

CANADIAN NATIONAL RAILWAYS LOW LEVEL (Low Line) BRIDGE
(Old Canadian Northern Railway Freight Bridge)
EAST YARD, WINNIPEG

Date - 1913-14

Engineers - Strauss Trunnion Bascule Bridge Company, Chicago, Illinois
Canadian Bridge Company, Walkerville, Ontario (fabricators)
M.H. Macleod, Chief Engineer, Canadian Northern Railway
W.L. Mackenzie, Bridge Engineer
Ernest Brydone-Jack, Consulting Engineer

Builders - John Gunn Construction Company/W.J. Holmes, pile driving

Original Cost - \$108,351.69

Specifications - Classified by the Dominion Government as a "Heavy" bridge in their 1908 specifications. Single leaf Trunnion Bridge, lifting at its north end. This type of bridge is versatile, in that its design allows the main supporting beam to go from high to low river banks without substantial upbuilding. In this case, the Assiniboine River was classed as a navigable body of water by the Dominion Government, and the railway was required to build lift spans in place of a solid span wherever a bridge was considered low enough to cross such a body.

At the time, the Board of Railway Commissioners approved the erection of a single leaf trunnion bascule bridge. In short, this meant a bridge which had a break near its middle, with a lift span which opened like a horizontal door or draw bridge upon huge bronze pins known as trunnions. The lifting of the span was to be accomplished by the positioning of a huge concrete counterweight near the south end of the north approach to the bridge. This was augmented by electric motors which lifted the draw bridge section via large gears. This allowed any river traffic to pass the bridge unimpeded. The draw-bridge originated in Medieval times as a protection for castles. Centuries of refinement followed, which led to the first usage of the Strauss Trunnion Bascule Bridge in Chicago in the mid-1890s. Indeed, Chicago became somewhat of a showcase for these structures, eventually possessing several of them. This type of bridge, by 1910, had become very common in the United States, and was by then, having its impact felt north of the border in Canada. The bascule bridge eventually technologically replaced swing spans such as the Redwood Bridge (1908) or the Bergen Cut-off Bridge (1907) at Winnipeg.

History - The Assiniboine River was first bridged at this spot during 1888 when the Northern Pacific and Manitoba Railway (NPMR) constructed a wooden lift span, known as a Howe Truss Bridge, as a part of its main line into Winnipeg. This gave the NP&M Rwy access to Winnipeg from the south, traversing what is now the CNR East Yard, and winding up at the Freight Sheds and Station which were built the following year on Water Street. This trackage also led to the NP&M Rwy's workshops and roundhouse near the Red River bank (presently the old Bridges and Structures Building).

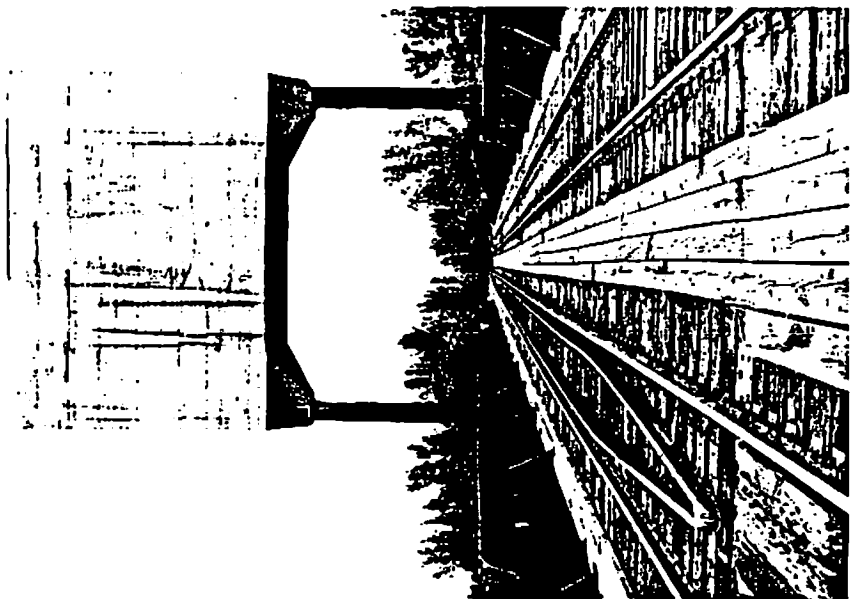
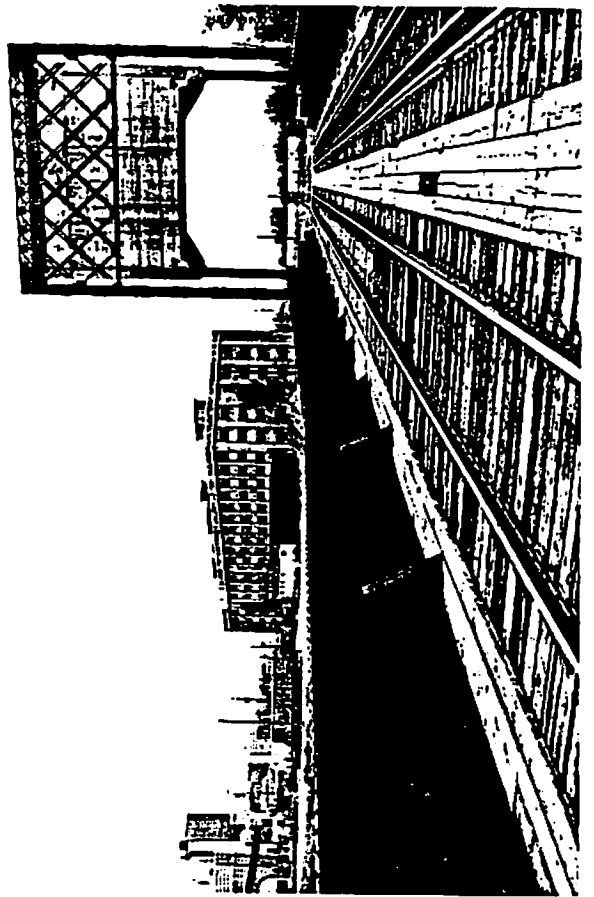
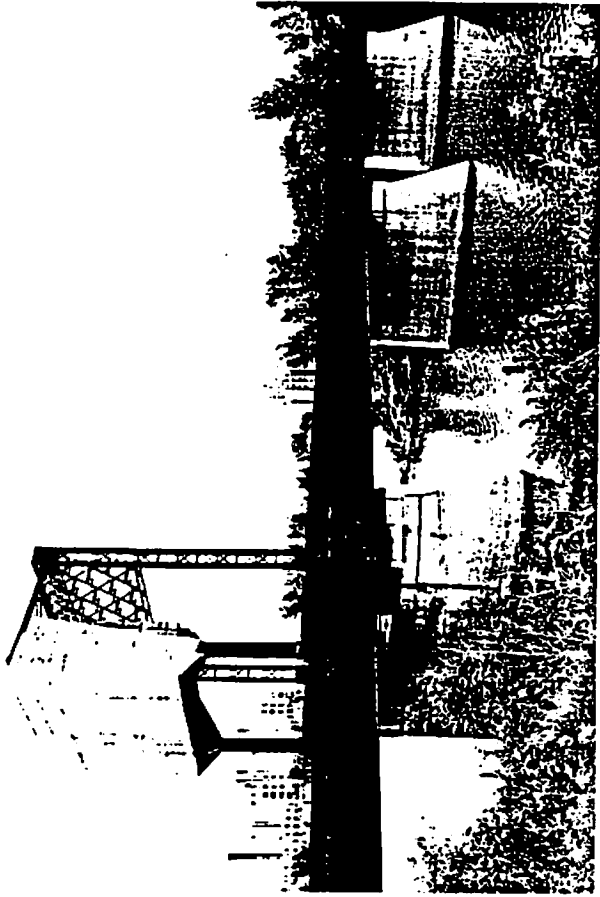
Various financial misfortunes spelled the end of the NP&M Rwy, which parent company eventually retreated back to the United States. In 1901, their various lines were leased to Mackenzie and Mann under the title of the Canadian Northern Railway. It was this latter firm which rearranged the yards and expanded the operation into the present East Yard, along with the larger workshops, etc. at Fort Rouge around 1905-06. By 1907, when planning was well advanced for the Union Terminals of the Canadian Northern and Grand Trunk Pacific Railways, the existing wooden Howe Truss Bridge was quite obsolete for the vastly increased traffic use.

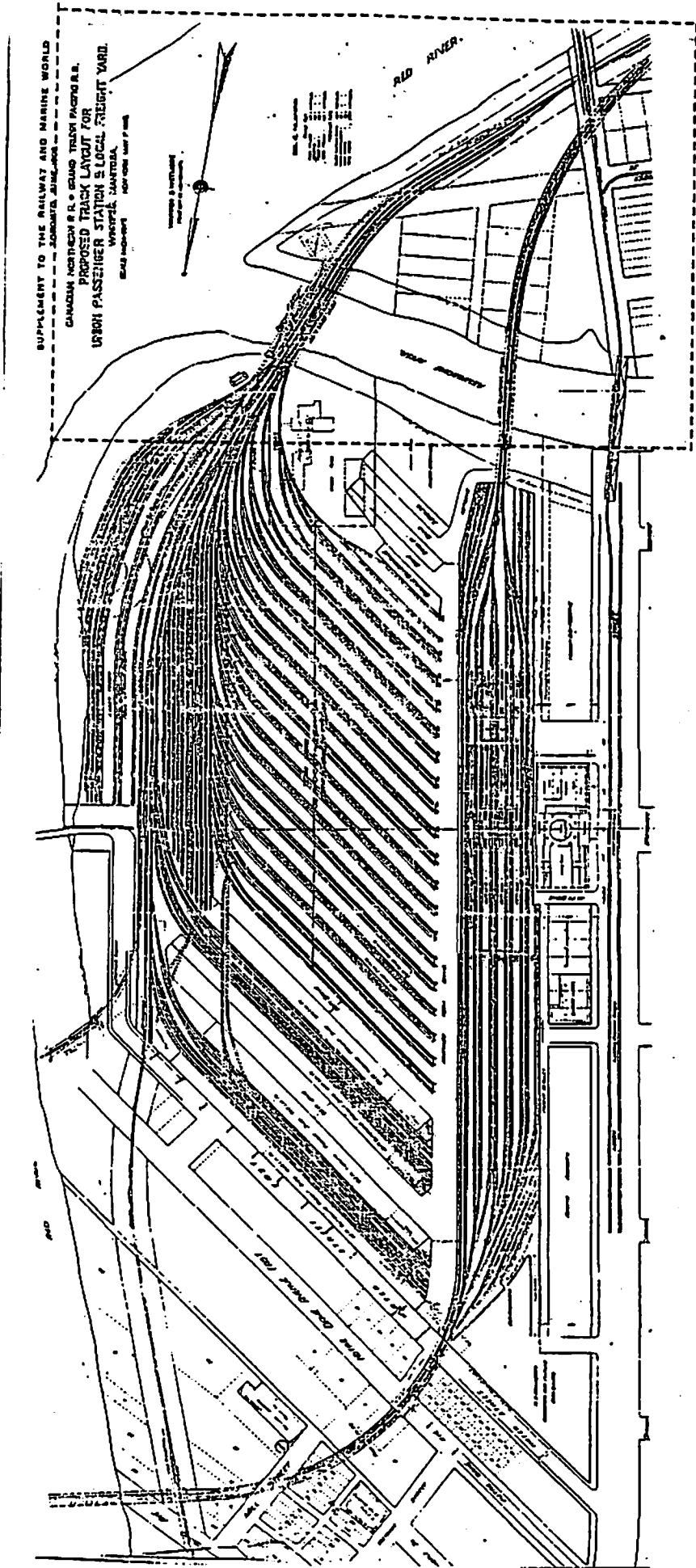
Accordingly, a new passenger bridge, built on the bascule lift system, was constructed during 1909-10. This has subsequently come to be termed the High Level Bridge. Plans were made for a new freight bridge to replace the 1888 structure, but did not come to fruition until 1912 when the Board of Railway Commissioners authorized the erection of the present Low Level Bridge just to the west of the old structure. Construction began early in 1913 and was substantially completed by the end of 1914. This bridge was in constant use for freight trains until the Symington Yard facility was opened in the 1960s. Since then, along with the rest of the East Yard, it has been the victim of diminishing usage. Indeed, it has been many years since its lift span was raised. Officially, this is yet an operating bridge, for the Board of Railway Commissioners has not yet ordered its closure as a lift span.

Contemporary Examples - In terms of railway bridges, this is the only known surviving intact example in Manitoba of a Bascule bridge in the Canadian National system. Aside from an unpublished Historic Resources Branch work performed by Rodger Letourneau, entitled "Manitoba's Railways", little is known about other such structures in the Canadian Pacific system. From Letourneau's extensive gathering, however, it is suspected that there are no existing bascules in the CP collection for Manitoba. A partially intact bascule is near the Low Level Bridge, and this is the Passenger Bridge to the Union Station. The counterweight from this structure was removed in 1946, the order for its closure coming late the previous year.

In terms of non-railway traffic bascule bridges, Provencher Bridge (1914-15), Winnipeg/St. Boniface comes immediately to mind. This is a double trunnion bridge, lifting two decks from the middle to effect boat passage. This structure, like the Low Level Bridge, has not operated in many years. It differs from the Low Level Bridge in that its counterweighting is beneath the structure, whereas the railway version relies upon the rather huge concrete weight overhead.

Significance/Context - The old Freight Bridge represents the latter part of the first phases of Canadian Northern's expansion of rail facilities and associated labour components in Winnipeg. Where the NPMR had broken the monopoly of the CPR with its entry into Manitoba, the Canadian Northern opened up the central and northern sections of Manitoba to settlement in the era prior to World War I. The railway bridges, like the Union Station, are symbolic reminders of that last great settlement boom. Indeed the historical interpretive themes here are fivefold: a) railway-transportation themes, b) engineering themes, c) settlement themes, d) work life and culture themes, and c) business history themes.





Warren and Wetmore's designs for the present Canadian National East Yards. The two Bascule Bridges are shown to the right, and the area outlined thus-----, is shown enlarged on the next page. (Source: Railway and Marine World, June 1908.)

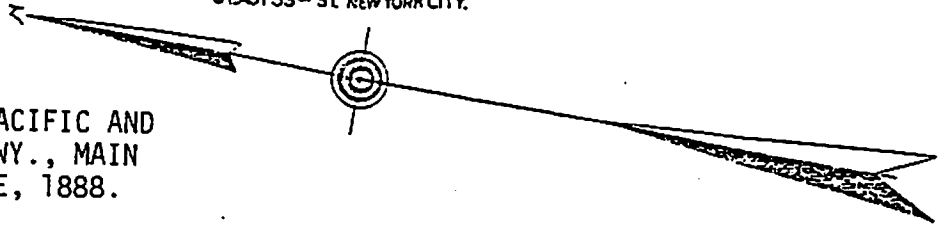
PROPOSED TRACK LAYOUT FOR UNION PASSENGER STATION & LOCAL FREIGHT YARD. WINNIPEG, MANITOBA.

SCALE FINCH-50 FT.

NEW YORK MAY 1st 1908.

WARREN & WETMORE

3 EAST 33rd ST. NEW YORK CITY.

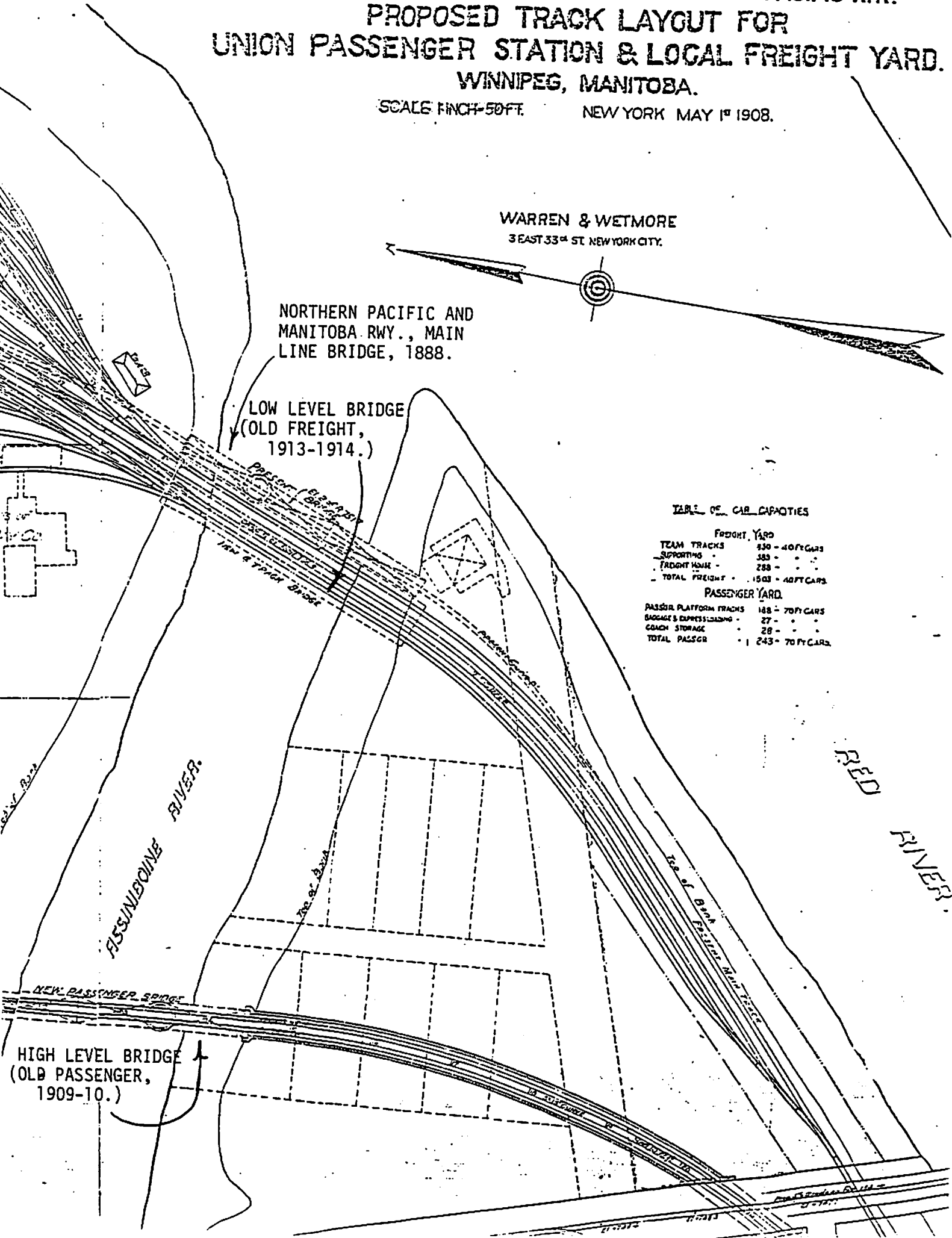


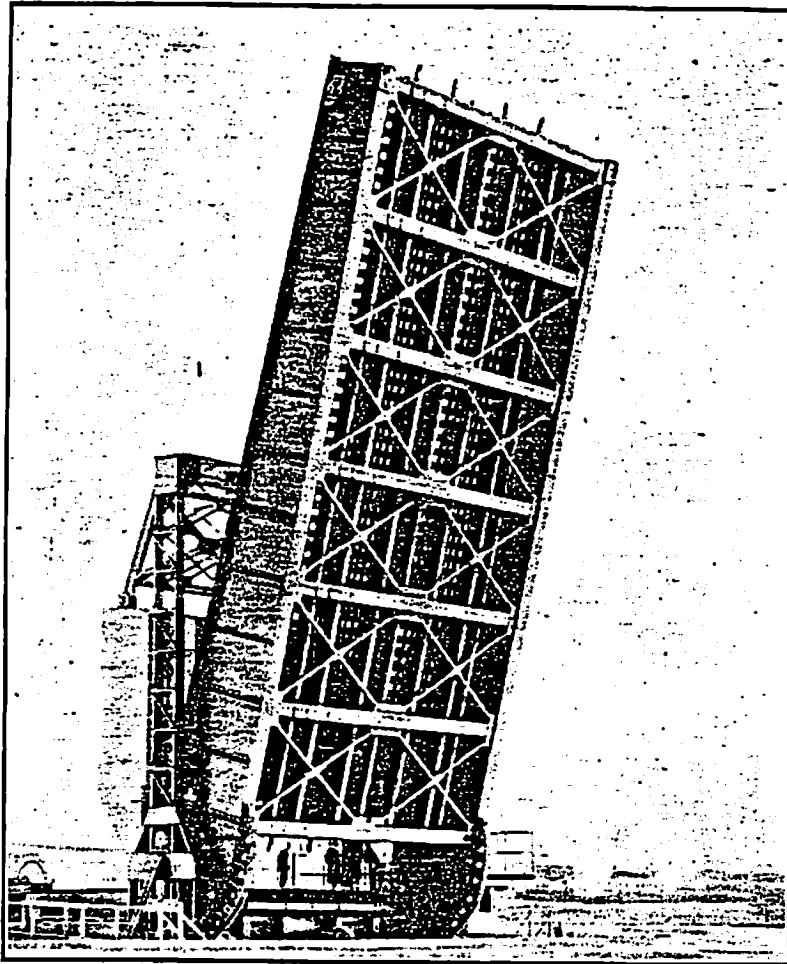
NORTHERN PACIFIC AND
MANITOBA R.WY., MAIN
LINE BRIDGE, 1888.

LOW LEVEL BRIDGE
(OLD FREIGHT,
1913-1914.)

TABLE OF CAR CAPACITIES

FREIGHT YARD	
TEAM TRACKS	530 - 40 FT CARS
SUPPORTING	383 - " "
FREIGHT HOUSE	288 - " "
TOTAL FREIGHT	1501 - 40 FT CARS
PASSENGER YARD	
PASSNGR PLATFORM TRACKS	188 - 70 FT CARS
BAGGAGE & EXPRESS LANDING	27 - " "
CATCH STORAGE	28 - " "
TOTAL PASSENGER	243 - 70 FT CARS





Courtesy of The Strauss Engineering Corporation.

FIG. 41.—Manchester Bridge, Boston and Maine Railroad.

A Strauss Trunnion Bascule Bridge, similar to the Canadian Northern Freight Bridge at Winnipeg.
(Source: Thomas Clark Shedd, Structural Design in Steel. New York: John Wiley & Sons, 1946.)