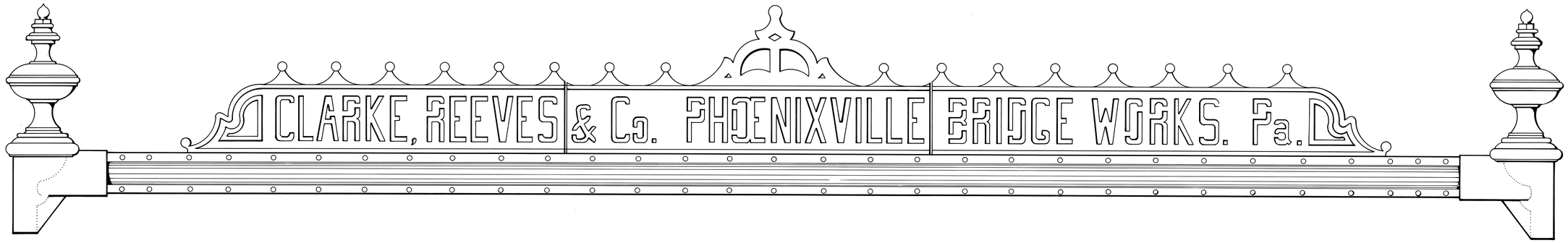
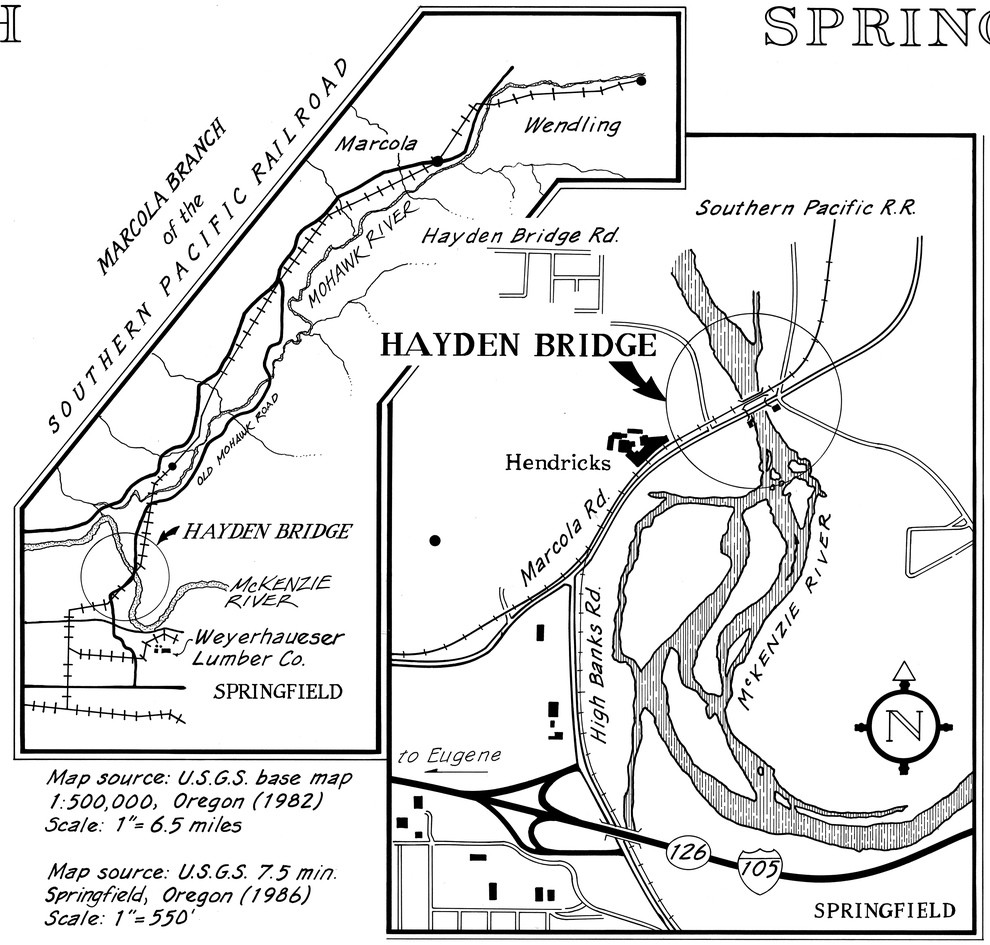


HAYDEN BRIDGE

1882 CORRINE, UTAH — RELOCATED — 1901 SPRINGFIELD, OREGON

The Hayden Bridge was fabricated by Clarke, Reeves & Company, Phoenixville Bridge Works of Phoenixville, Pennsylvania in 1882. It was originally erected across the Bear River at Corrine, Utah by the Central Pacific Railroad, on the line that was part of the first Transcontinental Railroad. The bridge was dismantled and reassembled across the McKenzie River near Springfield, Oregon in 1901, as part of a logging spur line owned by the Southern Pacific Railroad. The 224 feet long wrought-iron span includes hollow "Phoenix Columns", an innovative fabrication design of the wrought-iron period of American bridge building. This feature was a staple of the Phoenixville Bridge Works. The span is a Double-Intersection Pratt Truss, also called a Whipple-Murphy Truss. In 1847, Squire Whipple patented his design for a Pratt Truss made of iron, with diagonal web members crossing two panel points. The Hayden Bridge is made of wrought-iron, except for the connections and ornamentation, which are cast-iron. Ornamental medallions are placed at the crossing of the diagonal portal bracings. Railroad brake-wheel designs decorate the corner portal brackets. A cast-iron nameplate atop the portal gives the full name of the Phoenixville Works.

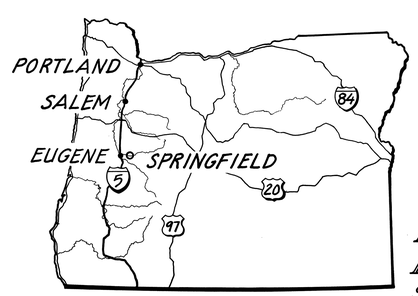


Map source: U.S.G.S. base map 1:500,000, Oregon (1982) Scale: 1"= 6.5 miles

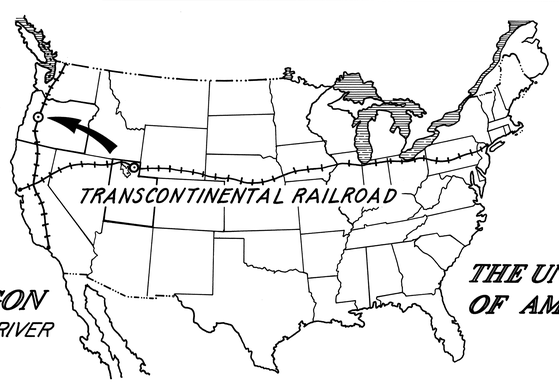
Map source: U.S.G.S. 7.5 min. Springfield, Oregon (1986) Scale: 1"= 550'

This recording project is part of the Historic American Engineering Record (HAER), a long-range program to document historically significant engineering and industrial works in the United States. The Oregon Historic Bridges Recording Project was co-sponsored in 1990 by the Historic American Engineering Record and the Oregon Department of Transportation (ODOT). The Oregon State Historic Preservation Office and the Federal Highway Administration encouraged the project. Fieldwork, measured drawings, historical reports and photographs were prepared under the general direction of Dr. Robert J. Kapsch, Chief of HABS/HAER; Eric N. DeLony, Chief of HAER; Dean Herrin, HAER Staff Historian.

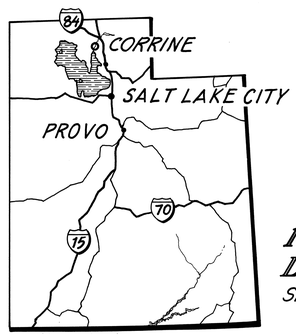
The recording team consisted of Richard L. Koochagian (University of Tennessee), Architect and Field Supervisor; Todd A. Croteau (Rhode Island School of Design), Gretchen Van Dusen (University of Washington) and Rafael Villalobos S. (ICOMOS/Universidad de Costa Rica), Architectural Technicians; Robert W. Hadlow (Washington State University), Gary M. Link (Duquesne University) and Kenneth J. Guzowski (University of Oregon), Historians; Jet Lowe, HAER Photographer.



1901 LOCATION IN OREGON
SPANNING THE Mc KENZIE RIVER



THE UNITED STATES OF AMERICA



1882 LOCATION IN UTAH
SPANNING THE BEAR RIVER

HISTORIC AMERICAN ENGINEERING RECORD OR - 19

SHEET 1 OF SHEETS HAYDEN 4

OREGON

HAYDEN BRIDGE - 1882
SPANNING THE Mc KENZIE RIVER, NORTHEAST OF SPRINGFIELD
LANE COUNTY

OREGON BRIDGES RECORDING PROJECT
SPRINGFIELD

DRAWN BY: TODD A. CROTEAU, RICHARD L. KOOCHAGIAN, GRETCHEN VAN DUSEN, RAFAEL VILLALOBOS S., 1990

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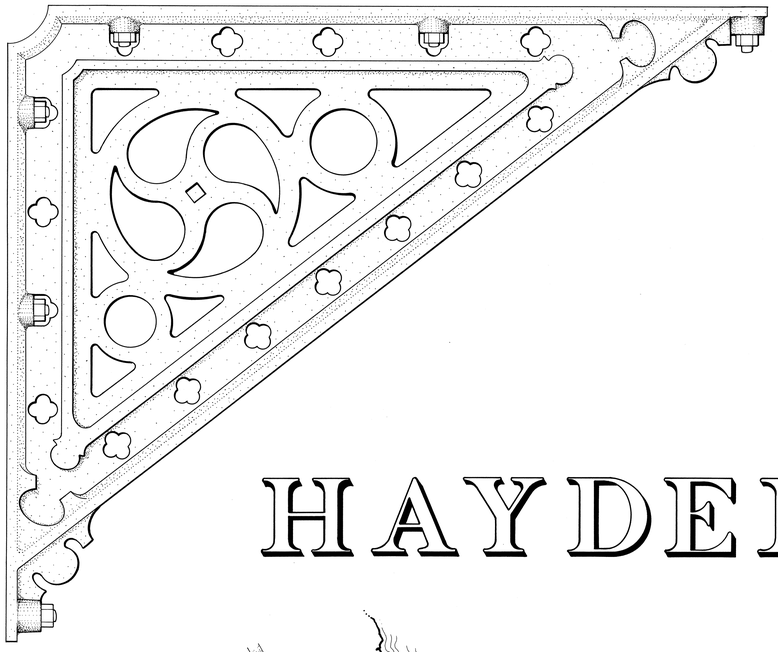
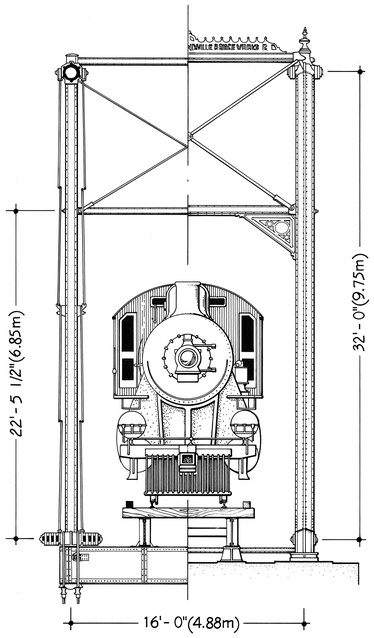
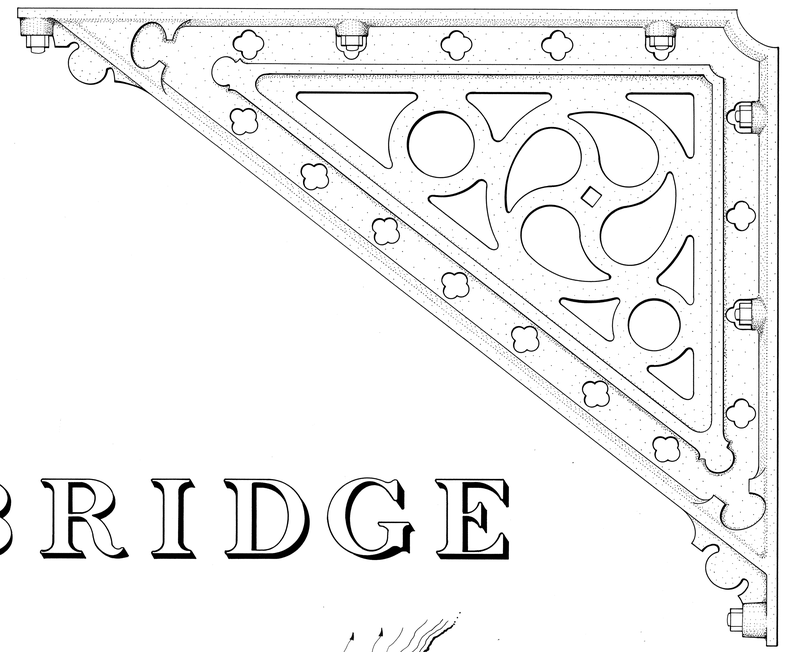






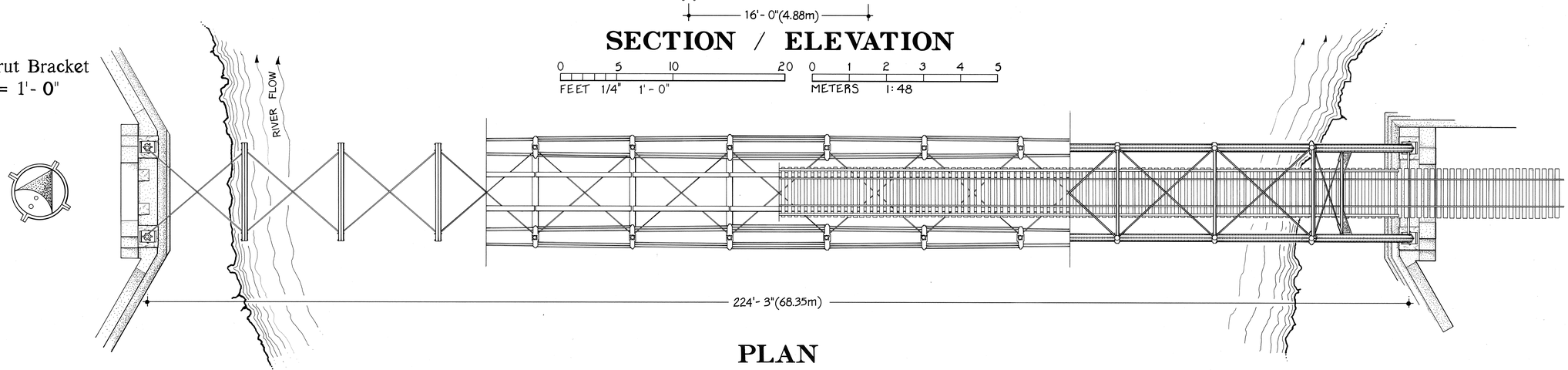
HAYDEN BRIDGE

SECTION / ELEVATION

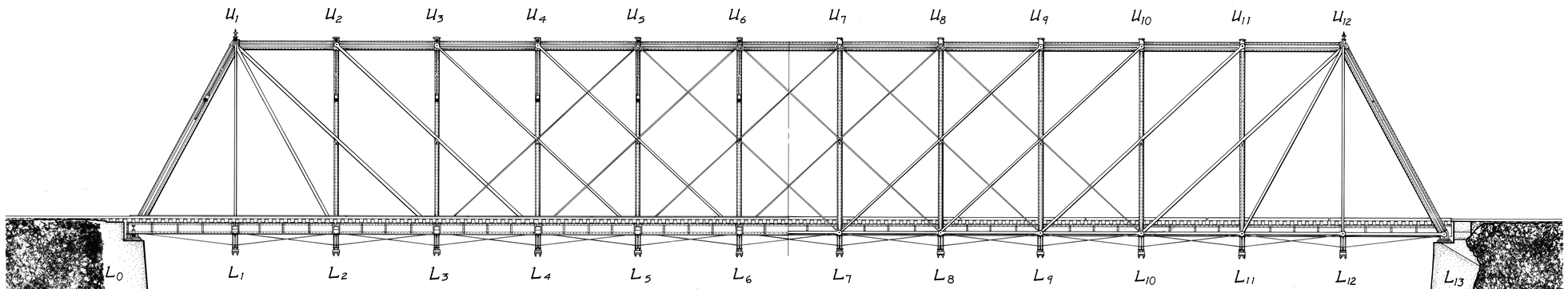
0 5 10 20 FEET 1/4" 1'- 0"

0 1 2 3 4 5 METERS 1:48

Portal Strut Bracket
Scale: 3" = 1'- 0"



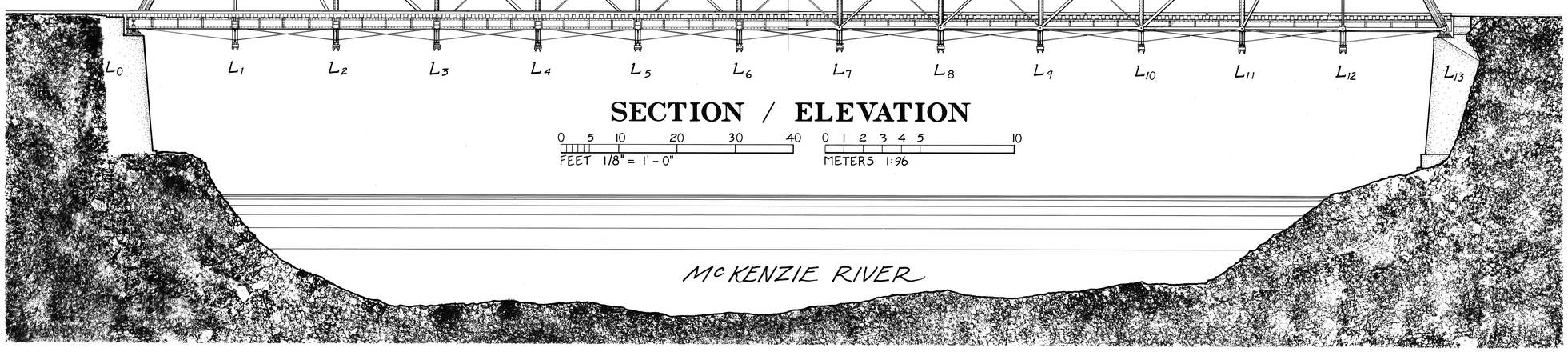
PLAN



SECTION / ELEVATION

0 5 10 20 30 40 FEET 1/8" = 1'- 0"

0 1 2 3 4 5 10 METERS 1:96



HISTORIC AMERICAN ENGINEERING RECORD OR-19

SHEET 2 OF SHEETS 4 HAYDEN

OREGON

NAME AND LOCATION OF STRUCTURE
HAYDEN BRIDGE - 1882
SPANNING THE McKENZIE RIVER NORTHEAST OF SPRINGFIELD
LANE COUNTY

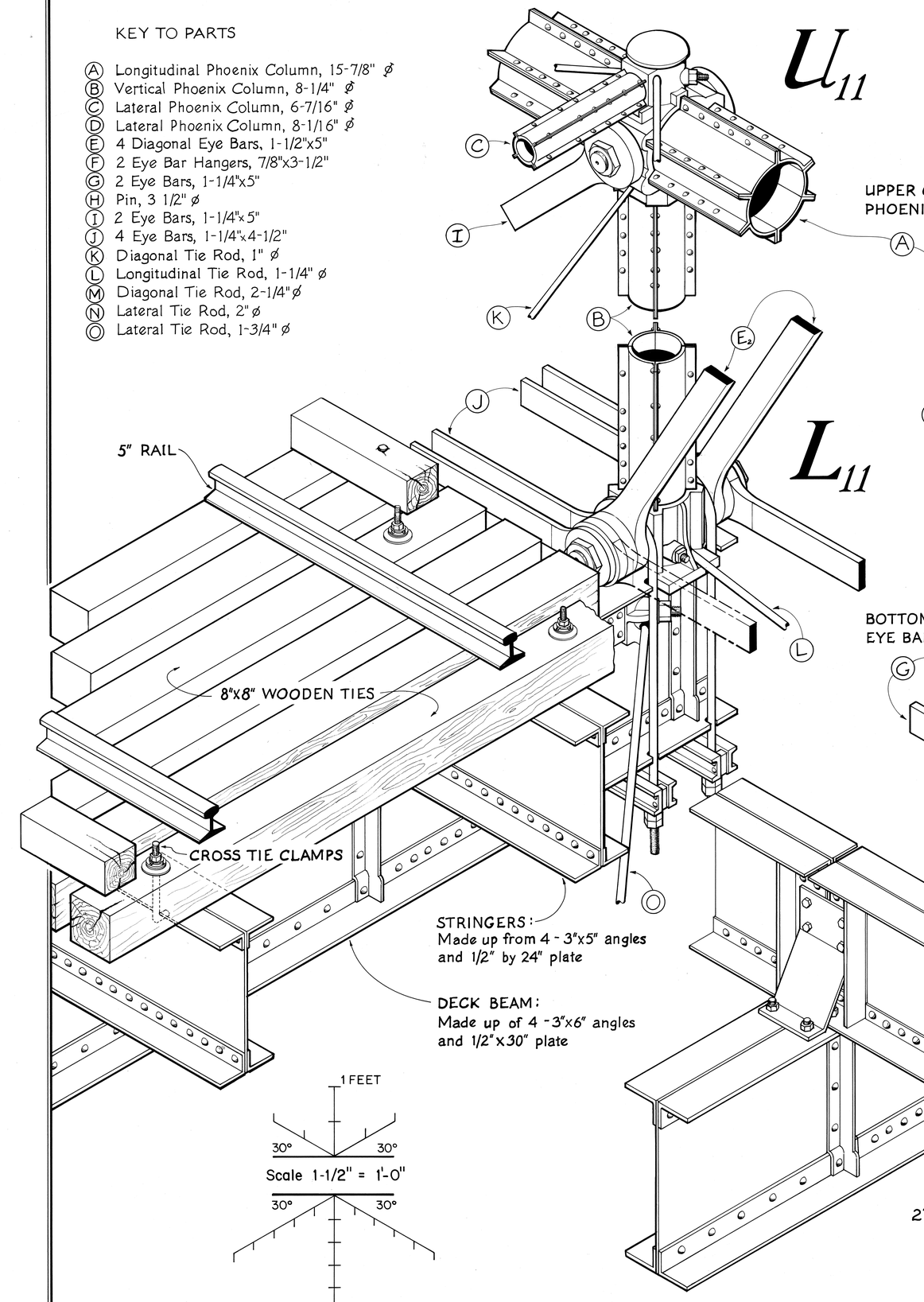
DRAWN BY GRETCHEN VAN DUSEN 1990, TODD A. CROTEAU, 1991

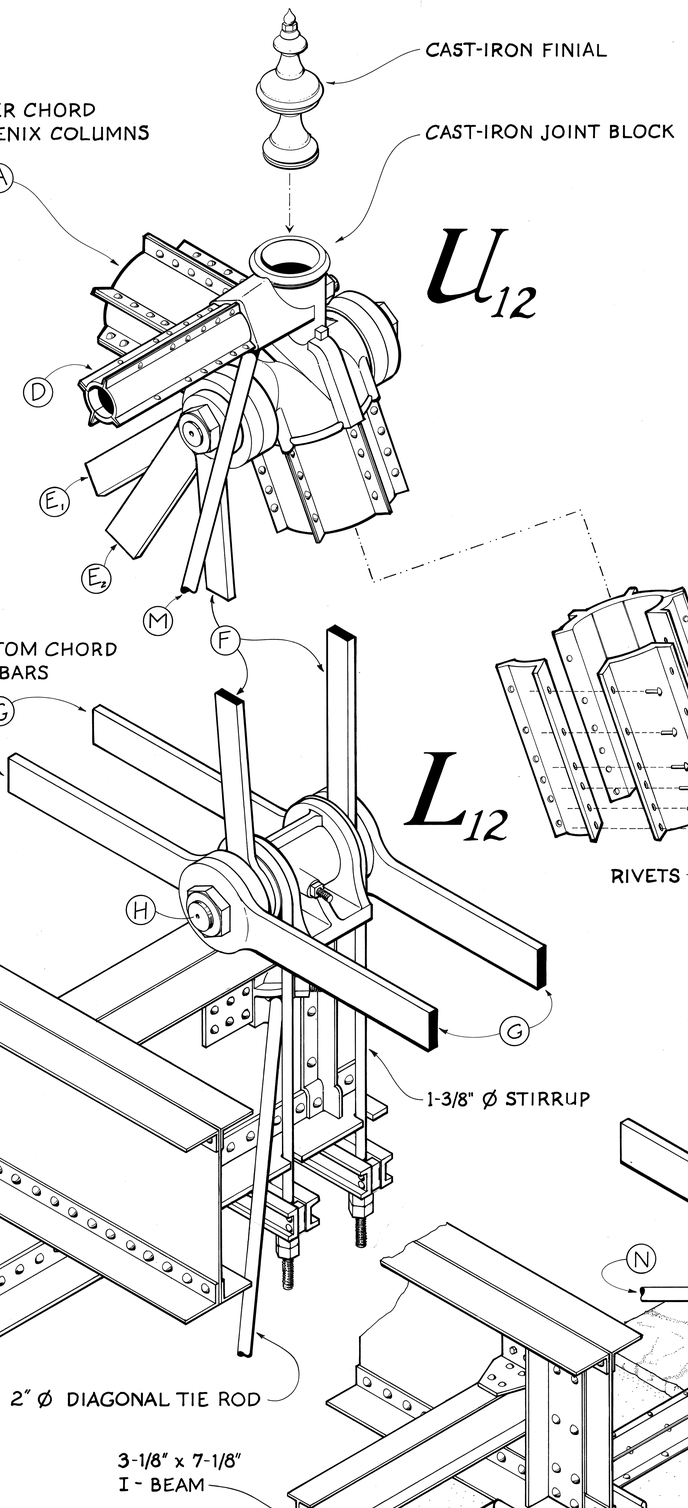
OREGON BRIDGES RECORDING PROJECT
NATIONAL PARK SERVICE
UNITED STATES DEPARTMENT OF THE INTERIOR

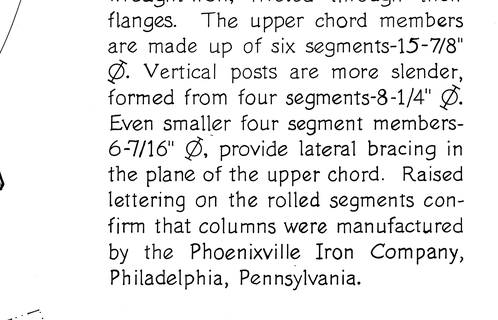
SPRINGFIELD

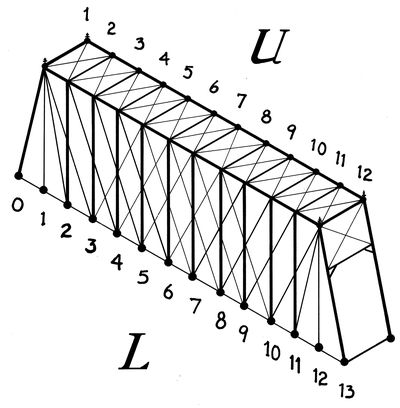
KEY TO PARTS

- (A) Longitudinal Phoenix Column, 15-7/8" ø
- (B) Vertical Phoenix Column, 8-1/4" ø
- (C) Lateral Phoenix Column, 6-7/16" ø
- (D) Lateral Phoenix Column, 8-1/16" ø
- (E) 4 Diagonal Eye Bars, 1-1/2"x5"
- (F) 2 Eye Bar Hangers, 7/8"x3-1/2"
- (G) 2 Eye Bars, 1-1/4"x5"
- (H) Pin, 3 1/2" ø
- (I) 2 Eye Bars, 1-1/4"x5"
- (J) 4 Eye Bars, 1-1/4"x4-1/2"
- (K) Diagonal Tie Rod, 1" ø
- (L) Longitudinal Tie Rod, 1-1/4" ø
- (M) Diagonal Tie Rod, 2-1/4"ø
- (N) Lateral Tie Rod, 2" ø
- (O) Lateral Tie Rod, 1-3/4" ø



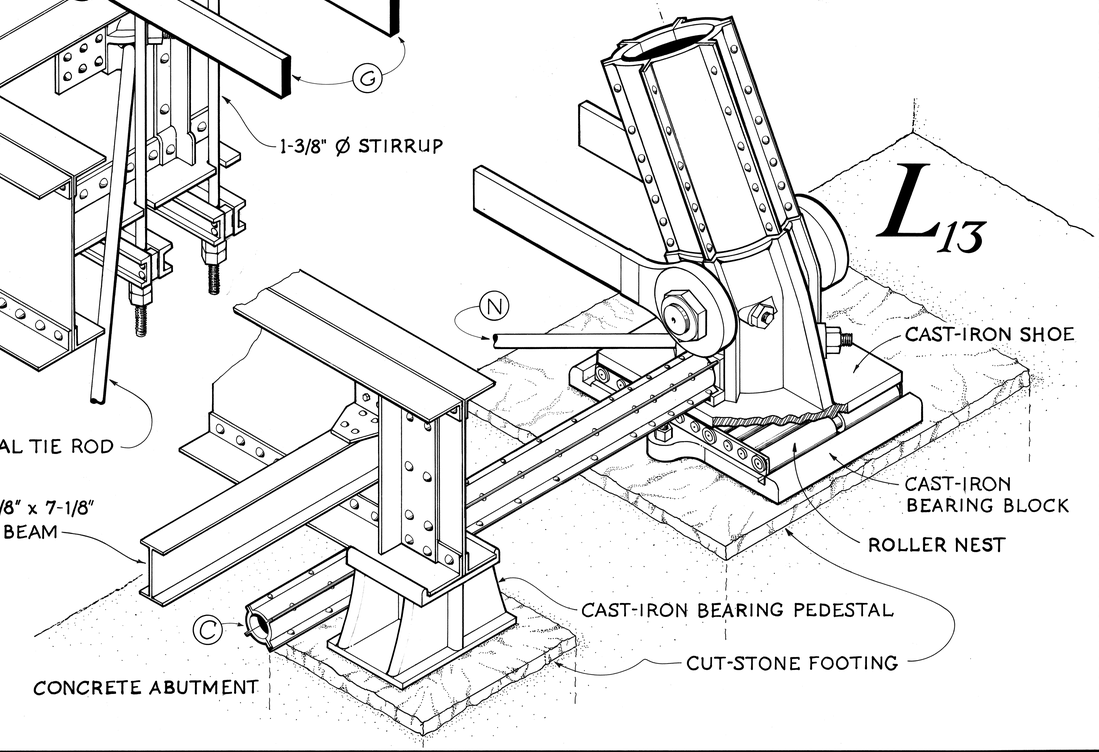






PHOENIX COLUMNS

Phoenix Columns take the compressive loads. These columns are formed from equal flanged segments of rolled wrought-iron, riveted through their flanges. The upper chord members are made up of six segments-15-7/8" Ø. Vertical posts are more slender, formed from four segments-8-1/4" Ø. Even smaller four segment members-6-7/16" Ø, provide lateral bracing in the plane of the upper chord. Raised lettering on the rolled segments confirm that columns were manufactured by the Phoenixville Iron Company, Philadelphia, Pennsylvania.



CONNECTION DETAILS

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NAME AND LOCATION OF STRUCTURE: HAYDEN BRIDGE – 1882
SPANNING THE McKENZIE RIVER, NORTHEAST OF SPRINGFIELD
LANE COUNTY OREGON

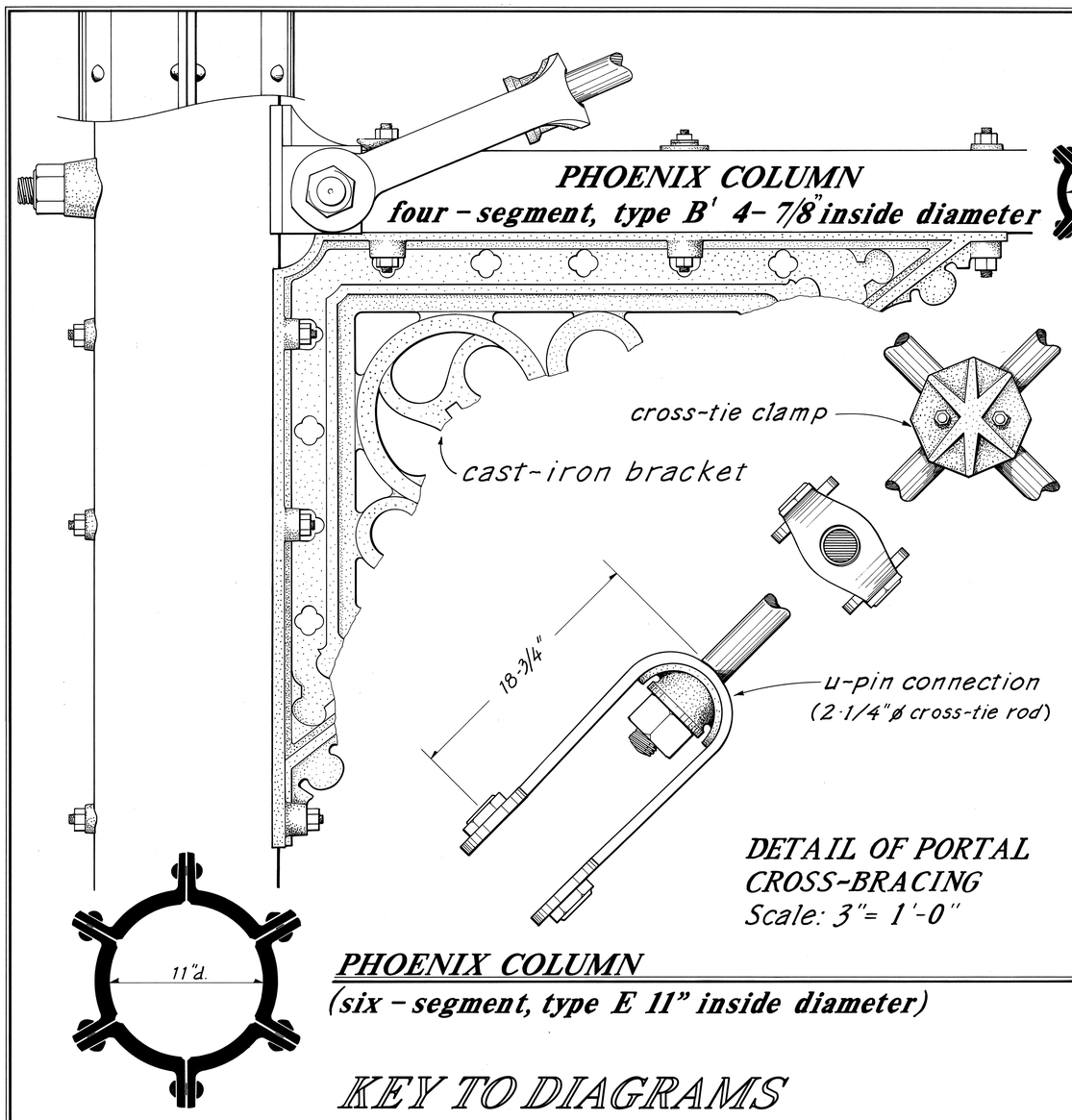
OREGON BRIDGES RECORDING PROJECT
NATIONAL PARK SERVICE
UNITED STATES DEPARTMENT OF THE INTERIOR

SPRINGFIELD

SHEET OF SHEETS 3 HAYDEN 4

HISTORIC AMERICAN ENGINEERING RECORD OR-19

DRAWING NUMBER 3



DETAIL OF PORTAL CROSS-BRACING
Scale: 3"= 1'-0"

PHOENIX COLUMN
(six - segment, type E 11" inside diameter)

KEY TO DIAGRAMS

1. ***LOWER CHORD EYE BAR SYSTEM***
   Resists bending forces, hence the greater number of eye-bars at mid-span.

2. ***PHOENIX COLUMN COMPRESSIVE SYSTEM***
   Transfers both live and dead loads to the abutment.

3. ***SWAY BRACING - UPPER PANEL***
   Diagonal tension rods resist wind loads and keep panel box shape rectilinear.

4. ***DIAGONAL EYE BARS***
   Transfer live loads from deck beams to Phoenix Column compressive system and resist shear stresses towards the end of truss.

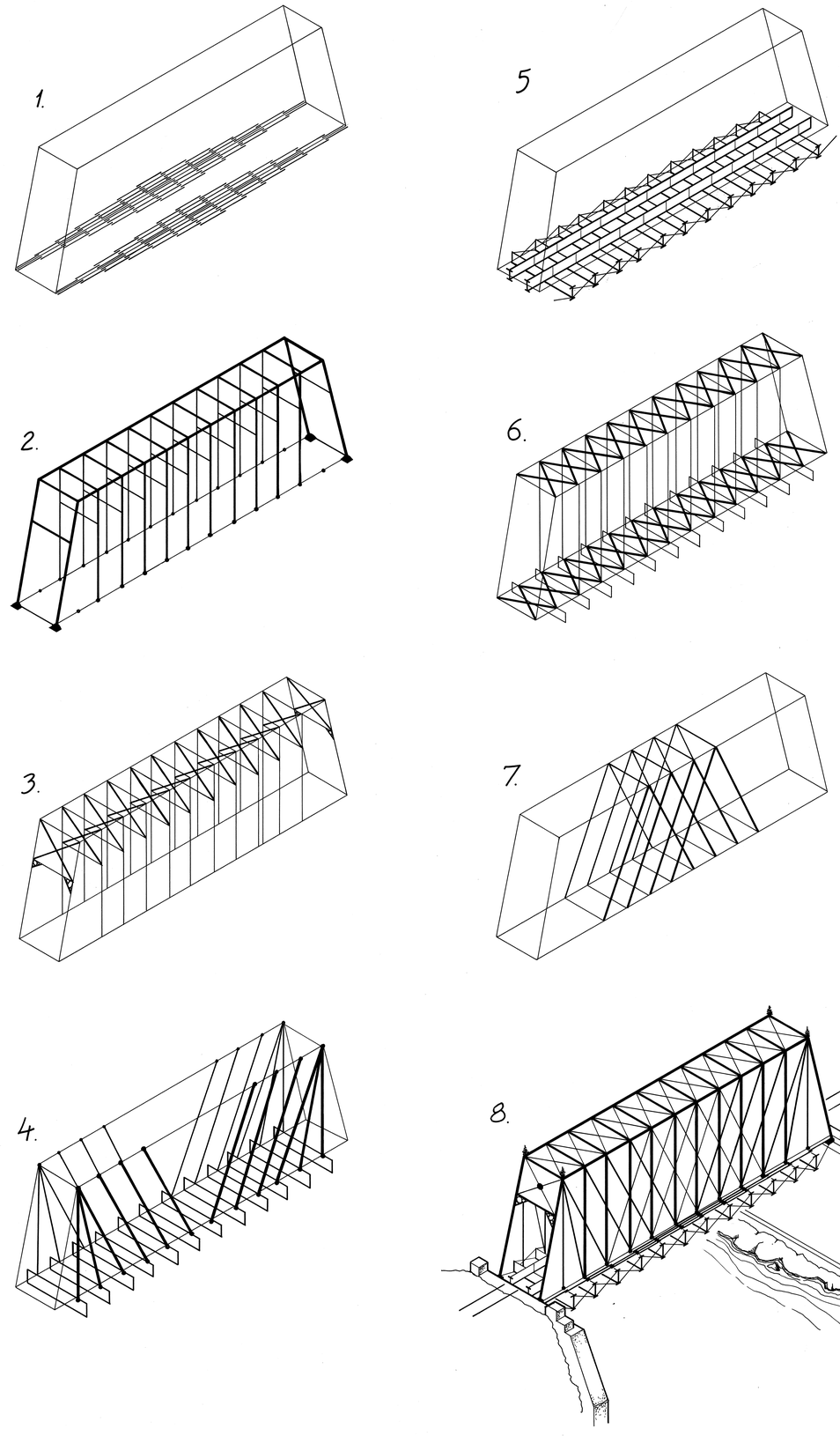
5. ***DECK BEAM SYSTEM***
   Longitudinal beams support timber cross-ties and rails, while transverse beams transfer the load to the truss. Diagonal tension rods keep deck beams parallel and vertical

6. ***LATERAL BRACING***
   Tension rods in the planes of the upper and lower chords resist wind load and keep panel box shape rectilinear.

7. ***SWAY BRACING***
   Diagonal rods at mid-span resist wind load and counter stresses caused by moving loads.

8. ***ASSEMBLED SUB SYSTEMS***

STRUCTURAL SUB-SYSTEMS



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OREGON BRIDGES RECORDING PROJECT
NATIONAL PARK SERVICE
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SPRINGFIELD

NAME AND LOCATION OF STRUCTURE
HAYDEN BRIDGE, 1882
SPANNING THE McKENZIE RIVER NORTHEAST OF SPRINGFIELD
LANE COUNTY

OREGON

SHEET 4 OF 4 SHEETS
4 HAYDEN 4

HISTORIC AMERICAN ENGINEERING RECORD
OR-19

DRAWING/PHOTO INDEX NUMBER