1749 with a commitment effective date June 8, 2020 at 5:00 PM. Easements or Restrictions are shown hereon or referred to below. Unless otherwise noted, all documents referred to in the title report are per Public Records of Broward County, Florida. [Surveyor comments shown In brackets]

Item #7: Reservations contained in Deed from Trustees of the Internal Improvement Fund of the State of Florida, filed April 12, 1913 in Deed Book 40, Page 42, Public Records of Palm Beach County, Florida. Note: The right of entry and exploration running with the above reservation of an interest in phosphate, minerals, metals, and/or petroleum has been released pursuant to S270.11, F.S.

Item #8: Restrictions, conditions, reservations, easements, dedications and other matters contained on the Plat of FOREST HILLS WEST, recorded December 17, 1971 in Plat Book 74, Page 38. [Plottable easements as shown hereon]

Item #9: Order O7-ZR-96 by the City of Coral Springs, Florida recorded April 24, 1997 in Official Record Book 26328, Page 122. [Denial to rezone subject property]

Item #10: Easement in favor of Florida Power & Light Company, a Florida corporation recorded October 19, 2006 in Official Record Book 42972, Page 415 and re-recorded December 7, 2006 in Official Record Book 43235, Page 949; and Amendment to Easement recorded June 20, 2018 in Official Record Instrument No. 115151838. [As shown hereon]

Item #11: Covenants, conditions, and other matters contained in Order SE19-0010 by the City of Coral Springs, Florida, recorded in Official Record Instrument No. 116390887. [No additional easements specifically described in instrument]

5) Elevations as shown hereon are based on Broward County Benchmark BM 2279, a PK nail in the northwest corner of an inlet at the northwest corner of the intersection of Northwest 89th Drive and Royal Palm Boulevard, elevation = 8.43 feet (NAVD 88).

6) Utility Companies responding to Sunshine 811 call:
Advanced Cable Communications 954-752-7244, ext 221
AT&T Distribution 561-997-0240
City of Coral Springs 954-345-2188 (Water, Sewer, Drainage)
Florida Power & Light 386-586-6403
Comcast Cable 800-778-9140

7) There are no buildings on the subject property.

SURVEYOR'S CERTIFICATION:

CERTIFIED TO:

CSJ CAPITAL LLC, A FLORIDA LIMITED LIABILITY COMPANY
OLD REPUBLIC NATIONAL TITLE INSURANCE COMPANY
CIPPARONE & CIPPARONE
SYNOVUS BANK

CHRISTOPHER A. LABERGE, P.S.M. No. 6014

- NOT VALID WITHOUT THE SIGNATURE AND THE ORIGINAL RAISED SEAL OF A FLORIDA LICENSED SURVEYOR AND MAPPER -

PROJ. NO. 19-112619-0016490
DATE SURVEYED 5/15/2019
DATE DRAWN 5/28/2019 CAL
DRAWN BY RAL CKD. CAL
SCALE 1"=30' FIELD 15.07'

SURVEYOR: CHRISTOPHER A. LABERGE P.S.M. No. 6014

PARCEL "A" FOREST HILLS WEST
FOR
LADYBIRD & GENIUS CHILD ACADEMIES
CORAL SPRINGS, BROWARD COUNTY, FLORIDA

BOUNDARY & TOPOGRAPHIC SURVEY

201 S. BUMBY AVE.
ORLANDO, FL
(407) 896-3317
WWW.NV5.COM
LICENSED BUSINESS No. 8246

SHEET — OF —

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SUNSHINE
WATER CONTROL DISTRICT

STAFF REPORTS BIIb

CRAIG A. SMITH & ASSOCIATES
A SMART-INFRASTRUCTURE COMPANY

September 6, 2022

Board of Supervisors
Sunshine Water Control District (SWCD)
2300 Glades Road, Suite 410W
Boca Raton, Florida 33073

RE: SWCD Right-of-Way Permit Application
Foundry Commercial Acquisition (Waste Transfer Station) Culvert Crossing - Canal RR
CAS PROJECT NO. 15-1826-P33

Dear Board of Supervisors (BOS):

We have reviewed the Right-of-Way permit application submitted by Chem Moore and Associates on behalf of Foundry Commercial Acquisition, LLC for culverting a segment of Canal RR to allow an access driveway to the permittee's property on the south side of the canal. Proposed is the installation of a paved driveway canal crossing with F-curb, sidewalk on the west side, guardrails on both sides, and 72 LF of 84" RCP with FDOT standard concrete headwalls. The installation of the 84" RCP has been demonstrated to have sufficient capacity serving that northerly area of the SWCD. The permittee will access the property via the City's waste transfer station from the north via a proposed public access easement from the City of Coral Springs. SWCD staff will utilize this easement to access Canal RR as necessary.

Note this project was previously approved on August 10, 2020 under SWCD ROW Permit 2022-12 issued to Sawgrass Development Partners, LLC. The construction never started, the permit has expired, and the property is now under new ownership. As such, a new permit will be issued for the same activity.

The applicant has met SWCD applicable criteria and we recommend that the SWCD BOS issue a Right-of-Way Permit to the applicant, subject to the following Special Conditions to be made part of the Permit on the scheduled September 14, 2022:

1. Prior to the start of construction, the Permittee shall submit a copy of the executed "Development Agreement and Access Easement."
2. As noted on the Engineering drawings, construction is to be scheduled during the dry season to avoid high water levels and reduce bypass flows.
3. The permittee shall coordinate with the SWCD the intended dewatering operation prior to construction mobilization after the selection of a contractor with said contractor having a demonstrated experience with similar projects.
4. Under emergency flood conditions, canal ditch-blocking that is part of the construction operation shall be removed by the Permittee in a reasonable time upon the request of the SWCD.
5. Shop drawings of the project's components shall be submitted to SWCD.
6. A copy of Record As-builts and Engineer Certification shall be provided to SWCD upon completion of all work with elevations shown in NAVD datum.
7. Copies of engineer certified density tests shall be submitted to the SWCD (Engineer) with the project engineer's certification and all failing density tests are to be remedied.
8. In the event the concrete headwalls are proposed to be cast-in-place, copies of engineer certified concrete strength tests shall be submitted demonstrating compliance with FDOT standards for an 84" Headwall per Index 430-034 or equivalent as approved by the Permittee's structural engineer.
9. All work must be in compliance with the latest SWCD Permit Criteria Manual.
10. All nuisance vegetation within Canal RR work limits shall be removed and canal banks shall be stabilized with sod.

11. Permittee will ensure that all necessary Sediment & Erosion Control devices will be utilized at the SWCD right-of-way during construction.
12. Trash bond ($2,500) shall be submitted prior to permit issuance and the Contractor shall repair and replace any SWCD facilities damaged during construction at no cost to the District.
13. All applicable permits and approvals for Work shall be obtained.
14. SWCD shall be notified at least 48 hours prior to construction.
15. The Permittee is advised that additional cost recovery fees may be requested.

Sincerely,

CRAIG A. SMITH & ASSOCIATES

Orlando A. Rubio, PE
VP of Stormwater Engineering

cc: SWCD – Cory Selchan (via e-mail)
WHA – Jamie Sanchez, Cindy Cerbone, Debbie Tudor, Gianna Dinofrio, Daphne Gillyard (via e-mail)
CMA – Daniel Davila, PE (via e-mail)
CAS – Stephen C. Smith, PE (via e-mail)

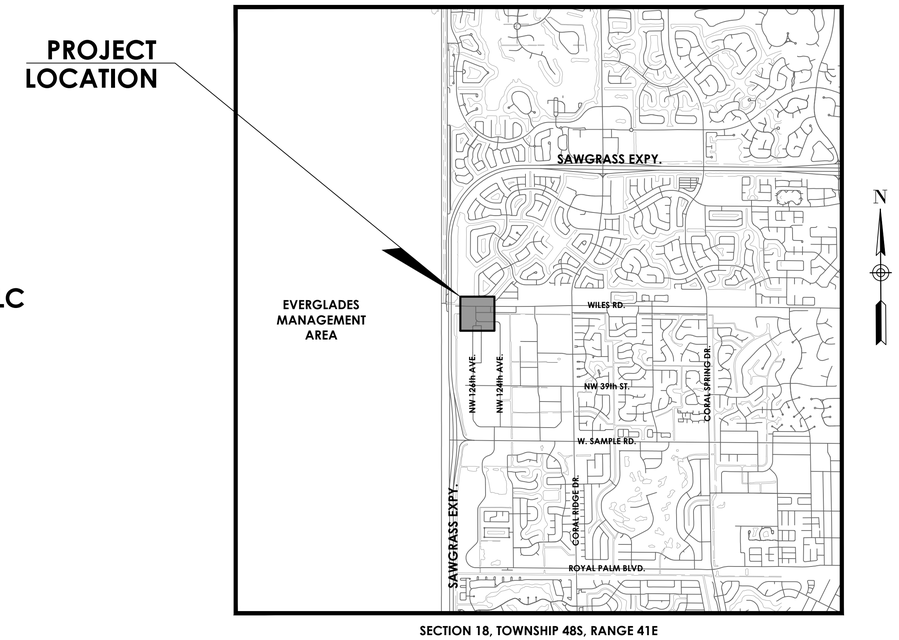
\\cas-file\projects\districts\sunshine_water_control\15-1826-cost-recovery-projects\15-1826-p33-canal_rr-crossing\06-permit\waste transfer station canal rr-engr_recommendation.docx

WASTE TRANSFER STATION
CULVERT CROSSING

CITY OF CORAL SPRINGS, FLORIDA

CONSTRUCTION SET

DATE OF ISSUE: 08/10/22



SECTION 18, TOWNSHIP 48S, RANGE 41E

LOCATION MAP

N.T.S

INDEX OF DRAWINGS

SHT #	DWG #
01	COV-1
02	GN-1
03	CS-1
04	D-1
05	SWPP-1
06	C-1
07	TBP-1

CLIENT:
Foundry Commercial Acquisition LLC
420 S. Orange Ave. Suite 400
Orlando, Florida 32801
Phone: 561.508.3708

PREPARED BY:

chen moore and associates

500 West Cypress Creek Road,
Suite 630
Ft. Lauderdale, FL 33309
954.730.0707
www.chenmoore.com
CERTIFICATES OF AUTHORIZATION
EB4593 LC26000425

Sunshine811

Call 811 or www.sunshine811.com two full business days before digging to have utilities located and marked.

Check positive response codes before you dig!

Plot Date: 8/10/2022 3:33:34 PM Username: lTamo Layout Name: COV-1
Folder Path: V:\Projects\2022\22-0743.00001 - sawgrass expressway & wiles road parcel\Design\CAD\Sheets Filename: 22-0743.00001 Cover Sheet.dwg

APPLICABLE CODES

A. GENERAL
ALL CONSTRUCTION AND MATERIALS SHALL CONFORM TO THE STANDARDS AND SPECIFICATIONS OF CITY OF CORAL SPRINGS, SOUTH FLORIDA WATER MANAGEMENT DISTRICT (SFWMD), SUNSHINE WATER CONTROL DISTRICT (SWCD), AND ALL OTHER LOCAL AND NATIONAL CODES WHERE APPLICABLE.
B. CONSTRUCTION SAFETY
ALL CONSTRUCTION SHALL BE PERFORMED IN A SAFE MANNER, SPECIFICALLY, THE RULES AND REGULATIONS OF THE OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION (OSHA) AND THE MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES (MUTCD) SHALL BE STRICTLY OBSERVED.
C. TRENCH SAFETY ACT
1. CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR COMPLIANCE WITH THE STATE OF FLORIDA TRENCH SAFETY ACT.
2. WHERE EXCAVATIONS TO A DEPTH IN EXCESS OF FIVE FEET (5') ARE REQUIRED, THE CONTRACTOR SHALL INCLUDE THE FOLLOWING INFORMATION IN THE BID:
   a. A REFERENCE TO THE TRENCH SAFETY STANDARDS THAT WILL BE IN EFFECT DURING THE PERIOD OF CONSTRUCTION OF THE PROJECT.
   b. WRITTEN ASSURANCES BY THE CONTRACTOR PERFORMING THE TRENCH EXCAVATION THAT SUCH CONTRACTOR WILL COMPLY WITH THE APPLICABLE TRENCH SAFETY STANDARDS.
   c. A SEPARATE ITEM IDENTIFYING THE COST OF COMPLIANCE WITH THE APPLICABLE TRENCH SAFETY STANDARDS.
3. WHEN A BID IS NOT SUBMITTED, THE CONTRACTOR SHALL SUBMIT THE INFORMATION LISTED IN ITEM 2 TO THE ENGINEER PRIOR TO STARTING WORK.
D. SURVEY DATA
ALL ELEVATIONS ON THE PLANS REFERENCED IN THE SPECIFICATIONS ARE BASED ON NORTH AMERICAN VERTICAL DATUM (NAVD) 1988.

PRECONSTRUCTION RESPONSIBILITIES

A. UPON RECEIPT OF NOTICE OF AWARD AND AFTER OBTAINING AN ENGINEERING CONSTRUCTION PERMIT FROM SWCD AND CITY OF CORAL SPRINGS, THE CONTRACTOR SHALL ARRANGE A PRECONSTRUCTION CONFERENCE TO INCLUDE THE ADJACENT PROPERTY OWNERS OR REPRESENTATIVES, ENGINEER, THE OWNER, A UTILITY REPRESENTATIVE, AND THE ENGINEER OF RECORD.
B. THE CONTRACTOR SHALL OBTAIN A "SUNSHINE ONE CALL" CERTIFICATION NUMBER AND NOTIFY THE UTILITIES DEPARTMENT AT LEAST 48 HOURS PRIOR TO BEGINNING ANY EXCAVATION.
C. PRIOR TO BEGINNING CONSTRUCTION, THE CONTRACTOR SHALL VERIFY THE SIZE, LOCATION, ELEVATION, AND MATERIAL OF ALL EXISTING UTILITIES WITHIN THE AREA OF CONSTRUCTION.
D. EXISTING UTILITY LOCATIONS SHOWN ON THESE PLANS ARE APPROXIMATE. THE ENGINEER ASSUMES NO RESPONSIBILITY FOR THE ACCURACY OF EXISTING UTILITIES SHOWN OR FOR ANY EXISTING UTILITIES NOT SHOWN.
E. THE CONTRACTOR SHALL BE RESPONSIBLE FOR DAMAGE TO ANY EXISTING UTILITIES FOR WHICH IT FAILS TO REQUEST LOCATIONS FROM THE UTILITY OWNER. THE CONTRACTOR IS ALSO RESPONSIBLE FOR DAMAGE TO ANY EXISTING UTILITIES WHICH ARE PROPERLY LOCATED.
F. IF UPON EXCAVATION, AN EXISTING UTILITY IS FOUND TO BE IN CONFLICT WITH THE PROPOSED CONSTRUCTION OR TO BE OF A SIZE OR MATERIAL DIFFERENT FROM THAT SHOWN ON THE PLANS, THE CONTRACTOR SHALL STOP WORK IN THE AREA AND IMMEDIATELY CONTACT AND NOTIFY THE ENGINEER BEFORE CONTINUING WITH CONSTRUCTION.
G. THE CONTRACTOR SHALL PROVIDE ALL EMERGENCY PERSONNEL CONTACT INFORMATION TO THE ENGINEER, THE CITY OF CORAL SPRINGS, AND SWCD, PRIOR TO COMMENCING CONSTRUCTION ACTIVITIES

INSPECTIONS

A. THE CONTRACTOR SHALL NOTIFY THE OWNER, AND THE ENGINEER OF RECORD AT LEAST 48 HOURS PRIOR TO BEGINNING CONSTRUCTION AND PRIOR TO THE INSPECTION OF THE FOLLOWING ITEMS:
1. SANITARY SEWER
2. STORM DRAINAGE
3. WATER SYSTEM
4. SUB-GRADE
5. LIMEROCK BASE
6. ASPHALTIC CONCRETE
7. FINAL
B. ALL INSPECTIONS WILL BE MADE BY THE OWNER. THE ENGINEER OF RECORD WILL PROVIDE CONSTRUCTION OBSERVATION SERVICE.

SHOP DRAWINGS

A. PRIOR TO CONSTRUCTION OR INSTALLATION, SHOP DRAWINGS SHALL BE SUBMITTED TO AND REVIEWED BY THE ENGINEER OF RECORD FOR SANITARY MANHOLES, CATCH BASINS, FIRE HYDRANTS, VALVES AND OTHER ACCESSORIES. CATALOGUE LITERATURE SHALL BE SUBMITTED FOR WATER AND SEWER PIPES, FITTINGS, AND APPURTENANCES.
B. PRIOR TO SUBMITTING SHOP DRAWINGS TO THE ENGINEER, THE CONTRACTOR SHALL REVIEW AND APPROVE THE DRAWINGS, AND SHALL NOTE IN RED ANY DEVIATIONS FROM THE ENGINEER'S PLANS OR SPECIFICATIONS.
C. INDIVIDUAL SHOP DRAWINGS FOR ALL PRECAST STRUCTURES ARE REQUIRED. CATALOGUE LITERATURE WILL NOT BE ACCEPTED FOR PRECAST STRUCTURES.

TEMPORARY FACILITIES

A. TEMPORARY UTILITIES SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO ARRANGE FOR OR SUPPLY TEMPORARY WATER SERVICE, SANITARY FACILITIES AND ELECTRICITY TO ITS EMPLOYEES AND SUBCONTRACTORS FOR THEIR USE DURING CONSTRUCTION.
B. TRAFFIC REGULATION
1. MAINTENANCE OF TRAFFIC IN THE PUBLIC RIGHT-OF-WAY SHALL BE IN ACCORDANCE WITH THE MUTCD, FDOT AND APPROVED CITY OF CORAL SPRINGS.
2. ALL OPEN TRENCHES AND HOLES ADJACENT TO ROADWAYS OR WALKWAYS SHALL BE PROPERLY MARKED AND BARRICADED TO ASSURE THE SAFETY OF BOTH VEHICULAR AND PEDESTRIAN TRAFFIC.
3. NO TRENCHES OR HOLES NEAR WALKWAYS OR IN ROADWAYS OR THEIR SHOULDERS ARE TO BE LEFT OPEN DURING NIGHTTIME HOURS WITHOUT EXPRESS PERMISSION OF CITY OF CORAL SPRINGS.

PROJECT CLOSEOUT

A. CLEANING UP
1. DURING CONSTRUCTION, THE PROJECT SITE AND ALL ADJACENT AREAS SHALL BE MAINTAINED IN A NEAT AND CLEAN MANNER. UPON FINAL CLEAN UP, THE PROJECT SITE SHALL BE LEFT CLEAR OF ALL SURPLUS MATERIAL OR TRASH. THE PAVED AREAS SHALL BE SWEPT BROOM CLEAN.
2. THE CONTRACTOR SHALL RESTORE OR REPLACE, WHEN AND AS DIRECTED BY THE ENGINEER, OR CITY OF CORAL SPRINGS ANY PUBLIC OR PRIVATE PROPERTY DAMAGED BY ITS WORK, EQUIPMENT, EMPLOYEES OR THOSE OF ITS SUBCONTRACTORS TO A CONDITION AT LEAST EQUAL OR BETTER TO THE EXISTING CONDITION IMMEDIATELY PRIOR TO THE BEGINNING OF OPERATIONS. TO THIS END, THE CONTRACTOR SHALL DO ALL NECESSARY HIGHWAY OR DRIVEWAY, WALK AND LANDSCAPING WORK. SUITABLE MATERIALS AND METHODS SHALL BE USED FOR SUCH RESTORATION.
3. WHERE MATERIAL OR DEBRIS HAS WASHED OR FLOWED INTO OR BEEN PLACED IN WATER COURSES, DITCHES, DRAINS, CATCH BASINS, OR ELSEWHERE AS A RESULT OF THE CONTRACTOR'S OPERATIONS, SUCH MATERIAL OR DEBRIS SHALL BE REMOVED AND SATISFACTORILY DISPOSED OF DURING PROGRESS OF THE WORK, AND THE AREA KEPT IN A CLEAN AND NEAT CONDITION.
B. PROJECT RECORD DOCUMENTS
1. THE CONTRACTOR SHALL MAINTAIN ACCURATE AND COMPLETE RECORDS OF WORK ITEMS COMPLETED.
2. PRIOR TO THE PLACEMENT OF ANY ASPHALT OR CONCRETE PAVEMENT, THE CONTRACTOR SHALL SUBMIT TO THE ENGINEER "AS-BUILT" PLANS SHOWING LIMEROCK BASE GRADES, ALL DRAINAGE AND WATER IMPROVEMENTS. PAVING OPERATIONS SHALL NOT COMMENCE UNTIL THE ENGINEER HAS REVIEWED THE "AS- BUILTS".
3. ALL REQUIRED DENSITY AND LBR TEST RESULTS FOR SUB- GRADE SHALL BE PROVIDED TO THE ENGINEER PRIOR TO PLACING LIMEROCK BASE MATERIAL.
4. ALL REQUIRED DENSITY AND LBR TEST RESULTS FOR LIMEROCK SHALL BE PROVIDED TO THE ENGINEER PRIOR TO PLACING ASPHALT.
5. ALL "AS-BUILT" INFORMATION SUBMITTED TO THE ENGINEER SHALL BE SUFFICIENTLY ACCURATE, CLEAR AND LEGIBLE TO SATISFY THE ENGINEER THAT THE INFORMATION PROVIDES A TRUE REPRESENTATION OF THE IMPROVEMENTS CONSTRUCTED.
6. UPON COMPLETION OF CONSTRUCTION, THE CONTRACTOR SHALL SUBMIT TO THE ENGINEER OF RECORD COMPLETE SETS OF "AS-BUILT" CONSTRUCTION DRAWINGS AS REQUIRED FOR SUBMITTAL AND APPROVAL. THESE DRAWINGS SHALL BE MARKED TO SHOW "AS-BUILT" CONSTRUCTION CHANGES AND DIMENSIONED LOCATIONS AND ELEVATIONS OF ALL IMPROVEMENTS AND SHALL BE SIGNED AND SEALED BY A REGISTERED LAND SURVEYOR.
7. ALL "AS-BUILT" INFORMATION ON ELEVATIONS OF WATER, PAVING, AND DRAINAGE SHALL BE CERTIFIED BY A REGISTERED LAND SURVEYOR.
8. AS-BUILT INFORMATION ON THE WATER SYSTEM SHALL INCLUDE LOCATIONS OF ALL VALVES, FITTINGS, FIRE HYDRANTS, WATER SERVICES AND TOP OF PIPE ELEVATIONS AT ALL FITTINGS AND AT A MINIMUM OF 100' SPACING.
9. AS-BUILT INFORMATION ON THE SANITARY SEWER SYSTEM SHALL INCLUDE LOCATIONS OF ALL VALUES, FITTINGS, CLEANOUTS, AND TOP OF PIPE ELEVATIONS AT ALL FITTINGS AND AT A MINIMUM SPACING OF 50' BETWEEN ELEVATIONS.

EARTHWORK

A. GENERAL
1. NONE OF THE EXISTING MATERIAL IS TO BE INCORPORATED IN THE LIMEROCK BASE.
2. ALL SUB-GRADE UNDER PAVED AREAS SHALL BE 12" THICK AND HAVE A MINIMUM LBR VALUE OF 40 AND SHALL BE COMPACTED TO 98% OF THE MAXIMUM DENSITY AS DETERMINED BY AASHTO T-180.
3. ALL FILL MATERIAL IN AREAS NOT TO BE PAVED SHALL BE COMPACTED TO 95% OF THE MAXIMUM DENSITY AS DETERMINED BY AASHTO T-180.
4. A 2" BLANKET OF TOP SOIL SHALL BE PLACED OVER ALL AREAS TO BE SODDED.
5. SOD SHALL BE AS SPECIFIED ON THE LANDSCAPE ARCHITECTURE PLANS AND SHALL BE PLACED ON THE GRADED TOP SOIL AND WATERED TO INSURE SATISFACTORY CONDITION UPON FINAL ACCEPTANCE OF THE PROJECT.
6. WHEN WORKING IN AND AROUND EXISTING DRAINAGE CANALS OR LAKES, APPROPRIATE SILT BARRIERS SHALL BE INSTALLED.
B. ON-SITE
1. ALL ORGANIC AND OTHER UNSUITABLE MATERIAL UNDER THOSE AREAS TO BE PAVED SHALL BE REMOVED TO A DEPTH OF THREE (3) FEET BELOW FINISHED GRADE AND FOR THREE (3) FEET BEYOND THE PERIMETER OF THE PAVING.
2. SUITABLE BACKFILL SHALL BE MINIMUM LBR 40 MATERIAL COMPACTED TO 98% OF THE MAXIMUM DENSITY AS DETERMINED BY AASHTO T-180 THREE (3) FEET BEYOND THE PERIMETER OF THE PAVING.

STORM DRAINAGE

A. CONCRETE PIPE FOR STORM SEWERS SHALL CONFORM TO ASTM L76-79, TABLE III, WALL B, OR LATEST REVISION. ALL PIPE SHALL HAVE MODIFIED TONGUE AND GROOVE JOINTS, AND HAVE RUBBER GASKETS, UNLESS OTHERWISE SPECIFIED.
B. BEDDING AND INITIAL BACKFILL OVER DRAINAGE PIPE SHALL BE SAND WITH NO ROCK LARGER THAN 1" DIAMETER.
C. BACKFILL MATERIAL UNDER PAVED AREAS SHALL BE COMPACTED TO 98% OF THE MAXIMUM DENSITY AS DETERMINED BY AASHTO T-180.
D. BACKFILL MATERIAL UNDER AREAS NOT TO BE PAVED SHALL BE COMPACTED TO 95% OF THE MAXIMUM DENSITY AS DETERMINED BY AASHTO T-180.
E. DRAINAGE STRUCTURES AND LINES TO BE CLEANED PRIOR TO ENGINEER'S ACCEPTANCE.
F. DRAINAGE STRUCTURES TO BE CLEANED PRIOR TO BROWARD COUNTY OR FDOT ACCEPTANCE IF LOCATED WITHIN THE PUBLIC RIGHT-OF-WAY.
G. NO CATCH BASINS OR JUNCTION BOXES SHALL BE LOCATED IN DRIVEWAYS.

PAVING

A. GENERAL
1. ALL UNDERGROUND UTILITIES SHALL BE COMPLETED PRIOR TO THE CONSTRUCTION OF THE LIMEROCK BASE AND PRIOR TO THE PLACEMENT OF THE PAVEMENT.
2. CONCRETE SIDEWALKS SHALL BE FOUR (4) INCHES THICK. SIDEWALK SUB-GRADE SHALL BE GRUBBED, COMPLETELY DEMUCKED AND COMPACTED TO 98% OF MAXIMUM DRY DENSITY AS DETERMINED BY AASHTO T-180. OPEN TYPE EXPANSION JOINTS SHALL BE USED. SIDEWALK MUST BE SEPARATE FROM THE TRAVEL WAY AND CONSTRUCTED IN ACCORDANCE WITH THE FDOT ROADWAY AND TRAFFIC DESIGNS STANDARDS INDEX 310.
3. MINIMUM LONGITUDINAL SLOPE OF PAVEMENT SHALL BE 0.5%.
4. MINIMUM TRANSVERSE SLOPE OF PAVEMENT SHALL BE AT 1.5% FOR ROADWAYS AND GENERALLY 0.5% FOR PARKING AREAS.
B. MATERIALS
1. SUBGRADE MATERIAL SUPPORTING THE ROADWAY AND SHOULDERS SHALL HAVE A MINIMUM LIMEROCK BEARING RATIO (LBR) OF 40. THE STABILIZED SUB-GRADE SHALL BE TWELVE (12) INCHES COMPACTED TO 98% OF MAXIMUM DRY DENSITY AS PER ASHTO T-180.
2. LIMEROCK BASE MATERIAL SHALL HAVE A MINIMUM OF 60% CARBONATES (CALCIUM AND MAGNESIUM) WITH A MINIMUM LBR OF 100.
3. PRIME COAT SHALL BE APPLIED AT THE RATE OF 0.25 GAL/YD SQ. AND TACK COAT SHALL MEET FLORIDA DEPARTMENT OF TRANSPORTATION (FDOT) STANDARDS.
4. SURFACE COURSE SHALL BE EQUAL TO FDOT TYPE S-1 AND S-3 ASPHALTIC CONCRETE.
C. INSTALLATION
1. LIMEROCK BASE MATERIAL SHALL BE 8" THICK AND COMPACTED TO 98% OF THE MAXIMUM DENSITY AS DETERMINED BY AASHTO T-180.
2. LIMEROCK BASE MATERIAL SHALL BE PLACED IN MAXIMUM 6" LIFTS. BASES GREATER THAN 6" SHALL BE PLACED IN TWO OR MORE EQUAL LIFTS. LIMEROCK BASE SHALL BE COMPACTED TO 98% OF THE MAXIMUM DENSITY AS DETERMINED BY AASHTO T-180.
3. ASPHALTIC CONCRETE SHALL BE (2) 3/4" LIFTS OF TYPE S-3 ASPHALTIC CONCRETE.
4. FOR ASPHALT CONCRETE INSTALLED WITHIN PUBLIC RIGHT OF WAY THE WEARING SURFACE SHALL BE TWO (2) INCHES APPLIED IN TWO LIFTS. FIRST LIFT TO BE 1-1/4" TYPE S1. SECOND LIFT TO BE 3/4" TYPE S3. TACK COAT TO BE USED BETWEEN PAVING LIFTS.
5. PRIME COAT SHALL BE PLACED ON ALL LIMEROCK BASES IN ACCORDANCE WITH FDOT STANDARDS.
6. TACK COAT SHALL BE PLACED AS REQUIRED IN ACCORDANCE WITH FDOT STANDARDS.
D. TESTING ALL SUB-GRADE, LIMEROCK AND ASPHALT TESTS REQUIRED SHALL BE TAKEN AT THE DIRECTION OF THE ENGINEER. LABORATORY PROCTOR COMPACTION TESTS (T-180) SHALL BE PERFORMED ON ALL MATERIAL, SUB-GRADE AND BASE AND ANY SUBSEQUENT CHANGES IN MATERIALS. LIMEROCK BEARING RATIOS, SIEVE ANALYSIS AND DENSITIES REQUIRED BY THE CONTRACT DOCUMENTS SHALL BE SUBMITTED TO THE ENGINEER.

AS-BUILTS

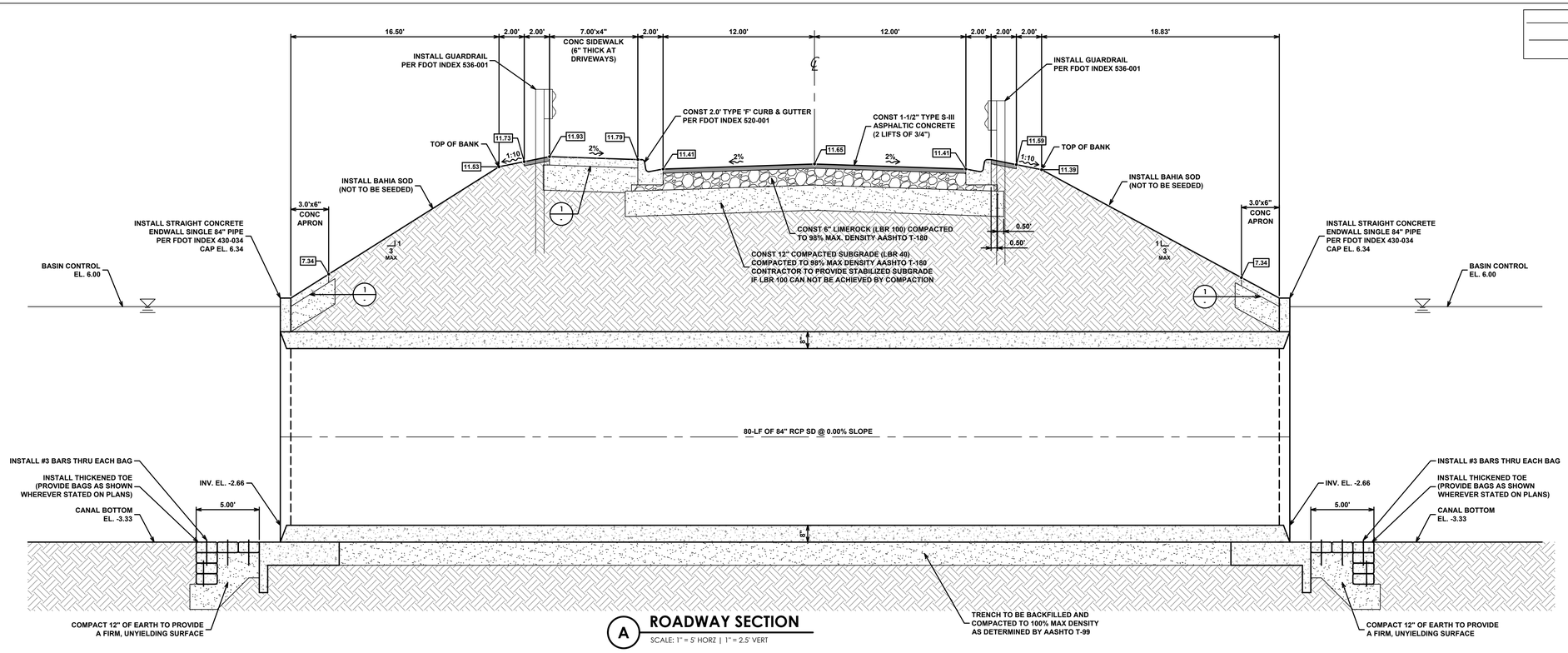
1. CONTRACTOR TO PROVIDE NECESSARY AS-BUILTS AS REQUIRED BY CITY OF CORAL SPRINGS FOR ALL THE UTILITIES AND BROWARD COUNTY FOR THE PAVING, GRADING AND DRAINAGE SYSTEM. IT IS THE CONTRACTOR'S RESPONSIBILITY TO RESEARCH AND UNDERSTAND THE AS-BUILT CRITERIA AND PROVIDE THE NECESSARY DOCUMENTION FOR THE CERTIFICATION OF THE SYSTEM.
2. CONTRACTOR TO PROVIDE NECESSARY AS-BUILTS TO SUNSHINE WATER CONTROL DISTRICT WITH COPIES OF ALL CONCRETE TESTS, PASSING LABORATORY PROCTOR COMPACTION TESTS, LIMEROCK BEARING RATIOS, SIEVE ANALYSIS AND DENSITIES FOR CERTIFICATION OF THE SYSTEM.

EXISTING CONDITIONS NOTES

1. EXISTING CONDITIONS PRESENTED ARE BASED ON A TOPOGRAPHIC SURVEY PROVIDED BY STONER & ASSOCIATES, 18-8788 TOPO, DATED 2/15/2019). ADDITIONAL INFORMATION WAS OBTAINED FROM AS-BUILTS AND RECORD DRAWINGS PROVIDED BY UTILITY COMPANIES, G.I.S. INFORMATION AND FIELD VISITS.
2. THE BEARINGS SHOWN HEREON ARE BASED ON S.89°34'16"E., ALONG THE SOUTH LINE OF THE N.W.1/4 SECTION 18, TOWNSHIP 48 SOUTH, RANGE 41 EAST, AS SHOWN ON THE STONER/KEITH RESURVEY OF SAID TOWNSHIP, RECORDED IN MISCELLANEOUS PLAT BOOK 3, AT PAGES 44, OF THE PUBLIC RECORDS OF BROWARD COUNTY, FLORIDA.
3. THE ELEVATIONS SHOWN HEREON ARE BASED ON NORTH AMERICAN VERTICAL DATUM OF 1988 (N.A.V.D. 88), ESTABLISHED FROM BROWARD COUNTY ENGINEERING DEPARTMENT BENCHMARK 3189, DESCRIBED AS A DEPARTMENT OF TRANSPORTATION DISK SET ON THE SOUTH END OF CONCRETE WALL, EAST SIDE OF THE NORTH BOUND FOR THE SAWGRASS EXPRESSWAY AT THE WEST OF WILES ROAD. ELEVATION 17.448'.
4. THIS SITE WAS FORMERLY UTILIZED AS A LAND FILL, SEE DECLARATION OF LAND FILL CLOSURE RECORDED IN OFFICIAL RECORDS BOOK 302325, PAGE 1124 AND 31176, PAGE 404, OF THE PUBLIC RECORDS OF BROWARD COUNTY, FLORIDA.
5. CONTRACTOR IS TO PROTECT ALL EXISTING TREES, SIGNS, AND ABOVE GROUND UTILITIES NOT IMPACTED BY THIS PLAN.

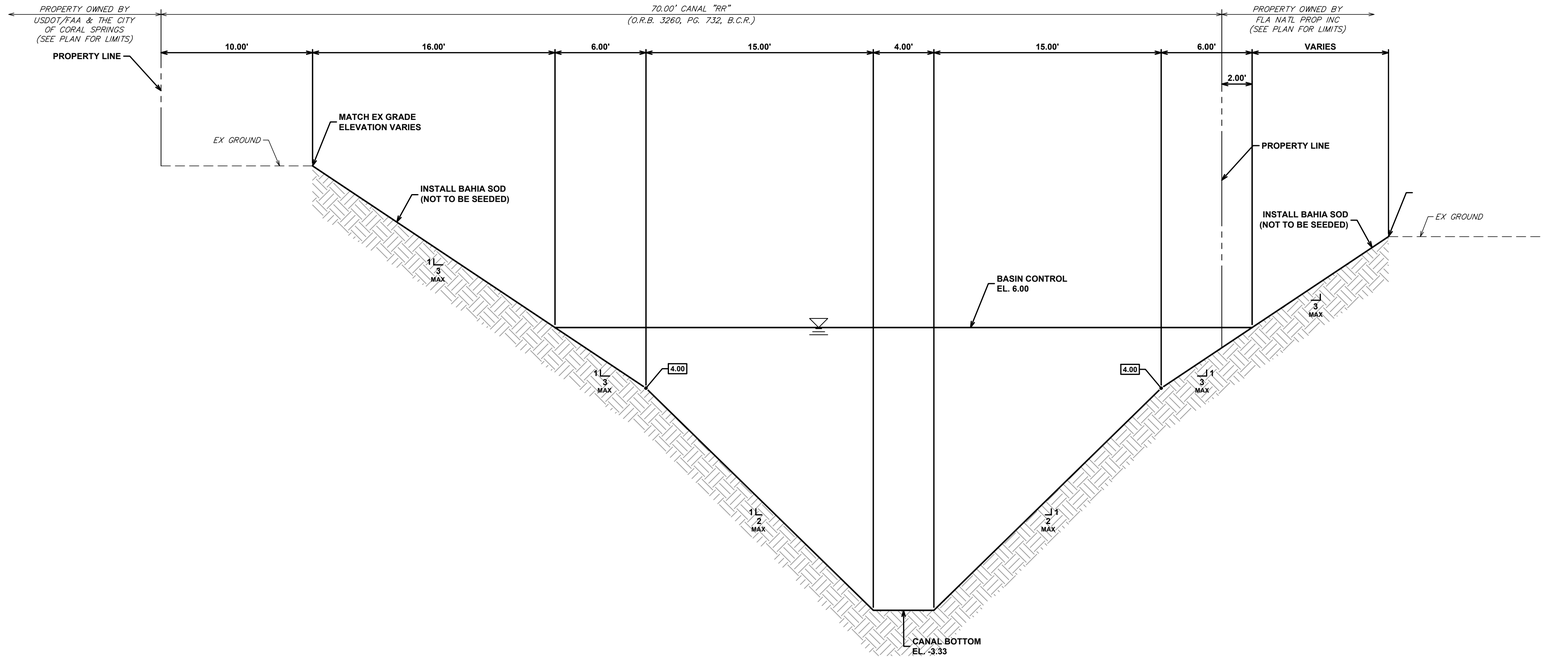
cma
chen moore and associates

Plot Date: 8/10/2022 3:33:45 PM Username: ITamo Layout Name: GN-1
Folder Path: V:\Projects\2022\22-0743.00001 - sawgrass expressway & wiles road parcel\Design\CAD\Sheets Filename: 22-0743.00001 General Notes.dwg



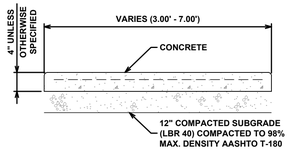
A ROADWAY SECTION

SCALE: 1" = 5' HORZ | 1" = 2.5' VERT



B CANAL SECTION

SCALE: 1" = 5' HORZ | 1" = 2.5' VERT LOOKING EAST



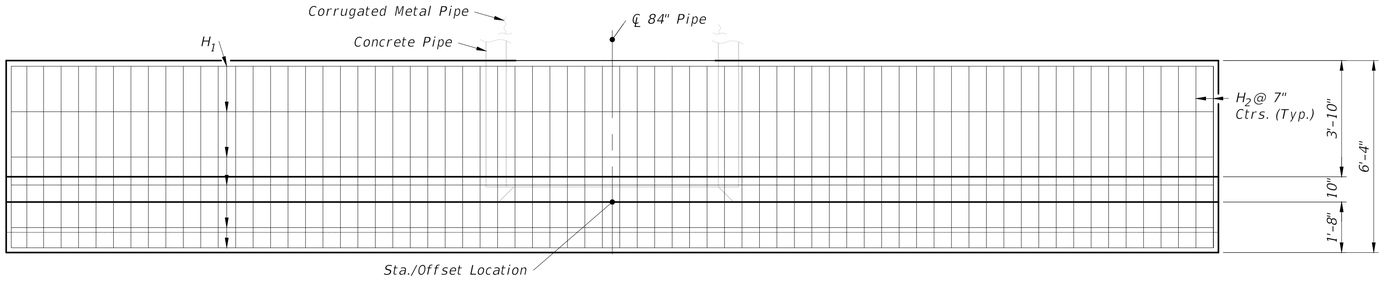
NOTES

1. CONCRETE TO BE CLASS 1, 3,000 PSI IN 28 DAYS.
2. USE OF FIBER REINFORCED CONCRETE IS PROHIBITED.
3. SIDEWALK SLOPES SHALL MEET THE REQUIREMENTS OF THE AMERICAN WITH DISABILITIES ACT.
4. INCLUDES ANY CUT AND/OR FILL TO ACHIEVE DESIGN SLOPES.
5. PROVIDE 1/8" CONSTRUCTION JOINTS AT 5' c.c., MINIMUM DEPTH 1/2".
6. PROVIDE 1/2" EXPANSION JOINTS W/ NON-RISING FILLER AT 30'c.c.
7. CURE ALL CONCRETE WITH CLEAN SAND, PLASTIC MEMBRANE, OR OTHER APPROVED METHOD.
8. PROVIDE 6"X6"-W4XW4 W.W.F.

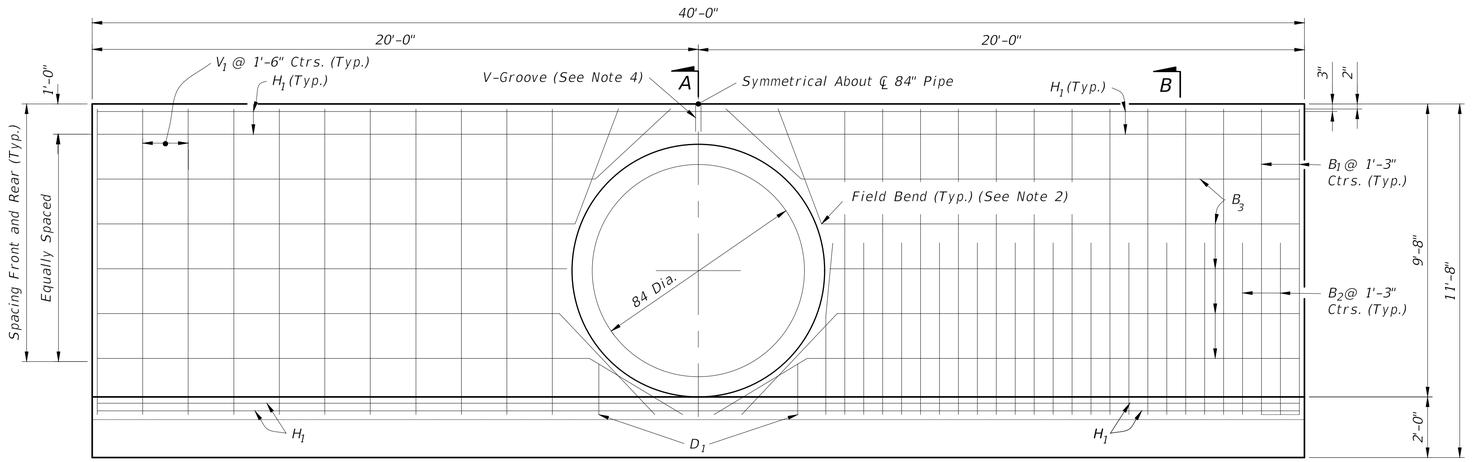
1 CONCRETE SLAB

N.T.S.

cma
chen moore and associates



PLAN
(Showing Bars In Footing)



HALF ELEVATION
(Showing Bars in Front Face of Wall)
A

HALF ELEVATION
(Showing Bars in Back Face of Wall)
B

NOTES:

1. 2" clearance on all reinforcement, unless otherwise shown.
2. Cut and/or bend B_3 Bars as shown.
3. All bar dimensions are out to out.
4. Install a ¾" V-Groove at the top, front and back.

SINGLE 84" PIPE ENDWALL ESTIMATED QUANTITIES

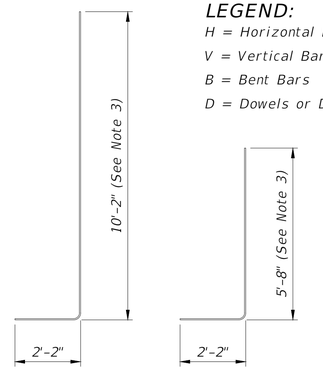
ITEM	UNIT		
Class II Concrete	Cu. Yd.		
Reinforcing Steel	Lb.	2,095	

BILL OF REINFORCING STEEL

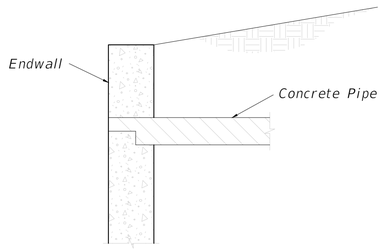
MARK	SIZE	NO. REQD.	
H_1	4	6	
H_2	6	69	
V_1	4	22	
B_1	6	26	
B_2	6	26	
B_3	4	14	
D_1	4	4	

LEGEND:

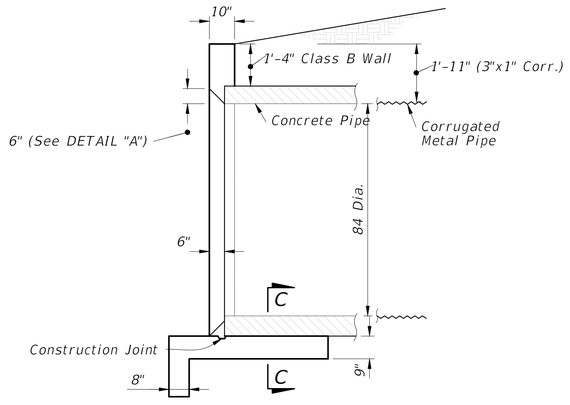
H = Horizontal Bars
V = Vertical Bars
B = Bent Bars
D = Dowels or Diagonal Bars



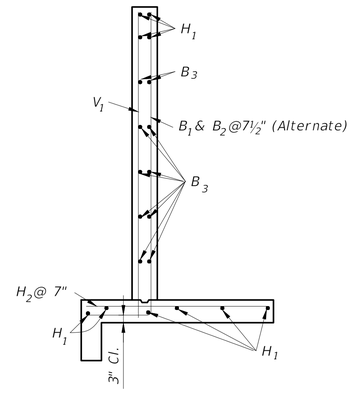
BAR B_1 BAR B_2
BENDING DIAGRAM



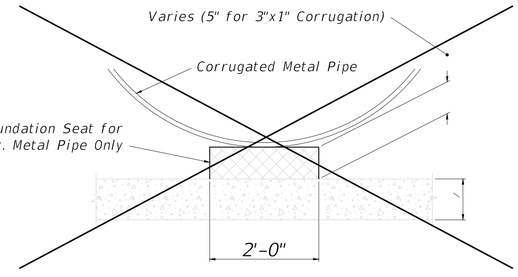
DETAIL "A"
(Concrete Pipe Optional Entrance)



SECTION A-A
(Rebar Not Shown)



SECTION B-B
(Typical Section)



SECTION C-C

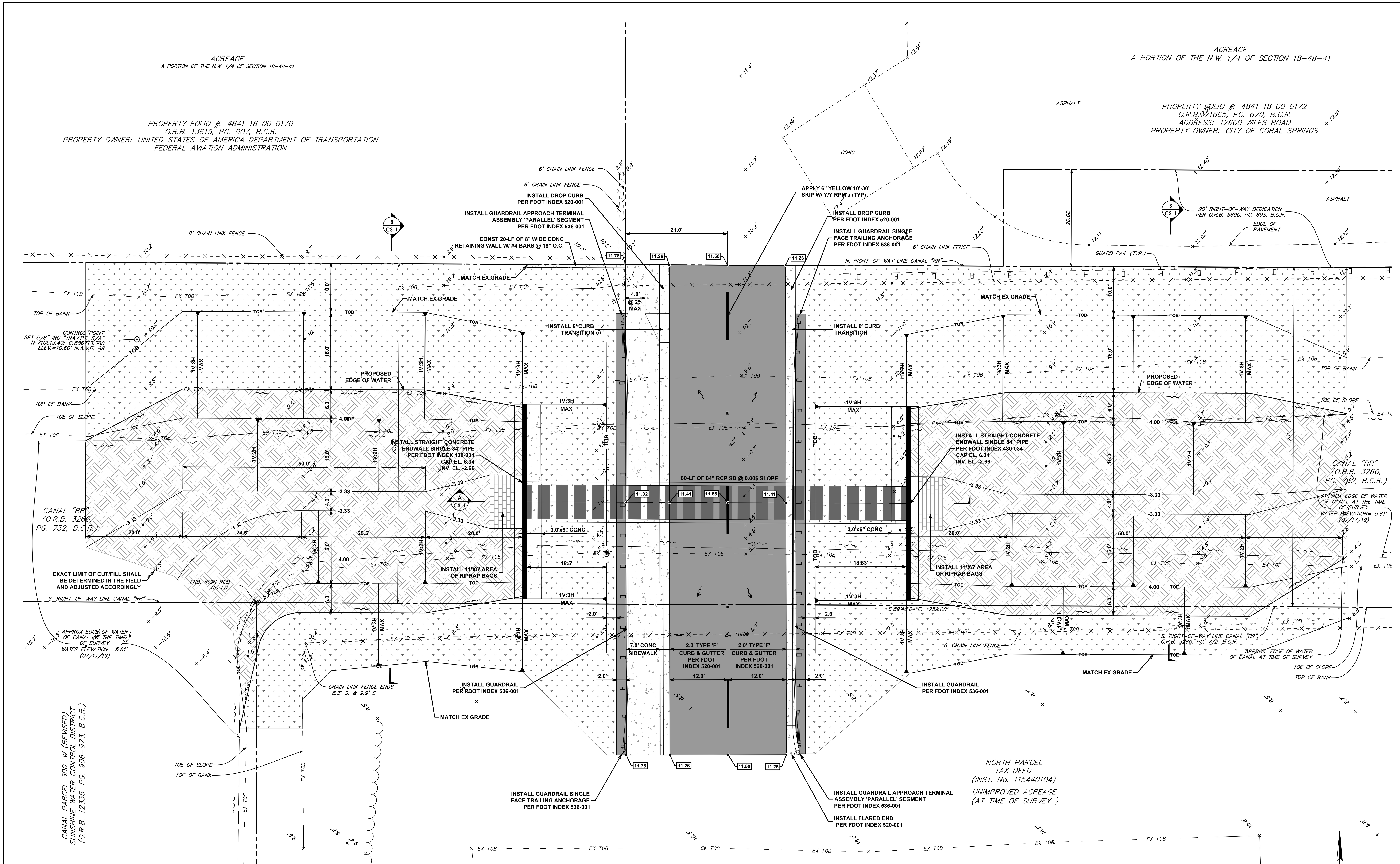
SINGLE 84" PIPE ENDWALL DETAILS

STRAIGHT CONCRETE ENDWALLS
SINGLE 84" PIPE

N.T.S. FDOT STANDARD PLANS FY-2020-21 - INDEX 430-034

Plot Date: 8/10/2022 3:34:01 PM Username: lTamo Layout Name: D-1
Folder Path: V:\Projects\2022\22-0743.00001 - sawgrass expressway & wiles road parcel\Design\CAD\Sheets Filename: 22-0743.00001 Details.dwg

cma
chen moore and associates


ACREAGE
A PORTION OF THE N.W. 1/4 OF SECTION 18-48-41
PROPERTY FOLIO #: 4841 18 00 0170
O.R.B. 13619, PG. 907, B.C.R.
PROPERTY OWNER: UNITED STATES OF AMERICA DEPARTMENT OF TRANSPORTATION FEDERAL AVIATION ADMINISTRATION
ACREAGE
A PORTION OF THE N.W. 1/4 OF SECTION 18-48-41
PROPERTY FOLIO #: 4841 18 00 0172
O.R.B. 21665, PG. 670, B.C.R.
ADDRESS: 12600 WILES ROAD
PROPERTY OWNER: CITY OF CORAL SPRINGS
ASPHALT
CONC.
6' CHAIN LINK FENCE
8' CHAIN LINK FENCE
INSTALL DROP CURB PER FDOT INDEX 520-001
INSTALL GUARDRAIL APPROACH TERMINAL ASSEMBLY 'PARALLEL' SEGMENT PER FDOT INDEX 536-001
CONST 20-LF OF 8" WIDE CONC RETAINING WALL W/ #4 BARS @ 18" O.C.
APPLY 6" YELLOW 10'-30' SKIP W/ Y/Y RPM's (TYP)
INSTALL GUARDRAIL SINGLE FACE TRAILING ANCHORAGE PER FDOT INDEX 536-001
20' RIGHT-OF-WAY DEDICATION PER O.R.B. 5690, PG. 698, B.C.R.
EDGE OF PAVEMENT
GUARD RAIL (TYP.)
N. RIGHT-OF-WAY LINE CANAL "RR"
MATCH EX GRADE
INSTALL 6" CURB TRANSITION
CONTROL POINT SET 5/8" IRC "TRAV.PT. S/A" N: 710513.40 E: 886713.188 ELEV.=10.60' N.A.V.D. 88
TOP OF BANK
TOE OF SLOPE
PROPOSED EDGE OF WATER
INSTALL STRAIGHT CONCRETE ENDWALL SINGLE 84" PIPE PER FDOT INDEX 430-034 CAP EL. 6.34 INV. EL. -2.66
80-LF OF 84" RCP SD @ 0.00$ SLOPE
CANAL "RR" (O.R.B. 3260, PG. 732, B.C.R.)
APPROX EDGE OF WATER OF CANAL AT THE TIME OF SURVEY WATER ELEVATION= 5.61' (07/17/19)
3.0'x6" CONC
INSTALL 11'X5' AREA OF RIPRAP BAGS
EXACT LIMIT OF CUT/FILL SHALL BE DETERMINED IN THE FIELD AND ADJUSTED ACCORDINGLY
FND. IRON ROD NO I.D.
S. RIGHT-OF-WAY LINE CANAL "RR"
S.89°46'04"E. 259.00'
7.0' CONC SIDEWALK
2.0' TYPE 'F' CURB & GUTTER PER FDOT INDEX 520-001
INSTALL GUARDRAIL PER FDOT INDEX 536-001
CHAIN LINK FENCE ENDS 8.3' S. & 9.9' E.
CANAL PARCEL 300. W (REVISED) SUNSHINE WATER CONTROL DISTRICT (O.R.B. 12335, PG. 906-973, B.C.R.)
NORTH PARCEL TAX DEED (INST. No. 115440104)
UNIMPROVED ACREAGE (AT TIME OF SURVEY)
INSTALL FLARED END PER FDOT INDEX 520-001
EX TOB
EX TOE

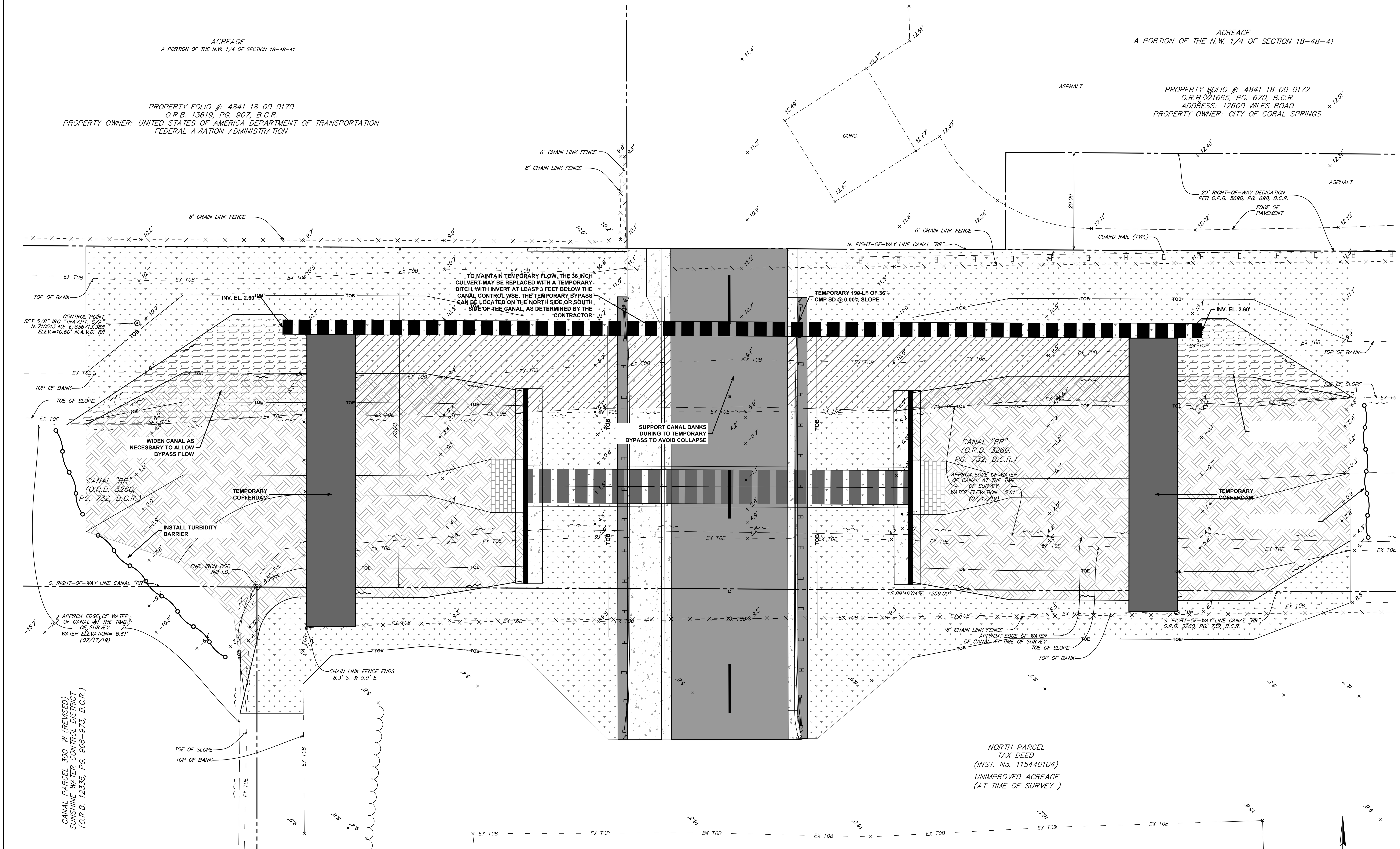
Plot Date: 8/10/2022 3:34:22 PM Username: JTamo Layout Name: C-1
Folder Path: V:\Projects\2022\22-0743.00001 - sawgrass expressway & wiles road parcel\Design\CAD\Sheets Filename: 22-0743.00001 Civil Engineering Plan.dwg

VERTICAL DATUM INFORMATION
ALL ELEVATIONS SHOWN ARE IN NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD88)
CONVERSION FACTOR:
NAVD88 + 1.53 = NGVD29 IN THIS AREA

Sunshine 811
Call 811 or www.sunshine811.com two full business days before digging to have utilities located and marked.
Check positive response codes before you dig!

LEGEND

00.00	PROPOSED ELEVATION
	PROPOSED SURFACE FLOW ARROW
	PROPOSED SIDE SLOPE
TOB	PROPOSED TOP OF BANK
	PROPOSED WATER'S EDGE
	PROPOSED GUARDRAIL
	PROPOSED ASPHALT
	PROPOSED CONCRETE
	PROPOSED BAHIA SOD (NOT SEEDED)
	PROPOSED EARTHWORK



NOTES:

1. THE SCHEMATIC DRAWING ON THIS SHEET IS NOT INTENDED FOR CONSTRUCTION. CONTRACTOR TO FURTHER DEVELOP THE SCHEMATIC OR PROVIDE A DIFFERENT TEMPORARY BYPASS PLAN THAT WORKS BETTER FOR THE PROJECT. THE CONTRACTOR SHALL REQUEST APPROVAL FROM THE ENGINEER AND SWCD BEFORE COMMENCING CONSTRUCTION ACTIVITIES.
2. CONSTRUCTION TO BE SCHEDULED DURING DRY SEASON TO AVOID HIGH WATER LEVELS AND REDUCE BYPASS FLOW.
3. IN THE EVENT OF SEVER WEATHER, CANAL DAMMING MAY BE REQUIRED TO BE REMOVED IF TEMPORARY BYPASS FLOW OPTIONS PROVE TO BE INEFFECTIVE; REGARDLESS OF CONSTRUCTION STATUS.
4. CONTRACTOR TO HAVE BYPASS PUMPS IN STANDBY TO SUPPLEMENT TEMPORARY BYPASS FLOWS DURING SEVERE WEATHER CONDITIONS.
5. THE CONTRACT SHALL PROVIDE ALL EMERGENCY CONTACT PERSONNEL INFORMATION TO THE ENGINEER AND SWCD, PRIOR TO COMMENCING CONSTRUCTION ACTIVITIES.
6. EROSION AND SEDIMENTATION CONTROL MEASURES SHALL BE IMPLEMENTED AS NECESSARY DURING TEMPORARY BYPASS AND CONSTRUCTION ACTIVITIES.

LEGEND

- TEMPORARY STORM DRAIN PIPE
- TEMPORARY SURFACE WATER
- TEMPORARY WATER'S EDGE

VERTICAL DATUM INFORMATION

ALL ELEVATIONS SHOWN ARE IN NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD88)
CONVERSION FACTOR:
NAVD88 + 1.53 = NGVD29 IN THIS AREA

Sunshine811

Call 811 or www.sunshine811.com two full business days before digging to have utilities located and marked.

Check positive response codes before you dig!

Plot Date: 8/10/2022 3:34:44 PM Username: JTamo Layout Name: TBP-1 Filename: 22-0743.00001 Construction Temporary By-Pass Plan.dwg
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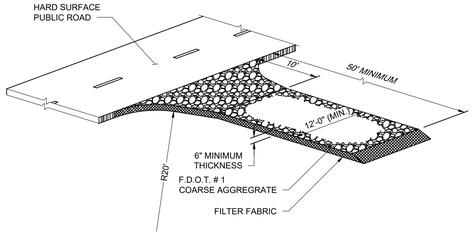
chen moore and associates



NOTES:

1. THE ENTRANCE SHALL BE MAINTAINED IN A CONDITION THAT WILL PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO PUBLIC RIGHTS-OF-WAY. THIS MAY REQUIRE TOP DRESSING, REPAIR AND/OR CLEANOUT OF ANY MEASURES USED TO TRAP SEDIMENT.
2. WHEN NECESSARY, WHEELS SHALL BE CLEANED PRIOR TO ENTRANCE ONTO PUBLIC RIGHT-OF-WAY.
3. WHEN WASHING IS REQUIRED, IT SHALL BE DONE ON AN AREA STABLIZED WITH CRUSHED STONE THAT DRAINS INTO AN APPROVED SEDIMENT TRAP OR SEDIMENT BASIN.

GRAVEL CONSTRUCTION ENTRANCE

N.T.S.

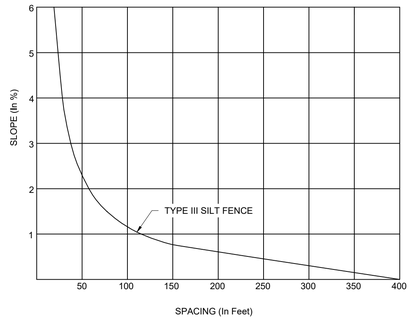
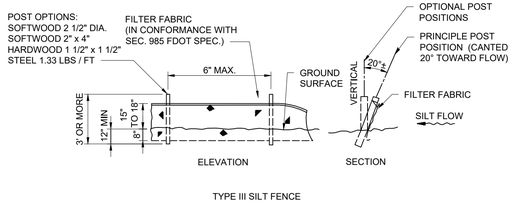
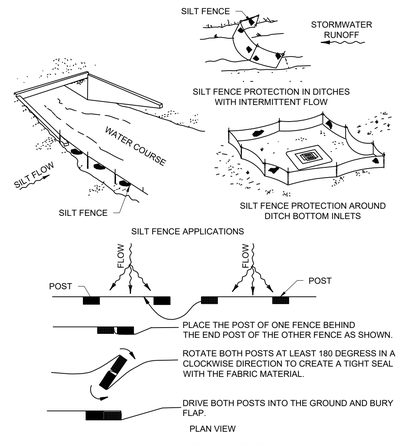


CHART 1: SILT FENCE SPACING



TYPE III SILT FENCE



JOINING TWO SILT FENCES

NOTES:

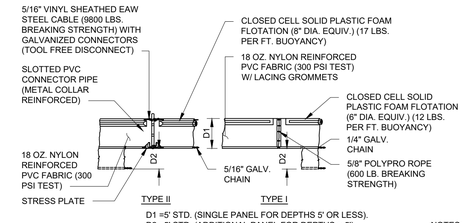
1. WHERE USED IN DITCHES, THE SPACING FOR TYPE III SILT FENCE SHALL BE IN ACCORDANCE WITH CHART 1.
2. DO NOT CONSTRUCT SILT FENCES ACROSS PERMANENT FLOWING WATERCOURSES. SILT FENCES ARE TO BE AT UPLAND LOCATIONS AND TURBIDITY BARRIERS USED AT PERMANENT BODIES OF WATER.
3. WHERE USED AS SLOPE PROTECTION . SILT FENCE IS TO BE CONSTRUCTED ON 0% LONGITUDINAL GRADE TO AVOID CHANNELIZING RUNOFF ALONG THE LENGTH OF THE FENCE.

SILT FENCE

N.T.S.

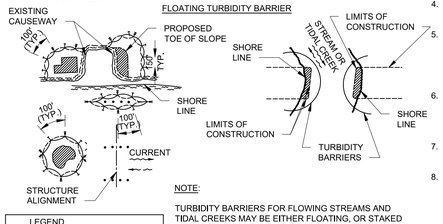
EROSION AND SEDIMENT CONTROL:

1. CONTRACTOR TO EMPLOY BEST MANAGEMENT PRACTICES THROUGHOUT CONSTRUCTION IN ORDER TO ENSURE POLLUTION PREVENTION. CONTRACTOR TO COMPLY WITH ALL LOCAL STATE AND OTHER GOVERNMENTAL ENVIRONMENTAL REGULATIONS THROUGHOUT CONSTRUCTION.
2. DURING CONSTRUCTION ALL CATCH BASIN INLETS SHALL BE PROTECTED TO PREVENT SEDIMENT AND DEBRIS FROM ENTERING THE CATCH BASIN.
3. SILT FENCES SHALL BE INSTALLED AS NECESSARY TO CONTROL OR PREVENT DISCHARGE OF SEDIMENT ONTO ADJACENT UNDISTURBED AREAS, OR OFF-SITE AREAS.
4. ALL AREAS DISTURBED DURING CONSTRUCTION SHALL BE STABILIZED WITHIN A REASONABLE PERIOD OF TIME TO ASSURE MINIMUM EROSION OF SOILS.
5. NO LAND CLEARING OR GRADING SHALL BEGIN UNTIL ALL EROSION CONTROL MEASURES HAVE BEEN INSTALLED.
6. ALL EXPOSED AREAS SHALL BE SODDED AS SPECIFIED WITHIN 30 DAYS OF FINAL GRADING.
7. MAINTAIN EROSION CONTROL MEASURES AFTER EACH RAIN AND AT LEAST ONCE A WEEK.
8. THE CONTRACTOR SHALL TAKE ALL NECESSARY PRECAUTIONS TO PREVENT SOIL SEDIMENT FROM LEAVING THE SITE.
9. CONTRACTOR SHALL COMPLY WITH ALL STATE AND LOCAL ORDINANCES THAT APPLY.
10. ADDITIONAL EROSION AND SEDIMENT CONTROL MEASURES WILL BE INSTALLED IF DEEMED NECESSARY BY CITY, COUNTY, AND STATE OF FLORIDA ON SITE INSPECTION, AT NO ADDITIONAL COST TO THE OWNER.
11. LAND DISTURBING ACTIVITIES SHALL NOT COMMENCE UNTIL APPROVAL TO DO SO HAS BEEN RECEIVED BY GOVERNING AUTHORITIES.
12. IF INSTALLATION OF STORM DRAINAGE SYSTEM SHOULD BE INTERRUPTED BY WEATHER OR NIGHTFALL, THE PIPE ENDS SHALL BE COVERED WITH FILTER FABRIC.
13. BURNING OF DEBRIS WILL NOT BE ALLOWED.
14. CONTRACTOR SHALL BE RESPONSIBLE TO TAKE WHATEVER MEANS NECESSARY TO ESTABLISH PERMANENT SOIL STABILIZATION.
15. CONTRACTOR IS TO PROVIDE EROSION CONTROL/SEDIMENTATION BARRIER (HAY BALES OR SILTATION CURTAIN) TO PREVENT SILTATION OF ADJACENT PROPERTY, STREETS, STORM SEWERS AND WATER WAYS. IN ADDITION CONTRACTOR SHALL PLACE STRAW, MULCH OR OTHER SUITABLE MATERIAL ON GROUND IN AREAS WHERE CONSTRUCTION RELATED TRAFFIC IS TO ENTER AND EXIT SITE IF IN THE OPINION OF THE ENGINEER AND/OR LOCAL AUTHORITIES IF EXCESSIVE QUANTITIES OF EARTH ARE TRANSPORTED OFF-SITE EITHER BY NATURAL DRAINAGE OR BY VEHICULAR TRAFFIC. THE CONTRACTOR IS TO REMOVE AND CLEAN SAID EARTH TO THE SATISFACTION OF THE ENGINEER AND/OR AUTHORITIES. EROSION CONTROL BARRIER SHALL BE ESTABLISHED AS THE FIRST ITEM OF WORK.
16. THE NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES) FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION'S STORMWATER PERMITTING PROGRAM APPLIES TO ALL CONSTRUCTION ACTIVITY THAT: 1) CONTRIBUTE STORMWATER DISCHARGES TO SURFACE WATER OF THE STATE OR INTO A MUNICIPAL SEPARATE STORM SEWER SYSTEM (MS4); 2) DISTURBS ONE OR MORE ACRES OF LAND; OR 3) LESS THAN ONE ACRE IS INCLUDED IF THE ACTIVITY IS PART OF A LARGER COMMON PLAN OF DEVELOPMENT THAT WILL MEET OR EXCEED THE ONCE ACRE THRESHOLD. DISTURB INCLUDES CLEARING, GRADING AND EXCAVATING.
17. FOR CONSTRUCTION ACTIVITY THAT IS SUBJECT TO THE NPDES FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION'S STORMWATER PERMITTING PROGRAM, THE CONTRACTOR SHALL:
    - 17.1.OBTAIN A GENERIC PERMIT FOR STORMWATER DISCHARGE FROM LARGE AND SMALL CONSTRUCTION ACTIVITIES FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION DOCUMENT 62-621.300(4)(A).
    - 17.2.COMPLY WITH ALL REQUIREMENTS OF THE GENERIC PERMIT.
    - 17.3.DEVELOP AND IMPLEMENT A STORMWATER POLLUTION PREVENTION PLAN (SWPPP).
    - 17.4.COMPLETE A NOTICE OF INTENT (NOI) FLORIDA DEPARTMENT OF ENVIORNMENTAL PROTECTION FORM 62-621.300(4)(B) IN ITS ENTIRETY USING THE FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION'S WEBSITE.
18. SUBMIT COPIES OF THE SWPPP AND THE NOI TO THE ENGINEER AS INFORMATIONAL RECORDS. THESE SUBMITTALS WILL NOT BE REVIEWED BY THE ENGINEER.
19. CONTRACTOR TO CLEAN AND REPAIR ALL EXISTING STORMWATER INFRASTRUCTURE THAT IS IMPACTED BY CONSTRUCTION ACTIVITIES, BEFORE LEAVING THE JOBSITE.
20. CONTRACTOR TO REMOVE ALL FILTER FABRIC AND POLLUTION PREVENTION ITEMS BEFORE THE FINAL WALK-THROUGH.



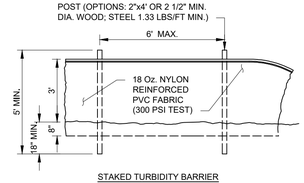
D1 =5' STD. (SINGLE PANEL FOR DEPTHS 5' OR LESS).
D2 =5' STD. (ADDITIONAL PANEL FOR DEPTHS > 5').
CURTAIN TO REACH BOTTOM UP TO DEPTHS OF 10 FEET.
TWO (2) PANELS TO BE USED FOR DEPTHS GREATER THAN 10 FEET UNLESS SPECIAL DEPTH CURTAINS SPECIFICALLY CALLED FOR IN THE PLANS OR AS DETERMINED BY THE ENGINEER.

NOTE:
COMPONENTS OF TYPES I AND II MAY BE SIMILAR OR IDENTICAL TO PROPRIETARY DESIGNS. ANY INFRINGEMENT ON THE PROPRIETARY RIGHTS OF THE DESIGNER SHALL BE THE SOLE RESPONSIBILITY OF THE USER. SUBSTITUTIONS FOR TYPES I AND II SHALL BE AS APPROVED BY THE ENGINEER.



NOTE:
TURBIDITY BARRIERS FOR FLOWING STREAMS AND TIDAL CREEKS MAY BE EITHER FLOATING, OR STAKED TYPES OR ANY COMBINATIONS OF TYPES THAT WILL SUIT SITE CONDITIONS AND MEET EROSION CONTROL AND WATER QUALITY REQUIREMENTS. THE BARRIER TYPE(S) WILL BE AT THE CONTRACTOR'S OPTION UNLESS OTHERWISE SPECIFIED IN THE PLANS. POSTS IN STAKED TURBIDITY BARRIERS TO BE INSTALLED IN VERTICAL POSITION UNLESS OTHERWISE DIRECTED BY THE ENGINEER.

TURBIDITY APPLICATIONS



STAKED TURBIDITY BARRIER

NOTES:

1. TURBIDITY BARRIERS ARE TO BE USED IN ALL PERMANENT BODIES OF WATER REGARDLESS OF WATER DEPTH.
2. NUMBER AND SPACING OF ANCHORS DEPENDENT ON CURRENT VELOCITIES.
3. DEPLOYMENT OF BARRIER AROUND PILE LOCATIONS MAY VARY TO ACCOMMODATE CONSTRUCTION OPERATIONS.
4. NAVIGATION MAY REQUIRE SEGMENTING BARRIER DURING CONSTRUCTION OPERATIONS.
5. TYPE I TURBIDITY BARRIERS SHALL BE DESIGNED BY THE MANUFACTURER FOR USE IN CALM WATER AREAS SUCH AS SWALES, DITCHES, CANALS, SMALL PONDS, LAKES AND HARBORS. TYPE I TURBIDITY BARRIERS SHALL BE USED IN AREAS WHERE THERE IS NO CURRENT AND THE AREA IS SHELTERED FROM WIND AND WAVES.
6. TYPE II TURBIDITY BARRIERS ARE DESIGNED BY THE MANUFACTURER FOR AREAS WITH MOVING WATER, CURRENTS, WAVES OR TIDE. TYPE II TURBIDITY BARRIERS SHALL BE USED IN WATER LOCATIONS WITH WAVES UP TO TWO FEET (2'), MODERATE WIND, AND CURRENTS UP TO 2 KNOTS OR 3.5 FEET PER SECOND.
7. STAKED BARRIERS ARE CONTINUOUS PANELS OF PVC FABRIC THAT CONTAIN STORMWATER RUNOFF OR RE-DIRECT IT TO CHANNELS OR RETENTION AREAS.
8. CONSTRUCTION SPECIFICATIONS: THE AREA OF INSTALLATION FOR THE PROPOSED TURBIDITY BARRIER SHALL BE INSPECTED FOR OBSTACLES AND IMPEDIMENTS THAT COULD DAMAGE THE BARRIER OR IMPAIR ITS EFFECTIVENESS TO RETAIN SEDIMENTS. REMOVE MATERIALS, OBSTACLES AND IMPEDIMENTS THAT COULD DAMAGE OR IMPAIR THE EFFECTIVENESS OF THE TURBIDITY BARRIER.
9. MAINTENANCE: THE TURBIDITY BARRIER SHALL BE INSPECTED DAILY AND REPAIRED OR REPLACED IMMEDIATELY IF DAMAGED. IT IS NOT NORMALLY NECESSARY TO REMOVE SEDIMENT DEPOSITED BEHIND THE CURTAIN. HOWEVER, WHEN NECESSARY, REMOVAL SHALL BE DONE BY HAND PRIOR TO REMOVAL OF THE BARRIER. ALL REMOVED SILT SHALL BE STABILIZED AWAY FROM THE WATERBODY. THE BARRIER SHALL BE REMOVED SLOWLY AND BY CAREFULLY PULLING IT TOWARD THE CONSTRUCTION SITE TO MINIMIZE THE RELEASE OF SEDIMENTS.

TURBIDITY BARRIER - FLOATING

N.T.S.

cma
chen moore and associates

SUNSHINE
WATER CONTROL DISTRICT

STAFF REPORTS D

CORAL SPRINGS

Tree Memorial Program

The Coral Springs Tree Memorial Program provides Coral Springs residents the opportunity to commemorate a special person through the planting of a tree at a city park or installing a city bench.

Overview

1 Purchase

For a cost residents may purchase a tree or park bench and have a plaque installed. While requests for planting at a specific park will be considered, the tree's location, size and variety will be determined by the Parks and Recreation Department. Prices may vary.

2

Plaques

Residents must purchase a bronze plaque from an independent company. All plaques cannot be larger than 7"x5" and all information must be approved by the Parks and Recreation Department.

3

Guidelines

After a tree or bench is planted or installed, the resident will be notified. Trees and benches may not be decorated with flowers, ribbons, photos or other items.

The Parks and Recreation Department will not maintain the paint, finish, stain, or any other decorative aesthetic appearance of any plaques once installed.

After 10 years the city will not be required to replace any tree or bench. If the applicant wishes to replace a tree or bench after 10 years, the Parks and Recreation Department will do so at city cost to the applicant.

This program is sponsored by the Parks and Recreation Department. For more information, please contact Parks Administrator, Justin Ellis at JEllis@coralsprings.gov (mailto:JEllis@coralsprings.gov)

Contact Us

Phone

954-344-1839 (tel:9543441839)

Email

jellis@coralsprings.gov (mailto:jellis@coralsprings.gov)

SUNSHINE
WATER CONTROL DISTRICT

STAFF REPORTS EI

RETURN TO:
Sunshine Water Control District
2300 Glades Road, Suite 410W
Boca Raton FL 33431

OBSTRUCTIONS REMOVAL AGREEMENT – OPTION 2

THIS AGREEMENT made and entered into this 21st day of AUGUST, 2022, by and between **Desiree Dan** (hereinafter referred to as "Owner") whose address is **2988 NW 103 Lane, Coral Springs, FL 33065** and the SUNSHINE WATER CONTROL DISTRICT (hereinafter referred to as "District") whose address is 2300 GLADES ROAD, SUITE 410W, BOCA RATON FL 33431

WITNESSETH:

WHEREAS, Owner holds title to a certain parcel of real estate more particularly described as:

SPRINGS PARK 77-2 B LOT 16 S1/2 BLK B

(hereinafter referred to as the "Property"), and

WHEREAS, the Property is encumbered by a certain right-of-way/easement (hereinafter referred to as the "ROW/Easement"), such Easement being for the benefit of the District and its drainage system, and

WHEREAS, the ROW/Easement has been obstructed by the unauthorized growth of vegetation and/or construction of structures within said ROW/Easement; and

WHEREAS, Owner, pursuant to Option 2 of the District's Right-of-Way/Easement Clearing Policy, elects to have the District remove said obstructions at the District's expense,

NOW THEREFORE, for and in consideration of the covenants set forth herein, Owner hereby agrees as follows:

1. The foregoing recitals are true and correct and are incorporated herein by reference.

2. The District will remove all obstructions located in the ROW/Easement at the District's expense subject to the terms herein. For purposes of this Agreement, "obstructions" shall be defined as all vegetation and all structures located on District property that prevent required maintenance and present a threat to human life, property, public health and safety, as depicted on Attachment A hereto. The District shall have sole discretion to determine what constitutes an obstruction pursuant to this Agreement.

3. The District's obligations pursuant to this Agreement are limited to a single, one-time-only removal of obstructions existing within the ROW/Easement at the time of

this Agreement. The District shall not be obligated to remove, at its expense, obstructions placed within the ROW/Easement by Owner subsequent to the execution of this Agreement.

4. Subsequent to District's removal of existing obstructions from the ROW/Easement, Owner shall be required to maintain and mow the grassy areas within the ROW/Easement that remain adjacent to his/her property and keep the same free from all structures and growth of vegetation which may become obstructions of the ROW/Easement. Failure of Owner to comply with this requirement shall constitute a material breach of this Agreement and Owner shall be liable to the District for all costs associated with District's having to remove any subsequent obstructions or perform required maintenance.

5. If the District notifies Owner that he/she is in material breach of this Agreement and Owner fails to remedy the identified breach by removing the obstruction or performing the required maintenance within 30 days of receipt of notice, the District shall take all necessary steps to resolve the obstruction and Owner shall be invoiced and/or assessed on the Broward County tax roll the cost for the removal of all obstructions and/or performance of required maintenance, as well as any related administrative or legal fees that may be incurred by the District.

6. This Agreement shall be binding upon the Owner, its heirs, successors, legal representatives and assigns. This Agreement shall run with the title to the Property and shall forever benefit the District and bind the Owner and all future owners of the Property, including without limitation, their heirs, successors, legal representatives and assigns. This Agreement shall be recorded in the property records of Broward County, Florida and will become a legal obligation of the Property in perpetuity.

7. Owner for itself and on behalf of all future owners of the Property, hereby agrees to indemnify and hold the District harmless from and against any and all liabilities, damages, claims, costs and expenses, including attorney's fees, which may be imposed upon or asserted against the District arising from or in any way connected with the District's removal of obstructions within the ROW/Easement and/or related to Owner's subsequent maintenance of the ROW/Easement.

8. To the extent the terms of this Agreement vary from the District's Right-of-Way/Easement Policy, the terms of this Agreement shall prevail.

9. This Agreement may only be amended by written mutual consent of the District and Owner.

10. This Agreement shall be governed by the laws of the State of Florida. Venue for enforcement of this Agreement shall be in Broward County, Florida.

IN WITNESS WHEREOF, the Owner has executed this Agreement as of the date first above written.

OWNER:

Desiree Dan
Owner Signature

Desiree Dan
Owner Name (Printed)

WITNESS:

Witness Signature

Tricia A Musgrave
Witness Name (Printed)

STATE OF FLORIDA
COUNTY OF BROWARD

The foregoing instrument was acknowledged before me this 21st day of August, 2022, by Desiree Dan, _____ of who is/are personally known to me and who did not take an oath.

Duilio Baltodano
Notary Signature

Duilio Baltodano
Print Name
Notary Public - State of Florida
Commission No.

My Commission Expires:

DUILIO BALTODANO
Notary Public - State of Florida
Commission # HH 212191
My Comm. Expires Dec 28, 2025

SUNSHINE WATER CONTROL DISTRICT:

District Manager Signature	District Manager Name (Printed)

WITNESS:

Witness Signature	Witness Name (Printed)
Witness Signature	Witness Name (Printed)

STATE OF FLORIDA
COUNTY OF BROWARD

The foregoing instrument was acknowledged before me this _____day of _____, 20___, by _____, _____ of the Sunshine Water Control District who is personally known to me and who did not take an oath.

_____
Notary Signature

_____
Print Name
Notary Public - State of Florida
Commission No.

My Commission Expires:

SUNSHINE
WATER CONTROL DISTRICT

STAFF REPORTS EII

SUNSHINE WATER CONTROL DISTRICT

BOARD OF SUPERVISORS FISCAL YEAR 2022/2023 MEETING SCHEDULE

LOCATION

La Quinta Inn Coral Springs, 3701 N. University Drive, Coral Springs, Florida 33065

DATE	POTENTIAL DISCUSSION/FOCUS	TIME
October 12, 2022	Regular Meeting	6:30 PM
November 9, 2022	Regular Meeting	6:30 PM
December 7, 2022	Regular Meeting	6:30 PM
January 11, 2023	Regular Meeting	6:30 PM
February 8, 2023	Regular Meeting	6:30 PM
March 8, 2023	Landowners' Meeting & Regular Meeting	6:30 PM
April 12, 2023	Regular Meeting	6:30 PM
May 10, 2023	Regular Meeting	6:30 PM
June 14, 2023	Regular Meeting	6:30 PM
July 12, 2023	Regular Meeting	6:30 PM
August 9, 2023	Regular Meeting	6:30 PM
September 13, 2023	Public Hearing & Regular Meeting	6:30 PM