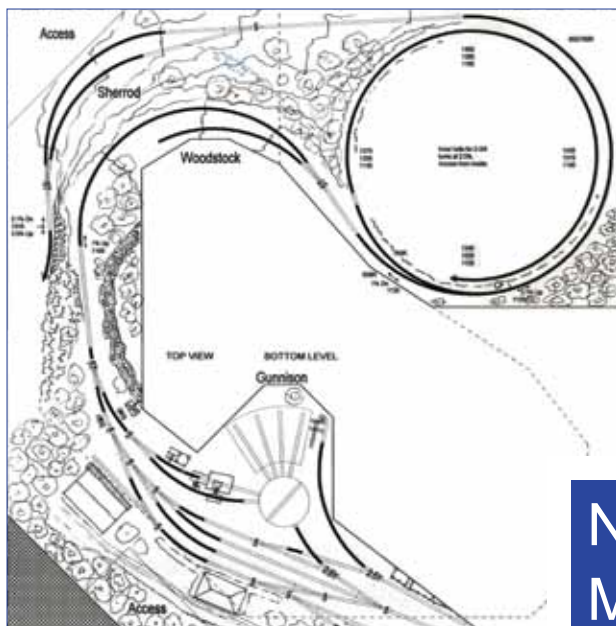




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Narrow Gauge in the Garret
Mountain Railroading LDE
East Broad Top and Pennsy
N Scale Cuesta on the SP
3 Branches on Progressive Rail



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Narrow Gauge in the Garret

A master track planner optimizes a challenging space

by Don Mitchell

Somewhere along the border between France and Switzerland lies the home of a narrow gauge mountain railway. It runs steam locomotives on 3 ft. gauge rather than the meter gauge that is more often encountered in Europe. The mountains it runs through are not the Alps, but the more romantic narrow gauge territory of Colorado.

The layout represents the 1890-1910 era on the Denver, South Park & Pacific (DSP&P) in Sn3, and carrying along with the “romantic” thread, the layout had to fit in a room meeting the definition of a garret¹ – an attic room under a multi-sloping roof that peaks in one corner with a thick beam running diagonally across the space from the lowest corner

nally across the space from the lowest corner to the highest. The garret description is further reinforced by an entrance involving a right angle turn at the top of a stairway through a 1423 mm high door.

A word about those millimeters: this layout was designed for European practices, so the metric system is used for dimensions. The magic conversion figure is 25.4 mm per inch, making that 1423 mm door 4 ft. 8 in. high. Radii, heights, and distances² are similarly described in mm, but I’ve chosen to retain the English system of describing gradients in per cent rather than rate of rise.

Obstacles

Fitting a layout into the garret was hampered by several obstacles. The beam, which started at only 1345 mm [4’ 5”] above the floor (middle and lower right page 5), restricted headroom for almost half of the diagonal distance across the room.

The doorway, aside from its height limitation, prevented any sort of loop in that corner of the room. Its location also made construction of a gate or liftout somewhat problematical. High windows reaching down from the ceiling along the full lengths of three of the walls limited the height of the layout.

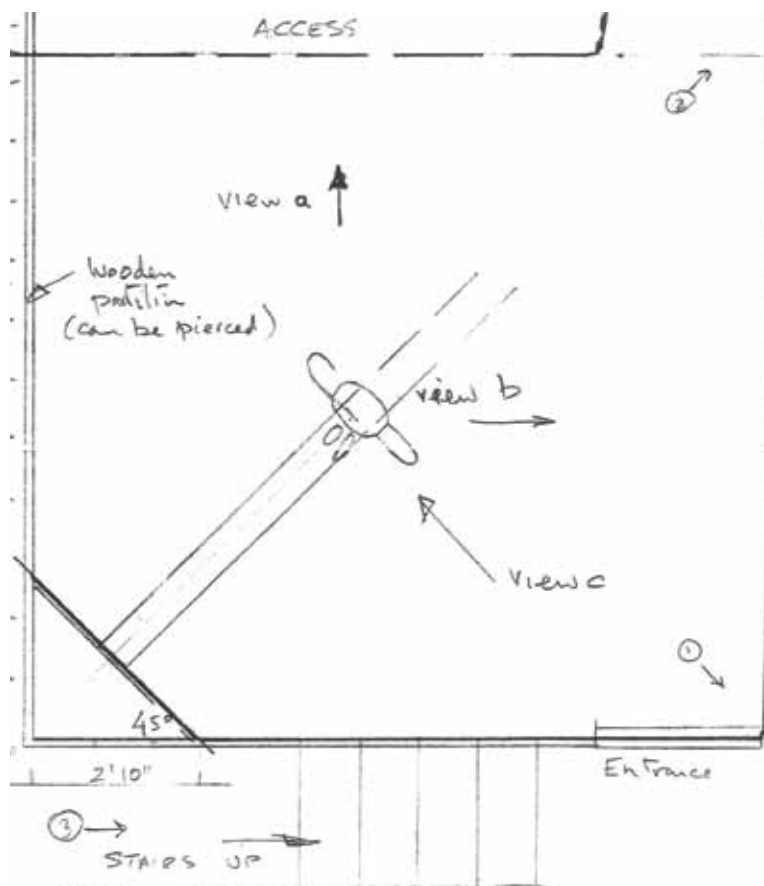
Solutions

A solution to the problem of trackwork crossing the entry came from a photo (top right page 5) that revealed a 125 mm [4⁷/₈”] clearance between the top of the door and the ceiling. That clearance allowed a track to be run above the doorway, in essence making the entry a duckunder. A similar clearance allowed a track to be run above the beam. Combined, the clearances established a route for an upper level.

Sufficient headroom under the beam was established by marking the point where the beam was 1830 mm [6’] above the floor. The space from that point to the low corner of the room was established as a “no aisle” zone.

² The editor has taken the liberty of providing conversions for the metrically-impaired. – BH

¹ The word originally had a military connotation of a watchtower or something akin to a garrison – as in guards or soldiers quartered in a house. – BH



This plan view sketch of the 13' X 12'4" room shows some of the difficulties. The “low” end of the beam is to the lower left. This sketch is oriented the same as the track plan on page 6. All room sketches by Ian Barnett.

Wind River Canyon

A mountain railroading Layout Design Element

by Robert Petrick

The published criteria for the Mountain Railroading Design challenge called for a nominal room, 16' X 22' in size with a door in one corner. I did not design a full layout for this space, but will instead describe my design element for a subset of such a space; namely, a 5' wide by 14' long peninsula with access from both sides and a view block skyboard running longitudinally for almost the entire length. The design is part of my own current layout construction and reflects mountain scenery and operations.

Choosing design elements

My prototype subject is Wind River Canyon, an officially designated¹ wild and wonderful scenic route through central Wyoming. The canyon contains some of the oldest rock formations on the planet, and the namesake river is formed by snowmelt coming down from the high passes of the Wind River Mountains, the Absarokas, the Owl Creek Mountains, and the Rattlesnake Range (collectively known as the Rocky Mountains, and specifically forming the eastern slope of the continental divide). The Wind River passes through

1 Designated as a Wyoming Scenic Byway in 2005



Overview of the canyon looking north. BNSF mainline on one shoulder, US Hwy 20 on the other. Photos by author except as noted.

an arbitrary point poetically named *The Wedding of Waters* and becomes the Big Horn River². From there it flows north through the Big Horn Basin into Montana and joins the Shoshone River, the Greybull River, the Yellowstone River, the Tongue River, the Powder River, and others to form the Mighty Missouri.

The area of interest for this project is in the vicinity of Boysen Dam (facing page), just south of the picturesque resort town of Thermopolis, so named because of the world-famous hot springs and mineral baths. Model features include:

- N-scale (1:160) freelanced-prototypical
- Folded dogbone around-the-wall walk-in with peninsula
- Strategically placed mirrors to increase depth and scope of scenic elements and structures
- Double mainline throughout for long, continuous runs that allow trains to stretch their legs
- Steep, rugged canyon walls with Burlington Northern Santa Fe (BNSF) mainline on one shoulder and US Hwy 20 on the other
- The Wind River winding its way through the bottom of the canyon far below the track and highway level
- Boysen Dam and reservoir
- Hydroelectric intake structure and turbines
- Primary and secondary dam spillways
- High-level long-span double-track bridge
- Rail tunnels and automobile tunnels through solid rock canyon walls

Turning Prototype into Design

This specific layout design element is a small portion of the canyon gorge about half a mile long by an eighth of a mile wide by about 1500 feet high (vertical drop from canyon rim

2 This came about because early explorers had independently given the upper and lower stretch of the same river two different names without realizing that they were one and the same. It's one of the few places in the country where a watercourse changes name midstream without a confluence or divergence. – BH

East Broad Top and Pennsy

A classic shortline for an ideal space

by Robert Reid, MMR

The space outlined for the LDJ Mountain Challenge last winter seemed to be ideal, small enough to present an achievable challenge for one person and large enough to allow for an around-the-room main line with a spiral in the center to enable a long main line run. Several alternatives immediately came to mind:

- Design as a single railroad or use the outer oval for one line with an interchange with another railroad in the center of the room.
- Prototypical or freelanced inspiration
- Standard gauge or narrow gauge

The East Broad Top (EBT) railroad was an ideal choice. It has the mighty Pennsylvania Railroad (PRR) for interchange as well as light narrow-gauge rail, tighter branch-line curves, and compact terminals that would enable it to fit in the center of the room. The EBT lasted well into the steam/diesel transition years, allowing a variety of Pennsy power depending on the era selected. The EBT was a classic point-to-point line hauling coal and ganister rock¹ from the mines down to its interchange with the PRR in Mount Union.

A long-lasting narrow gauge

The EBT had several factors that contributed to its longevity. In its early years one of its primary shippers was the Rockhill Furnace in Orbisonia². Revenues from the furnace enabled a modern railroad to be built, which was in sharp contrast to most other American narrow gauge lines. The furnace lasted until the early 1900s and by our timeframe it had been abandoned.

The “smokeless” coal mined in Robertsdale was highly sought after and the ganister rock was used by three online fire brick refractories and also was shipped out in quantity. The

fire brick refractories were ideal customers. Not only did they consume large quantities of ganister rock, but their process also consumed large amounts of coal to transform it into fire bricks. All this activity not only made the railroad profitable, but also created a wonderful prototype for our model railroad.

Generous standards

The design features #8 turnouts, 30” minimum radius curves and double slips on the multitrack PRR mainline to facilitate prototypical PRR trains and allow maximum flexibility to stage and operate the many different PRR consists that ran through Mount Union every day on their way to Pittsburgh via Horseshoe Curve.

The EBT portion of the layout uses 26” minimum radius and #8 turnouts to enable it to fit into the center peninsula and to facilitate reliability during switching operations. A small portion of the railroad is double-decked over



EBT #17 dumps into the ashpit before entering the turntable at Rockhill, PA in 1986, with the scene looking much as it would have during regular operation in Robert’s plan (although likely without the safety fence around the turntable!). The EBT shut down in 1956, but re-opened as a tourist line in 1961. Public tourist operations shut down in 2011, but may reopen pending resolution of ownership changes. Photo by Jack E. Boucher, Library of Congress HAER PA,31-ROCFN,1B--32 (CT).

¹ *Ganister rock is a hard, fine-grained naturally occurring stone used in the manufacture of silica brick typically used to line high-temperature furnaces (such as in steel-making). – BH*

² *The Rockhill Furnace name referred to iron-making operations in the area. Simple charcoal-fired furnaces operated as early as 1830. In 1873 two coke-fired iron furnaces were built, the same year that the EBT arrived. – BH*

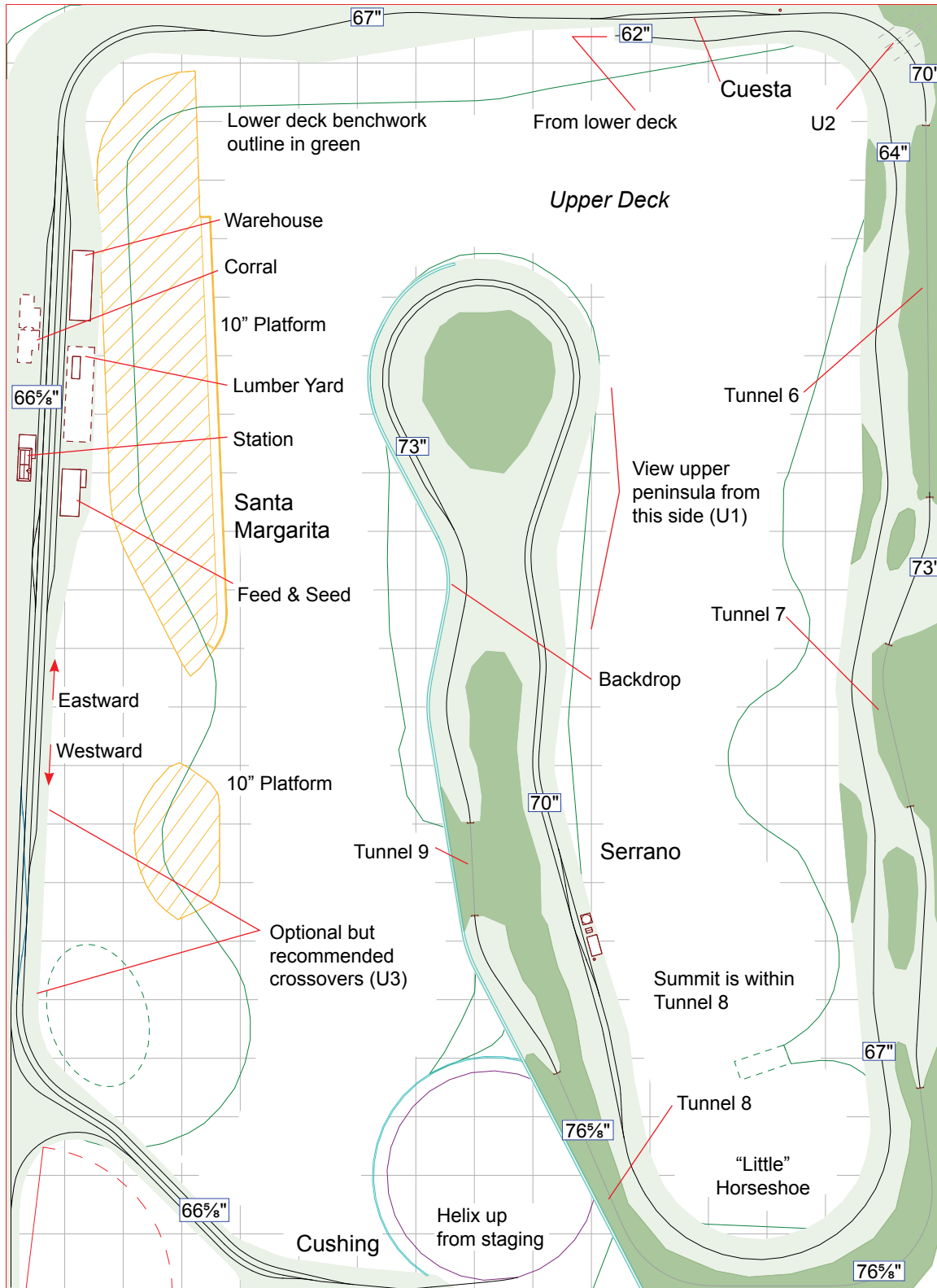
SLO westward

I discuss Oceano in more detail elsewhere (See “Operating Cuesta” page 31), but for now let’s begin with the rest of the final lower deck design, see facing page. In order to leave a bit of a “landing zone” for visitors and operators nodding-under to enter the room, I suggested covering the outside of the helix with a thin

viewblock (styrene or similar). (Note L1) This “smooth” covering would allow easy passage without fascia friction or much visual distraction (“windows” allow helix monitoring).

Track enters the lower visible deck through Oceano and goes around a turnback curve that might be scenicked to resemble Price Canyon. The prototype SP line was double-tracked for

“... leave a bit of a ‘landing zone’ for visitors and operators ...”



The revised upper deck lost some clearance at the room entrance, but placed Santa Margarita more sensibly. Notes U1, U2, etc. are found in the text.

Three Branches on Progressive Rail

Switching Operations Challenge layout in N scale

by Olaf P. Melhouse

Progressive Rail Inc. (PGR) is a shortline railroad operating five branches in Minnesota south of the Twin Cities. The railroad began in 1996 switching the Airlake Industrial Park at Lakeville, MN, a small town fourteen miles south of Minneapolis¹. The railroad is customer- and service-oriented and has increased in size serving old and new customers. Many of its customers are transload industries that transfer materials from railcars to trucks. These trucks then haul the materials to locations in the Minneapolis and St. Paul areas.

Expanded hub-and-spokes

Since its small beginning, Progressive Rail has grown and now operates several lines in Minnesota. Main offices are located in Freight House No. 1, a large two-story transloading and storage building in Lakeville, MN. The railroad has been very successful and now owns other lines in Wisconsin, Iowa, Missouri, and Illinois. (See *Trains*, June 2007)

Northfield Yard the hub

The three branch lines modeled in this plan include: the Northfield-to-Lakeville line leased from CP Rail (Soo Line/MN&S²), the Northfield-to-Randolph line (Great Western Industrial Park); switches industries at Faribault via leased Union Pacific and CP Rail trackage rights between Northfield and Faribault (see map at right).

¹ Progressive Rail's original Airlake Park operation was featured in *Model Railroader*, June 2002. At the time, the railroad switched facing- and trailing-point spurs without a runaround track by stationing two separate locomotives around the area. This unusual operating scheme has since been somewhat over-generalized by modelers. – BH

² MN&S was the Minneapolis, Northfield and Southern Railway, an 87-mile-long short line connecting Minneapolis and Northfield, Minnesota. It took over the former Minneapolis, St. Paul, Rochester and Dubuque Electric Traction Company, known as the Dan Patch Lines in 1918. It was acquired by the Soo Line Railroad in 1982 and operated as a separate railroad until 1986. (The "Dan Patch Lines" nickname came from a famous racehorse owned by the traction line's founder!). – BH

Northfield yard (former SOO/MN&S) is the main yard on the railroad and a SW1500 (new Progressive Rail paint scheme) switcher is usually stationed there to switch the yard and industries and make up all Progressive Rail trains. Both CP Rail and Union Pacific bring cars to Northfield yard; perform interchange, and then return to staging.

A Progressive Rail mainline train powered by two SDs (MN&S blue) runs from Northfield yard to Lakeville to deliver cars to the Airlake Industrial Park and returns to Northfield. This power is also used to power Progressive Rail's northbound mainline freight that delivers cars to and from Minneapolis.

Local switcher in Lakeville

A SW1500 (#67 MN&S blue) switcher is typically stationed at Lakeville and switches the industries at Lakeville and the Airlake Industrial Park. This is a huge industrial park and commodities delivered here include cold storage food products, paper, pipe, steel products, beer, building materials, brick, cottonseed, rock, sand, poles and various materials delivered to Freight House No. 1.

East to Randolph

This branch line is former Chicago Great Western trackage that is operated by Progressive Rail. A local runs from Northfield to Randolph to serve industries at the Great Western Industrial Park. A SW1500 (#34 MN&S blue) switcher is the typical power for this local. Commodities delivered to the industries include salt, chemicals, fertilizers, grain, petroleum products, and sheetrock.

To Faribault on trackage rights

Faribault is former C&NW trackage that is leased from the Union Pacific. The Northfield to Faribault local runs on CP Rail and UP trackage to Faribault and switches the industries there. The two biggest customers are Faribault

