

CONSTRUCTION PLANS FOR



CR 455 SOUTH LAKE TRAIL BOARDWALK

SECTION 09, TOWNSHIP 22 S, RANGE 26 E

FPID No. 453217-1-54-01

INDEX OF SHEETS

CS-1	COVER SHEET
DEC-01	EXIST. CONDITION DEMO/EROSION CONTROL PLAN
AP-01	AERIAL PLAN
OSP-01	OVERALL SITE PLAN
SP-01	SITE PLAN (1)
SP-02	SITE PLAN (2)
SP-03	SITE PLAN (3)
GP-01	GRADING PLAN (1)
GP-02	GRADING PLAN (2)
GP-03	GRADING PLAN (3)
SPM-01	SIGNAGE & PAVEMENT MARKING PLAN (1)
SPM-02	SIGNAGE & PAVEMENT MARKING PLAN (2)
SPM-03	SIGNAGE & PAVEMENT MARKING PLAN (3)
DET-01	BOARDWALK DETAILS SHEET
PT-01 - PT-5	PERMATRAK BOARDWALK PLANS
	PRECAST SPECS PERMATRAK BOARDWALK

ANTHONY SABATINI

COMMISSIONER
DISTRICT 1

KIRBY SMITH

COMMISSIONER
DISTRICT 3

TIMOTHY MORRIS

COMMISSIONER
DISTRICT 5

SEAN M. PARKS

COMMISSIONER
DISTRICT 2

LESLIE CAMPIONE

COMMISSIONER
DISTRICT 4

BOBBY BONILLA

EXECUTIVE DIRECTOR
PARKS AND WATER RESOURCES

OWNER/DEVELOPER:

LAKE COUNTY BOARD OF COUNTY COMMISSIONERS
315 WEST MAIN STREET
TAVARES, FL 32778
ANGELA HARROLD
PHONE: (352) 253-4950
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ENGINEER/SURVEYOR:

HALFF
902 N SINCLAIR AVENUE
TAVARES, FL 32778
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OWNER/DEVELOPER:

FLORIDA DEPARTMENT OF TRANSPORTATION, FY 2025-26 STANDARD PLANS FOR ROAD AND BRIDGE CONSTRUCTION AND APPLICABLE INTERIM REVISIONS (IRs).

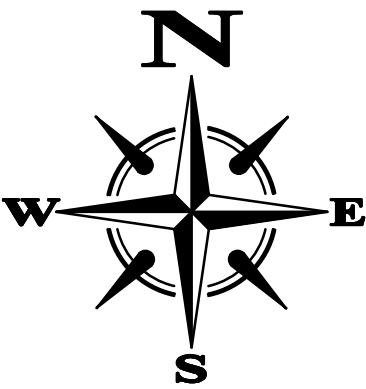
STANDARD PLANS FOR ROAD CONSTRUCTION AND ASSOCIATED IRs ARE AVAILABLE AT THE FOLLOWING WEBSITE: [HTTP://FDOT.GOV/DESIGN/STANDARDPLANS](http://fdot.gov/design/standardplans)

OWNER/DEVELOPER:

FLORIDA DEPARTMENT OF TRANSPORTATION, FY 2025-26 STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION AT THE FOLLOWING WEBSITE: [HTTP://FDOT.GOV/PROGRAMMANAGEMENT/IMPLEMENTED/SPECBOOKS](http://fdot.gov/programmanagement/implemented/specbooks)



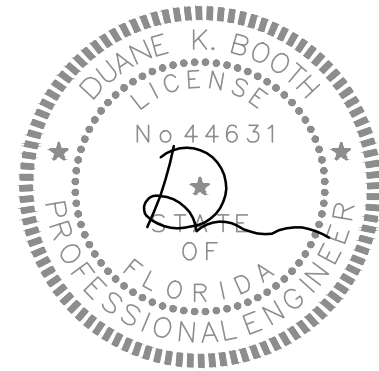
VICINITY MAP
1" = 1,000'



FEBRUARY 24, 2025
100% PLANS



ORIGINAL DOCUMENT SIZE 24"x36"



SUBMITTAL 02242025, 100% PLANS (NOT FOR CONSTRUCTION UNTIL CONFORMED)

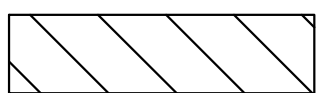
APPARENT ERRORS, DISCREPANCIES, OR OMISSIONS SHALL BE BROUGHT TO THE ENGINEER OF RECORD'S ATTENTION WITHIN A REASONABLE TIME FRAME, LESS THAN 48 HOURS AFTER DISCOVERED. ADVANTAGE WILL NOT BE TAKEN OF APPARENT ERROR OR OMISSION IN THE DRAWINGS OR SPECIFICATIONS, AND THE ENGINEER SHALL BE PERMITTED TO MAKE CORRECTIONS AND INTERPRETATIONS AS MAY BE DEEMED NECESSARY FOR FULFILLMENT OF THE INTENT OF THE DESIGN.

NOTE:
1) ALL EXISTING TRAIL SIGNAGE ALONG LIMITS OF PROJECT, TO BE REMOVED. SIGNS TO BE RETURNED TO LAKE COUNTY OFFICE OF PARKS AND TRAILS.

2) ALL EXISTING CROSSING SIGNAGE AND PAVEMENT MARKINGS TO REMAIN.

3) ALL EXISTING DUKE INFRASTRUCTURE WILL BE REMOVED/ADJUSTED/RELOCATED, BY DUKE. SHOWN ON THESE PLANS FOR INFORMATIONAL PURPOSES ONLY.

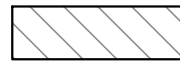
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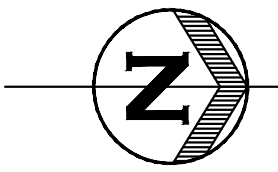
EXIST. TRAIL TO BE REMOVED



SILT FENCE OR TURBIDITY BARRIER



EXISTING DRIVEWAY TO BE MILLED AND RESURFACED PROPOSED 2" THICK ASPHALT SP-9.5



Scale: 1" = 30'
SCALE IN FEET

UTILITY CONTACTS

WATER AND WASTEWATER
POWER DISTRIBUTION

CITY OF CLERMONT
DUKE ENERGY

352-241-0178
407-905-3345

LAKE COUNTY, FLORIDA
CR 455 SOUTH LAKE TRAIL
BOARDWALK

EXISTING CONDITION
DEMOLITION/EROSION PLAN



CERTIFICATE OF AUTHORIZATION NUMBER: 33390

DATE: FEB. 24, 2025

DESIGNED BY: BDB

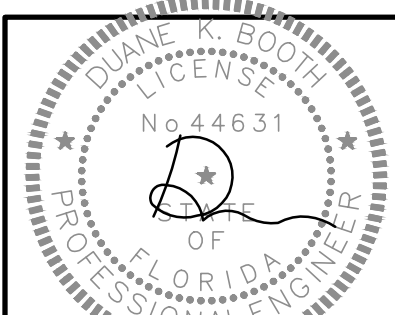
DRAWN BY: BDB

CHECKED BY: DKB

JOB NO.: 043862.081

FILE NAME: 043862.081 Base

Sheet DEC-01

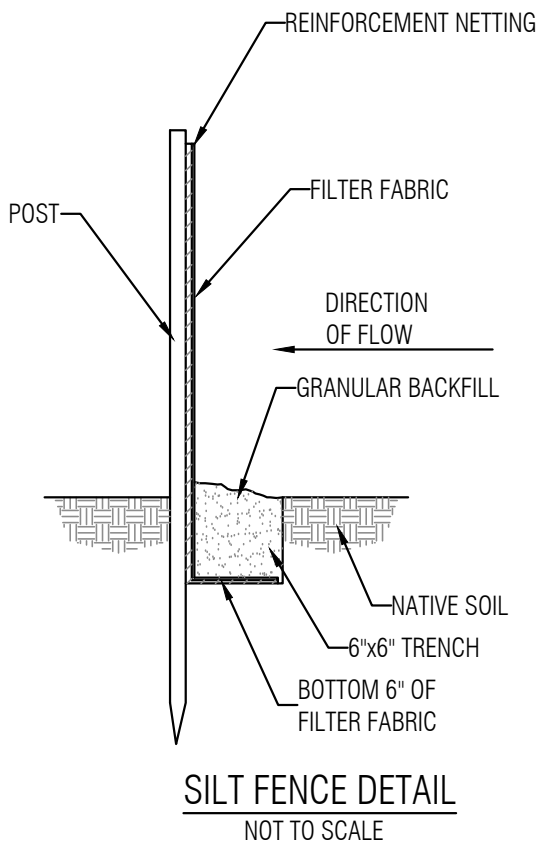


Duane K. Booth, PE
Registered Eng 44631

EROSION CONTROL NOTES:

- 1) TEMPORARY EROSION CONTROL STRUCTURE TO BE UTILIZED DURING CONSTRUCTION AT AREAS DESIGNATED BY ENGINEER OR AREAS ON-SITE WHERE UNSTABILIZED GRADES MAY CAUSE EROSION PROBLEMS. EROSION CONTROL STRUCTURE MAY BE REMOVED AFTER UPSLOPE AREA HAS BEEN STABILIZED BY SOD, OR COMPACTED AS DETERMINED BY CONTRACTOR.
- 2) EROSION AND SEDIMENT CONTROLS SHALL BE MAINTAINED BY THE CONTRACTOR TO MINIMIZE THE AMOUNT OF SOIL DISTURBED, PREVENT OFFSITE RUNOFF FROM DISCHARGING ACROSS DISTURBED AREAS, AND REMOVE ON-SITE SEDIMENT PRIOR TO DISCHARGE OF RUNOFF FROM THE SITE.
- 3) DURING CONSTRUCTION THE CONTRACTOR WILL PROVIDE TEMPORARY SEEDING FOR AREAS WHICH HAVE BEEN CLEARED AND NOT REWORKED WITHIN 7 CALENDAR DAYS. THE ENTIRE CLEARED AND UNPAVED PORTION OF THE PROJECT WILL BE SODDED OR MULCHED AND SEEDING UPON COMPLETION. BARE SOIL AREAS WILL BE KEPT TO A MINIMUM.
- 4) THE CONTRACTOR SHALL BE RESPONSIBLE FOR DAILY INSPECTION AND MAINTENANCE OF ALL EROSION CONTROL DEVICES THROUGHOUT THE CONSTRUCTION PHASE OF THE PROJECT. MAINTENANCE SHALL BE CONDUCTED IN ACCORDANCE WITH THE FDOT STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION (2021) SECTION. IF THE INSPECTION REVEALS THAT ANY DEVICES ARE FOUND IN NO WORKING ORDER OR DEFICIENT, THE CONTROLS WILL BE REPLACED IMMEDIATELY.
- 5) ALL DISTURBED AREAS SHALL BE SODDED, UNLESS OTHERWISE NOTED. CONTRACTOR IS RESPONSIBLE FOR WATERING AND MAINTAINING SOD UNTIL FULLY ESTABLISHED AND AS ADDITIONALLY SHOWN ON THE CONSTRUCTION PLANS.
- 6) THE CONTRACTOR IS RESPONSIBLE FOR MAINTENANCE AND REPAIRS OF EROSION AND SEDIMENT CONTROL DEVICES, AND REMOVAL OF EROSION AND SEDIMENT CONTROL DEVICES UNTIL ACCEPTANCE OF THE COMPLETED PROJECT BY THE OWNER.
- 7) BUILT UP SEDIMENT WILL BE REMOVED FROM SEDIMENT BARRIERS NO LATER THAN WHEN IT HAS REACHED ONE-THIRD OF THE HEIGHT OF THE FENCE.

- 8) TEMPORARY AND PERMANENT SEEDING, SODDING, AND PLANTING WILL BE INSPECTED FOR BARE SPOTS, WASHOUTS, AND HEALTHY GROWTH.
- 9) SOIL TRACKING PREVENTION DEVICE, SHALL BE INSTALLED TO PREVENT ADJACENT PAVED STREETS FROM ANY EXCESS MUD, DIRT, OR OTHER SEDIMENT FROM THE PROJECT. ANY ADJACENT STREETS THAT BECOME AFFECTED BY CONSTRUCTION ACTIVITIES, SHALL BE SWEEP IMMEDIATELY.
- 10) ALL EROSION AND WATER POLLUTION ABATEMENT AND CONTROL MEASURES WILL BE INSPECTED DAILY BY THE CONTRACTOR. INSPECTIONS ARE TO BE PERFORMED BY QUALIFIED PERSONNEL WHO HAVE COMPLETED THE FLORIDA STORMWATER, EROSION, AND SEDIMENT CONTROL TRAINING AND CERTIFICATION PROGRAM.
- 11) SILT FENCE TO BE INSTALLED PRIOR TO ANY CONSTRUCTION ACTIVITY COMMENCING.
- 12) IN THE CASE THAT THERE IS A NEED FOR DUST CONTROL, THE CONTRACTOR SHALL PROVIDE A WATER TRUCK OR IRRIGATION SYSTEM, AS NEEDED TO CONTROL DUST.
- 13) CONTRACTOR IS RESPONSIBLE FOR SECURING A NPDES CONSTRUCTION PERMIT AS WELL AS SUBMITTING A STORMWATER POLLUTION PREVENTION PLAN (SWPPP). CONTRACTOR SHALL BE RESPONSIBLE FOR COMPLIANCE WITH ALL REQUIREMENTS OF THE NPDES PERMIT AND SWPPP, IN ADDITION TO REQUIREMENTS OF THE EROSION CONTROL PLANS.
- 14) CONTRACTOR SHALL CALL SUNSHINE STATE ONE CALL OF FLORIDA, INC. AT LEAST 48 HOURS PRIOR TO EXCAVATION 1-800-432-4770.
- 15) APPARENT ERRORS, DISCREPANCIES, AND OMISSIONS SHALL BE BROUGHT TO THE ENGINEER OF RECORD'S ATTENTION IN A REASONABLE TIME FRAME LESS THAN 48 HOURS AFTER DISCOVERED. ADVANTAGE WILL NOT BE TAKEN OF APPARENT ERROR OR OMISSION IN DRAWINGS OR SPECIFICATIONS AND ENGINEER SHALL BE PERMITTED TO MAKE CORRECTIONS OR INTERPRETATIONS AS MAY BE DEEMED NECESSARY FOR FULFILLMENT OF THE INTENT OF THE DESIGN.



SILT FENCE DETAIL
NOT TO SCALE

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Scale: 1"= 30'
SCALE IN FEET

DATE	REVISION
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LAKE COUNTY, FLORIDA
CR 455 SOUTH LAKE TRAIL
BOARDWALK

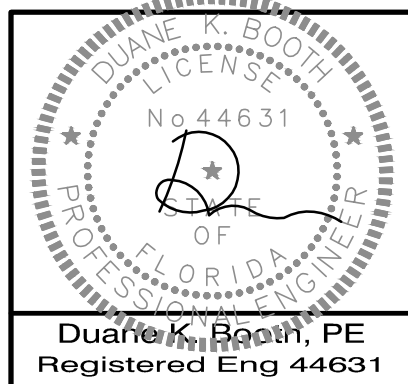
AERIAL
PLAN



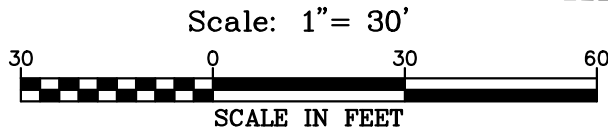
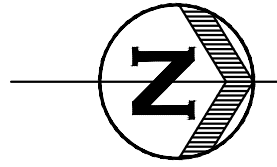
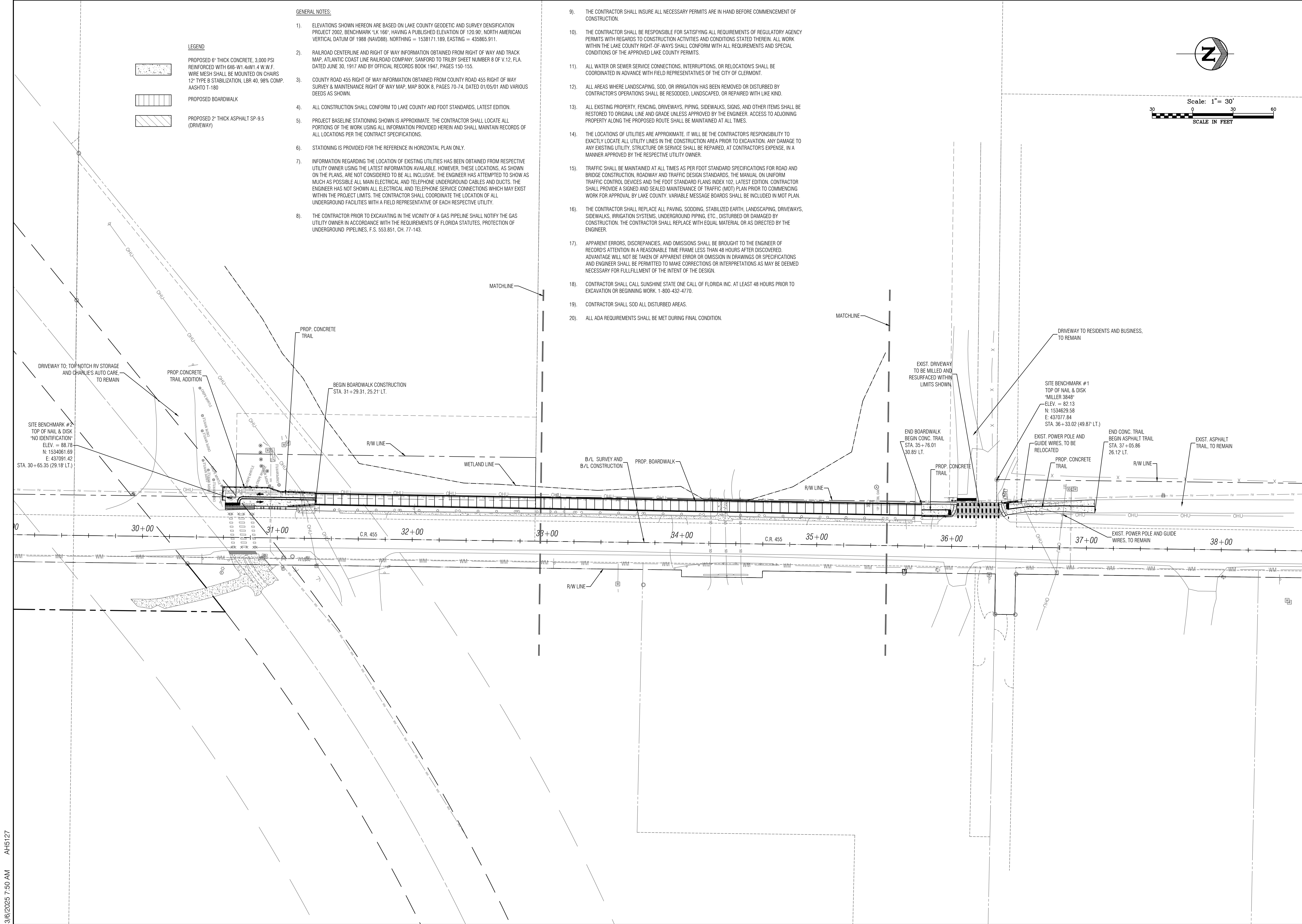
CERTIFICATE OF AUTHORIZATION NUMBER: 33390

DATE: FEB. 24, 2025
DESIGNED BY: BDB
DRAWN BY: BDB
CHECKED BY: DKB
JOB NO.: 043862.081
FILE NAME: 043862.081 Base

Sheet AP-01



Duane K. Booth, PE
Registered Eng 44631



GENERAL NOTES:

- ELEVATIONS SHOWN HEREON ARE BASED ON LAKE COUNTY GEODETIC AND SURVEY DENSIFICATION PROJECT 2002, BENCHMARK "LK 166", HAVING A PUBLISHED ELEVATION OF 120.90', NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD88), NORTHING = 1538171.189, EASTING = 435865.911.
- RAILROAD CENTERLINE AND RIGHT OF WAY INFORMATION OBTAINED FROM RIGHT OF WAY AND TRACK MAP, ATLANTIC COAST LINE RAILROAD COMPANY, SANFORD TO TRILBY SHEET NUMBER 8 OF V.12, FLA. DATED JUNE 30, 1917 AND BY OFFICIAL RECORDS BOOK 1947, PAGES 150-155.
- COUNTY ROAD 455 RIGHT OF WAY INFORMATION OBTAINED FROM COUNTY ROAD 455 RIGHT OF WAY SURVEY & MAINTENANCE RIGHT OF WAY MAP, MAP BOOK 8, PAGES 70-74, DATED 01/05/01 AND VARIOUS DEEDS AS SHOWN.
- ALL CONSTRUCTION SHALL CONFORM TO LAKE COUNTY AND FDOT STANDARDS, LATEST EDITION.
- PROJECT BASELINE STATIONING SHOWN IS APPROXIMATE. THE CONTRACTOR SHALL LOCATE ALL PORTIONS OF THE WORK USING ALL INFORMATION PROVIDED HEREIN AND SHALL MAINTAIN RECORDS OF ALL LOCATIONS PER THE CONTRACT SPECIFICATIONS.
- STATIONING IS PROVIDED FOR THE REFERENCE IN HORIZONTAL PLAN ONLY.
- INFORMATION REGARDING THE LOCATION OF EXISTING UTILITIES HAS BEEN OBTAINED FROM RESPECTIVE UTILITY OWNER USING THE LATEST INFORMATION AVAILABLE. HOWEVER, THESE LOCATIONS, AS SHOWN ON THE PLANS, ARE NOT CONSIDERED TO BE ALL INCLUSIVE. THE ENGINEER HAS ATTEMPTED TO SHOW AS MUCH AS POSSIBLE ALL MAIN ELECTRICAL AND TELEPHONE UNDERGROUND CABLES AND DUCTS. THE ENGINEER HAS NOT SHOWN ALL ELECTRICAL AND TELEPHONE SERVICE CONNECTIONS WHICH MAY EXIST WITHIN THE PROJECT LIMITS. THE CONTRACTOR SHALL COORDINATE THE LOCATION OF ALL UNDERGROUND FACILITIES WITH A FIELD REPRESENTATIVE OF EACH RESPECTIVE UTILITY.
- THE CONTRACTOR PRIOR TO EXCAVATING IN THE VICINITY OF A GAS PIPELINE SHALL NOTIFY THE GAS UTILITY OWNER IN ACCORDANCE WITH THE REQUIREMENTS OF FLORIDA STATUTES, PROTECTION OF UNDERGROUND PIPELINES, F.S. 553.851, CH. 77-143.

- THE CONTRACTOR SHALL INSURE ALL NECESSARY PERMITS ARE IN HAND BEFORE COMMENCEMENT OF CONSTRUCTION.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR SATISFYING ALL REQUIREMENTS OF REGULATORY AGENCY PERMITS WITH REGARDS TO CONSTRUCTION ACTIVITIES AND CONDITIONS STATED THEREIN. ALL WORK WITHIN THE LAKE COUNTY RIGHT-OF-WAYS SHALL CONFORM WITH ALL REQUIREMENTS AND SPECIAL CONDITIONS OF THE APPROVED LAKE COUNTY PERMITS.
- ALL WATER OR SEWER SERVICE CONNECTIONS, INTERRUPTIONS, OR RELOCATIONS SHALL BE COORDINATED IN ADVANCE WITH FIELD REPRESENTATIVES OF THE CITY OF CLERMONT.
- ALL AREAS WHERE LANDSCAPING, SOD, OR IRRIGATION HAS BEEN REMOVED OR DISTURBED BY CONTRACTOR'S OPERATIONS SHALL BE RESODDED, LANDSCAPED, OR REPAIRED WITH LIKE KIND.
- ALL EXISTING PROPERTY, FENCING, DRIVEWAYS, PIPING, SIDEWALKS, SIGNS, AND OTHER ITEMS SHALL BE RESTORED TO ORIGINAL LINE AND GRADE UNLESS APPROVED BY THE ENGINEER. ACCESS TO ADJOINING PROPERTY ALONG THE PROPOSED ROUTE SHALL BE MAINTAINED AT ALL TIMES.
- THE LOCATIONS OF UTILITIES ARE APPROXIMATE. IT WILL BE THE CONTRACTOR'S RESPONSIBILITY TO EXACTLY LOCATE ALL UTILITY LINES IN THE CONSTRUCTION AREA PRIOR TO EXCAVATION. ANY DAMAGE TO ANY EXISTING UTILITY, STRUCTURE OR SERVICE SHALL BE REPAIRED, AT CONTRACTOR'S EXPENSE, IN A MANNER APPROVED BY THE RESPECTIVE UTILITY OWNER.
- TRAFFIC SHALL BE MAINTAINED AT ALL TIMES AS PER FDOT STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION, ROADWAY AND TRAFFIC DESIGN STANDARDS, THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES AND THE FDOT STANDARD PLANS INDEX 102, LATEST EDITION. CONTRACTOR SHALL PROVIDE A SIGNED AND SEALED MAINTENANCE OF TRAFFIC (MOT) PLAN PRIOR TO COMMENCING WORK FOR APPROVAL BY LAKE COUNTY. VARIABLE MESSAGE BOARDS SHALL BE INCLUDED IN MOT PLAN.
- THE CONTRACTOR SHALL REPLACE ALL PAVING, SODDING, STABILIZED EARTH, LANDSCAPING, DRIVEWAYS, SIDEWALKS, IRRIGATION SYSTEMS, UNDERGROUND PIPING, ETC., DISTURBED OR DAMAGED BY CONSTRUCTION. THE CONTRACTOR SHALL REPLACE WITH EQUAL MATERIAL OR AS DIRECTED BY THE ENGINEER.
- APPARENT ERRORS, DISCREPANCIES, AND OMISSIONS SHALL BE BROUGHT TO THE ENGINEER OF RECORD'S ATTENTION IN A REASONABLE TIME FRAME LESS THAN 48 HOURS AFTER DISCOVERED. ADVANTAGE WILL NOT BE TAKEN OF APPARENT ERROR OR OMISSION IN DRAWINGS OR SPECIFICATIONS AND ENGINEER SHALL BE PERMITTED TO MAKE CORRECTIONS OR INTERPRETATIONS AS MAY BE DEEMED NECESSARY FOR FULLFILLMENT OF THE INTENT OF THE DESIGN.
- CONTRACTOR SHALL CALL SUNSHINE STATE ONE CALL OF FLORIDA INC. AT LEAST 48 HOURS PRIOR TO EXCAVATION OR BEGINNING WORK. 1-800-432-4770.
- CONTRACTOR SHALL SOD ALL DISTURBED AREAS.
- ALL ADA REQUIREMENTS SHALL BE MET DURING FINAL CONDITION.

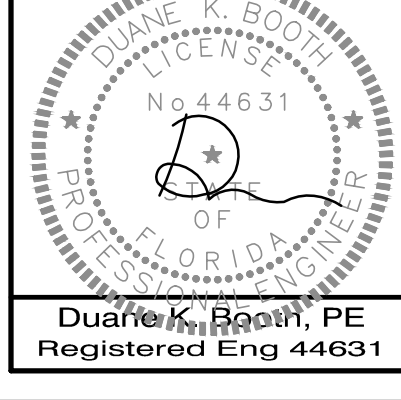
LAKE COUNTY, FLORIDA
CR 455 SOUTH LAKE TRAIL
BOARDWALK
OVERALL SITE
PLAN

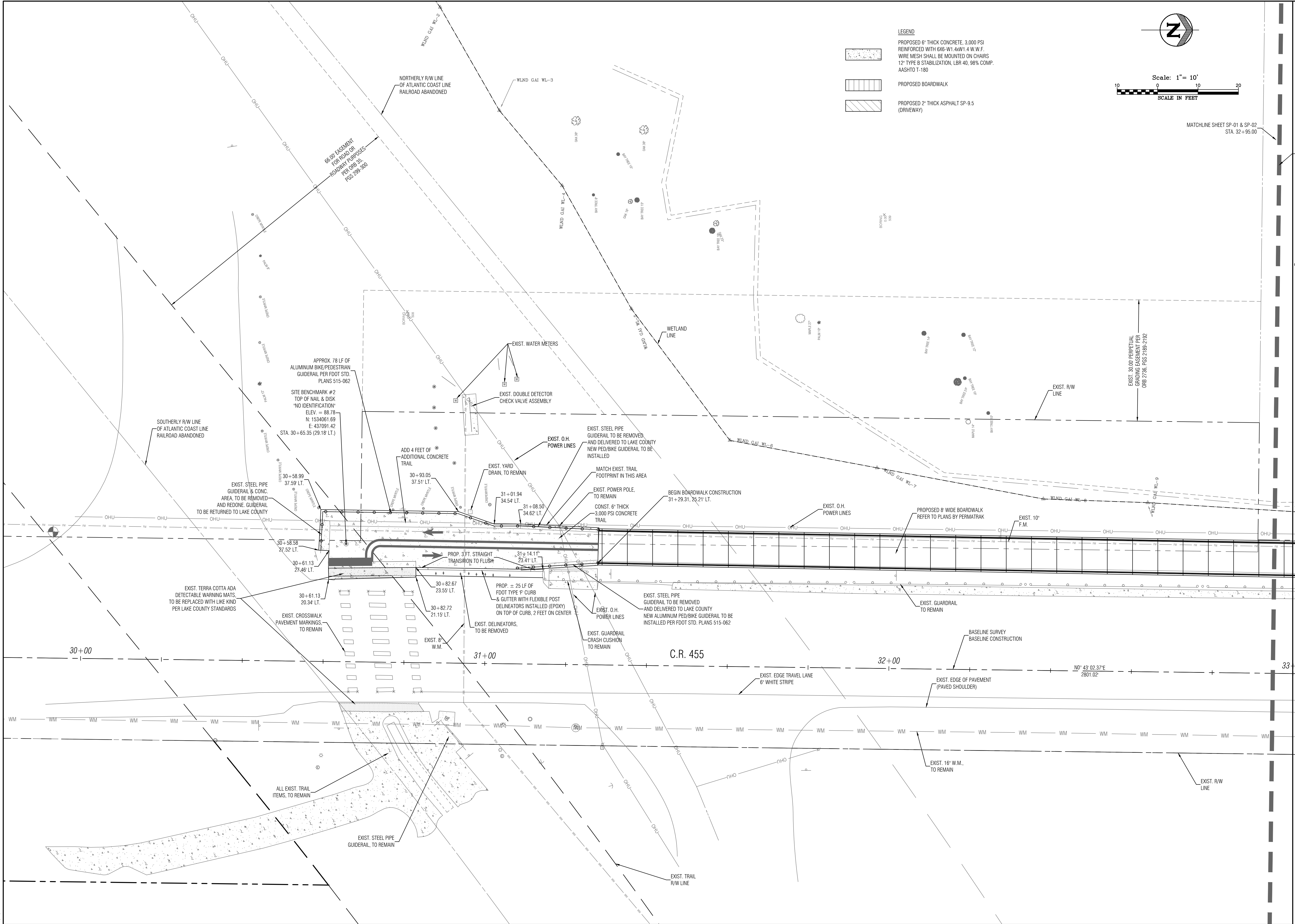


half
902 NORTH SINGLARI AVE
TAVARES, FLORIDA 32718
TEL: (352) 343-6461

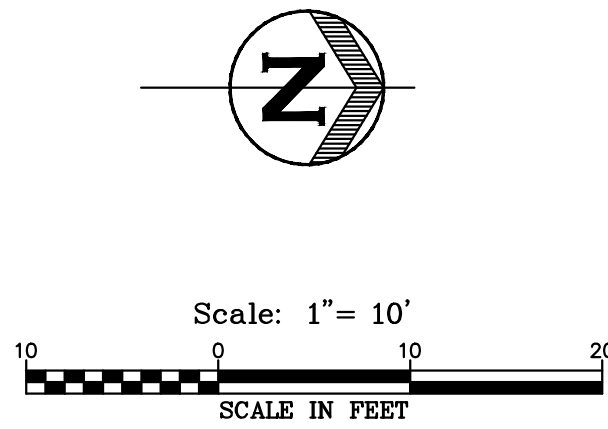
CERTIFICATE OF AUTHORIZATION NUMBER: 33390

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DESIGNED BY:	BDB
DRAWN BY:	BDB
CHECKED BY:	DKB
JOB NO.:	043862.081
FILE NAME:	043862.081 Base
Sheet OSP-01	





- LEGEND**
- PROPOSED 6" THICK CONCRETE, 3,000 PSI REINFORCED WITH 6X6-W1.4XW1.4 W.W.F. WIRE MESH SHALL BE MOUNTED ON CHAIRS 12" TYPE B STABILIZATION, LBR 40, 98% COMP. AASHTO T-180
 - PROPOSED BOARDWALK
 - PROPOSED 2" THICK ASPHALT SP-9.5 (DRIVEWAY)



MATCHLINE SHEET SP-01 & SP-02
STA. 32+95.00

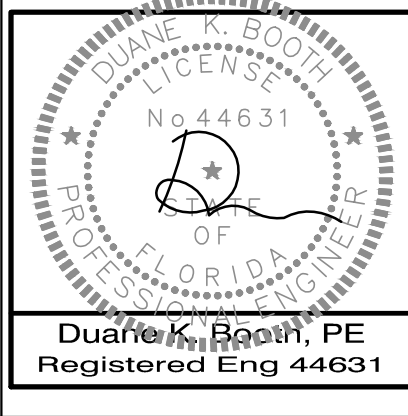
LAKE COUNTY, FLORIDA
**CR 455 SOUTH LAKE TRAIL
BOARDWALK**
SITE PLAN (1)

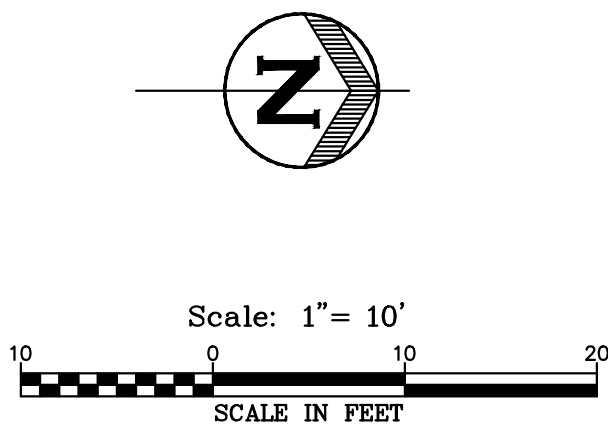
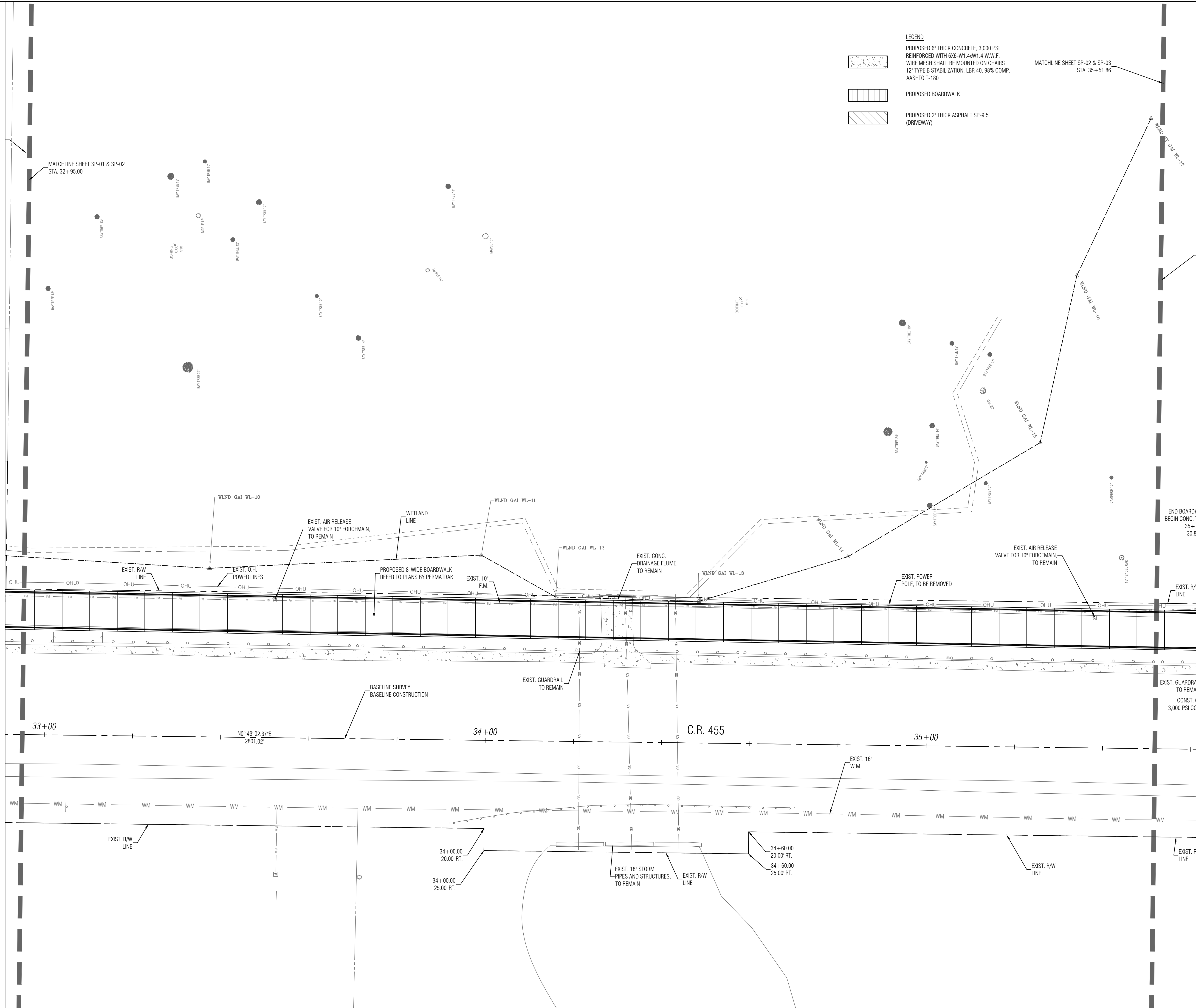


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902 NORTH SINGLARI AVE
TAVARES, FLORIDA 32778
TEL: (352) 343-5461

CERTIFICATE OF AUTHORIZATION NUMBER: 33390

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FILE NAME: 043862.081 Base
Sheet SP-01





DATE	REVISION							
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LAKE COUNTY, FLORIDA

CR 455 SOUTH LAKE TRAIL BOARDWALK

SITE PLAN (2)

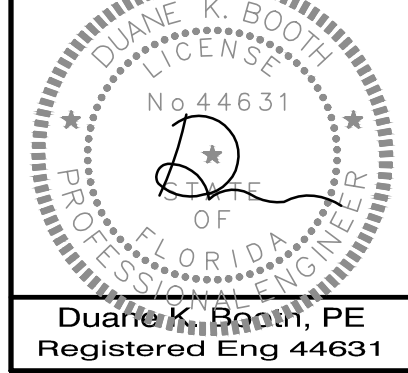


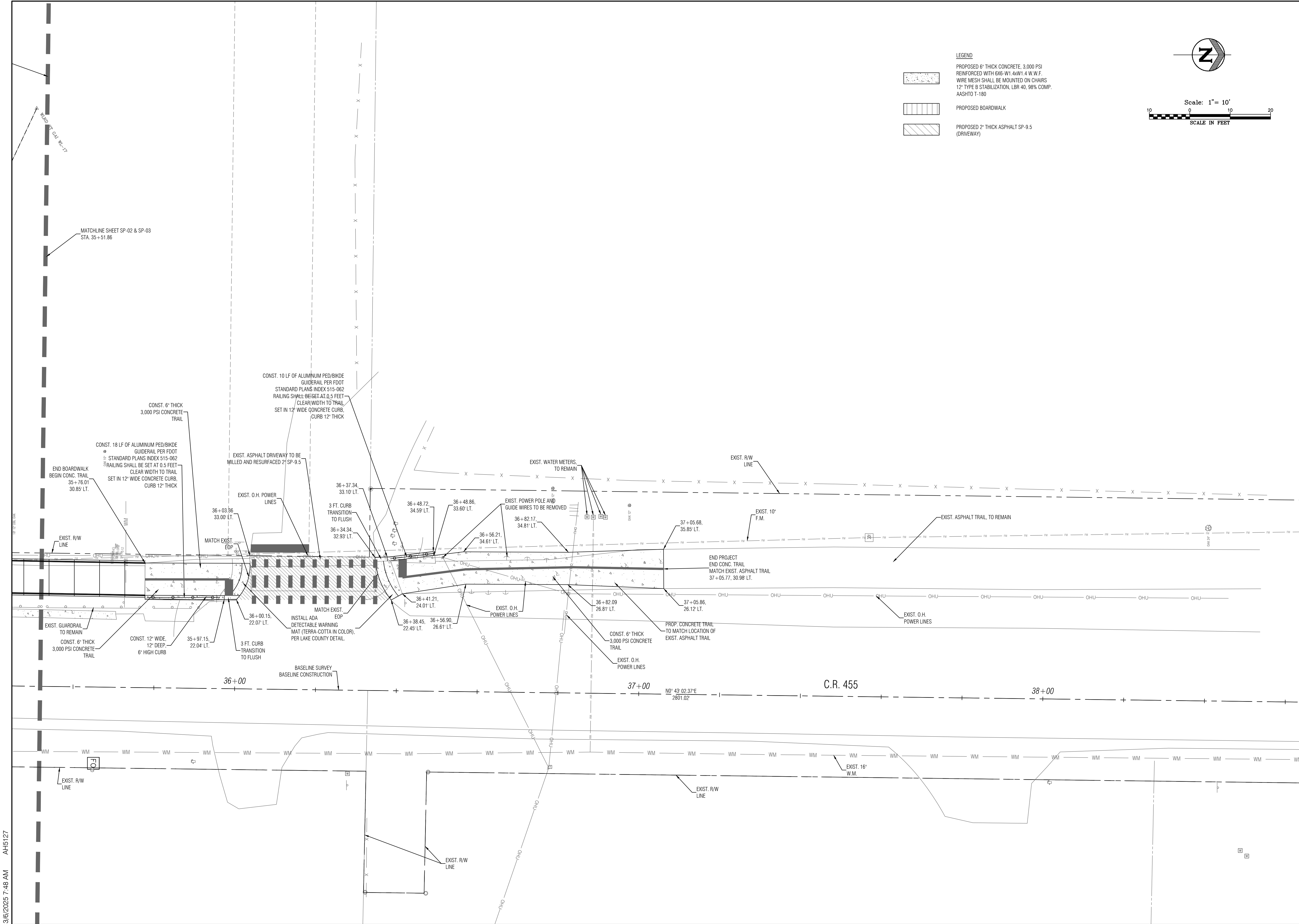


902 NORTH SINGLARI AVE
TAVARES, FLORIDA 32778
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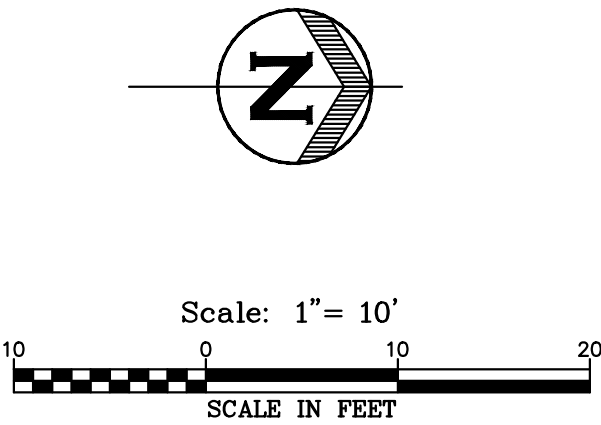
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DESIGNED BY:	BDB
DRAWN BY:	BDB
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FILE NAME:	043862.081 Base
Sheet SP-02	





- LEGEND**
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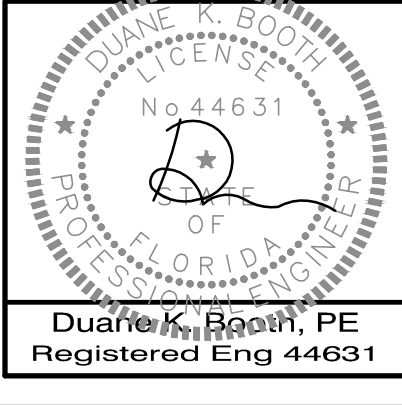
LAKE COUNTY, FLORIDA
**CR 455 SOUTH LAKE TRAIL
BOARDWALK**
SITE PLAN (3)



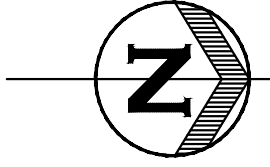
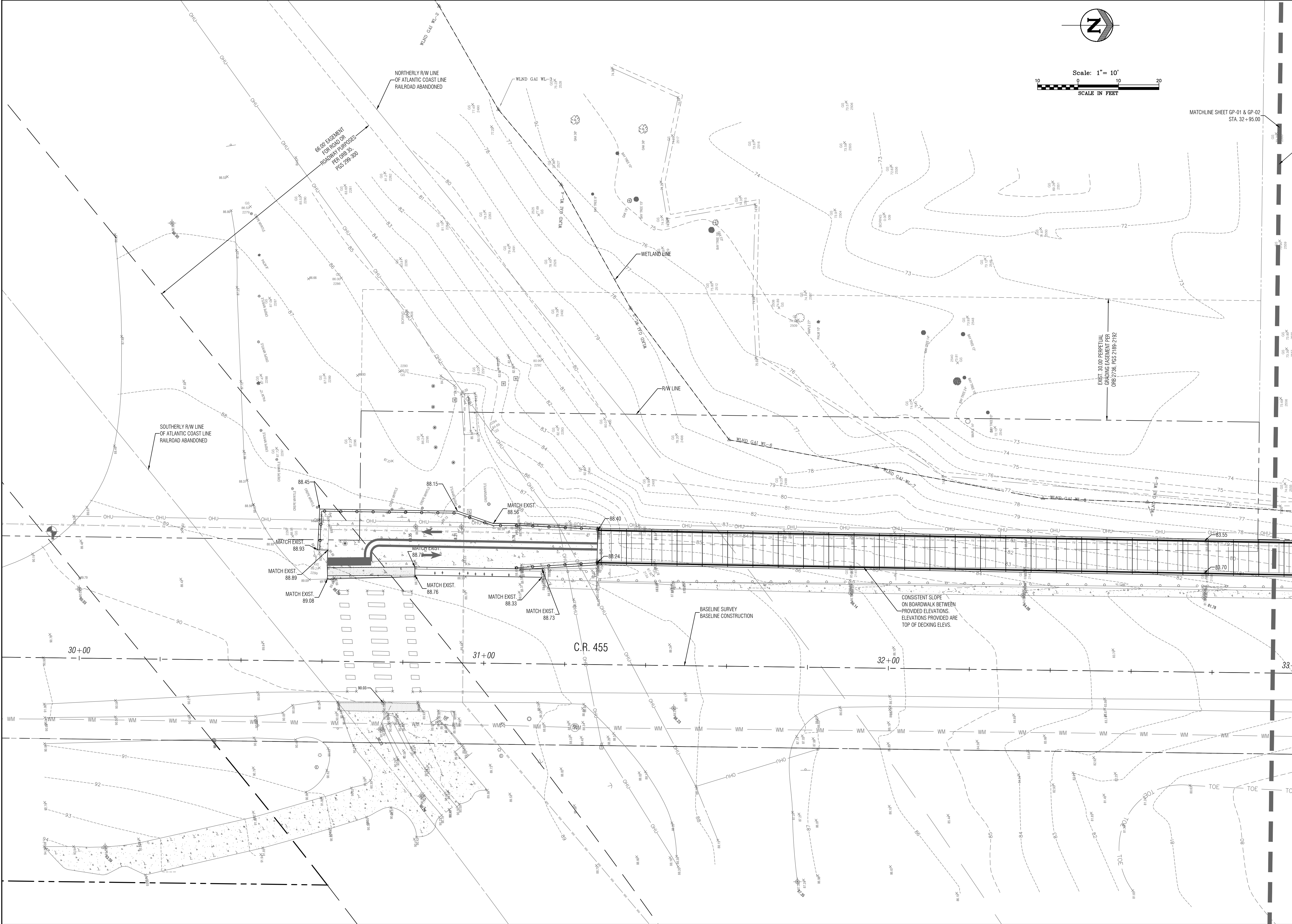
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902 NORTH SINGLAVE
TAVARES, FLORIDA 32718
TEL: (352) 343-5461

CERTIFICATE OF AUTHORIZATION NUMBER: 30390

DATE:	FEB. 24, 2025
DESIGNED BY:	BDB
DRAWN BY:	BDB
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JOB NO.:	043862.081
FILE NAME:	043862.081 Base
Sheet SP-03	



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Scale: 1"= 10'
SCALE IN FEET

MATCHLINE SHEET GP-01 & GP-02
STA. 32+95.00

LAKE COUNTY, FLORIDA
CR 455 SOUTH LAKE TRAIL
BOARDWALK
GRADING PLAN (1)



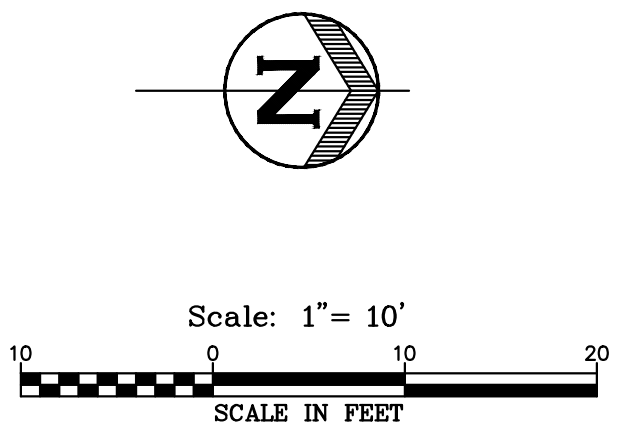
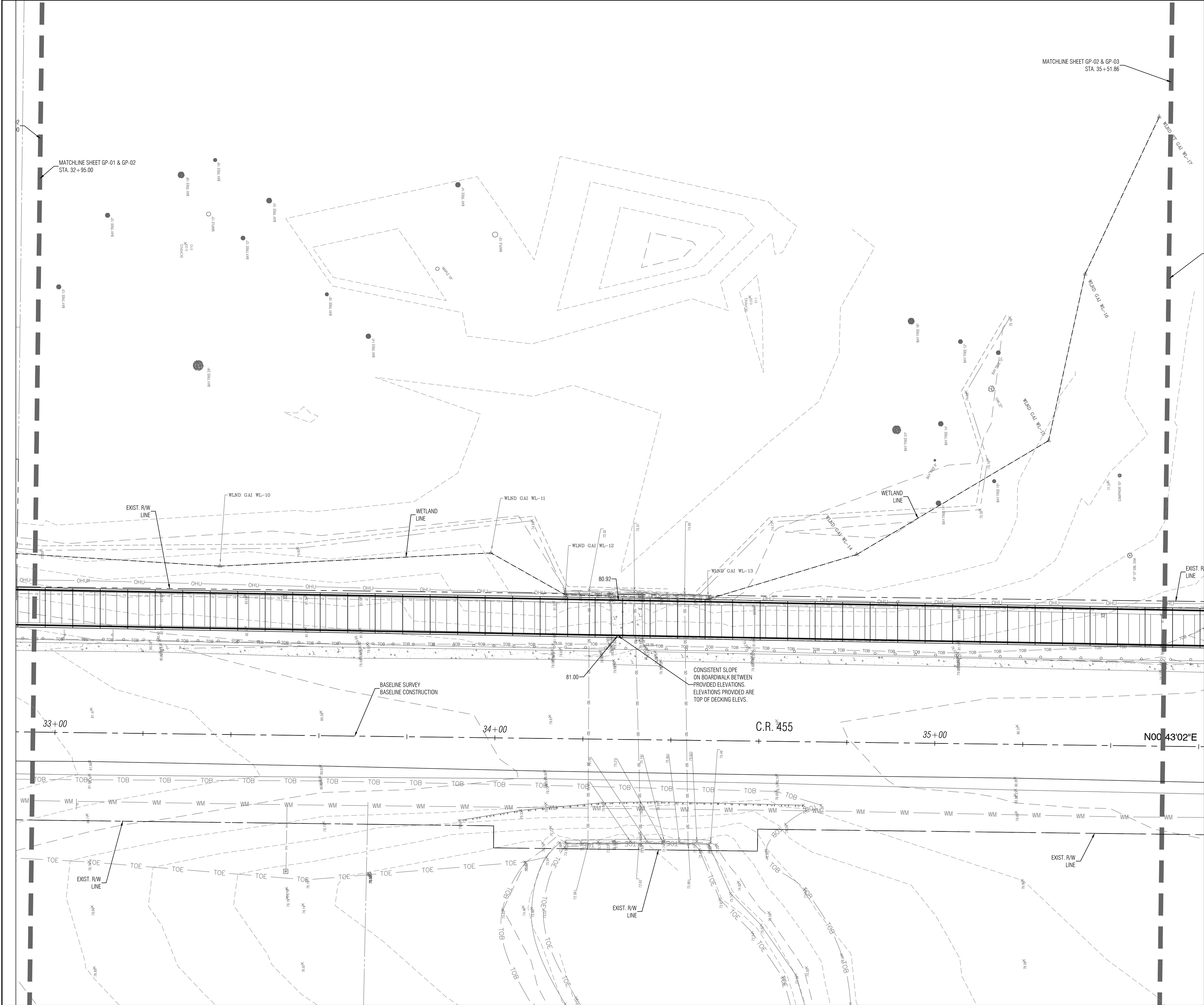
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Sheet GP-01	

DUANE K. BOOTH
Professional Engineer
No. 44631
FLORIDA
REGISTERED ENGINEER

DUANE K. BOOTH, PE
Registered Eng 44631



DATE	REVISION							
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LAKE COUNTY, FLORIDA

CR 455 SOUTH LAKE TRAIL BOARDWALK

GRADING PLAN (2)

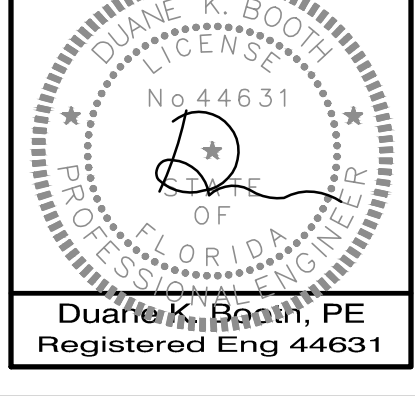




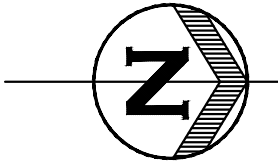
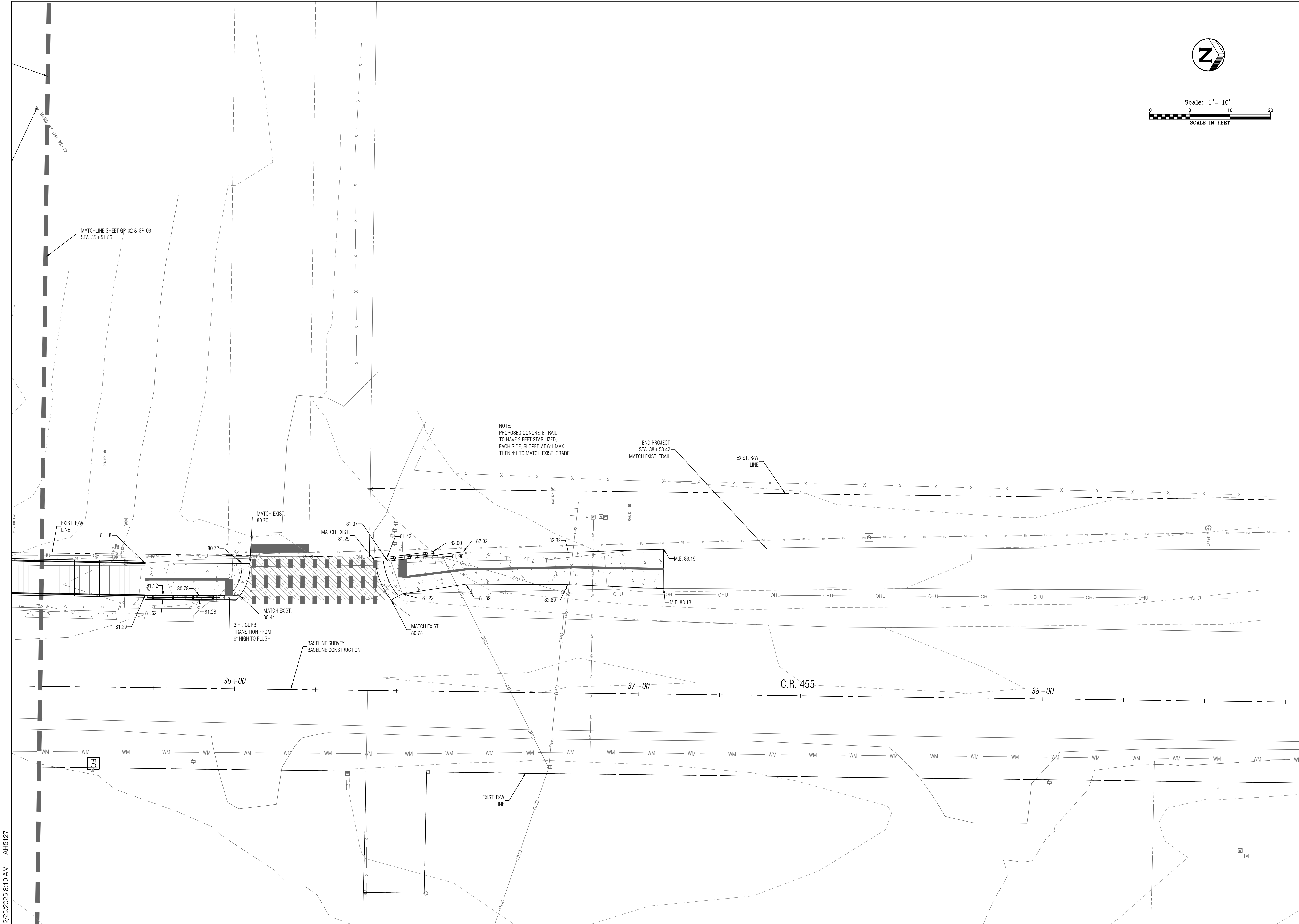
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Scale: 1" = 10'
SCALE IN FEET

LAKE COUNTY, FLORIDA
CR 455 SOUTH LAKE TRAIL
BOARDWALK
GRADING PLAN (3)

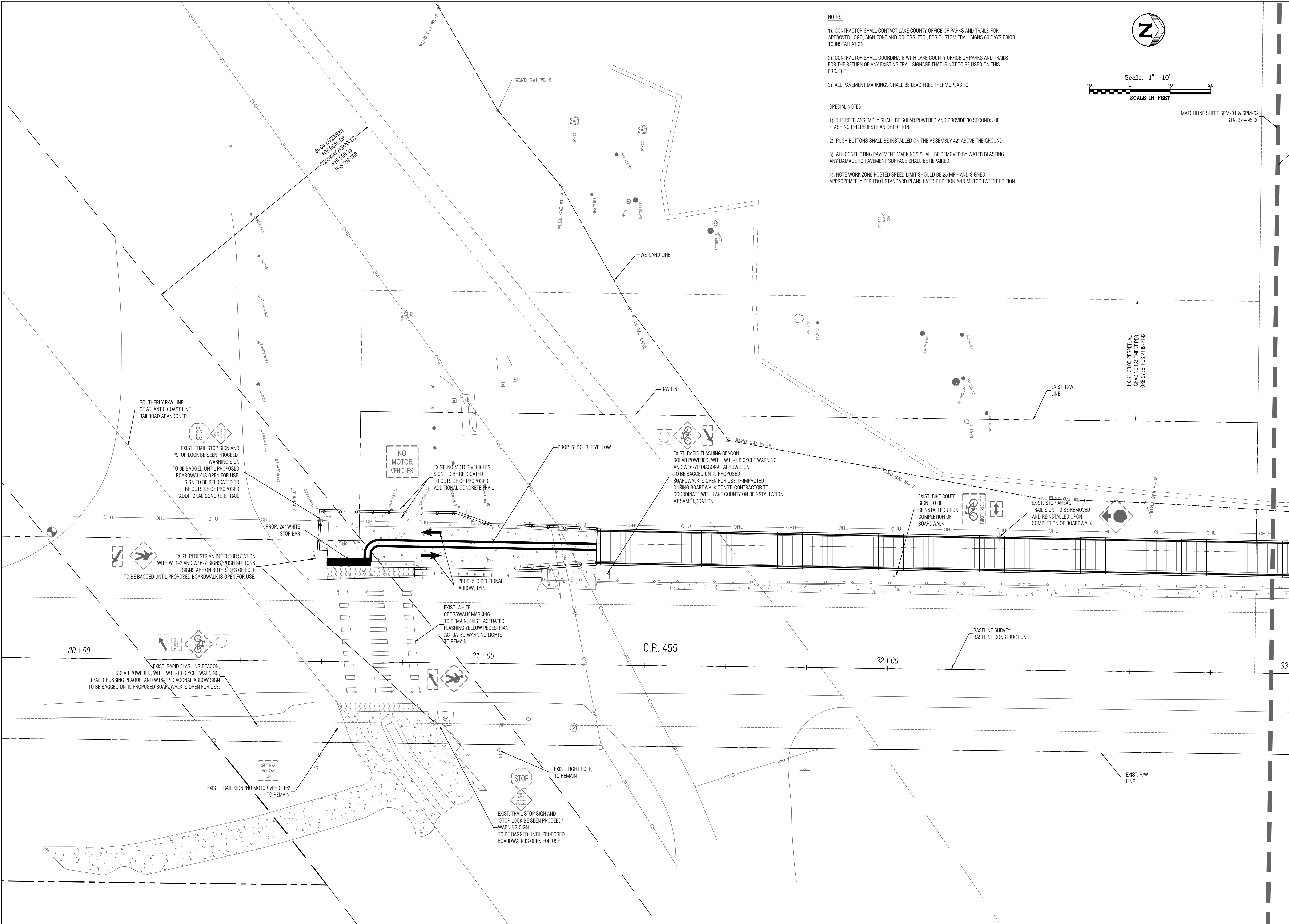


half
902 NORTH SINGLARI AVE
TAVARES, FLORIDA 32778
TEL: (352) 343-0461

CERTIFICATE OF AUTHORIZATION NUMBER: 33390

DATE: FEB. 24, 2025
DESIGNED BY: BDB
DRAWN BY: BDB
CHECKED BY: DKB
JOB NO.: 043862.081
FILE NAME: 043862.081 Base
Sheet GP-03

Duane K. Booth, PE
Registered Eng 44631

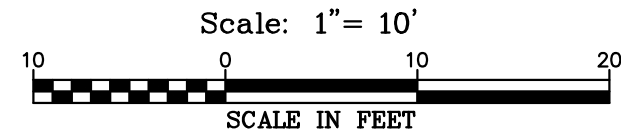
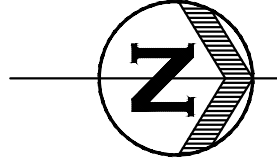


NOTES:

- 1). CONTRACTOR SHALL CONTACT LAKE COUNTY OFFICE OF PARKS AND TRAILS FOR APPROVED LOGO, SIGN FONT AND COLORS, ETC., FOR CUSTOM TRAIL SIGNS 60 DAYS PRIOR TO INSTALLATION.
- 2). CONTRACTOR SHALL COORDINATE WITH LAKE COUNTY OFFICE OF PARKS AND TRAILS FOR THE RETURN OF ANY EXISTING TRAIL SIGNAGE THAT IS NOT TO BE USED ON THIS PROJECT.
- 3). ALL PAVEMENT MARKINGS SHALL BE LEAD FREE THERMOPLASTIC.

SPECIAL NOTES:

- 1). THE RFB ASSEMBLY SHALL BE SOLAR POWERED AND PROVIDE 30 SECONDS OF FLASHING PER PEDESTRIAN DETECTION.
- 2). PUSH BUTTONS SHALL BE INSTALLED ON THE ASSEMBLY 42" ABOVE THE GROUND.
- 3). ALL CONFLICTING PAVEMENT MARKINGS SHALL BE REMOVED BY WATER BLASTING. ANY DAMAGE TO PAVEMENT SURFACE SHALL BE REPAIRED.
- 4). NOTE WORK ZONE POSTED SPEED LIMIT SHOULD BE 25 MPH AND SIGNED APPROPRIATELY PER FDOT STANDARD PLANS LATEST EDITION AND MUTCD LATEST EDITION.



MATCHLINE SHEET SPM-01 & SPM-02
STA. 32+95.00

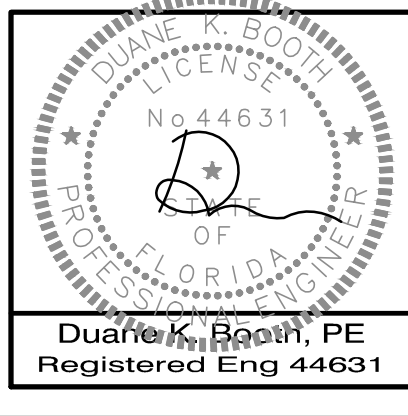
LAKE COUNTY, FLORIDA
CR 455 SOUTH LAKE TRAIL
BOARDWALK
SIGNAGE & PAVEMENT
MARKING PLAN (1)

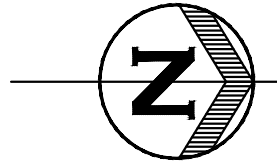
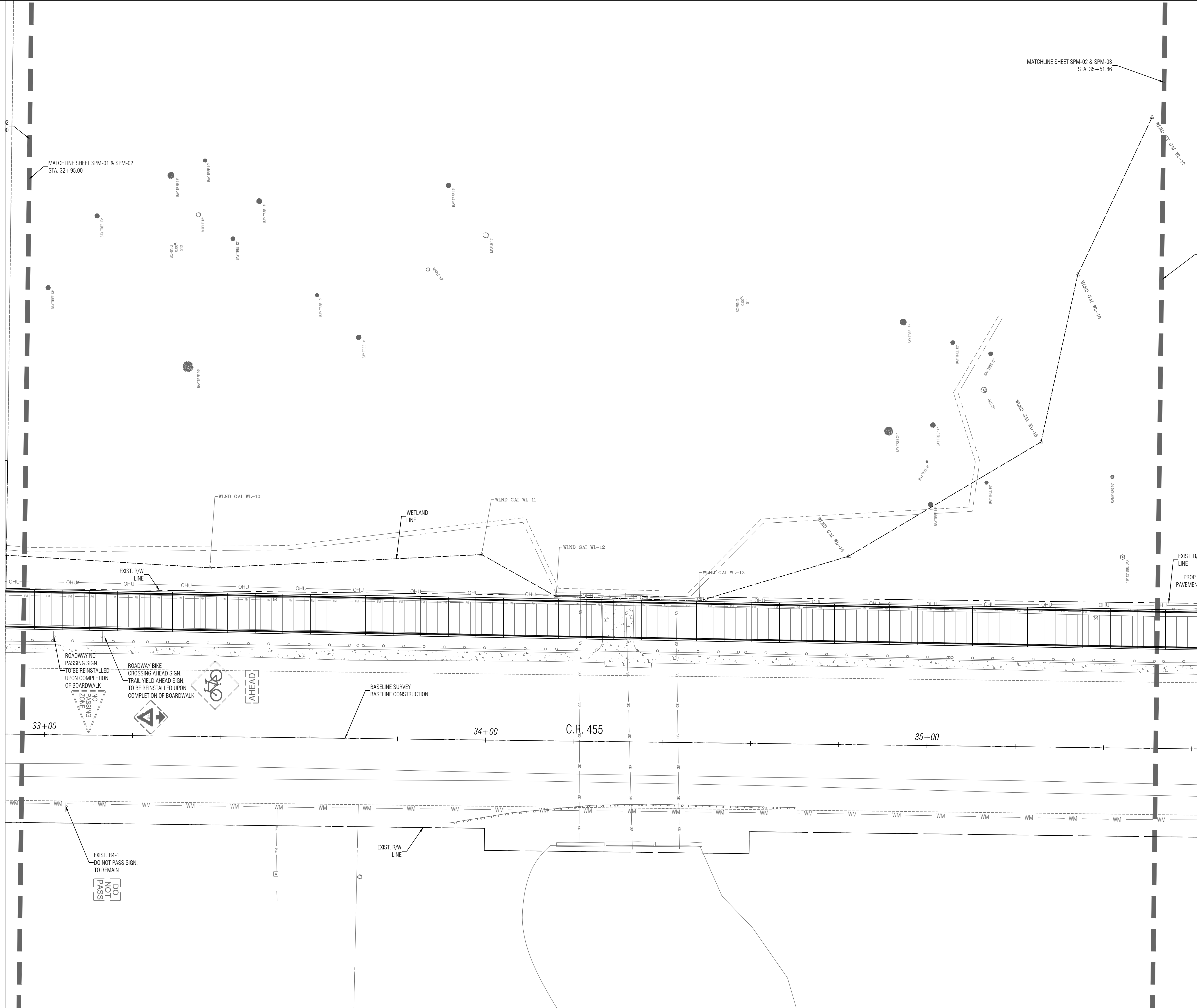


half
902 NORTH SINGLARI AVE
TAVARES, FLORIDA 32778
TEL: (352) 343-5461

CERTIFICATE OF AUTHORIZATION NUMBER: 33390

DATE:	FEB. 24, 2025
DESIGNED BY:	BDB
DRAWN BY:	BDB
CHECKED BY:	DKB
JOB NO.:	043862.081
FILE NAME:	043862.081 Base
Sheet SPM-01	





Scale: 1"= 10'
SCALE IN FEET

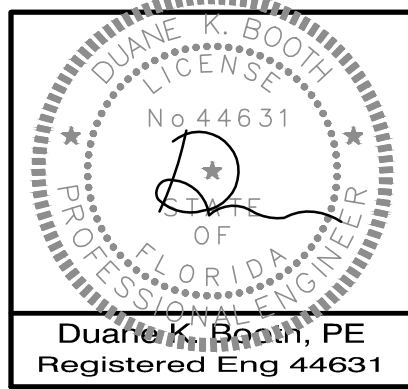
LAKE COUNTY, FLORIDA
CR 455 SOUTH LAKE TRAIL
BOARDWALK
SIGNAGE & PAVEMENT
MARKING PLAN (2)

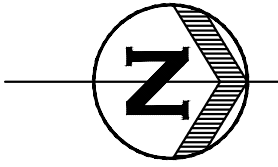
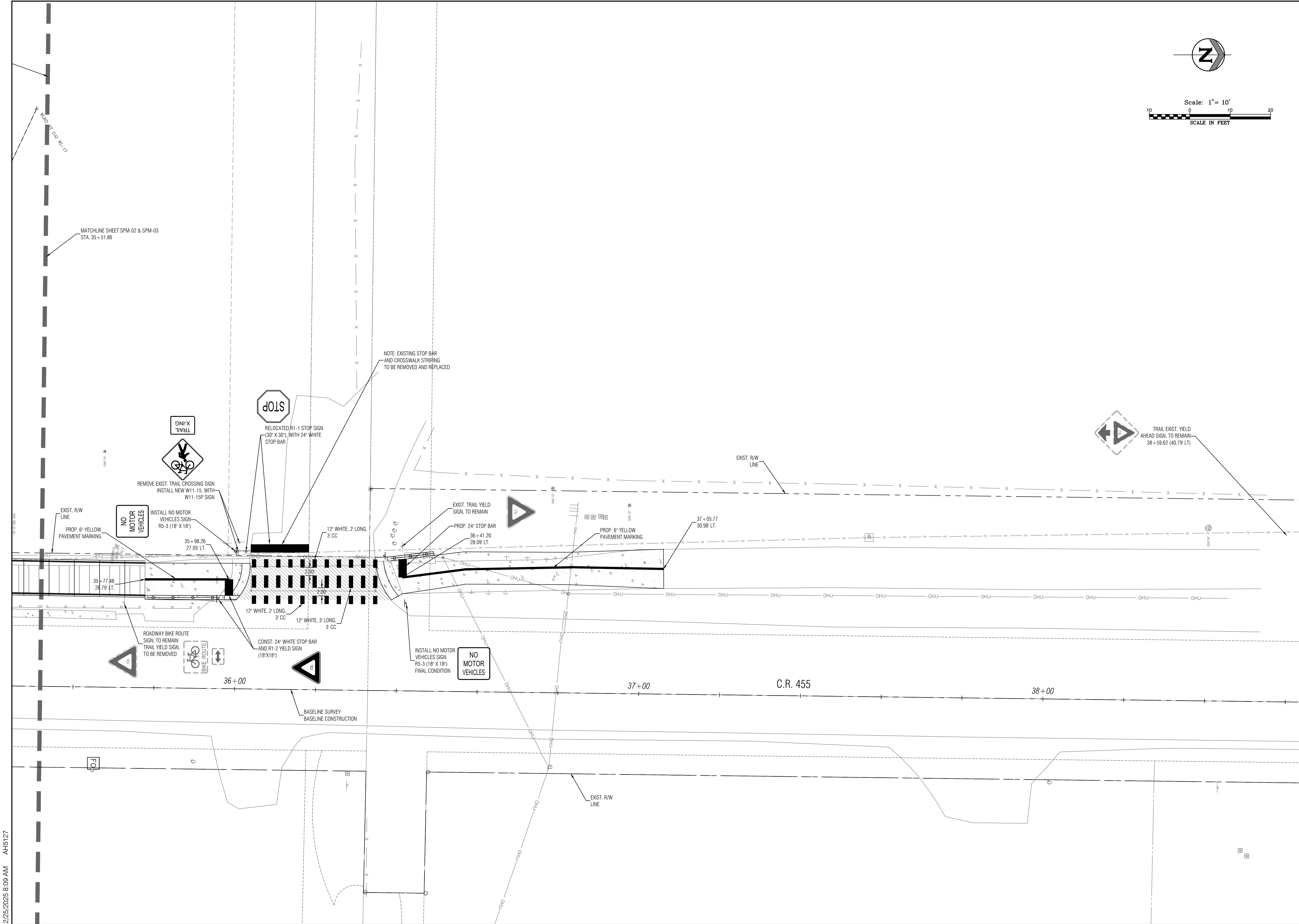


half
902 NORTH SINGLARI AVE
TAVARES, FLORIDA 32778
TEL: (352) 343-6461

CERTIFICATE OF AUTHORIZATION NUMBER: 38390

DATE:	FEB. 24, 2025
DESIGNED BY:	BDB
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CHECKED BY:	DKB
JOB NO.:	043862.081
FILE NAME:	043862.081 Base
Sheet SPM-02	





Scale: 1" = 10'
SCALE IN FEET

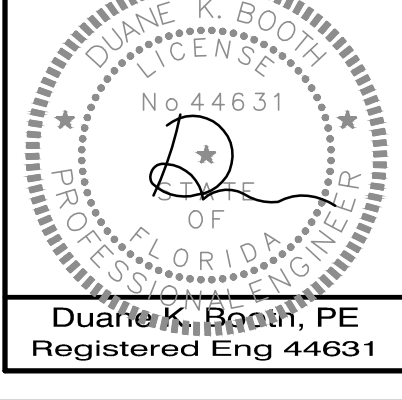
LAKE COUNTY, FLORIDA
CR 455 SOUTH LAKE TRAIL
BOARDWALK
SIGNAGE & PAVEMENT
MARKING PLAN (3)

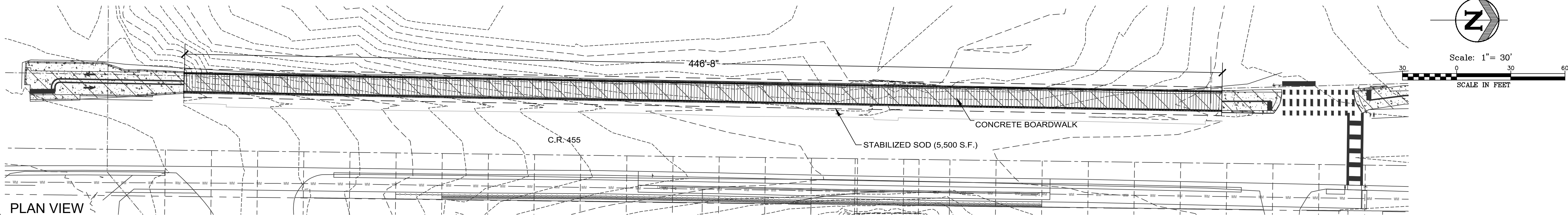


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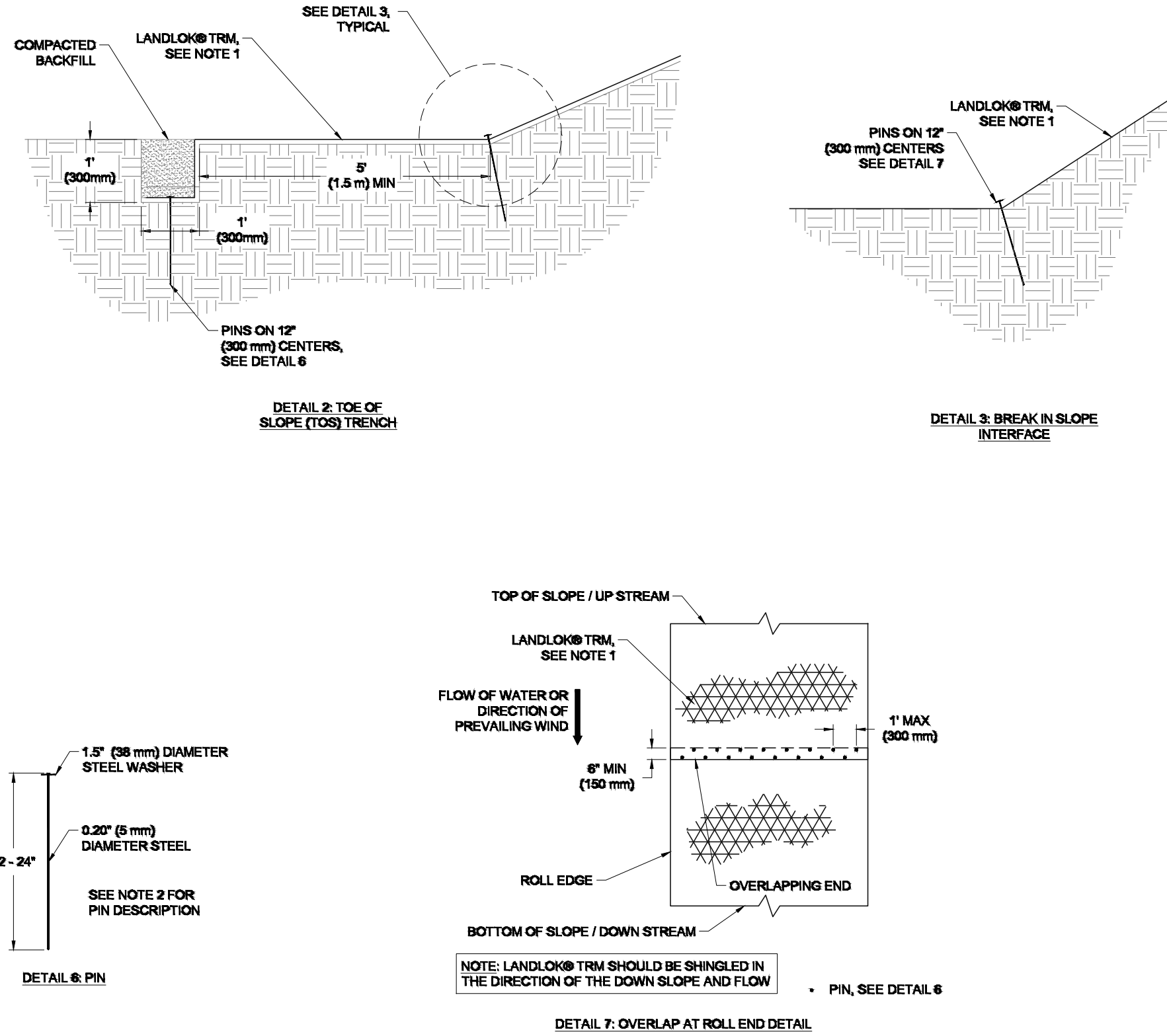
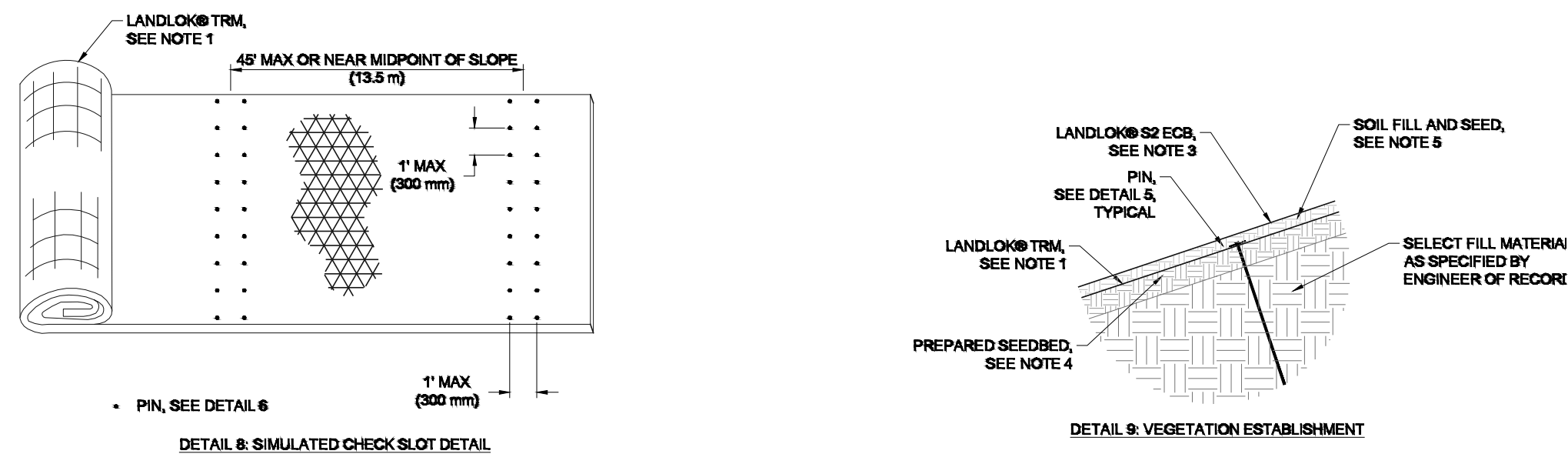
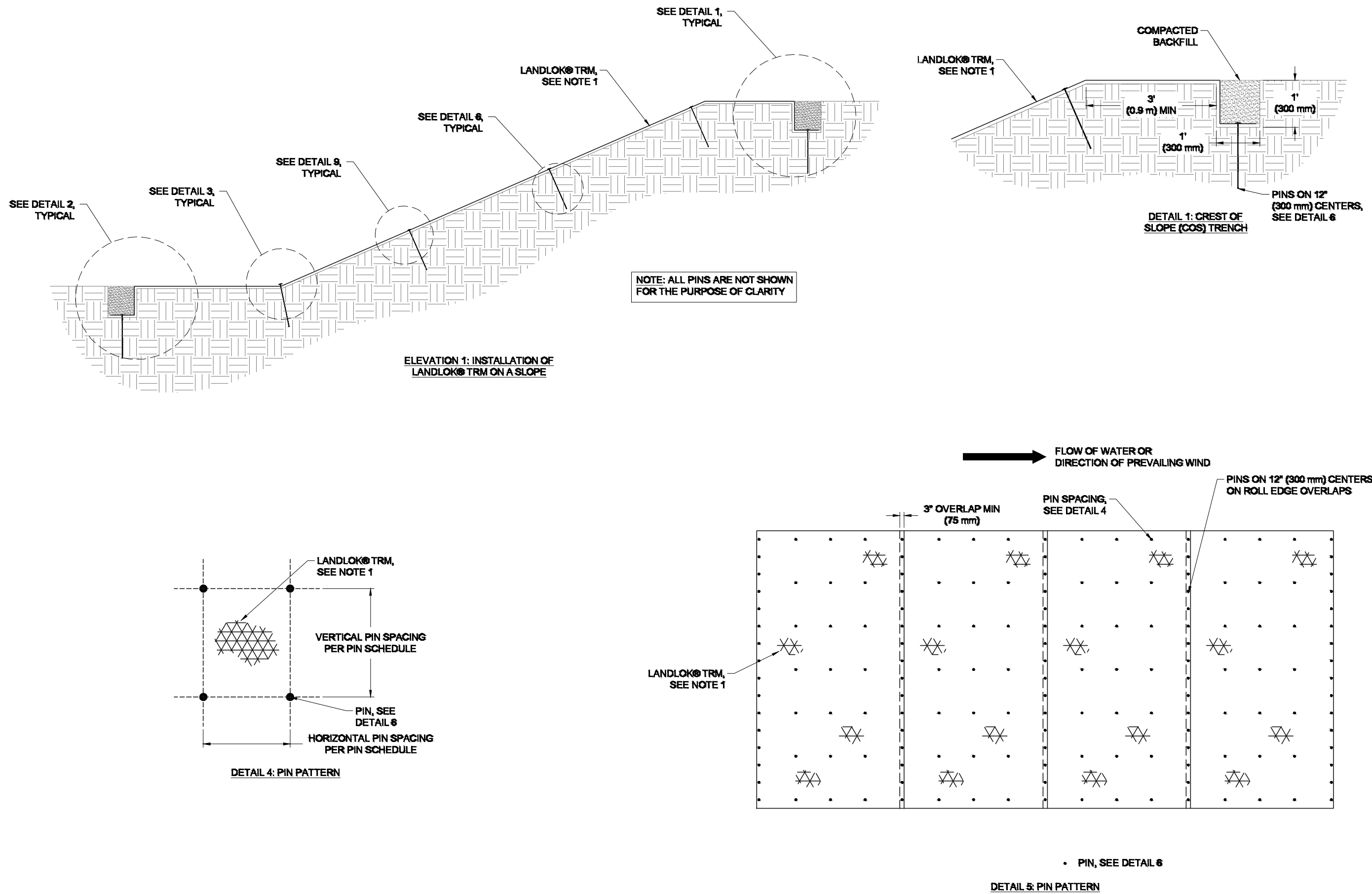
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CHECKED BY:	DKB
JOB NO.:	043862.081
FILE NAME:	043862.081 Base
Sheet	SPM-03





1
DET-01
PLAN VIEW
1" = 30'-0"



TURF REINFORCEMENT MATS (TRMS) - TYPE 1

INSTALLATION:

1. GRADE AND COMPACT AREAS TO BE PROTECTED WITH TRMS AS INDICATED ON THE PLANS.
2. REMOVE LARGE ROCKS, SOIL CLOUDS, VEGETATION, AND OTHER SHARP OBJECTS THAT COULD KEEP THE TRM FROM INTIMATE CONTACT WITH THE SUBGRADE.
3. PREPARE SEEDBED BY LOOSENING 2 TO 3 INCHES OF SOIL ABOVE FINAL GRADE.
4. THE PROPER INSTALLATION OF TRMS IS DIFFERENT FOR EACH PRODUCT, THEREFORE THE RECOMMENDED INSTALLATION PROCEDURE FROM THE SPECIFIC MANUFACTURER SHOULD BE FOLLOWED.
5. WHEN REQUESTED, A MANUFACTURER'S REPRESENTATIVE MAY BE REQUIRED TO BE ON-SITE TO OVERSEE AND APPROVE THE INITIAL INSTALLATION OF THE TRM. WHEN REQUESTED, A LETTER FROM THE MANUFACTURER APPROVING THE CONTRACTOR INSTALLATION MAY BE REQUIRED.

LANDLOK TRM ON A SLOPE FOR EROSION CONTROL GENERAL INSTALLATION GUIDELINES

GENERAL NOTES

1. The LANDLOK TRM is a three-dimensional, lofty, stitch-bonded polypropylene geotextile which is specially designed for erosion control applications on steep slopes and vegetated waterways. The matrix is composed of a dense web of crimped, interlocking fibers featuring X39 technology positioned between two biaxially oriented nets and mechanically bound together by parallel stitching with polypropylene thread. The material exhibits very high interlock and reinforcement capacity with both soil and root systems, demonstrates superior UV resistance, and enhances seedling emergence.
2. The 12", 18", and 24" Securing Pins are composed of a wire, mushroomed at the top. A washer is then placed on the wire and the wire is crimped or swaged about 3-10" below the top so the washer will not slide off. The end of the wire is cut at a 45 degree angle for easy penetration of the soil. These Pins with washers conform to industry standards for erosion control pins with washers.
3. Landlok® S2 Erosion Control Blankets consist of 100% wheat straw mechanically bound and covered on both sides by netting. The straw is homogeneously blended and evenly distributed throughout the blanket. The netting is photodegradable polypropylene with mesh openings of approximately 3/8 in. by 3/8 in. (11 mm by 11 mm). The blanket is sewn on approximately 2 in. (51 mm) centers with photodegradable polypropylene thread. This product is NTPPEP approved for AASHTO standards.

VEGETATION ESTABLISHMENT

4. Prepare seedbed by loosening 50 to 75 mm (2 to 3 in) of soil above final grade. Apply seed in an amount equivalent to 60% of the total mixture required to be installed on the soil surface, to scarified surface prior to installation of the LANDLOK TRM. Select and apply soil amendments and fertilizer, to scarified surface prior to installation of the LANDLOK TRM. A site specific soil test should be performed to help determine what soil amendments, such as lime and fertilizer, need to be incorporated into the soil to promote healthy vegetation.
5. The installed LANDLOK TRM shall be soil filled and seeded with the remaining 40% of the seed mixture. Do not place excessive soil above material. Once soil fill and additional seed is in place, surficial protection should be accomplished by installing LANDLOK® S2 Erosion Control Blanket (ECB) atop the seed layer. LANDLOK® S2 ECB is to be secured using 6" U-shaped staples with a frequency of 2.0 staples per square meter (1.7 staples per square yard).
6. Irrigate as necessary to establish and maintain vegetation until 75% of vegetation has established and has reached a height of 2 inches. Frequent, light irrigation will need to be applied to seeded areas if natural rain events have not occurred within two weeks of seeding.

BEFORE INSTALLATION BEGINS

7. Coordinate with a Propex Representative: A pre-construction meeting is suggested with the construction team and a representative from Propex. This meeting should be scheduled by the contractor with at least a two week notice.
8. Gather the Tools Needed: Tools that you will need to install the LANDLOK TRM include a pair of industrial shears to cut the LANDLOK TRM and tape measure.
9. Determine how to Establish Vegetation: The method of vegetation establishment should be determined prior to the start of installation. Different vegetation establishment methods require different orders of installation. Refer to Establish Vegetation for further guidance.
10. Please consult the Propex Website for the most up to date installation guidelines.

PIN SCHEDULE	
SECURING DEVICE	PIN
HORIZONTAL PIN SPACING	2' (0.60 m)
VERTICAL PIN SPACING	2.5' (0.75 m)
EMBEDMENT DEPTH	PER MANUFACTURERS DESIGN



EROSION CONTROL INSTALLATION DETAILS

Please note that the information presented herein is general information only. It is for conceptual use only and not intended to be used for construction. While every effort has been made to ensure its accuracy, this information should not be used for a specific application without independent professional examination and verification of its suitability, applicability, and accuracy. This engineering drawing is protected by the Copyright Act, 17 U.S.C. § 101 et seq. and may be used ONLY with the express written permission of Propex in connection with Propex products. Any copying, distributing, and/or creation of a derivative work without permission of Propex is prohibited and is subject of actual damages, statutory damages and attorney's fees under the Copyright Act.

1 of 1	LANDLOK®	TURF REINFORCEMENT MAT (TRM)
Date: 02/10/2017	Drawn By: J.HILL	Scale: NTS
*ALL DIMENSIONS ARE TO BE VERIFIED BY ENGINEER OF RECORD		

REFER TO PROPEX GEOSOLUTIONS LANDLOK TRM FOR ADDITIONAL DETAILS:
<https://craft.propexglobal.com/uploads/installation-details/Slope-Installation-Details-LANDLOK-TRM.pdf>

2
DET-02
STABILIZATION DETAIL
1" = 1'-0"

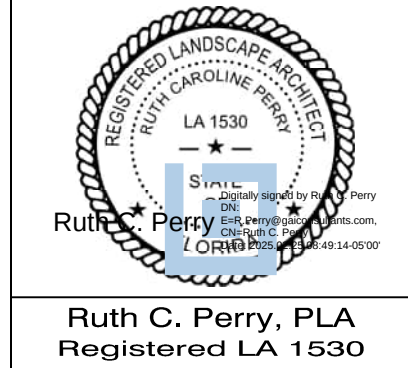
REVISION	DATE	BY	APP	DESCRIPTION
1	02/10/2017	J.HILL		INITIAL DESIGN

LAKE COUNTY, FLORIDA
CR 455 SOUTH LAKE TRAIL
BOARDWALK
BOARDWALK DETAILS



half
902 NORTH SINGLAVILLE AVE
TAVARES, FLORIDA 32778
TEL: (352) 343-0461
CERTIFICATE OF AUTHORIZATION NUMBER: 33390

DATE: 02/24/2025
DESIGNED BY: RP
DRAWN BY: RP
CHECKED BY: DKB
JOB NO.: 043862.081
FILE NAME: 043862.081 Base
Sheet DET-01



618 E. SOUTH STREET
SUITE 700
ORLANDO, FL 32801
407 423-8398

A GAI CONSULTANTS, INC SERVICE GROUP
CERTIFICATE OF AUTHORIZATION: E89951

R200377.00

CR 455 SOUTH LAKE TRAIL BOARDWALK

GENERAL NOTES

GENERAL

- THIS STRUCTURE HAS BEEN DESIGNED IN ACCORDANCE WITH THE PROJECT ARCHITECTS PLAN LAYOUT AND GUIDELINES. SUITABILITY FOR ACCESS AND INTENDED USAGE SHALL BE THE RESPONSIBILITY OF THE ARCHITECT.
- VEHICULAR ACCESS LARGER THAN THE DESIGN LIVE LOAD SHALL BE LIMITED BY PERMANENT PHYSICAL MEANS.
- PRIOR TO CONSTRUCTION THE CONTRACTOR SHALL VERIFY ALL ELEVATIONS THROUGH THE PROJECT ARCHITECT. PRIOR TO CONSTRUCTION, ALL FOUNDATION LOCATIONS SHALL BE STAKED BY THE SURVEYOR PER THE APPROVED DRAWINGS MARKED 'FOR CONSTRUCTION'.
- ONLY PERMATRAK NORTH AMERICA MAY PROVIDE THE PRECAST STRUCTURE SHOWN ON THESE PLANS.
- INSTALLER SHALL NOT CUT OR MODIFY ANY PERMATRAK COMPONENTS WITHOUT PERMATRAK'S APPROVAL.
- THE INSTALLER IS RESPONSIBLE FOR THE APPROPRIATE MEANS AND METHODS FOR THIS PROJECT, INCLUDING ENSURING PROPER CONSTRUCTIBILITY OF ALL COMPONENTS SHOWN ON THESE PLANS. NO EQUIPMENT MAY BE OPERATED ON THE STRUCTURE, UNLESS NOTED OTHERWISE IN THE DESIGN DATA ON THIS SHEET.
- A MATERIAL CHANGE TO THE BOARDWALK SYSTEM IS NOT ALLOWED AND NOT CONSIDERED AN EQUAL.
- PRIOR TO CONSTRUCTION, ALL EXISTING UTILITIES, BUILDING LOCATIONS, EXISTING FOUNDATIONS AND TREE ROOTS (AS APPLICABLE) SHALL BE LOCATED TO VERIFY NO CONFLICTS EXIST WITH THE STRUCTURES SHOWN ON THESE PLANS.

DESIGN DATA

- BOARDWALK SHALL BE DESIGNED IN ACCORDANCE WITH THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS AND THE LRFD GUIDE SPECIFICATION FOR THE DESIGN OF PEDESTRIAN BRIDGES.
- DESIGN LIVE LOAD: PEDESTRIAN LOADING - 90 PSF UNIFORM VEHICULAR LOADING - H-5 DESIGN TRUCK (10,000 LBS. VEHICLE)

FOUNDATIONS SHALL BE DESIGNED FOR THE FOLLOWING.

APPLIED PIER LOADS:
COMPRESSION: 19.8 KIPS (SERVICE)
LATERAL: = 1.5 KIPS (SERVICE)

- A HYDRAULIC ANALYSIS, INCLUDING SCOUR EVALUATION, HAS NOT BEEN PERFORMED BY PERMATRAK. THIS SCOPE IS THE RESPONSIBILITY OF THE DESIGN CONSULTANT.
- ALL GEOTECHNICAL RECOMMENDATIONS CONTAINED IN THE REPORT OF SUBSURFACE INVESTIGATION SHALL BE FOLLOWED. REPORT "GEOTECHNICAL INVESTIGATION, PROPOSED SOUTH LAKE TRAIL IMPROVEMENTS, COUNTY ROAD 455 CLERMONT, LAKE COUNTY, FLORIDA" WAS DATED SEPTEMBER 30, 2020 AND PRODUCED BY ANDREYEV ENGINEERING, INC.. AN ASSUMED ALLOWABLE BEARING PRESSURE OF 2,000 PSF WAS USED IN THE FOUNDATION DESIGN. CONTRACTOR TO VERIFY.
- THE RAILING SUPPLIER SHALL SUBMIT SITE SPECIFIC SHOP DRAWINGS IN ACCORDANCE WITH THESE BOARDWALK DRAWINGS AND FDOT STANDARD DRAWING 515-062 48" HEIGHT ALUMINUM RAILING WITH TYPE 1 VERTICAL PICKETS.

MATERIAL

- FASTENERS, BOLTS AND HARDWARE SHALL BE GALVANIZED, FIBER REINFORCED POLYMER (FRP) OR GRADE 316 STAINLESS STEEL.
- ALL REINFORCING SHALL BE UNCOATED GRADE 60 CONFORMING TO ASTM A615.

CONCRETE STRENGTHS	
F'C = 5,000 KSI	F'C = 4,000 KSI
PRECAST TREADS	C.I.P. COLUMNS
PRECAST BEAMS	C.I.P. FOOTINGS

QUALITY ASSURANCE SPECIFICATIONS

- ACCEPTABILITY CRITERIA FOR TREADS AND CURBS (IF APPLICABLE): THE FINISHED VISIBLE (IN THE FINAL INSTALLED POSITION) SURFACE SHALL HAVE NO OBVIOUS IMPERFECTIONS OTHER THAN MINIMAL COLOR OR TEXTURE VARIATIONS FROM THE APPROVED SAMPLES OR EVIDENCE OF REPAIRS WHEN VIEWED IN GOOD TYPICAL DAYLIGHT ILLUMINATION WITH THE UNAIDED NAKED EYE AT A 20 FT. VIEWING DISTANCE. APPEARANCE OF THE SURFACE SHALL NOT BE EVALUATED WHEN LIGHT IS ILLUMINATING THE SURFACE FROM AN EXTREME ANGLE AS IT TENDS TO ACCENTUATE THE MINOR SURFACE IRREGULARITIES. THE FOLLOWING IS A LIST OF FINISH DEFECTS THAT SHALL BE PROPERLY REPAIRED, IF OBVIOUS WHEN VIEWED AT A 20 FT. DISTANCE. PATCHING (BY A TRAINED SKILLED CONCRETE REPAIR PERSON) IS AN ACCEPTABLE REPAIR METHOD.
 - RAGGED OR IRREGULAR SURFACES.
 - EXCESSIVE AIR VOIDS (COMMONLY CALLED BUG HOLES) LARGER THAN ¼ IN. EVIDENT ON THE TOP SURFACE OF THE TREAD OR CURBS (IF APPLICABLE).
 - ADJACENT FLAT AND RETURN SURFACES WITH GREATER TEXTURE AND/OR COLOR DIFFERENCES THAN THE APPROVED SAMPLES OR MOCKUPS.
 - CASTING AND/OR AGGREGATE SEGREGATION LINES EVIDENT FROM DIFFERENT CONCRETE PLACEMENT LIFTS AND CONSOLIDATION.
 - VISIBLE MOLD JOINTS OR IRREGULAR SURFACES.
 - RUST STAINS ON EXPOSED SURFACES.
 - UNITS WITH EXCESSIVE VARIATION IN TEXTURE AND/OR COLOR FROM THE APPROVED SAMPLES, WITHIN THE UNIT OR COMPARED WITH ADJACENT UNITS.
 - BLOCKING STAINS EVIDENT ON EXPOSED SURFACES.
 - AREAS OF BACKUP CONCRETE BLEEDING THROUGH THE FACING CONCRETE.
 - FOREIGN MATERIAL EMBEDDED IN THE SURFACE.
 - VISIBLE REPAIRS AT A 20 FT. VIEWING DISTANCE.
 - REINFORCEMENT SHADOW LINES.
 - CRACKS VISIBLE AT A 20 FT. VIEWING DISTANCE.

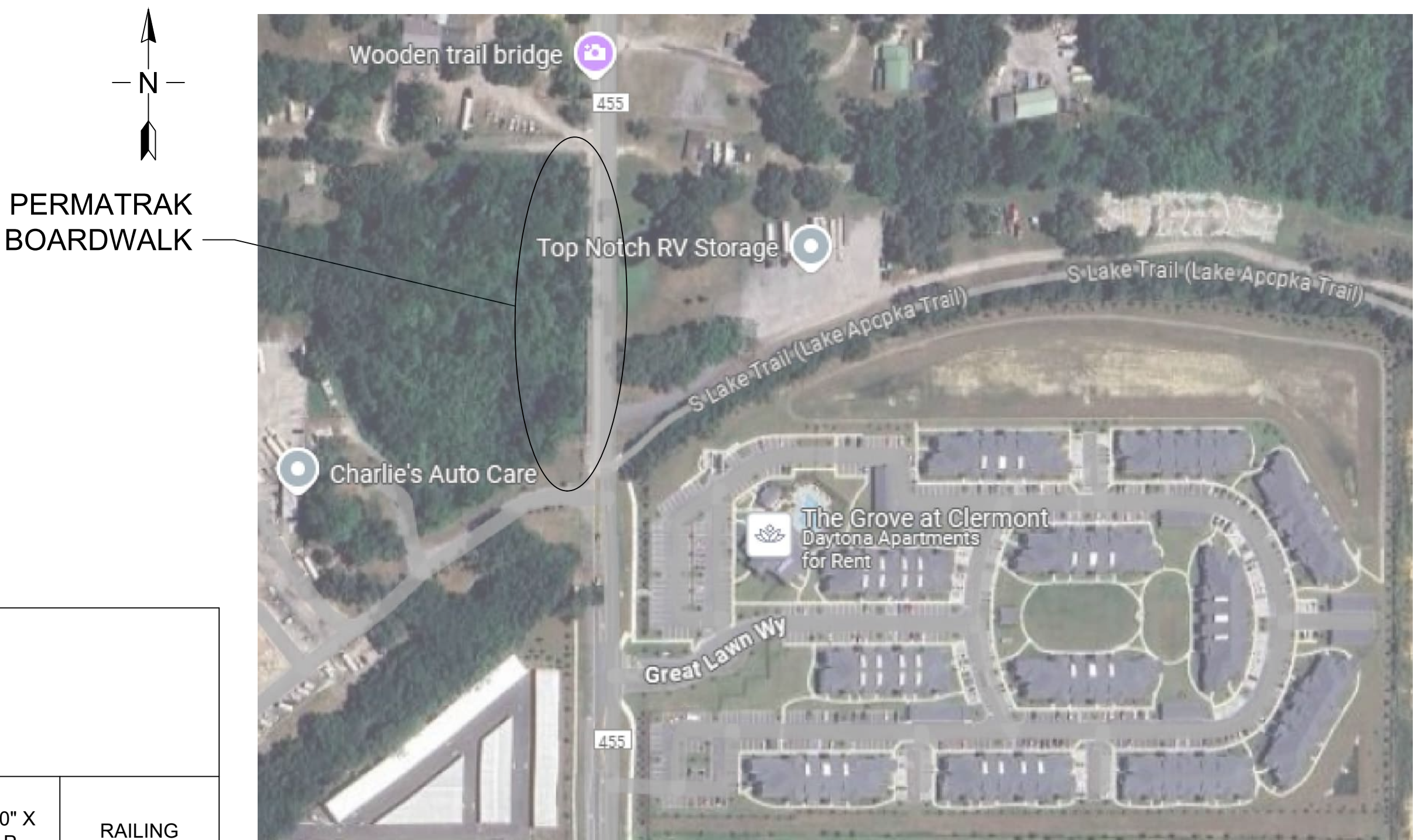
CR 455 SOUTH LAKE TRAIL BOARDWALK: APPROXIMATE PERMATRAK BOARDWALK LENGTH, AREA & NUMBER OF COMPONENTS

STRUCTURE	APPROXIMATE BOARDWALK LENGTH (ALONG CENTERLINE)	BOARDWALK WIDTH	STRUCTURE AREA ±	1'-6" Ø C.I.P. COLUMNS	3'-0" X 8'-0" X 1'-0" C.I.P. FOOTINGS	RAILING LENGTH
PERMATRAK BOARDWALK	446'-8" ±	9'-0" (8'-0" MIN. CLEAR)	4,020 FT² ±	38	21	894'-0" ±

PROJECT COMPONENTS

SUPPLIED BY PERMATRAK
PRECAST CONCRETE TREADS
PRECAST CONCRETE BEAMS
RUBBER SPACER PADS (BETWEEN TREADS)
RUBBER LEVELING PADS (BETWEEN TREAD AND BEAM)
ELASTOMERIC BEARING PADS (BETWEEN BEAM AND FOUNDATION)
3/4" Ø THREADED BARS WITH NUTS AND WASHERS (BEAM TO FOUNDATION CONNECTION)
CLIP ANGLE KITS (TREAD TO BEAM CONNECTION)
SHIMS (LEVELING FOR PRECAST COMPONENTS)
SIKAFLEX SELF-LEVELING SEALANT
SIMPSON STRONG-TIE SET-3G (EPOXY ANCHORING SYSTEM)
PATCHING MATERIAL

SUPPLIED BY CONTRACTOR
CAST-IN-PLACE CONCRETE
EXPANSION JOINT MATERIAL
RAILING AND CONNECTION HARDWARE



SITE VICINITY MAP

SCALE: N.T.S.



The Concrete Boardwalk Company

www.permatrak.com TEL: 877-332-7862

OFFICE LOCATIONS	
NORTH CAROLINA	
SOUTH CAROLINA	
FLORIDA	
OHIO	
GEORGIA	
TEXAS	

REVISION	1	2	3	4	5	6	7	8
	DATE							

LAKE COUNTY, FLORIDA

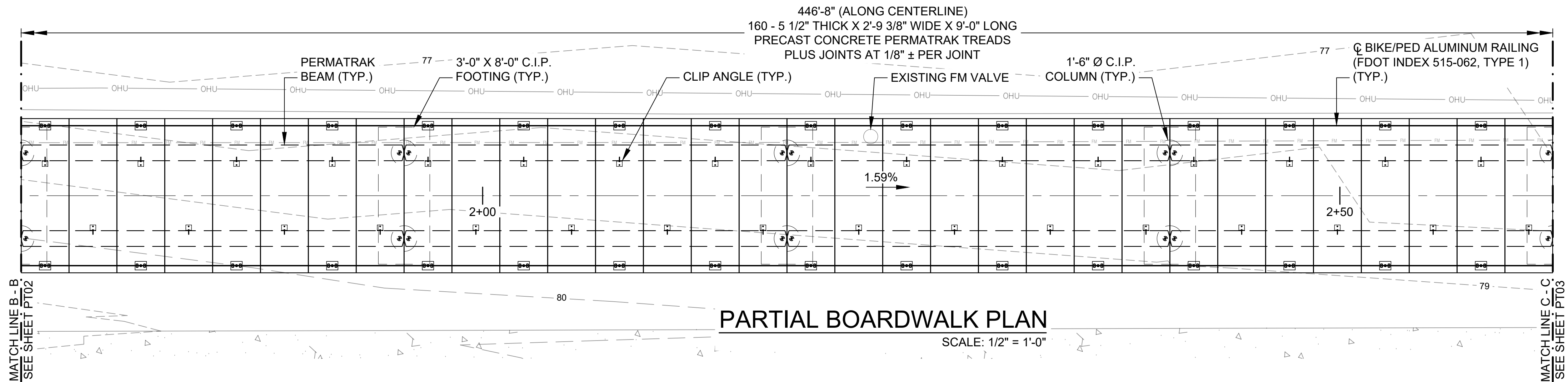
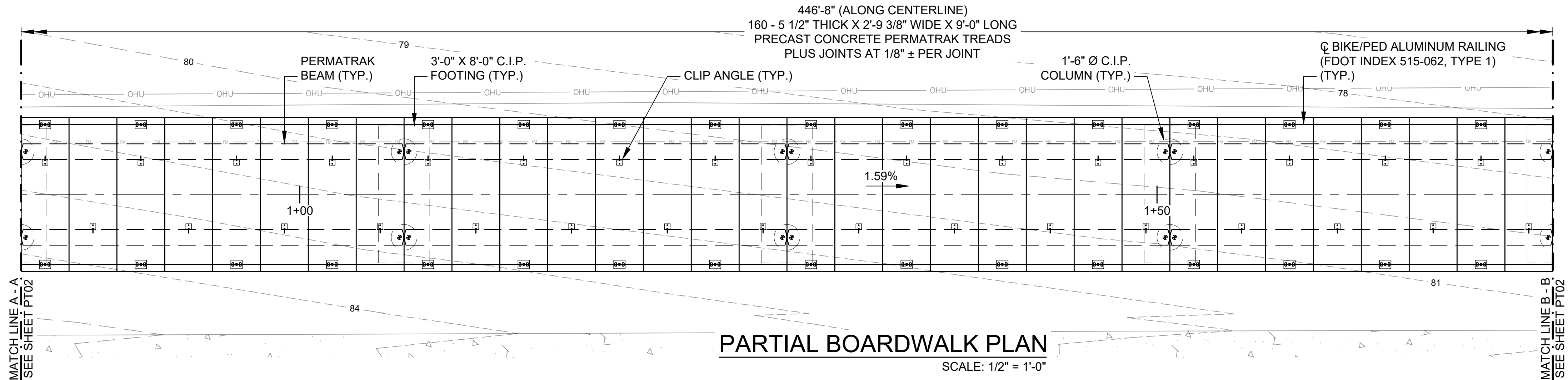
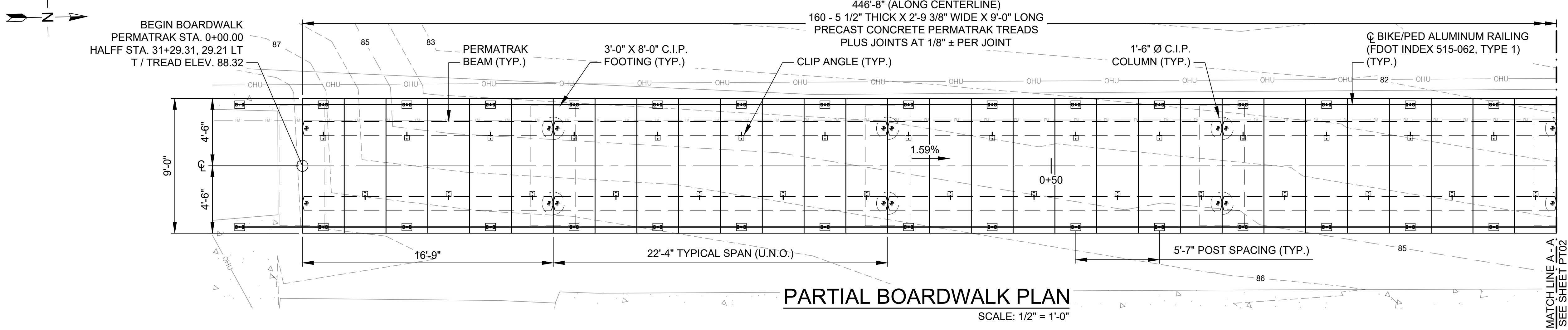
CR 455 SOUTH LAKE TRAIL BOARDWALK



902 NORTH SINGLARI AVE
TAVARES, FLORIDA 32778
TEL. (352) 344-0441

CERTIFICATE OF AUTHORIZATION NUMBER: 30390

DATE:	03/04/2025
DESIGNED BY:	JSS
DRAWN BY:	JSS
CHECKED BY:	KAS / AMC
JOB NO.:	
FILE NAME:	PT01



03/06/2025

PermaTrak
The Concrete Boardwalk Company

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OFFICE LOCATIONS:
NORTH CAROLINA
SOUTH CAROLINA
FLORIDA
OHIO
GEORGIA
TEXAS

REVISION	DATE
1	
2	
3	
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8	

LAKE COUNTY, FLORIDA
**CR 455 SOUTH LAKE TRAIL
BOARDWALK**

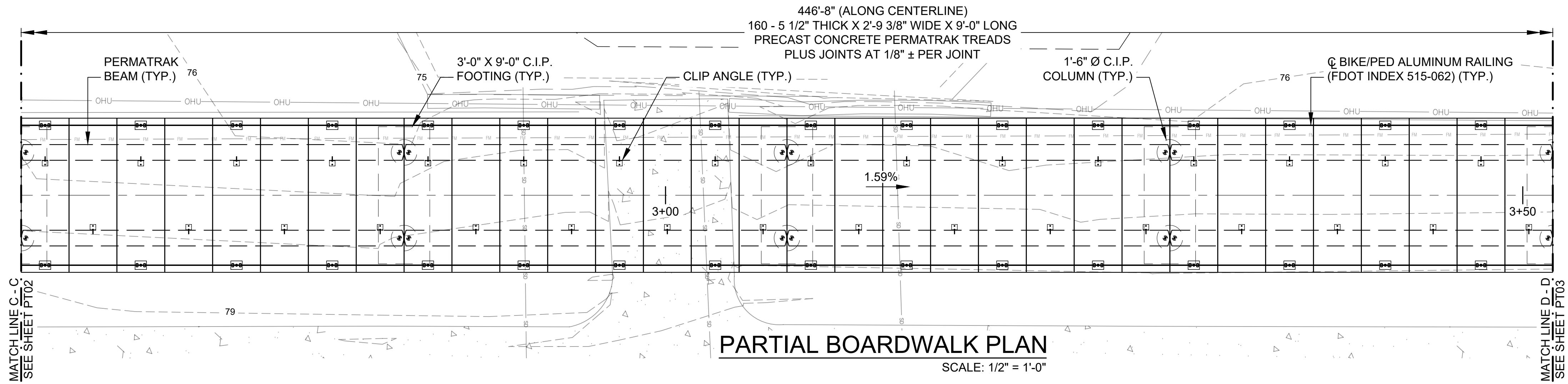
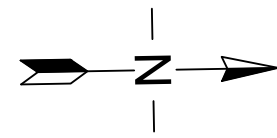


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902 NORTH SINGLARI AVE
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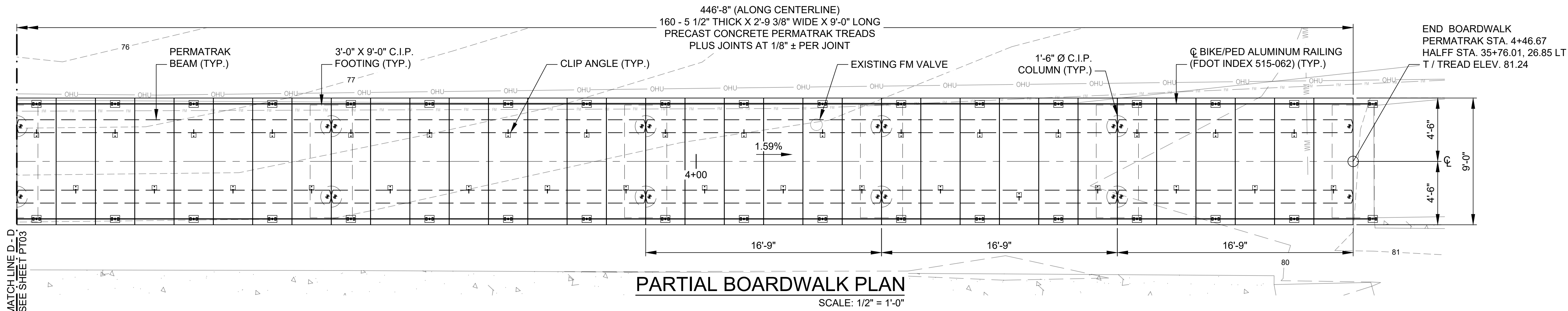
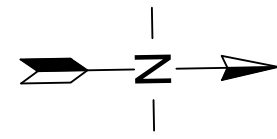
DATE:	03/04/2025
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DRAWN BY:	JSS
CHECKED BY:	KAS / AMC
JOB NO.:	
FILE NAME:	PT02





PARTIAL BOARDWALK PLAN

SCALE: 1/2" = 1'-0"



PARTIAL BOARDWALK PLAN

SCALE: 1/2" = 1'-0"



03/06/2025



The Concrete Boardwalk Company

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OFFICE LOCATIONS

- NORTH CAROLINA
- SOUTH CAROLINA
- FLORIDA
- OHIO
- GEORGIA
- TEXAS

REVISION	DATE	1	2	3	4	5	6	7	8

LAKE COUNTY, FLORIDA
CR 455 SOUTH LAKE TRAIL
BOARDWALK



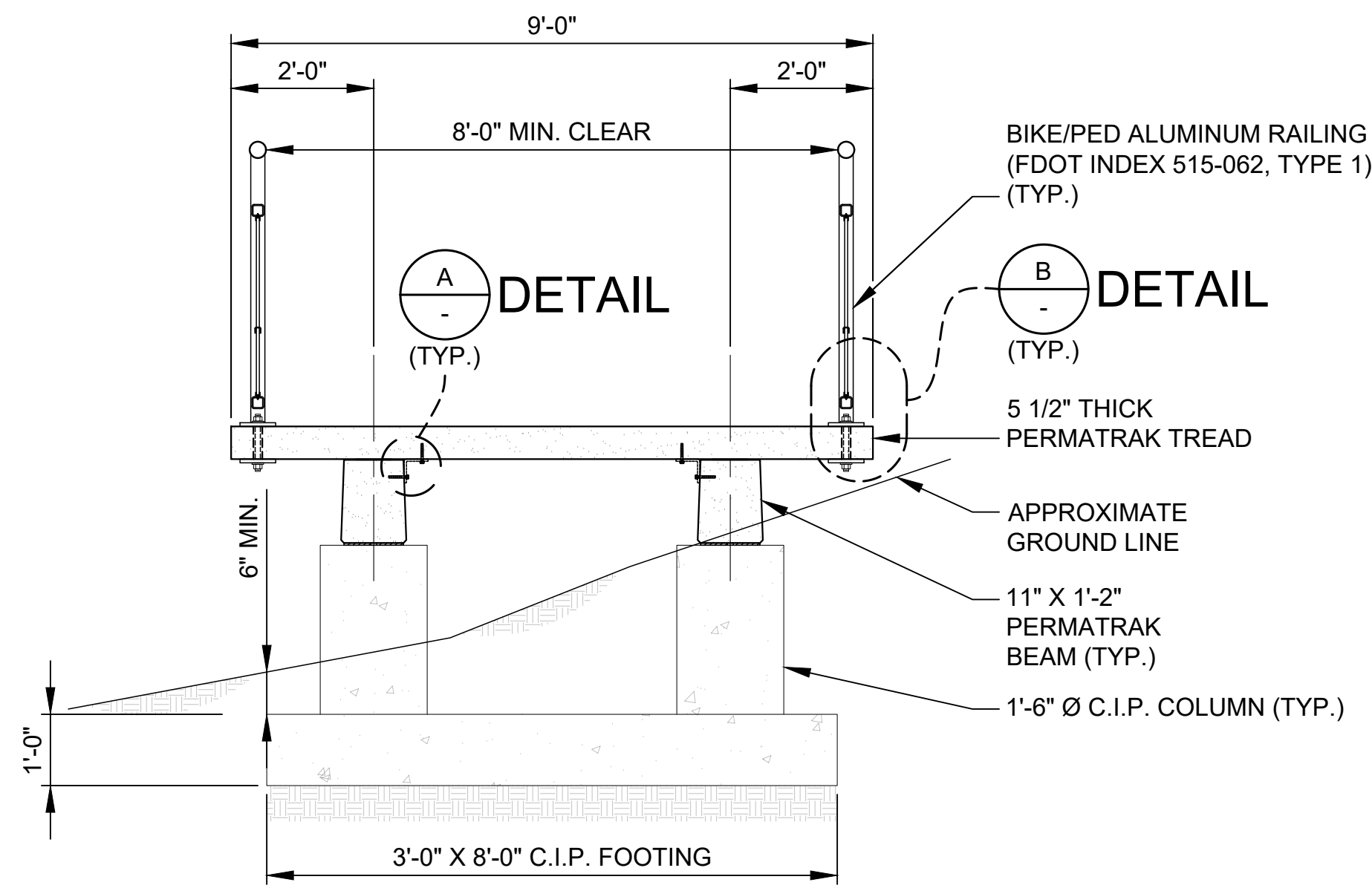


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TAVARES, FLORIDA 32718
TEL. (352) 343-0461

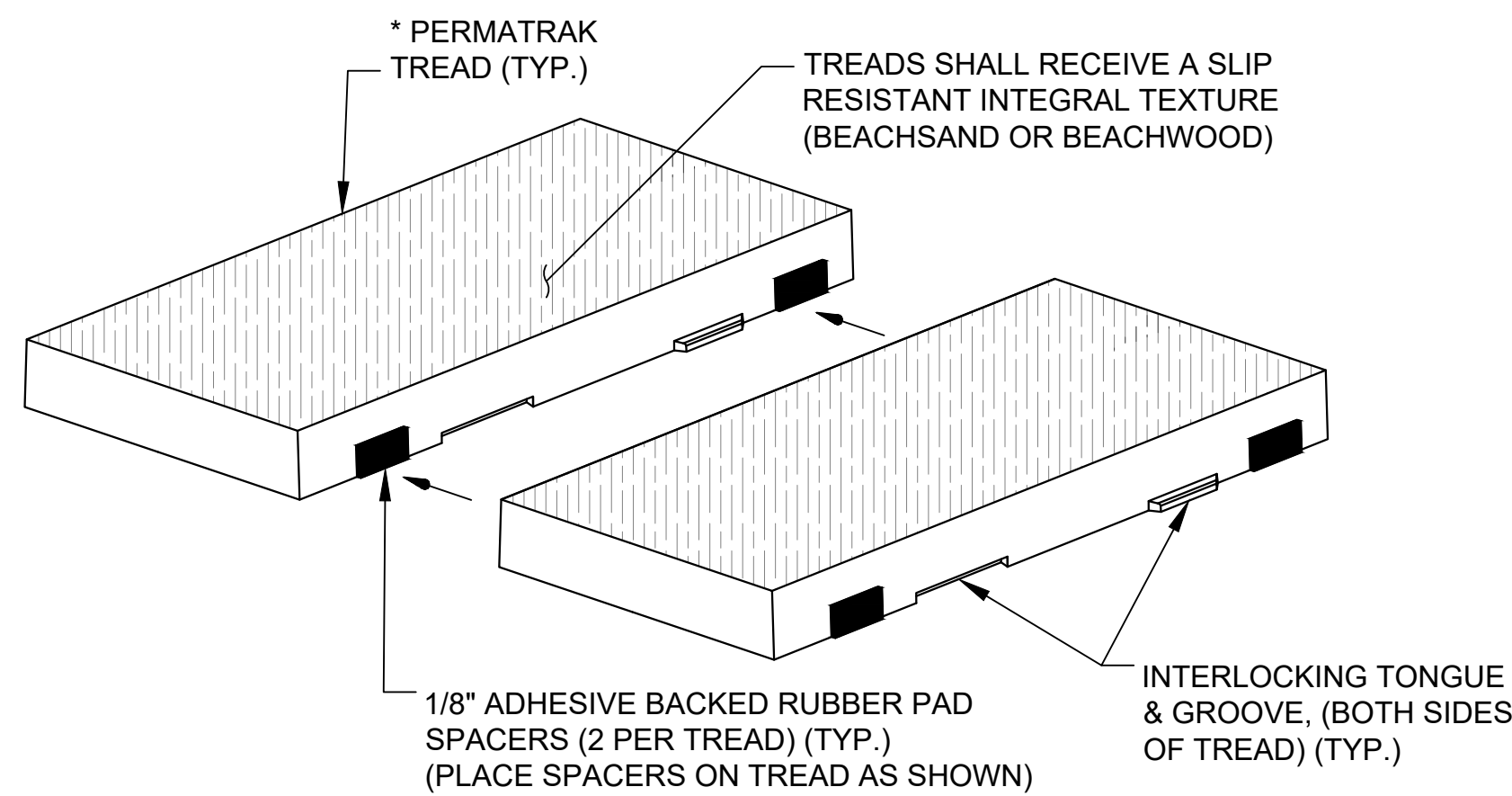
CERTIFICATE OF AUTHORIZATION NUMBER: 33380

DATE:	03/04/2025
DESIGNED BY:	JSS
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CHECKED BY:	KAS / AMC
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FILE NAME:	PT03

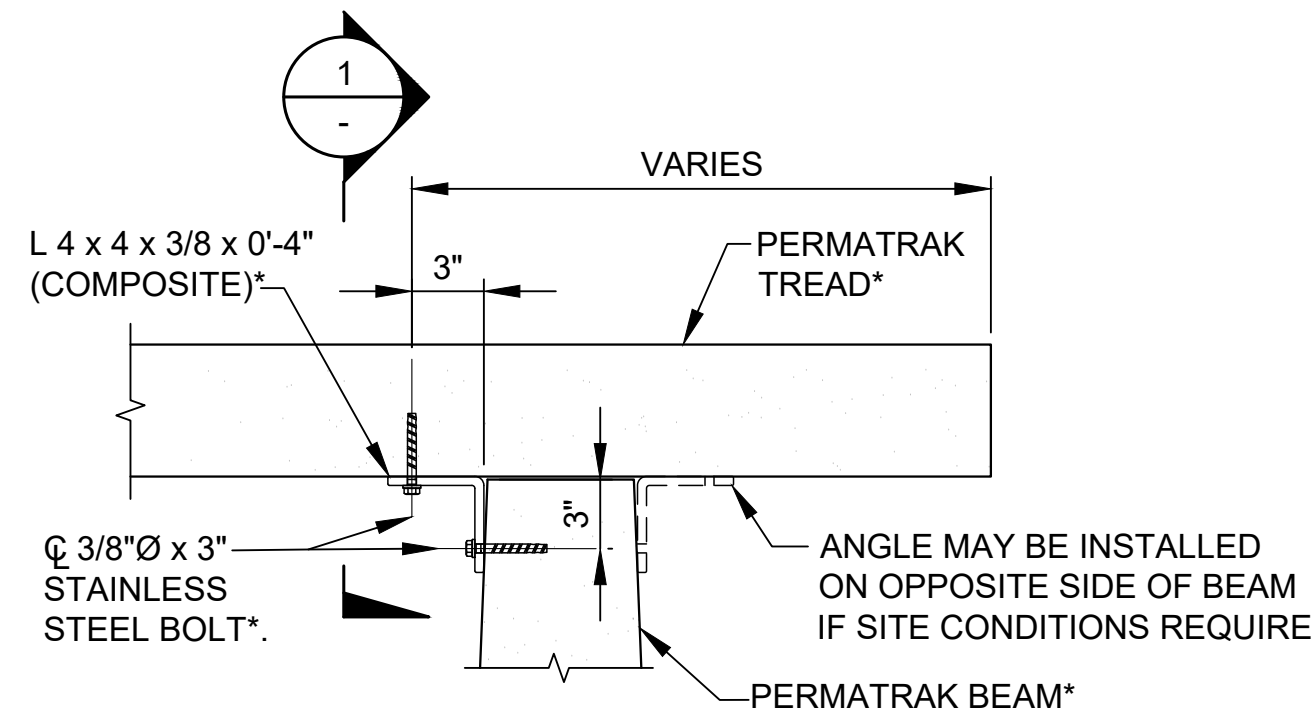




TYPICAL SECTION
SCALE: 1/2" = 1'-0"

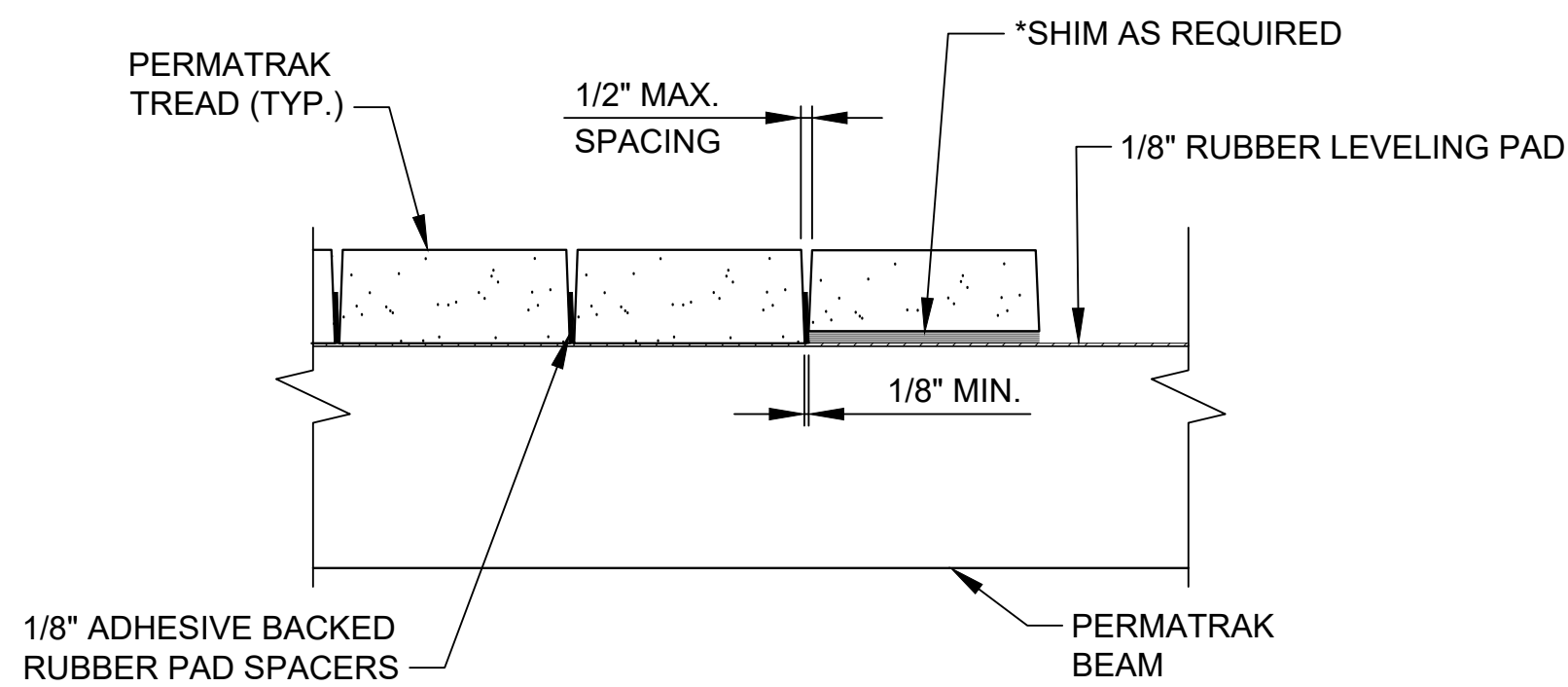


TYPICAL TREAD RUBBER SPACING DETAIL
SCALE: N.T.S.

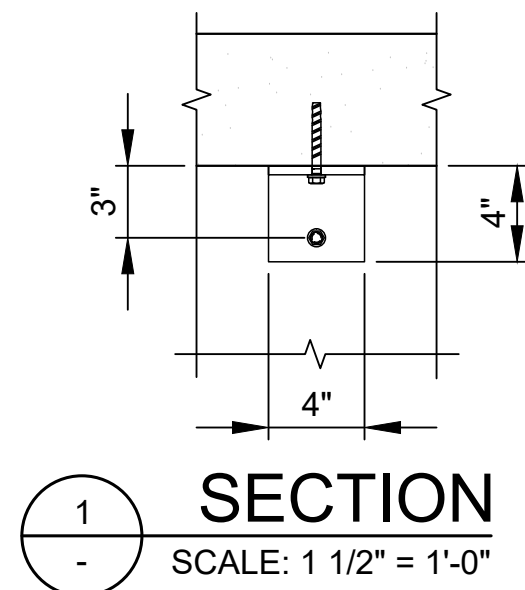


- NOTES:
1. ALL HOLES IN PRECAST SHALL BE DRILLED BY CONTRACTOR.
 2. DRILLED HOLES IN PRECAST SHALL BE 3/8"Ø AND INSTALLED PER MANUFACTURER INSTALLATION REQUIREMENTS.
 3. * INDICATES SUPPLIED BY PERMATRAK.
 4. ONE (1) CLIP ANGLE IS REQUIRED PER TREAD. LOCATION OF CLIP ANGLE ON TREAD SHALL ALTERNATE SIDES FROM TREAD TO TREAD.

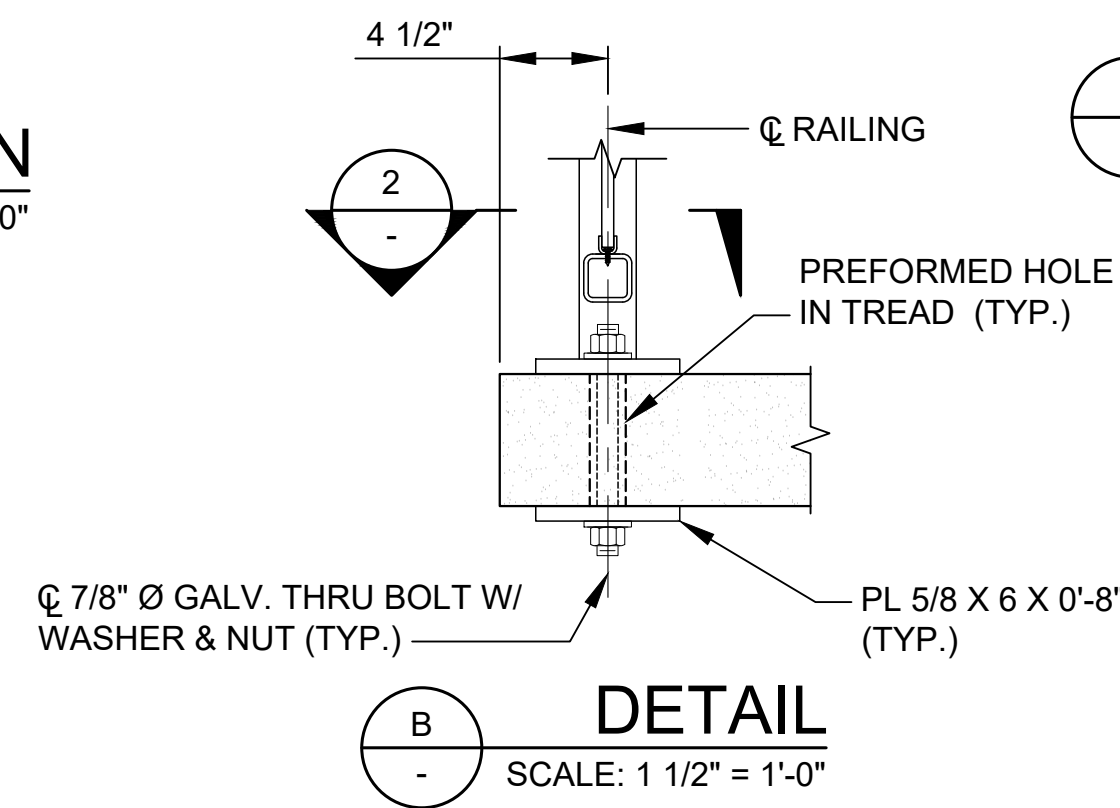
TREAD TO BEAM CONNECTION
SCALE: N.T.S.



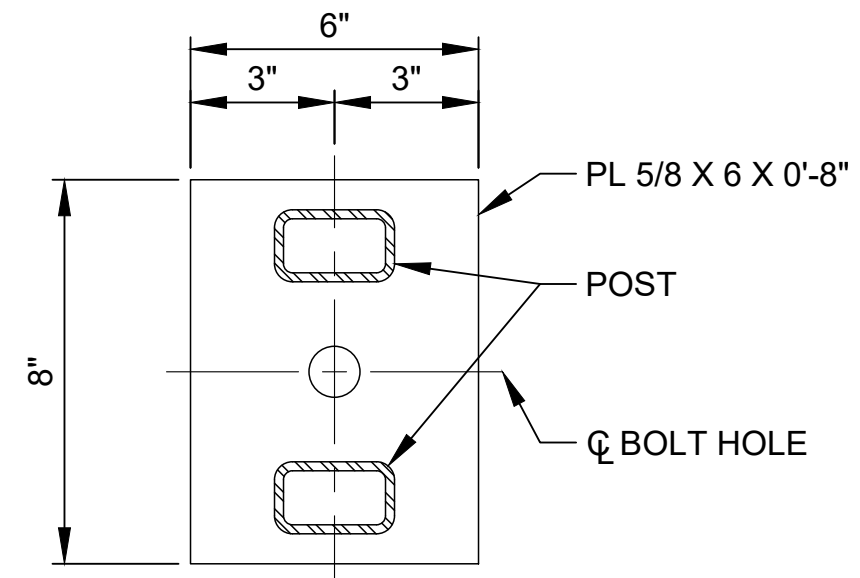
**TYPICAL SHIM (UNDER TREAD)
& TREAD SPACING DETAIL**
SCALE: N.T.S.



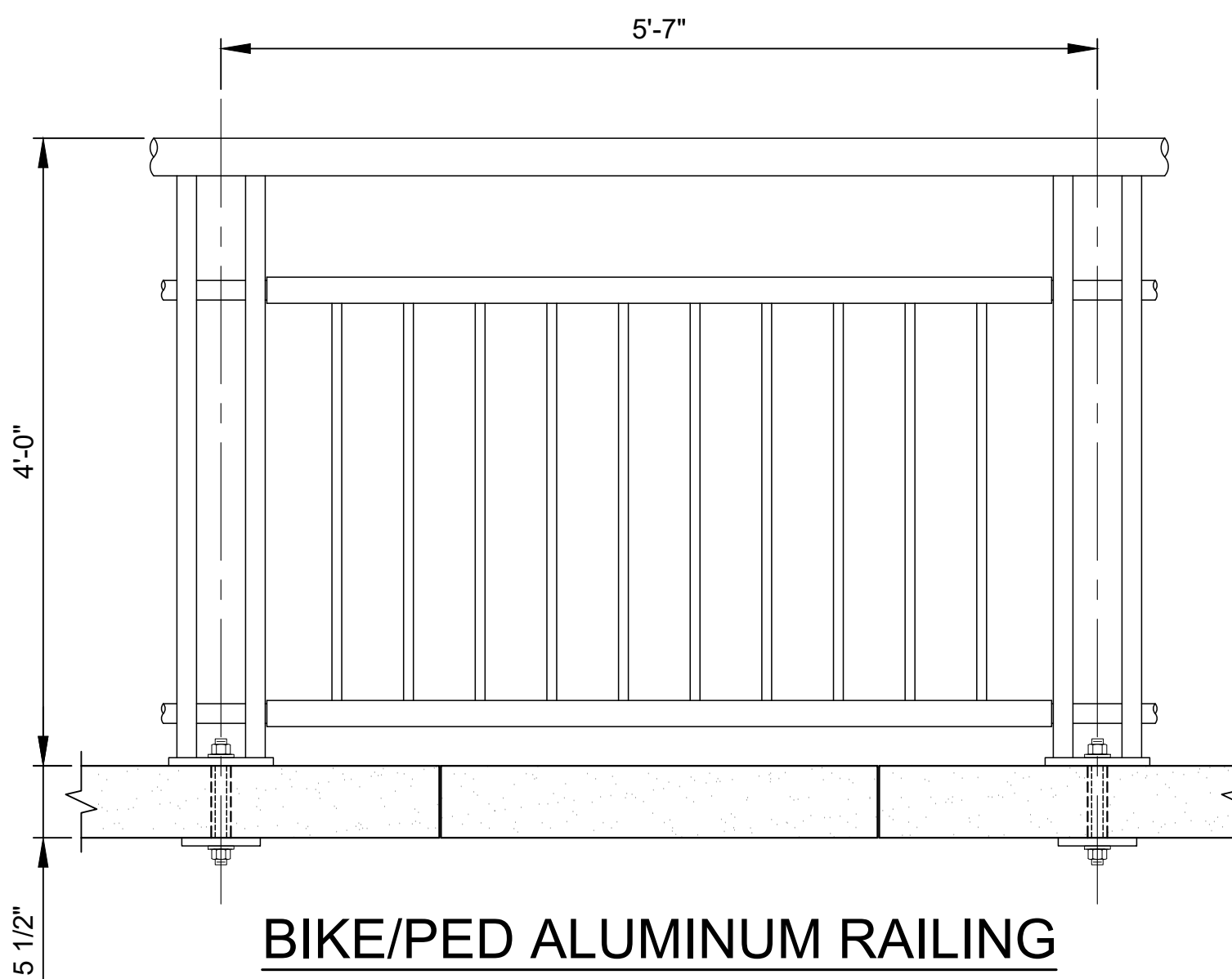
SECTION
SCALE: 1 1/2" = 1'-0"



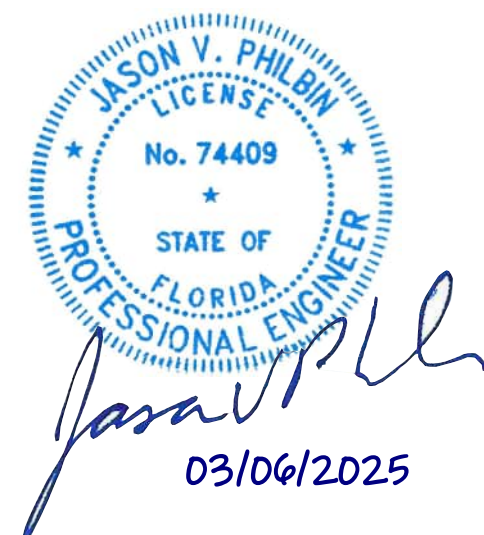
DETAIL
SCALE: 1 1/2" = 1'-0"



SECTION
SCALE: 3" = 1'-0"



**BIKE/PED ALUMINUM RAILING
FDOT INDEX 515-062 (TYPE 1)
ELEVATION**
SCALE: 1" = 1'-0"



PermaTrak
The Concrete Boardwalk Company

www.permatrak.com TEL: 877-332-7862

OFFICE LOCATIONS

NORTH CAROLINA
SOUTH CAROLINA
FLORIDA
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TEXAS

REVISION	DATE	BY	APP
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LAKE COUNTY, FLORIDA
**CR 455 SOUTH LAKE TRAIL
BOARDWALK**

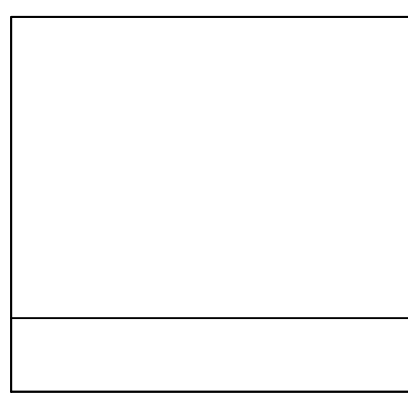


half

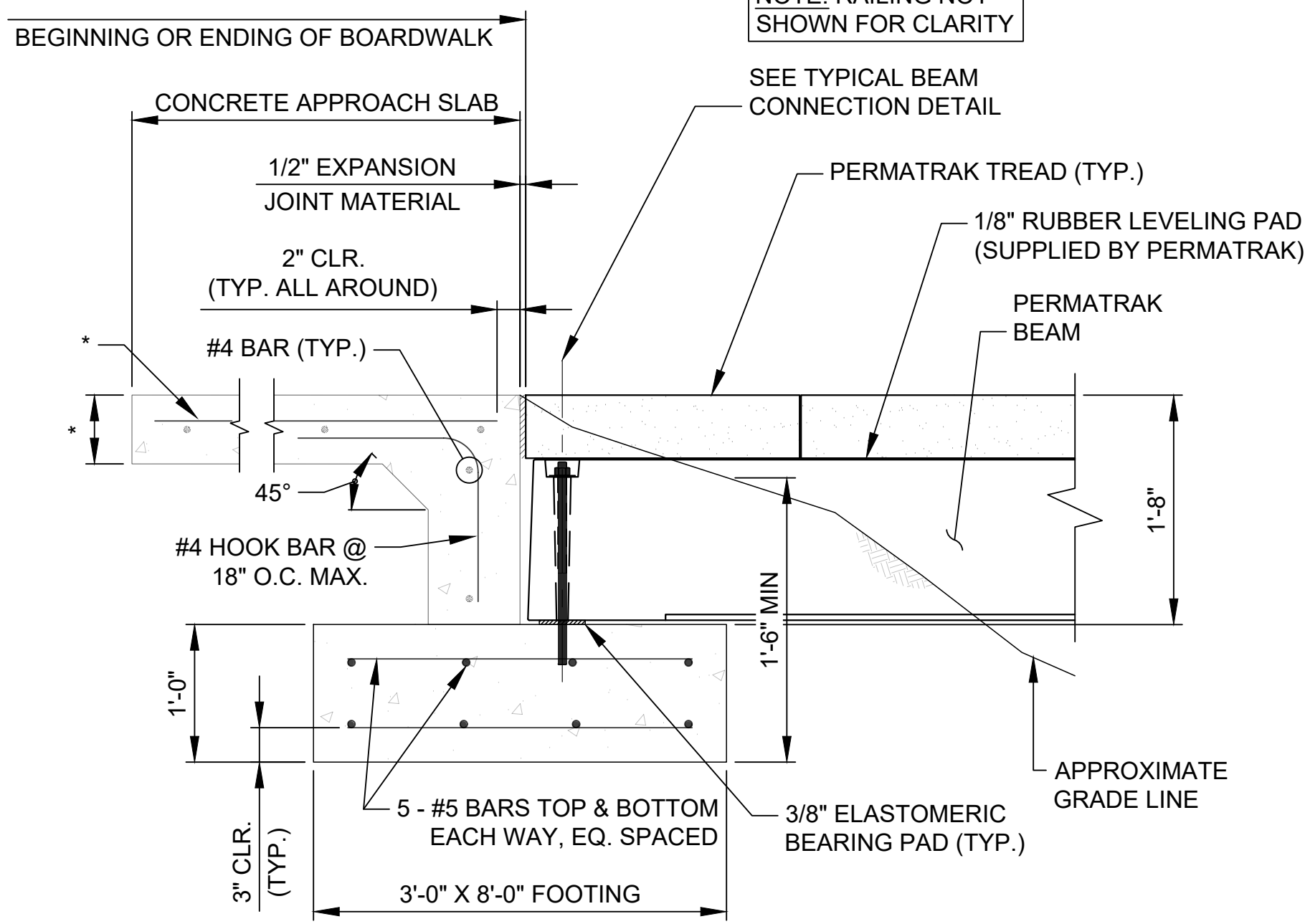
902 NORTH SINGLARI AVE
TAVARES, FLORIDA 32778
TEL: (352) 343-0441

CERTIFICATE OF AUTHORIZATION NUMBER: 33390

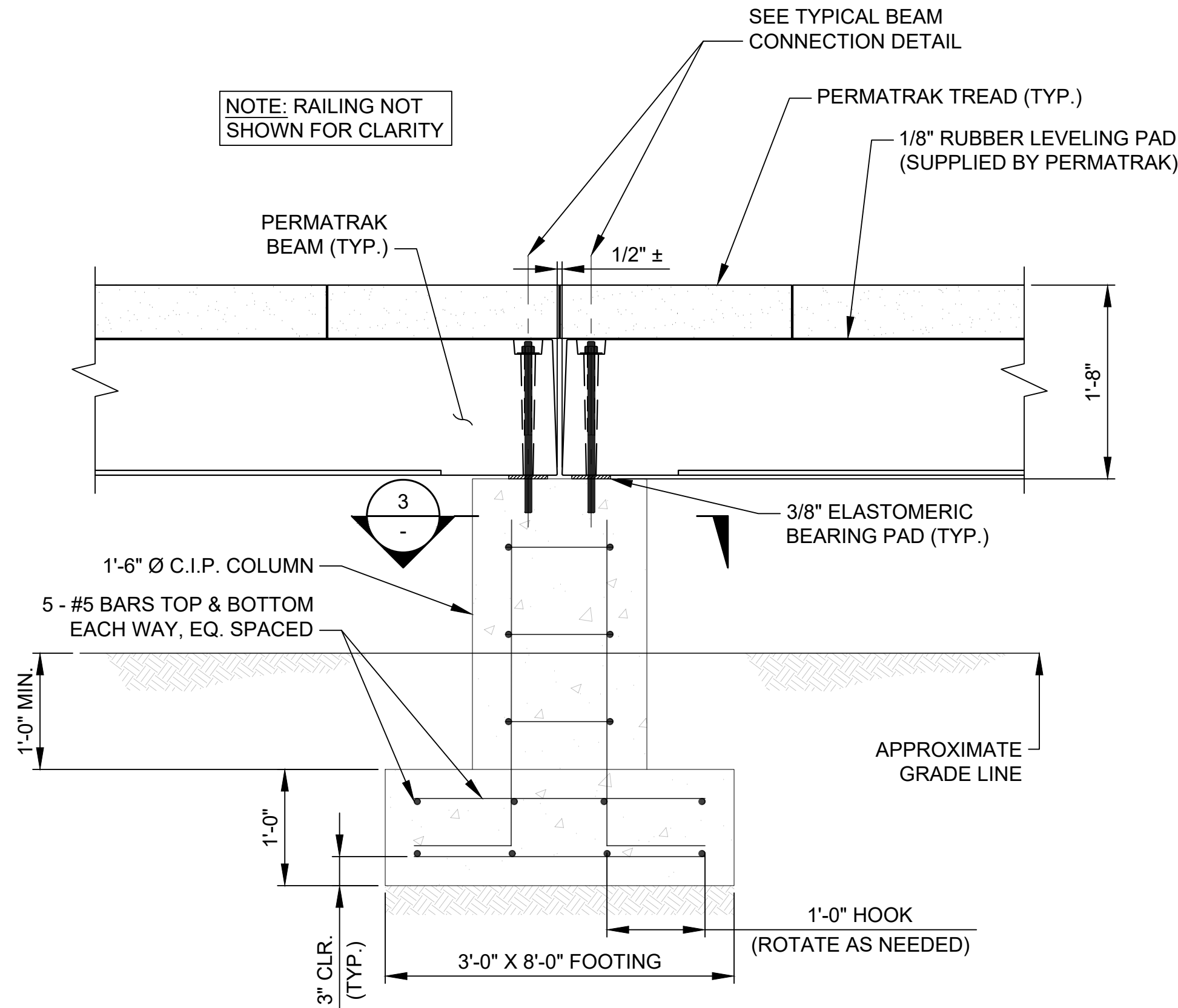
DATE:	03/04/2025
DESIGNED BY:	JSS
DRAWN BY:	JSS
CHECKED BY:	KAS / AMC
JOB NO.:	
FILE NAME:	PT04



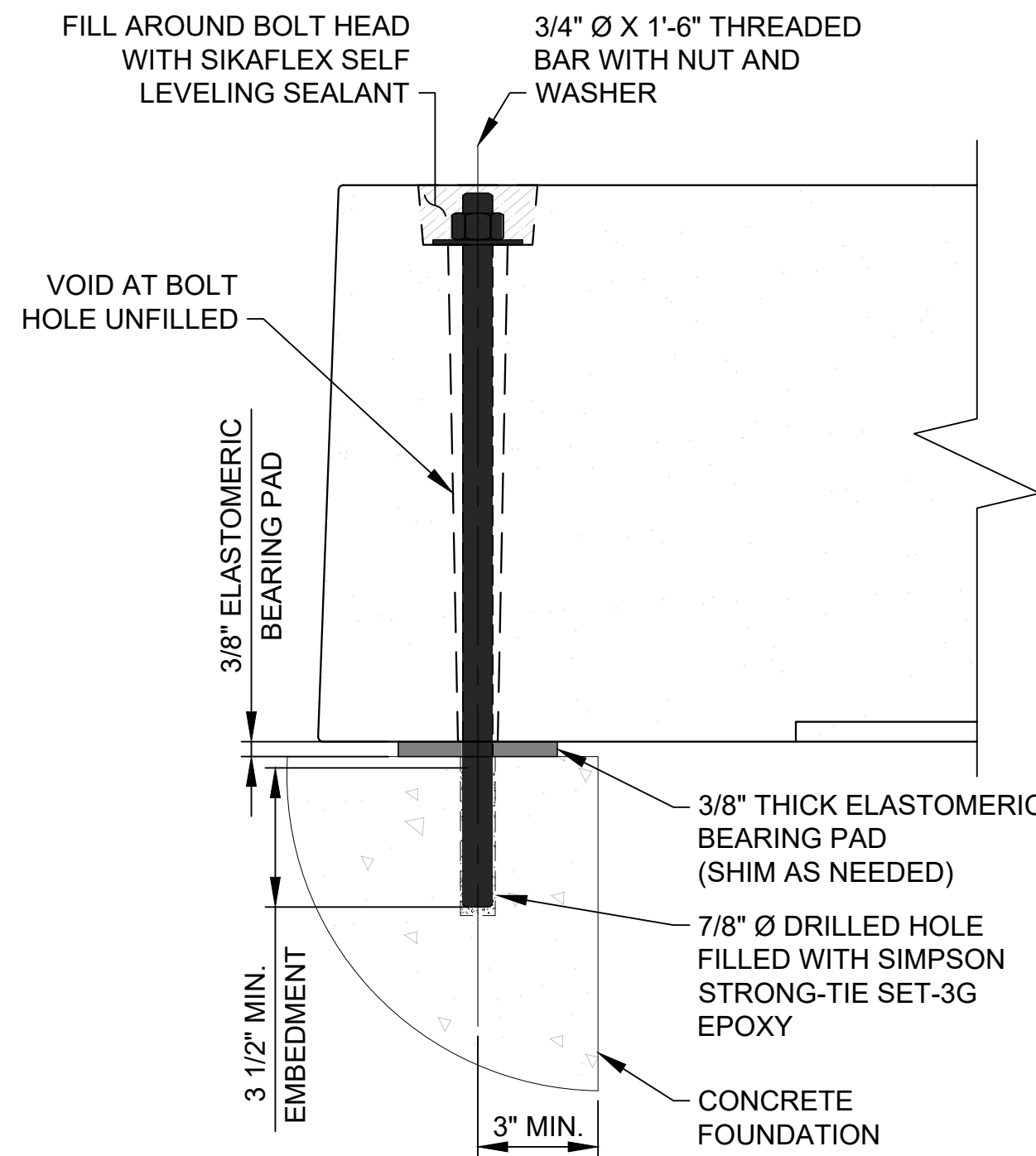
* SEE SITE DRAWINGS FOR DIMENSIONING, REINFORCEMENT, AND CONCRETE MATERIAL REQUIREMENTS OF APPROACH SLAB.



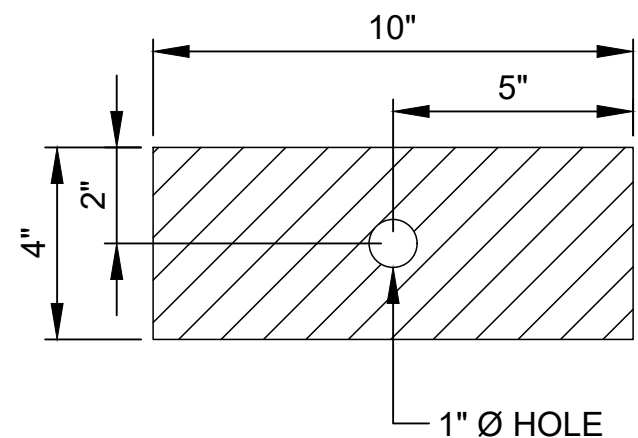
TYPICAL APPROACH DETAIL
SCALE: 1" = 1'-0"



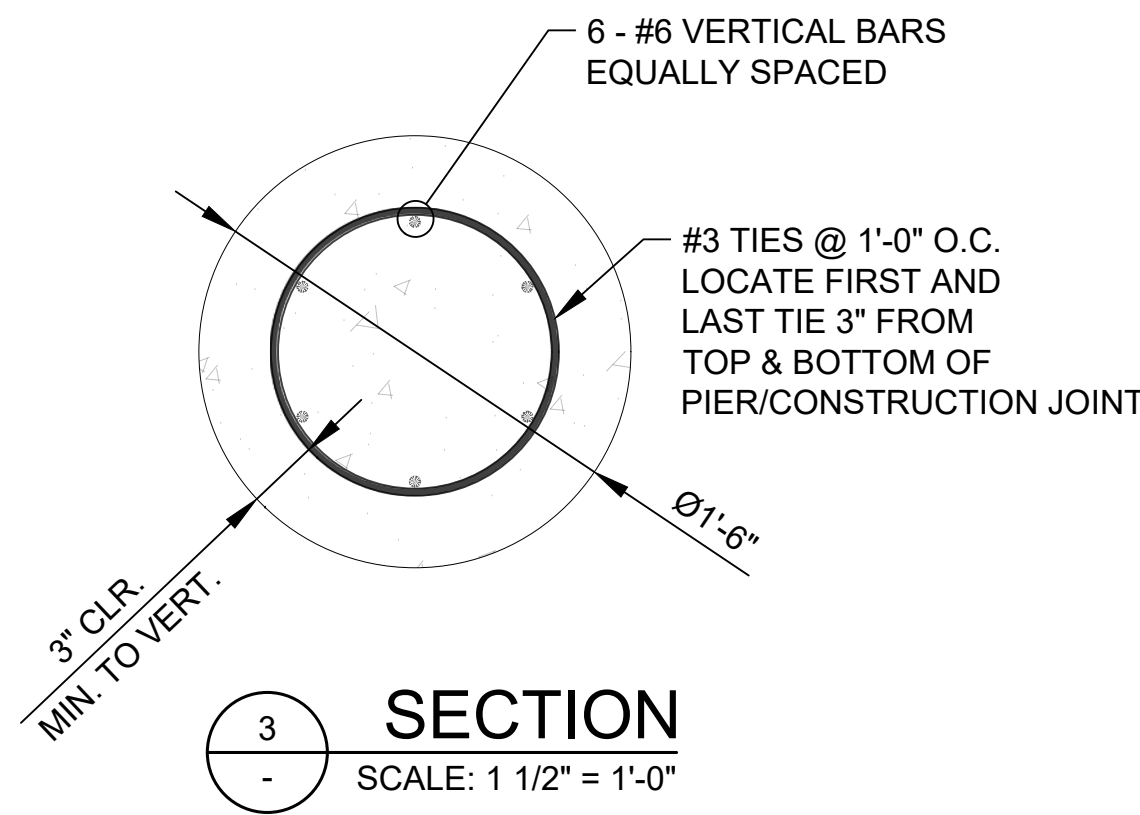
TYPICAL PIER CONNECTION DETAIL
SCALE: 1" = 1'-0"



TYPICAL BEAM TO CONCRETE CAP CONNECTION DETAIL
SCALE: N.T.S.



ELASTOMERIC PAD PLAN
SCALE: 3" = 1'-0"



SECTION
SCALE: 1 1/2" = 1'-0"



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LAKE COUNTY, FLORIDA

CR 455 SOUTH LAKE TRAIL BOARDWALK



halff

902 NORTH SINGLAI AVE
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CERTIFICATE OF AUTHORIZATION NUMBER: 33390

DATE:	03/04/2025
DESIGNED BY:	JSS
DRAWN BY:	JSS
CHECKED BY:	KAS / AMC
JOB NO.:	
FILE NAME:	PT05

ELEVATED PRECAST CONCRETE BOARDWALK

PROJECT SPECIFICATIONS V4.1 UPDATED SEPTEMBER 2023

PRECAST CONCRETE BOARDWALK SYSTEM

PART 1-GENERAL

1.1 SUMMARY

A. These specifications are for a precast concrete boardwalk and shall be regarded as minimum standards for this project. These specifications are based upon products designed and supplied by:

PermaTrak North America LLC
Ph: (864) 354-4870
Ph: 877-332-7862
www.permatrak.com
Contact: Mr. John Pyle
jpyle@permatrak.com

This item shall also include the design, specification, and construction of a railing and foundation system that is attached to the proposed boardwalk system.

1.2 MINIMUM STANDARDS: The selected boardwalk shall have the following minimum characteristics:

- A. The precast system shall be designed as a modular flexible system allowing a prescribed settlement at pier locations. Joints shall be designed for such movement to occur without damage to the structural integrity of the system.
- B. Boardwalk system (beams, treads, and curbs if applicable) must be reinforced precast concrete. A material change, including cast-in-place concrete, is not considered an equal to the design shown on the bid documents.
- C. Walking surface (treads) shall be made of reinforced precast concrete, and supported by reinforced precast concrete beams. Where applicable, edges of treads will receive precast concrete curbs.
- D. Walking surface (finish) of top surface of treads shall have a formliner finish with one of PermaTrak's standard textures. Texture must be integral with the concrete and shall not be an applied post pour wearing surface.
- E. Precast concrete treads shall be structural load bearing elements and shall interlock with one another via a "tongue and groove" connection.
- F. All precast shall consist of integrally colored concrete in a color selected by the owner from one of PermaTrak's "standard colors". All color pigment shall meet ASTM C979 Standard Specification for Pigments for Integrally Colored Concrete.

G. DESIGN LOADS: See PT01 for pedestrian and vehicular design live loads.

H. Treads shall maintain a "boardwalk appearance", specifically meaning each tread shall have a width: length ratio ranging from a minimum of 3:1 to a maximum of 14:1. Width is defined as the tread dimension perpendicular to the normal direction of travel. Length is defined as the tread dimension measured in the direction of travel.

I. Tread width shall be as noted on the contract drawings. Alignment should follow the horizontal and vertical alignment shown on the contract plans.

J. Connectors for curbs (if applicable) to treads shall not be visible to boardwalk users while viewed from the top of the walkway.

K. All tread-to-beam connectors shall be non-corrosive, and hidden from view. Metallic tread-to-beam connectors are not acceptable for this project.

L. Boardwalk supplier shall provide a field representative on site for a minimum of 2 days. Field representative shall be knowledgeable in the installation of precast concrete boardwalks.

1.3 QUALITY ASSURANCE

A. The contractor performing the installation of the pile foundations shall have installed piles of size and length similar to those shown on the plans for a minimum of three (3) years prior to the bid date for this project. The contractor shall submit a list containing at least three (3) projects completed in the last three (3) years on which the contractor has installed piles of a size and length similar to those shown on the plans. The list of projects shall contain names and phone numbers of owner's representatives who can verify the Contractor's participation on those projects.

B. Manufacturer Qualifications: Not less than 10 years experience in the actual production of precast products as described below.

- Components shall be factory fabricated and engineered by single entity. This entity shall be registered to do business in the State of the project location.
- Boardwalk supplier (Precaster) for the boardwalk shall have in-house color mixing facilities for color pigmentation.
- Boardwalk supplier (Precaster) shall have either a minimum experience of 5 years or 50 boardwalk projects in design, production, and field consultation.
- Boardwalk supplier (Precaster) must be certified by PCI or NPCA.
- Precast components must be manufactured with the use of hot rolled steel skin in reinforced steel forms. Temporary (i.e., Timber) and/or single use forms are unacceptable unless approved in writing by the Boardwalk Engineer.

C. Acceptability Criteria for Treads and Curbs (if applicable): The finished visible (in the final installed position) surface shall have no obvious imperfections other than minimal color or texture variations from the approved samples or evidence of repairs when viewed in good typical daylight illumination with the unaided naked eye at a 20 ft. viewing distance. Appearance of the surface shall not be evaluated when light is illuminating the surface from an extreme angle as it tends to accentuate the minor surface irregularities. The following is a list of finish defects that shall be properly repaired, if obvious when viewed at a 20 ft. distance. Patching (by a trained skilled concrete repair person) is an acceptable repair method.

- Ragged or irregular surfaces.
- Excessive air voids (commonly called bug holes) larger than ¼ in. evident on the top surface of the tread or curbs (if applicable).
- Adjacent flat and return surfaces with greater texture and/or color differences than the approved samples or mockups.
- Casting and/or aggregate segregation lines evident from different concrete placement lifts and consolidation.
- Visible mold joints or irregular surfaces.
- Rust stains on exposed surfaces.
- Units with excessive variation in texture and/or color from the approved samples, within the unit or compared with adjacent units.
- Blocking stains evident on exposed surfaces.
- Areas of backup concrete bleeding through the facing concrete.
- Foreign material embedded in the surface.
- Visible repairs at a 20 ft. viewing distance.
- Reinforcement shadow lines.
- Cracks visible at a 20 ft. viewings distance.

D. Installer Qualifications: Firm with 3 years experience in installation of systems similar in complexity to those required for this Project.

E. Mock-Up: Provide, if required by Architect/ Engineer, a mock-up for evaluation of the boardwalk showing the surface preparation techniques and application workmanship.

- Finish areas designated by Architect / Engineer.
- Do not proceed with remaining work until mock-up is accepted by Architect / Engineer.
- Refinish mock-up area as required to produce acceptable work.

1.4 DESIGN

A. For applications requiring minimum disturbance due to tree roots or other existing objects specified by the Owner to be avoided during construction, the Boardwalk Manufacturer requires the Contractor or Engineer/Architect to provide a survey of the proposed boardwalk location identifying items of interest including tree roots that cannot be disturbed per the Owner.

B. The designer of the boardwalk, foundation and railing system shall be a qualified registered Professional Engineer licensed in the State of the project location and having a minimum of 20 years of experience in the design of concrete structures, foundation and railing systems.

C. The foundation design shown on the boardwalk drawings are based recommendations found in the geotechnical report entitled referenced on PT01 (if applicable).

A. DESIGN CRITERIA: The design of the boardwalk and railing system shall comply with the following guidelines:

- AASHTO LRFD Guide Specifications for The Design of Pedestrian Bridges, 2nd Edition with 2015 Interim Revisions.
- Latest Version of AASHTO LRFD Bridge Design Specifications for Highway Bridges.
- Latest Version of American Concrete Institute - Building Code and Commentary.
- In addition to the dead loads of the system, the structure shall be designed for the live loads defined in Section 1.2 G above.

1.5 SUBMISSIONS: Prior to the start of fabrication or construction, the Contractor shall submit to the Engineer a design package, which shall include, but is not limited to, the following:

A. FOR APPROVAL SUBMISSIONS: Prior to the start of fabrication or construction, the Contractor shall submit to the Engineer a design package, which shall include but not limited to the following:

- DETAILED PLANS:
 - PLAN VIEW: Full plan view of the boardwalk, foundation and railing system drawn to scale. The plan view must reflect the proposed horizontal alignment as shown on the design plans.
 - PARTIAL ELEVATION VIEW (IF REQUESTED): Full elevation view of the boardwalk, railing and foundation system drawn to scale which reflect the actual vertical alignment. Elevation views shall indicate the elevation at the top and bottom of the boardwalk and foundation system components.
 - DETAILS: Details of all boardwalk and railing system components and their connections such as the length, size and where changes occur; connections; etc.
 - CODE REFERENCE: Design parameters used along with AASHTO references.

2. CONSTRUCTION SPECIFICATIONS:

- Construction methods specific to the boardwalk vendor chosen. Submittal requirements such as certification, quality and acceptance/rejection criteria shall be included. Details on connection of boardwalk units and foundation system such that assurance of uniform load transfer shall be checked.

B. FINAL SUBMISSION: Once a boardwalk, foundation and railing system design has been reviewed and accepted by the Owner, the Contractor shall submit the final plans. The designer of the boardwalk, foundation and railing system is responsible for the review of any drawings prepared for fabrication. One set of all approved shop drawings shall be submitted to the Engineer's permanent records.

C. SUBMITTALS: Product Data: Submit Manufacturer's technical product data for railing components and accessories. Manufacturer to supply submittal drawings for approval to include the following:

- Section-thru details.
- Mounting methods.
- Typical Elevations.
- Key plan layout.

D. SHOP DRAWINGS: Shop drawings shall:

- Be stamped by a licensed Professional Engineer in the State of the project location.
- Show actual field conditions and true elevation and location supplied after field verification.
- Clearly detail reinforcement in beams, treads and curbs including clear dimension from concrete edge, size and amount of rebar.
- Clearly state concrete compressive strength, steel type and strength, and a listing of all component weights including lifting locations.

1.6 DELIVERY, STORAGE, AND HANDLING

A. Store products in manufacturer's unopened packaging until ready for installation.

B. Field Measurements: Where handrails and railings are indicated to fit to other construction, check actual dimensions of other construction by accurate field measurements before fabrication; show recorded measurements on final shop drawings:

- Where field measurements cannot be made without delaying the railing fabrication and delivery, obtain guaranteed dimensions in writing by the Contractor and proceed with fabrication of products so as not to delay fabrication, delivery and installation.

C. Coordinate fabrication and delivery schedule of handrails with construction progress and sequence to avoid delay of railing installation.

- Air entrained composed of Portland cement, fine and course aggregates, admixtures and water. The air-entraining feature may be obtained by the use of either an air entraining Portland cement or an air entraining admixture. The entrained air-content shall be not less than four percent or more than seven percent.

1.7 WARRANTY:

A. Contractor will be responsible for installation defects associated with the boardwalk and abutment components, foundation system, and railings for a period of 12 calendar months from the date of final acceptance by the Owner.

B. Boardwalk manufacturer shall warranty all precast concrete components against defects in material and workmanship for a period of 10 years.

C. Railing manufacturer shall warranty the railing against defects in materials and workmanship for a period of 12 months.

1.8 MEASUREMENT AND PAYMENT

A. Precast concrete boardwalk, railings, and foundations shall be paid for at the contract lump sum price as listed in the bid proposal for "Precast Concrete Boardwalk". This price shall include all materials, equipment, labor and work necessary for and incidental to the design, construction, delivery, unloading, assembly, and placement of the boardwalk and foundation as shown in the contract plans including all railings on the superstructure.

PART 2-MATERIALS & TESTING

2.1 PRECAST CONCRETE: shall conform to the following:

- The minimum compressive strength of the concrete shall be 4000 psi measured at 28 days.
- All precast concrete shall contain structural steel reinforcement as designed by the Engineer of record.
- All precast concrete components shall be air entrained composed of Portland cement, fine and course aggregates, admixtures and water. The air-entraining feature may be obtained by the use of either an air entraining Portland cement or an air entraining admixture. The entrained air-content shall be not less than four percent or more than seven percent.
- All reinforcing steel shall be standard uncoated steel conforming to ASTM A615

PART 3 - EXECUTION

1.1 PRECAST CONCRETE BOARDWALK

A. Installation of the precast concrete boardwalk system and railings, if applicable, shall be performed in accordance to the approved plans and manufacturers installation instructions. Boardwalk manufacturer shall provide a field representative to review installation instructions with the Contractor and Engineer and to certify that the installation has been performed according to the approved drawings and manufacturer's instructions.

REVISION									
	1	2	3	4	5	6	7	8	9
DATE									

LAKE COUNTY, FLORIDA

CR 455 SOUTH LAKE TRAIL BOARDWALK



902 NORTH SINGLARI AVE
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CERTIFICATE OF AUTHORIZATION NUMBER: 33380

DATE:	03/04/2025
DESIGNED BY:	JSS
DRAWN BY:	JSS
CHECKED BY:	KAS / AMC
JOB NO.:	
FILE NAME:	
PRECAST SPECS	

The Concrete Boardwalk Company

www.permatrak.com TEL: 877-332-7862

OFFICE LOCATIONS

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Jason V. Phlbin
03/06/2025