

# INFORMATION PAPER



## Project Plans

ABBREVIATIONS

ADDL.	Additional	K.S.I.	Kips per Square Inch
AESS	Architecturally Exposed Structural Steel	LAM.	Laminated
AGGR.	Aggregate	LBS.	Pounds
ALT.	Alternate	LT.	Light
ANC.	Anchor Bolt	LL.	Live Load
APPROX.	Approximate	LG.	Long Leg
ARCH.	Architect	L.H.	Long Leg Horizontal
ARCH'L	Architectural	L.V.	Long Leg Vertical
AS SY	Assembly	M.B.	Machine Bolt
AVG.	Average	M.L.W.	Malleable Iron Washer
A.Y.C.	Alaskan Yellow Cedar	MFR.	Manufacturer
B.M.	Beam	MK	Mark
B.RG.	Bearing	MAT'L	Material
B.B.L.	Below	MAX.	Maximum
BET.	Between	MECH.	Mechanical
BLK.	Block	MTL.	Metal
BLKG.	Blocking	MEZZ.	Mezzanine
BTM.	Bottom	M.L.	Micro-Lam (By TRUS JST.)
B.O.	Bottom Of	MIN.	Minimum
B.O.D.	Bottom of Deck	MISC.	Miscellaneous
B.N.	Boundary Nailing	MULT.	Multiple
B.S.S. B/S	Both Sides	N.F.	Near Face
BLDG.	Building	N.S.	Near Side
G.C.C.	California Building Code	NEW	New
CANT.	Can't	NOM.	Nominal
C.B.	Carriage Bolt	N.L.C.	Not in Contract
CLG.	Ceiling	NTS	Not to Scale
CEN.	Center	O.A.	On or Pounds
W. C.L.	Centerline	ON	On Center
C.C.	Center to Center	OPNG.	Opening
C.N.	Center of Gravity	OPP.	Opposite
CHNL.	Channel	OSB.	Opposite Hand
CLR.	Clear	ORIG.	Oriented Strand Board
COL.	Column	ORIG.	Original
C.P.	Complete Penetration	Q.D.	Outside Diameter
C.ONC.	Concrete	PR.	Pair
C.MU	Concrete Masonry Units	PTN.	Partition
CONN.	Connection	PSL.	Parallel (By TRUS JST.)
C.J.	Construction Joint or Control Joint	PARL. //	Partial Penetration
CONT.	Continuous	P.P.	Penetration
C.N.	Continuous Edge Nailing	PERP.	Perpendicular
CONTR.	Contractor	R	Plate
C.M.J.	Control Masonry Joint	PLY	Plywood
CONST.	Construction	P.C.F.	Pounds Per Cubic Foot
C/S	Countersink	P.S.F.	Pounds Per Square Foot
D.L.	Dead Load	P.S.I.	Pounds Per Square Inch
D.B.A.	Deformed Bar Anchor	P.A.F.	Powdered Actuated Fastener
DET.	Detail	P.D.F.	Power Driven Fastener
DIAG.	Diagonal	PREFAB.	Prefabricated
DIA. Ø	Diameter	P.J.F.	Premolded Joint Filler
DM.	Dimension	P.T.	Post-Tensioned, Pressure Treated or Preservative Treated
DO	Double	PROJ.	Project
DBL.	Double	P.L.	Property line
D.F.	Douglas Fir	RAD.	Radius
DWG.	Drawing	RWD.	Redwood
D.J.	Dowel Joint	REF.	Reference
EA.	Each	REINF.	Reinforcement
E.F.	Each Face	R.C.	Reinforced Concrete
E.S.	Each Side	REQ'D	Required
E.W.	Each Way	REV.	Revision
E.N.	Edge Nailing	RMT	Roboro Manufactured Timber
ELECT.	Electrical	SCHED.	Schedule
EL.	Elevation	SECT.	Section
EMBED.	Embedment	S.A.D.	See Architectural Drawings
ENGR.	Engineer	EQ.	See Mechanical Drawings
EQ.	Equal	S.T.S.	Self-Tapping Screw
EQUIP.	Equipment	S.W.	Shear Wall
EXCAV.	Excavate	SH.	Sheet
(E)	Existing	SIM.	Similar
EXP.	Expansion	S.J.	Slab Joint
E.J.	Expansion Joint	S.OG.	Slab On Grade
EXT.	Exterior	S.B.	Solid Block
FAB.	Fabrication	SPEC'S	Specifications
F.O.	Face of	SQ.	Square
F.O.C.	Face of Concrete	S.F.	Square Feet
F.O.M.	Face of Masonry	STGR.	Staggered
F.O.S.	Face of Stud	STD.	Standard
F.O.W.	Face of Wall	STL.	Steel
F.S.	Far Side	STFNR.	Stiffener
FT.	Feet	STRUCT.	Structural
F.N.	Field Nailing or Face Nail	SYM.	Symmetrical
FIG.	Figure	THK.	Thick
FIN.	Finish	THRD.	Threaded
FIN.	Finished Floor	THRU	Through
FLR.	Floor	T.N.	Toe Nail
F.D.	Floor Drain	TOL.	Tolerance
FTG.	Footing	T and B	Top and Bottom
F.E.F.	Forced-Entry Fasteners	T and G	Tongue and Groove
FDN.	Foundation	T.O.	Top of
FRMG.	Framing	T.O.B.	Top of Beam
GA.	Gage or Gauge	T.O.C.	Top of Concrete
GALV.	Galvanize	T.O.F.	Top of Footing
GLB	Glulam Beam	T.O.M.	Top of Masonry
GR.	Grade	T.O.S.	Top of Steel
GB	Grade Beam	T.O.W.	Top of Wall
GRND.	Ground	TRMR.	Trimmer
GYP. BD.	Gypsum Board	TS	Tube Steel
HDR.	Hanger	TYP.	Typical
H.S.A.	Headed Stud Anchor	U.N.O.	Unless Noted Otherwise
HDR.	Header	U.B.C.	Uniform Building Code
HGT.	Height	V.I.F.	Verify in Field
H.F.	Hem-Fir	VERT.	Vertical
H.S.B.	High Strength Bolt	V	Vertical Reinf.
HSS	Hollow Structural Steel	VOL.	Volume
HORIZ.	Horizontal	W.P.J.	Weakened Plane Joint
H	Horizontal Reinf.	WT.	Weight
IN.	Inches	W.S.	Welded Stud or Wood Screw
INCL.	Include	WWF	Welded Wire Fabric
INCL'D	Included	WNM	Welded Wire Mesh
INFO.	Information	WF	Wide Flange Beam
I.D.	Inside Diameter	w/	With
INT.	Interior	w/o	Without
I.B.C.	International Building Code	WD.	Wood
I.J.	Isolation Joint	WP	Work Point
JT.	Joint	WTR	Water Vapor Transmission Rate
JST.	Joist		
K.D.	Kiln Dried		
KING	King Stud		
K	Kip (1,000 lbs)		

GENERAL NOTES

DIVISION 01 - Section 01 00 00 GENERAL REQUIREMENTS

- The Contractor shall verify all dimensions and conditions prior to starting construction. The Engineer shall be notified of any discrepancies or inconsistencies.
- Do not scale the Drawings for working dimensions.
- Notes and details on Drawings shall take precedence over General Notes and Typical Details. Typical details shall apply to the project Drawings except when specific details are shown which shall take precedence.
- All work shall conform to the minimum standards of the following code:

The 2019 edition of the California Building Code, and any other regulating agencies which have authority over any portion of the work, and those codes and standards listed in these notes and Specifications.

- Contractor shall investigate site during clearing and earth work operations for filled excavations or buried structures such as cesspools, cisterns, foundations, etc. If any such structures are found, notify Structural Engineer immediately.
- The contract Structural Drawings and Specifications represent the finished structure. They do not indicate the method of construction. The Contractor shall provide all measures necessary to protect the structure during construction. Such measures shall include, but not be limited to, bracing, shoring for loads due to construction equipment, etc. Observation visits to the site by the Structural Engineer shall not include inspection of the above items.
- Adhesive anchors shall be Hiiti HIT HY150 epoxy per ICBO ER-5193 with ASTM A-36 threaded rod or approved equal u.n.o.. Expansion anchors shall be Hiiti kwik bolts II carbon steel per ICBO ER. 4627 u.n.o.. Adhesive or expansion anchors shall not be installed until masonry grout or concrete has cured to design strength.
- Design loads:
  - Dead Load: 15 psf.
  - Live Load: 303 psf. (snow)
  - Pedestrian Load: 90 psf
  - Vehicle Load (Construction): 9000 lbs (6000 lbs per anchor)

AASHTO Design Requirements:

- Horizontal (HWL): 29.2 psf
- Vertical (VWL): 120 plf

Earthquake Design Data:

Seismic Analysis not Required for Simple Span Bridge (AASHTO 4.7.4.2)

Min Connection Force (AASHTO 3.10.9)

PGA = 0.47

Fpgo = 1.175

As = 0.552

EL = 0.331xIDL = 212 lbs

DIVISION 01 - Section 01 11 00 SUMMARY OF WORK

- Utmost care must be taken during construction to minimize disturbance in the wetland or below the boardwalk and the 100 year floodplain below the bridge.
- When constricting bridge abutments and piles, limit machinery activity to only that necessary for construction within the 100 year floodplain as to minimize sediment disturbance.
- To protect the wetland, construction of the boardwalk is to be done in a "leapfrog" fashion. Helical piers are to be installed one pair at a time, followed by the construction of the corresponding boardwalk section framing. The machinery will then work from the newly framed section to install the successive set of helical piers. Repeat this process for all boardwalk sections.

DIVISION 01 - Section 01 45 00 SPECIAL INSPECTIONS AND DEFERRED SUBMITTALS

SEE SHEET S0.2 FOR SPECIAL INSPECTION NOTES

DIVISION 01 - Section 01 82 13 FOUNDATION PERFORMANCE REQUIREMENTS

- Foundation design based on soils report by the following company:  
H&K an NV5 Company  
10775 Pioneer Trail, #213  
Truckee, CA 96161  
(530) 587-5156 Fax: (530) 587-5196  
Job No. 42175.03 DATE: 6/1/18
- Footings are designed based on an allowable soil bearing pressure of 2500 psf with 1/3 increase for short-term loads. All footings shall be 24 inches below adjacent exterior finish Grade.
- Contractor shall provide for proper de-watering of excavations from surface water, ground water, seepage, etc.
- Contractor shall provide for design and installation of all cribbing, sheathing and shoring required to safely and adequately retain the earth banks.
- Excavations for footings shall be approved by the Soils Engineer prior to placing the concrete and reinforcing. Contractor to notify soils Engineer when inspection of excavation is ready. Soils Engineer to submit letter of compliance to the owner.
- All excavations shall be properly backfilled. Do not place backfill behind retaining walls before concrete has attained full design strength. Contractor shall brace or protect all building and pit walls below Grade from Lateral Loads until attaching floors are completely in place and have attained full strength. Contractor shall provide for design, permits and installation of such bracing.
- Footings shall be placed and estimated according to depths shown on Drawings.
- Footing backfill and utility trench backfill within building area shall be mechanically compacted in layers, to the approval of the Soils Engineer. Flooding will not be permitted.
- All abandoned footings, utilities, etc., that interfere with new construction shall be removed.

DIVISION 03 - Section 03 00 00 CONCRETE

- All phases of work pertaining to the concrete construction shall conform to the 'Building Code Requirements for Reinforced Concrete' (ACI 318) and the 'Specifications for Structural Concrete for Buildings' (ACI 301) latest approved editions, with modifications as noted in the Drawings or Specifications.
- Reinforced concrete design is by the 'Ultimate Strength Design method'.
- Concrete mixes shall be designed by a qualified testing laboratory and approved by the Structural Engineer.
  - Proposed mix designs shall be no more than 1 (one) year old, and have affixed on each submitted copy the original seal of the Reviewing Engineer. The reviewing Engineer shall be registered in the state of California.
  - Each mix design shall indicate the project name and address. Contractor shall designate location of use for each proposed mix design.
  - Each mix design shall include the slump, before and after adding plasticizer, air entrainment, type of aggregate, type of cement, and admixtures to be used.
  - All exposed at grade concrete shall have air entrainment.
  - No calcium chloride shall be used.
  - Water cement ratio for footings and walls shall not exceed 0.55.
  - Slab on grade shall have a water cement ratio of 0.50 and shall be moisture cured per ACI 318 Sec. 5.11 requirements.
  - Concrete may have a maximum of 15% fly ash substitution for cement verify w/ architect.
  - An approved curing compound compatible with the stain finish can be used.

- Schedule of Structural concrete 28-day strengths and types:

LOCATION IN STRUCTURE	STRENGTH PSI	TYPE
Footings:	3500	Normal WL 145 ± 5 pcf
Concrete retaining walls:	4000	Normal WL 145 ± 5 pcf

- Portland cement shall conform to ASTM C-150, type II. Use minimum 6 sacks cement/c-y and maximum 3" slump with water (slump may be increased with admixtures that do not promote shrinkage). Provide 6% ± 1% air entrainment in concrete exposed to weather.
- Maximum aggregate size shall conform with the following: 1/5 distance between forms, 3/4 distance between reinforcing bars.
  - Aggregate for hard rock concrete shall conform to all requirements and tests of ASTM C-33 and project Specifications. Exceptions may be used only with permission of the Structural Engineer.
- Dry pack under base plates, sill plates, etc., see Specifications.
- Concrete mixing operations, etc., shall conform to ASTM C-94.
- Placement of concrete shall conform to ACI-318 requirements.
- Clear coverage of concrete over outer reinforcing bars shall be as follows:
  - Concrete poured directly against earth, 3 in. clear to reinforcing.
  - Structural slabs: 1 in. clear (top to bottom).
  - Formed concrete with earth backfill: 2 in. clear.
  - Slabs on Grade: center in slab.

- All reinforcing bars, anchor bolts and other concrete inserts shall be well secured in position prior to placing concrete.
- Place and protect concrete in compliance with ACI 305 and 306, respectively, during hot and cold exposure conditions.

DIVISION 03 - Section 03 15 00.05 BEARING PAD

Provide elastomeric bearing pad at girder bearing locations to accommodate thermal expansion.

Plain elastomer bearing pads and laminated steel bearing pads shall conform to the applicable requirements of ASTM D4014. Laminated fabric bearing pads shall conform to the applicable requirements of AASHTO M251.

Steel reinforced elastomeric bearing pads material requirements

- Steel reinforced elastomeric bearing pad (grade 4)
- Durometer hardness (shore a) of 60
- Shear modulus at 73°F of 175 psi

DIVISION 03 - Section 03 21 00 REINFORCING STEEL

- All reinforcing steel shall be detailed and placed in conformance with the 'Building Code Requirements for Reinforced Concrete' (ACI 318 latest approved edition), and the 'Manual of Standard Practice for Reinforced Concrete Construction' (latest edition) by the C.R.S.I. and the W.C.R.S.I., as modified by the project Drawings and Specifications.
- Deformed reinforcing bars shall be ASTM A-615 Grade 60 except ties, stirrups, slab dowels and reinforcing bars in non structural concrete such as slabs on grade, which may be Grade 40, unless noted otherwise. Use A706 reinforcing bars that are required for welding.
- Welding of reinforcing shall be with low hydrogen electrodes in conformance with 'Recommended Practices for Welding Reinforcing Steel, etc.', American Welding Society, AWS-D1.4. See Specifications.
- All reinforcing bar bends shall be made cold.
- Minimum lap of welded wire fabric shall be 6 inches or one full mesh and one half, whichever ever is greater.
- Reinforcing splices shall be made only where indicated on the drawings.
- Dowels between footings and walls or columns shall be the same grade, size and spacing or number as the vertical reinforcing, respectively.
- All bars shall be marked so their identification can be made when the final in-place inspection is made.
- Splice reinforcing per detail 2/S0.2 for both concrete and masonry. Splice all reinforcing bars 2'-0" minimum.
- All reinforcing bars to be tied in place before pouring concrete or grout.
- Do not splice reinforcing steel in middle third of walls.

DIVISION 05 - Section 05 12 00 STRUCTURAL STEEL FRAMING

- Structural steel shall be detailed, fabricated and erected in accordance with the AISC Specifications for the design, fabrication and erection of Structural steel for buildings (latest edition and supplements).
- All Structural steel shall conform to ASTM A-992 with fy=50 ksi, unless noted otherwise. Misc. steel such as Plates, and Angles may be ASTM-A36.
- Pipe columns shall conform to ASTM designation A-53 Grade 'B'. All steel tubes shall conform to ASTM A-500 Grade 'B' cold formed tubes with fy = 46 ksi, unless noted otherwise on plans.
- All bolts, except anchor bolts, shall conform to ASTM A-325, connection type N, Anchor bolts shall conform to ASTM A-307 A36 or F1554, grade 36 unless noted otherwise. All bolts shall have a minimum of 3 threads projecting beyond the nut.
- Structural steel fabricator shall furnish shop drawings of all Structural steel, respectively, for Architect's and Engineer's review, before fabrication.
- Bolt holes in steel shall be 1/16 inch larger than nominal size of bolt used, except anchor bolt holes for column base plates which may be 3/16 inch larger.
- All Structural steel surfaces shall be shop painted. All steel exposed to weather shall have two coats of paint.
- All welds shall be in conformity with the Structural welding code (AWS D1.1) of the American welding society. See I.B.C.
- Weld lengths called for on plans are the net effective length required. Use E70XX electrodes.
- Welding tests and inspections, see I.B.C.

DIVISION 05 - Section 05 52 00 STAINLESS STEEL TENSION RAILING

Stainless steel tension railing shall be by Ultra-Tec or approved equal to be reviewed by HOA representative.

Ultra-Tec Cable Railing  
52 Heppner Dr  
Carson City, NV 89706

-Stainless steel tension wires to be 3/8" minimum diameter  
-Install wires with anchors and tensioners per manufacturer specification  
-Installed to be code compliant per manufacturer, wire spacing to be 3-1/8" with intermediate cable brace supports between posts at 4' max span.

SHEET INDEX

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S0.2 GENERAL NOTES (CONTINUED)/ TYPICAL DETAILS

S1.1 BRIDGE SITE PLAN

S1.2 BRIDGE SECTION

S1.3 BRIDGE FOUNDATION/FRAMING PLAN

S1.4 BRIDGE DETAILS

S2.0 BOARDWALK SITE PLAN

S2.1 BOARDWALK ENLARGED SECTION "A"

S2.2 BOARDWALK ENLARGED SECTION "B"

S2.3 BOARDWALK ENLARGED SECTION "C"

S2.4 BOARDWALK ENLARGED SECTION "D"  
BOARDWALK SECTIONS/PARTIAL FRAMING PLAN

S2.6 BOARDWALK DETAILS

DIVISION 06 - Section 06 11 00 WOOD FRAMING

- Framing lumber shall be Alaskan Yellow Cedar No. 1 for sawn lumber beams, with moisture content < 19% unless otherwise noted. Railing and decking shall be Douglas Fir no. 2 Grade or better, unless otherwise noted. Posts 6 x and larger shall be Douglas Fir No. 1 Grade, unless otherwise noted. All framing shall be free of heart center. All lumber shall be pre-stained, color to be determined by HOA representative.
- All bolts shall conform to ASTM A-307. Bolt holes shall be 1/16 in. maximum larger than the bolt size. Re-tighten all nuts prior to closing in. All bolts shall have a minimum of 3 threads projecting beyond the nut, rolled threads (upset) are not permitted.
- Standard cut washers shall be used under bolt heads and nuts against wood. Use heavy plate or malleable iron washers for all bolts designed to act in tension. See Drawings for location. Heavy plate washer sizes shall be as follows:

1/2 in. bolt	2 x 2 x 1/4
5/8 in. bolt	2 1/2 x 2 1/2 x 1/4
3/4 in. bolt	3 x 3 x 1/4
7/8 in. bolt	3 1/2 x 3 1/2 x 5/16
1 in. bolt	4 x 4 x 3/8
1 1/8 in. bolt	4 x 4 x 7/16
- Do not notch joists, rafters or beams, except where shown in details. Obtain Engineer's approval for any holes or notches not detailed.
- Nailed connections shall conform to the minimum nailing schedule of table 2304.9.1 of the California Building Code, except as otherwise noted. All nails for hardware shall be common wire nails unless manufacturer specifically allows other nail types. Where driving of nails cause splitting, holes for the nails shall be pre-drilled. All framing can be completed with 16d sinker nail (0.148 x 3 1/4").
- Unless noted otherwise, pre-manufactured framing connectors called for on the Drawings shall be Simpson Strong-Tie connectors, or approved equal. All SDWS screws shall have all threads into receiving members. All hardware to be exterior rated; hot-dipped galvanized or coated or both.
- Do NOT notch beams, joists, and studs. (U.N.O.)

DIVISION 31 - Section 31 62 16 HELICAL PIER

- Hot dip galvanized per ASTM A153-(latest revision).
- Lead and extension section lengths and helix spacings are nominal.
- Nominal spacing between helix plates is three times the diameter of the lower helix.
- Shaft material-hot rolled round-cornered-square (rcs) solid steel bars per ASTM A29J minimum yield strength=90 ksi.
- Helix material-hot rolled low alloy steel sheet, strip, or plate per ASTM A656, or A1018 grade 80. Minimum yield strength=80 ksi. for 8" helices, 1/2" thick. for all other helices, 3/8" thick.
- Coupling bolts: 7/8" diameter x 3-1/2" long hex head per ASTM A193 grade B7.
- Manufacturer to have in effect industry recognized written quality control for all materials and manufacturing processes.
- All welding to be done by welders certified under section 5 of the AWS code D11.1.
- See ICC evaluation service inc., evaluation report NO., ESR-2794 for nominal, design, and allowable strength values and/or conditions of use concerning information presented on this drawing.

Per NV5 Soils Report:

Boardwalk Helical Pier Support - Chance Helical Pier or equivalent:

Depth of Pier (feet bgs)	10
Number of Helices	2
Depth (feet)/Diameter of Helix 1	6.5/14"
Depth (feet)/Diameter of Helix 2	10/12"
Pier Batter	10°±4°

-Chance SS175 or larger diameter shaft

-Helical Pier material should be suitable for placement in wet environment

-Torque strength-rating=10,500 ft-lb

-Ultimate capacity <compression>=105 kip

-Le based on a torque factor (kt)=10

-Per icc-es ac358 section 3132

-Nominal tension strength (coupling bolt)=100 kip

DIVISION 31 - Section 31 48 33 MICROPILES

Per NV5 Soils Report:

Micropile Design Recommendations:

- Use Minova R32 N hollow-stem bars, load bearing plates and nuts, or approved equal.
- Yield Strength: 50 kips
- Advance using a sacrificial drill bit.
- Install using simultaneous drilling and grouting with neat cement grout with a maximum 6 gallons of water in 94 pounds of cement.
- Use full strength couplers if required.

Shaft Diameter	4 inches
Depth of Micropile	12 feet
Batter Angle	5°



02/14/20

REVISIONS

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TAHOE DONNER  
NATURE TRAIL  
NATURE LOOP  
SOUTH TRAIL  
TAHOE DONNER  
TRUCKEE, CA

DESIGNED BY D.G.  
DRAFTED BY T.E.S.

CLIENT INFORMATION  
TAHOE DONNER  
ASSOCIATION 11509  
NORTHWOODS BLVD  
TRUCKEE, CA 96161

PROJECT# 2079

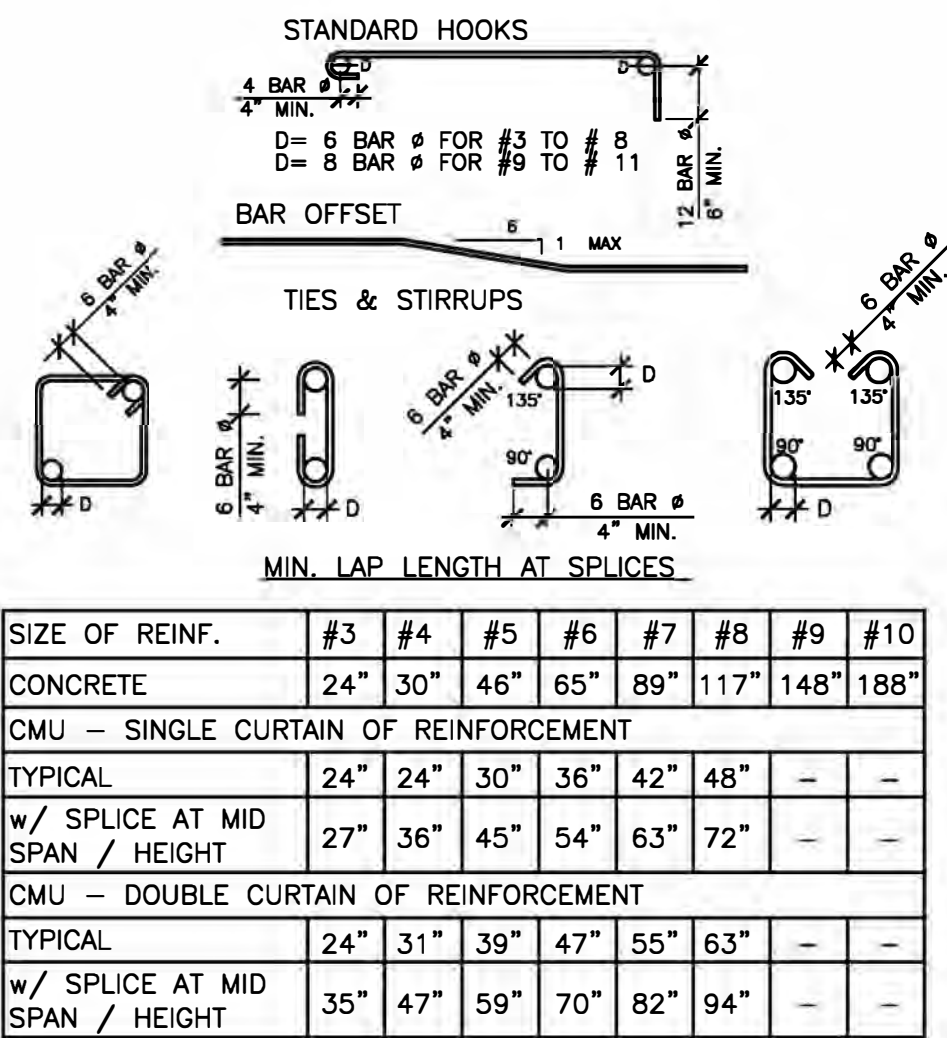
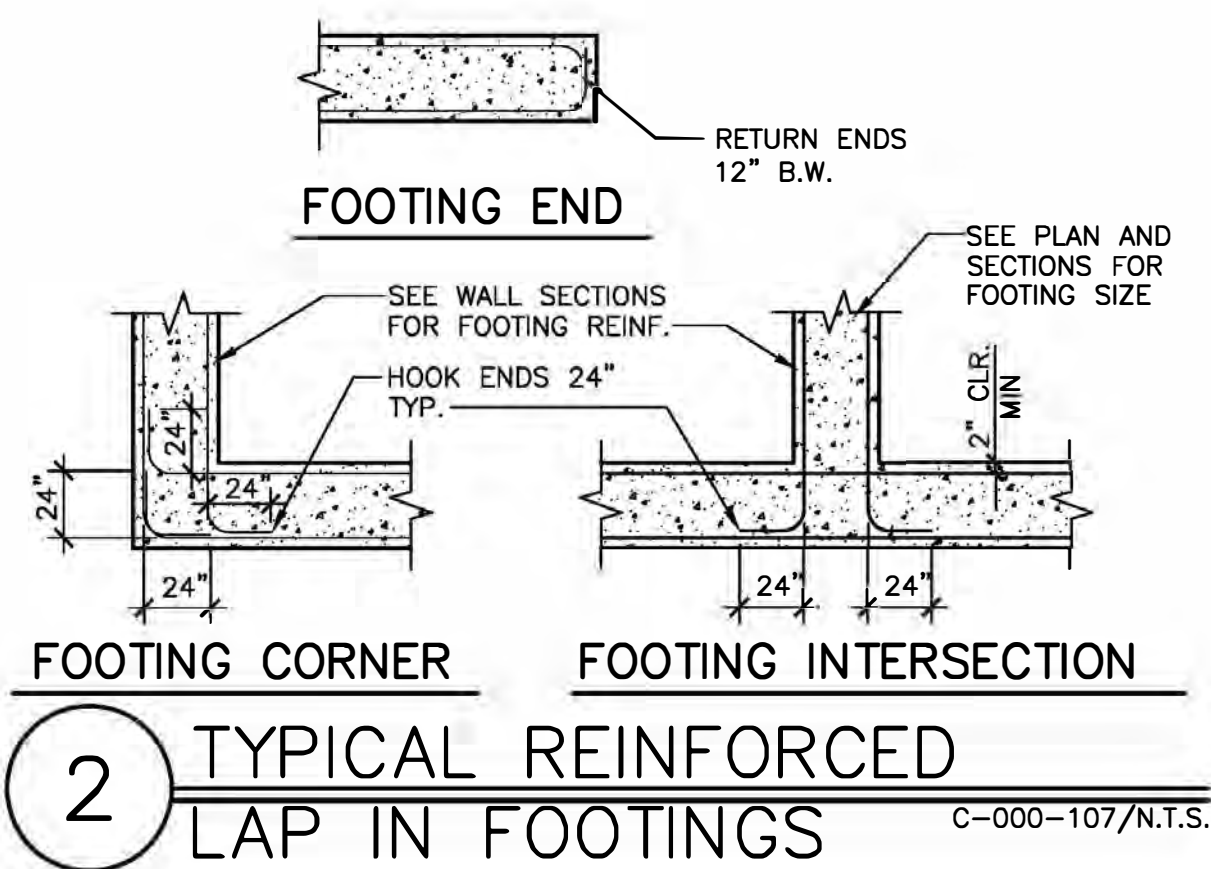
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SCALE AS NOTED

GENERAL NOTES

S0.1

10 OF 20



# 1 REBAR CONFIG. AND LAPS

SPECIAL INSPECTION SCHEDULE			
TYPE	CONTINUOUS INSPECTION	PERIODIC INSPECTION	REQUIRED OF THIS PROJECT
CONCRETE			
TAKING OF SPECIMENS AND PLACEMENT OF CONCRETE WHERE CALCULATED DESIGN $f_{c,c}$ GREATER THAN 2500 psi.		✓	✓
DURING PLACEMENT OF REINFORCING STEEL		✓	✓
STRESSING OF POST-TENSIONING TENDONS			
HIGH STRENGTH GROUT AND MOMENT FRAME ANCHOR ROD PLACEMENT			
INSTALLATION OF DAYTON SUPERIOR BARLOCK REBAR COUPLERS			
ALL EPOXY-SET ANCHORS			
STEEL			
WELDING		✓	✓
COMPLETE JOINT PENETRATION WELDS			
PERIODIC INSPECTION OF FILLET WELDS		✓	✓
WELDED STUDS			
FLOOR AND ROOF DECK WELDING			
HIGH-STRENGTH BOLTING (SEE NOTES, SECTION 5)			
STRUCTURAL MASONRY			
DURING PREPARATION AND TAKING OF ANY REQUIRED TEST SPECIMENS			
AT START OF LAYING UNITS, AFTER PLACEMENT OF REINFORCING STEEL, GROUT SPACE PRIOR TO EACH GROUTING OPERATION AND DURING ALL GROUTING OPERATION			
SIMPSON TITEN HD ANCHORS			
AFTER INSTALLATION OF ALL SHEAR WALL AND DIAPHRAGM SHEATHING WITH NAIL SPACING OF 4" o.c. OR LESS			
AFTER INSTALLATION OF A NAILING, BOLTING, ANCHORING AND OTHER FASTENING OF COMPONENTS INCLUDING DRAG STRUTS, STRAPS, BRACES AND HOLDOWNS			
GEOTECHNICAL			
MICROPILES	✓		✓
HELICAL PIERS		✓	✓

\* SPECIAL INSPECTION NEED NOT BE PRESENT CONTINUOUSLY DURING PLACING OF REINFORCING STEEL PROVIDED THE INSPECTOR HAS INSPECTED FOR CONFORMANCE TO PLANS PRIOR TO CLOSING OF FORMS OR DELIVERY OF CONCRETE TO THE JOB SITE.

## NOTES

1. WELDING (PER CBC 2019, SECTION 17043.3 AWS D1.1 AND AISC 341-10) SPECIAL INSPECTION SHALL BE IN ACCORDANCE WITH CBC SECTION 17043 AND AWS D1.1 CHAPTER 6.
- 1A. PERIODIC INSPECTION OF ALL FILLET WELDS OF ALL FIELD WELDING
- 1B. COMPLETE PENETRATION WELDS
- 1B1. CONTINUOUS INSPECTION REQUIRED FOR ALL FIELD AND SHOP COMPLETE PENETRATION WELDS.
- 1B2. NON-DSTRUCTIVE TESTING REQUIRED FOR ALL COMPLETE PENETRATION WELDS.
- 1C. REINFORCING STEEL
- 1C1. CONTINUOUS INSPECTION PER CBC AWS D14, ACI 318-10 352, ACI 530-10 2.1.10.72 AND 333.4 (B) OF ALL WELD REINFORCING STEEL FOR CONCRETE MOMENT FRAMES AND MASONRY SPLICES. ALL REINFORCING STEEL TO BE WELDED SHALL BE A706.
- 1C2. PERIODIC INSPECTION PER CBC AWS D14 ACI 318-10 352. OF ALL OTHER WELDING OF REINFORCING STEEL NOT IN ITEM 1 ABOVE ALL REINFORCING STEEL TO BE WELDED SHALL BE A706.

2. CONCRETE (PER CBC 2019, SECTION 19015 AND ACI 318-10) SPECIAL INSPECTION SHALL BE IN ACCORDANCE WITH CBC SECTION 1704.4 AND TABLE 1704.4
- 3A. SPECIAL INSPECTION ON CONCRETE PLACED FOR ELEVATED SLAB AT SECOND FLOOR
- 3B. SPECIAL INSPECTION ON FOOTINGS AND SLAB - ONGRADE IS NOT REQUIRED.

3. STRUCTURAL WOOD FOR SEISMIC RESISTANCE (PER CBC 2016, SECTION 1707.3) PERIODIC SPECIAL INSPECTION FOR NAILING, BOLTING, ANCHORING AND OTHER FASTENER COMPONENTS WITHIN THE SEISMIC-FORCE-RESISTING SYSTEM, INCLUDING DRAG STRUTS, BRACES AND HOLDOWNS.

- EXCEPTION FASTING OF WOOD SHEATHING USED FOR WOOD SHEAR WALLS, SHEAR PANELS AND DIAPHRAGMS WHERE THE FASTENER SPACING IS GREATER THAN 4" o.c.

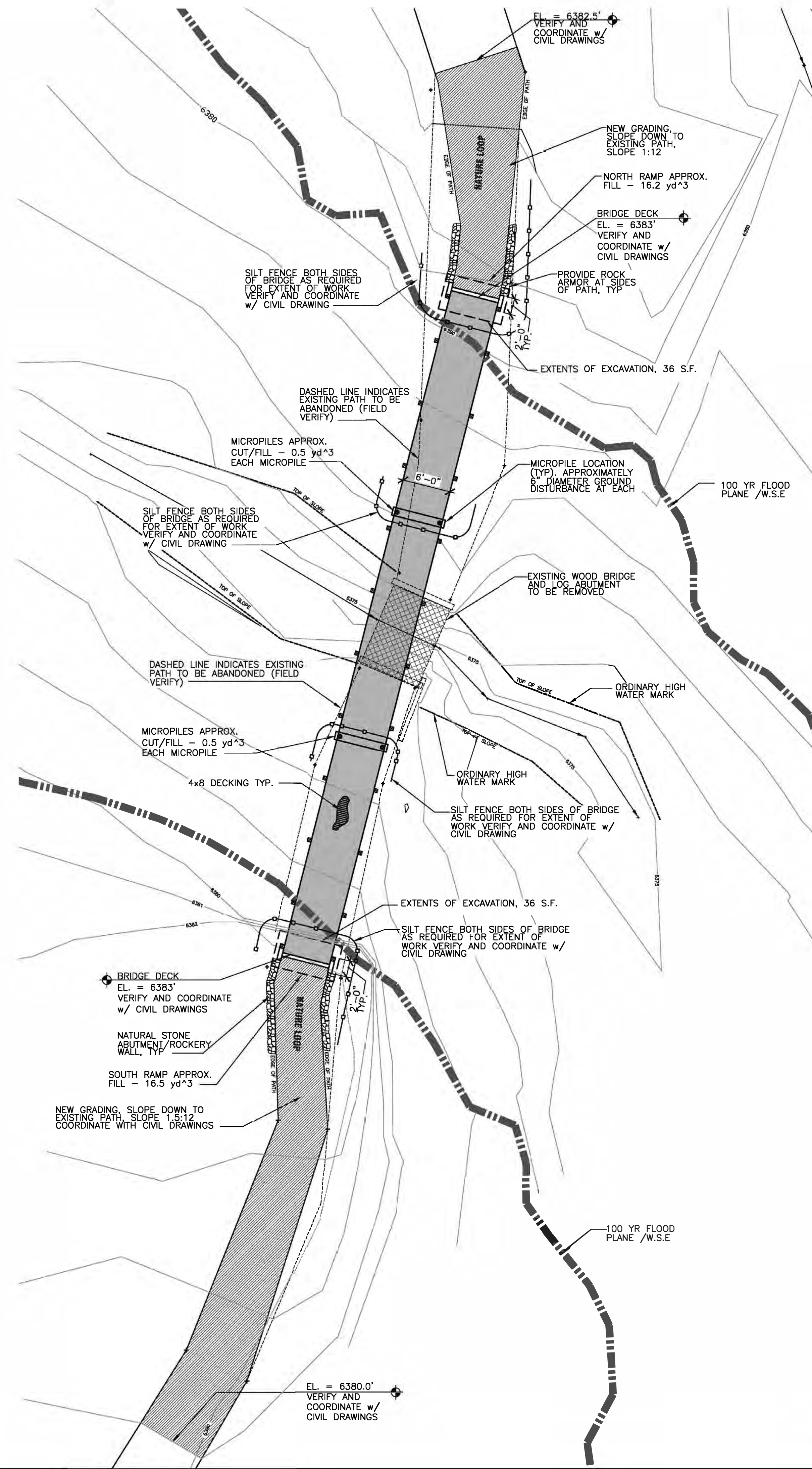
4. **HIGH-STRENGTH BOLTING** (PER CBC 2019, SECTION 1704.3.3 AND AISI 360, SECTION M2.5) WHILE THE WORK IS IN PROGRESS, THE SPECIAL INSPECTOR SHALL DETERMINE THAT THE REQUIREMENTS FOR BOLTS, NUTS, WASHERS AND PAINT, BOLT PARTS AND INSTALLATION AND TIGHTENING IN SUCH STANDARDS ARE MET. FOR BOLTS REQUIRING PRE-TENSIONING, THE SPECIAL INSPECTOR SHALL OBSERVE THE PRE-INSTALLATION TESTING AND CALIBRATION PROCEDURES WHEN SUCH PROCEDURES ARE REQUIRED. THE SPECIAL INSPECTOR SHALL MEET OR EXCEED THE SPECIAL INSPECTOR DETERMINE THAT ALL PILES CONNECTED MATERIALS HAVE BEEN DRAWN TOGETHER AND PROPERLY SNUGGED AND MATING. THE INSTALLATION OF BOLT TO VERIFY THAT THE SELECTED PROCEDURE FOR INSTALLATION IS PROPERLY USED TO TIGHTEN BOLTS, FOR JOINTS REQUIRED TO BE TIGHTENED ONLY TO THE SNUG-TOGETHER CONDITION, THE SPECIAL INSPECTOR NEED ONLY VERIFY THAT THE CONNECTED MATERIALS HAVE BEEN DRAWN TOGETHER AND PROPERLY SNUGGED

PERIODIC MONITORING MONITORING OF BOLTS INSTALLATION FOR PRE-TENSIONING IS PERMITTED TO BE PERFORMED ON PERIODIC BASIS WHEN USING THE TURN-OF-NUT METHOD WITH MATCH-MARKING TECHNIQUES, THE DIRECT TENSION INDICATOR METHOD OR THE ALTERNATE DESIGN FASTENER (TWIST -OFF BOLTS) METHOD. JOINTS DESIGNATED AS SNUG TIGHT NEED BE INSPECTED ONLY ON PERIODIC BASIS.

CONTINUOUS MONITORING MONITORING OF BOLT INSTALLATION FOR PRE-TENSIONING USING THE CALIBRATED WRENCH METHOD OR TURN-OF-NUT METHOD WITHOUT MATCH-MARKING SHALL BE PERFORMED ON CONTINUOUS BASIS.

**TAHOE DONNER  
NATURE TRAIL**  
NATURE LOOP  
SOUTH TRAIL  
TAHOE DONNER  
TRUCKEE, CA

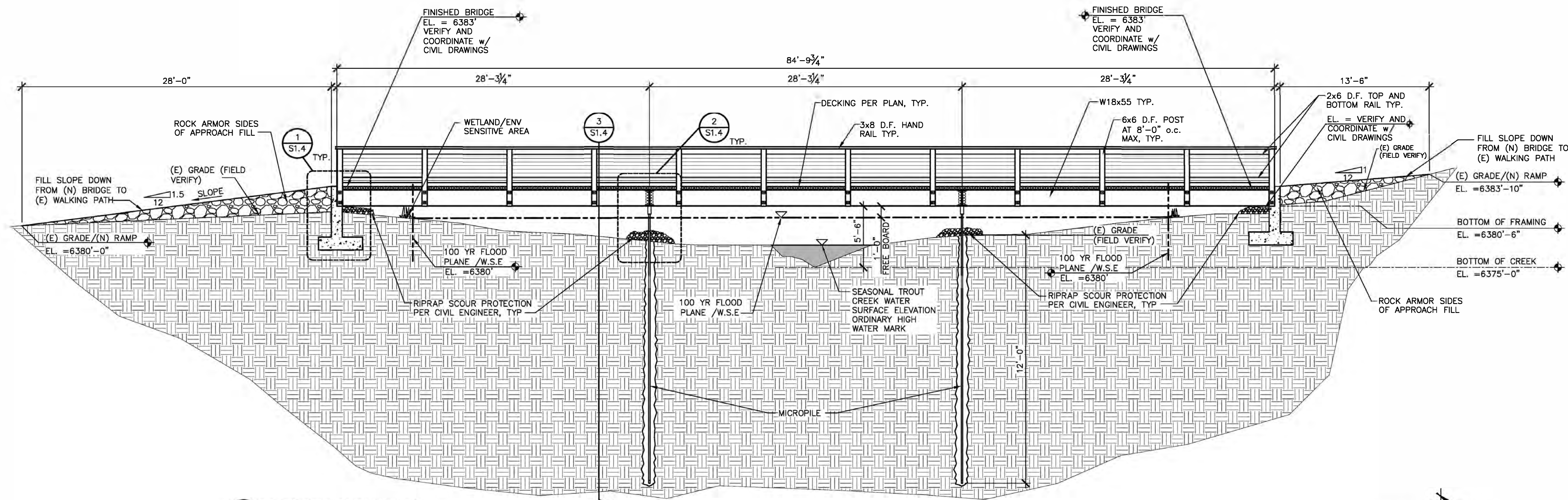
2 OF 20



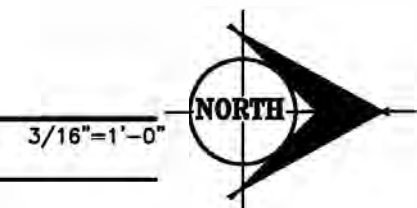
- 1. CONTRACTOR TO FIELD VERIFY ALL EXISTING CONDITIONS AND COORDINATE AND VERIFY ALL DIMENSIONS WITH THE DESIGNER. CONTACT ENGINEER WITH DISCREPANCIES BEFORE CONSTRUCTION OCCURS.
- 2. THE 100 YEAR FLOOD PLANE WATER SURFACE ELEVATION (WSE) IN THE AREA OF BRIDGE IS 6379'-6"
- 3. FREEBOARD ELEVATION ABOVE WSE TO BOTTOM OF STRUCTURE 1'-0"
- 4. MAXIMUM ELEVATION ABOVE GROUND SURFACE TO TOP OF WALKING SURFACE: 7'-8 1/2"

$$\overline{1/8'' = 1' - 0''}$$


PRINT DATE: 02/14/20



1 BRIDGE ELEVATION  
(LONGITUDINAL)



### NOTES

1. CONTRACTOR TO FIELD VERIFY ALL EXISTING CONDITIONS AND COORDINATE AND VERIFY ALL DIMENSIONS WITH THE DRAWINGS. CONTACT ENGINEER WITH DISCREPANCIES BEFORE CONSTRUCTION OCCURS.

02/14/20

REVISIONS

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TAHOE DONNER  
NATURE TRAIL  
NATURE LOOP  
SOUTH TRAIL  
TAHOE DONNER  
TRUCKEE, CA

DESIGNED BY D.G.  
DRAFTED BY T.E.S.

CLIENT INFORMATION  
TAHOE DONNER  
ASSOCIATION 11509  
NORTHWOODS BLVD  
TRUCKEE, CA 96161

PROJECT# 2079

ISSUE DATE 02/06/20

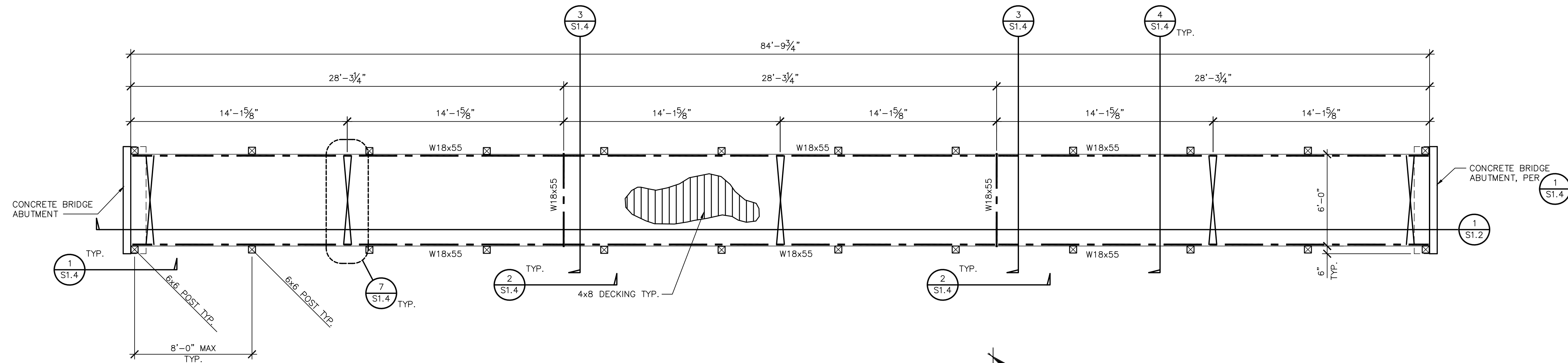
SCALE AS NOTED

BRIDGE  
ELEVATION

S1.2

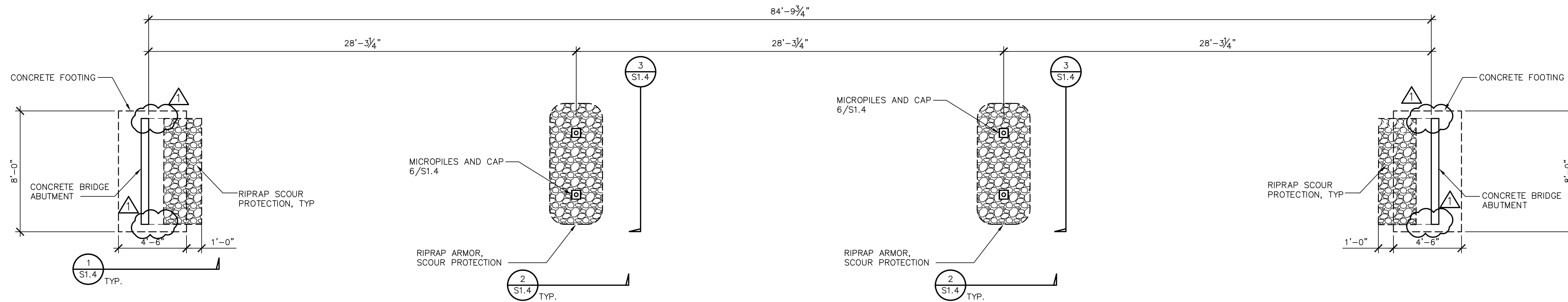
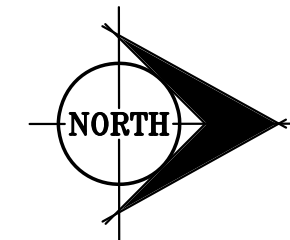
13 OF 20

PRINT DATE: 02/14/20



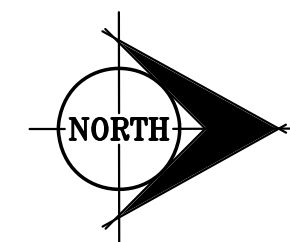
BRIDGE FRAMING PLAN

1/4"=1'-0"



BRIDGE FOUNDATION PLAN

1/4"=1'-0"



02/14/20

REVISIONS	
1 REV. 1	2/14/20

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SOUTH TRAIL  
TAHOE DONNER  
TRUCKEE, CA

DESIGNED BY D.G.  
DRAFTED BY T.E.S.

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PROJECT# 2079

ISSUE DATE 02/06/20

SCALE AS NOTED

BRIDGE  
FOUNDATION/  
FRAMING PLAN

**S1.3**

14 OF 20

SECTION  
7 DIAPHRAGM

## 6 MICROPILE TO WF BEAM CONNECTION

5 STEEL ANGLE BEARING SHOE

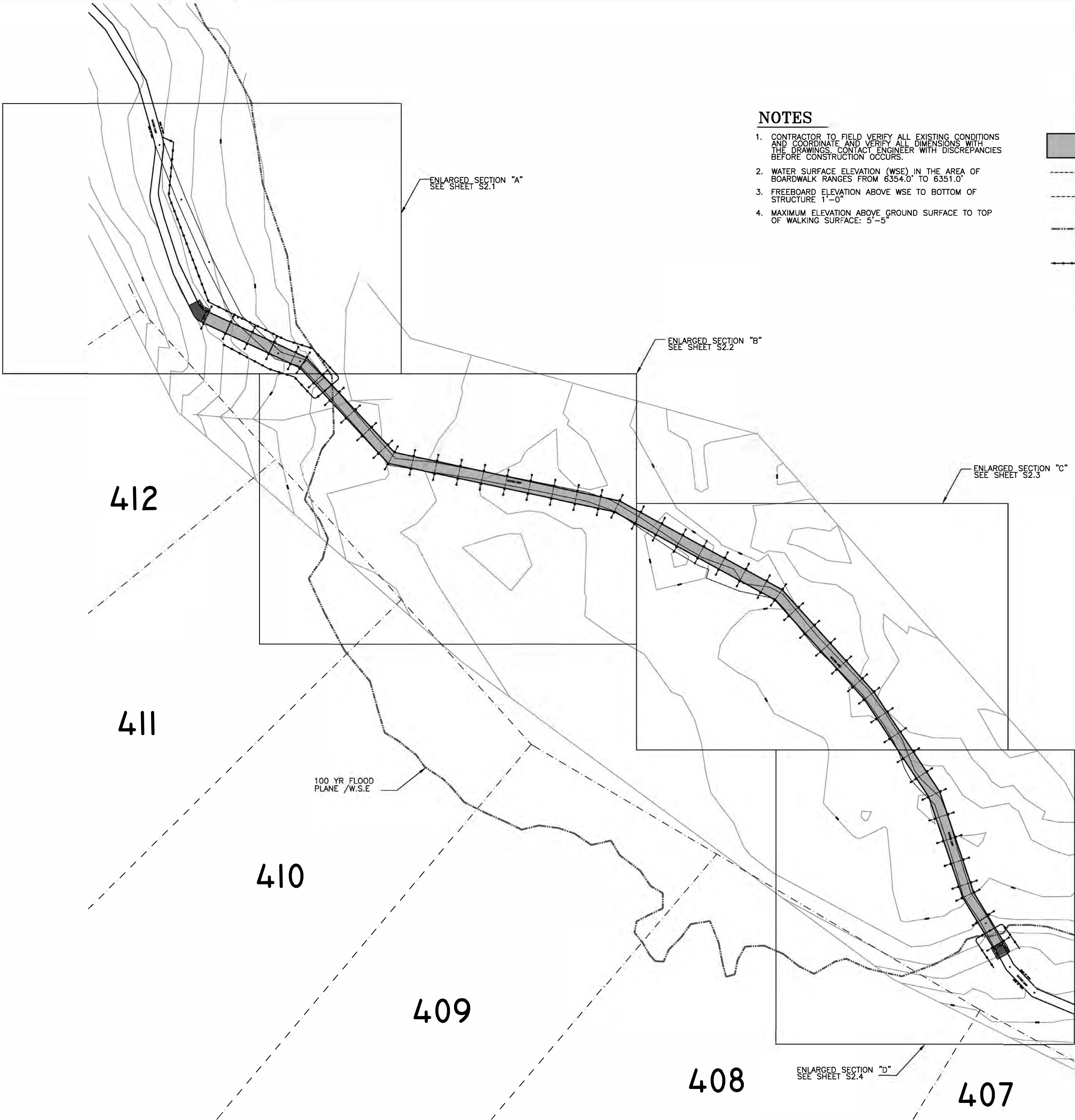
## 4 DETAIL

**NOTE:**  
SEE DETAIL 4/- FOR  
ADDITIONAL INFORMATION  
NOT SHOWN

### 3 DETAIL

## 2 DETAIL

1 DETAIL



NOTES

- 1. CONTRACTOR TO FIELD VERIFY ALL EXISTING CONDITIONS AND COORDINATE AND VERIFY ALL DIMENSIONS WITH THE DRAWINGS. CONTACT ENGINEER WITH DISCREPANCIES BEFORE CONSTRUCTION OCCURS.
- 2. WATER SURFACE ELEVATION (WSE) IN THE AREA OF BOARDWALK RANGES FROM 6354.0' TO 6351.0'
- 3. FREEBOARD ELEVATION ABOVE WSE TO BOTTOM OF STRUCTURE 1'-0"
- 4. MAXIMUM ELEVATION ABOVE GROUND SURFACE TO TOP OF WALKING SURFACE: 5'-5"

LEGEND

- SHADED HATCH INDICATE NEW BOARDWALK. EXTENTS DOES NOT CHANGE FROM EXISTING. BOARDWALK
- DASHED LINE INDICATES EXISTING PATH/BOARDWALK TO BE ABANDONED (FIELD VERIFY)
- 100 YR FLOOD PLANE /W.S.E
- SILT FENCE AS REQUIRED FOR EXTENT OF WORK. VERIFY AND COORDINATE LOCATION w/ CIVIL DRAWING

ENLARGED SECTION "A"  
SEE SHEET S2.1

ENLARGED SECTION "B"  
SEE SHEET S2.2

ENLARGED SECTION "C"  
SEE SHEET S2.3

ENLARGED SECTION "D"  
SEE SHEET S2.4

100 YR FLOOD  
PLANE /W.S.E



BOARDWALK SITE PLAN  
N.T.S.



02/14/20

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NATURE LOOP  
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PROJECT# 2079

ISSUE DATE 02/06/20

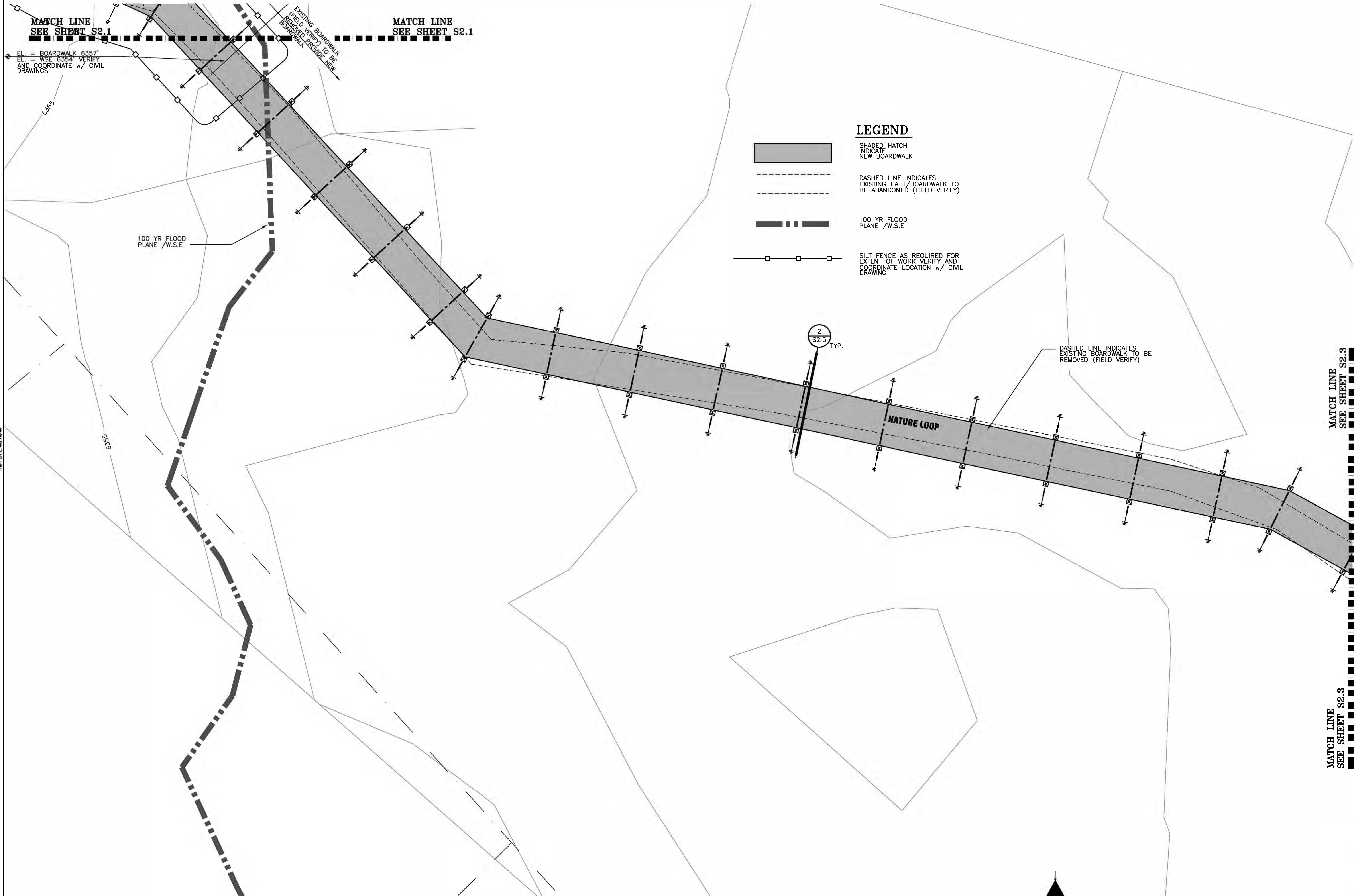
SCALE AS NOTED

BOARDWALK  
SITE PLAN

S2.0

15 OF 20





BOARDWALK ENLARGED SECTION "B"  
1/4"=1'-0"



**LEGEND**



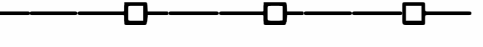
SHADE HATCH  
INDICATE  
NEW BOARDWALK



DASHED LINE INDICATES  
EXISTING PATH/BOARDWALK TO  
BE ABANDONED (FIELD VERIFY)



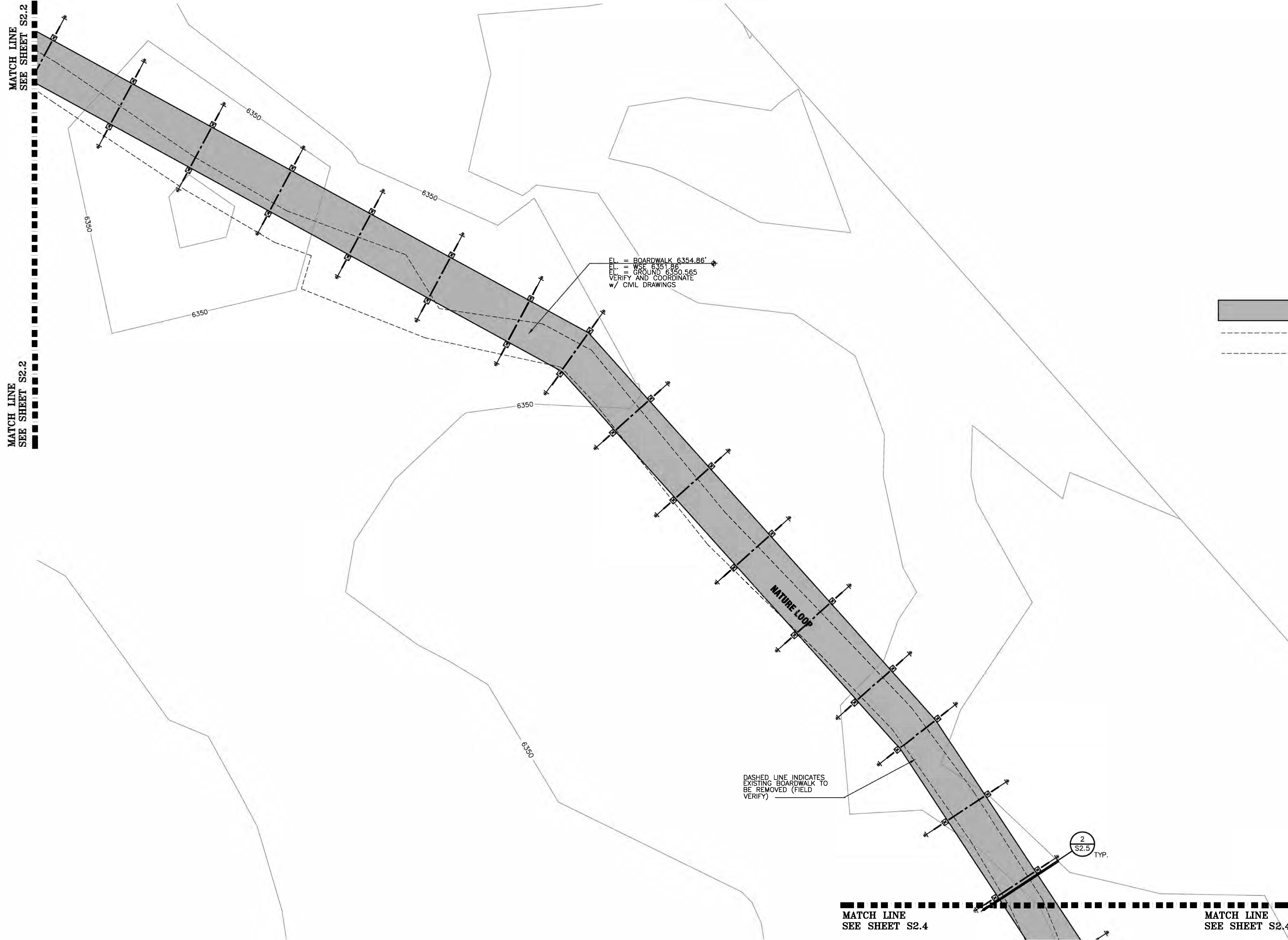
100 YR FLOOD  
PLANE /W.S.E



SILT FENCE AS REQUIRED FOR  
EXTENT OF WORK VERIFY AND  
COORDINATE LOCATION w/ CIVIL  
DRAWING

DASHED LINE INDICATES  
EXISTING BOARDWALK TO BE  
REMOVED (FIELD VERIFY)

PRINT DATE: 02/14/20



BOARDWALK ENLARGED SECTION "C"  
1/4"=1'-0"



- LEGEND**
- SHADED HATCH INDICATE NEW BOARDWALK
  - DASHED LINE INDICATES EXISTING PATH/BOARDWALK TO BE ABANDONED (FIELD VERIFY)

**LINCHPIN STRUCTURAL ENGINEERING**  
10031 West River Street, Truckee, CA 96161  
Phone: (530) 569.6341  
Info@linchpinse.com  
www.linchpinse.com

REGISTERED PROFESSIONAL ENGINEER  
KYLE S. L. CHOW  
S 5096  
STRUCTURAL  
STATE OF CALIFORNIA  
02/14/20

REVISIONS
-----------

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NATURE LOOP  
SOUTH TRAIL  
TAHOE DONNER  
TRUCKEE, CA**

DESIGNED BY D.G.  
DRAFTED BY T.E.S.

CLIENT INFORMATION  
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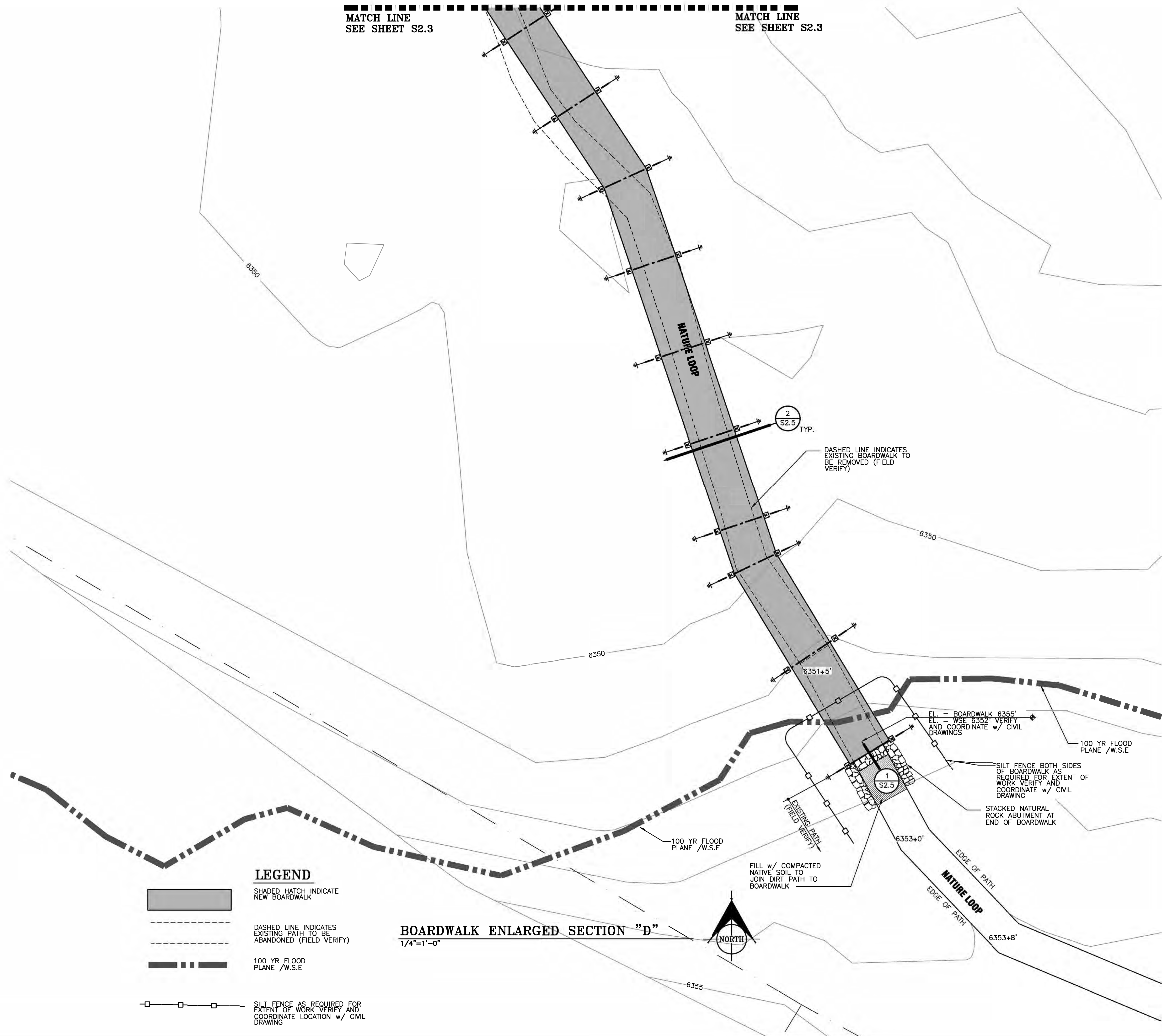
PROJECT# 2079

ISSUE DATE 02/06/20

SCALE AS NOTED

BOARDWALK  
ENLARGED  
SECTION "C"

PRINT DATE: 02/14/20



MATCH LINE  
SEE SHEET S2.3

MATCH LINE  
SEE SHEET S2.3

2  
S2.5  
TYP.

DASHED LINE INDICATES  
EXISTING BOARDWALK TO  
BE REMOVED (FIELD  
VERIFY)

EL. = BOARDWALK 6355'  
EL. = WSE 6352' VERIFY  
AND COORDINATE w/ CIVIL  
DRAWINGS

100 YR FLOOD  
PLANE /W.S.E

SILT FENCE BOTH SIDES  
OF BOARDWALK AS  
REQUIRED FOR EXTENT OF  
WORK VERIFY AND  
COORDINATE w/ CIVIL  
DRAWING

STACKED NATURAL  
ROCK ABUTMENT AT  
END OF BOARDWALK

FILL w/ COMPACTED  
NATIVE SOIL TO  
JOIN DIRT PATH TO  
BOARDWALK

1  
S2.5

6353+0'

EDGE OF PATH  
NATURE LOOP  
EDGE OF PATH

6353+8'

6355

### LEGEND

SHADED HATCH INDICATE  
NEW BOARDWALK

DASHED LINE INDICATES  
EXISTING PATH TO BE  
ABANDONED (FIELD VERIFY)

100 YR FLOOD  
PLANE /W.S.E

SILT FENCE AS REQUIRED FOR  
EXTENT OF WORK VERIFY AND  
COORDINATE LOCATION w/ CIVIL  
DRAWING

BOARDWALK ENLARGED SECTION "D"  
1/4"=1'-0"



02/14/20

REVISIONS

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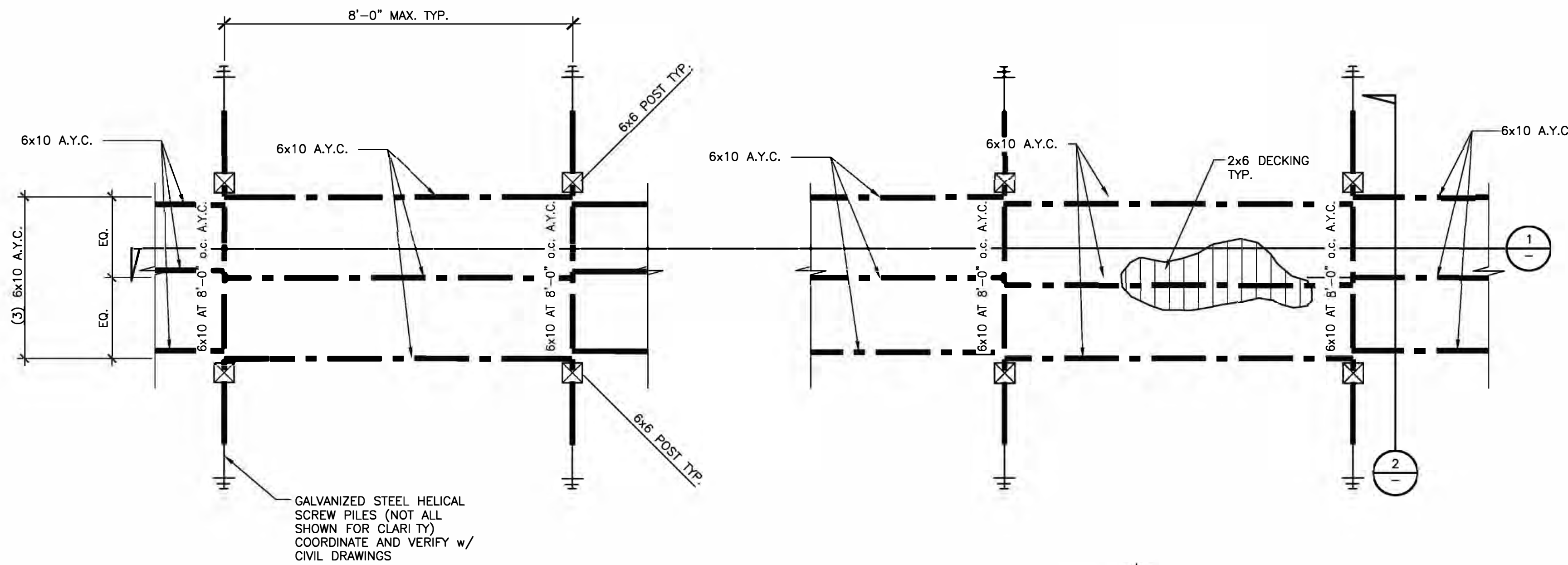
PROJECT# 2079

ISSUE DATE 02/06/20

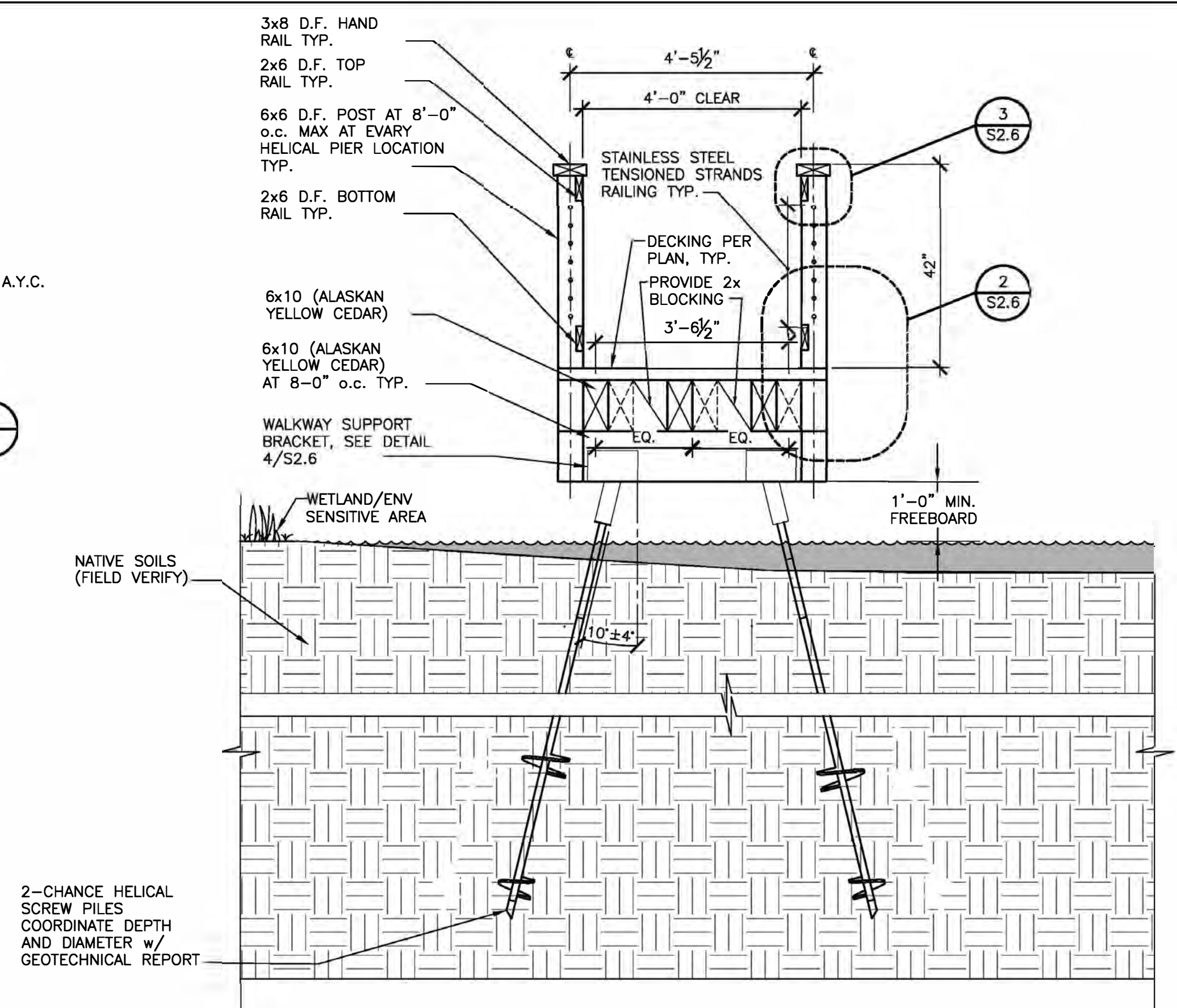
SCALE AS NOTED

BOARDWALK  
ENLARGED  
SECTION "D"

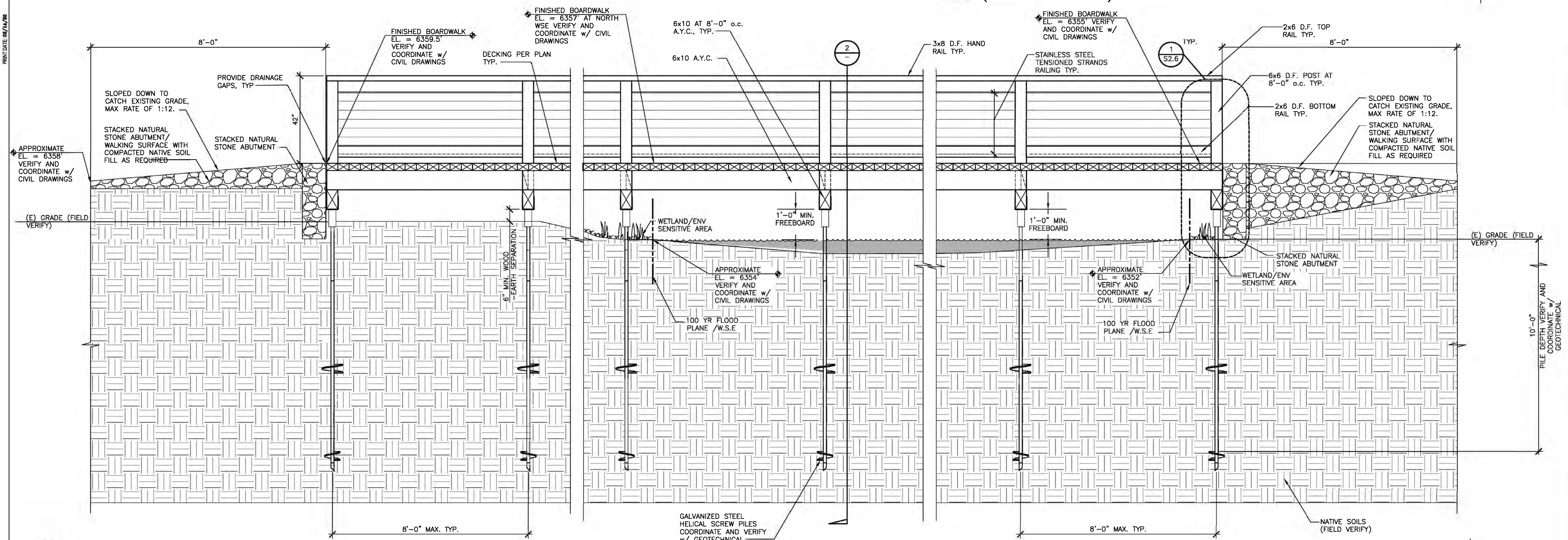
**S2.4**  
19 OF 20



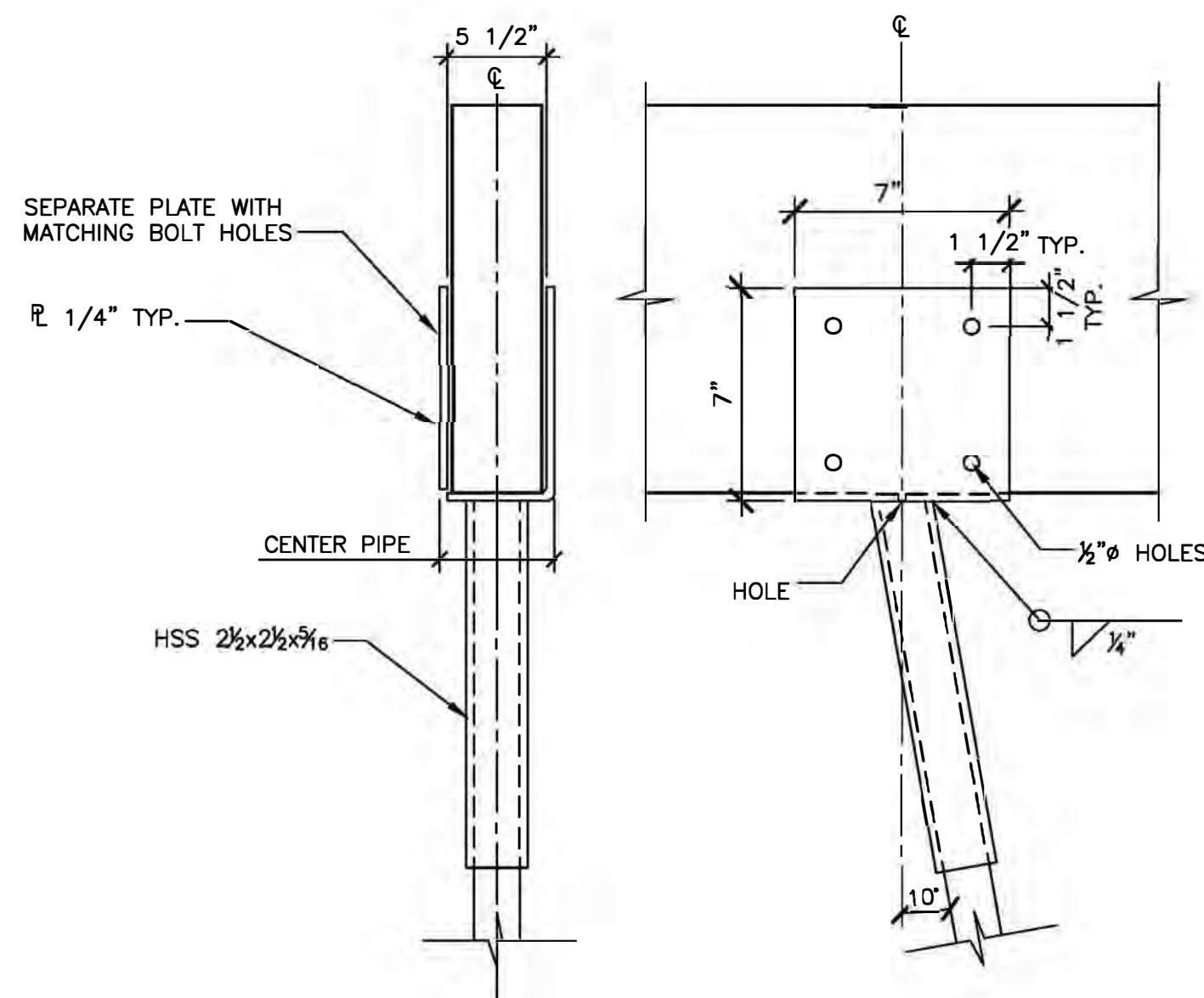
**PARTIAL BOARDWALK FRAMING PLAN**  
N.T.S.



**2 BOARDWALK SECTION (TRANSVERSE)**  
N.T.S.



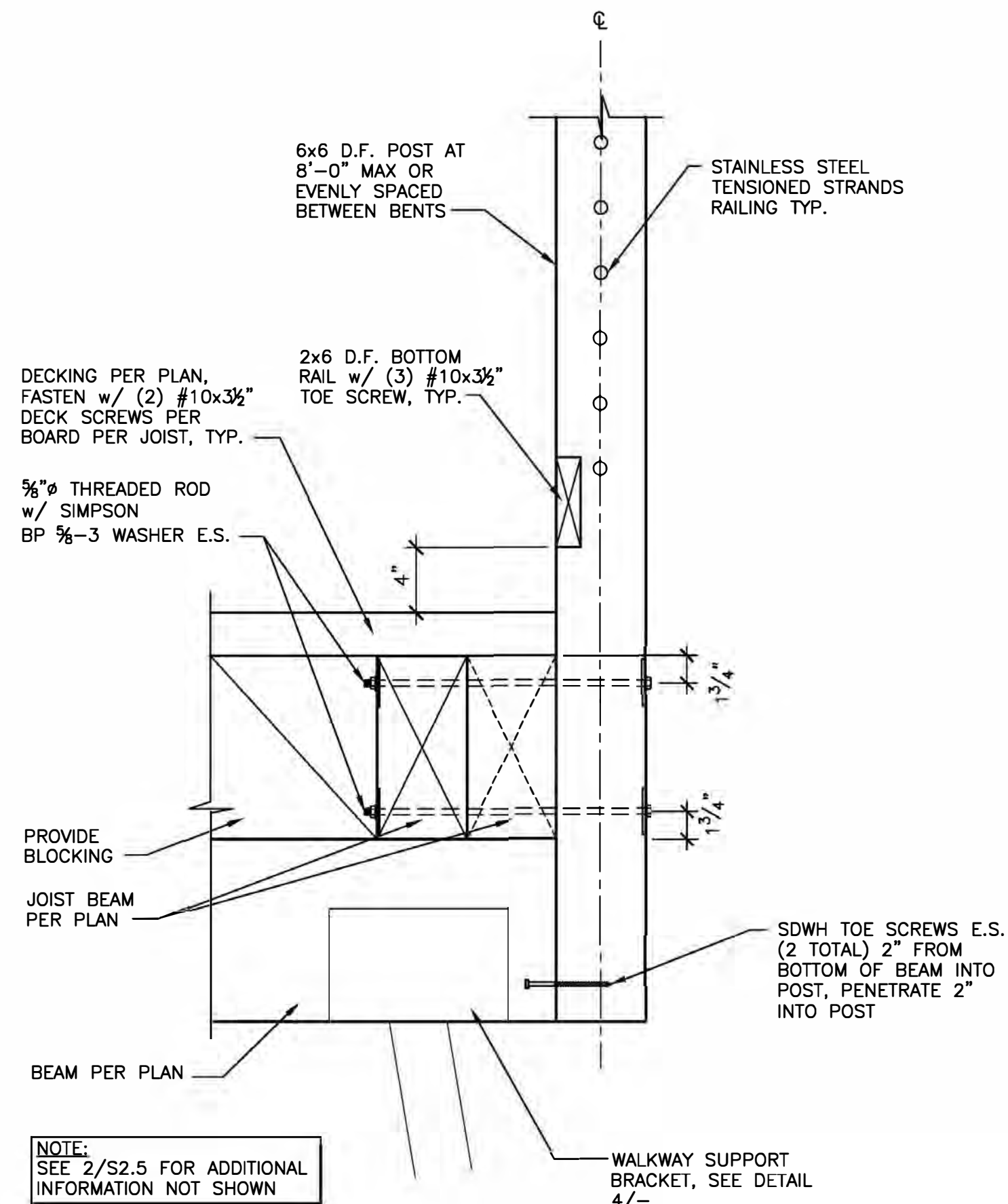
**1 BOARDWALK SECTION (LONGITUDINAL)**  
N.T.S.



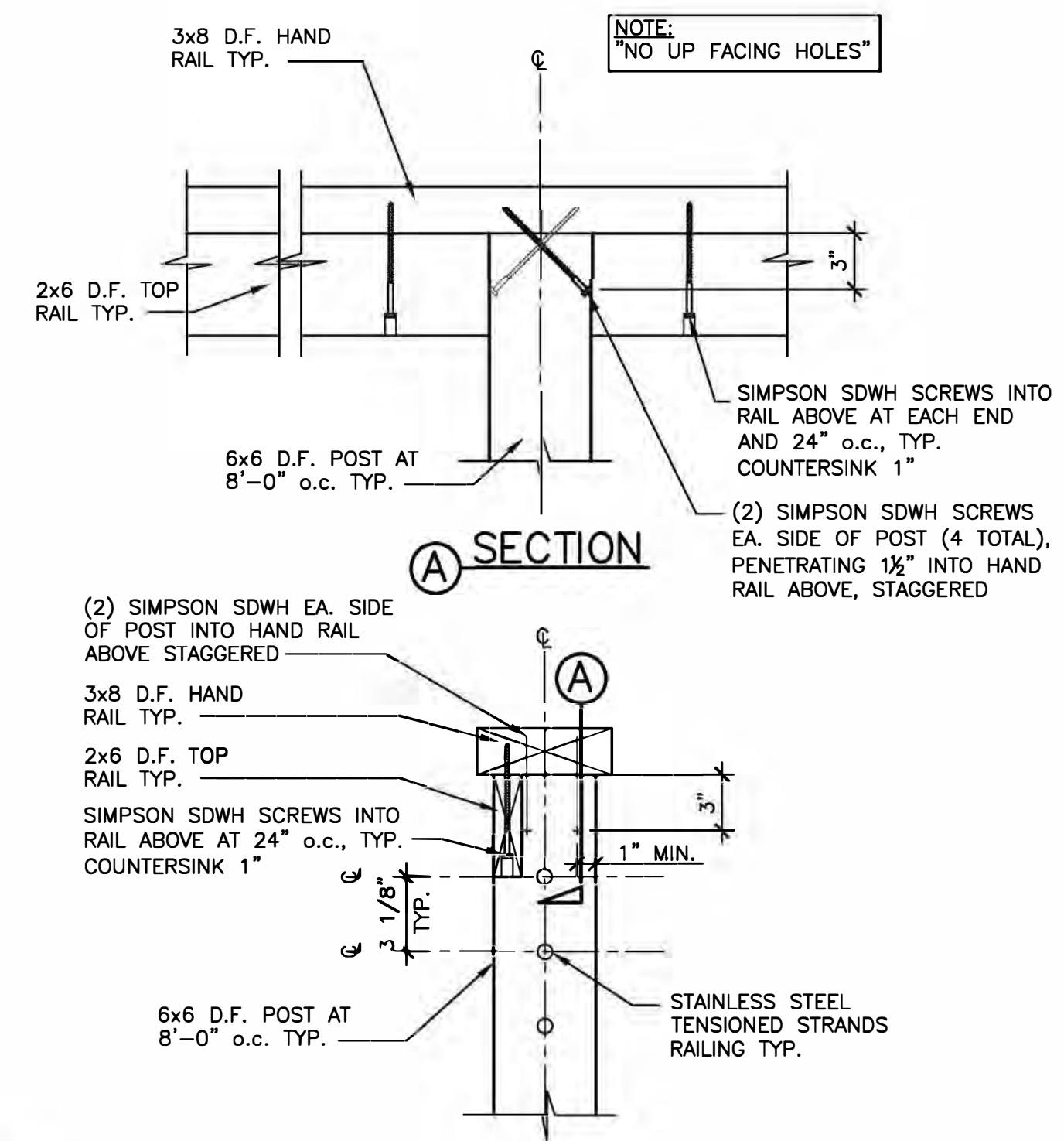
WALKWAY SUPPORT BRACKET NOTES:

1. HOT DIPPED GALVANIZED PER ASTM A-153.
2. (4) BOLTS: 1/2" HEX HEAD, 8" LONG WITH DBL NUT
3. OK TO NOTCH/SHAPE WOOD BEAM UP TO 1" TO ACCOMMODATE VARIANCE IN PIER CAP ANGLE

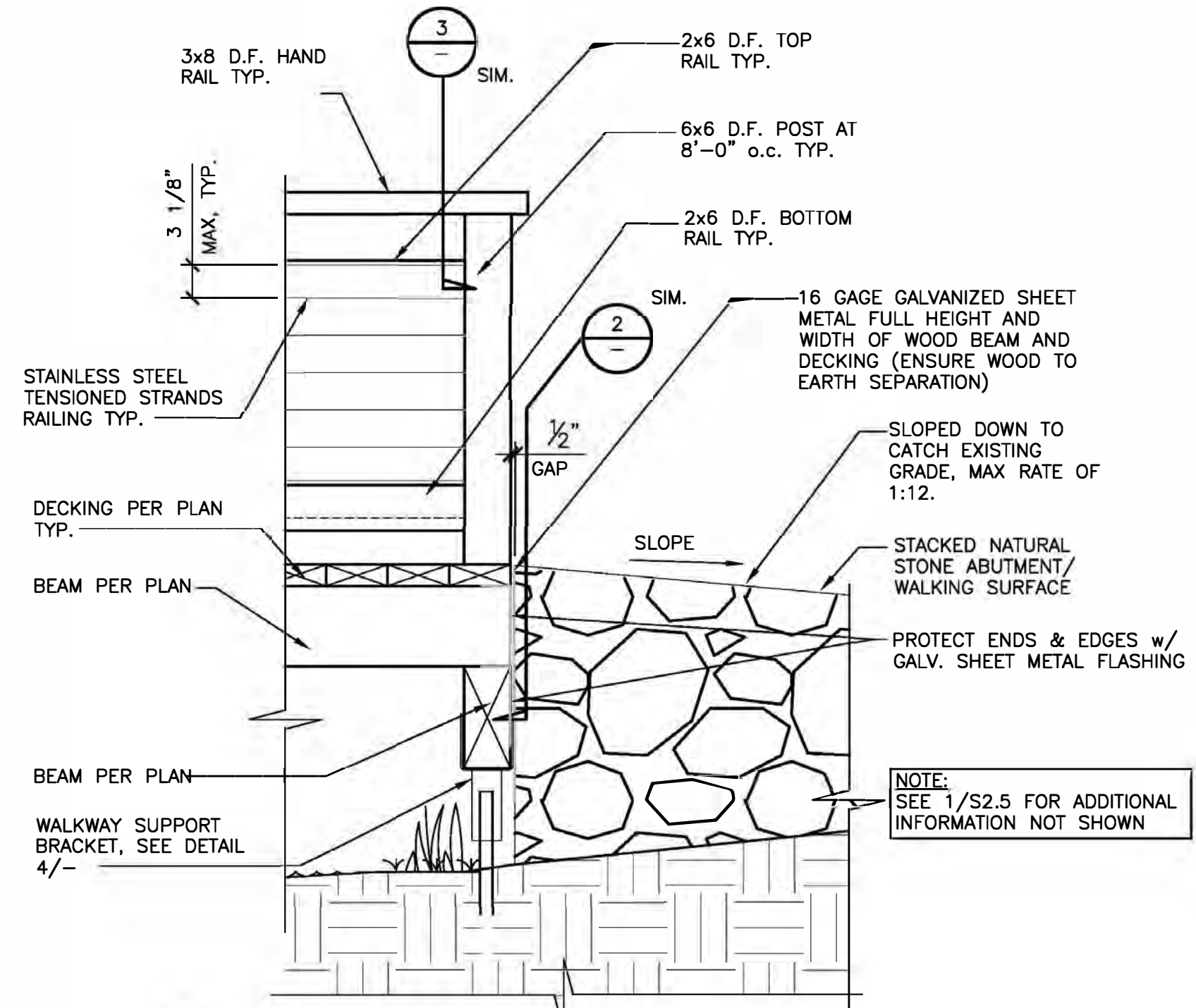
4 WALKWAY SUPPORT BRACKET N.T.S.



2 GUARDRAIL POST BASE N.T.S.



3 GUARDRAIL N.T.S.



1 ABUTMENT N.T.S.

# INFORMATION PAPER



## Engineers Estimate

# memo

To: Christina Thayer and Jon Mitchell  
From: Eric Rademacher, Linchpin Structural Engineering, Inc.  
  
Date: February 24, 2020  
Re: TDA Nature Trail Engineer's Construction Cost Estimate

---

The estimated cost to construct the bridge and boardwalk is \$588,585.00. The estimate is itemized below in a format that follows the categories from the bid document and material list we previously provided.



Cost Estimate Breakdown	
<b>Bridge</b>	
Concrete Abutments materials and labor	\$ 9,000.00
Micropiles materials and labor	\$ 12,800.00
Structural Steel materials and labor	\$ 45,870.00
Lumber materials and labor includes hardware	\$ 21,200.00
Cable Railing materials and labor	\$ 4,800.00
<b>Boardwalk</b>	
Helical Piers materials only includes mounting bracket steel and hardware	\$ 48,000.00
Framing Lumber materials and labor includes labor to install helical piers, framing lumber and decking includes framing lumber and decking material	\$ 311,915.00
Wood Railing system materials and labor includes wood posts, wood railings and hardware	\$ 45,100.00
Cable Railing materials and labor	\$ 46,200.00
<b>Temporary Erosion Control</b>	
Silt Fence	
Bridge materials and labor	\$ 2,000.00
Boardwalk materials and labor	\$ 4,500.00
<b>Site Grading and Rock Armor</b>	
Site Grading and Rock Armor	
Bridge materials and labor	\$ 17,400.00
Boardwalk materials and labor	\$ 9,200.00
<b>General Conditions</b>	\$ 10,600.00
<b>Total</b>	\$ 588,585.00

