

CITY OF CHEFORNAK, ALASKA

2010 LAGOON ACCESS BOARDWALK IMPROVEMENTS PROJECT

In Cooperation with the State of Alaska
 Department of Environmental Conservation,
 Village Safe Water Program

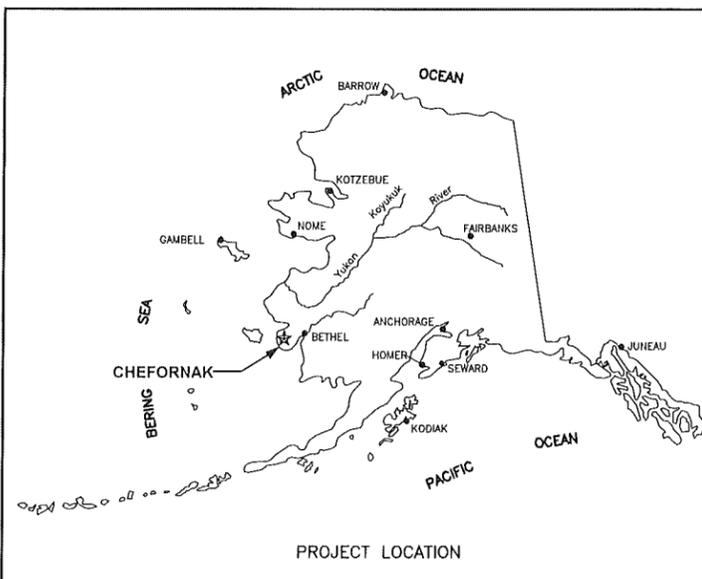
PRELIMINARY SHEET INDEX

No.	Title
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Location Map



PO BOX 232946 ANCHORAGE, AK 99523 PH: 907-349-1010 FAX: 907-349-1015



Consultant

RECORD DRAWING CERTIFICATE

THESE DRAWINGS REFLECT RECORDED INFORMATION OBTAINED DURING CONSTRUCTION. INFORMATION PROVIDED HEREIN IS ACCURATE TO THE BEST OF MY KNOWLEDGE.

NAME _____ DATE _____

Construction Foreman _____
 FINAL DESIGN (Date) _____
 ADEC APPROVAL (Date) _____
 Construction Period (From) _____ (To) _____
 As-Builts (Date) _____

GENERAL NOTES

SURVEY CONTROL DIAGRAM

LEGEND

GENERAL:

- All construction shall be done in a safe workmanlike manner to industry standards and in conformance with applicable local state and federal codes and regulations. High standards of workmanship showing a sense of pride by workmen shall be maintained. Workers shall be prepared to sign their individual work as if it was their own artwork.
- All Materials shall meet or exceed the minimum quality standards specified in the drawings. Any material in contact with the well water or potable water shall be NSF 61 approved. Solder containing lead shall not be allowed.
- The basis of vertical control is the south rim at the top of the 6" well casing for well WW-2, the location of which is shown on the Survey Control Diagram to the right. The elevation of the top of casing is 80.75 ft.
- The basis of horizontal control is the recorded bearing between corners C1 and C2 of U.S. Survey No. 4421. The bearing is S 0°00'00" E (due South) with a recorded distance of 509.68 LF (Meas. 509.35 LF). See the Survey Control Diagram to the right.
- Existing utilities are shown in approximate location to the best knowledge of the engineer at the time of design. Utility records may not be completely accurate. The project superintendent shall verify horizontal and vertical location of utilities within each construction reach prior to construction. All utilities are above ground unless otherwise noted.
Water and Sewer - CHEFORNAK WATER AND SEWER UTILITY (907) 867-8301
Electric - WATERKAO LIGHT PLANT (907) 867-8213
Telephone - UNITED UTILITIES, Inc. (800) 478-2020
- The project superintendent shall be responsible for maintaining a clean set of as-built "red line" record drawings showing location and swing ties to all buried system components. All elevations shall be marked ASB (as-built) or F.C. (field changed) with the correct value inserted. Drawings shall be kept current in red pencil and updated daily in a neat and legible fashion. A copy of the as-built drawings shall be submitted to the Chefnork Utility Board and the Village Safe Water Project Engineer.
- General Restoration - The areas impacted by construction shall be returned to preconstruction condition or better. Construction debris shall be removed from the area and disposed of in a proper manner. Due care and caution shall be taken to avoid disturbing personal property.
- Construction in sensitive areas - Timber mats or pads shall be used to protect vegetative cover during construction. Any damage caused by construction activities shall be repaired or reseeded as necessary to return the areas affected by construction to its preconstruction state.
- The construction site shall be adequately protected, restricted and barricaded in the best public interests of health, safety and welfare, with visible and stable BARRIERS, understandable, large-print WARNING SIGNS, and other precautionary equipment and measures as required. All safety measures shall be in conformance with applicable state of Alaska DOT and OSHA safety requirements.
- Existing boardwalk shall be removed only where indicated on the plans and in all areas where the existing boardwalk conflicts with the proposed boardwalk alignment. Removed boardwalk material with any salvage value shall be cleaned of fasteners (nails, screws, plates, etc.) and neatly stacked at a location designated by the city. Provide stickers between every third row in the stack. Existing boardwalk material with no salvage value shall be disposed of at the landfill.

DESIGN CRITERIA:

WIND:	110 MPH - EXPOSURE C
SNOW LOAD:	30 PSF
SEISMIC DESIGN:	ZONE 1
BOARDWALK MOVABLE LOAD	7,000 LBS. PER WHEEL
BOARDWALK MOVING LOAD	2,000 LBS. PER WHEEL
DESIGN TEMPERATURE:	13,000 HEATING DEGREE DAYS
LOOP WATER TEMPERATURE	40°F ± 2°F

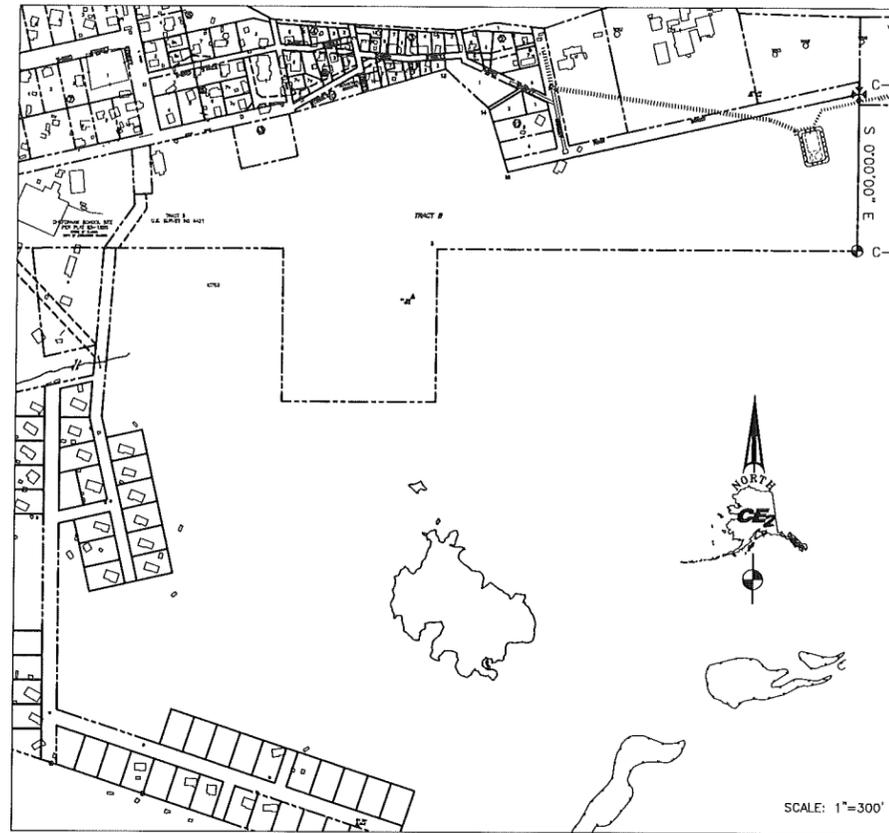
WATERLINES:

- Water transmission piping shall be butt fused, HDPE SDR 11 (PE 3408), routed through an insulated arctic pipe duct. The duct shall have a 10"Ø HDPE, SDR 17 core pipe, 3" minimum of 3-4 lb/ft polyurethane foam and an 18"Øx16 gauge corrugated aluminum jacket. See sheet C-7 for plan, profile and pipe cross section.
- TESTING - All testing shall be in conformance with the following requirements.
 - WATERMAIN TESTING** - Perform hydrostatic testing of waterlines after open bore flushing and before disinfection (see item 3 below). Fill the line with water and remove air prior to starting the test. Pressurize to 1.5 x operating pressure (60 PSI) = 90 PSI and leave for 1 hour. After the initial period, add water to bring the pressure up to 90 PSI and begin a 1-hour test. For the waterline to be accepted, the make-up water required to return to the test pressure shall not be greater than the allowance for expansion. The allowance for expansion shall be limited to 0.13 gallons per 100 linear feet of 3" watermain.
 - All tests shall be witnessed by a representative designated by the owner (Chefnork Traditional Council). Upon successful completion of a test the results of the test shall be documented on a test form and acknowledged by signature of the owner's representative witnessing the test and by the contractor. The contractor's red lined as-built drawings shall also note, for each segment of the system tested, the time and date of the test and the name of the owner's witness.
- DISINFECTION
 - WATER LINE DISINFECTING** - All water distribution lines shall be disinfected in accordance with the requirements of AWWA C651-92. The method of chlorination shall be with the slug method, as described in section 5.3 of the standard. After disinfection, the water distribution lines shall be flushed in accordance with the requirements of section 6. Heavily chlorinated water shall be neutralized with a solution of Sodium Bisulfate at a feed rate as tabulated in appendix B of the standard. The superintendent in charge of the disinfection and flushing of the lines shall have a copy of AWWA C651-92 on site for ready reference.

BOARDWALK:

- All boardwalk materials shall be as specified in the drawings and meet the following requirements:
 - SQUARE-SHAFT HELICAL PIER SUPPORTS** (where required): All helical pier supports shall be 1-3/4" galvanized steel, square-shaft with 10" helix (for permafrost areas) or 8", 10" and 12" helices (for thawed areas). Pier support shall be capable of meeting the following minimum requirements:

Torque:	10,000 Ft.-Pounds
Axial Strength (tension):	100,000 Pounds
Axial Load (compression):	40,000 Pounds
Galvanization (after fabrication):	ASTM A-153



BOARDWALK: (continued)

- LUMBER:** Hemlock and Douglas Fir (hem-fir) grade #2 or better. All sizes are given in nominal dimensions (i.e., 4x12 will measure 3 1/2" thick by 11 1/2" wide).
- WOOD TREATMENT:** All wood materials used shall be treated with the wood preservative CROMATED COPPER ARSENATE (CCA) at the following concentrations:
"SOIL CONTACT" (includes all sleepers) - 0.6 pounds per cubic foot
ABOVE GROUND (>6" above ground) - 0.4 pounds per cubic foot
- HARDWARE AND FASTENERS:** All structural steel plates, shapes, bars and assemblies shall, after the steel has been thoroughly cleaned of rust and scale, be galvanized in accordance with the requirements of ASTM A 123. Bolts, nuts and similar threaded fasteners shall be galvanized in accordance with the requirements of A 153. Field repairs to galvanizing shall be made using "GALVINOX", "GALVO-WELD" OR EQUAL.

BOARDWALK REPLACEMENT LEGEND

	LENGTH	DESCRIPTION
SCHEDULE 1	3,427 LF	Critical areas of boardwalk replacement located in public right-of-way. Schedule 1 areas are to be funded through Federal Highway Project STP-0001(147) and State of Alaska, Dept. of Transportation Project #53444 as production rates allow. These areas require immediate replacement.
SCHEDULE 2	2,591 LF	Boardwalk replacement areas that are located in the public right-of-way and require replacement in the next one to three years. Schedule 2 areas are to be funded through Project STP-0001(147)/53444.
SCHEDULE 3	2,975 LF	Boardwalk replacement in areas that require right-of-way access. Work to be funded by others. NIC - Not in Contract under STP-0001(147)/53444.
TOTAL	8,993 LF	

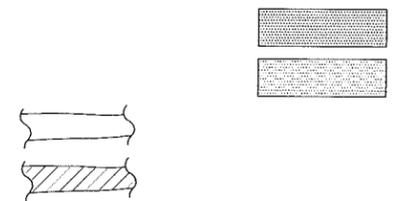
EXISTING

PLAN VIEW
PROFILE VIEW



PROPOSED

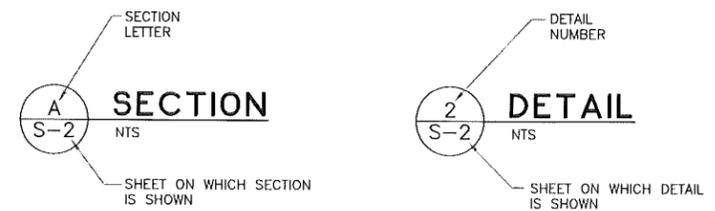
PLAN VIEW
PROFILE VIEW



DESCRIPTION

- PROPOSED BOARDWALK (WIDTH AS NOTED)
- BUILT FROM ANOTHER SHEET
- EXISTING BOARDWALK TO REMAIN
- EXISTING BOARDWALK TO BE REMOVED
- GROUND PROFILE
- WATERMAIN
- WATERMAIN BUILT FROM ANOTHER SHEET
- FUTURE WATERMAIN
- FUTURE VACUUM SEWER
- FUTURE WASTEWATER FORCEMAIN
- OVERHEAD ELECTRIC
- PETROLEUM/OIL/LUBRICANTS
- UTILITY POLE AND GUY WIRE ANCHOR
- FENCE
- CONTOUR LINE
- SHORELINE
- EXISTING GROUND
- STRUCTURE
- EARTHWORK SLOPE
- NATURAL GROUND OR COMPACTED SOIL
- DIRECTION OF DRAINAGE
- PROPERTY LINE OR SECTION LINE
- CENTERLINE OR MATCHLINE
- PERMANENT EASEMENT
- ALL WEATHER WOOD
- CORRUGATED METAL PIPE
- CORRUGATED STEEL PIPE
- TOP OF CASING
- BRASS CAP MONUMENT AS NOTED
- TEST HOLE
- SPOT ELEVATION
- BLOCK NUMBER
- LOT NUMBER
- IRON PIPE SIZE (INDUSTRY STANDARD OUTSIDE PIPE DIAMETER)
- 6" WELL
- MECHANICAL BOLT
- GALVANIZED RIGID CONDUIT
- ELEVATION

SECTION AND DETAIL DESIGNATIONS



RECORD DRAWING CERTIFICATE

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NAME _____ DATE _____

SCALE: AS SHOWN

RAW FOR USE WITH ORIGINAL DRAWING

IF NOT AS SHOWN, THIS SHEET ADJUST SCALES ACCORDINGLY

CONSTRUCTION RECORD FIELD BOOK

STAKING FOREMAN AS-BUILT INSPECTOR

2010 LAGOON ACCESS BOARDWALK IMPROVEMENTS

NOTES AND SURVEY CONTROL

CHEFORNAK, ALASKA

CEE
ENGINEERS, INC.

PO BOX 22584 ANCHORAGE, AK 99502 PH: 907.346.9100 FAX: 907.346.9115

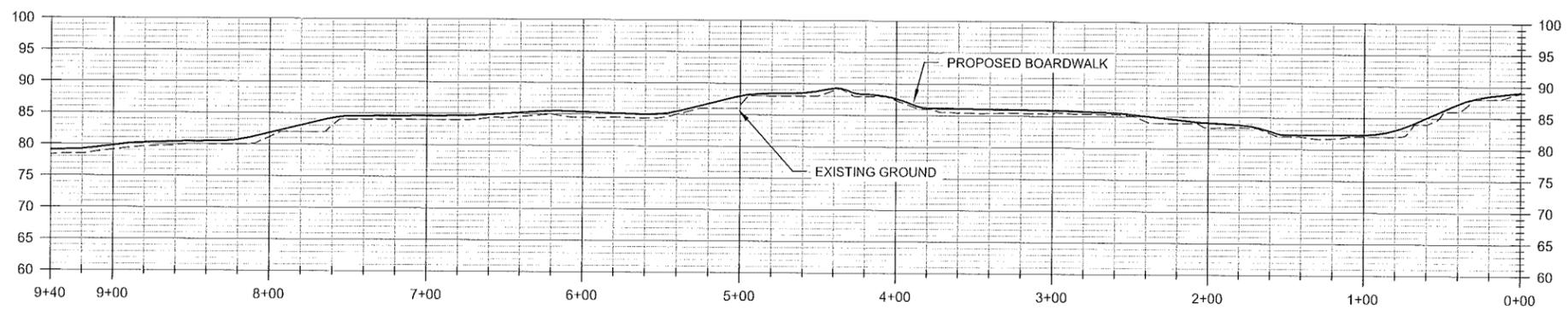
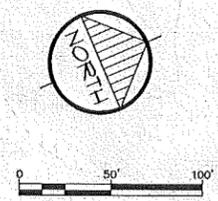
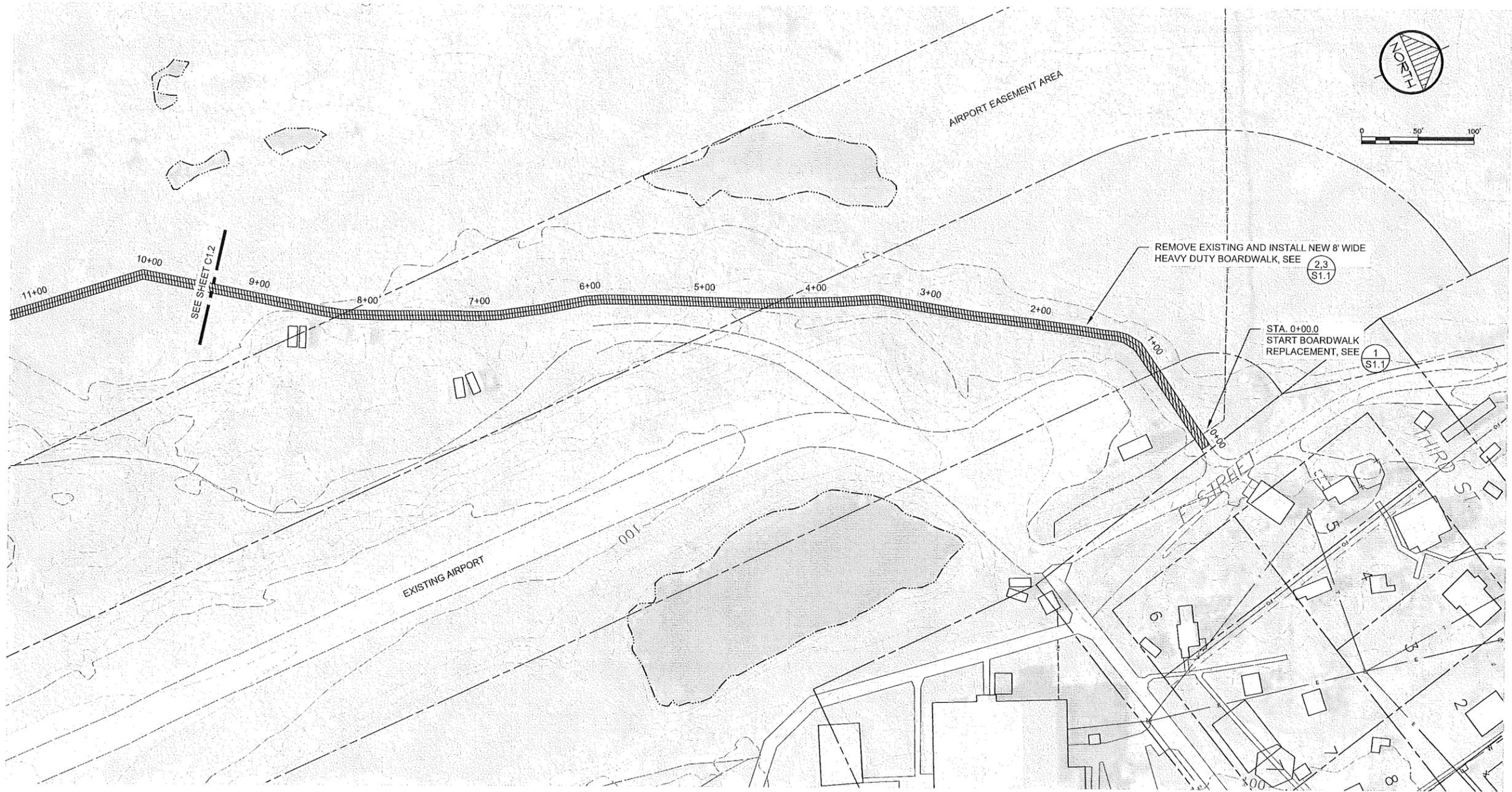
REVISION	DATE

Project No. _____ Date: JUNE 2010
 Designed: LAP
 Drawn: _____ Approved: LAP

Sheet No. _____

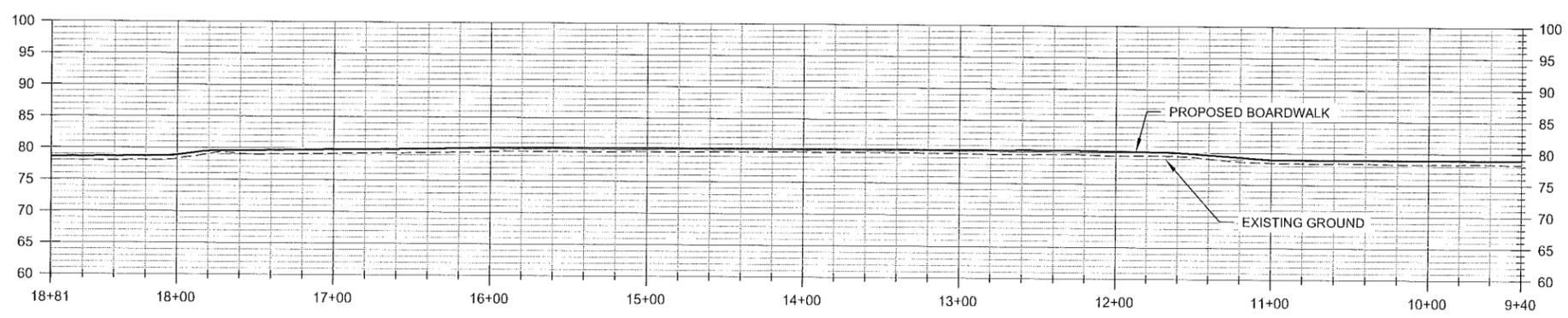
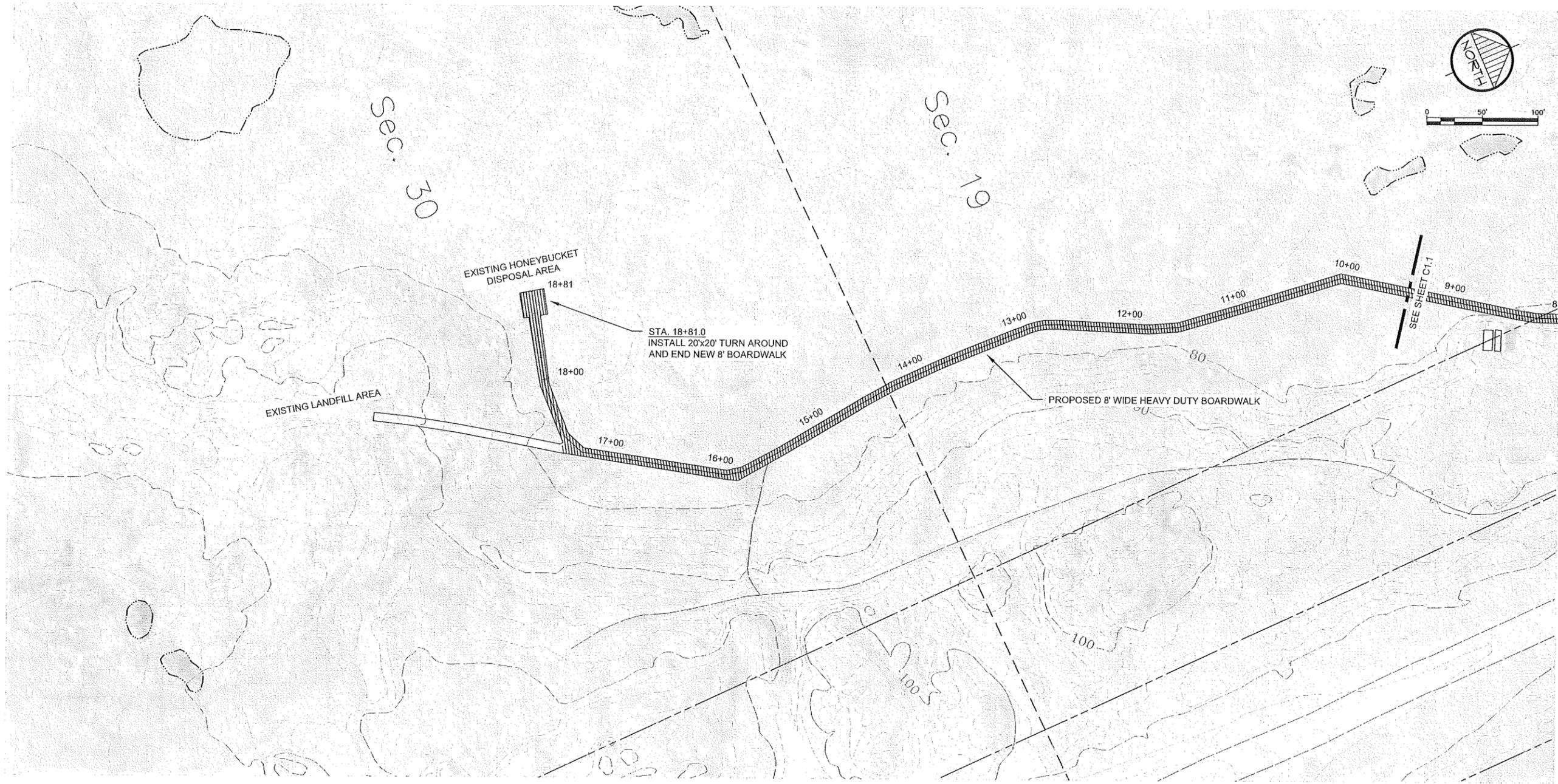
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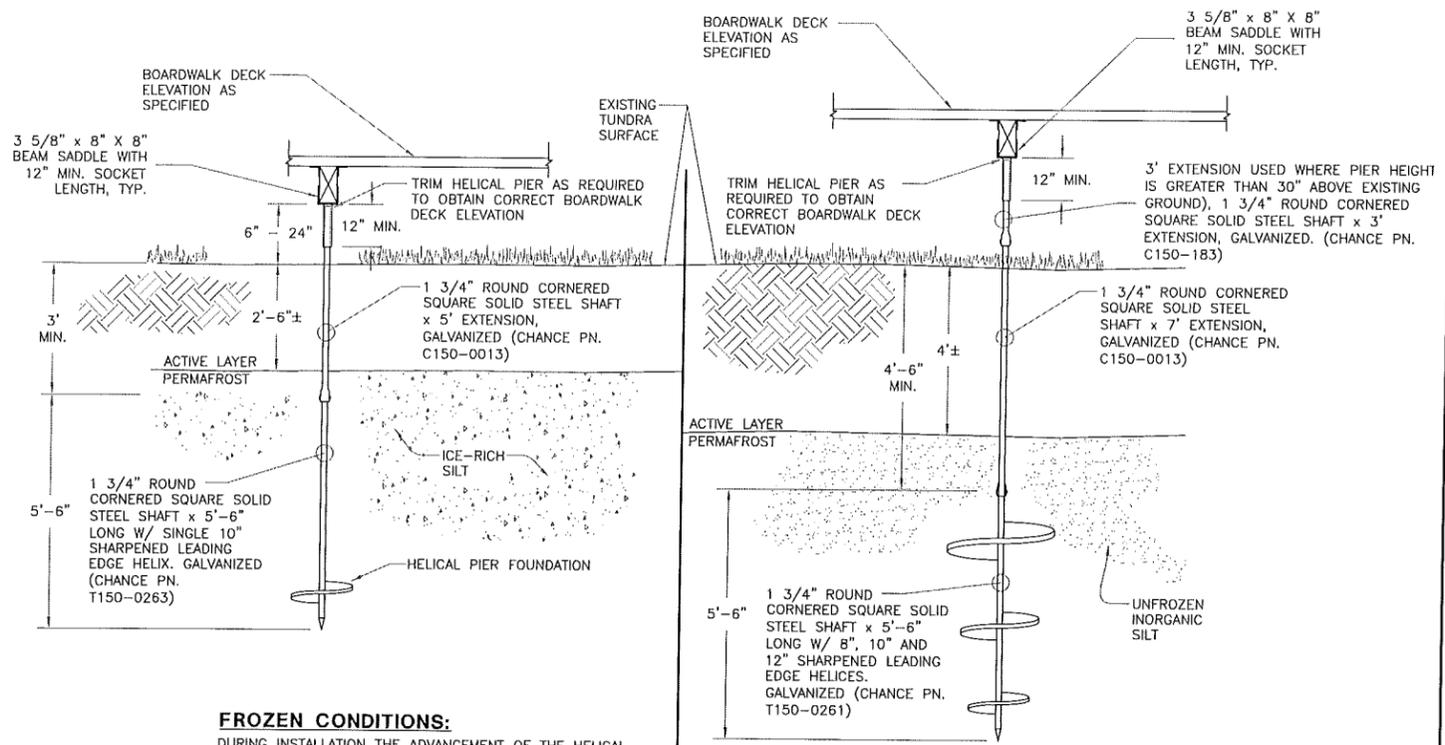
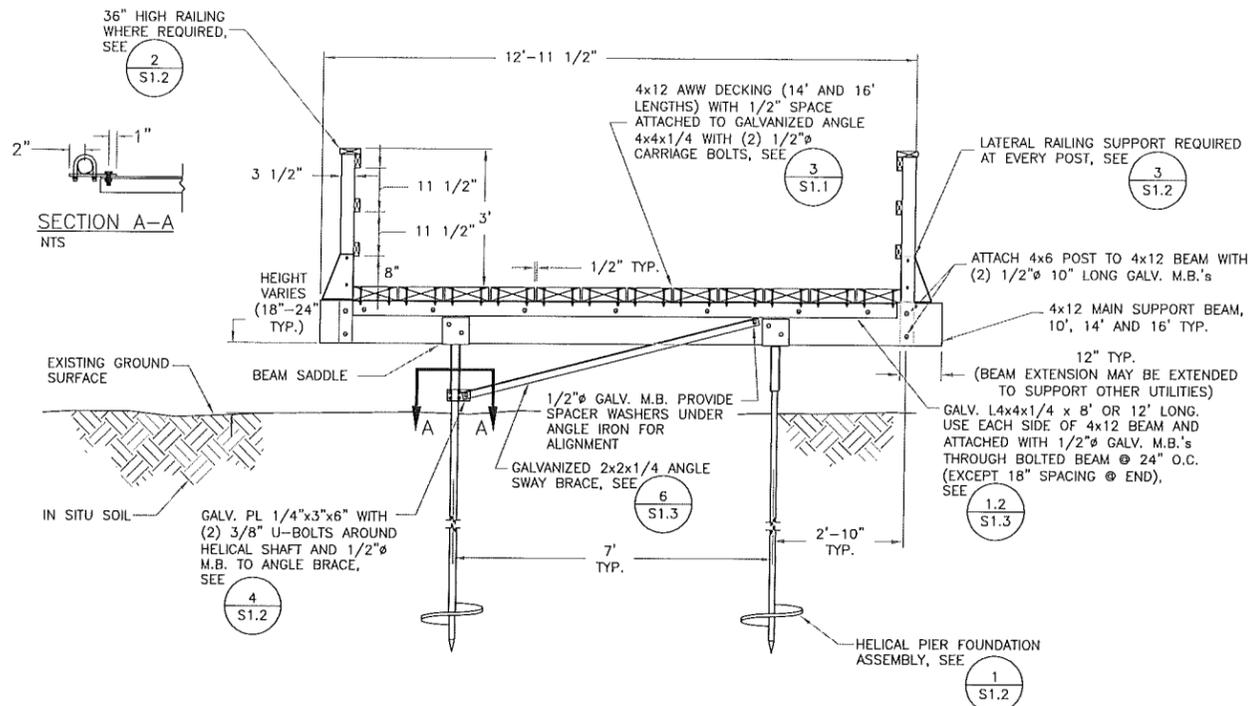


Project No. _____ Date JUNE 2010 Designed L.A.P. Drawn _____ Approved L.A.P.	REVISION BY DATE _____ _____ _____	RECORD DRAWING CERTIFICATE THESE DRAWINGS REFLECT RECORDED INFORMATION OBTAINED DURING CONSTRUCTION. INFORMATION PROVIDED HEREIN IS ACCURATE TO THE BEST OF MY KNOWLEDGE. NAME _____ DATE _____	SCALE: AS SHOWN 1" = 50'-0" (AS SHOWN) 1" = 100'-0" (AS-BUILT) 1" = 200'-0" (AS-BUILT)
CONSTRUCTION RECORD FIELD BOOK STAKING FOREMAN AS-BUILT INSPECTOR		STATE OF ALASKA 49 III PROFESSIONAL ENGINEER REG. NO. 10882 EXPIRES 12/31/2010	
2010 LAGOON ACCESS BOARDWALK IMPROVEMENTS PLAN AND PROFILE CHEFORNAK, ALASKA		 CEI ENGINEERS, INC. PO BOX 23948 ANCHORAGE, AK 99502 PH: 907-344-1010 FAX: 907-344-1015	
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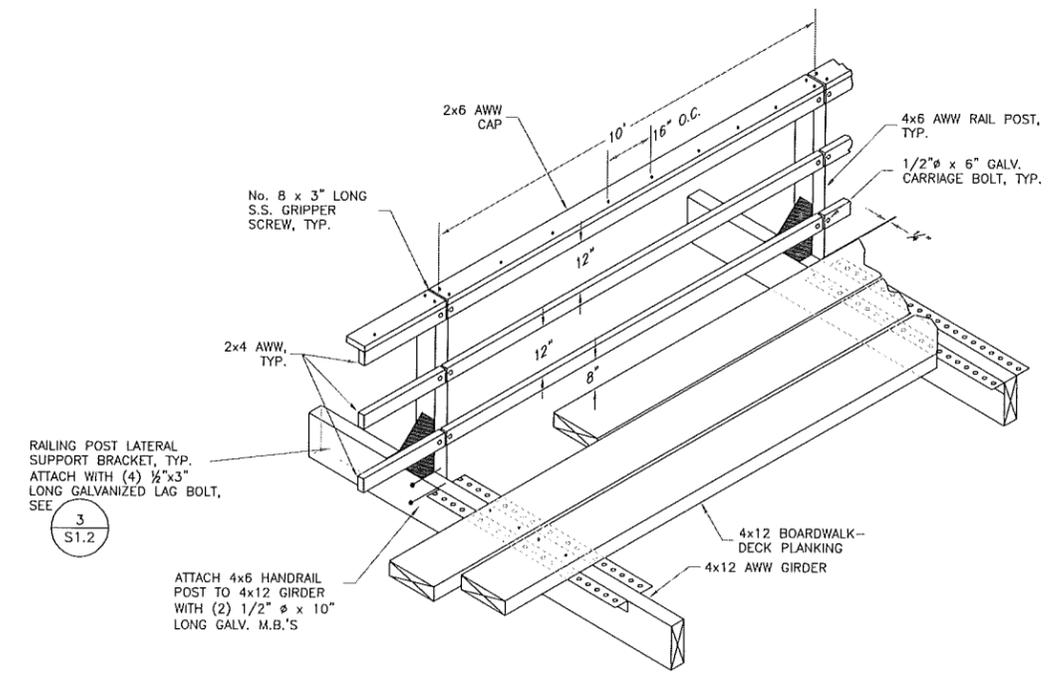


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SCALE: AS SHOWN <small>1" = 40' (VERTICAL) 1" = 100' (HORIZONTAL)</small>		CONSTRUCTION RECORD FIELD BOOK _____ STAKING _____ FOREMAN _____ AS-BUILT _____ INSPECTOR _____
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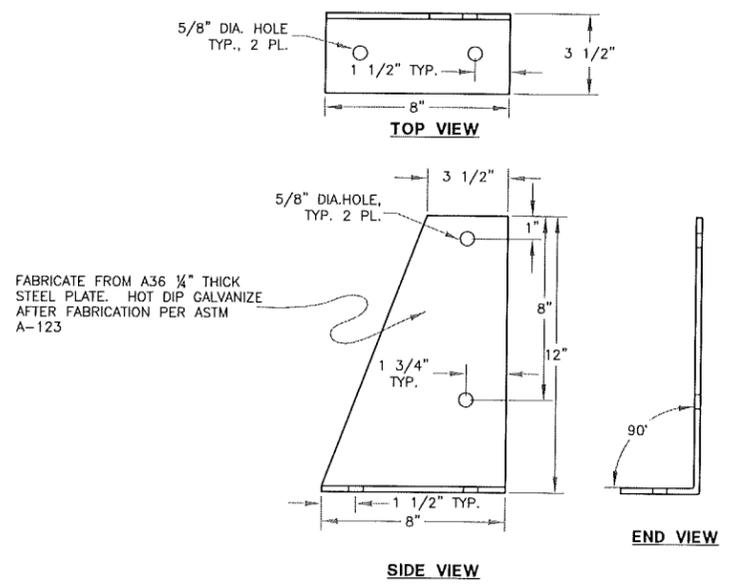


A
S1.2
HELICAL PIER SUPPORTED BOARDWALK SECTION
SCALE 1/2" = 1'-0"

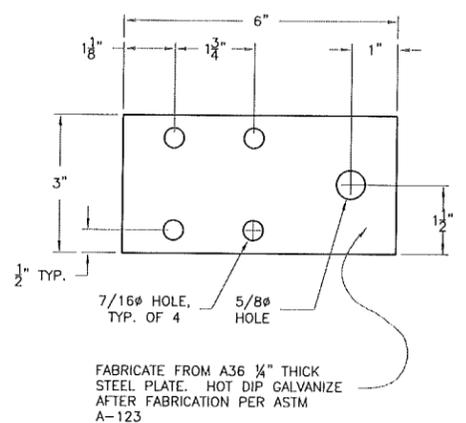
1
S1.2
HELICAL PIER FOUNDATION ASSEMBLY
NTS



2
S1.2
RAILING DETAIL
NTS (ONLY REQUIRED WHERE THE AVERAGE BOARDWALK DECK ELEVATION, MEASURED ALONG EACH SIDE, EXCEEDS 18\"/>



3
S1.2
RAILING POST SUPPORT BRACKET DETAIL
SCALE: 3/8" = 1"



4
S1.2
CONNECTOR PLATE
SCALE: 1/2" = 1"

RECORD DRAWING CERTIFICATE

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SCALE: AS SHOWN

CONSTRUCTION RECORD

FIELD BOOK STAKING FOREMAN AS-BUILT INSPECTOR

STATE OF ALASKA
49th
Lloyd A. Peterson
REG. P.E. No. 6662
PROFESSIONAL ENGINEER

2010 LAGOON ACCESS BOARDWALK IMPROVEMENTS

DETAILS
CHEFORKNAK, ALASKA

CEI
ENGINEERS, INC.
PO BOX 22846 ANCHORAGE, AK 99502 PH: 907-595-1110 FAX: 907-595-0115

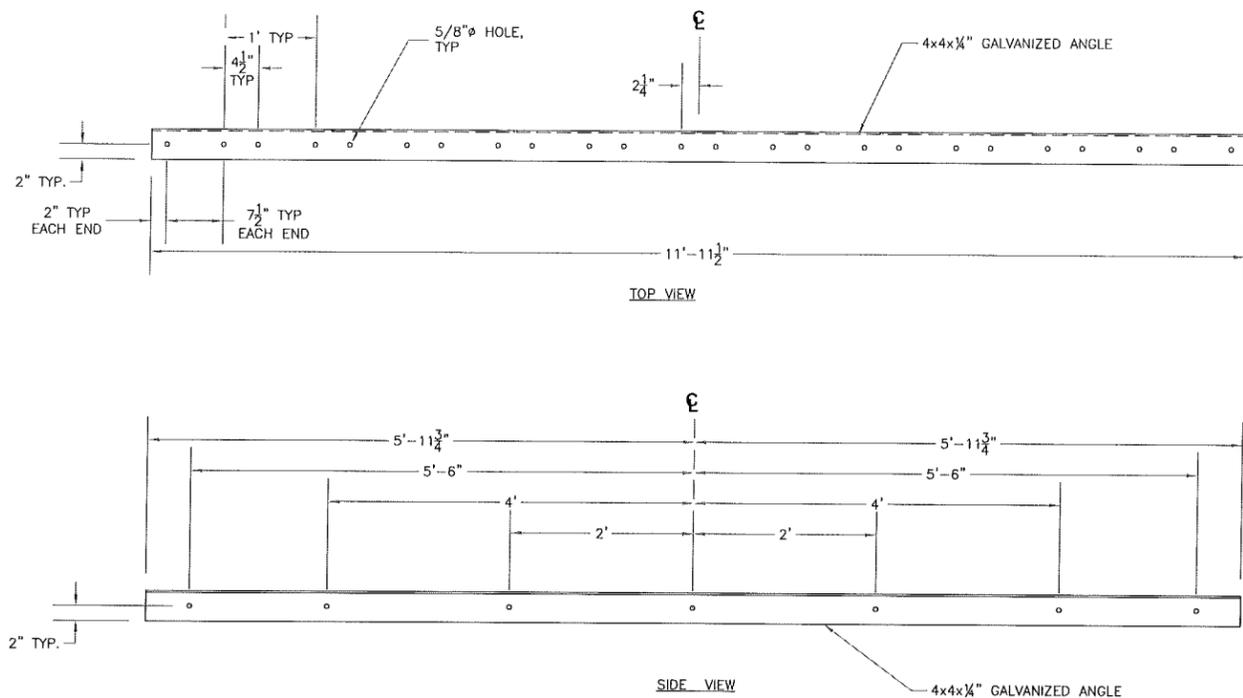
REVISION	DATE

Project No. _____ Date JUNE 2010
Designed L.A.P.
Drawn _____
Approved L.A.P.

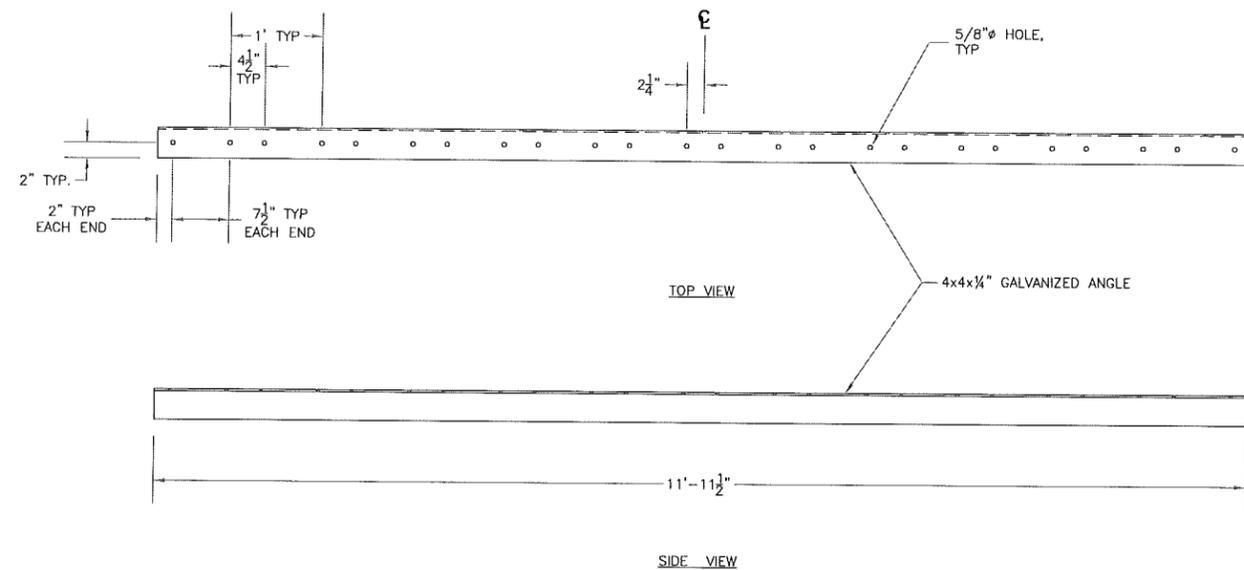
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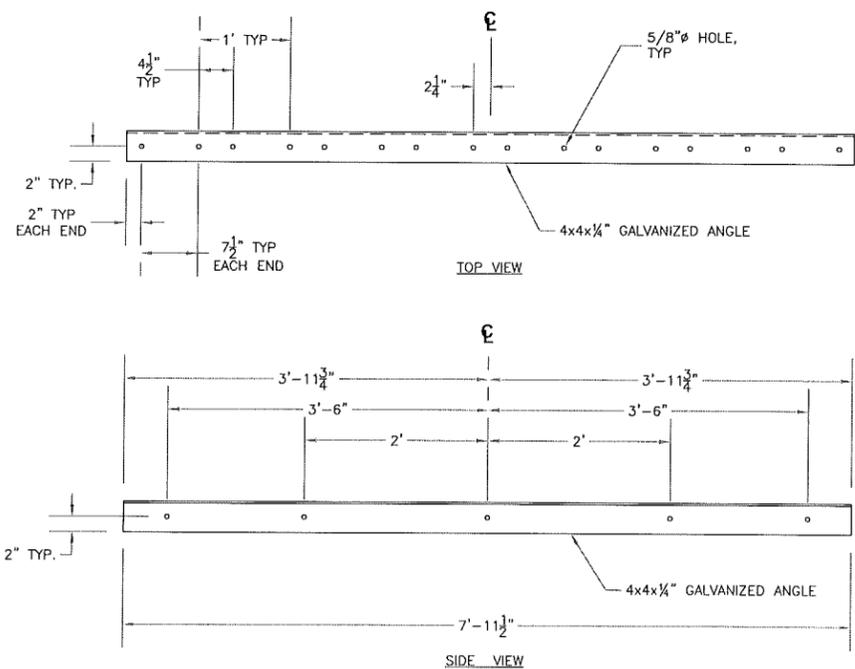
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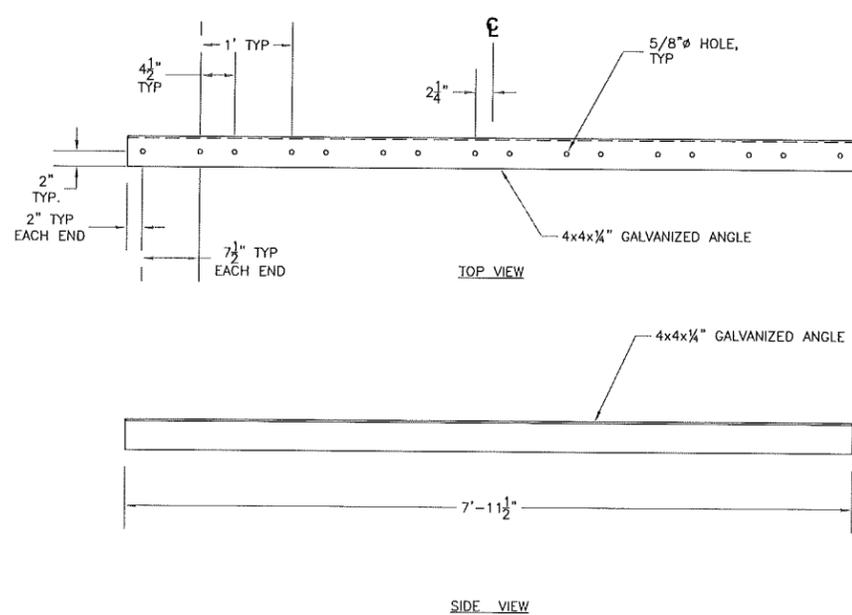
1 12' BEAM ANGLE
SCALE: 1"=1'



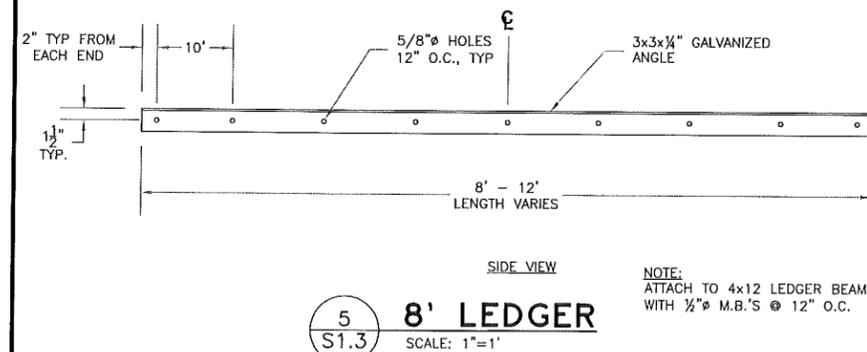
3 12' STIFFENER
SCALE: 1"=1'



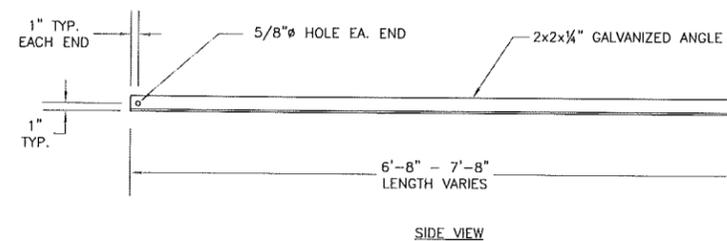
2 8' BEAM ANGLE
SCALE: 1"=1'



4 8' STIFFENER
SCALE: 1"=1'



5 8' LEDGER
SCALE: 1"=1'



6 SWAYBRACE DETAIL
SCALE: 1"=1'

RECORD DRAWING CERTIFICATE
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SCALE: AS SHOWN
DATE OF REVISION: OFFICIAL SEALING: 1'
DATE: 0
NAME: _____
DATE: _____

CONSTRUCTION RECORD
FIELD BOOK: _____
STAKING: _____
FOREMAN: _____
AS-BUILT: _____
INSPECTOR: _____

STATE OF ALASKA
49 TH
Lloyd A. Peterson
REG. 10100
PROFESSIONAL ENGINEER
REGISTERED PROFESSIONAL ENGINEER

2010 LAGOON ACCESS BOARDWALK IMPROVEMENTS
DETAILS
CHEFORNAK, ALASKA

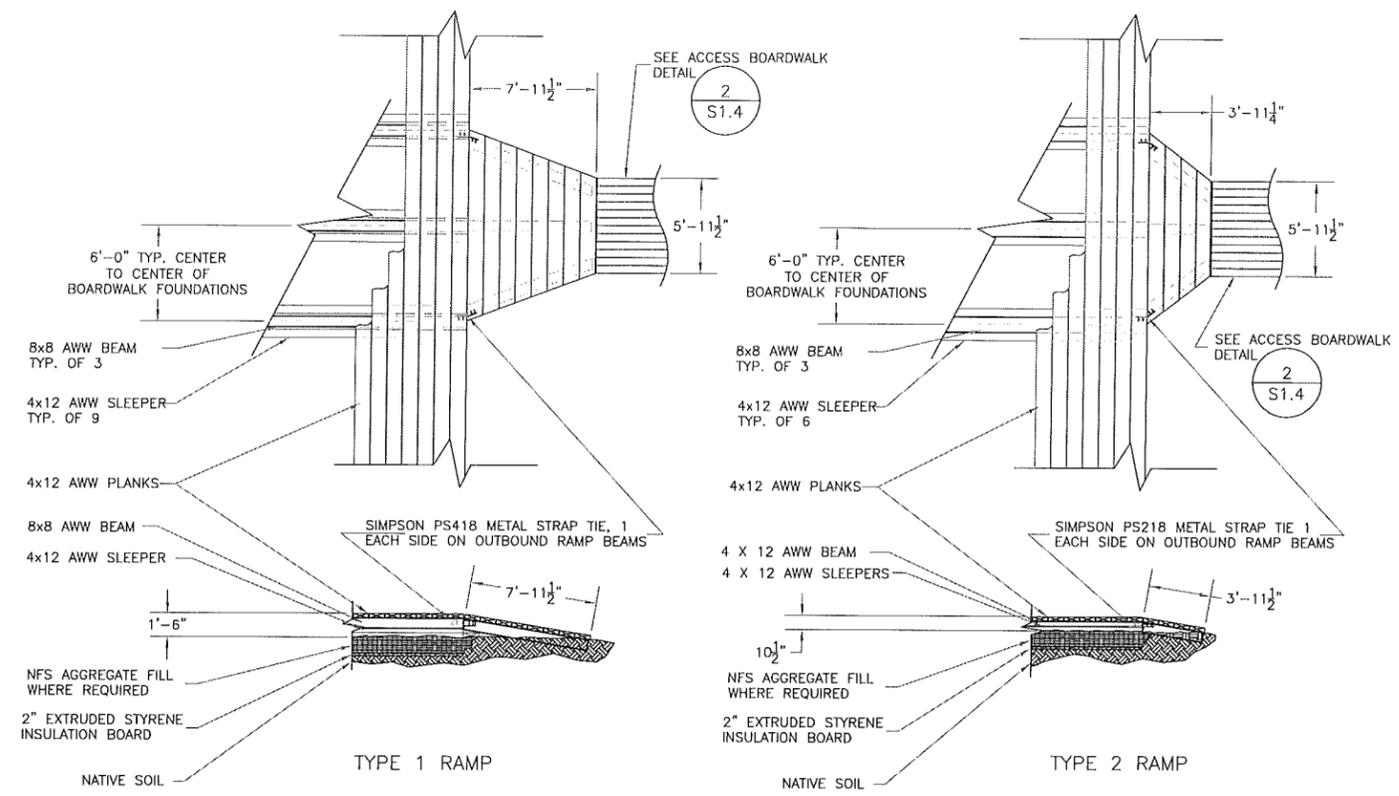
CEI ENGINEERS, INC.
PO BOX 22346 ANCHORAGE, AK 99507 PH: 907-548-1010 FAX: 907-548-0915

REVISION	BY	DATE

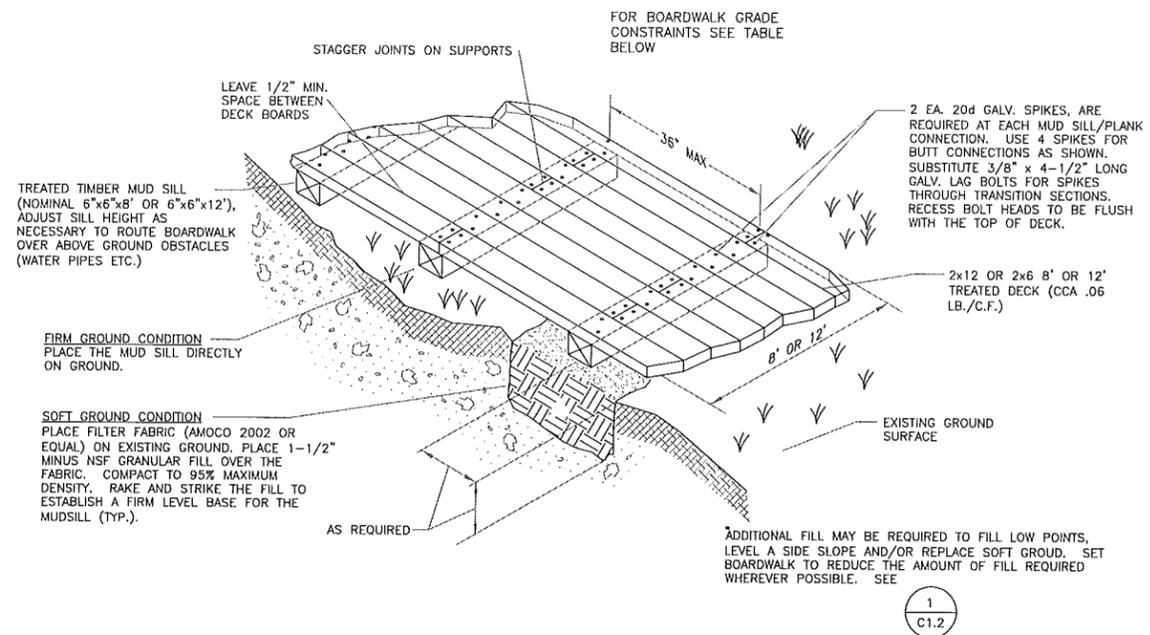
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Designed: LAP
Drawn: _____
Approved: LAP

Sheet No. **S1.3**
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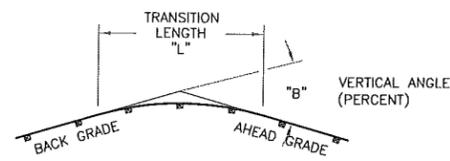
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1
S1.4
NTS
ACCESS RAMP DETAIL



ACCESS BOARDWALK GRADE CONSTRAINTS:
PLACE GRAVEL FILL AS REQUIRED TO HOLD THE BOARDWALK GRADE BETWEEN +4% AND -4% (5 INCHES OF RISE OR FALL PER 10 FEET OF RUN). PROVIDE A SMOOTH AND GRADUAL TRANSITION AT ALL CHANGES IN GRADE, IN ACCORDANCE WITH THE FOLLOWING TABLE:



VERTICAL ANGLE AT GRADE CHANGE IN PERCENT "B"	MINIMUM TRANSITION LENGTH IN FEET "L"
1	2.5
2	5
3	7
4	10
5	12
>5	NOT PERMITTED

NOTE:
3/4" x 4-1/2" LONG GALV. LAG BOLT DECK FASTENERS ARE REQUIRED AT ALL TRANSITION SECTIONS.

2
S1.4
NTS
ACCESS BOARDWALK CONSTRUCTION DETAIL

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SCALE: AS SHOWN

CONSTRUCTION RECORD

FIELD BOOK

STAKING

FOREMAN

AS-BUILT

INSPECTOR

STATE OF ALASKA

49 TH

Professional Engineer License No. 10000

REGISTERED PROFESSIONAL ENGINEER

2010 LAGOON ACCESS BOARDWALK IMPROVEMENTS

DETAILS

CHEFORNAK, ALASKA

CEE ENGINEERS, INC.

PO BOX 23846 ANCHORAGE, AK 99521 PH: 907-349-9100 FAX: 907-349-9115

Project No. _____ Date _____ June 2010 _____ L.A.P. _____

Designed _____ L.A.P. _____

Drawn _____ L.A.P. _____

Approved _____ L.A.P. _____

BY DATE

REVISION

Sheet No. S1.4

SHEET OF