

ST JOHNS BRIDGE

Portland, Oregon
1931



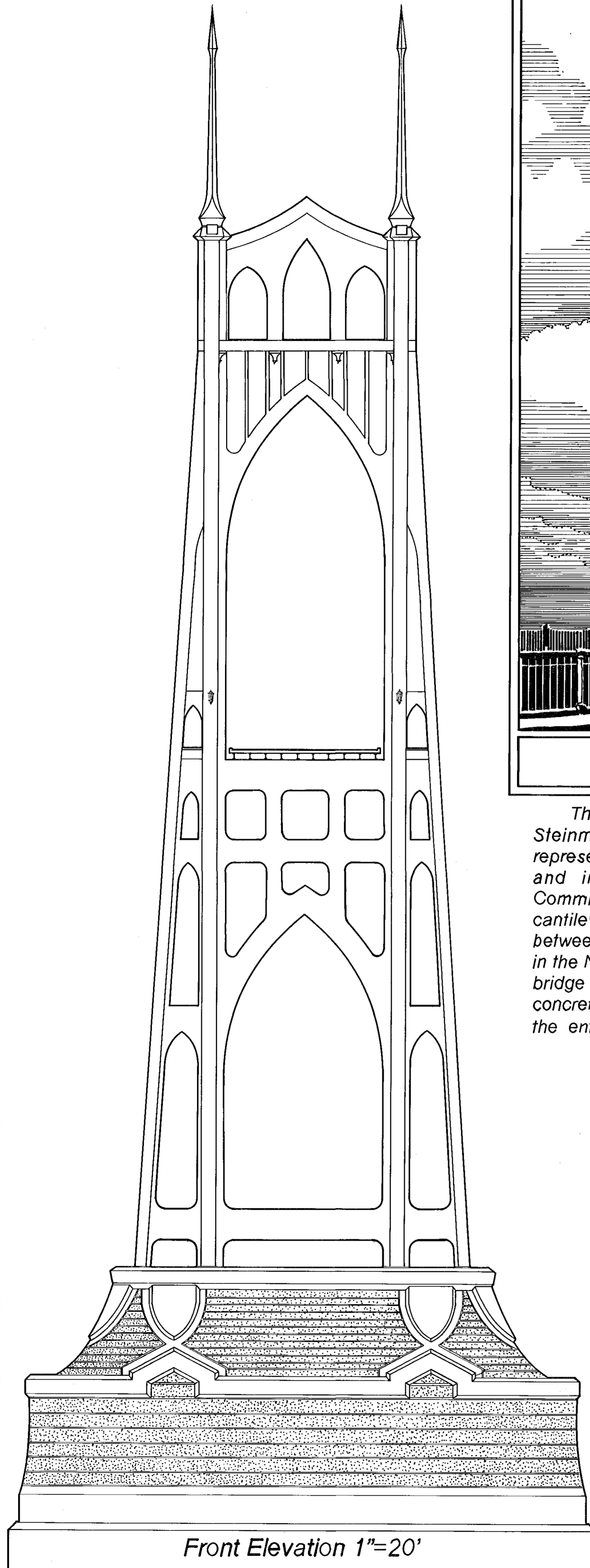
"A bridge is mathematics brought to life." -Steinman

The St. Johns Bridge, the work of master bridge engineer David B. Steinman, is significant for its design, construction methods, and representation among suspension bridges in the Trans-Mississippi West and in Oregon. In a national competition Multnomah County Commissioners selected engineer David B. Steinman to design either a cantilevered or suspension bridge over the Willamette River at a site between the communities of Linnton and St. Johns. Steinman, a principal in the New York firm of Robinson & Steinman, prepared drawings for both bridge types and his suspension design was chosen. In its steel and concrete architecture, the bridge reflected a bold Gothic arch motif unifying the entire span and the fifteen progressively taller piers of the east approach span. Built from 1929 to 1931, the St. Johns also set engineering records while featuring important engineering innovations.

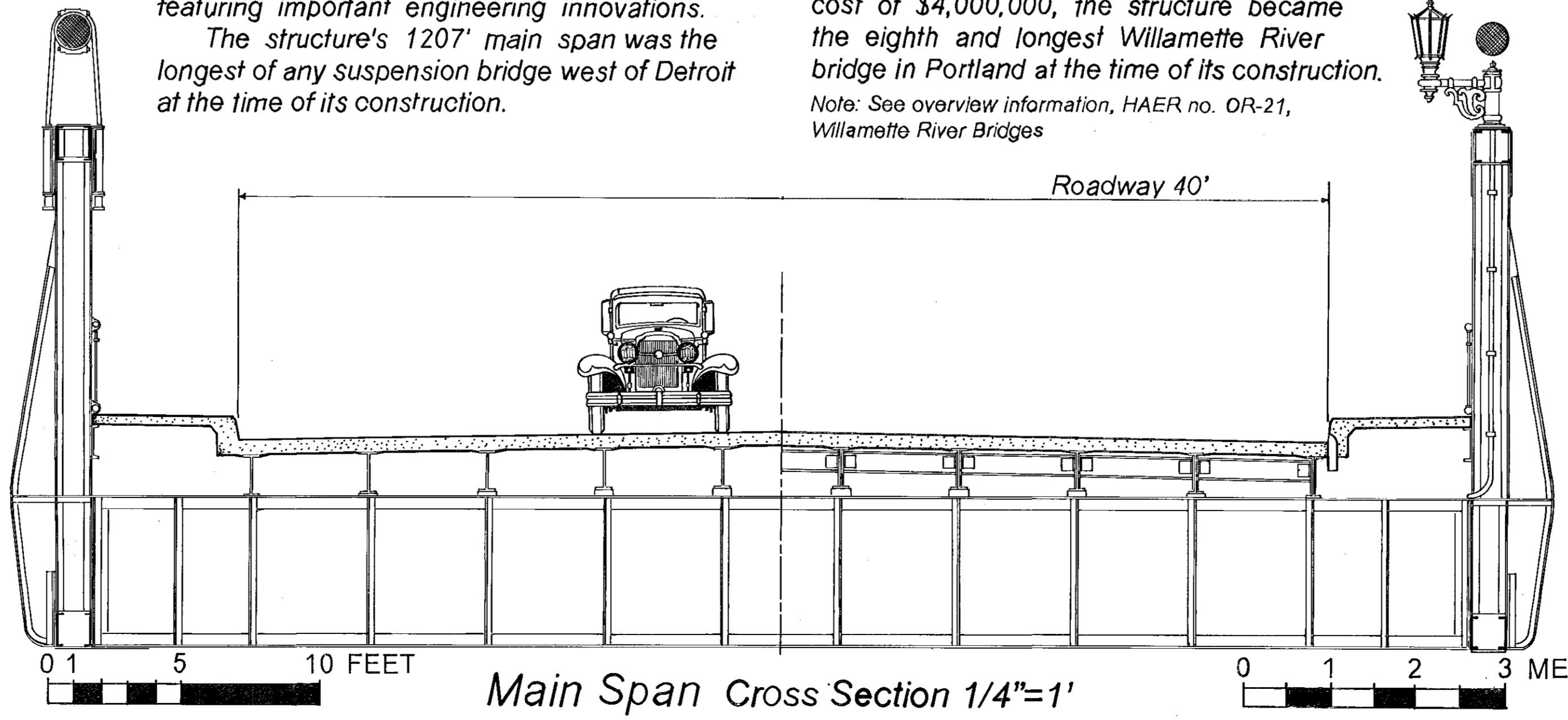
The structure's 1207' main span was the longest of any suspension bridge west of Detroit at the time of its construction.

Flanked by two 430'-3" long side spans, the bridge incorporated the world's largest and longest prestressed twisted rope strand cables. In addition to their extraordinary size, the technology represented a departure from conventional parallel wire construction. Another distinctive feature was the use of tall arch shaped concrete viaduct piers reinforced with structural steel frames. Pier number 10, with a height of 163', became the tallest reinforced concrete pier in the world. The 400' lofty towers were supported without use of traditional diagonal bracing, while the 205' underclearance above navigable water at center span was then a record. Nearing completion, it was announced on March 17, 1931 that the four lane bridge would be painted a distinctive color of verde-green to harmonize with the forested setting on the Linnton side of the river. Completed at a cost of \$4,000,000, the structure became the eighth and longest Willamette River bridge in Portland at the time of its construction.

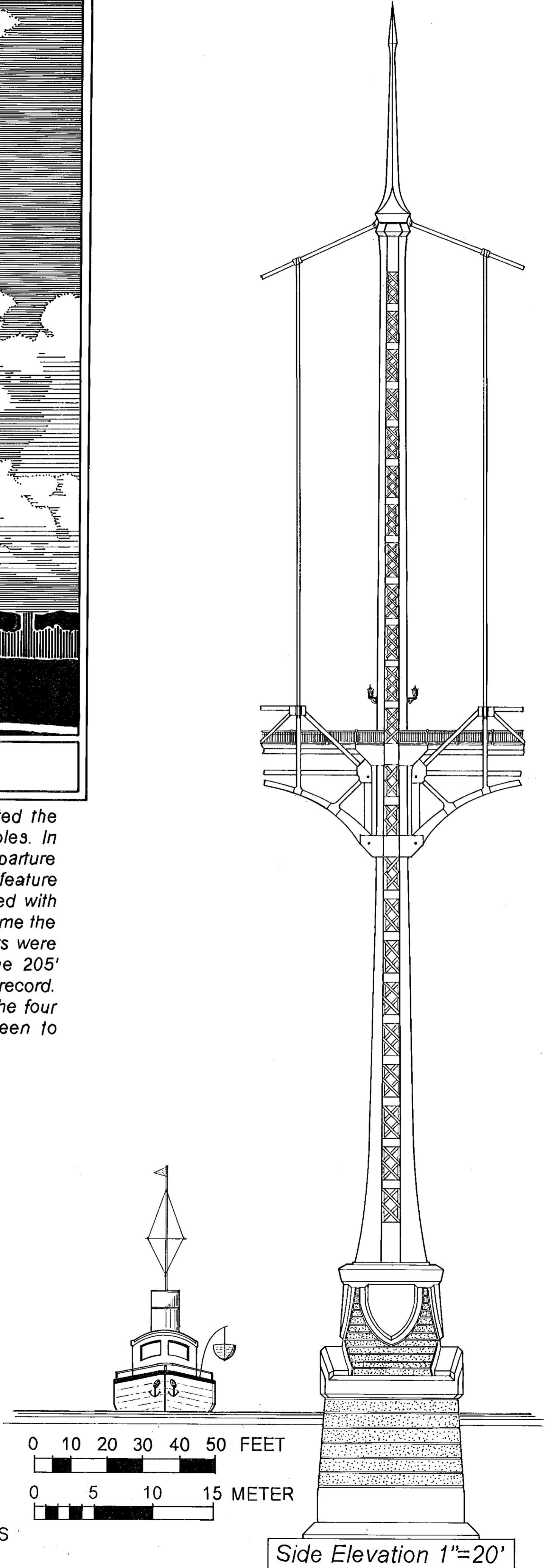
Note: See overview information, HAER no. OR-21, Willamette River Bridges



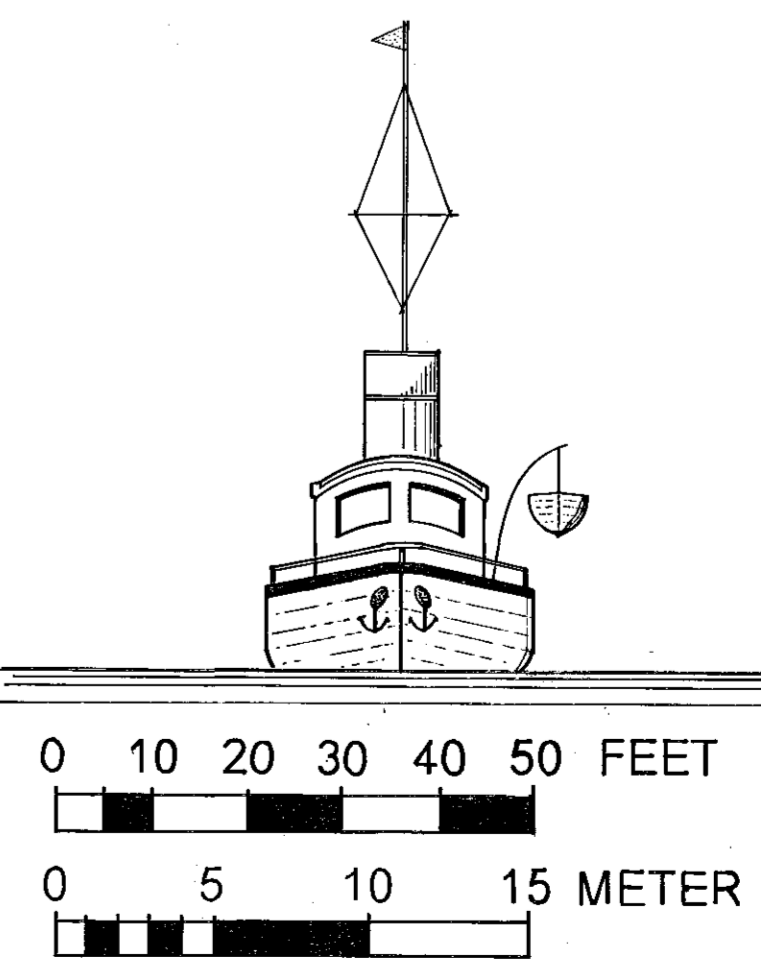
Front Elevation 1"=20'



Main Span Cross Section 1/4"=1'



Side Elevation 1"=20'



DELIMITED BY: NICHOLAS A. ZDYCZYNSKI, 1999
WILLAMETTE RIVER BRIDGES
RECORDING PROJECT
NATIONAL PARK SERVICE
UNITED STATES DEPARTMENT OF THE INTERIOR

ST. JOHNS BRIDGE - 1929 TO 1931
US 30 SPANNING THE WILLAMETTE RIVER
MULTNOMAH COUNTY

HISTORIC AMERICAN
ENGINEERING RECORD

SHEET
1 of 3

OREGON

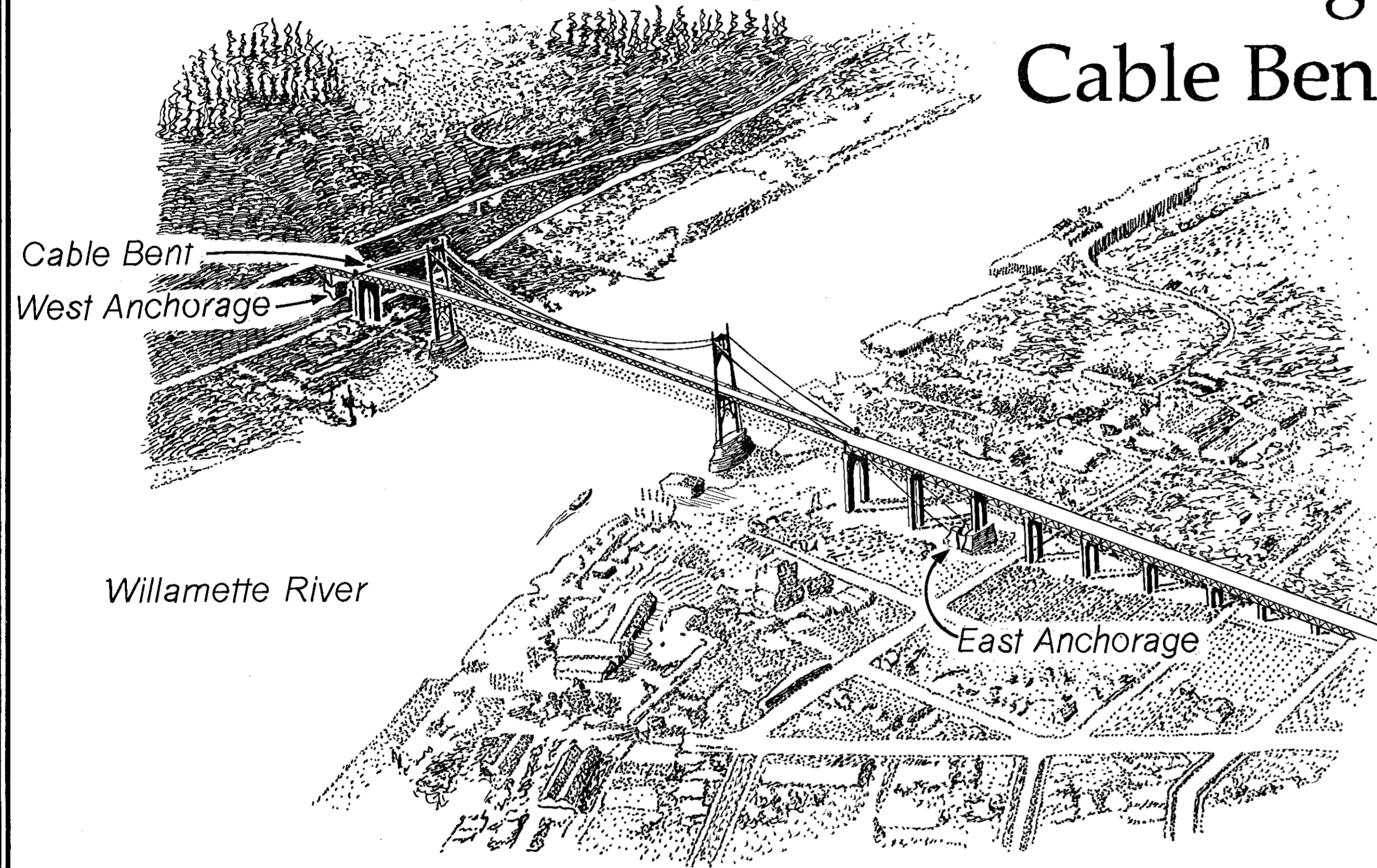
PORTLAND

OR - 40

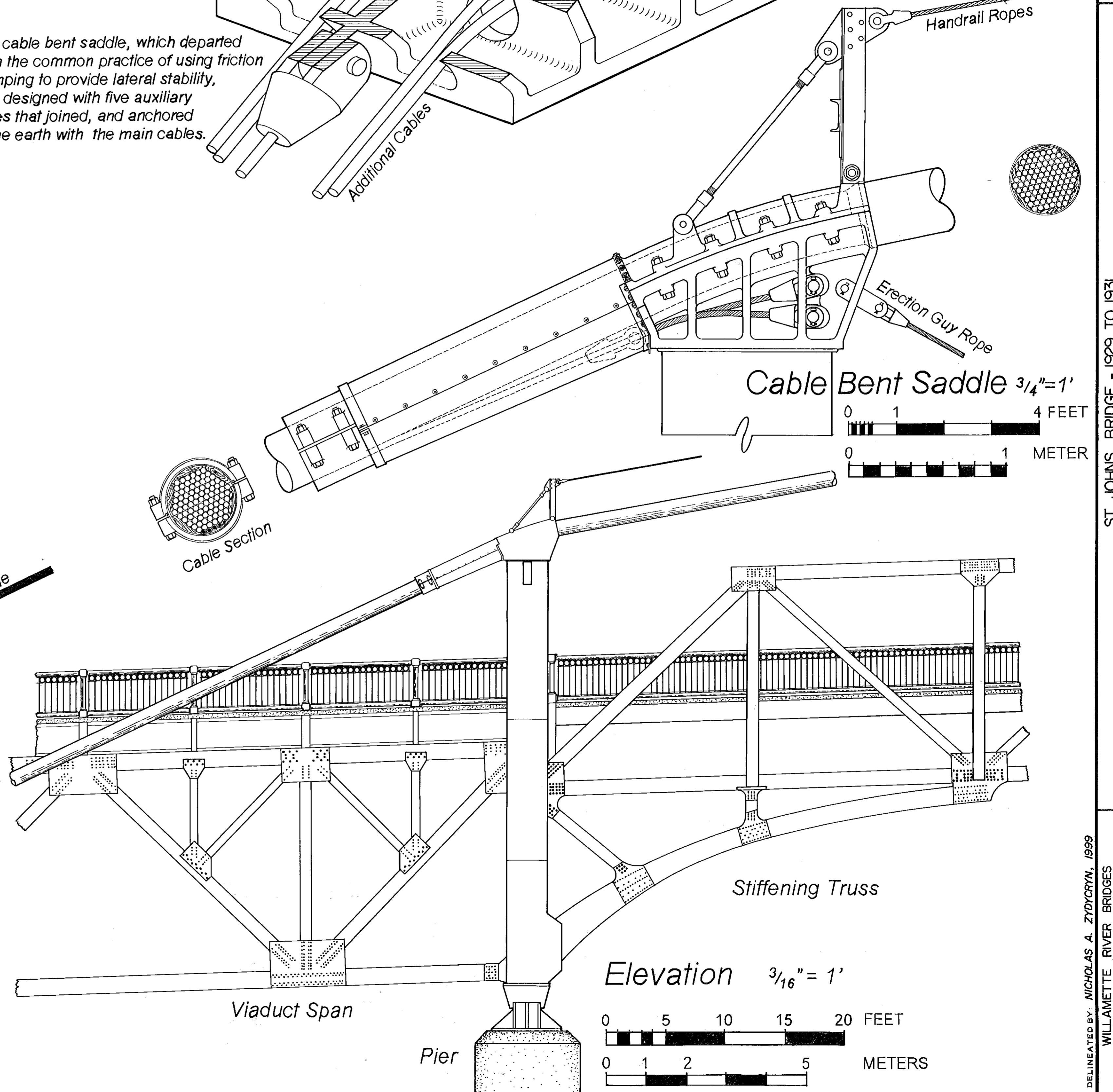
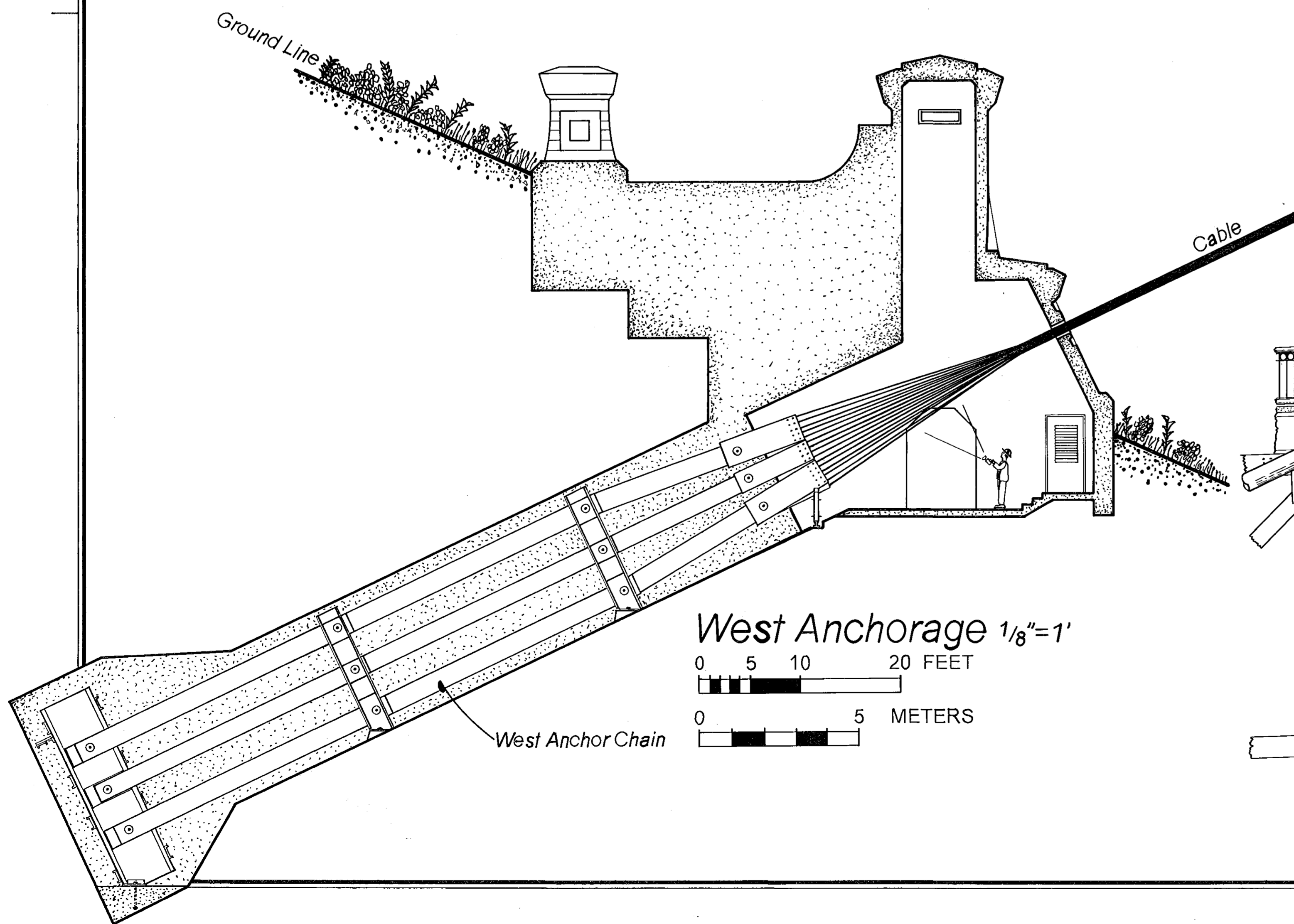
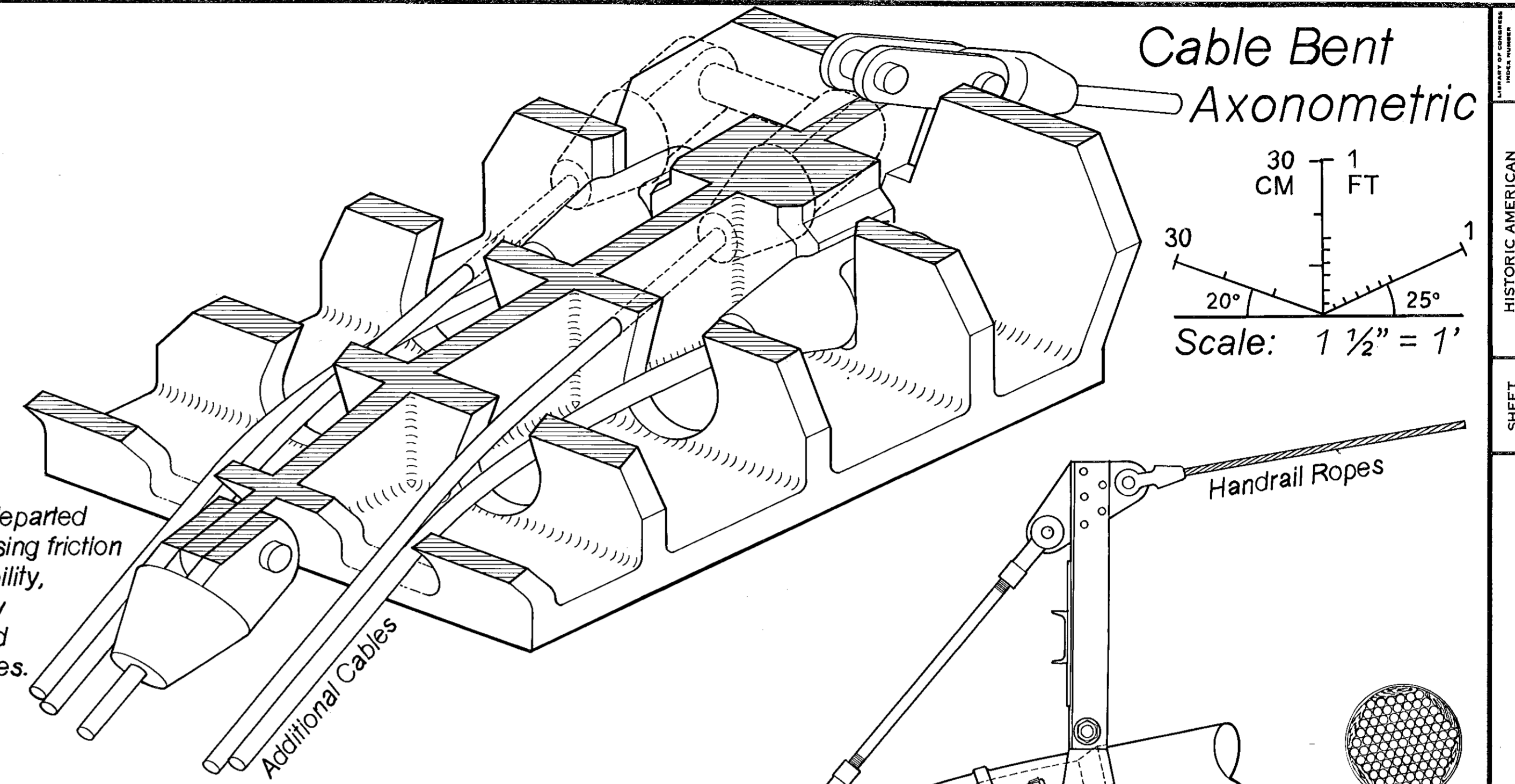
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St Johns Bridge

Details: West Anchorage & Cable Bent Saddle



The cable bent saddle, which departed from the common practice of using friction clamping to provide lateral stability, was designed with five auxiliary ropes that joined, and anchored to the earth with the main cables.

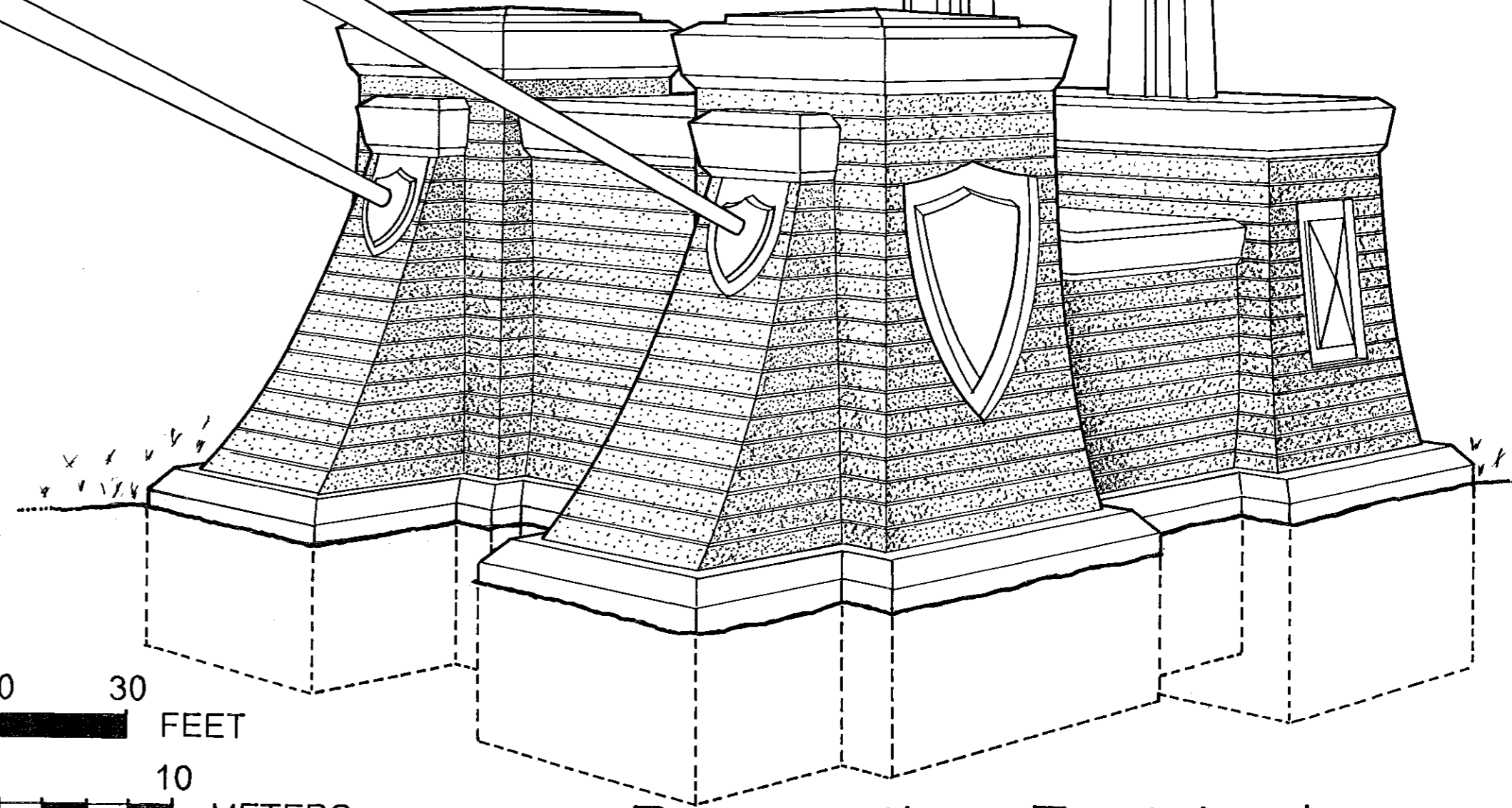
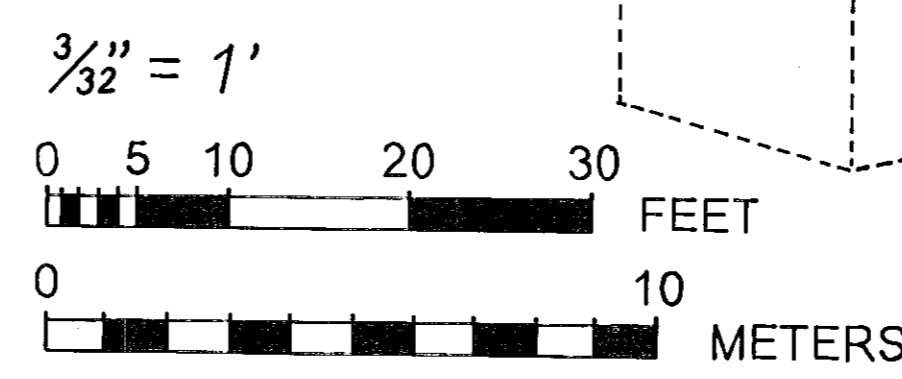
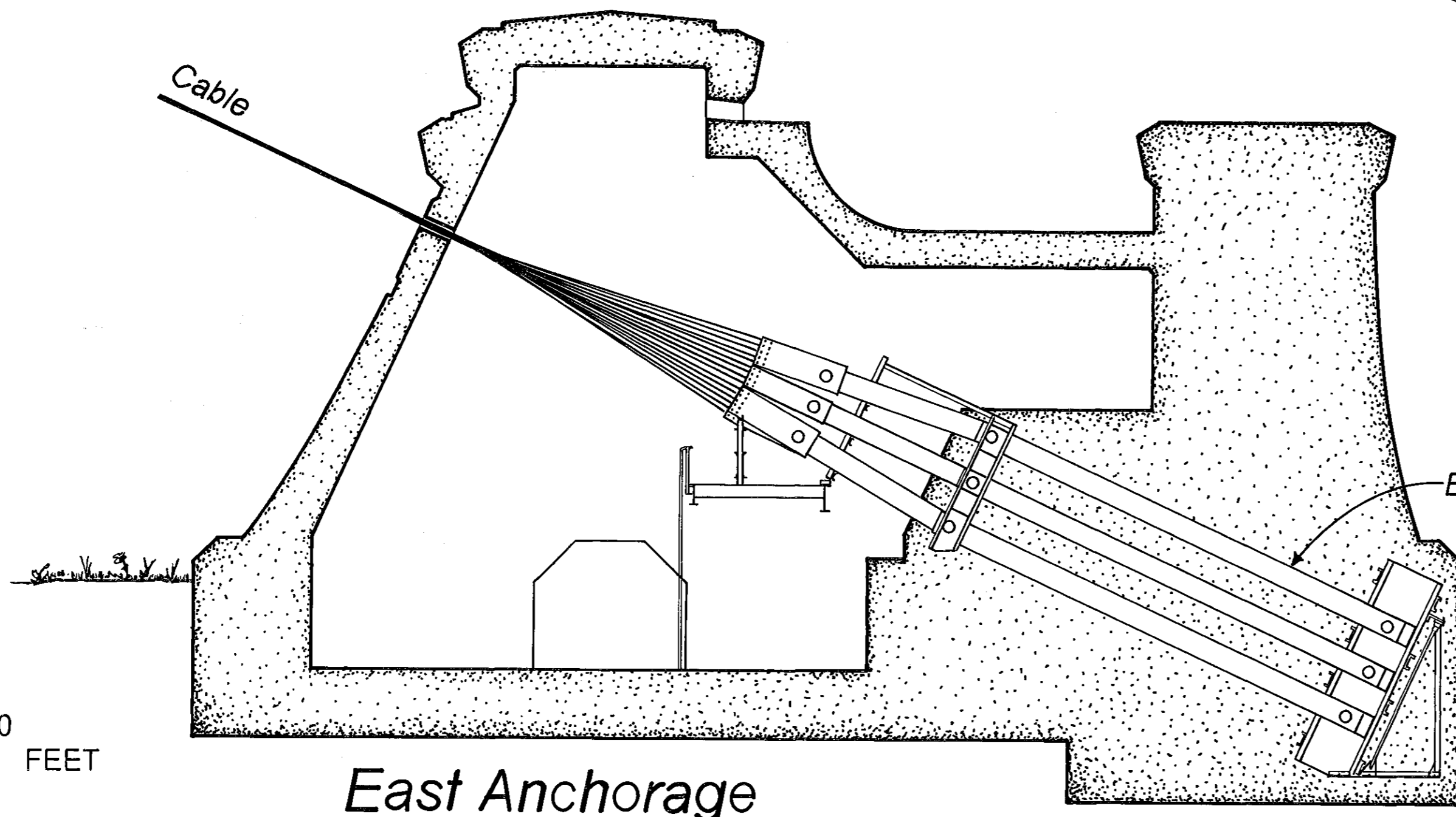
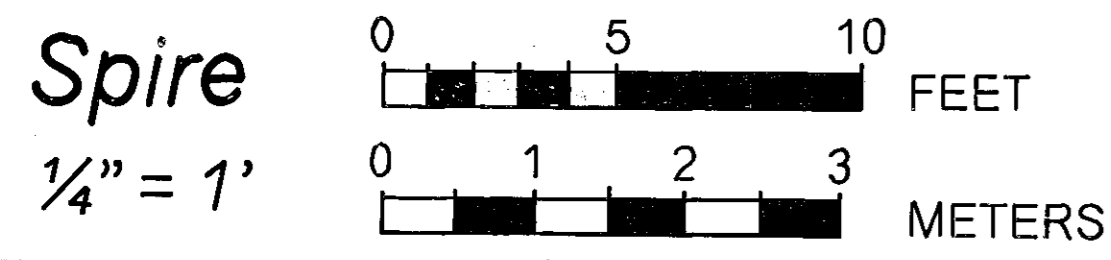
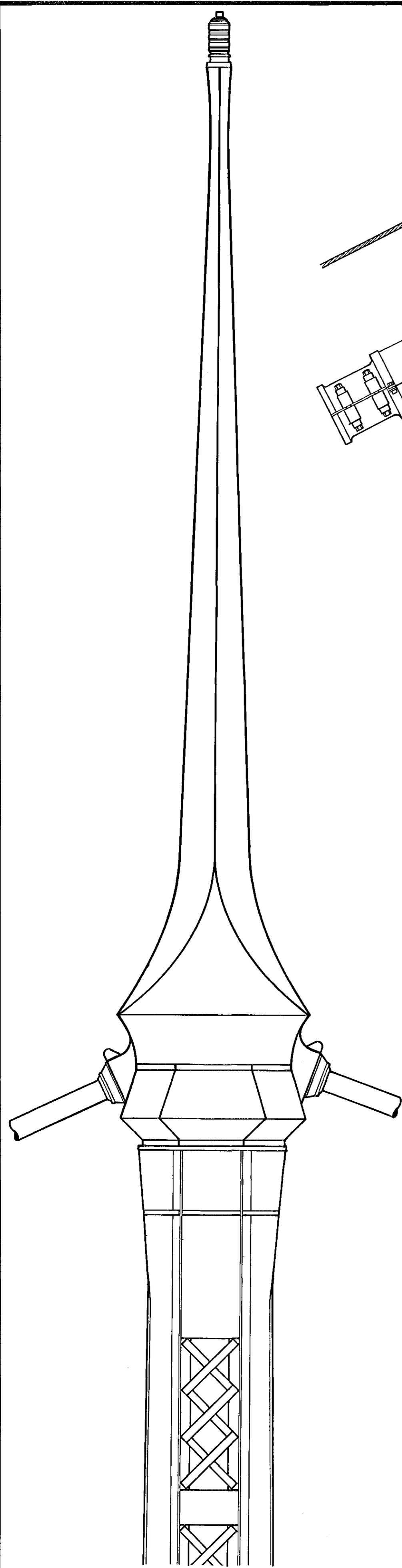
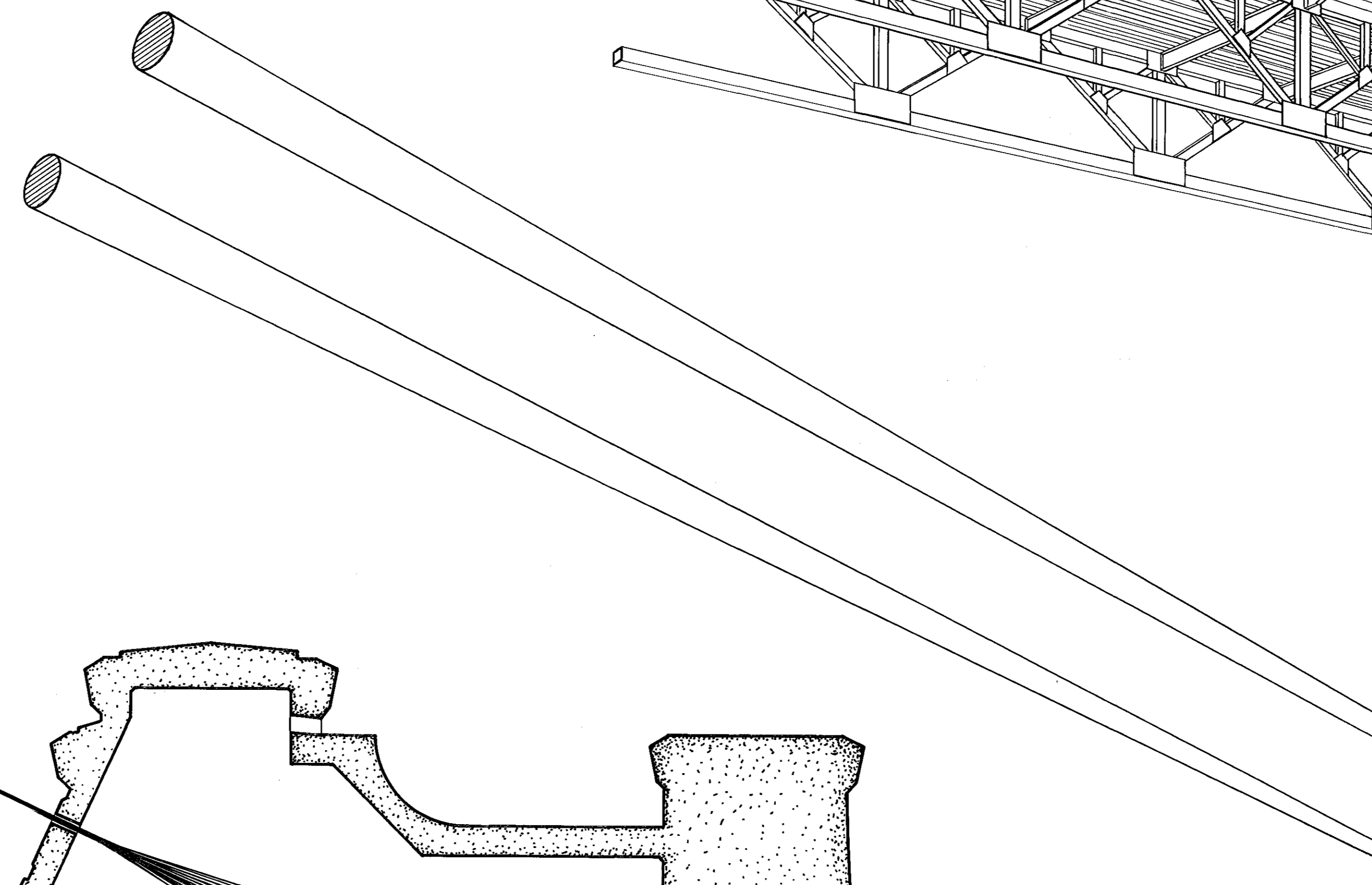
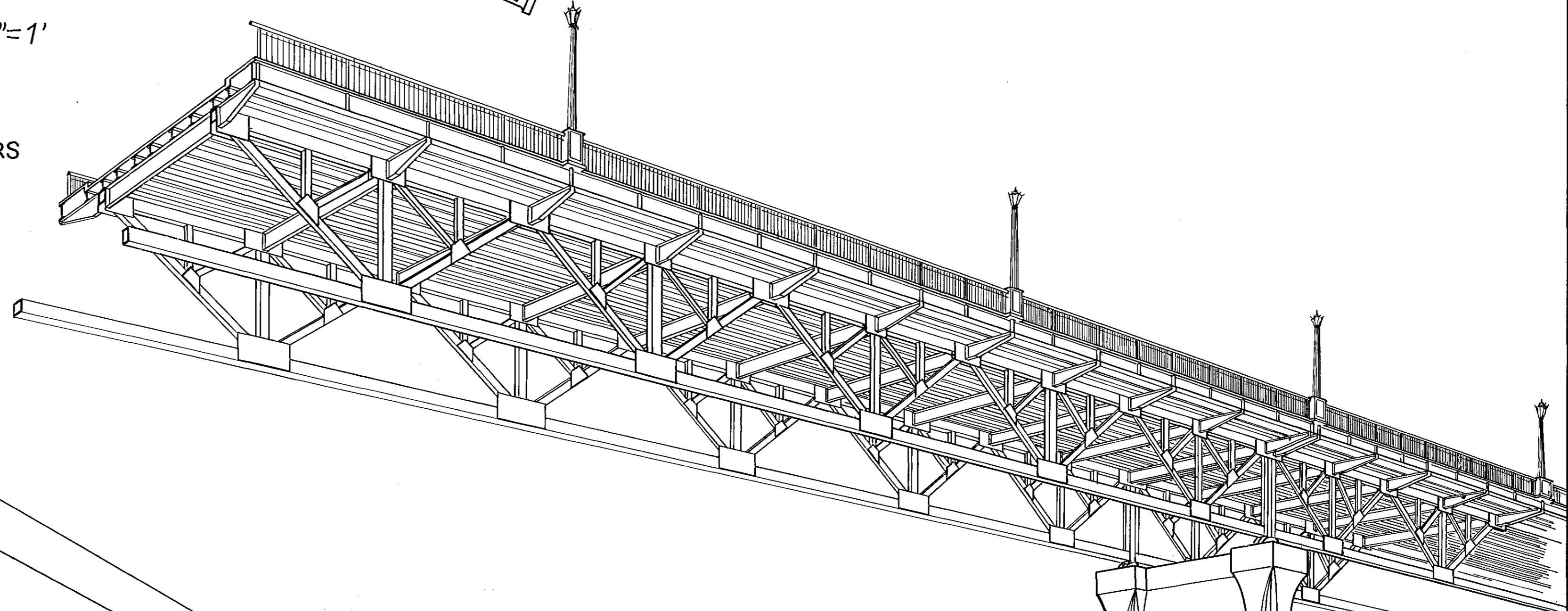
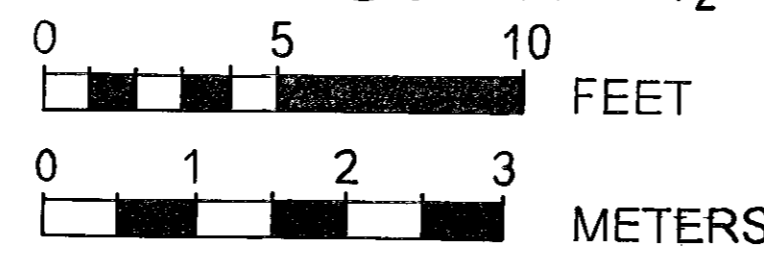
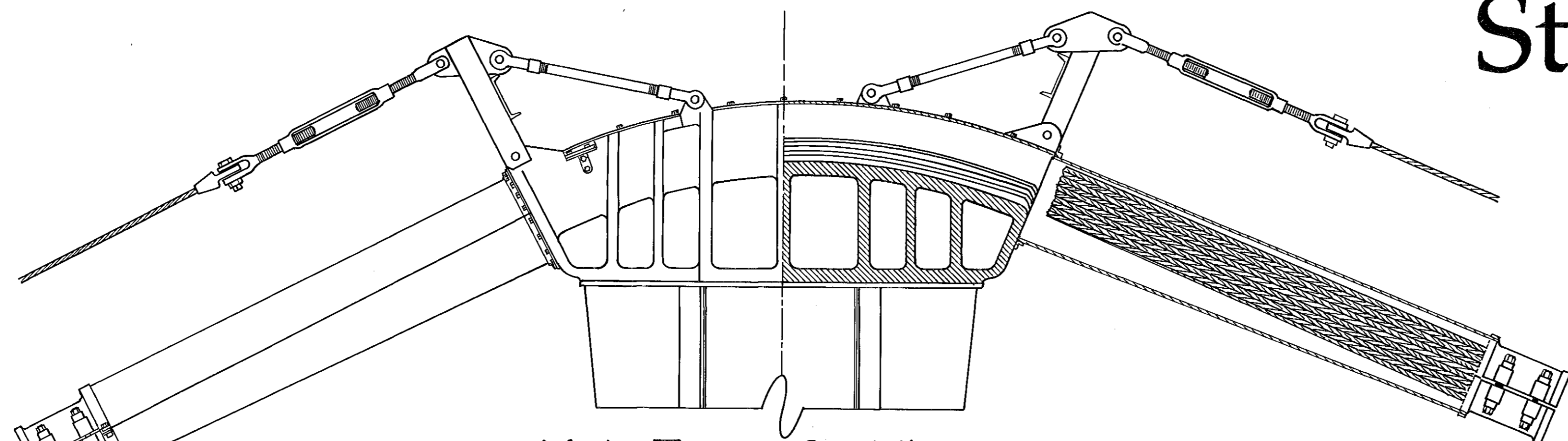


HISTORIC AMERICAN ENGINEERING RECORD
 SHEET 2 of 3
 OREGON
 ST. JOHNS BRIDGE - 1929 TO 1931
 US 30 SPANNING THE WILLAMETTE RIVER
 MULTNOMAH COUNTY
 PORTLAND
 DELINEATED BY: NICHOLAS A. ZYDYCZYNSKI, 1999
 WILLAMETTE RIVER BRIDGES
 RECORDING PROJECT
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 UNITED STATES DEPARTMENT OF THE INTERIOR
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TRIM LINE

St Johns Bridge

Spire & East Anchorage



Perspective: East Anchorage

DELINEATED BY: NICHOLAS A. ZYDORYN 1999
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ST. JOHNS BRIDGE - 1929 TO 1931
 US 30 SPANNING THE WILLAMETTE RIVER
 MULTNOMAH COUNTY

PORTLAND

HISTORIC AMERICAN ENGINEERING RECORD
 SHEET 3 OF 3
 OREGON OR - 40

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TRIM LINE