

**United States Department of the Interior
National Park Service**

**National Register of Historic Places
Continuation Sheet**

Section number _____ Page _____

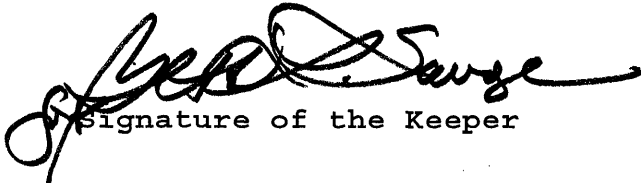
SUPPLEMENTARY LISTING RECORD

NRIS Reference Number: 05001048 Date Listed: 9/15/05

New Haven Railroad Danbury Turntable Fairfield CT
Property Name County State

N/A
Multiple Name

This property is determined eligible for listing in the National Register of Historic Places in accordance with the attached nomination documentation subject to the following exceptions, exclusions, or amendments, notwithstanding the National Park Service certification included in the nomination documentation.


Signature of the Keeper

9-15-05
Date of Action

=====

Amended Items in Nomination:

Level of Significance

The appropriate level of significance for this property is "statewide."

Photographs

The photographs were processed in accordance with the March 2005 Photo Policy Expansion, specifically: Hewlett-Packard Premium Plus Glossy paper; HP Vivera tri-color ink, cartridge 97; HP photo-gray ink, cartridge 100; using an HP 6800 printer. Disc with images has also been transmitted.

This information has been confirmed with Matt Blood, National Register Coordinator, CTSHP, and the nomination preparer, Bruce Clouette.

**DISTRIBUTION: National Register property file, Nominating Authority
(without attachment)**

**United States Department of the Interior
National Park Service**

**National Register of Historic Places
Registration Form**

This form is for use in nominating or requesting determinations for individual properties and districts. See instructions in *How to Complete the National Register of Historic Places Registration Form* (National Register Bulletin 16A). Complete each item by marking "x" in the appropriate box or by entering the information requested. If an item does not apply to the property being documented, enter "N/A" for "not applicable". For functions, architectural classification, materials, and areas of significance, enter only categories and subcategories from the instructions. Place additional entries and narrative items on continuation sheets (NPS Form 10-900a). Use a typewriter, word processor, or computer to complete all items.

1. Name of Property

historic name NEW HAVEN RAILROAD DANBURY TURNTABLE
other names/site number Danbury Railway Museum Turntable

2. Location

street & number 120 White Street not for publication
city or town Danbury vicinity
state Connecticut code CT county Fairfield code 001 zip code 06810

3. State/Federal Agency Certification

As the designated authority under the National Historic Preservation Act, as amended, I hereby certify that this nomination request for determination of eligibility meets the documentation standards for registering properties in the National Register of Historic Places and meets the procedural and professional requirements set forth in 36 CFR Part 60. In my opinion, the property meets does not meet the National Register criteria. I recommend that this property be considered significant nationally statewide locally. (See continuation sheet for additional comments.)

Jennifer Aniskovich 7/29/05
Signature of certifying official/Title Date
Jennifer Aniskovich, Executive Director, Connecticut Commission on Culture & Tourism
State or Federal agency and bureau

In my opinion, the property meets does not meet the National Register criteria. (See continuation sheet for additional comments.)

Signature of certifying official/Title Date

State or Federal agency and bureau

4. National Park Service Certification

- I hereby certify that the property is:
- entered in the National Register.
 See continuation sheet.
 - determined eligible for the National Register.
 See continuation sheet.
 - determined not eligible for the National Register.
 - removed from the National Register.
 - other, (explain): _____

[Signature] 9-15-05
Signature of the Keeper Date of Action

New Haven Railroad Danbury Turntable
Name of Property

Fairfield County, CT
County and State

5. Classification

Ownership of Property

(Check as many boxes as apply)

- private
- public-local
- public-State
- public-Federal

Category of Property

(Check only one box)

- building(s)
- district
- site
- structure
- object

Number of Resources within Property

(Do not include previously listed resources in the count)

Contributing	Noncontributing	
0	0	buildings
0	0	sites
1	0	structures
0	0	objects
1	0	Total

Name of related multiple property listing

(Enter "N/A" if property is not part of a multiple property listing.)

N/A

Number of contributing resources previously listed in the National Register

0

6. Function or Use

Historic Functions

(Enter categories from instructions)

TRANSPORTATION: rail-related

Current Functions

(Enter categories from instructions)

RECREATION AND CULTURE: museum

7. Description

Architectural Classification

(Enter categories from instructions)

Other: center-bearing deck girder

Materials

(Enter categories from instructions)

foundation Concrete

walls N/A

roof N/A

other Steel (girder)

Narrative Description

(Describe the historic and current condition of the property on one or more continuation sheets.)

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**New Haven Railroad Danbury Turntable
Danbury, Fairfield County, Connecticut**

Description:

The turntable at the Danbury Railway Museum, built in 1916 by the New York, New Haven, and Hartford Railroad (commonly called the New Haven Railroad), is situated several hundred yards east of the former Danbury passenger station at 120 White Street. The turntable's immediate setting consists of level ground traversed by several nearby railroad tracks, some of which are used for museum operations and others for train storage by Metro North Commuter Railroad, which operates passenger service to Danbury. The Still River flows just to the south of the site, while the densely built commercial center of Danbury lies just to the west. The turntable is still in use as an activity ride for museum visitors and also to turn the museum's rolling stock when needed. A safety barrier consisting of steel rods set into wooden ties encircles the turntable to protect visitors from accidental injury.

The turntable (Photographs 1 and 2) consists of a center-bearing riveted deck plate girder revolving within a circular reinforced-concrete pit. The girder is 95' 4" in length, with a depth that tapers from 7' 6" in the center to 4' at the ends. Angle-section stiffeners appear at intervals of 40" to 65" along the length of the girder. The two sides of the girder are connected internally by crossbracing of heavy angles. The girder measures 13' 8" in width, allowing for the track down the center and a planked walkway on either side carried on timber cross ties. A wooden fence-type railing is attached to the ends of the ties on both sides. Spanning the track at the center of the turntable is a lattice-girder arch braced by diagonal angles; the arch carries a connection that formerly allowed electrical lines to power the turntable's motor even as the turntable revolved; the lines are no longer in place, and the structure now operates on diesel power.

The walls and floor of the reinforced-concrete pit are cracked, with severe spalling of the wall along the north half of the turntable (Photograph 3). There is a recess built into the side wall in the northwest quadrant. The top of the side wall is mortised to accommodate timber supports for the various tracks served by the structure (Photograph 4). Although the center bearing carries the entire load, a circular rail set on wooden ties runs on a low shelf along the circumference of the pit to support guide wheels at the ends of the girder and the turntable's drive wheel. Each end has four unflanged steel guide wheels, 14" in diameter, set into bearings bolted to I-beams. Two of the wheels are on the outside of the girder, where the I-beams are braced by diagonal struts, and two are inside the girder (see Photograph 8).

The drive mechanism is on one end of the girder (the left side as one stands in the center) and is supported on a 22'-long 10" I-beam triangle that extends diagonally from web of the girder, to which it is connected by a hinged joint (Photograph 5). The I-beam structure supports the motor and reduction gearing (Photograph 6) that drives the turntable by means of a wheel running on the circumferential track. A small round-roofed sheet-metal operator's enclosure is perched above the

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**New Haven Railroad Danbury Turntable
Danbury, Fairfield County, Connecticut**

drive mechanism, on a level with the top of the girder, and shelters a clutch, brake, and streetcar-type electric motor controller.

A builder's plate reading "GEO. P. NICHOLS & BRO. / DESIGNERS & BUILDERS / CHICAGO" is affixed to the outside I-beam of the drive support (Photograph 7). Formerly, another plate on the opposite side of the girder identified the structure's fabricator, the American Bridge Company (Edgemoor Plant) and the date of construction (1916), but this is no longer in place.

The turntable's center bearing (Photograph 9) is encased within a 4'-diameter enclosure resting directly on the concrete floor of the pit, the center part of which appears to have been separately constructed from the rest of the floor and so may be of some considerable depth at this point. Although there is no record of what type of bearing it is, its external appearance suggests that it consists of two mated disks, typically one of steel and one of a somewhat softer metal such as phosphor bronze.

The turntable formerly served a number of outside stub tracks, the configuration of which was modified repeatedly over time as the needs of the facility changed, as well as a nine-stall shed-roofed frame engine house that stood to the southwest but was demolished more than twenty years ago. The engine house, which originally was eight stalls and then enlarged to nine, is today marked by three in-service repair pits (Photograph 10) and partial remains of its concrete foundation. The repair pits are of reinforced-concrete construction, with the rails running atop timber stringers, and measure approximately 4' wide, 80' long, and 3' deep. The pits, two of which are connected by a cross passage, are still in use for servicing the museum's rolling stock.

A railroad map from 1941 (Figure 1) shows five additional outside pits, as well as a small pit associated with a depressed track, the latter typically used for ash disposal. Two short stub tracks extended from the northeast quadrant.

The boundary of the nominated property consists of a 300' by 450' rectangle centered on the turntable, so as to include the associated repair pits and roundhouse remains (see unshaded portion of Figure 1). Historically, the turntable and roundhouse were elements within an extensive service and repair facility, little of which is present today as above-ground remains.

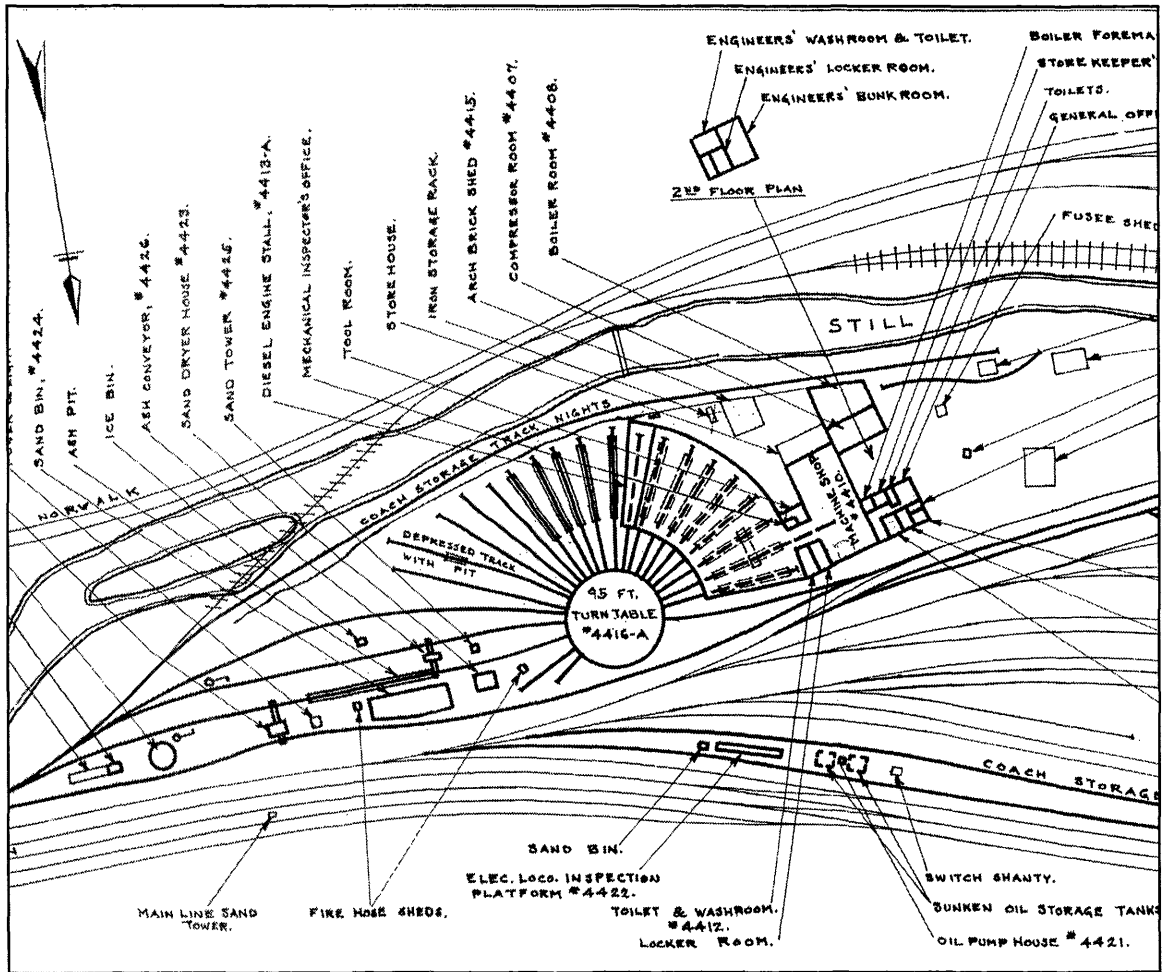
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New Haven Railroad Danbury Turntable
Danbury, Fairfield County, Connecticut

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Figure 1: Excerpt from New Haven Mechanical Department facility map of Danbury, September 19, 1941, showing area around turntable. Scale is 1 inch = 200 feet; north is at the bottom of the map.



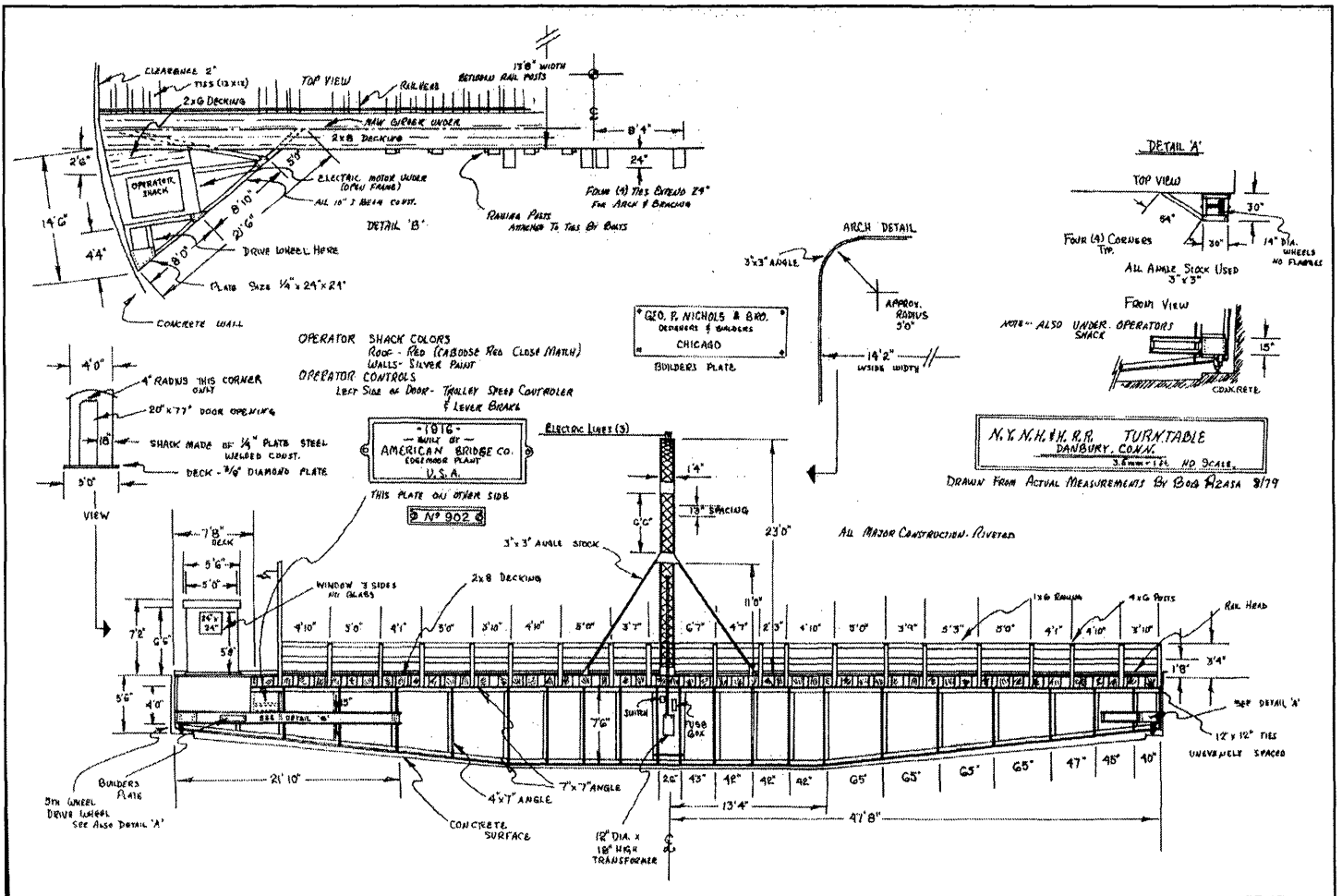
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New Haven Railroad Danbury Turntable Danbury, Fairfield County, Connecticut

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Figure 2: Measured drawing of turntable girder by Bob Rzasa, August 1979, published in *Shoreliner* 13, No. 1 (1982), p. 6.



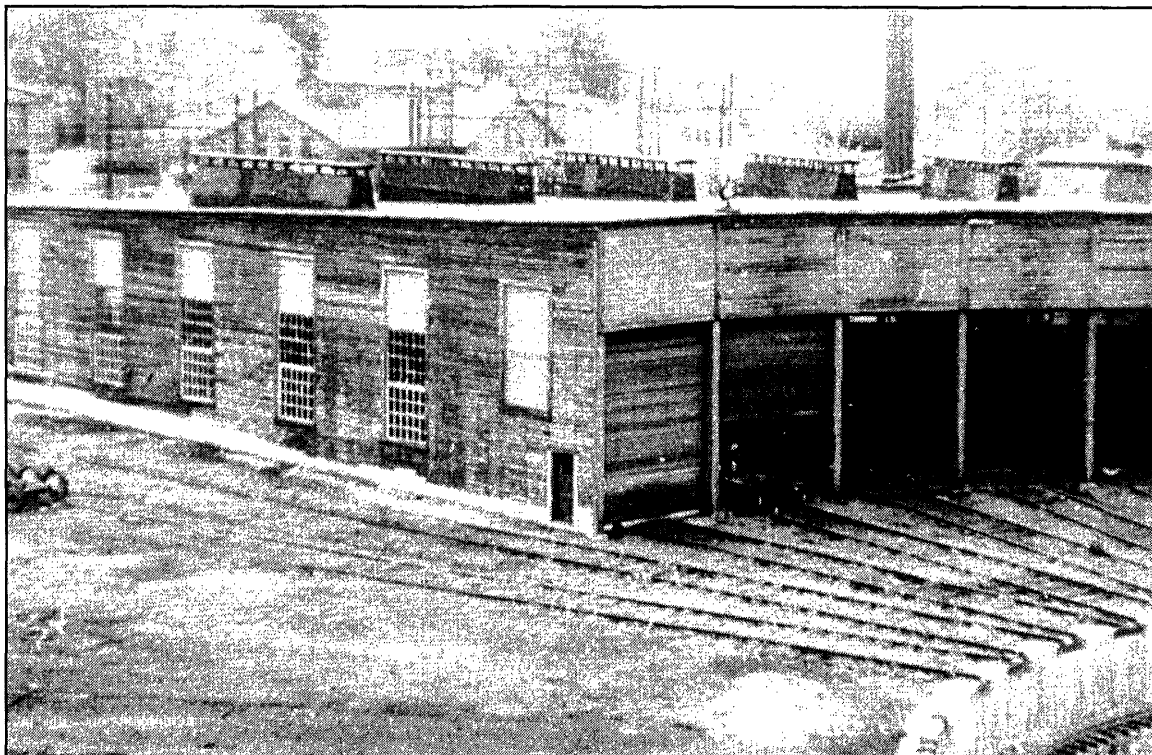
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New Haven Railroad Danbury Turntable
Danbury, Fairfield County, Connecticut

Figure 3: Engine house associated with turntable, ca. 1956, looking west. Portions of the foundation are still visible. J. W. Swanberg photo, published in *Shoreliner* 13, No. 1 (1982), p. 6.



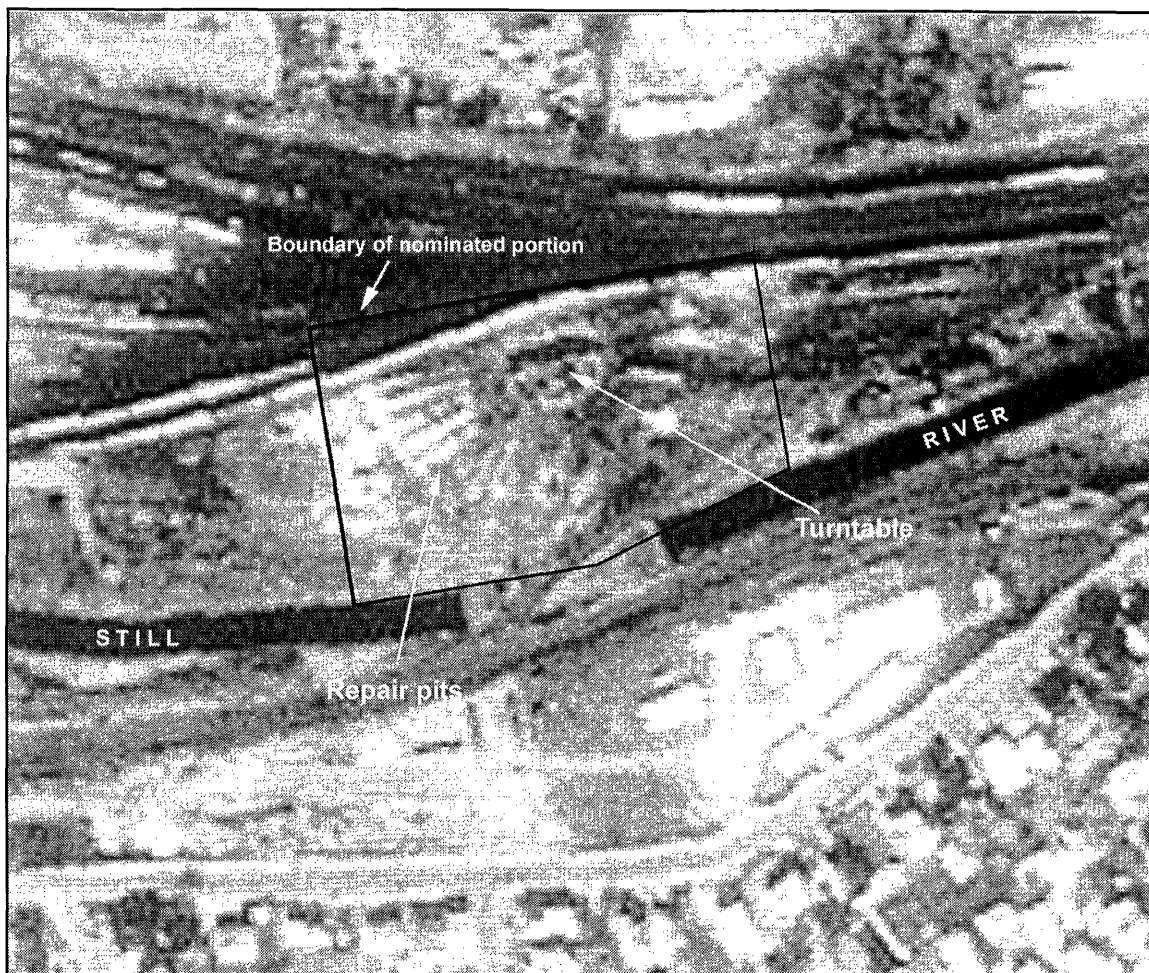
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New Haven Railroad Danbury Turntable
Danbury, Fairfield County, Connecticut

Figure 4: Boundary of nominated portion shown on USGS Digital Orthophotography of Danbury Quadrangle, 1995, scale 1" = 200'.



8. Statement of Significance

Applicable National Register Criteria

(Mark an "x" in one or more boxes for the criteria qualifying the property for National Register listing.)

- A** Property is associated with events that have made a significant contribution to the broad patterns of our history.
- B** Property is associated with the lives of persons significant in our past.
- C** Property embodies the distinctive characteristics of a type, period, or method of construction or represents the work of a master, or possesses high artistic values, or represents a significant and distinguishable entity whose components lack individual distinction.
- D** Property has yielded, or is likely to yield, information important in prehistory or history.

Criteria Considerations

(Mark "x" in all the boxes that apply.)

Property is:

- A** owned by a religious institution or used for religious purposes.
- B** removed from its original location.
- C** a birthplace or grave.
- D** a cemetery.
- E** a reconstructed building, object, structure
- F** a commemorative property.
- G** less than 50 years of age or achieved significance within the past 50 years.

Areas of Significance

(Enter categories from instructions)

TRANSPORTATION
ENGINEERING

Period of Significance

1916 - ca. 1950

Significant Dates

1916

Significant Person

(Complete if Criterion B is marked above.)

N/A

Cultural Affiliation

Architect/Builder

Geo. P. Nichols & Bro., designer and builder

American Bridge Company, fabricator

Narrative Statement of Significance

(Explain the significance of the property on one or more continuation sheets.)

9. Major Bibliographic References

Bibliography

(Cite the books, articles, and other sources used in preparing this form on one or more continuation sheets.)

Previous documentation on file (NPS):

- preliminary determination of individual listing (36 CFR 67) has been requested
- previously listed in the National Register
- previously determined eligible by the National Register
- designated a National Historic Landmark
- recorded by Historic American Building Survey # _____
- recorded by Historic American Engineering Record # _____

Primary location of additional data:

- State Historic Preservation Office
- Other State agency
- Federal agency
- Local government
- University
- Other
- Name of repository:

State Historic Preservation Office,
59 South Prospect Street, Hartford, CT 06106

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Statement of Significance:

Summary

As the only surviving intact turntable in Connecticut, * the Danbury Railway Museum's turntable has great significance as a resource that recalls the important role played by railroads in the state's history (National Register Criterion A). Particularly in the age of steam, turntables were a vital part of railroad operations, allowing an engine house with multiple stalls to be served by a single track. Every railroad town of any size had at least one turntable and engine house, so there must have been several dozen in Connecticut at one time; for example, there were turntables at Hartford, East Hartford, Vernon, and Rockville, a distance of just fifteen miles. In addition, the Danbury turntable has significance because it typifies the engineering technology of the early 20th century (Criterion C), particularly in 1) its use of reinforced-concrete, the period's most up-to-date structural material, for the pit, and 2) its center-bearing design, a result of advances in metallurgy that allowed for much better operation.

Historical Significance

Danbury entered the railway age in 1852, when the Danbury and Norwalk Railroad built its line between those two cities. In 1868 another company, the New York, Housatonic, & Northern Railroad, built a line into the city; both those companies eventually came under the control of the Housatonic Railroad. In 1882, the New York and New England Railroad built through Danbury, completing a line from Boston to the Hudson River at Fishkill. These railroad connections helped Danbury prosper, not only as a manufacturing city specializing in hat-making, but also as a commercial center for surrounding communities. Similar stories played out elsewhere in Connecticut, as ever expanding rail connections helped the state's industrial cities and towns to achieve and maintain strong positions in the brass, clock, corset, firearms, sewing machine, and textile industries. Connecticut could not have become such a manufacturing powerhouse without the dense network of rail lines that brought in raw materials and carried factory products to faraway markets.

In the 1890s, the railroads in the Danbury area came under the control of the New York, New Haven, and Hartford Railroad, a corporation started in 1872 that went on to virtually monopolize rail transportation in southern New England. In 1892, the New Haven (as it was commonly called) leased the Housatonic Railroad, including its Danbury and Norwalk component, and in 1898 it leased the New England Railroad, the successor to the New York and New England. Formerly there had been two separate passenger stations in Danbury, but the New Haven soon consolidated passenger

*Several turntable pits remain as archaeological sites, and a railroad museum in Willimantic is reconstructing a turntable using an excavated historic pit and a girder brought in from Massachusetts.

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New Haven Railroad Danbury Turntable Danbury, Fairfield County, Connecticut

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services with a single new depot on White Street. In ensuing years, freight service and repair operations were moved from Railroad Place to the White Street yards, including a new engine house and the present turntable, completed in 1916. The old Danbury turntable on Railroad Place had been only 48' in diameter, appropriate for the small 4-4-0 steam engines of the 1870s but utterly inadequate for the larger steam engines of the early 20th-century. Although it had much larger facilities in New Haven, Readville, Massachusetts, and Van Nest, New York, the Danbury repair facilities were substantial. In addition to the engine house where steam engines could be stored, serviced, and repaired, the Danbury yard included sand and water towers, an ice house, a maintenance-of-way garage, bunkhouses for train crews, ash-handling facilities, and a large machine shop.

Although there are many historic railroad stations in Connecticut, these represent only a fraction of the state's original rail infrastructure, which also included bridges, tunnels, interlocking towers, crossing-tender shanties, and a host of maintenance, storage, and repair facilities. Today, these other railroad buildings are becoming ever more scarce. Only a handful of engine houses remain, very few signal structures, a scattering of water and sand towers and service buildings, and just one intact turntable. Such attrition heightens the heritage importance of the rail-related structures and buildings that remain. Without them, it will become increasingly difficult to visualize the historical impact of the railroads, particularly in urban areas such as Danbury.

Engineering Significance

Turntables in Connecticut date back to at least the early 1850s. Although they were most common in places (like Danbury) that had been terminal points of the early railroads, they also were especially likely to be found near junctions and in the larger intermediate towns. Turntables performed two related functions: they allowed locomotives to reverse direction, and they allowed a single track to serve multiple engine-house stalls, resulting in a more efficient use of space. Most steam engines were able to back up only for short distances, so they had to be turned in order to make a return trip. The alternatives to using a turntable to reverse an engine were a loop track or a wye, both of which took up much more space. Because they were so useful for turning a variety of equipment, including rail cars and diesel engines, turntables often outlasted the steam-era engine houses with which they were initially associated.

A turntable is essentially a swing bridge. The earliest examples were wooden trusses in which the ends were suspended from a central tower (the so-called "gallows" type), but early on this arrangement was eclipsed by the use of a deck girder revolving in a circular pit. The Danbury turntable embodies all the distinguishing characteristics of turntable engineering as it reached its apex in the early 20th century. It was built for powered operation, incorporating a drive mechanism at one end to replace the work of the men who had operated earlier "Armstrong" designs; nearly all

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New Haven Railroad Danbury Turntable Danbury, Fairfield County, Connecticut

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19th-century turntables had been hand-powered, though some were later converted to electric power. Its size is also typical of its period. A turntable had to accommodate both the steam engine and its tender. As the size and weight of steam engines increased, so too did the length and load-bearing capacity of turntables. The 95' length and deep girder of the Danbury turntable would have been adequate to handle all but the very largest of the New Haven Railroad's steam engines, the last of which was retired in 1953.

The center bearing is also typical of post-1900 turntables. Earlier, turntable girders were supported by large end rollers, with a center pin serving as a guide rather than as a load-bearing pivot. Improvements in bearings in the 1890s made it possible to design a turntable with a single center load-bearing component. Center-bearing mechanisms relied on a single critical component but provided easier and smoother operation; they became common not only for railroad turntables but for swing bridges as well, which also had earlier relied on rim rollers. The center-bearing design required a minor modification of the typical turntable drive mechanism, a pivoting support structure that allows the weight of the motor, gears, and supports to bear down on the drive wheel even though the end wheels of the girder are unweighted.

Finally, the Danbury turntable typifies its period in its use of concrete for the pit walls and floor. Essentially, the pit is a circular retaining wall that prevents the surrounding earth from interfering with the girder's rotation. Nineteenth-century turntables used stone masonry for the pit walls, but the development of reinforced concrete in the early 20th century provided a stronger and less expensive construction material. After 1900 railroads used concrete almost exclusively for those purposes that earlier had been undertaken with stone masonry: bridge abutments, building foundations, retaining walls, engine-house repair pits, and turntables.

The period of significance, 1916-ca.1950, was chosen to reflect the turntable's date of construction and the end of the use of steam locomotives on the New Haven Railroad. Although the turntable remained in use after the New Haven retired its last steam engine in 1953, it was no longer as important to the railroad's operations as it had been in the age of steam.

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New Haven Railroad Danbury Turntable
Danbury, Fairfield County, Connecticut

Bibliography:

Berg, Walter G. *Buildings and Structures of American Railroads*. New York: J. Wiley & Sons.

New Haven Railroad Historical and Technical Association. *New Haven Railroad – Mechanical Department Facilities Map Book*. West Haven, Connecticut: Kramer Printing, 1989.

Rzasa, Bob. "Modeling the New Haven's Danbury Turntable," *Shoreliner* (journal of the New Haven Railroad Historical and Technical Association) 13, no. 1 (1982), 5-9. Includes historical photographs and measured drawing.

Treatman, E. E. Russell. *Railway Track and Track Work*. New York: Engineering News Publishing Company.

Turner, Gregg M., and Melancthon W. Jacobus. *Connecticut Railroads, an Illustrated History*. Hartford: Connecticut Historical Society, 1989.

New Haven Railroad Danbury Turntable
Name of Property

Fairfield County, CT
County and State

10. Geographical Data

Acreage of Property 3 acres

UTM References

(Place additional UTM references on a continuation sheet.)

1 18 629880 4583790
Zone Easting Northing

2

3
Zone Easting Northing

4

See continuation sheet

Verbal Boundary Description

(Describe the boundaries of the property on a continuation sheet.)

Boundary Justification

(Explain why the boundaries were selected on a continuation sheet.)

11. Form Prepared By

name/title Bruce Clouette, Historian

organization Public Archaeology Survey Team, Inc. date March 14, 2005

street & number P.O. Box 209 telephone 860-429-1723

city or town Storrs state CT zip code 06268

Additional Documentation

Submit the following items with the completed form:

Continuation Sheets

Maps

A **USGS map** (7.5 or 15 minute series) indicating the property's location.

A **Sketch map** for historic districts and properties having large acreage or numerous resources.

Photographs

Representative **black and white photographs** of the property.

Additional Items

(Check with SHPO or FPO for any additional items.)

Property Owner

(Complete this item at the request of SHPO or FPO.)

name State of Connecticut Department of Transportation

street & number Bureau of Public Transportation, 2800 Berlin Turnpike telephone 860-423-1311

city or town Newington state CT zip code 06131-7546

Paperwork Reduction Act Statement: This information is being collected for applications to the National Register of Historic Places to nominate properties for listing or determine eligibility for listing, to list properties, and to amend existing listings. Response to this request is required to obtain a benefit in accordance with the National Historic Preservation Act, as amended (16 U.S.C. 470 *et seq.*).

Estimated Burden Statement: Public reporting burden for this form is estimated to average 18.1 hours per response including time for reviewing instructions, gathering and maintaining data, and completing and reviewing the form. Direct comments regarding this burden estimate or any aspect of this form to the Chief, Administrative Services Division, National Park Service, P.O. Box 37127, Washington, DC 20013-7127; and the Office of Management and Budget, Paperwork Reductions Projects (1024-0018), Washington, DC 20503.

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New Haven Railroad Danbury Turntable
Danbury, Fairfield County, Connecticut

Verbal Boundary Description:

The nominated property includes a rectangle around the turntable and repair pits on the property leased by the Danbury Railway Museum, 120 White Street, measuring 300 feet in a north-south direction and 475 feet in an east west direction, exclusive of the Still River (see Figure 4).

Boundary Justification:

The nominated property includes the turntable, the site of the associated roundhouse, and the site of the tracks served by the turntable as shown on the 1941 map. Together these elements form a functional unit, even though some are no longer visible as above-ground features.

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Danbury, Fairfield County, Connecticut

Section number Photographs Page 1

All Photographs:

1. New Haven Railroad Danbury Turntable
2. Danbury, Fairfield County, Connecticut
3. PAST, Inc. Photo
4. March 2005
5. Negative filed with PAST, Inc.

Captions:

- 1: West end of turntable, camera facing east.
- 2: Side view of turntable, camera facing northwest.
- 3: Detail of concrete pit, camera facing east. North wall of pit is deteriorated; planking in foreground covers a recess in the side wall.
- 4: Detail of circular track for guide wheels on end of girder.
- 5: Detail of operator house.
- 6: Detail of reduction gearing below operator house.
- 7: Detail of builder's plate.
- 8: Detail of guide wheels inside girder.
- 9: Detail of bearing enclosure.
- 10: Concrete repair pit west of turntable, the middle of three remaining pits that were formerly inside the engine house.