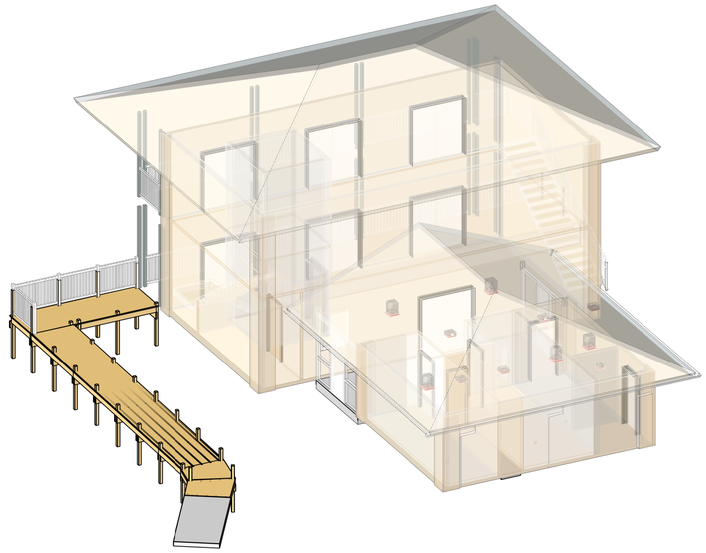

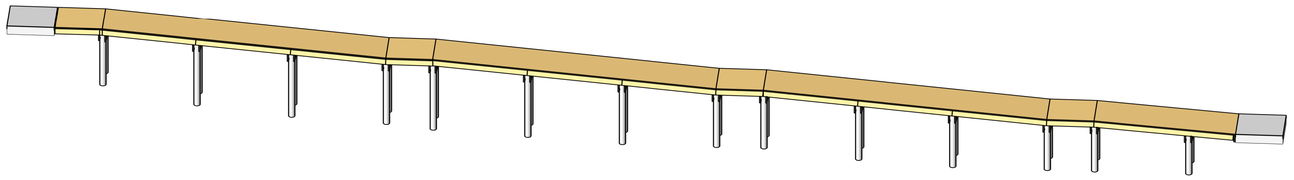

WINDLEY KEY FOSSIL REEF GEOLOGICAL STATE PARK

ADA RESTROOM & BOARDWALK

SHEET LIST			
SHEET NUMBER	SHEET NAME	100% CD 2/25/25	CURRENT REVISION
S000	COVER SHEET	•	
S001	ABBREVIATIONS & SYMBOLS	•	
S002	STRUCTURAL NOTES	•	
S003	STRUCTURAL NOTES	•	
S004	STRUCTURAL PLAN SPECIFICATIONS	•	
S011	WALL WIND DIAGRAMS	•	
S101	GROUND FLOOR PLAN	•	
S102	BOARDWALK FRAMING PLAN	•	
S201	BOARDWALK ELEVATIONS	•	
S501	TYPICAL SCHEDULES	•	
S511	TYPICAL DETAILS	•	
S512	WOOD DOCK & DECK DETAILS	•	

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BNI Project No. 24122

To the best of the Structural Engineer's knowledge, the Plans and Specifications comply with the applicable minimum building codes.

DESIGNER:	DLB
DRAWN BY:	TLC
REVIEWED BY:	CSC

ISSUE DATE:	02/25/2025
COMP. FILE No.:	
STATE PROJECT No.:	61531C

SYMBOL	REVISION	DATE
A		
B		

SYMBOL	REVISION	DATE
C		
D		

Consultant:
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PROFESSIONAL REGISTRATION

CHRISTOPHER S. CHILDERS LICENSE NO. 50812 STATE OF FLORIDA PROFESSIONAL ENGINEER

Christopher S. Childers, P.E.
Fla. Reg. No. 50812

Digitally signed by Christopher S Childers
Date: 2025.03.06 15:53:29-05'00'

WINDLEY KEY FOSSIL REEF GEOLOGICAL STATE PARK

SHEET TITLE: COVER SHEET

PROJECT TITLE: ADA RESTROOM & BOARDWALK

SHEET NO.
S000

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100% CONSTRUCTION DOCUMENTS

STRUCTURAL LEGEND AND ABBREVIATIONS

MATERIAL LEGEND

CONCRETE; EARTH, SOIL; EXISTING; GRAVEL; GROUT; STEEL

RIGID BOARD; ROCK; TILT-UP OR PRECAST; WOOD DECKING; WOOD

DEMO WALL; WALL TERMINATES AT THIS LEVEL; EXISTING WALLS; CMU WALLS

STEEL COLUMNS; CONCRETE COLUMNS; CONCRETE WALLS

LINE SYMBOLS

- CENTERLINE / GRIDLINE
- JOIST
- JOIST GIRDER
- BEAM
- GIRDER
- PROPERTY LINE
- X'-X" DIMENSION LINE TICK
- X'-X" DIMENSION LINE ARROW
- BREAK LINE
- PIPE/TUBE BREAK LINE

SECTION SYMBOLS

Symbol	Labels	Type
# / ###	DETAIL NUMBER; SHEET NUMBER	**DETAIL SECTION**
# / ###	DETAIL NUMBER; SHEET NUMBER	**WALL/BUILDING SECTION**
# / ###	ELEVATION LETTER; SHEET NUMBER	**WIND ELEVATION**
A / S-###	ELEVATION LETTER; SHEET NUMBER	**FRAMING ELEVATION**
#/S-###		**PLAN/DETAIL CALLOUT**
1, A		**GRIDLINES**
NORTH		**PROJECT NORTH ORIENTATION**

SYMBOLS LEGEND:

Symbol	Description
	COMPRESSION PILES
T	TENSION PILES
	BATTERED PILES
	HELICAL OR MICRO PILES
TC-#	TIE COLUMN MARK NUMBER
MP-#	MASONRY PILASTER MARK NUMBER
#	COLUMN MARK NUMBER
ST#	STEEL COLUMN
A	TRUSS TIE DOWN
	DISTRIBUTED TENDONS
	BANDED TENDONS
(SH-#)	SHEAR HEAD REINFORCING
F= ###k	TOTAL EFFECTIVE FORCE IN POST TENSION BANDED TENDONS
##k/ft	TOTAL EFFECTIVE FORCE IN POST TENSION UNIFORM TENDONS
	WELDED WIRE REINFORCING
T.O. ELEMENT ±	ELEVATION
	STEP UP/DOWN
	RAMP UP
	RAMP DOWN
	THICKENED EDGE
	THICKENED TRANSITION CHANGE
	SLAB THICKENS TO ELEVATION CHANGE
SLOPE DN	DOWNWARD SLOPING RAMP
	JOIST BRIDGING
WP	FRAMING WORK POINT
	BEAM (OR GIRDER) SPLICE - FLEXIBLE CONNECTION
	BEAM (OR GIRDER) SPLICE - MOMENT CONNECTION
	BEAM TO COLUMN CONNECTION - BM CONT. ACROSS COL
	BEAM TO COLUMN CONNECTION - BM NOT CONT. ACROSS COL
	BEAM TO COLUMN MOMENT CONNECTION
	BEAM TO BEAM CONNECTION
	BEAM TO BEAM MOMENT CONNECTION
	BRACED FRAME
	COLUMN TERMINATES AT BOTTOM OF BEAM
C=X.XX" EX. W18x35 C=1.25"	SPECIAL MID-SPAN CAMBER (INCHES)
(X) EX. W18x35 (28)	TOTAL NO. OF 3/4" DIA. SHEAR STUDS BETWEEN SUPPORTS
	OPENING IN FLOOR
#	REVISION CLOUD AND REVISION NUMBER
	ONE WAY SPAN DIRECTION
	TWO WAY SPAN DIRECTION

SLAB REINFORCING LEGEND:

ONE WAY SLAB EXAMPLE

8" — SLAB THICKNESS
#5@12" — BOTTOM REINFORCING

TWO WAY SLAB EXAMPLE

SLAB THICKNESS (10")
#6@12" — TOP REINFORCING IN EACH DIRECTION
#6@12" — BOTTOM REINFORCING IN EACH DIRECTION
8ksi — INCREASED CONCRETE STRENGTH IF APPLICABLE

MASONRY REINFORCING LEGEND

M8-524

VERTICAL REINFORCING (EX: #5)
BAR SPACING (EX: @24" O.C.)
MASONRY SIZE (EX: 8" MASONRY)

SLAB BAR DESIGNATION LEGEND

B - 8 - 6 H

- HOOKED (IF APPLICABLE)
- BAR LENGTH IN FEET (6' LONG)
- QUANTITY OF #5 BARS (8 #5) OR @ SPACING IN INCHES (#5@8")
- LOCATION IN SLAB

T = TOP
M = MIDDLE
B = BOTTOM

TOP BAR (EXAMPLES)	BOTTOM BAR (EXAMPLES)
T-8-12H	B-8-12H
T-8-12H	B-8-12H
T-8-12	B-8-12
T-@8-12	B-@8-12
T-8#7-12 (ALT. BAR SIZE)	B-@8#7-12 (ALT. BAR SIZE @8" SPACING)

TEXT SYMBOLS

Symbol	Meaning
@	AT (for spacing call-outs only)
℄	CENTERLINE
∅	DIAMETER
#	NUMBER, POUNDS (lbs)
d	NAIL (PENNY WEIGHT)
>	GREATER THAN
<	LESS THAN

STRUCTURAL CODE STANDARDS

ACI	American Concrete Institute
AISC	American Institute of Steel Construction
AISI	American Iron and Steel Institute
AITC	American Institute of Timber Construction
ANSI	American National Standards Institute
ASCE	American Society of Civil Engineers
ASTM	American Society of Testing & Materials
AWS	American Welding Society
CRSI	Concrete Reinforcing Steel Institute
FBC	Florida Building Code
FEMA	Federal Emergency Management Agency
IBC	International Building Code
ICC-ES	Internation Code Council-Evaluation Service
NDS	National Design Specification for Wood Construction
NFPA	National Forest Products Association
OSHA	Occupational Safety and Health Administration
PCI	Precast/Prestressed Concrete Institute
PTI	Post Tensioning Institute
SJI	Steel Joist Institute
TAS	Testing Application Standard
TMS	The Masonry Society
UL	Underwriter's Laboratory

STRUCTURAL ABBREVIATIONS

ACT	Actual
ADDL	Additional
ADH	Adhesive
ADJ	Adjacent
AFF	Above finished floor
AHJ	Authority Having Jurisdiction
AHU	Air handling unit
ALT	Alternate
ALUM	Aluminum
APPROX	Approximate (ly)
ARCH	Architect (ural)
ASD	Allowable Stress Design
B, BOT	Bottom
B-	Concrete beam mark
B.O.	Bottom of
B/B	Back to back
BLDG	Building
BLK	Block (not concrete block)
BM	Beam
BP	Base plate
BRDG	Bridging
BRG	Bearing
BSMT	Basement
BTWN	Between
C	Channel
C-	Column mark
C/C	Center to center
CANT	Cantilever
CFS	Cold Formed Steel
CG	Center of gravity
CIP	Cast in place
CJ	Control joint
CL	Center line, clear
CLR	Clear or clearance
CM	Construction manager
CMU	Concrete masonry unit
COL	Column
CONC	Concrete
CONN	Connection, connect
CONST	Construction
CONST JT	Construction joint
CONT	Continuous(ation)
CONTR	Contractor
COORD	Coordinate(tion)
CTR ('D)	Center(ed)
D	Depth
DBA	Deformed bar anchor
DBL	Double
DIA	Diameter
DIAG	Diagonal
DIM	Dimension
DL	Dead load
DN	Down
DS	Double stirrup
DT	Double ties
DTL	Detail
DWG (S)	Drawing(s)
DWL	Dowel
EA	Each
EB	Expansion bolt
EE	Each end
EF	Each face
EJ	Expansion joint
EL	Elevation
ELEV	Elevator
EMBED	Embedment
ENGR	Engineer
EOR	Engineer of Record
EQ	Equal
EQUIP	Equipment
ES	Each side
EW	Each way
EX	Example
EXIST	Existing
EXP	Expansion
EXT	Exterior
f'c	Compressive strength of concrete
f'm	Compressive strength of masonry
F-	Footing mark
FC	Filled cell
FD	Floor drain
FDN	Foundation
FF	Finished floor
FLG	Flange
FLR	Floor
FOC	Face of concrete
FRMG	Framing
FS	Far side
FT	Foot, feet
FTG	Footing
FV	Field verify
fy	Yield strength of struct steel
GA	Gauge
GALV	Galvanized
GB-	Grade beam mark
GC	General contractor
GL	Glu lam
GND	Ground
GR	Grade
HC	Hollow core
HDG	Hot dipped galvanized
HJR	Horizontal joint reinf
HK	Hook
HORIZ	Horizontal
HP	High point
HSA	Headed stud anchor
HSS	Hollow structural section
HT	Height
ID	Inside diameter
IF	Inside face
IJ	Isolation joint
IN	Inch
INCL	Include, included, including
INFO	Information
INSUL	Insulate, insulated, insulation
INT	Interior
INTERM	Intermediate
ITB	Inverted tee beam
JG	Joist girder
JST	Joist
JT	Joint
k	KIP, Kilopound(s)
K/FT	Kips per foot
kg	Kilogram
kN	Kilonewton
KSF	Kips per square foot
KSI	Kips per square inch
L	Length, long
LB	Link beam
lb	Pound
LG	Long
LL	Live load
LLBB	Long leg back to back
LLH	Long leg horizontal
LLV	Long leg vertical
LONG	Longitudinal
LP	Low point
LRFD	Load and resistance factor design
LSL	Long slotted holes
LT WT	Lightweight
LVL	Laminated veneer lumber
LW	Long way
LWC	Lightweight concrete
LWIC	Lightweight insulating concrete
M	Mega 1000
m	Meter
MAS	Masonry
MAX	Maximum
MC	Miscellaneaous channel
MC-	Masonry column mark
MECH	Mechanical
MEP	Mechanical, Electrical, Plumbing
MEZZ	Mezzanine
MFR	Manufacturer(ed)
MID	Middle
MIN	Minimum
MISC	Miscellaneous
MJ	Masonry joint
mm	Millimeters
MO	Masonry opening
MP-#	Masonry Pilaster
MPa	Megapascal
MPH	Miles Per Hour
MTL	Metal
Mu	Factored moment
N	Newton
N/A	Not applicable
NA	Neutral axis
NAVD	North American Vertical Datum
NGVD	National Geodetic Vertical Datum
NIC	Not in contract
No.	Number
NOA	Notice of Acceptance
NOM	Nominal
NS	Near side
NTS	Not to scale
O/O	Out to out
OC	On center
OD	Outside diameter
OF	Outside face
OPNG	Opening
OPP	Opposite
OPP HD	Opposite hand
OVS	Oversize(d) holes
Pa	Pascal = N/Sq m
PAF	Powder actuated fastener
PC	Precast
PC-	Pile cap mark
PCJ	Precast concrete joist
PDT	Precast double tee
PL	Plate
PLF	Pounds per linear foot
PREFAB	Prefabricate(d)
PROJ	Projection
PS	Prestressed
PSF	Pounds per square foot
PSI	Pounds per square inch
PT	Post tensioned/pressure treated
PVC	Polyvinyl chloride
R	Remainder
R#'-#"	Radial dimension
RAD	Radius
RD	Round, roof drain
REF	Refer, reference
REG	Regular
REINF	Reinforce(d)(ment)(ing)
REQ	Require(d)(ment)
RET	Return
REV	Revision
RM	Room
RO	Rough opening
RP	Radius point
RT	Right
RTU	Roof top unit
RW	Retaining wall
#SB-	Soffit beam mark, level specific
S	Stirrup, short
SA	Sleeve anchor
SB-	Soffit beam mark
SC	Slip critical
SCHED	Schedule
SDL	Superimposed dead load
SECT	Section
SF	Square foot(feet), step footing
SHT	Sheet
SIM	Similar
SJ	Saw cut joint
SL	Slab, direction of floor or roof slope
SL BRG	Slide bearing
SLBB	Short leg back to back
SLV	Short leg vertical
SOG	Slab on grade
SP	Spacing(es)
SPEC(S)	Specification(s)
SQ	Square
SS	Stainless steel
SSL	Short slotted holes
STD	Standard
STIFF	Stiffeners
STL	Steel
STRUCT	Structural
SW	Short way
SW-#	Shear wall mark
SYM	Symmetrical
T	Top, tie(s)
t	Thickness
T&B	Top and bottom
T.O.	Top of
T.O.B	Top of beam
T.O.C	Top of concrete
T.O.D	Top of deck
T.O.F	Top of footing
T.O.GB	Top of grade beam
T.O.PC	Top of pilecap, Top of precast
T.O.SL	Top of slab
T.O.SS	Top of structural steel
T.O.W	Top of wall
TB-	Tie beam mark
TC-#	Tie Column Mark
TEMP	Temporary, temperature
TERM	Terminate
THK(N)	Thick, thicken(ed)
THRD	Threaded
TOL	Tolerance
TR	Tread
TRAN	Transverse
TT	Triple tie
Tu	Factored torsion
TW	Tunnel wall
TYP	Typical
U BAR	U shape bar
ULT	Ultimate
UNIF	Uniform
UON	Unless otherwise noted
UPT	Upturned
US	Underside
VERT	Vertical
Vu	Factored shear
W	Width / Wide flange beam
w/	With
w/o	Without
WA	Wedge anchor
WB	Wind brace
WD	Wood
WF-	Wall footing mark
WL	Wind load
WP	Work point, waterproofing
WS	Waterstop
WT	Weight
WWR	Welded wire reinforcing
XS	Extra Strong
XXS	Double Extra Strong

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BNI Project No. 24T22

To the best of the Structural Engineer's knowledge, the Plans and Specifications comply with the applicable minimum building codes.

WINDLEY KEY FOSSIL REEF GEOLOGICAL STATE PARK

SHEET TITLE: ABBREVIATIONS & SYMBOLS

PROJECT TITLE: ADA RESTROOM & BOARDWALK

SHEET NO. S001

100% CONSTRUCTION DOCUMENTS

PROFESSIONAL REGISTRATION
CHRISTOPHER S. CHILDERS LICENSE NO. 50812 STATE OF FLORIDA PROFESSIONAL ENGINEER
Christopher S. Childers, P.E.
Fla. Reg. No. 50812

Digitally signed by Christopher S Childers
Date: 2025.03.06 15:53:30-05'00'

This item has been digitally signed and sealed by Christopher S. Childers, PE on 3/6/2025. Printed copies of this document are not considered signed and sealed and the signature must be verified on any electronic copies.

DESIGNER: DLB
DRAWN BY: TLC
REVIEWED BY: CSC
ISSUE DATE: 02/25/2025
COMP. FILE No.:
STATE PROJECT No.: 61531C

SYMBOL	REVISION	DATE
A		
B		
C		
D		

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STRUCTURAL NOTES

GENERAL NOTES

GN-1 The governing Code for this Project is the Florida Building Code, 8th Edition (2023). This Code prescribes which edition of each referenced standard applies to this Project.

GN-2 To the best of our knowledge, the Structural Drawings and Specifications comply with the applicable requirements of the governing Building Code.

GN-3 Construction is to comply with the requirements of the governing Building Code and all other applicable Federal, State, and Local Codes, Standards, Regulations and Laws.

GN-4 Use these Notes in conjunction with the Plan Specifications or Project Specifications. If a conflict exists, the more stringent governs.

GENERAL NOTES - CONTRACTOR REQUIREMENTS

GN-5 Contractor refers to the General Contractor, Construction Manager, or the organization that is assigned to have overall responsibility and supervision of the Project.

GN-6 The Contractor shall be solely responsible for, and have control over, the means, methods, supervision, techniques, sequences, procedures of construction, quality, and correctness of the work. The Contractor is solely responsible for jobsite safety including all OSHA requirements.

GN-7 The Contractor shall coordinate all Contract Documents with field conditions and dimensions and Project Shop Drawings prior to construction. Do not scale drawings; use only printed dimensions. Report any discrepancies in writing to the Architect prior to proceeding with work. Do not change size or location of structural members without written instructions from the Structural Engineer of Record.

GN-8 Contractors who discover discrepancies, omissions or variations in the Contract Documents during bidding shall immediately notify the Architect. The Architect will resolve the condition and issue a written clarification.

GN-9 The Contractor shall protect adjacent property, his own work and the public from harm. The Contractor is advised to document the condition of adjacent property with a photographic survey and other documentation, including crack monitoring, prior to and during construction.

GN-10 The Structure is designed to be structurally sound when completed. The Contractor shall not overload the structure during construction. Prior to completion, the Contractor is responsible for stability and temporary bracing, including, but not limited to, masonry walls. Wherever the Contractor is unsure of these requirements, the Contractor shall retain a Florida Licensed Engineer to design and inspect the temporary bracing and stability of the structure.

GENERAL NOTES - DRAWINGS

GN-11 The Structural drawings shall be used in conjunction with the architectural drawings and all other drawings and documents, including shop drawings prepared by equipment suppliers and delegated engineers.

GN-12 Openings shown on Structural Drawings are only pictorial. See the Architectural for complete information such as slab depressions, slopes, curbs, finishes, and opening locations in structural members as required by MEP systems and architectural elements.

GN-13 Details labeled "typical" apply to all situations that are the same or similar to those specifically referenced, whether or not they are keyed in at each location. Questions regard-ing the applicability of typical details shall be resolved by the Architect.

GN-14 When joists or beams are not specifically dimensioned, they are located equally between gridlines or equally between dimensioned members.

GN-15 See Architectural drawings for fireproofing and waterproofing details and requirements.

GENERAL NOTES - DESIGN LOADS

GN-16 Design Loads:

OCCUPANCY	LIVE LOAD	DEAD LOAD	CONCENTRATED LOAD
Public Areas	100 psf	20 psf	

Live Load reduction for beams, columns and foundations has been taken in accordance to the governing building code. Live Load reduction for slabs and joist is not permitted.

Design superimposed dead loads listed above do not include masonry walls or other concentrated loads. See architectural drawings for these loads. Concentrated live loads do not act concurrently with area live loads.

GN-17 Vehicle Barrier Systems:

Static Design Load	10,000 lbs (Ultimate)
Applied Area	1 sf

Load is applied anywhere between 18 inches and 27 inches above the floor or ramp to produce the maximum load effect.

GN-18 Handrails and Guards:

Linear Loading	50 lbs/ft
Concentrated Loading	200 lbs
Intermediate Rails	50 lbs
Applied Area	1 sf

Loads shall be applied to act in any direction at any point on the handrail or top rail to produce the maximum load effect. Linear and concentrated loading shall not be applied concurrently.
Glass in handrails and guards shall be designed with a safety factor of 4.

GN-19 Design Rain Loads:

Rain Load	10 psf
Rain Intensity	i = 2 in/hr
Static Head	ds = 2 in
Hydraulic Head	dh = 0.8 in

GN-20 Design Wind Loads:

Governing Code	FBC 8th Edition (2023) / ASCE 7-22
Building Risk Category	II
Ultimate Wind Speed	Vult = 180 mph
Allowable Stress Design Wind Speed	Vasd = 108mph
Mean Roof Height	13 feet
Directionality Factor	Kd = .85
Gust-Effect Factor	G = .85
Exposure	D
Internal Pressure Coefficient	GCpi = +/- 0.18

a. Enclosure Protection from Wind Borne Debris

This Building is located in a High Velocity Hurricane Zone and Wind Borne Debris Region and has been designed as enclosed. All parts of the building envelope, including but not limited to, cladding systems, exterior doors and windows, skylights, glass block shall meet impact test criteria or be protected with an external protection device that has been tested and meets the impact test criteria in accordance with Section 1626 of the Florida Building Code and shall have a current Notice of Acceptance (NOA) or Florida Product Approval. All windows and doors below 30ft shall be rated for missile level E impact.

SHOP DRAWINGS AND OTHER SUBMITTALS

SD-1 Refer to the applicable Plan Specifications or Project Specifications for technical content requirements. Incomplete submittals will be returned without review.

SD-2 Submit specific components, such as columns, footings, etc., in a single package. Submit similar floors together.

SD-3 On first submittal, clearly flag and cloud all differences from the Contract Documents. On resubmittals, flag and cloud all changes and additions to previous submittal; only clouded items will be reviewed.

SD-4 Submittals for special structural, load-bearing items that are required by Codes or Standards to resist forces must be prepared by, or under the direct supervision of, a Delegated Engineer. Examples include Strut-Channel Framing and Connections, Precast Concrete, Prefabricated Wood Components, Open Web Steel Joists and Joist Girders, Post-Tensioning Systems, Tilt-up Panels, Structural Steel Connections, Structural Cold-Formed Steel Framing, Exterior Enclosure Systems, Pre-Engineered Metal Buildings, Roof-top Unit Tie-downs, and Shoring and Reshoring.

SD-5 A Delegated Engineer is defined as a Florida Licensed Engineer who specializes in and undertakes the design of Structural Components or Structural Systems included in a specific submittal prepared for this Project and is an employee or officer of, or consultant to, the Contractor, Subcontractor, Fabricator, or Erector responsible for the submittal. The Delegated Engineer shall sign, seal and date the submittal, including calculations and drawings. See Plan Specifications or Project Specifications for more specific criteria.

SD-6 The Trade Contractor is responsible for confirming and correlating dimensions at the job sites, for tolerances, clearances, quantities, fabrication processes and techniques of construction, coordination of the work with other trades and full compliance with the Contract Documents.

SD-7 The Contractor shall review and approve submittals, including substitution requests and shop drawings, and shall sign and date each drawing prior to submitting to the Architect. This approval is to confirm that the submittal is complete, complies with the submittal requirements and is coordinated with field dimensions, other trades, erection sequencing and constructability. Submittals not reviewed by the Contractor will be returned without review.

SD-8 Bliss & Nyitray (BNI) reviews submittals to confirm that the submittal is in general conformance with the design concept presented in the Contract Documents. Quantities and dimensions are not checked. Notations on submittals do not authorize changes to the contract sum. Checking of the submittal by BNI shall not relieve the Contractor of responsibility for deviations from the Contract Documents and from errors or omissions in the submittal.

SD-9 BNI's review of Delegated Engineer submittals is limited to verifying that the specified structural submittal has been furnished, signed and sealed by the Delegated Engineer and that the Delegated Engineer has understood the design intent and used the specified structural criteria. No detailed check of calculations is made. The Delegated Engineer is solely responsible for his/her design, including but not limited to the accuracy of his/her calculations and compliance with the applicable codes and standards.

SD-10 BNI may transfer to the Contractor BIM files, CAD files or other electronic data for use in preparing Shop Drawings. The contractor shall email a request for BIM or CAD files along with an acknowledgement that he/she has read and agreed to the following terms and conditions:

A. This electronic data remains the property of BNI, and in no case shall the transfer of these files be considered a sale. The files shall not be used for other projects, additions to this project, or for completion of this project by others.
B. The Contractor is responsible for assuring that the electronic data accurately represents the Contract Documents. In the event of a conflict, the Contract Documents shall govern.
C. The electronic data is current as of the date of transfer but may subsequently be revised or supplemented. If so, then the Contractor may request updated electronic data.
D. The use of these electronic data shall not modify Contractor's responsibility for coordination with other trades, or for the proper checking and coordination of dimensions, details, member sizes and gage, and quantities of materials to facilitate complete and accurate fabrication and erection.
E. Do not scale dimensions since the electronic data may not be precise and, in some cases, have been intentionally altered for presentation purposes.
F. Contractor shall indemnify, defend and hold harmless BNI from all claims, damages, losses, expenses, penalties, and liabilities, including attorneys' fees, arising out of or resulting from the use of the electronic data by Contractor or others.

SHALLOW FOUNDATIONS

SF-1 Foundation design, soil preparation and compaction are based on Geotechnical Investigation, Data and Recommendations in Report #H8235058 by Terracon dated 27th October 2023. The Geotechnical Report is not available at this time.

SF-2 Footing sizes and reinforcing are based on an assumed allowable soil bearing capacity of 2,000 psf. All footings shall bear on compacted fill, natural soil or rock prepared per the Geotechnical Report.

SF-3 Subgrade preparation shall be field controlled and tested by a Licensed Soils Engineer in accordance with the Geotechnical Report. At completion, that Engineer shall prepare and submit to the Owner, Architect, Contractor and Structural En-gineer a signed and sealed letter indicating that the recommendations of the Geotechni-cal Report have been followed.

SF-4 Foundation excavations shall be dry prior to placing concrete. Contact Geotechnical Engineer if a dry condition cannot be achieved. Reinforcing in salt-water environment shall be sprayed with fresh water no more than 1 hour prior to concrete placement.

SF-5 Provide waterproofing of underground structural members as indicated on the Architectural drawings.

SF-6 Center all footings under their respective columns or walls, u.o.n.

SF-7 Top of all footings is 12 inches below the ground floor level, u.o.n.

EXCAVATION, BACKFILL AND DEWATERING

EB-1 The Contractor is solely responsible for all excavation procedures including lagging, shoring, and protection of adjacent property, structures, streets and utilities in accordance with the requirements of the local building department and OSHA regulations. Do not excavate within one foot of the angle of repose of any soil bearing foundation unless the foundation is properly protected against settlement.

EB-2 For basement walls, do not backfill against walls until 7 days after the walls are braced by the structure or are temporarily braced.

EB-3 In no case shall bulldozers or other heavy equipment be permitted closer than 5 feet from any retaining wall. If it is necessary to operate such equipment closer than 8 feet to the wall, the Contractor shall be the sole responsible party and at their own expense shall provide adequate support or bracing of the wall to withstand the additional superimposed loads from such equipment.

EB-4 The Contractor is responsible for the disposal of all accumulated water in a manner that does not in-convenience or damage the work.

SLABS ON GRADE

SG-1 Refer to Geotechnical Report for subgrade preparation more than 12" below bottom of slab.

SG-2 Above subgrade, use fill containing not more than 10% passing #200 sieve and maximum 1 inch diameter. Compact to 95% of maximum dry density as determined by modified proctor ASTM D-1557. Each layer of fill shall not exceed 6" loose thickness. Compact prior to placement of the next layer.

SG-3 Fill placement and compaction shall be monitored and accepted by the testing agency. Take a min. of one field density test (ASTM D-1556 or D-2922) for each 2,500 square feet of each layer. The testing agency shall randomly select test locations.

SG-4 For interior slabs use 10 mil vapor retarder complying with ASTM E1745 between soil and bottom of slab and install in conformance with ASTM E1643. Lap joints 6" and seal with manufacturer approved tape. Repair all punctures and tears, and seal around all penetrations. Do not use any sheeting below exterior concrete slabs.

SG-5 Reinforce slabs on grade with welded wire reinforcement supplied in flat sheets only. Use chairs to support wire reinforcement in the center of slab. Fiber reinforced concrete shall not be used at slabs to receive a broom finish.

SG-6 Provide crack control joints at 12 feet maximum to limit areas between joints to 144 sq. ft. in all floating slabs on grade 2 hours after final finish but not more than 8 hours after completion of the pour. Aspect ratio shall not exceed 1.25. Avoid L-shaped panels. Locate to conform to bay spacing whenever possible, add crack control joints at re-entrant corners which tend to invite cracks.

SG-7 In sidewalks and walkways, locate isolation joints at 20 ft. o.c. maximum score and tool between isolation joints in equal bays of 5 ft. or less.

SG-8 See the Architectural Drawings for slab on grade depressions and other requirements.

SG-9 Termite protection shall be provided by a Registered Termiticides, and a certificate of compliance shall be issued to the building department per the Florida Building Code, section 1816. Refer to the Architectural Drawings for additional information.

REINFORCED CONCRETE

RC-1 Comply with ACI 301 and 318 and Plan Specifications.

RC-2 Provide structural concrete with a minimum ultimate compressive design strength in 28 days as follows:

Element	Strength
Footings	3000 psi
Slabs on Grade	3000 psi

RC-3 Use normal weight concrete for all structural members. u.o.n.

RC-4 Provide ASTM A615 Grade 60 reinforcing steel. Reinforcing shall be accurately placed, rigidly supported and firmly tied in place, with appropriate bar supports and spacers. Lap continuous reinforc-ing 48 bar dia. Provide cover over reinforcing as follows:

Element	Bottom	Top	Sides
Footings	3"	2"	3"
Slabs on Grade	2"	1"	2"

RC-5 Provide A706 reinforcing steel when the rebar is to be welded. Do not weld A615 bars.

RC-6 Deformed Bar Anchor (DBA) shall conform to ASTM A496 with a minimum yield strength of 70,000 PSI. Reinforcing bars, A615 or A706, is not an acceptable substitution for DBA's.

RC-7 Provide galvanized reinforcement in areas exposed to the environment, such as balconies, or as indicated on the drawings.

RC-8 Where specified, provide plain, cold-drawn electrically-welded wire reinforcement conforming to ASTM A185. Supply in flat sheets only. Lap splice two cross wire spacings.

RC-9 In addition to specified reinforcing, provide 2 tons of reinforcing bars to be detailed, fabricated, delivered to site and placed as directed by the Architect/Engineer to account for unforeseeable conditions.

RC-10 Utilities shall not penetrate beams or columns but may pass through slabs and walls individually, uon. For openings 24" long or less, cut reinforcing and replace alongside opening with splice bars of equivalent area with 48 bar dia. lap. Prepare and submit shop drawings for openings longer than 24". For rectangular openings 12" long or longer, add 1#5 x 6' mid depth diagonal at all 4 corners.

RC-11 Where reinforcing steel congestion permits, conduit and pipes up to 1" diameter may be embedded in concrete per ACI 318, Section 20.6. Space at 3 diameters o.c. Place in the middle third of the slab depth. If conduits are significantly congested, additional reinforcing perpendicular to piping may be required. Requests to embed larger pipes should be accompanied by a detailed description and be submitted to the architect for evaluation. Aluminum conduits shall not be placed in concrete.

RC-12 Provide construction joints in accordance with ACI 318, Section 26.5.6. Provide keyways and adequate dowels. Submit drawings showing location of construction joints and direction of pour for review.

RC-13 Provide 3/4" chamfer for all exposed corners.

RC-14 Provide reinforcing steel installer with a set of Structural Drawings for field reference. Inspect reinforcing steel placing from structural drawings.

POST-INSTALLED ANCHORS - GENERAL

AN-1 Substitution requests will be considered for products having an ICC-ES report recognizing the product for the appropriate application. Substitute concrete anchors must be approved for use in cracked concrete. Substitution requests shall include signed and sealed calculations prepared by a Florida Licensed Engineer who demonstrates that substituted product is capable of achieving the equivalent performance values of the design basis product.

AN-2 Confirm the absence of reinforcing steel by drilling a 1/4" diameter pilot hole for each anchor in non-post-tension applications. For post-tensioned slabs, confirm the absence of reinforcing steel by nondestructive testing prior to drilling holes. Do not cut reinforcing steel without approval of the Structural Engineer.

AN-3 Install in accordance with manufacturer's printed installation instructions (MPII) (ACI 314-19, 26.7.2). Refer to MPII for appropriate drill size. Clean hole and remove dust.

AN-4 Anchors listed below may not be used to substitute the specified anchors in a product's Notice of Acceptance (NOA) or Florida Product Approval.

BLISS & NYITRAY, INC.
STRUCTURAL ENGINEERS
227 N. Bronough St., Suite 7300
Tallahassee, FL 32301
Tel: (850) 222 - 4454
www.bnistructures.com CA No. 674
BNI Project No. 24122

To the best of the Structural Engineer's knowledge, the Plans and Specifications comply with the applicable minimum building codes.

REVISION	DATE	SYMBOL
		C
		D

ISSUE DATE: 02/25/2025	SYMBOL
	A
COMP. FILE No.:	
	B
STATE PROJECT No.: 61531C	

George & Associates
Consulting Engineers, Inc.
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ENGINEERING BUSINESS No. 7670
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Bureau of Design and Construction
3800 Commonwealth Blvd., Tallahassee, FL 32399 (850) 245-2300

DESIGNER:	DLB
DRAWN BY:	TLC
REVIEWED BY:	CSC
Consultant:	

PROFESSIONAL REGISTRATION

CHRISTOPHER S. CHILDERS — LICENSED — NO. 50812 — STATE OF FLORIDA — PROFESSIONAL ENGINEER

Christopher S. Childers, P.E.
Fla. Reg. No. 50812

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100% CONSTRUCTION DOCUMENTS

WINDLEY KEY FOSSIL REEF GEOLOGICAL STATE PARK

SHEET TITLE: STRUCTURAL NOTES

PROJECT TITLE: ADA RESTROOM & BOARDWALK

SHEET NO. S002

STRUCTURAL NOTES CONT'D

AN-5 Anchors shall be installed in concrete having a minimum age of 21-days at time of anchor installation (ACI 318-19, 26.7.2(f))

POST-INSTALLED ANCHORS - MECHANICAL ANCHORS

AN-6 For anchoring into concrete: Wedge-Type Mechanical anchors shall have been tested and qualified for use in accordance with ACI 355.2 and ICC-ES AC193. Pre-approved anchors include Hilti Kwik Bolt TZ, DeWalt Power-Stud+SD1, and Simpson Strong-Bolt 2.

AN-7 For anchoring into grouted masonry: Wedge-Type Mechanical anchors shall have been tested and qualified for use in accordance with ICC-ES AC01. Pre-approved anchors include the Hilti Kwik Bolt III, DeWalt Power-Stud+SD1, and Simpson Wedge-All.

AN-8 For drop-in anchors for fastening to the underside of post-tensioned slabs and hollowcore with a maximum embedment of ¾”: Pre-approved anchor is the DeWalt Mini-Undercut +.

POST-INSTALLED ANCHORS - SCREW ANCHORS

AN-9 For anchoring into concrete: Screw anchors shall have been tested and qualified for use in accordance with ACI 355.2 and ICC-ES AC193. Pre-approved anchors include the ¼”Ø Hilti KH-EZ and the ¼”Ø DeWalt Screw Bolt +.

AN-10 For anchoring into grouted or ungrouted masonry: Screw Anchors shall have been tested and qualified for use in accordance with ICC-ES AC106. Pre-approved anchor is the ITW Redhead Tapcon.

POST-INSTALLED ANCHORS - ADHESIVE ANCHORS

AN-11 For upwardly inclined or horizontal anchors, installer shall be certified by the ACI/CRSI Adhesive Anchor Installation Certification Program.

AN-12 Install adhesive anchors in accordance with manufacturer’s requirements for concrete age, temperature, moisture condition, acceptable drilling methods, and hole preparation in conformance with ACI 318-19, 26.7.1(i).

AN-13 For anchoring into concrete: Adhesive anchors shall have been tested and qualified for use in accordance with ACI 355.4 and ICC-ES AC308. Pre-approved standard cure time adhesives include Hilti RE500v3, DeWalt Pure 110+, and Simpson Set-XP.

AN-14 For anchoring into grouted masonry: Adhesive anchors shall have been tested and qualified for use in accordance with ICC-ES AC58. Pre-approved anchors include Hilti HIT-HY 200-R, DeWalt PURE110+, and Simpson Set-XP.

AN-15 Threaded rods for use with adhesive are galvanized ASTM F1554 Grade 36 U.O.N.

POST-INSTALLED ANCHORS - POWDER-ACTUATED FASTENERS

AN-16 Powder-actuated fasteners shall not be used to fasten to concrete or masonry U.O.N.

AN-17 Powder-actuated fasteners may be used to fasten cold-formed structural steel tracks and clips to walls but not to the underside of concrete or masonry elements where the fastener will be primarily loaded in tension.

AN-18 Powder-actuated fasteners shall have been tested and qualified for use in accordance with ICC-ES AC70.

AN-19 For anchoring into structural steel: Pre-approved anchors include the Hilti X-U, DeWalt CSI, and Simpson PDPA, with penetration of the entire tipped-portion of the fastener.

AN-20 Provide a minimum of two fasteners per connection.

AN-21 Refer to manufacturer’s instructions for installation and appropriate cartridge load.

AN-22 Provide fastener spacing and edge distance as shown on the Drawings. Minimum fastener spacing is 1 inch and edge distance of 1/2 inch.

WOOD

WD-1 All wood construction and connections shall conform to AITC "American Institute of Timber Construction" manual, and to NDS "National Design Specifications" for wood construction, and to the Florida Building Code, 8th Edition (2023), Chapter 23, and Plan Specifications or Specification Section 061100.

WD-2 All member sizes are to be as shown on drawings and provide the following minimum properties:

Member	Species	Fb (psi)	Fv (psi)	Fc_{Perp} (psi)	(psi)	$Fc_{Parallel}$	E (psi)	E_{min} (psi)
A. 2”-4” Wide	S.P.#1	1500	175	565	1650	1,600,000	580,000	
B. 2”-4” Wide	S.P.#2	1100	175	565	1450	1,400,000	510,000	
C. 5”-6” Wide	S.P.#1	1350	175	565	1550	1,600,000	580,000	
D. 5”-6” Wide	S.P.#2	1000	175	565	1400	1,400,000	510,000	
E. 8” Wide	S.P.#1	1250	175	565	1500	1,600,000	580,000	
F. 8” Wide	S.P.#2	925	175	565	1350	1,400,000	510,000	
G.	10” Wide	S.P.#1	1050	175	565	1450	1,600,000	580,000
H. 10” Wide	S.P.#2	800	175	565	1300	1,400,000	510,000	
I. 12” Wide	S.P.#1	1000	175	565	1400	1,600,000	580,000	
J. 12” Wide	S.P.#2	750	175	565	1250	1,400,000	510,000	

WD-3 All wood in contact with concrete or masonry shall be pressure treated.

WD-4 All bolts for bolted connections shall conform to ASTM A307, U.O.N. Use washers between wood and all bolt heads and nuts

WD-5 All metal wood connectors shall be stainless steel type 316

WD-6 Do not splice structural members between supports unless otherwise indicated.

WD-7 Where beams or columns are formed of two or more members, they shall be full length and fastened together per table on these drawings.

WD-8 Stud walls shall be of stud size and spacing as specified in the schedule on the drawings. Provide horizontal blocking in stud walls per schedule.

DEMOLITION

DE-1 Contractor shall provide all temporary scaffolding, platforms, barricades, railings, screening, etc. necessary to protect existing facilities, structures and the public during demolition and erection of the new construction, as well as, for job safety. Job safety, construction and demolition procedures are the sole responsibility of the contractor, including removal of hazardous material prior to start of the work. Contractor is required to take all precautions to minimize vibration, noise, dust, and debris in all areas adjacent to areas of demolition.

DE-2 Contractor shall coordinate with Owner the temporary suspension of use of any facility or portion thereof and the associated barricading requirements a minimum of 7 days prior to commencing work.

DE-3 Contractor shall perform work in a manner which will not conflict with any operation which is to remain functional during the course of the project, until such operation is scheduled to be shut down.

DE-4 Contractor shall coordinate with Owner the temporary suspension of use of any utility system, a minimum of 3 days prior to commencing work.

DE-5 Install all temporary and/or permanent bracing and supports before demolishing any structural element. Wherever the Contractor is unsure of these requirements, the Contractor shall retain a Florida licensed engineer to design and inspect the bracing, support, and stability of the structure. Demolition sequence shall not be performed in a manner that will overload existing structural framing.

DE-6 Provide temporary closure of all roof fascia, wall, and other openings to protect building from exposure to undesirable elements until new construction is weatherproofed, at which time such temporary construction shall be removed. All temporary exterior walls that are subject to wind loads are to be designed by a Florida licensed Delegated Engineer. Submit drawings and calculations for review.

DE-7 Contractor shall engage a Florida licensed Delegated Engineer to design any temporary protected egress paths shown on the Architectural drawings.

DE-8 At all locations where new construction will interface with existing elements, cut through existing structure in straight and true lines to insure a neat interface.

DE-9 Drilling and saw cutting into the existing structure shall be performed in a manner which avoids damage to all existing reinforcing unless approved by the EOR. Prior to drilling or saw cutting, locate existing reinforcing by use of GPR or X-ray to avoid damage. Contractor shall submit penetration layout drawings for openings not shown on the structural drawings. Drawings shall indicate opening size, location, and approximate number of reinforcing steel bars that will be cut for review by the EOR.

DE-10 All penetrations with widths less than existing reinforcing spacing shall be located to avoid damage to existing reinforcing. Penetrations with widths greater than existing reinforcing spacing shall be located to minimize the number of cut reinforcing.

DE-11 At all locations where the demolition of a concrete member leaves the ends of reinforcing steel exposed, provide the following:

A. Chip concrete from around the steel to a depth of 1" (interior) or 1 3/4” (exterior).
B. Cut off reinforcing steel not less than 3/4" (interior) or 1 1/2” (exterior) below the concrete surface.
C. Fill the cavity flush with Sikadur 31 Hi-Mod Gel epoxy paste.

DE-12 Upon completion of new construction under each phase, all demolished areas shall be restored to acceptable usage according to the contract documents as determined by the Architect/Engineer.

DE-13 Remove completely from the site and legally dispose of all debris generated by the demolition work as the work progresses. Stockpiling of debris and burning of debris on premises is strictly prohibited.

EXISTING CONDITIONS

EC-1 Limited Record Drawings of the existing building were available, or the available existing drawings do not match observed field conditions. Contractor is to field verify existing conditions before proceeding with fabrication and installation of new work.

EC-2 Contractor shall verify existing conditions which may not be consistent with the existing structure depicted in the plans and details, or which may interfere with the installation of the new structure. Contractor shall assume that some details may have to be adjusted to fit existing conditions once uncovered.

EC-3 Contractor is to notify the Architect of any discrepancies and shall include the necessary written descriptions, sketches, field measured dimensions, sizes and locations of existing members and photographs to describe the discrepancy.

EC-4 If the existing conditions once uncovered represent questionable materials, some testing may be required by a testing laboratory to be hired by the owner. BNI will select areas and/or materials to be tested, and the strengthening shall be completed prior to connecting new members to the questionable existing members. The strengthening work will be paid by the Owner with a change order.

EC-5 Unsafe conditions discovered during construction shall be immediately shored and/or braced. The Contractor shall notify the Architect and Engineer, and shall retain a Florida licensed engineer to design and inspect the shoring and/or bracing.

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BNI Project No. 24T22

To the best of the Structural Engineer's knowledge, the Plans and Specifications comply with the applicable minimum building codes.

REVISION	DATE	SYMBOL	REVISION	DATE	SYMBOL
		A			C
		B			D

DESIGNER : DLB
DRAWN BY: TLC
REVIEWED BY: CSC
ISSUE DATE: 02/25/2025
COMP. FILE No.:
STATE PROJECT No.: 61531C

Department of Environmental Protection
Division of Recreation and Parks
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WINDLEY KEY FOSSIL REEF GEOLOGICAL STATE PARK

SHEET TITLE
STRUCTURAL NOTES

PROJECT TITLE
ADA RESTROOM & BOARDWALK

100% CONSTRUCTION DOCUMENTS

SHEET NO.
S003

STRUCTURAL PLAN SPECIFICATIONS

GENERAL NOTES

SGN-1 These Plan Specifications are intended to be used for projects without Project Specification Books. If they are accidentally issued along with a Project Specification Books, the Project Specification Books shall supersede the Plan Specifications.

RISK CATEGORY	1.0 MULITPLIER	0.60 MULITPLIER	0.42 MULITPLIER
Risk Category II	700 YEAR MRI	50-YEAR MRI	25-YEAR MRI

SGN-2 The structure is designed for lateral movement of H/400 or better. This drift is based on wind loads with a 50-year mean recurrence interval.

SGN-3 The floor and roof members are designed for a vertical deflection of L/240 for total load, and L/360 for live load at occupied floors and L/240 at roofs. It is advised that all interior partitions and exterior precast or curtain wall system be attached to the structure by the Delegated engineer, with a connection that would allow for vertical movement.

SHOP DRAWINGS AND SUBMITTALS

SSD-1 To account for unforeseeable conditions, the Contractor shall provide 2 tons of reinforcing bars, 1 ton of post-tensioning tendons, 50 cubic yards of concrete, and 2 tons of structural steel framing in addition to the material specified on the contract documents. The price shall encompass all cost associated with detailing, fabrication, delivery, and installation. Any unused material shall be credited back to the Owner.

SSD-2 Material substitution shall not be submitted in the shop drawings without a substitution request being made to the Architect in advance and in writing, along with detailed substitution cost savings to be credited to the Owner. Upon approval by the Architect, the material substitution can be included in the submitted shop drawings.

SSD-3 All signed and sealed Shop Drawings prepared by a Delegated Engineer shall be accompanied by signed and sealed calculations. Shop Drawing submittals without calculations will be returned without review.

SSD-4 All structural Shop Drawings shall be submitted in PDF format to BNI for review and approval. Submittals shall be reviewed and electronically stamped by the Contractor as having “No Exception Taken”.

SSD-5 Manufacturer Literature and Product Data shall be submitted in PDF format. The submittals will be stamped as “Received, for record only” by BNI and returned accordingly.

SSD-6 All structural Shop Drawings and calculations prepared by a Delegated Engineer shall be submitted in PDF format and electronically signed and sealed by the Delegated Engineer. Once the submittal is approved by BNI, then a signed and sealed hard copy shall be submitted to BNI to receive an “Approved” stamp so the submittal can be submitted to the building department.

REINFORCED CONCRETE

SRC-1 Prepare and submit formwork shop drawings in compliance with ACI 301 and ACI 347R. Formwork design for safety, structural adequacy, and efficiency is the Contractor’s responsibility.

SRC-2 Provide form-facing panels that will provide continuous, true, and smooth concrete surfaces.

SRC-3 Formwork for the sides of beams, walls, columns and similar elements, that does not support the weight of concrete may be removed after curing at not less than 50 degrees for 24 hours after placing concrete if concrete is hard enough to not be damaged by form removal.

SRC-4 Sustainable Design: Provide product certificates indicating that concrete is manufactured within 500 miles of Project site from aggregates that have been extracted, harvested, or recovered, as well as manufactured, within 500 miles of Project site. Provide laboratory test reports for curing and sealing compounds indicating compliance with requirements for low-emitting materials.

SRC-5 Prepare and submit reinforcing steel shop drawings prepared according to ACI 315 and ACI SP-66. Include bar sizes, length, material, grade, bar schedules, stirrup spacing, bent bar diagrams, arrangement location of splices, length of splices, tie spacing, hoop spacing and supports of reinforcement.

SRC-6 Fabricate and install steel reinforcement according to CRSI’s “Manual of Standard Practice.”

SRC-7 Clean reinforcement of loose rust and mill scale, earth, ice, and other foreign materials that reduce bond to concrete.

SRC-8 Repair cut and damaged zinc coatings with zinc repair material according to ASTM A780.

SRC-9 Submit design mixes for each concrete mix for the following concrete grades:

Element	Strength	Air Yes/No	Max. Aggregate Size	W/C or W/(C&P)*	Exposure Class*
Footing	3000	N	1”	0.64	W1
Slab on Grade	3000	N	1”	0.64	S0
Beachfront Exposed Concrete	5000	N	1”	0.40	C2

* Letter in Exposure Category denotes Exposure Class:
F: Freezing and thawing
S: Sulfate
W: Concrete in contact with water
C: Corrosion protection of reinforcement

SRC-10 The minimum portland cement content of any concrete mix with slag cement is 280 lbs/CY, for all other concrete mixes, the minimum portland cement content is 423 lbs/CY. Limit percentage, by weight, of cementitious materials other than portland cement in concrete as follows:

A. Concrete mixes containing fly ash: 15%-20%.

B. Concrete mixes containing slag cement: 40%-50%.

C. Concrete mixes containing fly ash and slag cement: 50% with fly ash or slag not exceeding 25%.

SRC-11 Provide concrete having entrained air content of 3%-5% except 1%-3% for concrete to receive a hard trowel finish (floor slabs).

SRC-12 Place concrete within 90 minutes of adding water to the mix. The Contractor may request additional time from the special inspector who can authorize an additional 30 minutes.

SRC-13 The amount of water added to the mix at the site is limited to the amount identified on the batch ticket as that being withheld at the batch plant. Water shall be added prior to initial discharge of concrete. No water can be added at the site if the batch ticket does not clearly identify the amount withheld at the plant. No water may be added once concrete placement has started.

SRC-14 Provide batch ticket for each ready-mixed batch discharged and used in the Work, indicating Project identification name and number, date, mix type and number, batch time, mix time, quantity, and amount of water added, and amount withheld at the plant. Record approximate location of final deposit in structure.

SRC-15 Concrete columns shall be cast at least 24 hours before horizontal members they support are cast. Exception: Tie columns and grout in masonry cells shall be cast at least 4 hours before beams are slabs are cast on top of masonry.

SRC-16 Deposit concrete continuously in one layer or in horizontal layers so that no new concrete will be placed on concrete that has hardened. Avoid inclined construction joints. Consolidate concrete with mechanical vibrating equipment. Do not use vibrators to transport concrete inside forms.

SRC-17 Cure concrete according to ACI 308.1 and as follows:

A. Curing Compound: Apply to all concrete surfaces that are not permanently exposed. Provide a second coat applied at 90 degrees to initial application within three hours of initial application.
B. Curing and Sealing Compound: Apply to permanently exposed concrete surfaces. Repeat process after 24 hours.
C. Contractor shall confirm that curing compounds are compatible with flooring finishes and will not adversely affect the performance or warranty of the flooring.

SRC-18 Sample all concrete after water and admixtures have been added. Obtain at least one composite sample for each 100 CY or fraction thereof of each concrete mix placed daily. For slabs 6 inches or thinner, increase frequency to each 50 CY or fraction thereof of each concrete mix placed daily.

SRC-19 Cast and laboratory cure one set of four standard cylinder specimens and cast and field cure one set of four standard cylinder specimens for each composite sample. Take sample at point of placement for pumped concrete.

SRC-20 Test one specimen at 7-days and three at 28-days. If one of the first two 28-day test falls below specified strength, test the remaining specimen at 56-days.

SRC-21 Strength of each concrete mix will be satisfactory if the average of two cylinders at 28-days equals or exceeds the specified concrete strength, if not, then the average of any three consecutive strength tests (two at 28-days and one at 56-day) equals or exceeds specified compressive strength and no compressive strength test falls below specified compressive strength by 10% or 500 psi, whichever is less.

SRC-22 Provide test results to Architect, Engineer, Threshold Inspector, and Concrete Company.

SRC-23 Contractor shall notify Architect and BNI of any concrete that fails to meet the design strength. Additional testing including destructive testing may be required to validate the in-place concrete strength. Testing with a Swiss Hammer is not an acceptable method of establishing in-place concrete strength.

WOOD FRAMING

SWD-1 Framing with Engineered Wood Products: Install engineered wood products to comply with manufacturer's written instructions.

Sustainable Design: Provide product certificates for wood products indicating that they have been manufactured within 500 miles of Project site from materials that have been extracted, harvested, or recovered, as well as manufactured, within 500 miles of Project site. Include chain-of-custody certificates for “FSC Pure” certified wood, including statement of costs, and qualification data products for manufacturer and vendor.

SWD-2 Set rough carpentry to required levels and lines, with members plumb, true to line, cut, and fitted. Fit rough carpentry accurately to other construction. Locate blocking, grounds, and similar supports to comply with requirements for attaching other construction.

SWD-3 Install metal framing anchors to comply with manufacturer's written instructions. Install fasteners through each fastener hole.

SWD-4 For interior non-load bearing partitions and walls, provide minimum 2x4 nominal size wood studs spaced 24 inches O.C. unless otherwise indicated on the Architectural drawings.

SWD-5 For non-load-bearing partitions, provide double-jamb studs and headers not less than 4-inch nominal depth for openings 48 inches and less in width, 6-inch nominal depth for openings 48 to 72 inches in width, 8-inch nominal depth for openings 72 to 120 inches in width, and not less than 10-inch nominal depth for openings 10 to 12 feet in width.

SWD-6 Wood joists, beams or girders which frame into pockets of exterior concrete or masonry walls shall have 1/2-inch airspace at top, sides and ends or shall be pressure treated.

SWD-7 Treat ends of timber beams and posts exposed to weather by dipping in water-repellent preservative for 15 minutes.

SWD-8 Under non-load-bearing partitions, provide double joists separated by solid blocking equal to depth of studs above.

SWD-9 For exposed framing, hand-select material for uniformity of appearance and freedom from characteristics, on exposed surfaces and edges, that would impair finish appearance, including decay, honeycomb, knot-holes, shake, splits, torn grain, and wane.

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www.bnienginees.com CA No. 674
BNI Project No. 24T22

To the best of the Structural Engineer's knowledge, the Plans and Specifications comply with the applicable minimum building codes.

REVISION	DATE	SYMBOL	REVISION	DATE	SYMBOL
		A			C
		B			D

ISSUE DATE: 02/25/2025
COMP. FILE No.:
STATE PROJECT No.: 61531C
DESIGNER: DLB
DRAWN BY: TLC
REVIEWED BY: CSC

Department of Environmental Protection
Division of Recreation and Parks
Bureau of Design and Construction
3800 Commonwealth Blvd., Tallahassee, FL 32399 (850) 245-2300

Consultant:
George & Associates
Consulting Engineers, Inc.
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ENGINEERING BUSINESS NO. 7879
1967 Commonwealth Lane, Suite 200, Tallahassee, FL 32303
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PROFESSIONAL REGISTRATION
CHRISTOPHER S. CHILDERS LICENSE NO. 50812 STATE OF FLORIDA PROFESSIONAL ENGINEER
Christopher S. Childers, P.E.
Fla. Reg. No. 50812

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WINDLEY KEY FOSSIL REEF GEOLOGICAL STATE PARK

SHEET TITLE
STRUCTURAL PLAN SPECIFICATIONS

PROJECT TITLE
ADA RESTROOM & BOARDWALK

SHEET NO.
S004

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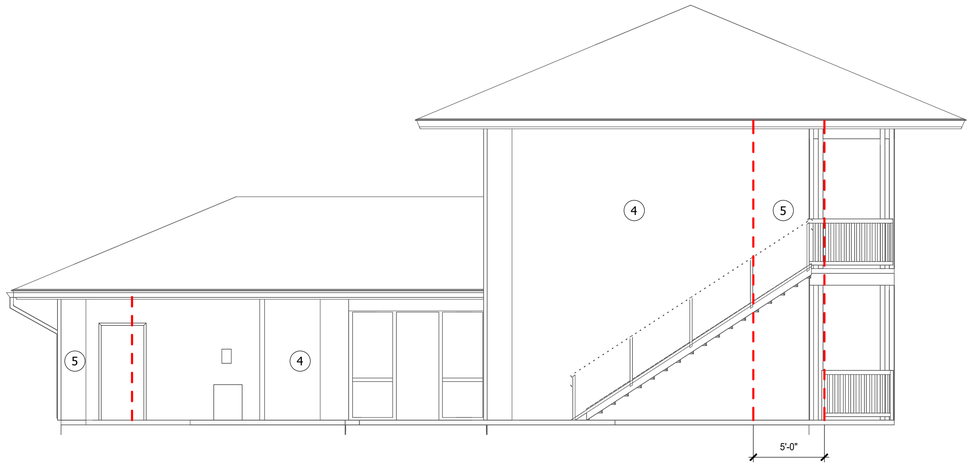
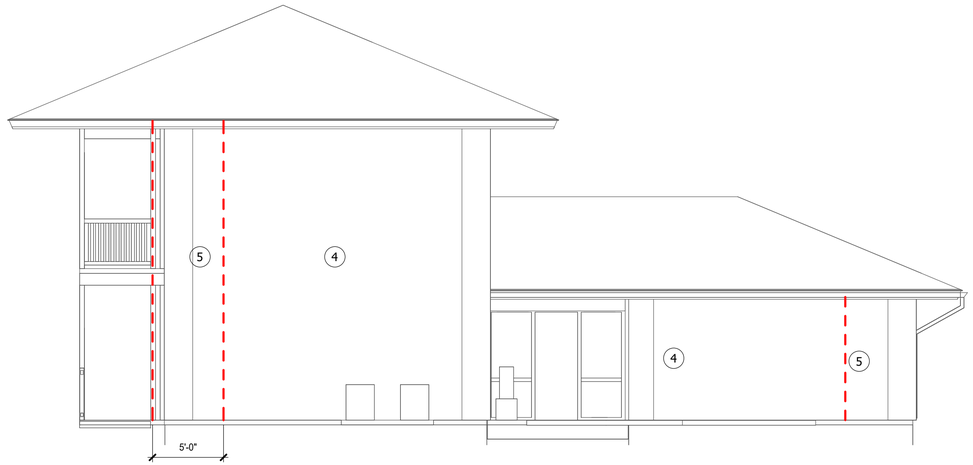


A EAST ELEVATION - WINDLOAD

3/16" = 1'-0"



B WEST ELEVATION - WINDLOAD

3/16" = 1'-0"

WIND PRESSURE NOTES

1. Numbers on this sheet are the components and cladding gross allowable pressures perpendicular to the surface (in P.S.F.) based on tributary area. Multiply service pressures by 1.67 to obtain W pressures for factored loads using strength design (ASCE 7-22 2.3).
2. Pressures are derived from ASCE 7-22.
3. Directionality factor Kd = .85
4. Negative pressures act away from surface, positive pressures act toward surface.
5. Dimensions shown on the skewed or radial elevations are measured parallel to surface.

WIND PRESSURE LEGEND

(#) Denotes wind pressure zone

Denotes wind load separation

WALL WIND PRESSURES (PSF)				
ZONE	TRIBUTARY AREA (SF)			
	10	100	200	500
4	-56/+52	-48/+44	-46/+42	-43/+39
5	-70/+52	-54/+44	-49/+42	-43/+39

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BNI Project No. 24T22

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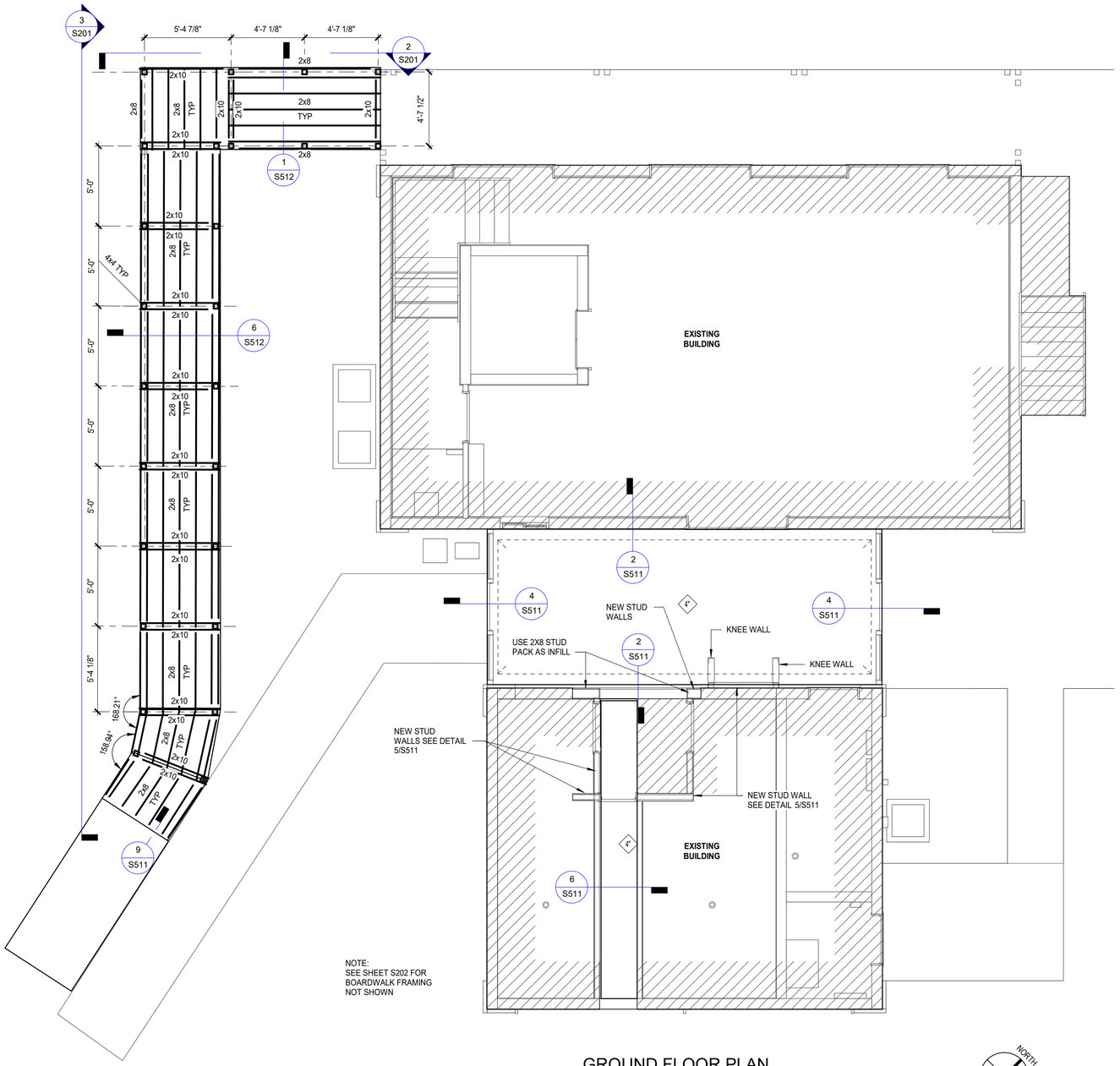
PROJECT TITLE
ADA RESTROOM & BOARDWALK

SHEET TITLE
WALL WIND DIAGRAMS

WINDLEY KEY FOSSIL REEF GEOLOGICAL STATE PARK

SHEET NO.
S011



NOTE:
SEE SHEET S202 FOR BOARDWALK FRAMING NOT SHOWN

GROUND FLOOR PLAN

T.O. SLAB = +0" U.O.N.
T.O. FOUNDATION= -2'-0"

1/4" = 1'-0"

SLAB REINFORCING KEYNOTES:

4" DENOTES 4" SLAB ON GRADE REINFORCED WITH 6x6-W2.9xW2.9 WWR ON VAPOR RETARDER OVER WELL COMPACTED SUBGRADE, REFER TO 1/S511

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WINDLEY KEY FOSSIL REEF GEOLOGICAL STATE PARK

SHEET TITLE
GROUND FLOOR PLAN

PROJECT TITLE
ADA RESTROOM & BOARDWALK

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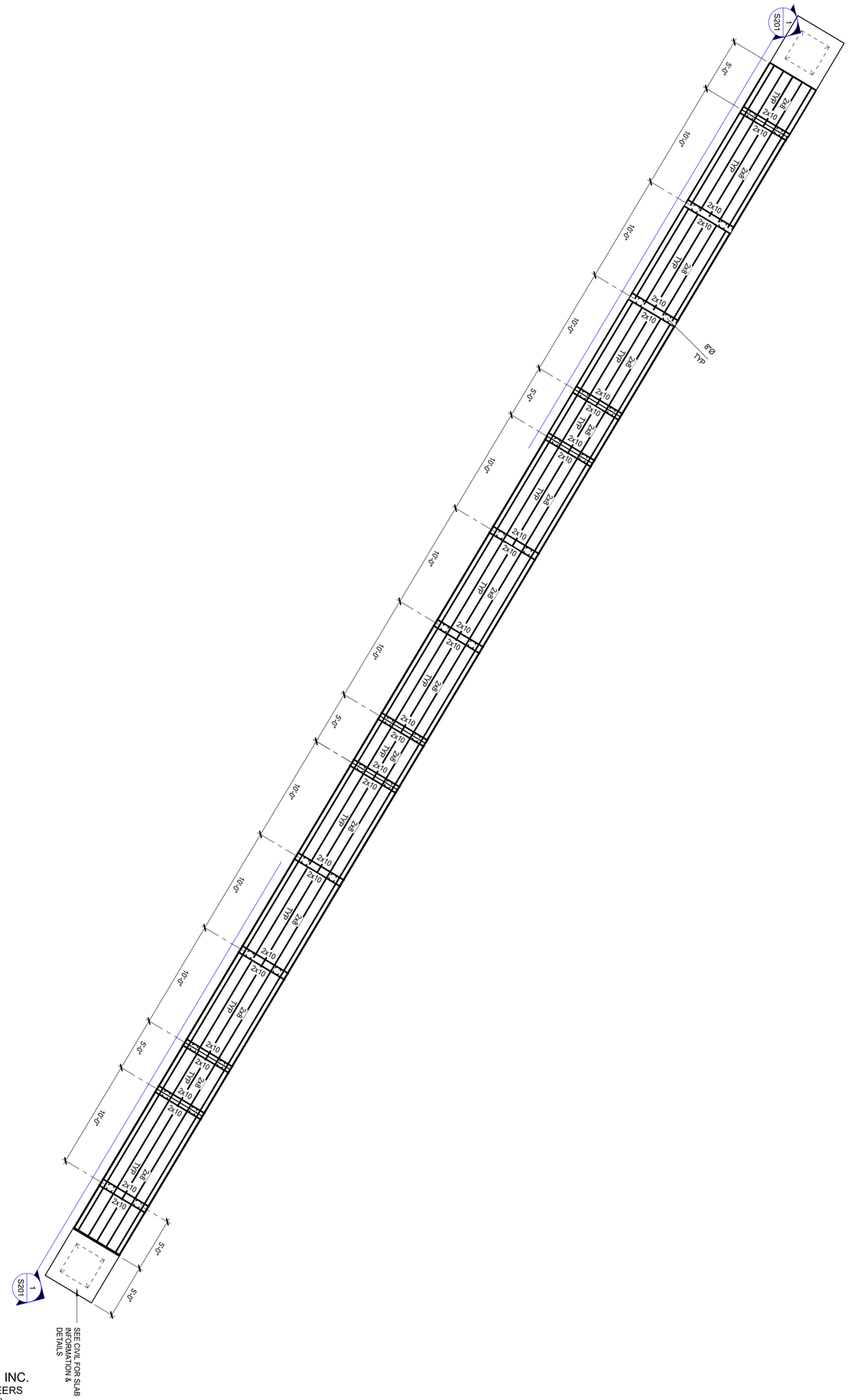
SHEET NO.
S101

BOARDWALK FRAMING PLAN

DISTANT BOARDWALK

3/16" = 1'-0"

NORTH



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BNI Project No. 24T22

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SHEET NO. S102

WINDLEY KEY FOSSIL REEF GEOLOGICAL STATE PARK

SHEET TITLE: BOARDWALK FRAMING PLAN

PROJECT TITLE: ADA RESTROOM & BOARDWALK

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REVIEWED BY: CSC	STATE PROJECT No.: 61531C	B			D		

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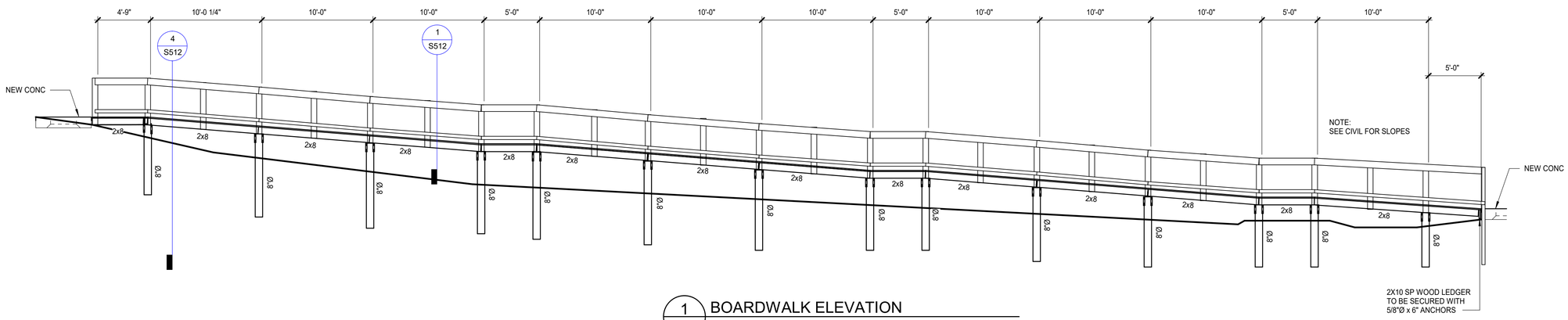
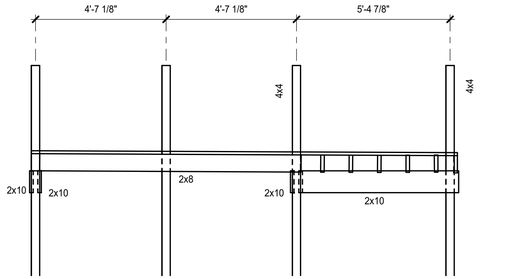


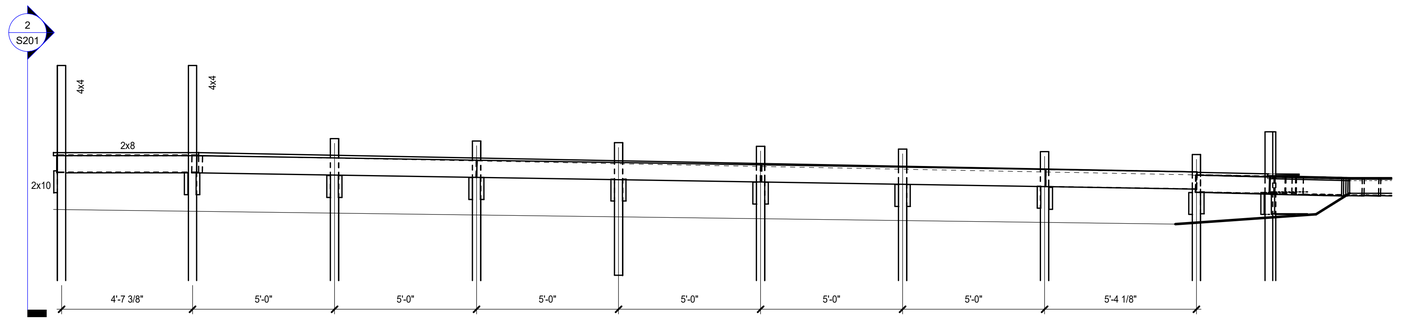
1 BOARDWALK ELEVATION

3/16" = 1'-0"



2 BOARDWALK ELEVATION

3/8" = 1'-0"



3 BOARDWALK ELEVATION

3/8" = 1'-0"

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REVIEWED BY: CSC

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WINDLEY KEY FOSSIL REEF GEOLOGICAL STATE PARK

SHEET TITLE
BOARDWALK ELEVATIONS

PROJECT TITLE
ADA RESTROOM & BOARDWALK

SHEET NO.
S201

Department of Environmental Protection
Division of Recreation and Parks
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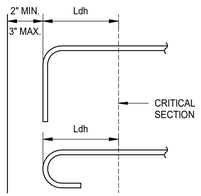
MINIMUM LAP SPLICE LENGTH SCHEDULE

BAR SIZE	f'c = 3000 psi		f'c = 4000 psi		f'c = 5000 psi		f'c = 6000 psi		f'c = 7000 psi		f'c = 8000 psi		f'c = 10,000 psi		48db
	OTHER BARS	TOP BARS	OTHER BARS	TOP BARS	OTHER BARS	TOP BARS	OTHER BARS	TOP BARS	OTHER BARS	TOP BARS	OTHER BARS	TOP BARS	OTHER BARS	TOP BARS	
#3	22"	28"	19"	25"	17"	22"	16"	20"	16"	19"	16"	18"	16"	16"	18"
#4	29"	38"	25"	33"	23"	29"	21"	27"	19"	25"	18"	23"	16"	21"	24"
#5	36"	47"	31"	41"	28"	36"	26"	33"	24"	31"	22"	29"	20"	26"	30"
#6	43"	56"	37"	49"	34"	44"	31"	40"	28"	37"	27"	35"	24"	31"	36"
#7	63"	81"	54"	71"	49"	63"	45"	58"	41"	54"	39"	50"	35"	45"	42"
#8	72"	93"	62"	81"	56"	72"	51"	66"	47"	61"	44"	57"	39"	51"	48"
#9	81"	105"	70"	91"	63"	81"	57"	74"	53"	69"	50"	64"	44"	58"	54"
#10	91"	118"	79"	102"	71"	92"	64"	84"	60"	77"	56"	72"	50"	65"	61"
#11	101"	131"	87"	114"	78"	102"	71"	93"	66"	86"	62"	80"	55"	72"	68"

1. LISTED LAP LENGTHS ARE BASED ON CLASS "B" SPLICE.
2. "TOP BAR" IS DEFINED WHEN MORE THAN 12" OF FRESH CONCRETE IS PLACED BELOW HORIZONTAL REINFORCEMENT. ALL OTHER REINFORCEMENT IS REFERRED TO AS "OTHER BARS".
3. FOR TOP REINFORCEMENT IN SLABS AND BEAMS THAT ARE 12" THICK OR LESS, TABULATED SPLICE LENGTHS FOR "OTHER BARS" SHALL BE USED.
4. LISTED LAP LENGTHS ARE BASED ON NORMAL WEIGHT CONCRETE. MULTIPLY TABULATED LENGTHS x1.33 FOR LIGHT WEIGHT CONCRETE.
5. LISTED LAP LENGTHS ARE BASED ON UNCOATED AND GALVANIZED REINFORCEMENT. MULTIPLY ABOVE LENGTHS x1.2 FOR EPOXY COATED REINFORCEMENT.
6. FOR CONCRETE STRENGTHS IN BETWEEN THOSE TABULATED HERE, USE LAP SPLICE LENGTHS OF LOWER CONCRETE STRENGTH.
7. FOR TRANSFER SLAB WHERE REINF COVERS IS LESS THAN db, MULTIPLY SPLICE LENGTHS x1.5.

1 MINIMUM LAP SCHEDULE
FOR REINFORCING GRADE OF 60 KSI — 3/4" = 1'-0"

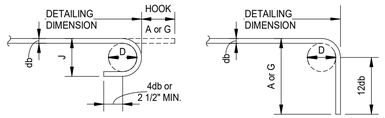


1. LISTED DEVELOPMENT LENGTHS ARE BASED ON BAR SPACING AND SIDE COVER OF 6xdb, OR AS CONFINED IN DETAILS
2. LISTED DEVELOPMENT LENGTHS ARE BASED ON NORMAL WEIGHT CONCRETE. MULTIPLY TABULATED LENGTHS x1.33 FOR LIGHT WEIGHT CONCRETE.
3. LISTED DEVELOPMENT LENGTHS ARE BASED ON UNCOATED AND GALVANIZED REINFORCEMENT. MULTIPLY TABULATED LENGTHS x1.2 FOR EPOXY COATED REINFORCEMENT.
4. LISTED VALUES ARE FOR 60KSI REBAR

LDH DEVELOPMENT OF STD HOOKS IN TENSION

BAR SIZE	f'c (psi)							6xdb
	3000	4000	5000	6000	7000	8000	10,000	
#3	6"	6"	6"	6"	6"	6"	6"	2 1/4"
#4	6"	6"	6"	6"	6"	6"	6"	3"
#5	8"	8"	8"	7"	7"	7"	6"	3 3/4"
#6	11"	10"	10"	10"	9"	8"	8"	4 1/2"
#7	14"	13"	12"	12"	11"	10"	9"	5 1/4"
#8	16"	15"	15"	15"	14"	13"	11"	6"
#9	20"	18"	18"	17"	16"	15"	14"	6 3/4"
#10	23"	22"	21"	21"	19"	18"	16"	7 3/4"
#11	27"	26"	25"	24"	22"	21"	19"	8 1/2"

6 DEVELOPMENT OF STD HOOKS SCHEDULE
FOR REINFORCING GRADE OF 60 KSI
NORMAL WEIGHT CONCRETE — 3/4" = 1'-0"



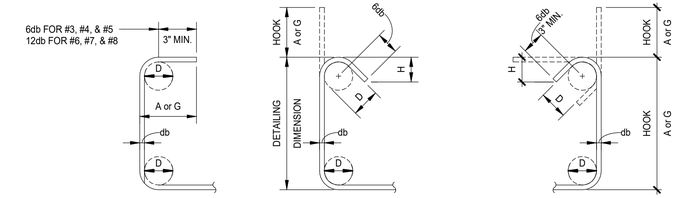
180° HOOK **90° HOOK**

D = FINISHED BEND DIAMETER

END HOOKS DIMENSION (ALL GRADES)

BAR SIZE	D	180° HOOKS		90° HOOK A or G
		A or G	J	
#3	2 1/4"	5"	3"	6"
#4	3"	6"	4"	8"
#5	3 3/4"	7"	5"	10"
#6	4 1/2"	8"	6"	12"
#7	5 1/4"	10"	7"	14"
#8	6"	11"	8"	16"
#9	9 1/2"	15"	11 3/4"	19"
#10	10 3/4"	17"	13 1/4"	22"
#11	12"	19"	14 3/4"	24"

3 STANDARD HOOK DETAIL — 3/4" = 1'-0"



90° **135°** **135° SEISMIC**

D = FINISHED BEND DIAMETER

STIRRUPS & TIES HOOKS DIMENSION					SEISMIC STIRRUP/TIE			
BAR SIZE	D	90° A or G	135°		135° SEISMIC HOOK			
			A or G	APPROX H	SIZE	D	A or G	APPROX H
#3	1 1/2"	4"	4"	2 1/2"	#3	1 1/2"	4 1/4"	3"
#4	2"	4 1/2"	4 1/2"	3"	#4	2"	4 1/2"	3"
#5	2 1/2"	6"	5 1/2"	3 3/4"	#5	2 1/2"	5 1/2"	3 3/4"
#6	4 1/2"	12"	8"	4 1/2"	#6	4 1/2"	8"	4 1/2"
#7	5 1/4"	14"	9"	5 1/4"	#7	5 1/4"	9"	5 1/4"
#8	6"	16"	10 1/2"	6"	#8	6"	10 1/2"	6"

4 STIRRUPS & TIES STANDARD HOOK DETAIL — 3/4" = 1'-0"

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Consultant:

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WINDLEY KEY FOSSIL REEF GEOLOGICAL STATE PARK

SHEET TITLE: TYPICAL SCHEDULES

PROJECT TITLE: ADA RESTROOM & BOARDWALK

SHEET NO.
S501

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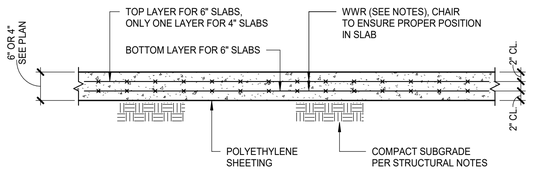
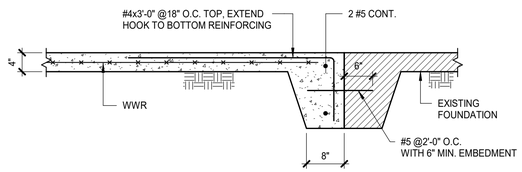


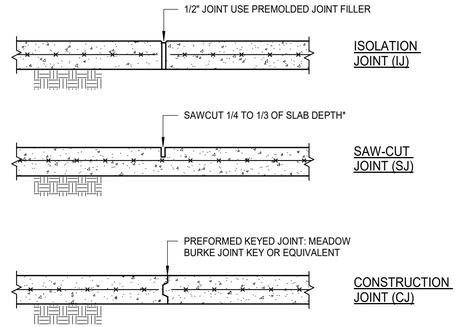
1 TYPICAL SLAB ON GRADE DETAIL
WITH W.W.R.

3/4" = 1'-0"



2 SLAB EDGE DETAIL

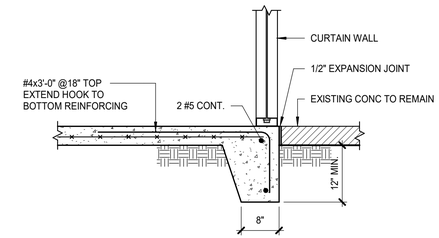
3/4" = 1'-0"



*PROVIDE SEALANT WHERE REQUIRED BY ARCHITECT SAWCUT AS SOON AS POSSIBLE AFTER CONCRETE HARDENS. SAW CUTTING MUST BE COMPLETE WITHIN 8 HRS. AFTER POURING.

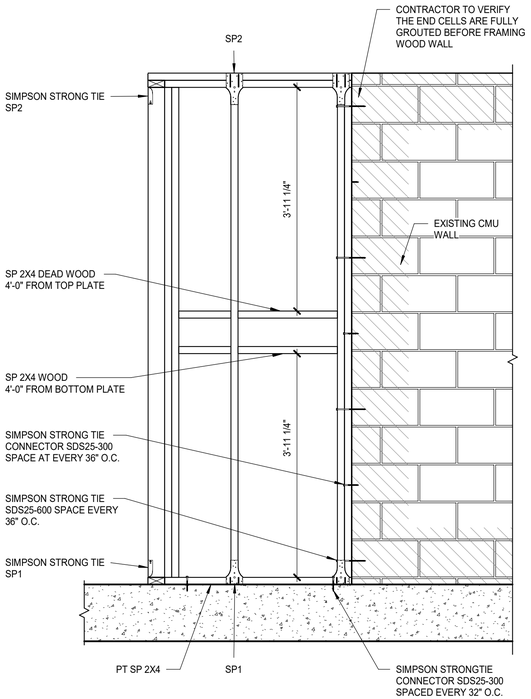
3 SLAB ON GRADE CONTROL JOINTS

3/4" = 1'-0"



4 CURTAIN WALL AT THICKENED EDGE

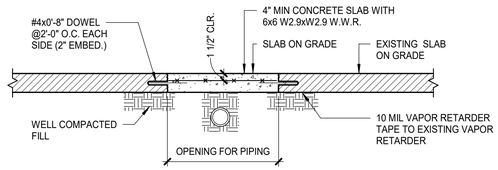
3/4" = 1'-0"



5 WOOD FRAME TO CMU DETAIL

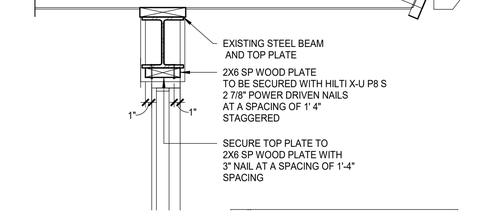
3/4" = 1'-0"

NOTE:
TERMITE PROTECTION SHALL BE PROVIDED WITH REGISTERED TERMITICIDES. UPON COMPLETING THE APPLICATION OF THE TERMITE PROTECTIVE TREATMENT, A CERTIFICATE OF COMPLIANCE SHALL BE ISSUED TO THE BUILDING DEPARTMENT BY THE LICENSED PEST CONTROL COMPANY THAT CONTAINS THE FOLLOWING STATEMENT, "THE AREAS UNDERNEATH NEW SLABS-ON-GRADE HAVE RECEIVED A COMPLETE TREATMENT FOR THE PREVENTION OF SUBTERRANEAN TERMITES. TREATMENT IS IN ACCORDANCE WITH RULES AND LAWS ESTABLISHED BY THE FLORIDA DEPARTMENT OF AGRICULTURE AND CONSUMER SERVICES." REFER TO FBC SECTION 1816 FOR ADDITIONAL INFORMATION.



6 TRENCH REPAIR DETAIL

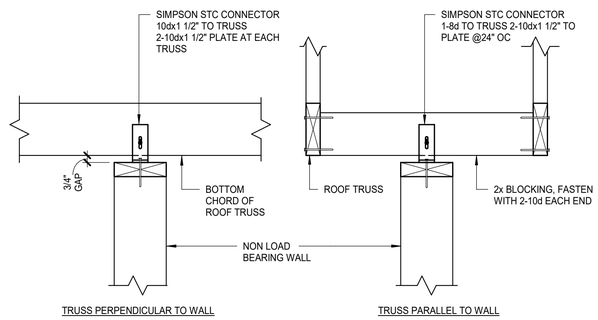
3/4" = 1'-0"



7 WOOD WALL TO STEEL BEAM CONNECTION

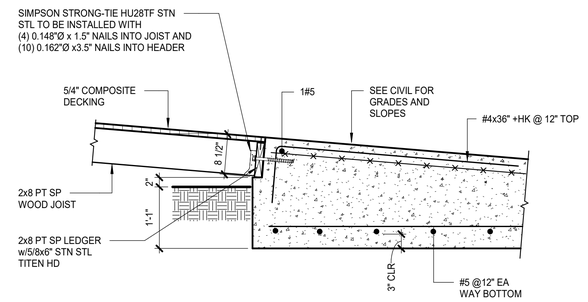
1" = 1'-0"

SHEET NOTE:
1. **ALL EXTERIOR WOOD TO BE PRESSURE TREATED.**
2. **ALL NAILS & CONNECTORS TO BE STAINLESS STEEL**



8 INTERIOR PARTITION WALL AT ROOF TRUSS
SIMILAR FOR FLOOR TRUSSES

1 1/2" = 1'-0"



9 DECK TO EXISTING SLAB

3/4" = 1'-0"

BLISS & NYITRAY, INC.
STRUCTURAL ENGINEERS
227 N. Bronough St. Suite 7300
Tallahassee, FL 32301
Tel: (850) 222 - 4454
www.blissnyitray.com CA No. 674
BNI Project No. 24122

To the best of the Structural Engineer's knowledge, the plans and specifications comply with the applicable minimum building codes.

ISSUE DATE: 02/25/2025	SYMBOL	DATE	REVISION
COMP. FILE No.:	A		
STATE PROJECT No. 61531C	B		
	C		
	D		

Department of Environmental Protection
Division of Recreation and Parks
Bureau of Design and Construction
3800 Commonwealth Blvd., Tallahassee, FL 32399 (850) 245-2300

George & Associates
Consulting Engineers, Inc.
CIVIL · ENVIRONMENTAL · TRANSPORTATION · SURVEYING PLANNING · LANDSCAPE
ENGINEERING BUSINESS NO. 7670
SURVEYING BUSINESS NO. LB 6988
1367 Commonwealth Lane Tallahassee, FL 32303
PHONE 850.521.0344 • FAX 850.521.0345

DESIGNER:	DLB
DRAWN BY:	TLC
REVIEWED BY:	CSC
Consultant:	

PROFESSIONAL REGISTRATION

CHRISTOPHER S. CHILDERS · LICENSE · NO. 50812 · STATE OF FLORIDA · PROFESSIONAL ENGINEER

Christopher S. Childers, P.E.
Fla. Reg. No. 50812

Digitally signed by Christopher S Childers
Date: 2025.03.06 15:53:39-05'00'

This item has been digitally signed and sealed by Christopher S. Childers, PE on 3/6/2025. Printed copies of this document are not considered signed and sealed and the signature must be verified on any electronic copies.

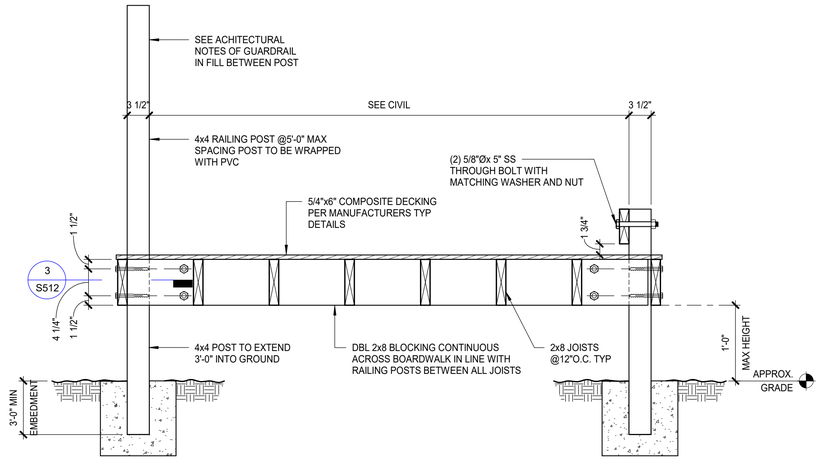
100% CONSTRUCTION DOCUMENTS

PROJECT TITLE
ADA RESTROOM & BOARDWALK

SHEET TITLE
TYPICAL DETAILS

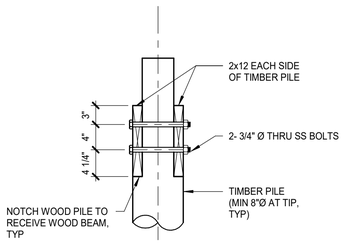
WINDLEY KEY FOSSIL REEF GEOLOGICAL STATE PARK

SHEET NO.
S511



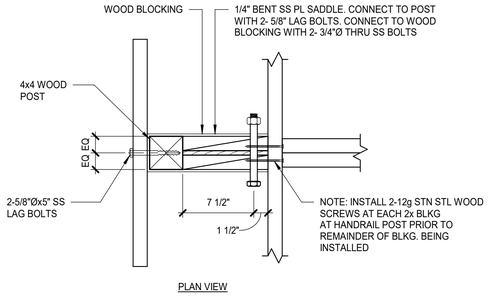
1 TYPICAL GUARDRAIL ATTACHMENT

1" = 1'-0"



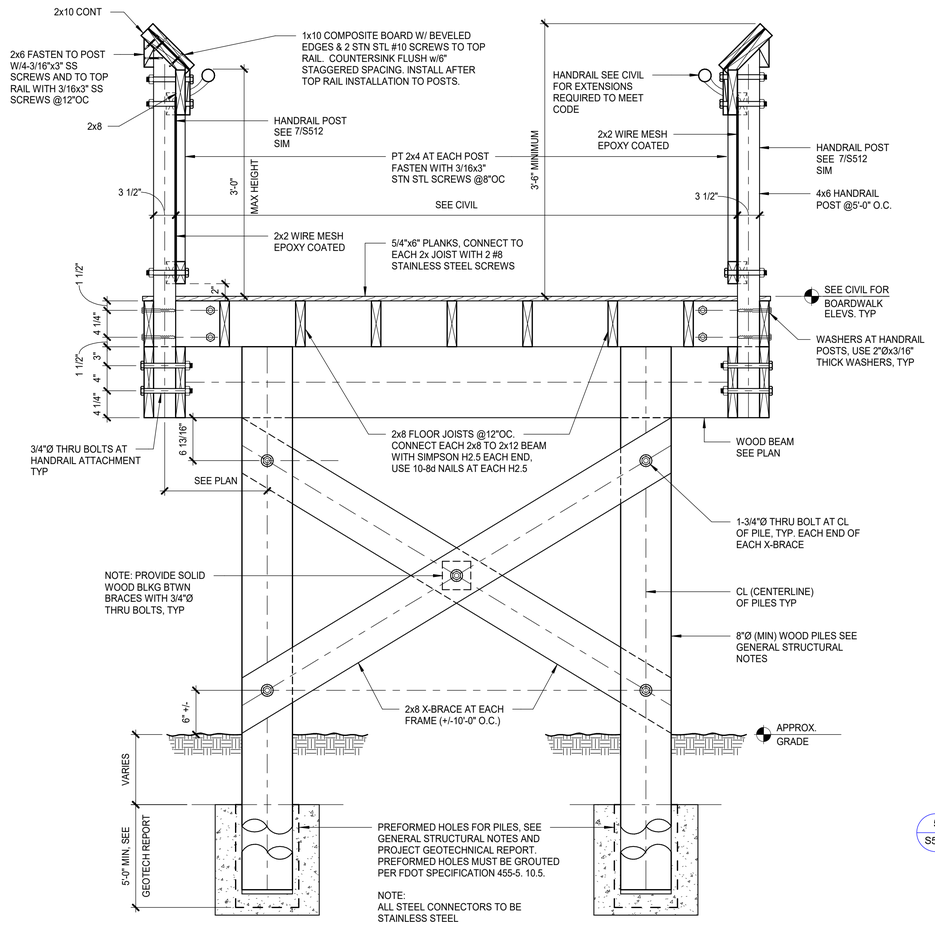
2 TYPICAL WOOD GIRDER ATTACHMENT TO WOOD PILE

1" = 1'-0"



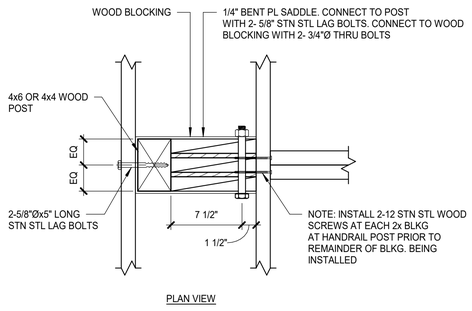
3 HANDRAIL ATTACHMENT DETAIL

1 1/2" = 1'-0"



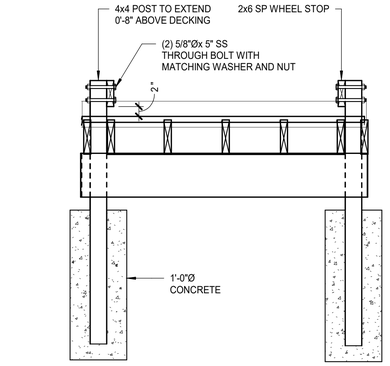
4 BOARDWALK TYPICAL SECTION

1" = 1'-0"



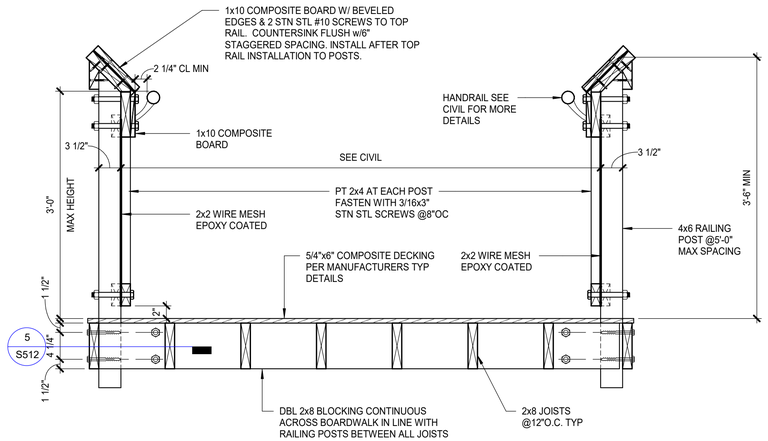
5 HANDRAIL ATTACHMENT DETAIL

1 1/2" = 1'-0"



6 SECTION WHEEL STOP WALKWAY

3/4" = 1'-0"



7 TYPICAL HANDRAIL ATTACHMENT

1" = 1'-0"

SHEET NOTE:

1. **ALL EXTERIOR WOOD TO BE PRESSURE TREATED.**
2. **ALL NAILS & CONNECTORS TO BE TYPE 316 STAINLESS STEEL**

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BNI Project No. 24722

To the best of the Structural Engineer's knowledge, the Plans and Specifications comply with the applicable minimum building codes

REVISION	DATE	SYMBOL
		C
		D

REVISION	DATE	SYMBOL
		A
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Department of Environmental Protection
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100% CONSTRUCTION DOCUMENTS

PROJECT TITLE
ADA RESTROOM & BOARDWALK

SHEET TITLE
WOOD DOCK & DECK DETAILS

WINDLEY KEY FOSSIL REEF GEOLOGICAL STATE PARK

SHEET NO.
S512