

United States Department of the Interior
National Park Service

NATIONAL REGISTER OF HISTORIC PLACES
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Section 8 Page 2

Pennsylvania Railroad GG1
Streamlined Electric Locomotive #4859
Dauphin County, PA

fine performance. But by the 1920s, high traffic volume demands on the congested eastern portion of the railroad's system began to severely tax their limits. Steam engines were maintenance-intensive, they produced smoke – an unwelcome sight and smell in the densely settled northeast – and they required turning and servicing after each run.

The Pennsylvania experimented with electrified commuter, terminal and freight helper operations in pockets around New York and Philadelphia, and its management subsequently decided to expand the electrified territory and concurrently to build electric freight and passenger locomotives for intercity assignments. Electric operation was cleaner, faster, more flexible and required less maintenance and servicing than steam power. The configuration of electrics, with cabs facing each direction, eliminated the need for time-consuming turning after each trip. Since power was gathered continuously from an energized overhead wire, an electric had no need to stop every so often for coal and water, nor to change off with a "fresh" engine in the midst of a long-distance run.

With these efficiencies in mind, the Pennsylvania's management approved electrification of the New York-Philadelphia line, which opened Jan. 15, 1933; of the Philadelphia-Washington line, which opened Jan. 28, 1935; and of the Philadelphia-Harrisburg line, which opened Jan. 15, 1938. Complementing the increase in electrically operated mileage, the railroad developed a new, powerful and highly reliable high-speed electric locomotive known as the GG1. This type ultimately became the backbone of the Pennsylvania's fleet of electric engines. Introduction of GG1s allowed faster schedules for both passenger and freight trains, and permitted the removal of steam power from most of the railroad's eastern district. After the three-part route improvement was completed, the railroad and its consultants estimated that electrification had saved the company \$7.7 million in 1938 alone. The GG1 fleet was the keystone of this technological and economic breakthrough. It compares with steam power it replaced in the following statistical manner:

	GG1	Steam
Repair and maintenance cost/mile	10.4 cents	21.5 – 36.4 cents
Daily inspection time	1 hour	4-5 hours
Monthly ICC inspection time	1 day	3 days
Heavy repair interval	350,000 miles	90,000 miles
Availability days/year	335 (90%)	241 (69%)

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This greater availability and efficiency soon was employed to its fullest measure, as World War II presented the railroad with incredible challenges in moving both freight and passengers. With the East Coast being the staging area from which the European theater war was mounted, and with wartime freight traffic levels surging to levels 40 percent higher than pre-Depression volume, the electrified Pennsylvania system kept traffic moving freely. There was no massive bottleneck of trains backed up to Pittsburgh, as there had been in World War I. Observers have credited the electrification with averting government seizure and nationalization of all U.S. railroads during WWII, as occurred during WWI.

Locomotive 4859's primary significance – as distinguished from all 138 other GG1s – stems from its role in pulling the first electrically powered revenue train over the Philadelphia-Harrisburg route. On this inaugural trip, it headed up Train 25, the Metropolitan, arriving at Harrisburg eight minutes ahead of the schedule established by steam power. (The Metropolitan was a New York-Pittsburgh train that customarily carried a dining car and parlor car in addition to coaches and baggage cars.) Within a few weeks of this run, all steam locomotives were withdrawn from through service on the route. No. 4859's performance on this run also proved to be the last such electrified inaugural ever operated by the Pennsylvania or, for that matter, by any U.S. railroad. This stretch was the last major main line electrification project completed in America.

Although railroad planners, from the '20s through contemporary times, have dreamed of extending the wires westward over the Alleghenies to Pittsburgh, the faltering fortunes of railroading generally (notably the capital-poor status of PRR successors Penn Central and Conrail) and the introduction of diesel-electric locomotives in the '40s and '50s combined to halt that proposed expansion. The advantage of diesels was that they could replace steam with many of the operational benefits and flexibility of electrics, but without the costly initial investment in overhead wiring and power distribution system.

Locomotive 4859 gained a second distinction on its final assignment before retirement by Conrail in late 1979. The engine, along with another GG1, No. 4887, pulled the last-ever GG1-hauled freight train. This trip, which took place on Thanksgiving Day, began at Enola Yard near Harrisburg and ended at Edge Moor Yard near Wilmington, Del.

Regarding the locomotive's engineering significance, the operational superiority of the GG1 class has been well documented in technical terms in numerous railroad histories (see bibliographical references), but in a nutshell, the type made practical once and for all the concept of high-speed, heavy-duty main line electric operation in America. No. 4859,

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by virtue of its inaugural assignment, became the first unit to extend these benefits to the 103-mile Philadelphia-Harrisburg segment of the railroad's vital east mid-west artery.

In central Pennsylvania, the significance of electrified rail operations to passenger movement specifically is this: No 4859's pioneer run paved the way for the success of today's highly popular Amtrak electrified service in the same Philadelphia-Harrisburg corridor. Carrying more than a million passengers a year, the contemporary electric trains on this line operate day in and day out at 80- and 90-mph schedules. Viewed against a national backdrop of a rail passenger network that has withered to but a shred of its size and importance 75, 50 or even 25 years ago, this remains one market in which the rail mode has stayed highly competitive. Indeed, not a single other form of surface public transportation competes effectively for this traffic. This practicality and efficiency demonstrated by No. 4859 is directly responsible for the continued use of electric trains here by Amtrak.

As for the locomotive's status, it is one of only a handful of remaining GG1s and one of a very few to hold a specific historical distinction. Until relatively recently (1977), a great majority – 106 engines – of the original group remained active. Now, most have been not only retired but scrapped as well. No. 4859 is one of perhaps two dozen remaining and of those it is the second oldest. (The oldest, Locomotive #4800, is the first of the class and has recently been restored. All other locomotives from the original group were retired by 1982. Preservation efforts aimed at acquiring No. 4859 and restoring it to its 1938 appearance, then displaying it permanently on the site where it completed its historic inaugural run – the former Pennsylvania Railroad station in Harrisburg. GG1 No. 4859 was donated to the Harrisburg Redevelopment Authority sometime after it was retired by AMTRAK in 1979 and arrived at the Railroad Museum of Pennsylvania at Strasburg in the early 1980s. On November 13, 1986 Title to 4859 was transferred from the Harrisburg Redevelopment Authority to the Pennsylvania Historical & Museum Commission via deed of gift. It was given the number X86.52. On April 28, 1987, 4859 was designated as the Commonwealth of Pennsylvania's "Official" electric locomotive by House Bill no. 1211, session of 1987. The engine was moved to Harrisburg early in 1989 where it was placed on exhibit in the Harrisburg train station as a loan-out to the Harrisburg Redevelopment Authority to be maintained by the Harrisburg Chapter of the National Railroad Historical Society. They have been washing it once each year since it was installed at the station. No changes to the engine have been made since it was placed there. The engine is on display under the train shed roof at the Harrisburg Transportation Center.

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A final note on a matter of accuracy: Over the years, both trade and rail fan publications have incorrectly credited the wrong locomotive with having pulled the Philadelphia-Harrisburg electric inaugural. In at least one trade journal and three railroad historical books, GG1 No. 4863 has been identified as the engine in charge. However, in accompanying photos that purport to show this event, it is obvious from the orientation of tracks and structures that it is headed eastbound. In fact, newspaper accounts of the period state that No. 4863 did pull the inaugural eastbound electric run – about an hour after the first westbound trip arrived. These same accounts also specifically identify No. 4859 both in text and in photographs showing the locomotive's front – with number prominently displayed – as the first unit to arrive. Correspondence with authors of two of the books which erred reveals that the mistake stems from incorrect labeling of an original print in the railroad company's archives. Subsequent errors resulted from simple repetition of the first inaccuracy.

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Bibliographic References

Evening News, Harrisburg, PA. January 15, 1938.

The Patriot, Harrisburg, PA. January 17, 1938.

Bezilla, Michael. *Electric Traction on the Pennsylvania Railroad*. University Park and London: Pennsylvania State University Press, 1962.

Stauffer, Alvin. *Pennsy Power*. Carrollton, OH: Standard Printing & Publishing Co., 1962.

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Verbal Boundary Description

The Pennsylvania Railroad GG1 Streamlined Electric Locomotive #4859 is located at the foot of the west access stairs for Track 5 at the Harrisburg Transportation Center on Aberdeen Street, Harrisburg, PA. The boundary of the locomotive consists of the footprint of the locomotive.

Boundary Justification

The boundary includes only the track and land occupied by the resource, without any surroundings. The boundary conforms to the guidelines provided in the Section "Guidelines for Selecting Boundaries," in the NR Bulletin *How to Complete the National Register Registration Form*.

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Section Photographs Page 1

Pennsylvania Railroad GG1
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Dauphin County, PA

The following information is common to all photographs:

1. Pennsylvania Railroad Streamlined Electric Locomotive # 4859
2. Dauphin County, PA
3. Scott Doyle
4. December 8, 2003
5. Bureau for Historic Preservation, Commonwealth Keystone Building, 400 North Street, Harrisburg, PA 17120

6. camera facing northwest

7. 1

6. camera facing south

7. 2

6. camera facing east

7. 3

6. camera facing southeast

7. 4

6. camera facing southeast

7. 5

6. camera facing southwest

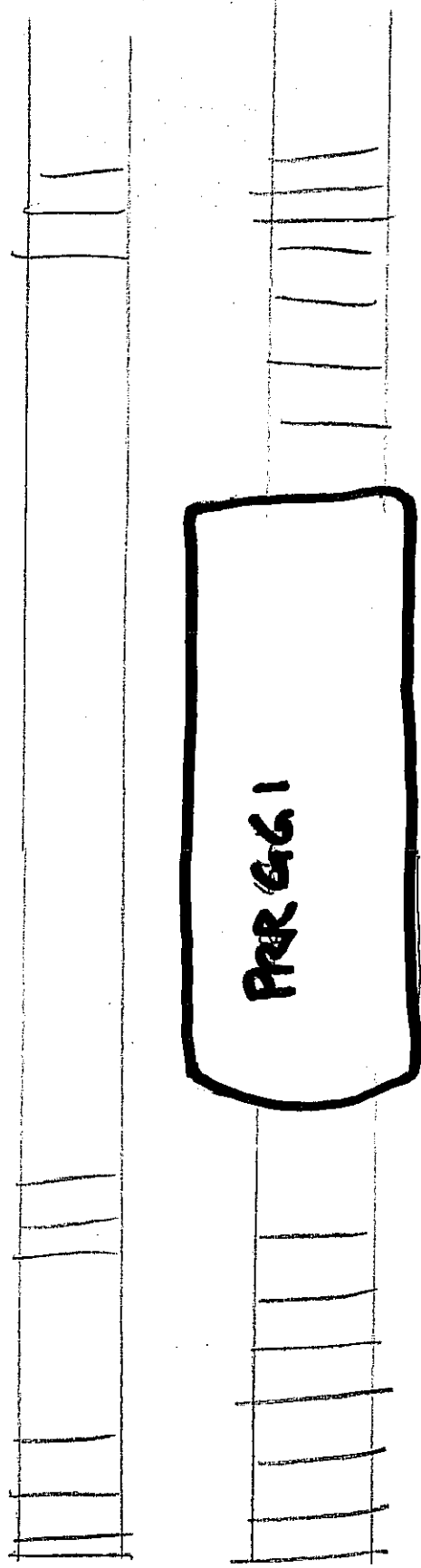
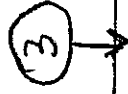
7. 6

PENNSYLVANIA RAILROAD 661 STREAMLINED
ELECTRIC LOCOMOTIVE # 4854

DAUPHIN COUNTY, PA

Platform

Stairs to Station →



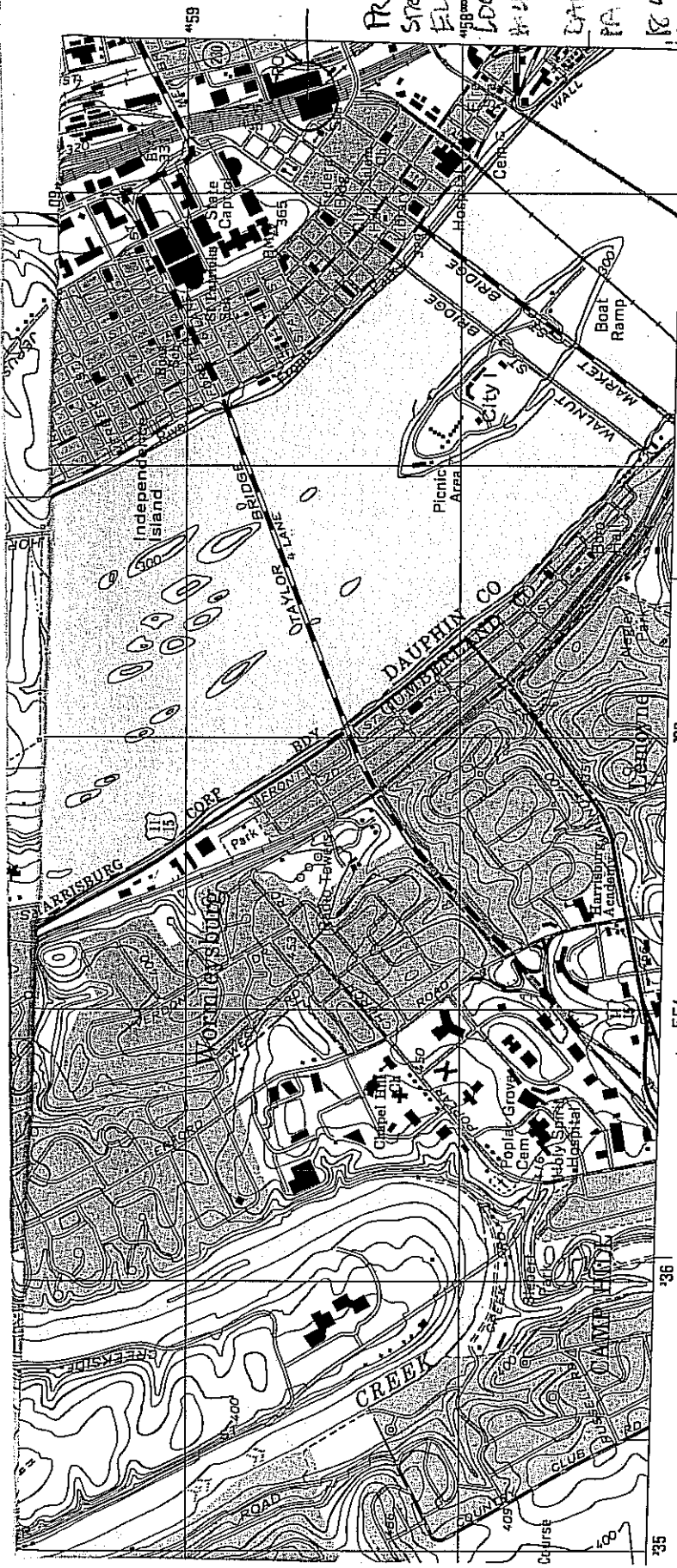
TRACK 5



Platform

Stairs to Station →

NOT TO SCALE



PRR 661
 STREAMLINED
 ELECTRIC
 458-580
 DAUPHIN
 DAUPHIN CO
 PA
 K 400740
 40°15'
 448580

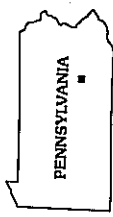
158N 0-607-90357-0
 9 780607 903577

INTERIOR - GEOLOGICAL SURVEY, RESTON, VIRGINIA - 1000

ROAD CLASSIFICATION

- Primary highway hard surface
- Secondary highway hard surface
- Light-duty road, hard or improved surface
- Unimproved road

- Interstate Route
- U.S. Route
- State Route



QUADRANGLE LOCATION

1	2	3
4	5	6
7	8	

- 1 Duncannon
- 2 Halifax
- 3 Enders
- 4 Westville
- 5 Harrisburg East
- 6 Mechanicalburg
- 7 Lamona
- 8 Steubton

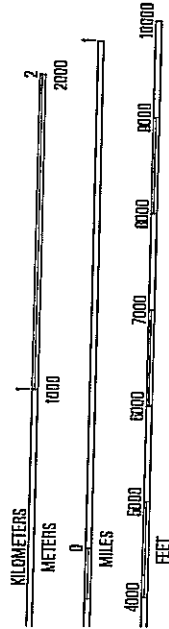
ADJOINING 7.5' QUADRANGLE NAMES

HARRISBURG WEST, PA

1993

NIMA 5664 IV SW-SERIES V831

SCALE 1:24 000



1:24 000
 METRIC VERTICAL DATUM OF 1929
 FEET TO METERS, MULTIPLY BY 0.3048

NATIONAL MAP ACCURACY STANDARDS
 1:24 000, P. O. BOX 25286, DENVER, COLORADO 80225
 THESE MAPS AND SYMBOLS IS AVAILABLE ON REQUEST