SELKIRK YARD
A VISITOR'S GUIDE

Introduction

Located about eight miles south of Albany, New York, Connall's Selkirk Yard is a modern facility for classifying freight cars carrying a variety of commodities shipped by rail to and from the Northeast region of the United States. As one of 11 major yards in the Connall system, Selkirk is the gateway between all points on the Connall system and New England, New York City, and other points east of the Hudson River. Strategically located at a convergence of main routes, Selkirk is connected with the entire Connall system by direct train service to and from principal points throughout the Northeast, Midwest, and the Province of Quebec.

Built in 1968, Selkirk incorporates all of the features of modern yards and was the first yard designed to operate exclusively with a digital computer control system. Its operating features include automatic switching, automatic car control, and perpetual car location inventory for all cars in the yard.
Yard Operations

The function of a freight classification yard is much like the function of a post office. At a post office, mail is sorted into pigeonholes. At a railroad yard, freight cars are similarly sorted into various tracks for dispatchment in trains carrying "blocks" of cars to destinations along the railroad.

A "hump" yard derives its name from the use of a small hill, or hump, to classify cars using gravity. Under this arrangement, trains are pushed up and over an incline where the cars are uncoupled. Each car then rolls by gravity into its predetermined classification track, guided by automatically operated switches to avoid excess speed. Trains of 150 cars or more can efficiently be classified in less than one hour, assisted by computers and other devices. This allows more than 3,200 cars per day to be handled for consolidation and movement to as many as 70 destinations.

Westbound, Selkirk sends many cars to other Conrail yards at Indianapolis and Elkhart, Indiana, and Columbus, Ohio for further classification and dispatchment to industries or to other railroads via the St. Louis, Chicago and Cincinnati gateways. From those same areas, cars are classified directly to Selkirk at other Conrail yards, and by other railroads from as far west as North Platte, Nebraska (over 1,600 miles away), and moved without further switching to Selkirk for final classification and distribution to points in the East.

SELKIRK YARD

<table>
<thead>
<tr>
<th></th>
<th>No. of Tracks</th>
<th>Car Capacity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Classification Yard</td>
<td>70</td>
<td>3,680</td>
</tr>
<tr>
<td>Receiving Yard</td>
<td>11</td>
<td>1,716</td>
</tr>
<tr>
<td>North Departure Yard</td>
<td>9</td>
<td>1,484</td>
</tr>
<tr>
<td>Fast Freights</td>
<td>2</td>
<td>332</td>
</tr>
<tr>
<td>South Departure Yard</td>
<td>5</td>
<td>550</td>
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<tr>
<td>Car Repair</td>
<td>4</td>
<td>113</td>
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<td>Car Cleaning</td>
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<td>124</td>
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<tr>
<td>Auto Unloading Site</td>
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<td>80</td>
</tr>
<tr>
<td>TrailVan Ramp</td>
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<td>31</td>
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<tr>
<td>Local Yard</td>
<td>10</td>
<td>395</td>
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<tr>
<td>Caboose</td>
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<td>30</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td><strong>8,500</strong></td>
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</table>
How Selkirk Works

Inbound trains arrive at the receiving yard and are switched over the hump into the classification yard. Blocks of cars are pulled out the other end for dispatchment in new trains from either of two departure yards. This is accomplished using a well-designed and well-maintained physical plant, which permits the uninterrupted flow of cars in an efficient manner. Management information systems monitor the classification process and measure the total elapsed time of each car processed through the yard. The quality of this effort is measured by a connection monitoring system, which provides information to insure that every car makes its scheduled connection to other trains.

Auxiliary facilities, including car repair tracks, car cleaning tracks, locomotive service facilities, a locomotive shop, caboose tracks, a local yard, fast-freight tracks and a TrailVan and auto unloading terminal also produce maximum efficiency and productivity through their location and design. A brief description of each yard design component follows.

Receiving Yard
The receiving yard consists of 11 tracks, each with an average capacity for 156 cars. Here, arriving trains are received, inspected and prepared for classification over the hump. As trains approach the receiving yard, the yardmaster assigns a track whose number is displayed to the engineer by a signal light. Electronic sensors monitor the movement of the train and activate power-operated switches, routing the train to the assigned track.

The arrival time of trains is logged by the computer as they pass the track designation signal and their consists are checked, car-by-car, using remote television cameras. This information is used to enrich advance
consist information, already received from Conrail's central computer, to produce a "switch list" for each train. These verified lists, along with the receiving track number and classification track codes, are stored in the process control computer to be called for by the hump conductor when the cars are ready for switching. Each car of the inbound train is inspected and prepared for classification by bleeding air from the brake cylinders. This releases the air brakes and permits each car to roll freely from the hump into the classification yard.

After yarding their train, inbound locomotives are uncoupled and proceed to the servicing facility where they are fueled and prepared for their next assignment. After servicing, the locomotives are positioned on one of a series of short "ready" tracks, designed in herringbone fashion, for quick departure.

**Hump Operation**

For the humping operation, a hump locomotive is positioned behind a train on a track in the receiving yard, as designated by the hump conductor, who then initiates the classification system by calling up from the computer the switch list for that receiving track. Switches automatically line a route.

A tunnel under the hump (immediate left), where trains are switched for classification, allows trains to move to the receiving yard (lower left) without interfering with the hump operation. A conrail conductor (upper left) oversees the computer-controlled system that establishes routes within the yard.
to the hump, and the hump locomotive engineer receives a signal to "shove high." The first ten cars of the train appear on the conductor's panel showing sequence number, car initial and number and classification track assignment.

The first car number is verified by the "pin-puller" as the train approaches the crest of the hump. If it matches the number shown on the switch list, the car is uncoupled and separates from the train as it passes over the hump. It then descends by gravity into the classification yard where it is routed automatically into the proper track by the process control computer. As each car rolls down from the hump its velocity is measured in test sections before it reaches the master and the group retarders. Acceleration, "rollability," and friction are also calculated, and this information is combined with measured distance-to-coupling, track and curve resistance, car weight, frontal area, wind velocity and direction, temperature and moisture to determine the proper exit speed from the master and group retarders for that particular car and track. Radar units in the retarders control the car at its required release speed to insure proper coupling speed that will not damage cars or their contents.

Classification Yard — Hump End
The classification yard consists of 70 tracks. In the design of the yard, space was left to permit the construction of 20 additional tracks, if necessary. The shortest track will hold 37 cars and the longest, 70 cars. Tracks are divided into seven groups of ten tracks, each fed by one group retarder. Four of these groups are fed by one master retarder and three by a second master retarder.

As cars proceed from the hump crest to the body of the classification tracks, their location is continually monitored by the process computer. Thus, at the completion of humping each train, a list can be printed showing each car on any of the classification tracks.
Classification Yard — East End

At the east end, or “pull-out” end, the 70 classification tracks converge into three tracks, or “pull-out leads,” which are connected by a series of power-operated switches designed to permit simultaneous, parallel movements by several crews between the classification yard and the twin departure yards.

Departure Yards

The departure yards are parallel to the classification yard. The north yard has eleven tracks with 166 to 280 car capacity, and two running tracks. The south yard has four tracks with 126 to 131 car capacity and one running track. Roadways between these tracks permit vehicle access for car inspection and light repairs, when necessary.

Power operated switches control the track routes from the classification yard to the pull-out leads, and from the pull-out leads to the departure yard. Controlled from the pull-out conductor’s panel, this routing system is operated through a NOVA 3 computer which is programmed to line the shortest available route without interference with other movements. “Shove signals” are located on the conductor’s route panel to indicate when cars being pushed into any departure track approach the far end of that track.

Trains leave Selkirk from either the south or north departure yard (above) where they are bound for a variety of destinations within the Northeast and along the Atlantic Seaboard.

Freight cars descend by gravity into a predetermined classification track (left) after they are uncoupled and separated as they pass over the hump.
Auxiliary Facilities

Car Repair Facility. An enclosed, four-track car repair shop is located between the classification and north departure yards to provide easy access for prompt repair and further handling. Two tracks of this repair shop are equipped to move cars through the shop mechanically, similar to the movement of automobiles in a car wash. The repair facility is equipped with stationary jacks and job cranes for “truck” (wheel assembly) and wheel work. Gas and electric welding equipment, power tools and lubrication are available at the work location, or “spot.” The other tracks are used for medium and heavy repair work.

Car Cleaning Facility. Adjacent to the repair shop is a two-track car cleaning facility. This area is paved, and tracks are tilted inward to aid drainage from the cars. Water and

Locomotives move through this service station (above) for fueling, sanding, lubrication and inspection before receiving their next road assignment.

One of Conrail’s three major locomotive maintenance shops (left) is located at Selkirk. This shop provides all facilities for required maintenance.
electrical outlets are provided throughout the area.

**Caboose Tracks.** Two caboose service tracks located east of the car repair shop are readily accessible to the departure yard and car repair facility. Here, each caboose is stocked and serviced prior to its next assignment.

**Locomotive Service Station.** The locomotive fuel, sand, lubrication and trip inspection facility is located near the east end of the receiving yard. Locomotives progress through this station from west to east. After service, they reverse direction to the "ready" tracks adjacent to the inbound lead and fuel pad for later dispatchment.

**Locomotive Shop.** One of Conrail's three major locomotive maintenance shops is located next to the service and ready tracks. Providing facilities for all required locomotive maintenance, including mechanical and electrical work on engines, traction motors, wheels and trucks, this shop is fully enclosed to provide ideal working conditions, even in cold and inclement weather.

**Auto Unloading Terminal — TrailVan Terminal.** Also located at Selkirk is an auto unloading facility for unloading finished automobiles from multilevel railcars. The autos are then distributed by highway within the Northeast. A TrailVan terminal is located next to the auto facility, where truck trailers are unloaded from rail cars for distribution within the Albany area or loaded for shipment elsewhere in Conrail's fleet of high-speed "TrailVan" trains. These TrailVan trains are handled nearby in a separate operation which by-passes the classification yard.