

The New Mexico Division

Designing a Railroad for
Operation Based on the
Prototype

What is this clinic About?

- Deciding on your modeling preferences
- Considering a prototype (or freelance)
- Selecting features to include
- Compromises
- Operations

Introduction

Bona Fides

- Modeling the Santa Fe since 1975
- Model railroad author of over twenty-eight published articles
- The New Mexico Division is second operations-oriented layout and has been operating since February 2002.

“So what--why should I listen to this guy?”

Designed first model railroad at age 11.



Returned to model railroading in 1975 after receiving a train set as a gag gift.



Started first basement-sized layout in 1986
“based” on Raton Pass—operations started
in 1991.



Raton Pass layout good enough for at least four magazine covers, but...

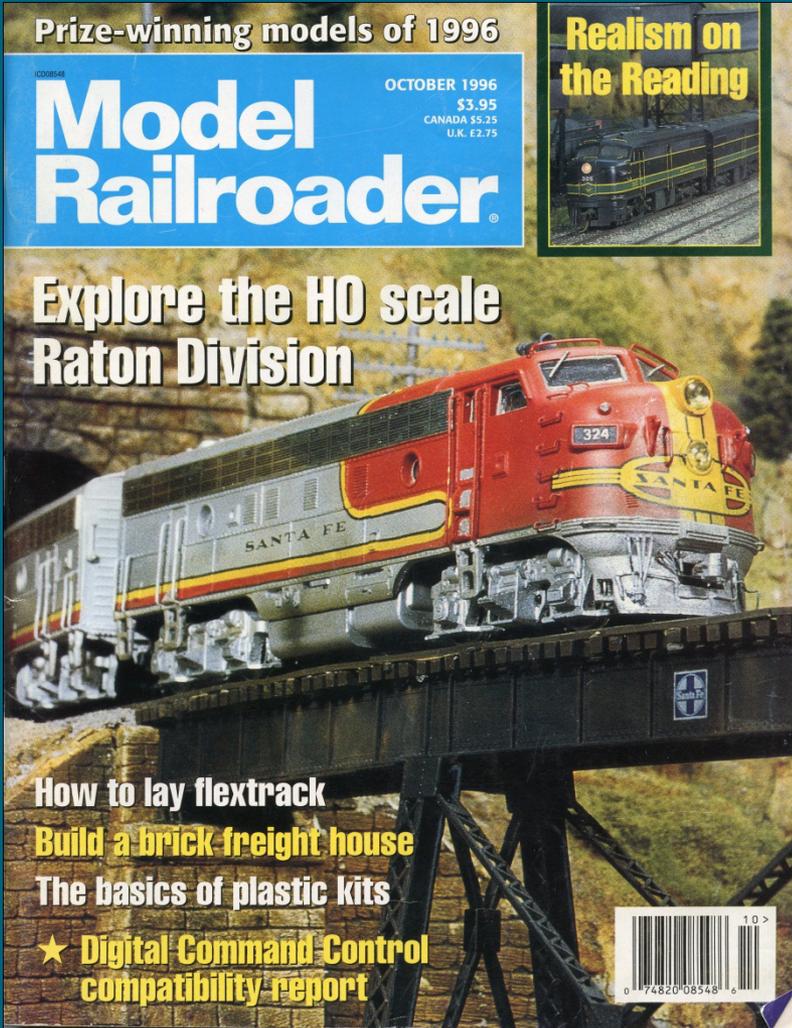
Prize-winning models of 1996

IC008548

OCTOBER 1996
\$3.95
CANADA \$5.25
U.K. £2.75

Model Railroader

Realism on the Reading



Explore the HO scale Raton Division

How to lay flextrack
Build a brick freight house
The basics of plastic kits

★ Digital Command Control compatibility report

10 >

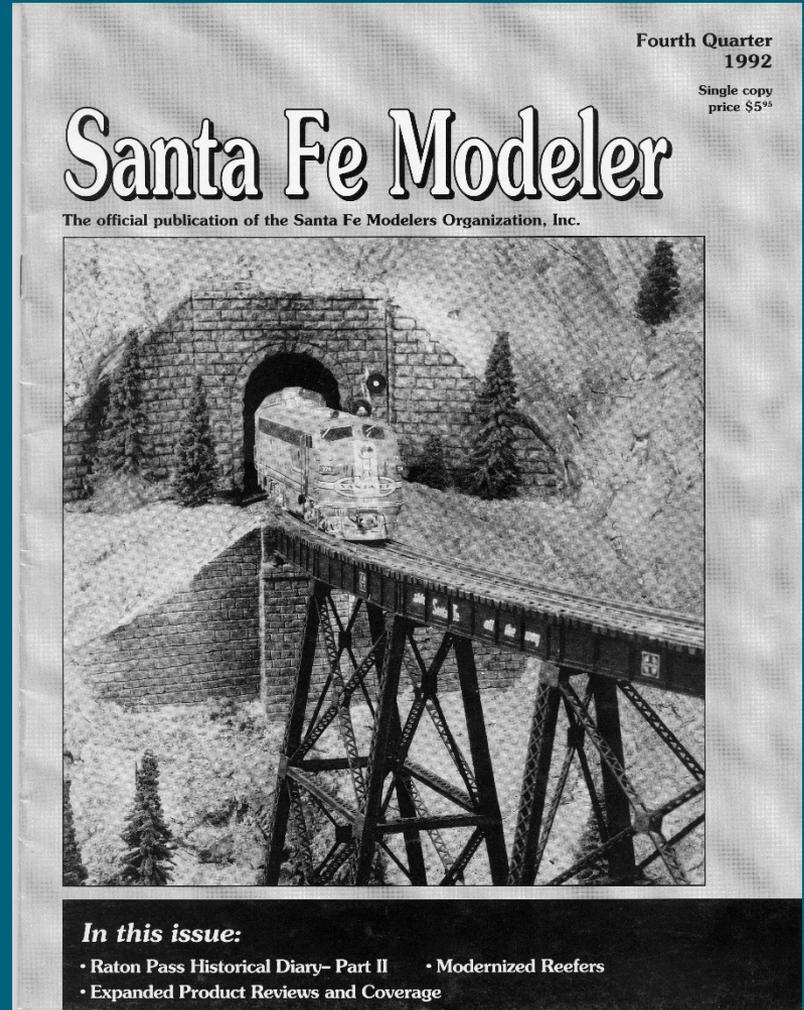
0 74820 08548 6

Fourth Quarter
1992

Single copy
price \$5⁹⁵

Santa Fe Modeler

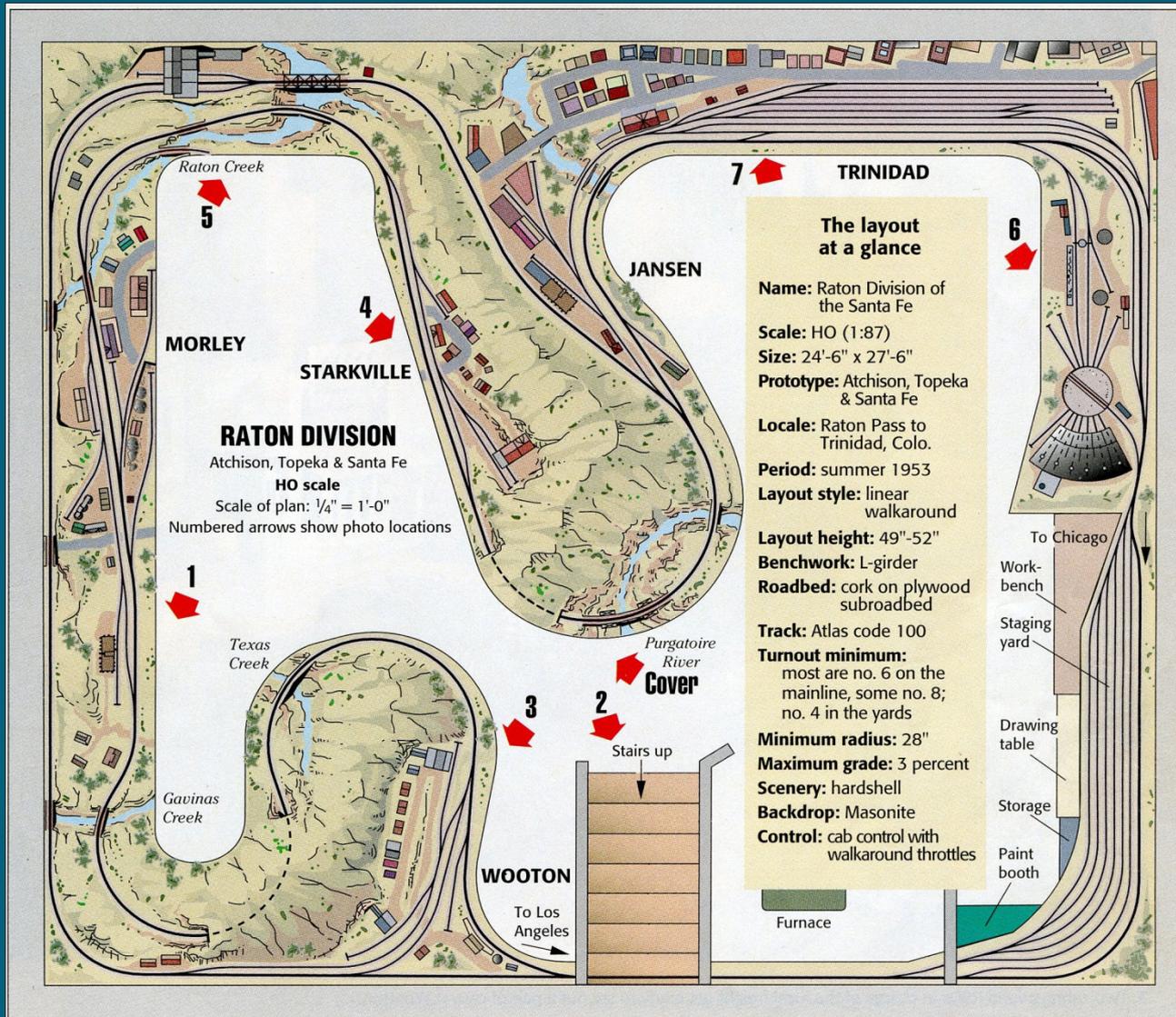
The official publication of the Santa Fe Modelers Organization, Inc.



In this issue:

- Raton Pass Historical Diary- Part II
- Modernized Reefers
- Expanded Product Reviews and Coverage

the Raton Pass layout had a few flaws.



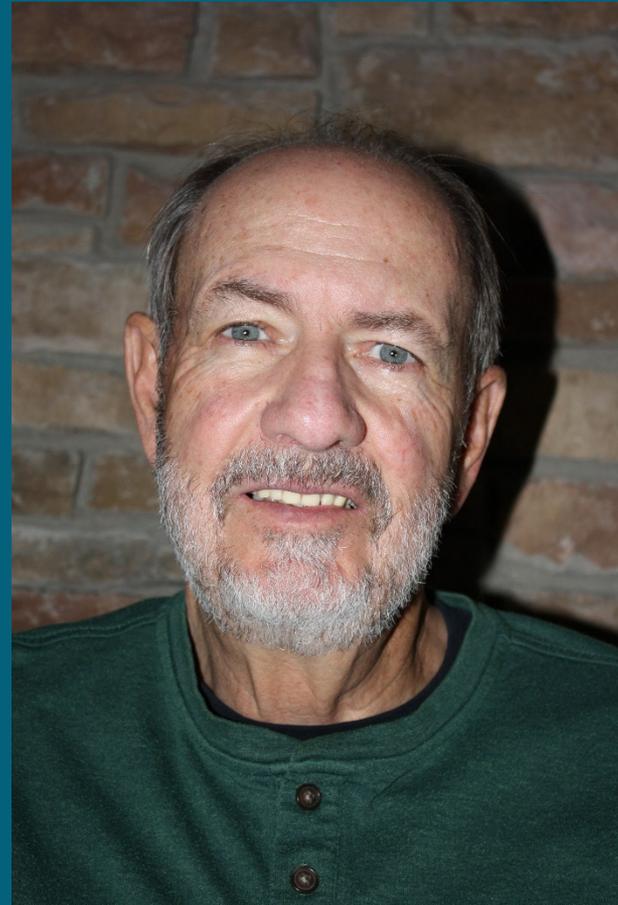
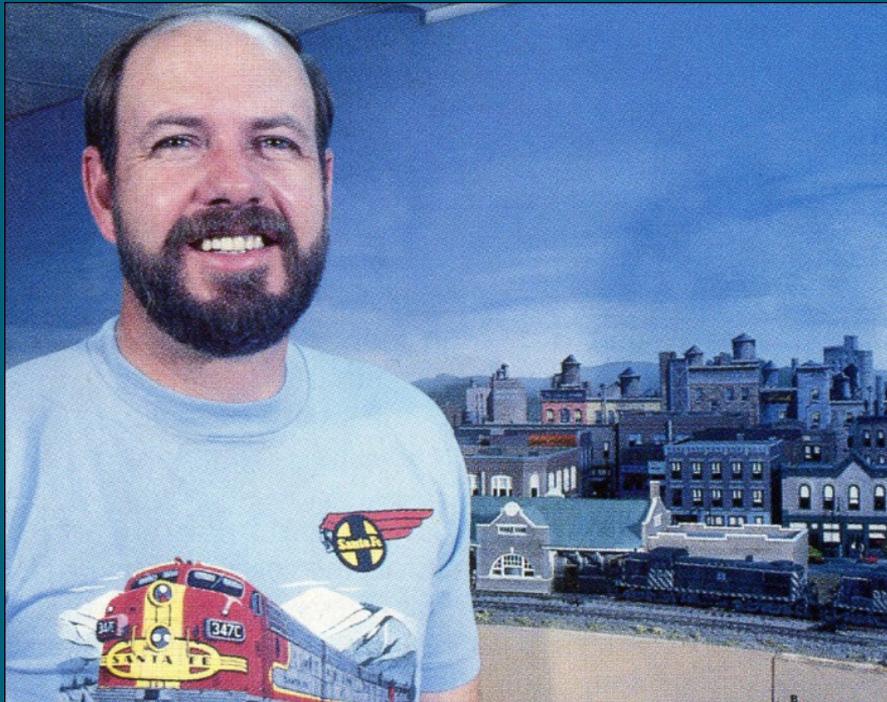
So, what are my
qualifications to give this
clinic?

I've made all the mistakes
that can be made, and even
occasionally learned
something from them!

I've also gotten a lot older and maybe just a little bit wiser!

Model Railroader layout article

October 1996



May 2023

1998: Perfect Time for a New Railroad

- DCC coming to forefront
- Code 83 track components hitting the market
- More accurate diesel models being produced
- Good running and accurate plastic steam engines becoming available
- Laser kits of Santa Fe structures developed
- Best of all: **We found a new house we liked with an unobstructed 2000 square foot basement**

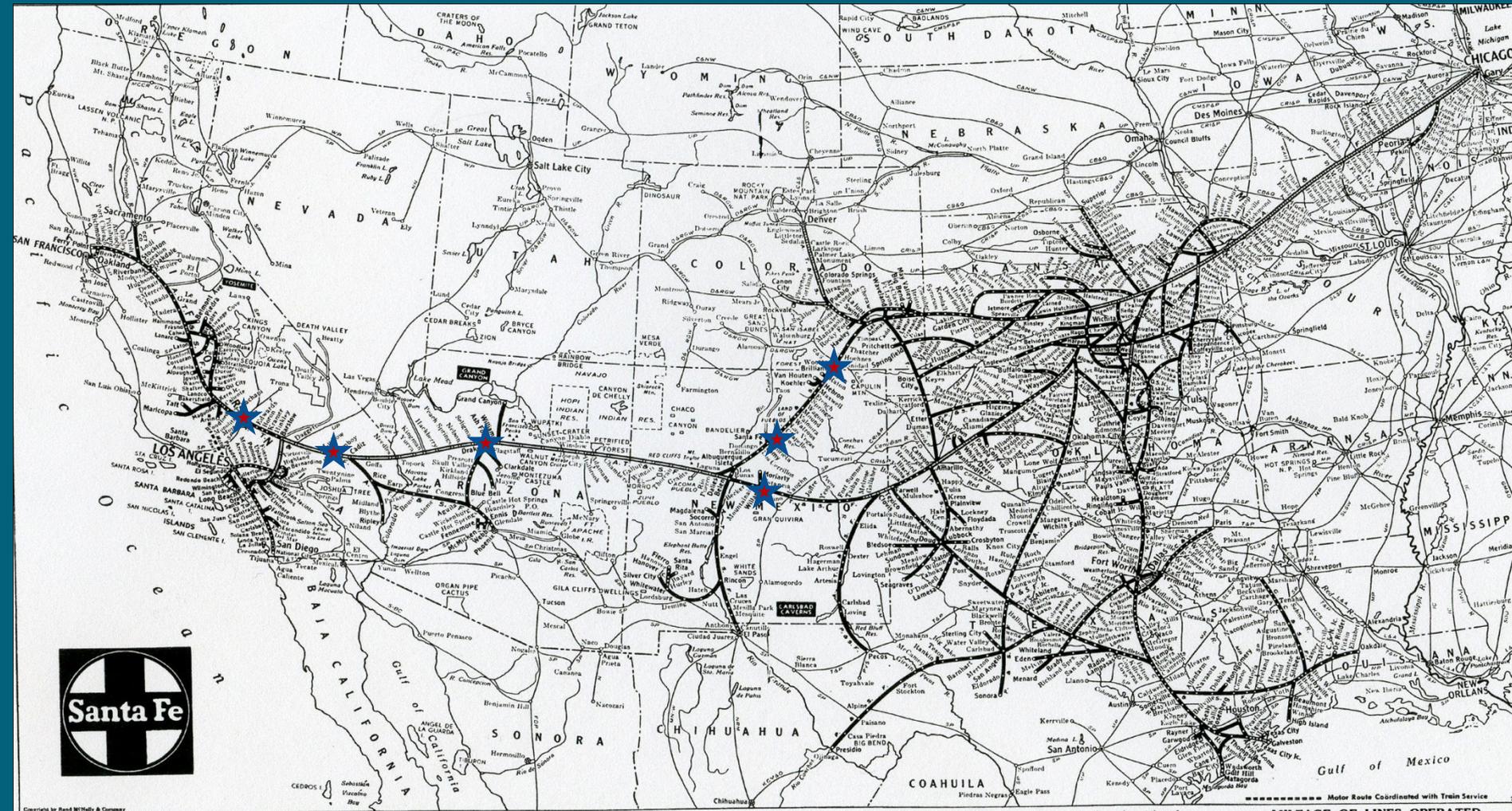
Critical Elements

- Druthers--Those Items That Are Most Important To You
 - Favorite prototype—naturally, the Santa Fe!
 - Locale
 - Style of operation
 - Equipment
 - Era
- Givens
 - Available space
 - Financial resources
 - Time to devote to the railroad

My Critical Elements

- Helper district
- Single track mainline using TT/TO
- Some local switching
- Rugged western terrain
- Warbonnets and streamliners
- Big steam
- First generation diesels in zebra stripes
- Lots of F units

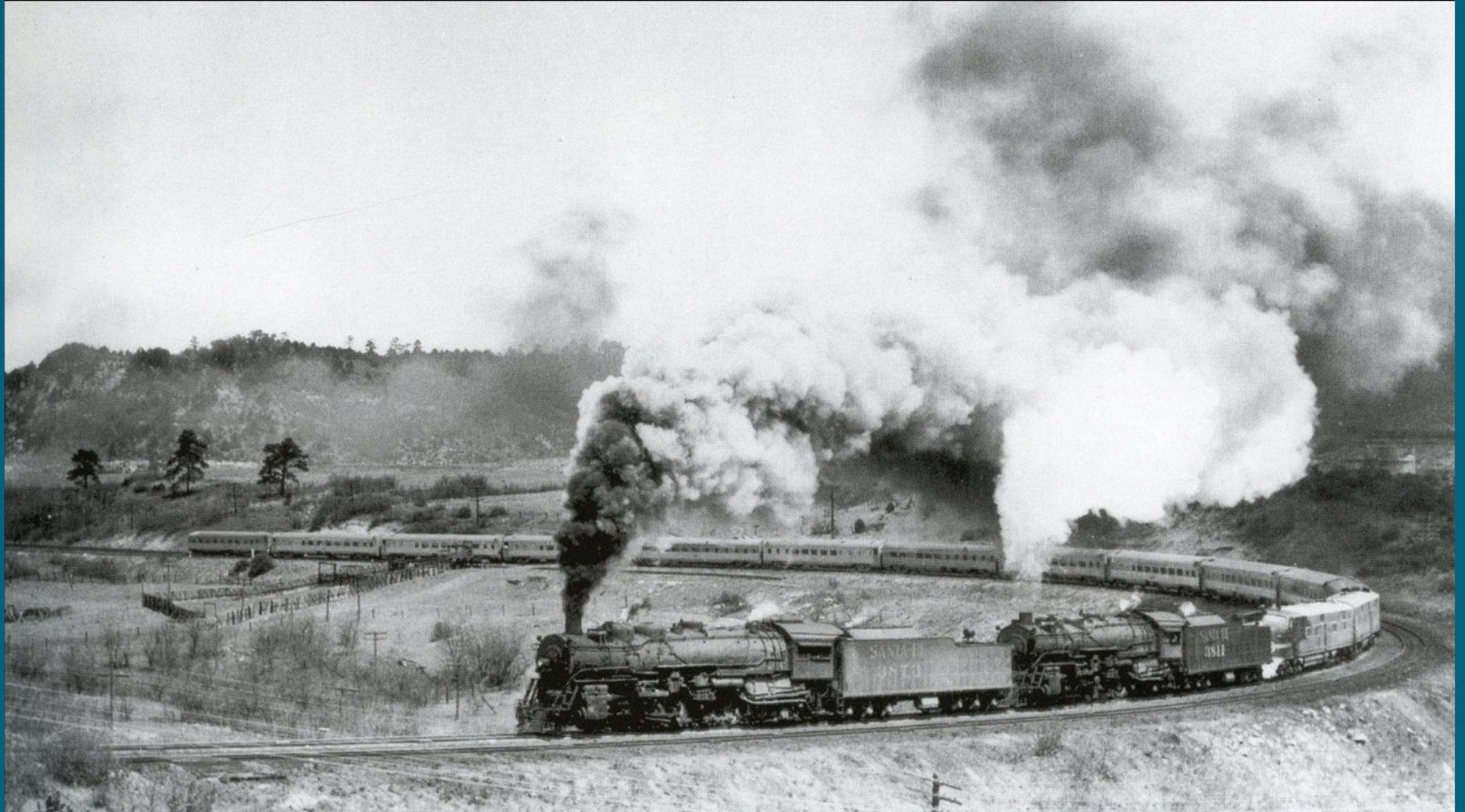
The Usual Suspects



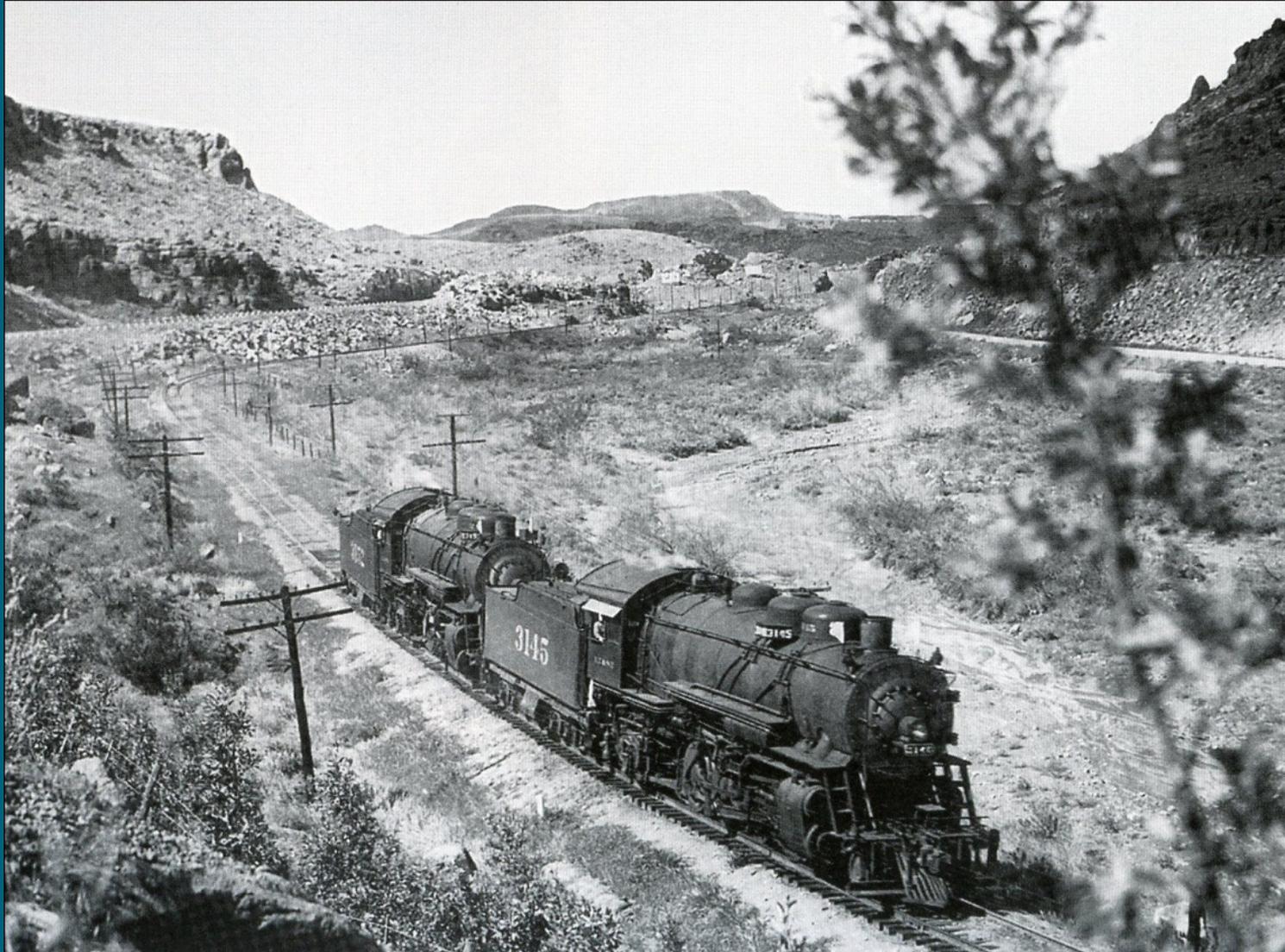
Mountaineer / Abo Canyon



Raton Pass



Williams / Seligman



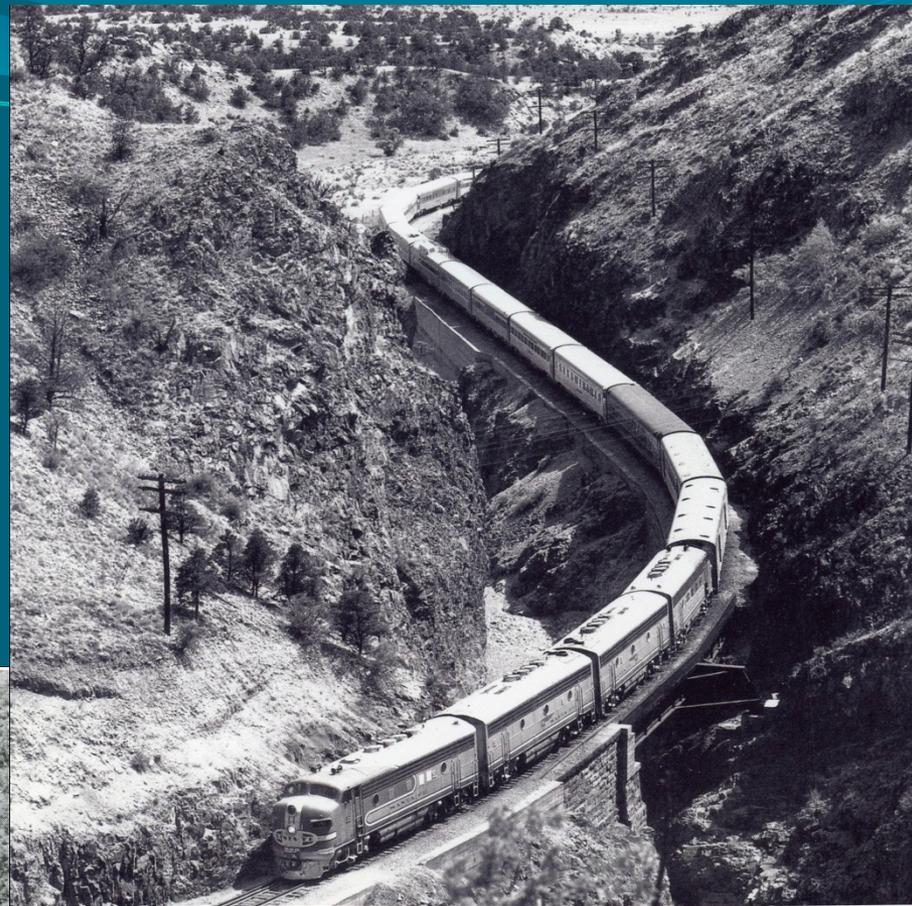
Cajon Pass



Tehachapi



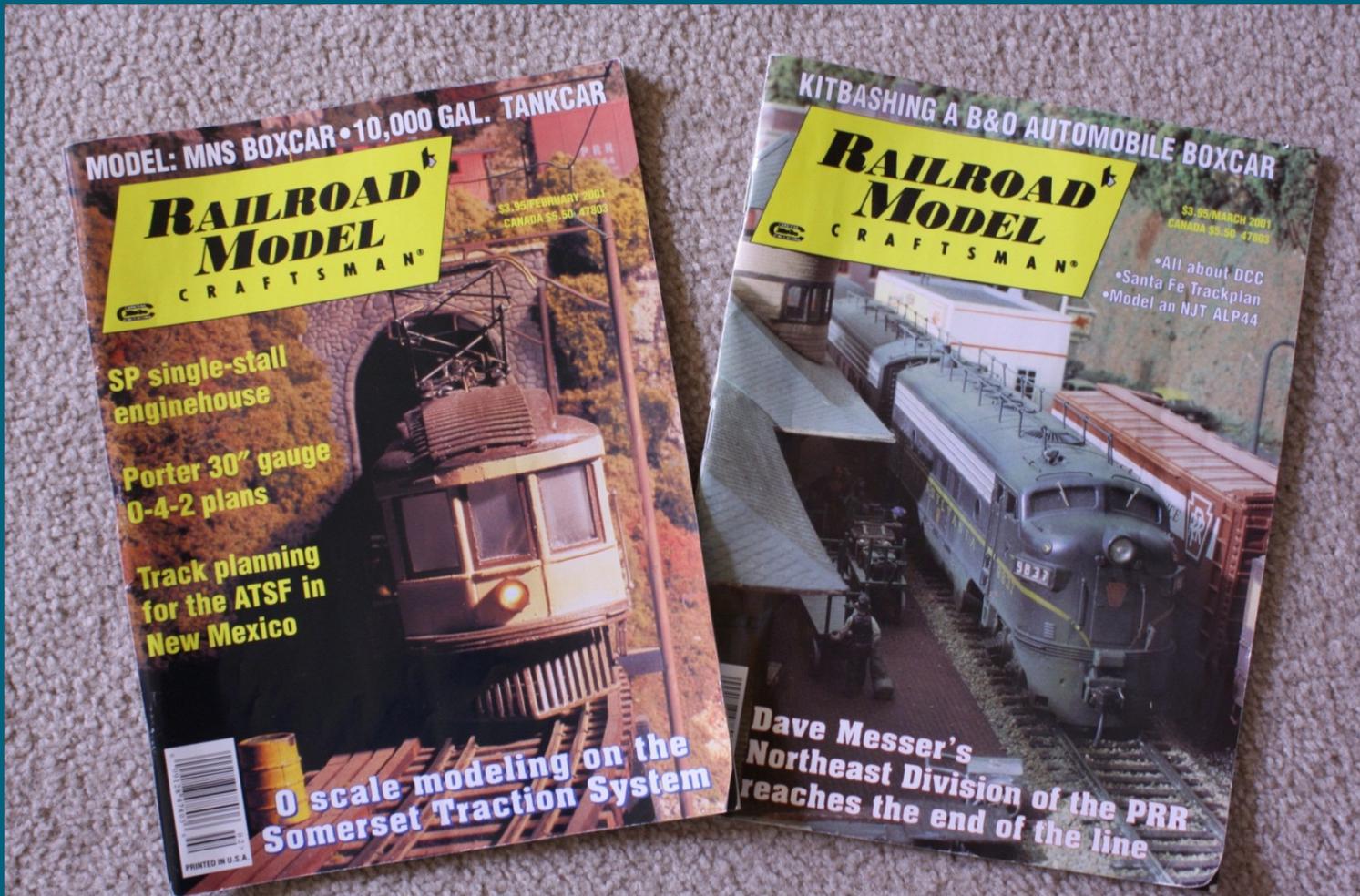
Glorieta Pass



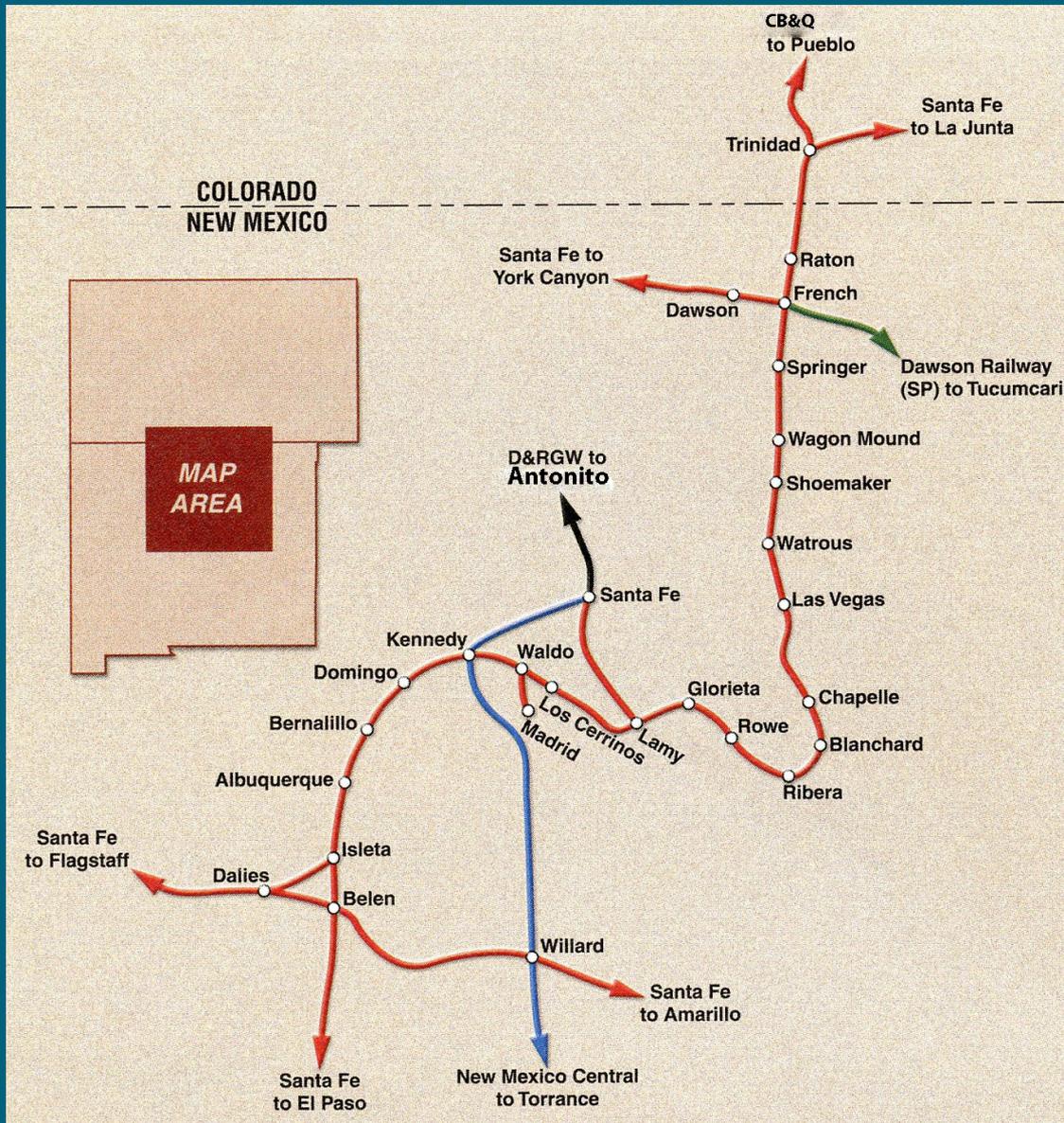
Glorieta Pass in 1951

- Helper district
- Single track mainline using TT/TO
- Heavy passenger traffic
- Some local switching
- Steam and first-generation diesels
- Bonus features
 - Santa Fe Subdivision
 - Madrid coal mining district
 - APB signaling
 - Nobody was modeling it!

Two-part article on designing the railroad—February and March 2001



Glorieta Pass and the ATSF System



Invaluable Research Tools

Track Chart



Santa Fe Railway Historical & Modeling Society

CENTRAL
REGION

BULLETIN NO. 5

CAR
LOCATION
INVENTORY
CONTROL

Instructions - Maps

Raton

Las Vegas

Glorieta

York Canyon

and

Santa Fe

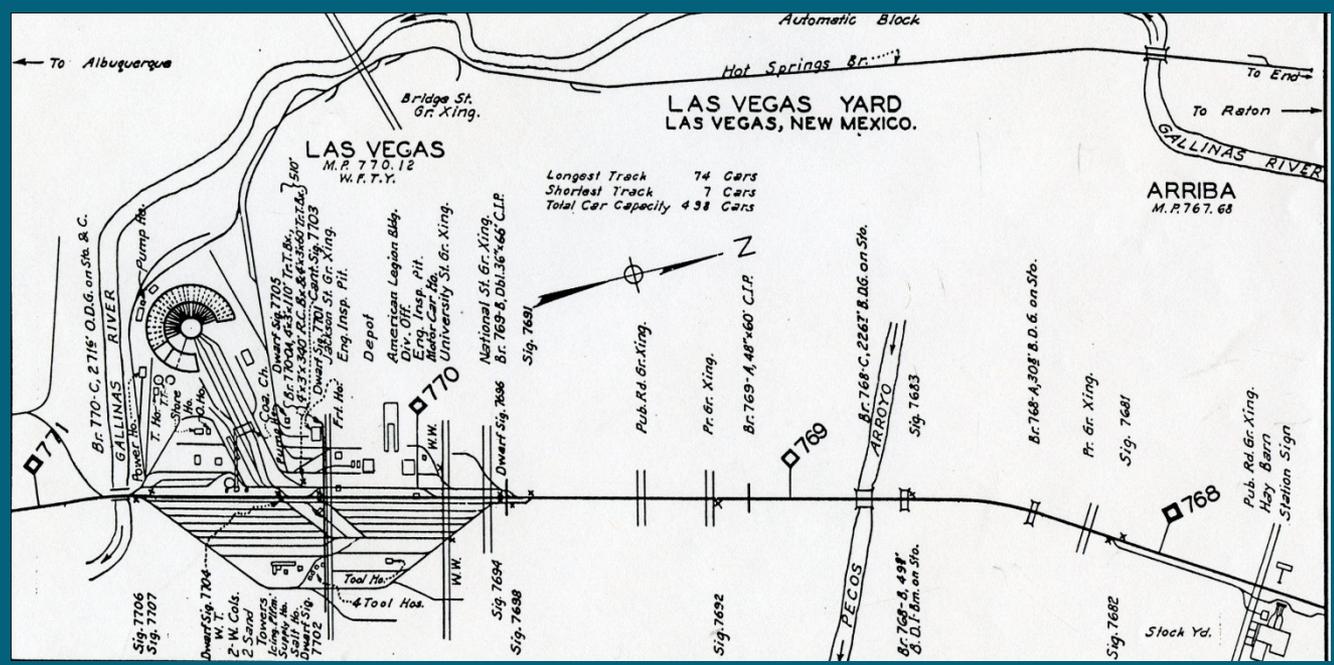
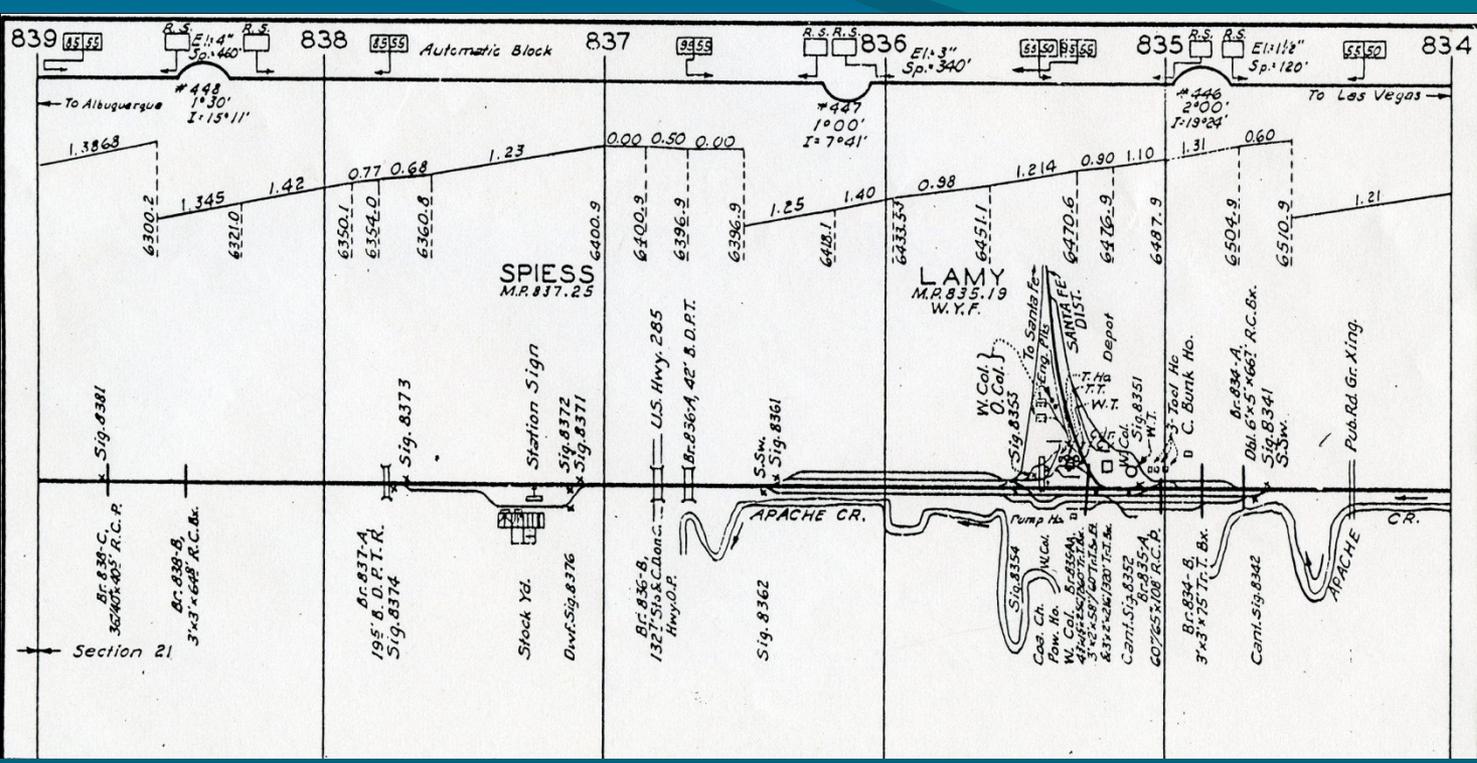
Subdivisions

Revised December, 1991

ENGINEERING
SERVICES

480777325

863-A-29 STD.



Track Planning

Detail drawing of the available space

- Make as accurate as possible
- Include all obstructions, support columns, utility / mechanical systems access
- Draw benchwork - aisle plan
 - Yard locations
 - Wyves
 - Peninsulas / Blobs
 - Aisle locations and widths
 - Staging

Track Planning--continued

Blueprint or Road Map?

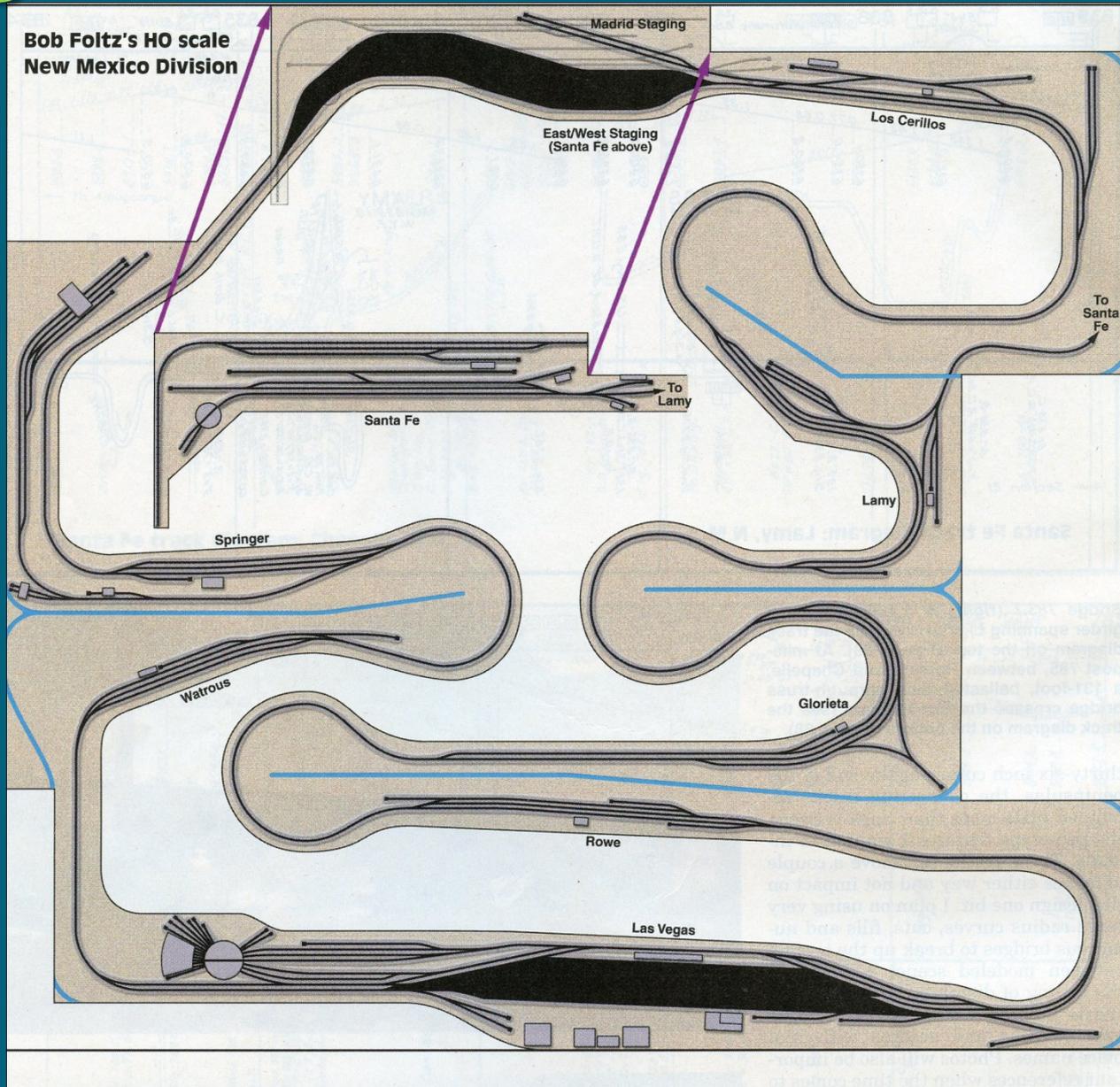
I'm not a slave to the track charts

- Fit critical operational areas first
 - Las Vegas, Glorieta, Lamy
- Locate key scenic features
- Fill in other town sites
- Connect it all together with the mainline

Compromises I Made:

- Dawson Mining District
 - Springer instead of French
 - Served by the Santa Fe
 - SP line to Tucumcari became an interchange
- Narrow Gauge in Santa Fe—gone in 1941
- Combined Waldo and Los Cerrillos
- Madrid District reduced to staging

Original Track Plan

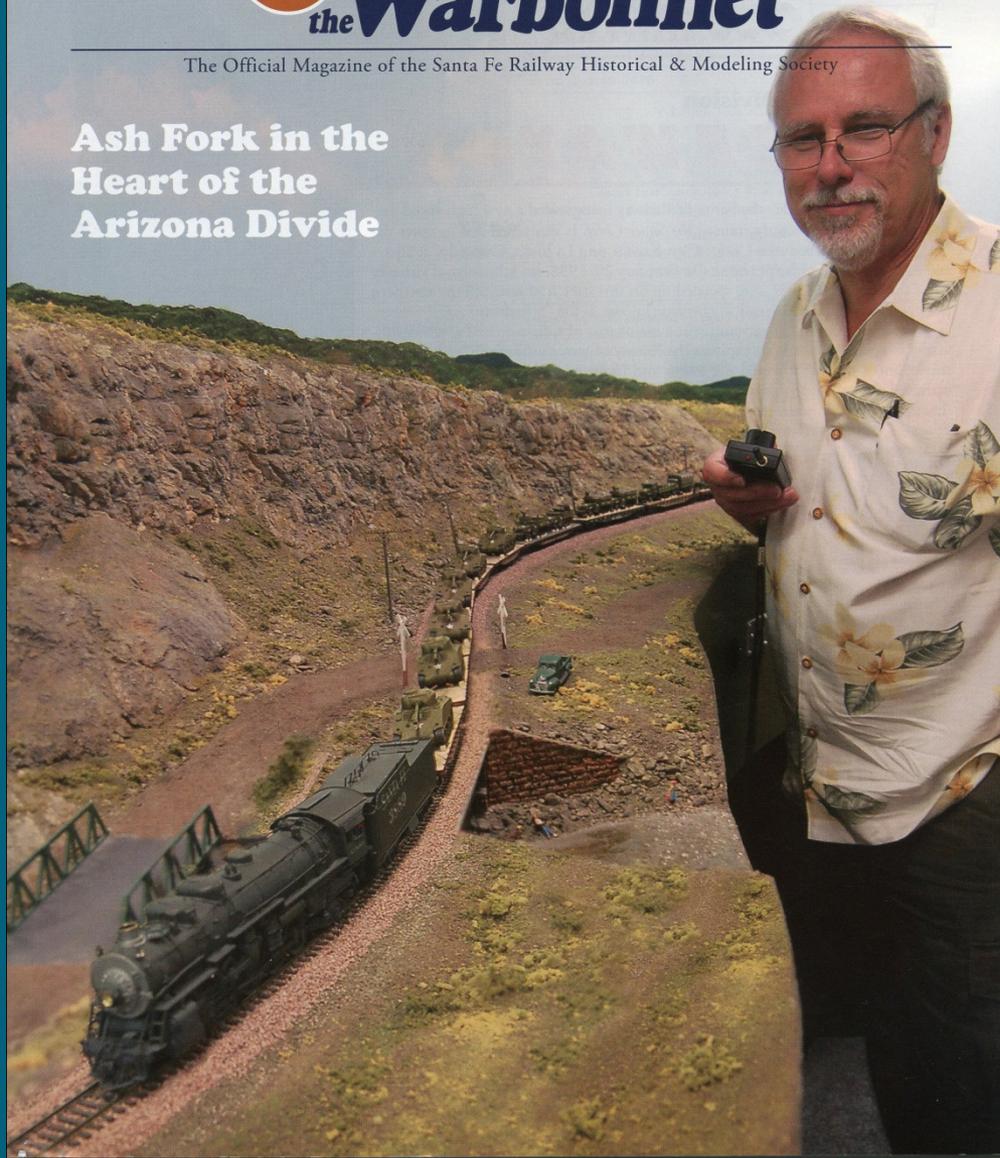




THIRD QUARTER 2010
\$9.95

The Official Magazine of the Santa Fe Railway Historical & Modeling Society

Ash Fork in the Heart of the Arizona Divide



HOW TO build a resin & brass car kit



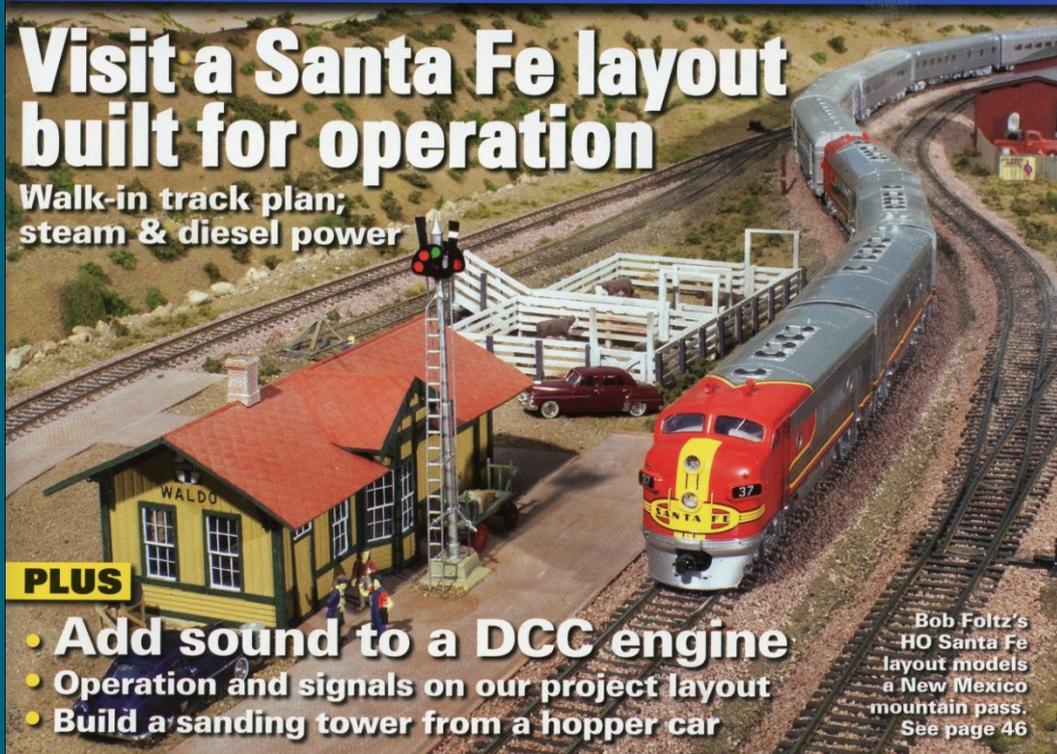
Model Railroader

New "bipolar" from MTH

June 2011 • www.ModelRailroader.com

Visit a Santa Fe layout built for operation

Walk-in track plan;
steam & diesel power



PLUS

- Add sound to a DCC engine
- Operation and signals on our project layout
- Build a sanding tower from a hopper car

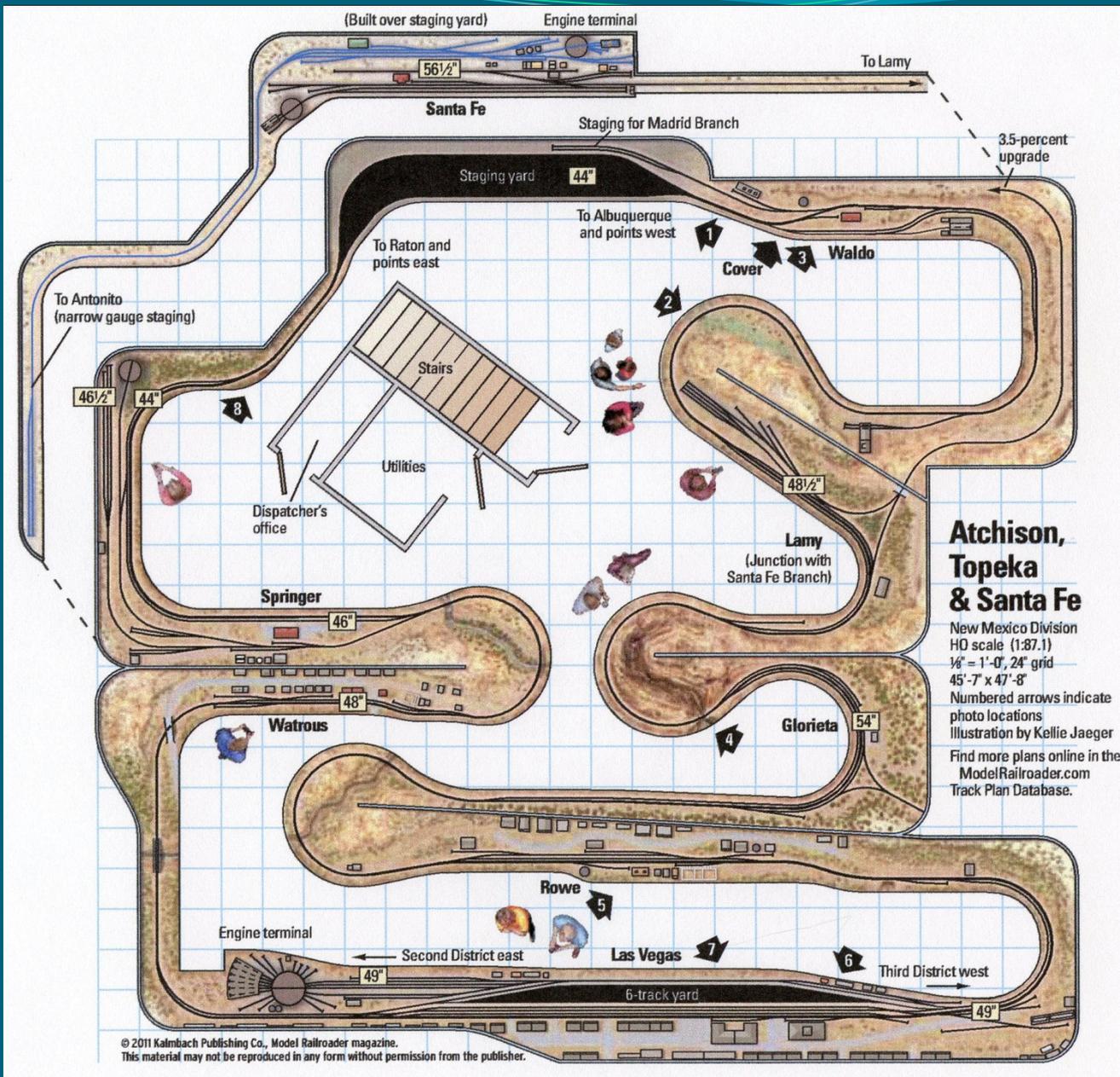
Bob Foltz's
HO Santa Fe
layout models
a New Mexico
mountain pass.
See page 46

▼ How to make rock scenery

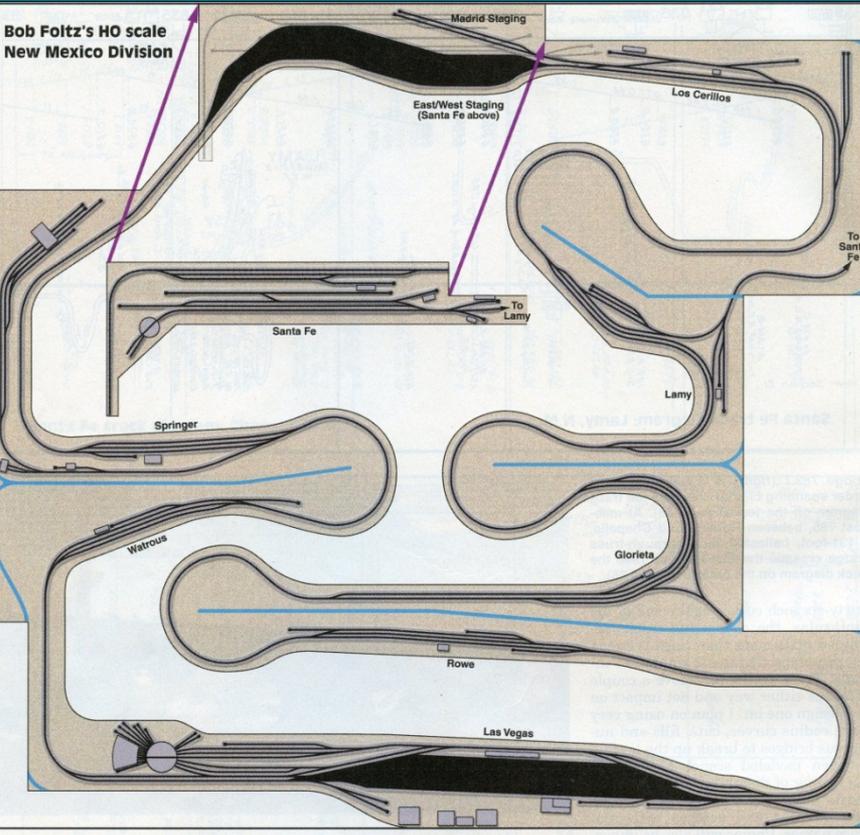
▼ How to build super-smooth handlaid turnouts



“Final” Track Plan



**Bob Foltz's HO scale
New Mexico Division**



**Atchison,
Topeka
& Santa Fe**

New Mexico Division
HO scale (1:87.1)
1/8" = 1'-0", 24" grid
45'-7" x 47'-8"
Numbered arrows indicate
photo locations
Illustration by Kellie Jaeger
Find more plans online in the
ModelRailroader.com
Track Plan Database.

Staging

Raton

East (North)

Staging



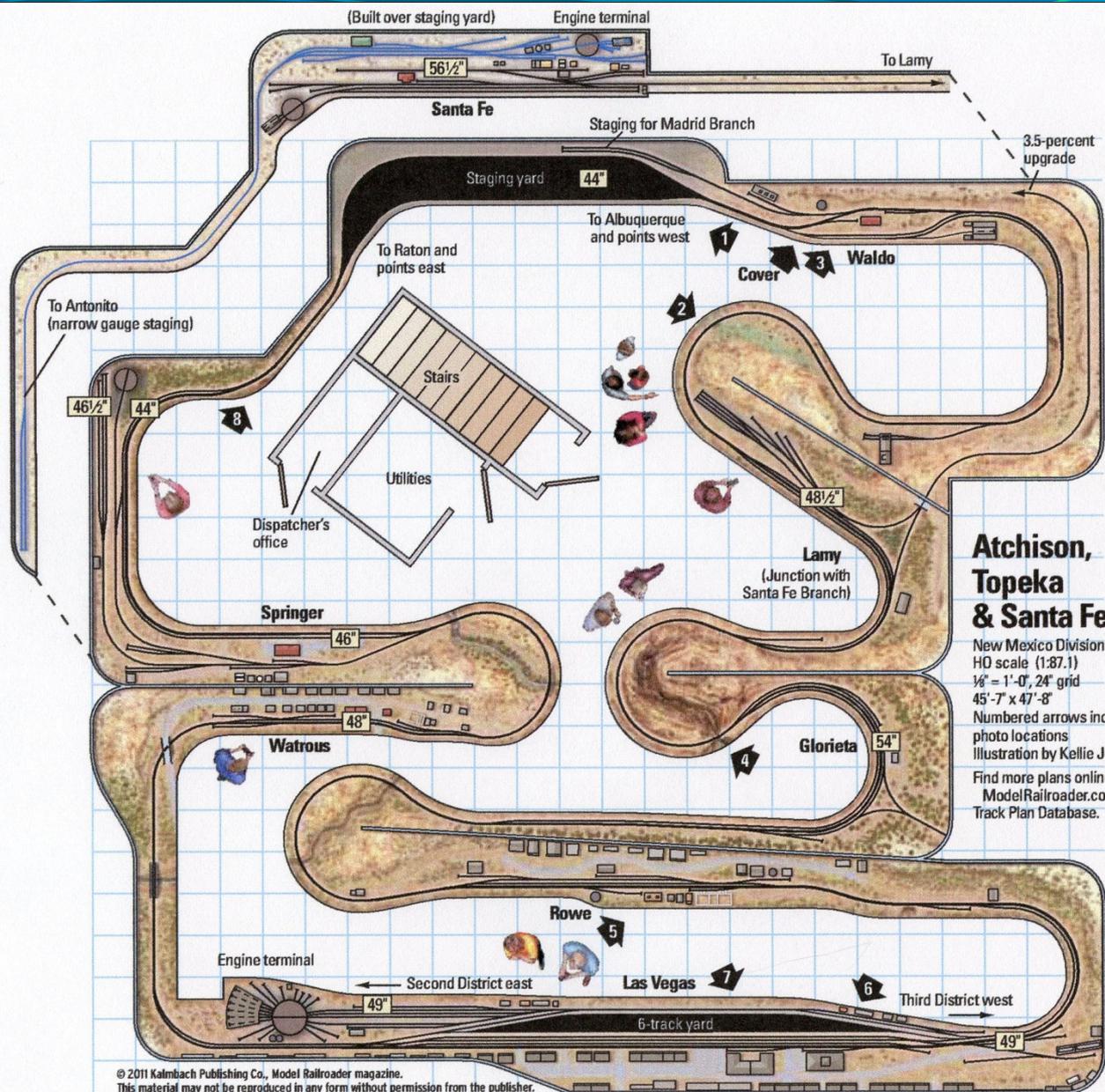
Albuquerque

West (South)

Staging

I struggled
to fit staging
into this narrow
aisle—it just
would not fit!





Atchison, Topeka & Santa Fe

New Mexico Division
 HO scale (1:87.1)
 1/8" = 1'-0", 24" grid
 45'-7" x 47'-8"
 Numbered arrows indicate
 photo locations
 Illustration by Kellie Jaeger
 Find more plans online in the
 ModelRailroader.com
 Track Plan Database.

SOLUTION: Double-ended 14 track Staging Yard-- Albuquerque and Raton



Westbound out of Raton







Springer



Local Industries



Dawson Mining District









Semaphore signals at Springer



Shoemaker Canyon



Canyon Palisade



Mora River Bridge

Palisade at Shoemaker Canyon



Mora River Bridge





Watrous



Depot Gone



Railroad Ave.







Highway 94 Overpass

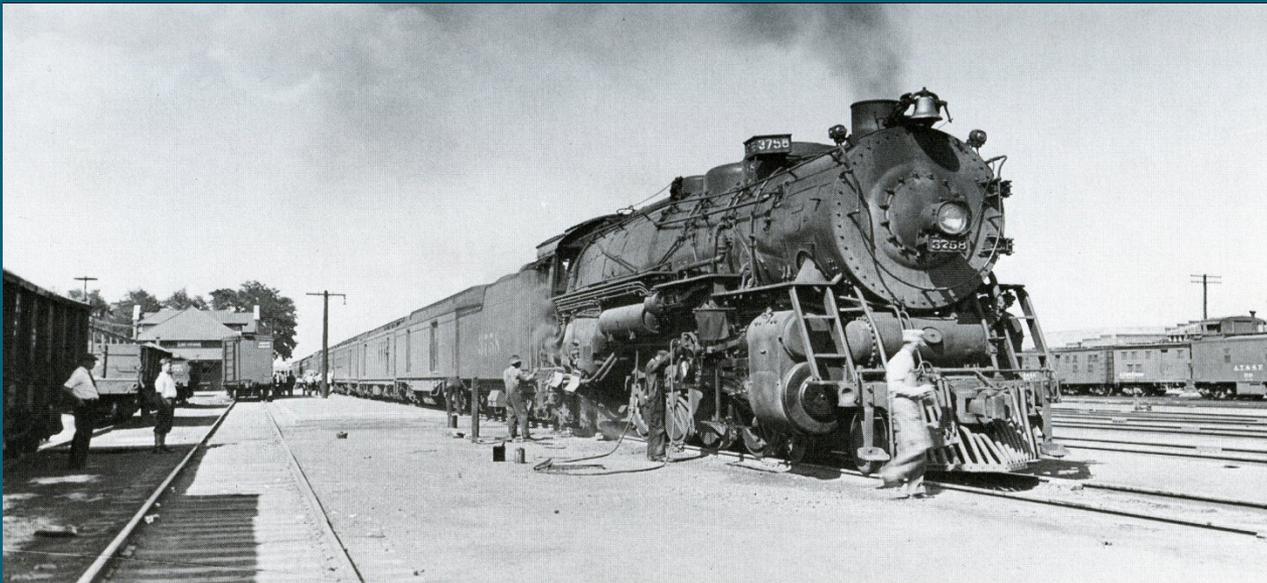
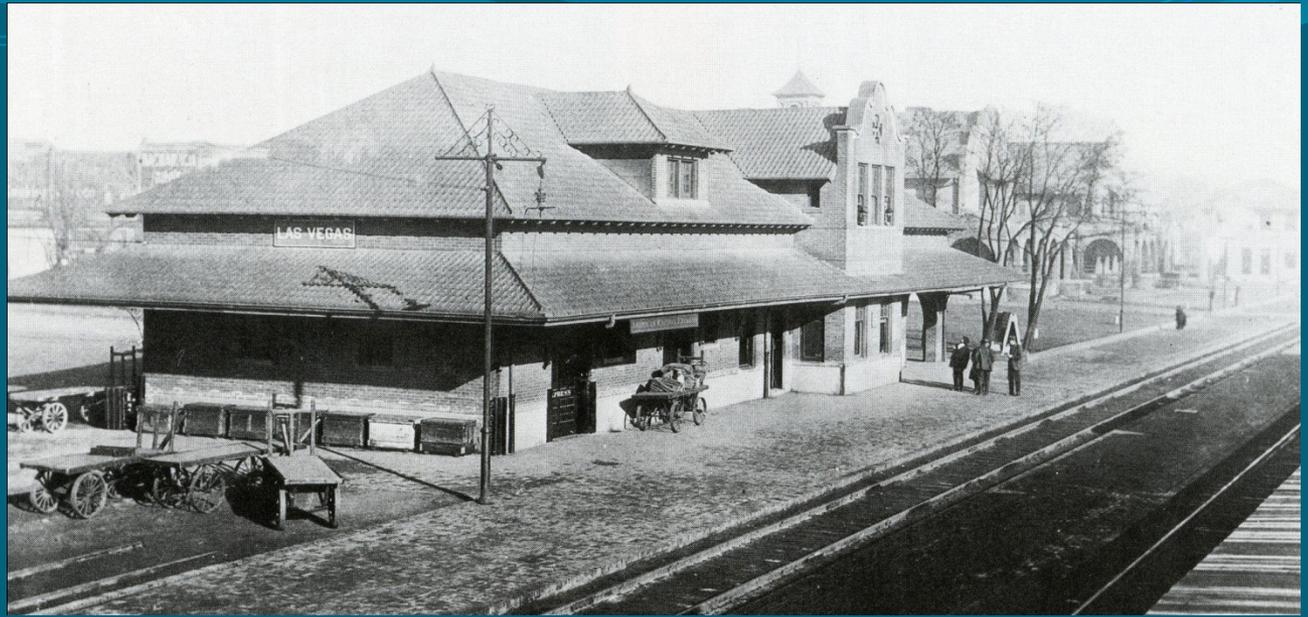




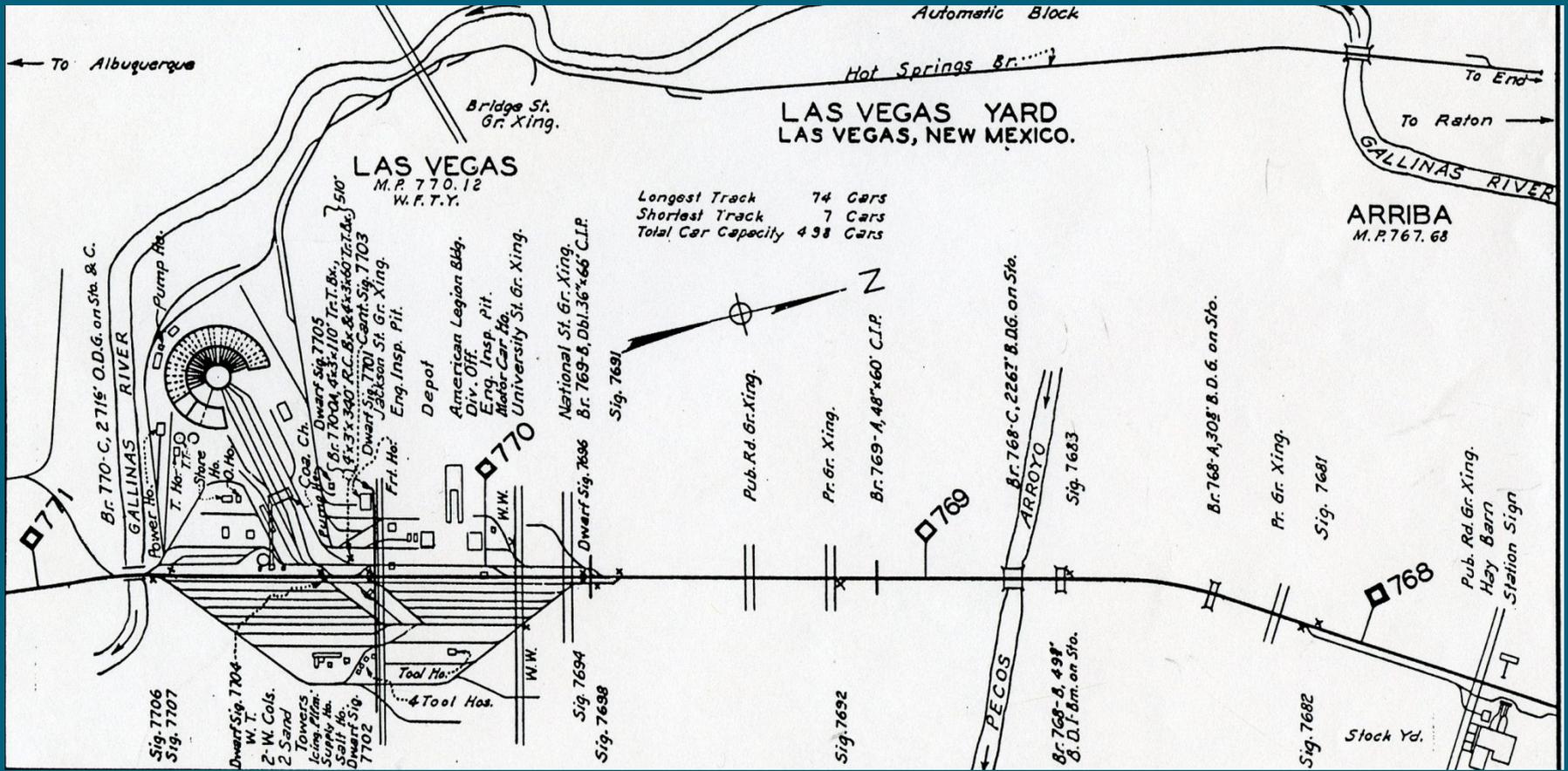
Pecos Arroyo



Las Vegas

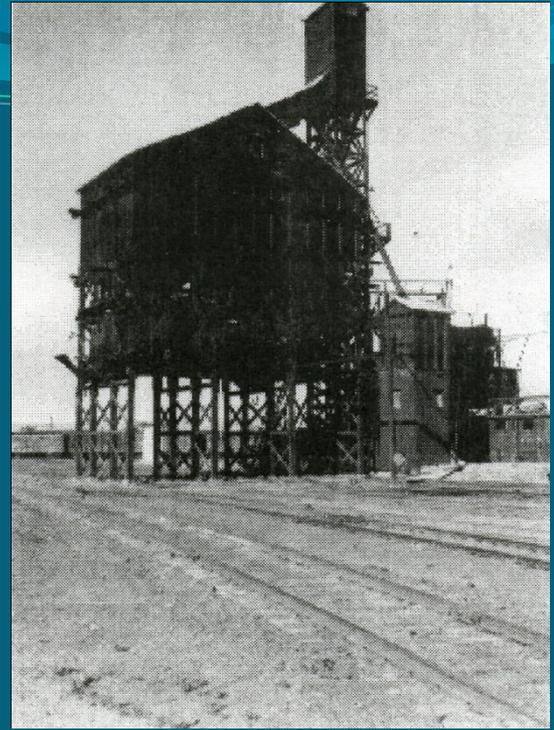


Las Vegas Track Chart



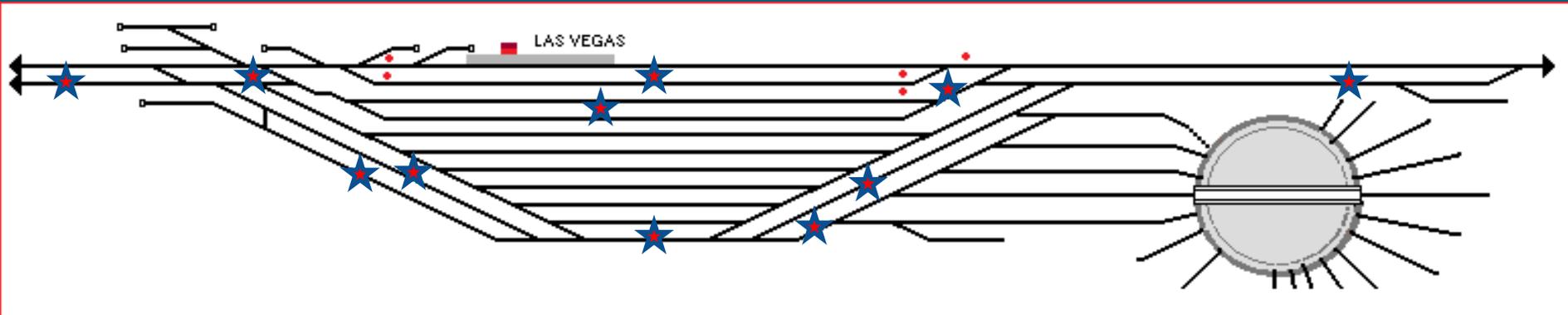






Designing a Yard

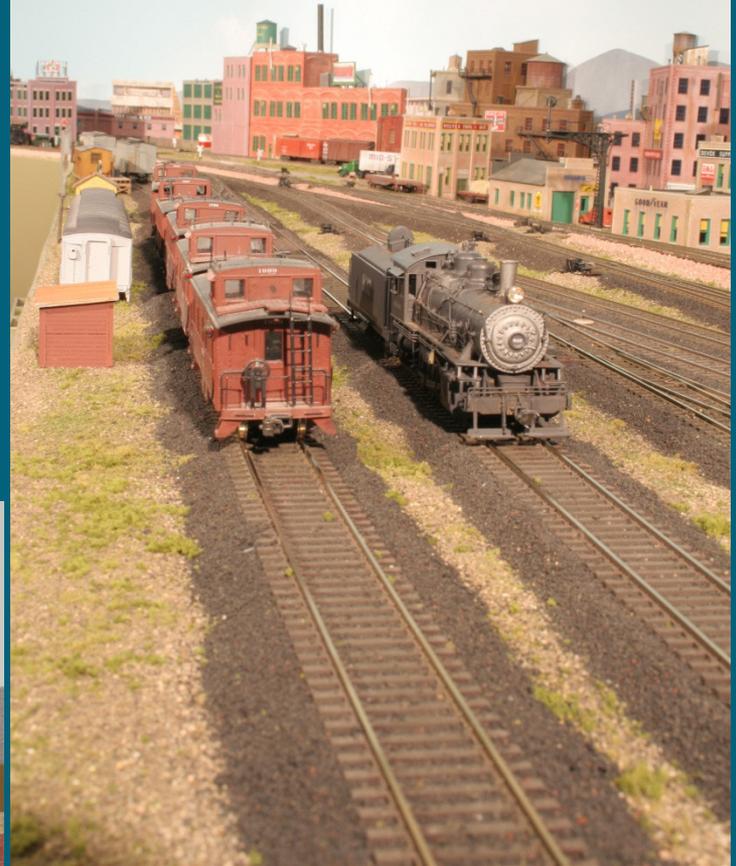
Critical elements for smooth operation







Waycar track



Freight House





Rowe





Chief passes
near Rowe

Water tank—reminder
of busier days



Rowe—on left across from Las Vegas

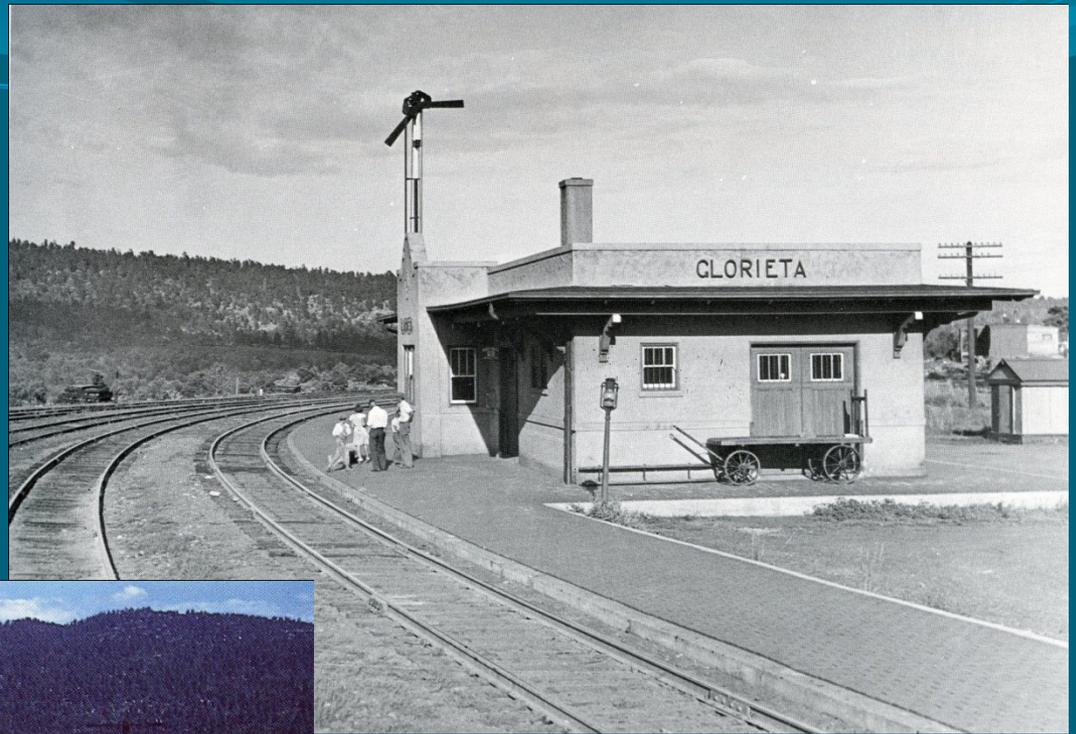


Eastbound Super Chief



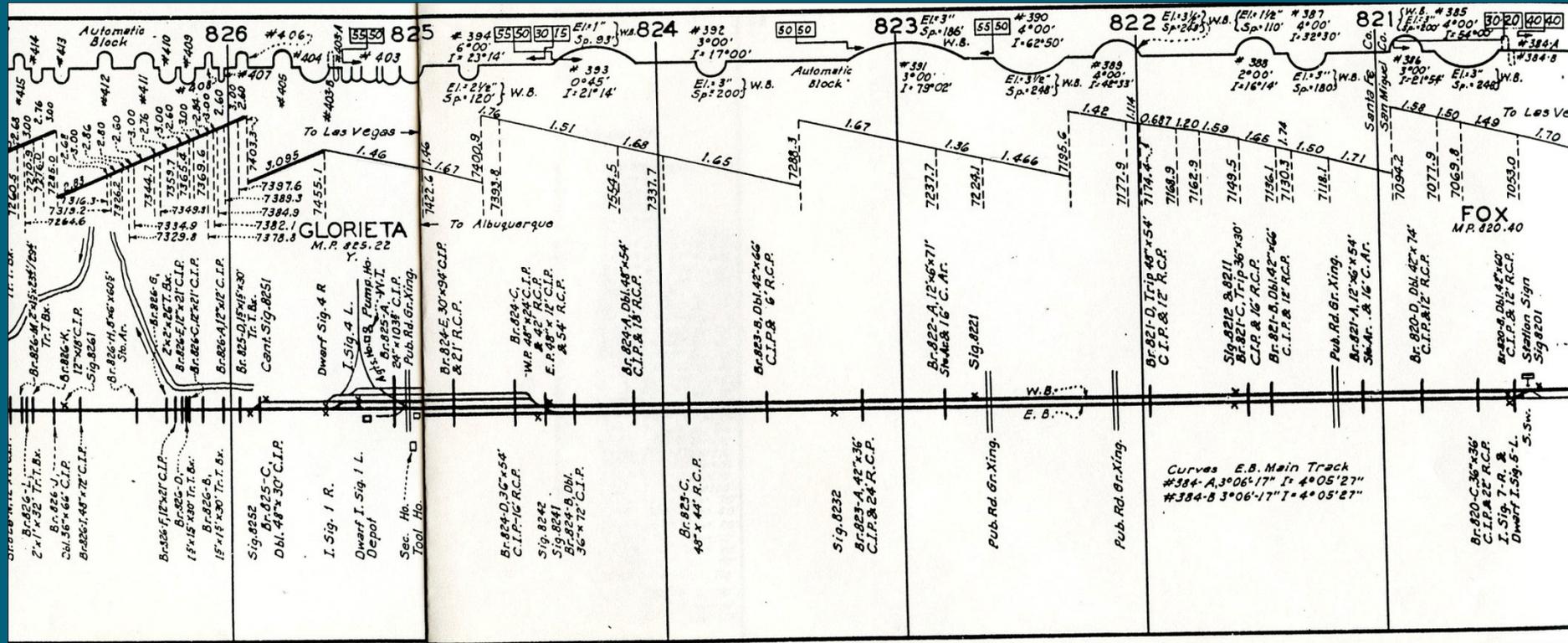
Gallinas River

Glorieta Pass



Glorieta Track Chart

Maximum grade: 3.095% eastbound; 1.71% westbound









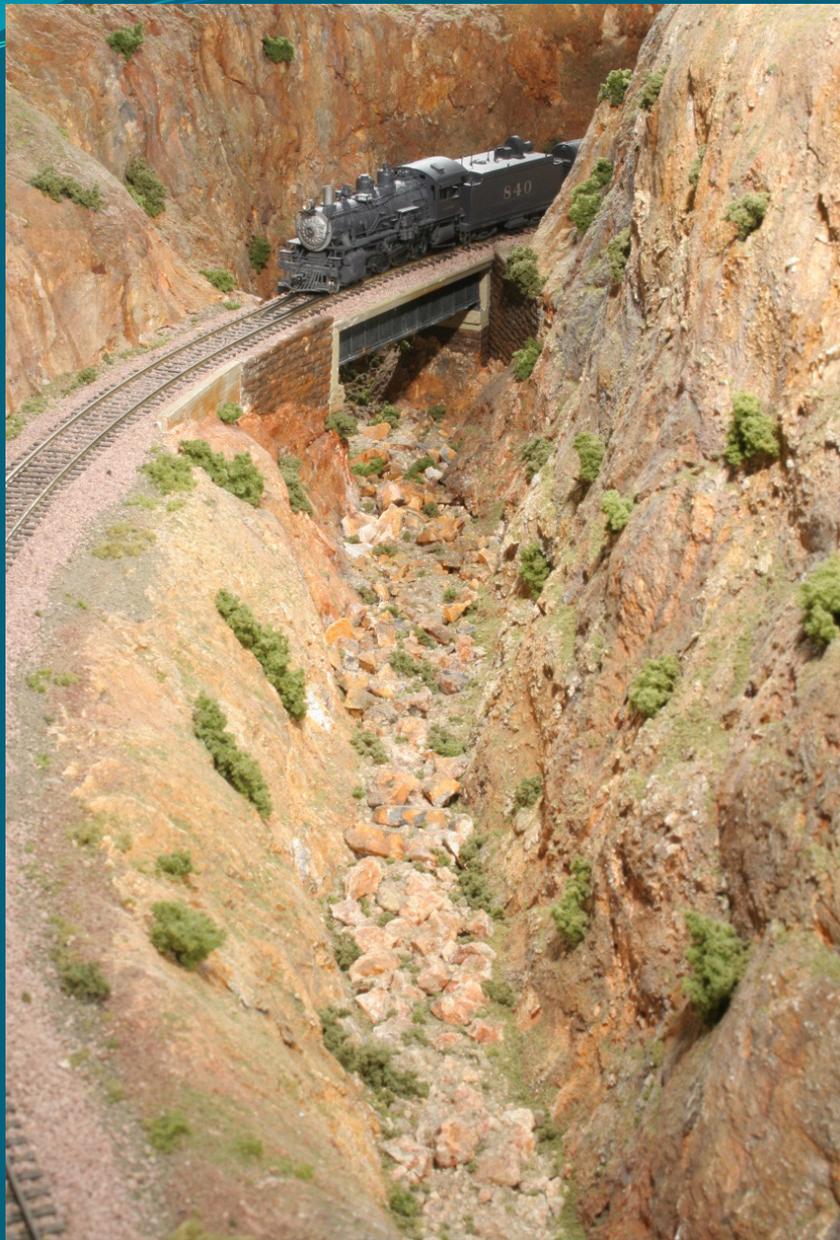
Apache Canyon



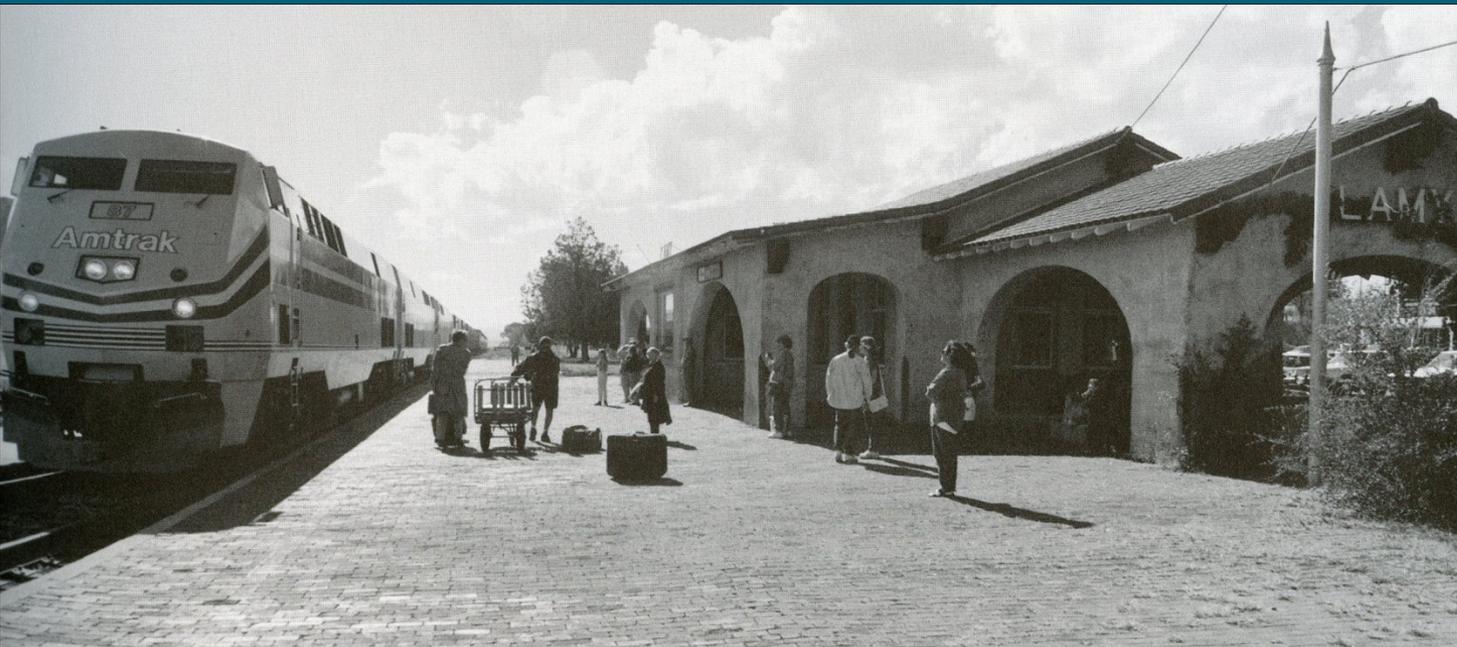
Spider Bridge







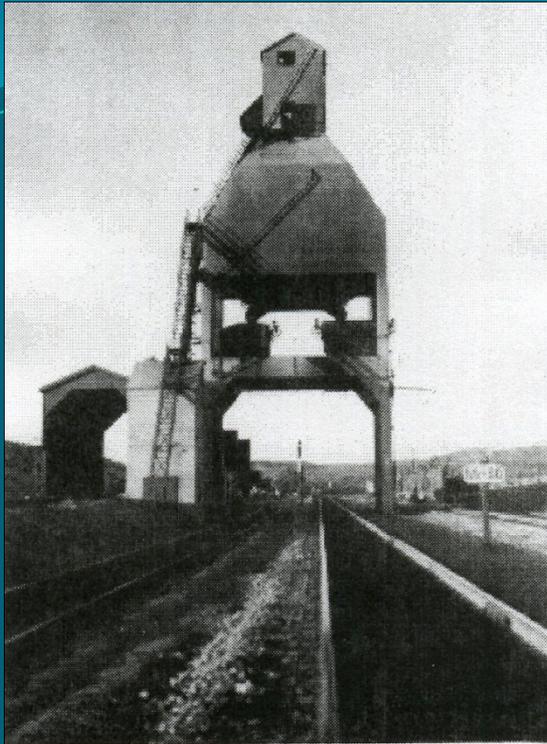
Lamy: Gateway to Santa Fe



Santa Fe Southern



3.2% grade
to Santa Fe



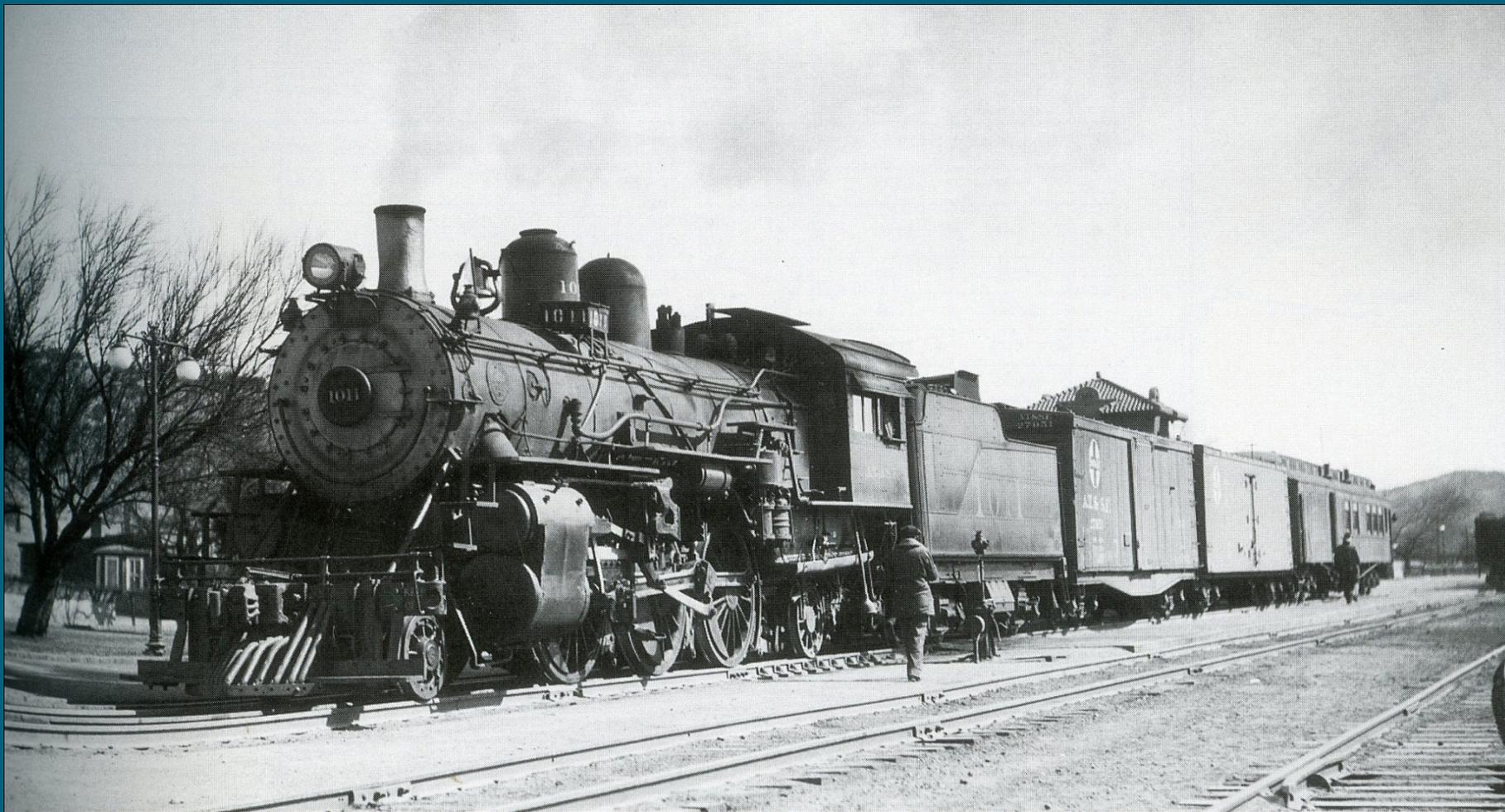








Lamy – Willard Mixed



Los Cerrillos / Waldo



Main Street – Los Cerrillos



Devil's Throne

Town of Waldo



Waldo today-
branch to
Madrid?

Coke Ovens Then



Coke Ovens Today

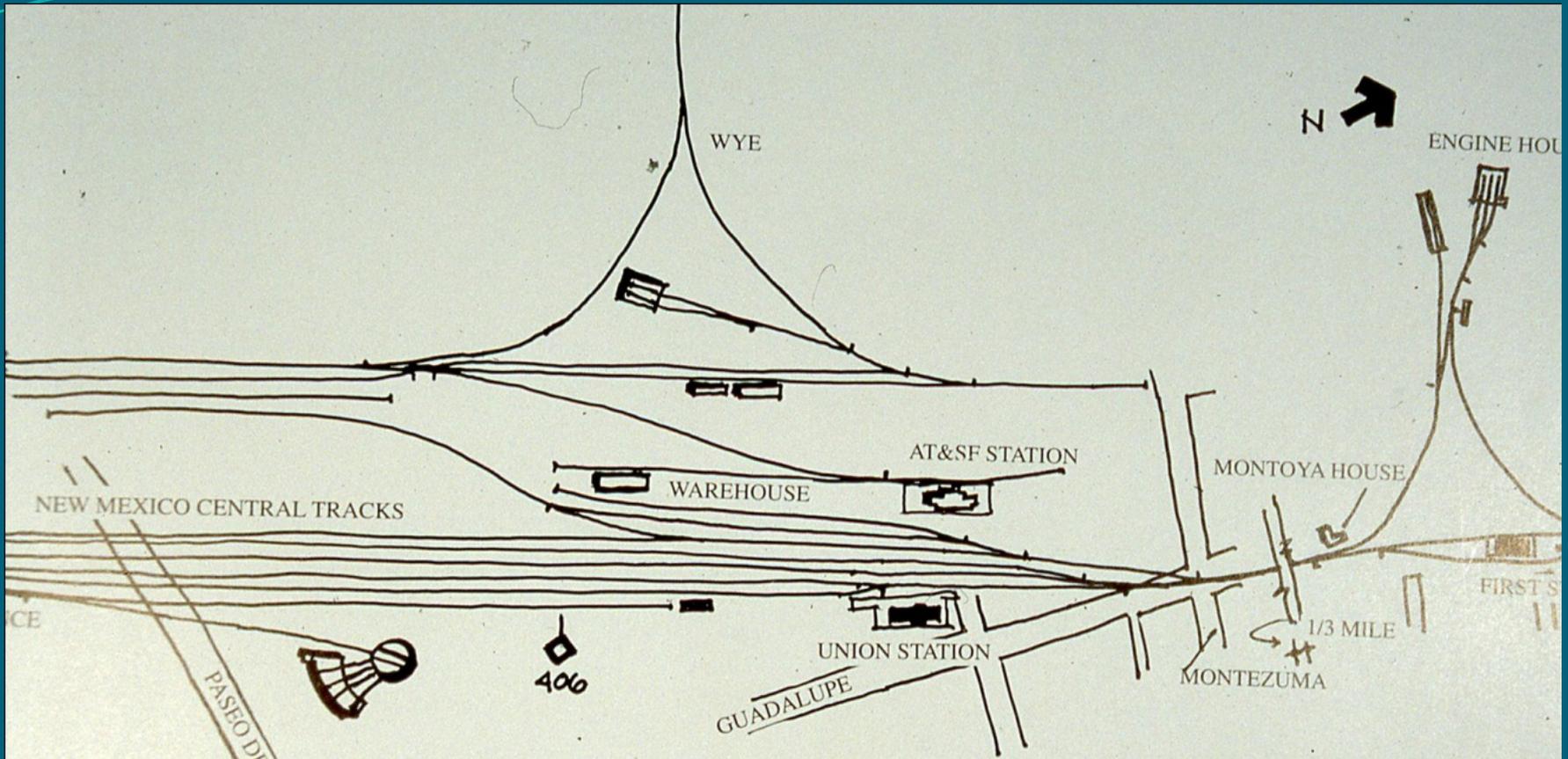






Santa Fe: the town the mainline never reached





Overall sketch of narrow and standard gauge facilities at the Guadalupe Street station site.













D&RGW Narrow Gauge



ESPAÑOLA



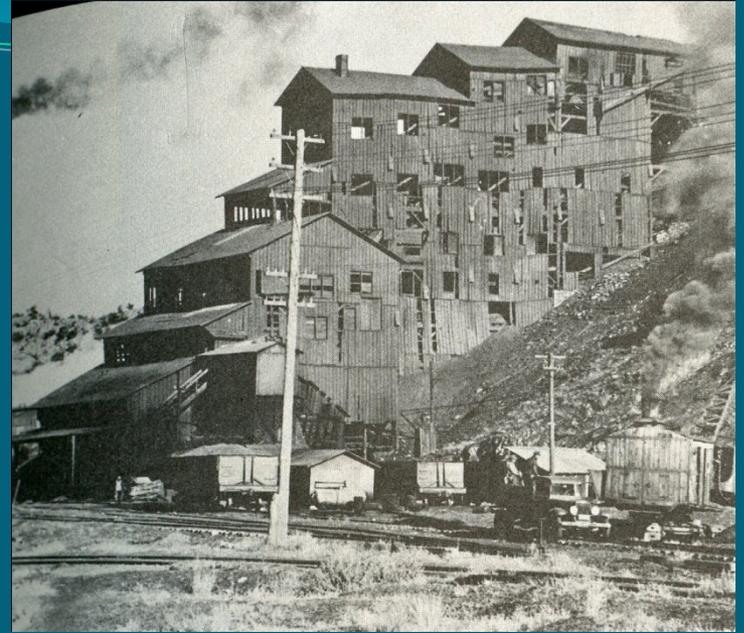
EMBUDO



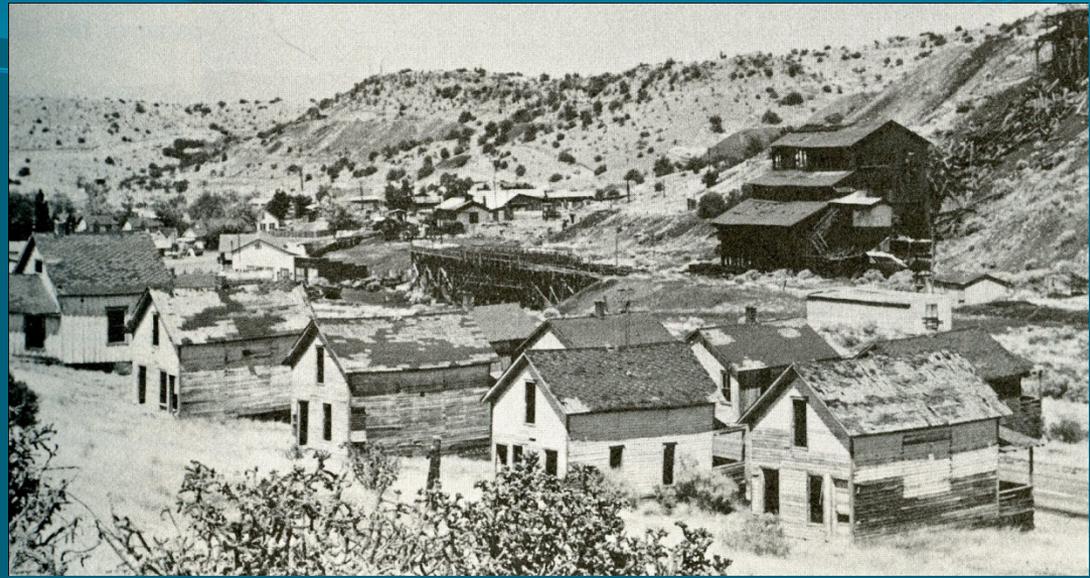
Open Staging with Scenery



Madrid District: Coal for Santa Fe



Then— Company Town



Now--Arts
and Crafts
Mecca

Operations

Train Control – Timetable & Train Order

- Timetable
- Train orders
- Rule Book

Communications

- Phone System
- Train Order Boards
- Absolute Permissive Block Signals

Car Forwarding—Car Cards and Four-sided waybills

Dispatcher—the key to a good session!

Timetable

EMPLOYEE TIMETABLE 12

NEW MEXICO DIVISION , AT&SF

| WESTBOUND READ DOWN | | | | | | | | | | EASTBOUND READ UP | | | | | | | | | |
|------------------------|-------------------------|--------------------|----------------------|-----------------------|----------------------------|-------------------------|----------------------------|------------------------|-----------------------|----------------------------|------------------------|-----------------------------|----------------------------|----------------------|-------------------|-----------------------------|-------------------------|-----------------------|------------------------|
| #3 Calif Limited | #123 Grand Canyon | #19 Chief | #21 El Capitan | #17 Super Chief | #403 SF-Madrid Motor | #503 Lamy- Madrid | #7 Fast Mail Express | #31 Redball West | STATION | #8 Fast Mail Express | #32 Redball East | #36 Grn Fruit Express | #404 Madrid-SF Motor | #22 El Capitan | #20 Chief | #124 Grand Canyon | #504 Madrid- Lamy | #18 Super Chief | #4 Calif Limited |
| 2 | 2 | 1 | 1 | 1 | 2 | 2 | 2 | 3 | CLASS | 2 | 3 | 3 | 2 | 1 | 1 | 2 | 2 | 1 | 2 |
| Raton | | | | | | | | | | | | | | | | | | | |
| 4:48a | 8:13a | 11:04a | 1:57p | 5:00p | | | 6:33p | 8:28p | lv ar | 1:23a | 3:42a | 5:58a | | 7:29a | 10:23a | 11:44a | | 2:16p | 10:55p |
| 4:55a | 8:21a | 11:10a | 2:04p meet #18 | 5:07p | | | 6:40p | 8:38p | ar lv | 1:16a | 3:32a | 5:51a | | 7:19a | 10:16a | 11:37a | | 2:09p meet #21 | 10:48p |
| 5:05a | 8:31a | | 2:11p | | | | 6:55p | | lv 32 to a | 1:01a | | | | | | 11:27a | | | 10:38p |
| 5:12a* | | | | | | | 7:02p* | 8:46p | ar lv | 12:51a | | | | | | 11:20a | | | 10:31p |
| 5:22a | 8:38a | 11:18a meet#124 | 2:17p | 5:14p | | | 7:17p | 8:46p | lv 23 to a | 12:39a* | 3:24a | 5:44a | | 7:12a | 10:09a | 11:20a meet #19 | | 2:02p | 10:21p* |
| 5:31a meet #36 | 8:47a | 11:27a | 2:26p | 5:23p | | | 7:27p | 8:56p meet #4 | ar lv | 12:30a | 3:14a | 5:35a meet #3 | | 7:03a | 9:58a | 11:04a | | 1:53p | 10:12p meet #31 |
| 6:01a | 8:55a | 11:37a | 2:36p | 5:33p | | | 8:26p | 10:11p | lv 35 to, tt, w, o ar | 11:27p | 1:59a | 4:20a | | 6:53a | 9:48a | 10:54a | | 1:43p | 9:42p |
| 6:10a | 9:06a | | | | | | 8:35p | 10:22p | ar lv | 11:18p | | | | 6:44a | 9:39a | 10:45a | | 1:34p | 9:33p |
| 6:20a | 9:16a | 11:46a | 2:45p | 5:42p | | | 8:50p | 10:22p | lv 24 to, w ar | 11:03p | 1:48a | 4:11a | | | | 10:35a | | | 9:23p |
| 6:29a** meet #22 | 9:25a meet #20 | 11:55a | 2:54p | 5:51p | | | 8:59p** meet #4 | 10:34p meet #8 | ar lv | 10:54p meet #31 | 1:36a | 4:02a | | 6:35a meet #3 | 9:30a meet#123 | 10:26a | | 1:25p | 9:14p meet #7 |
| 6:39a | 9:32a | | | | | | 9:14p | 11:04p | lv 44 to, t, w ar | 10:39p** | 1:06a | 3:32a | | | | | | | 9:04p** |
| 6:46a | 9:39a | 12:02p | 3:01p | 5:58p | 6:40p | | 9:21p | 11:14p | ar lv | 10:32p | 12:56a | 3:25a | 5:58a | 6:28a | 9:23a | 10:19a | | 1:18p | 8:57p |
| 7:16a | 9:49a | 12:12p | 3:11p | 6:08p | 6:50p | 7:30p | 9:36p | 11:14p | lv 28 to, tt, w, o ar | 10:17p | 12:26a | 2:25a | 5:48a | 6:18a | 9:13a | 10:09a | 2:00p | 1:08p | 8:27p |
| 7:25a | | | | | 7:00p | 7:40p | 9:45p | 11:26p | ar lv | 10:10p | | | 5:38a | | | 10:00a | 1:49p | | 8:18p |
| 7:35a | 9:58a meet#124 | 12:21p | 3:20p | 6:17p | 7:00p | 7:40p | 9:45p meet #8 | 11:26p | lv 24 to, w a | 9:55p | 12:14a | 2:16a | 5:28a | 6:09a | 9:04a | 10:00a meet#123 9:53a | 12:49p | 12:59p meet#504 | 8:08p |
| 7:39a | 10:02a | 12:24p | 3:24p | 6:21p | | | 10:04p | 11:32p | ar lv | 9:51p | 12:08a | 2:12a | | 6:05a | 9:00a | 9:49a | | 12:55p | 8:04p |
| Albuquerque | | | | | | | | | | | | | | | | | | | |

Shaded = PM

- siding length (40' car equivalent) w - water o - oil to - train order tt - turntable or wye

Note 1: Eastbound trains are superior to westbound trains

***Note 2: WATROUS-- Trains #3, 4, 7, and 8 make station stops at Watrous and should take the siding.**

****Note 3: GLORIETA -- Trains #3, 4, 7, and 8 make station stops and Glorieta--Trains #3, 7, and 8 should take the station track and #4 should take the main.**

Santa Fe - Madrid Branches, AT&SF

| WEST BOUND READ DOWN | | | | EAST BOUND READ UP | | | |
|--------------------------|----------------------------|---------------------------|--------------------|----------------------------|--------------------------|---------------------------|--|
| #501 SF-Lamy Mixed | #403 SF-Madrid Motor | #503 Lamy-Mad mixed | STATION | #404 Madrid-SF Motor | #502 Lamy-SF Mixed | #504 Mad-Lamy mixed | |
| 2 | 2 | 2 | CLASS | 2 | 2 | 2 | |
| Santa Fe | | | | | | | |
| 6:40a | 6:20p | | lv to, tt, w, o ar | 6:18a | 1:50p | | |
| 7:00a | 6:40p | | ar lv | 5:58a | 1:30p | | |
| Lamy | | | | | | | |
| | 6:50p | 7:30p | lv y, w, o ar | 5:48a | | 2:00p | |
| | 7:00p | 7:40p | ar lv | 5:38a | | 1:49p | |
| Waldo | | | | | | | |
| | 7:10p | 7:50p | lv to, w ar | 5:28a | | meet #18 | |
| | 7:15p | 7:55p | ar lv | 5:23a | | 12:44p | |
| Madrid | | | | | | | |

D&RGW Chili Line

| Read Down Southbound | | STATION | Read up Northbound | |
|-------------------------|-------|---------------|-----------------------|-------|
| #425 | CLASS | | #426 | CLASS |
| 2 | 2 | | 2 | 2 |
| Antonito | | | | |
| 1:30p | | lv to, tt, w, | 3:49p | |
| 1:36p | | ar lv | | |
| Embudo | | | | |
| 1:46p | | lv to, w | 3:43p | |
| 1:51p | | ar | 3:33p | |
| Espanola | | | | |
| 2:02 | | lv to | 3:18p | |
| 2:10p | | ar to, y, w, | 3:10p | |
| Santa Fe | | | | |

Rule Book

**NEW MEXICO
DIVISION**

**ATCHISON, TOPEKA
&
SANTA FE RAILWAY**



**RULEBOOK
No. 6**

Effective 12:01 a.m.

January 1, 1951

Only Rules Needed

FORM 19 Train Order No. _____ FORM 19

Date _____

To C&E _____ at _____

To C&E _____ at _____

To C&E _____ at _____

Eng _____ run extra from _____ to _____

_____ meet _____ at _____

_____ take siding and meet _____ at _____

_____ pass _____ at _____

_____ run ahead of _____ from _____ to _____

_____ has right over _____ from _____ to _____

Made COMPLETE at _____ Oper. _____

NEW MEXICO DIVISION RULE BOOK No. 6

TIMETABLE AND TRAIN ORDER OPERATIONS

- Authority to operate a train on the railroad can only be granted by a Clearance Form.
- Extras are not on the timetable, so a train order must be issued for every extra before it can operate over the railroad.

SUPERIORITY OF TRAINS

Rule S-71. A train is superior to another train by right, class, or direction.

Right is conferred by train order; class and direction by timetable.

Right is superior to class or direction.

Direction is superior as between trains of the same class.

Rule 72. First class trains are superior to second class trains, third class trains and extras. Second class trains are superior to opposing third class trains and opposing extras. Third class trains are superior to opposing extras. Eastbound trains are superior to westbound trains of the same class.

First class trains are superior to second class trains, third class trains and extra trains in the same direction.

Rule 73. Extra trains are inferior to scheduled trains.

Rule 74. Superior trains will take the main and inferior trains will take the siding unless otherwise instructed by timetable or train order.

Rule 75. First and second class passenger and third class freight train movements are governed by timetable and train order. All other trains are run as extras and are governed by train order.

Rule 76. Scheduled trains will be referred to by timetable train number. Extras will be referred to by engine number and direction (i.e. Extra 3778 east).

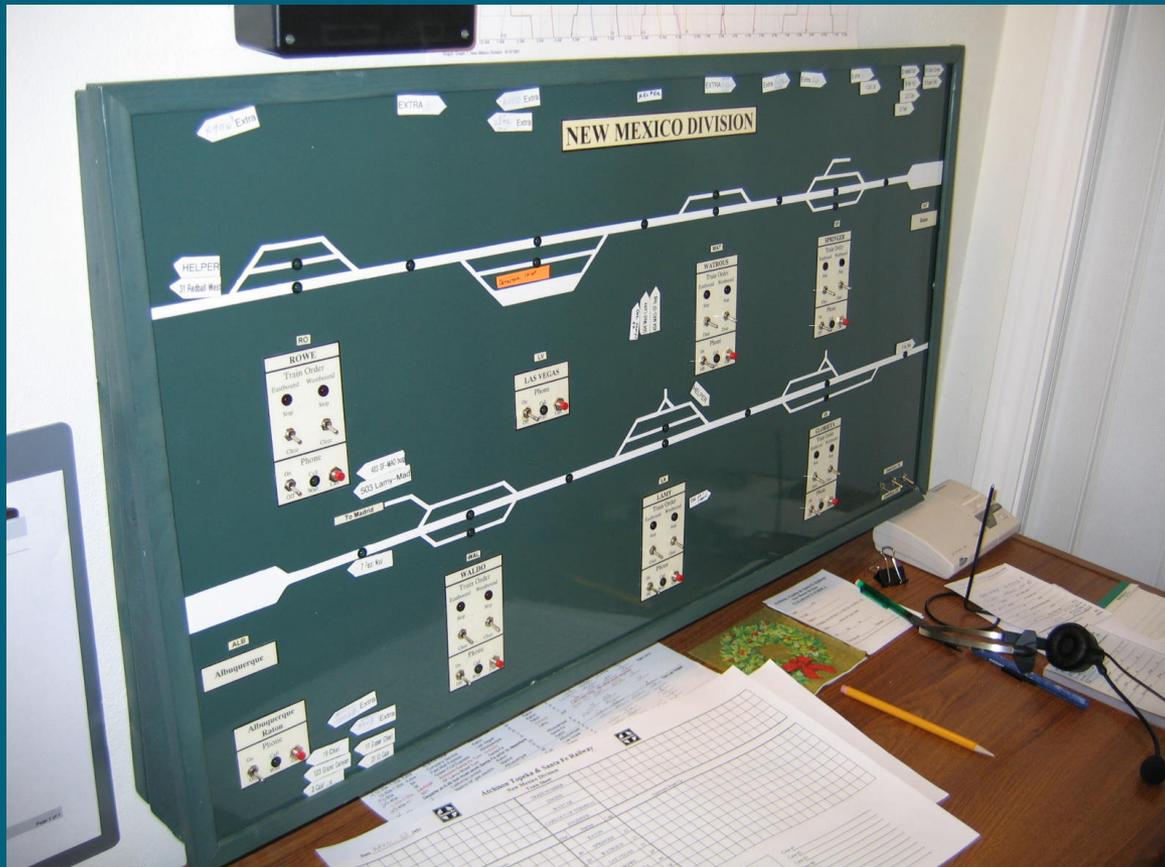
Rule 81. A main track must not be fouled or occupied without authority, unless protected as prescribed by Rule 99.

Rule 82. Timetable schedules, unless fulfilled, are in effect for twelve hours after their time at each station.

Scheduled trains running more than twelve hours behind their schedule lose both right and schedule and can therefore proceed only as authorized by train order.

Rule 87. Unless otherwise provided for, an inferior train must clear the mainline for a first class train by its scheduled departure time from the next station. An inferior train must clear all other superior trains by five minutes.

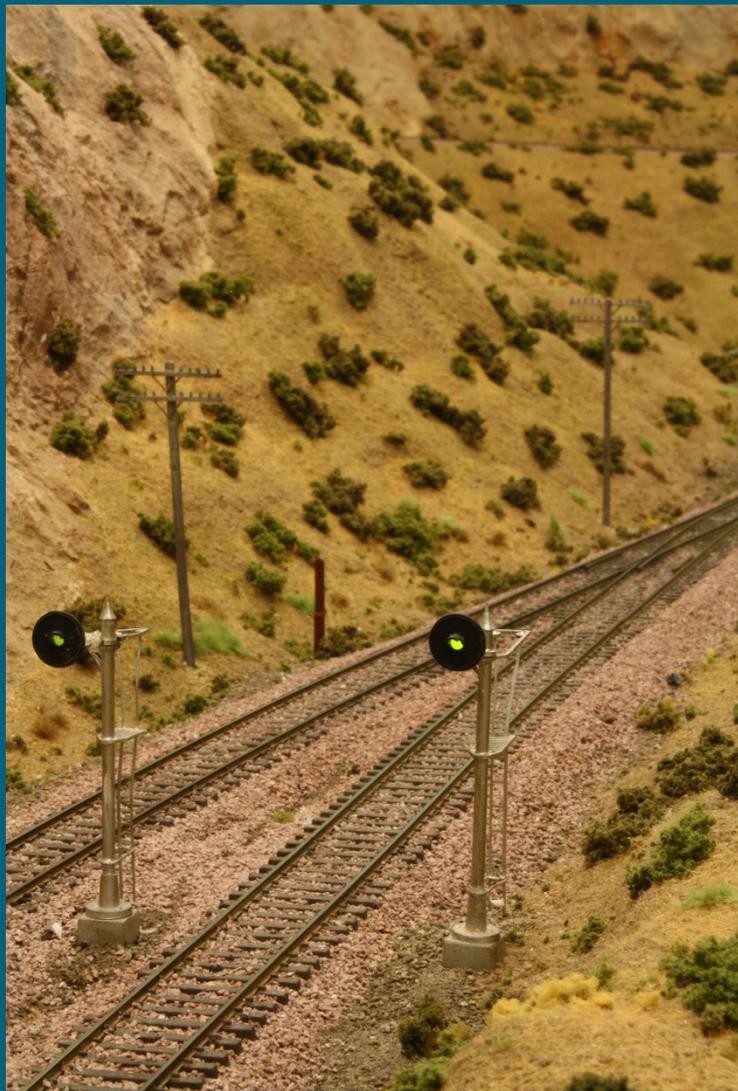
Telephone System



Train Order Boards



APB Signals



Dispatcher



The End

Questions?



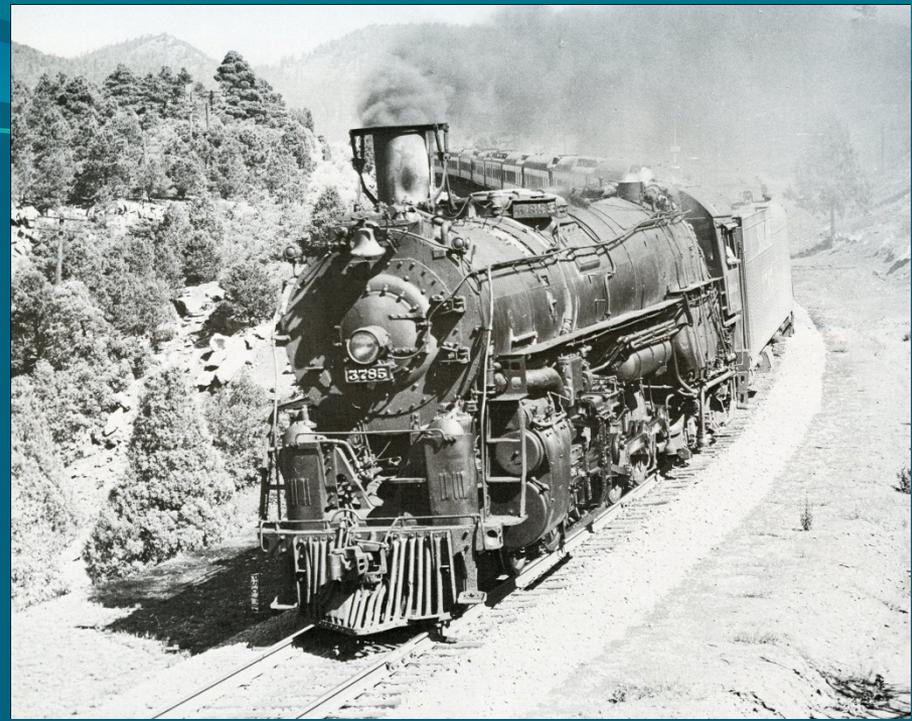


Palisade at Shoemaker Canyon





Approaching Lamy



6 Classification tracks

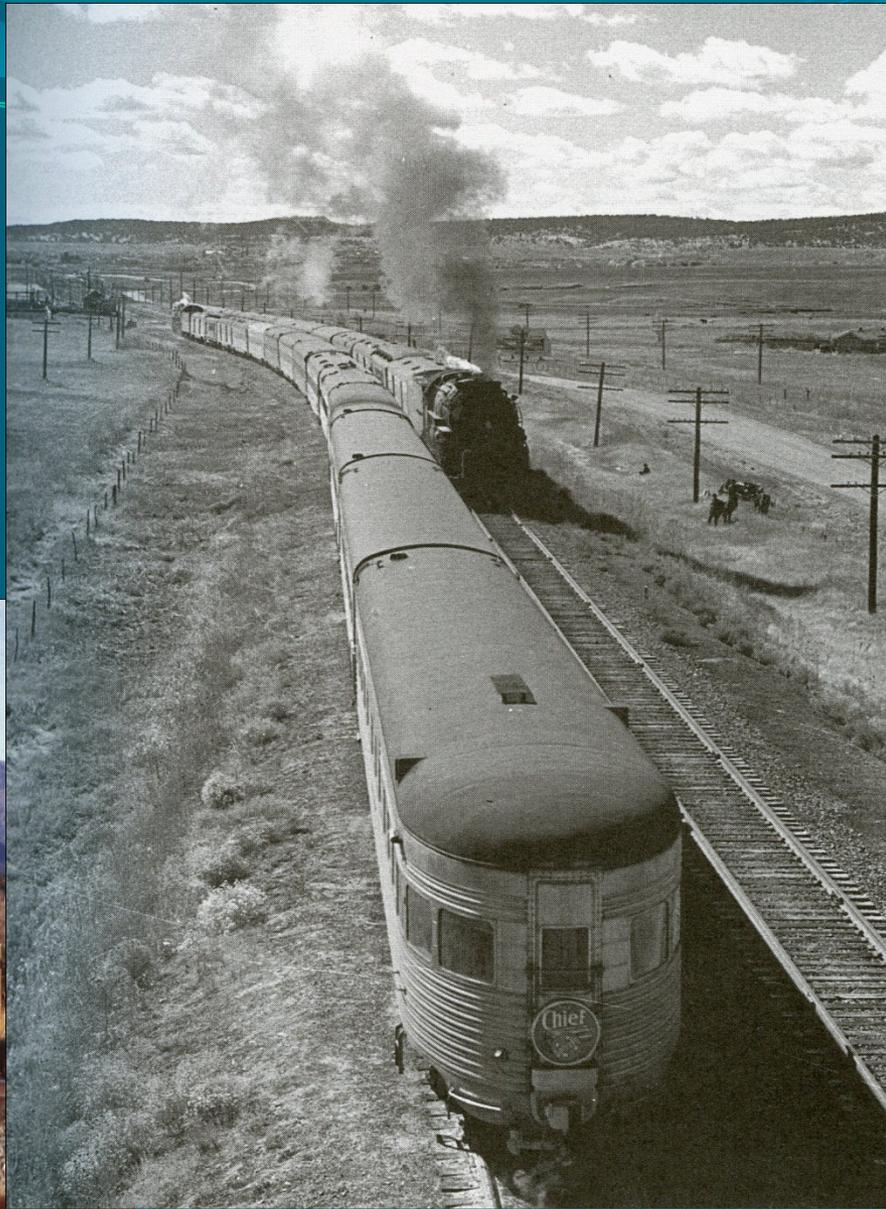


Railway Express Agency

Picking a Prototype

- Identify a prototype that meets your critical elements.
- Consider the available space and resources.
- Research.

Between Watrous and Las Vegas

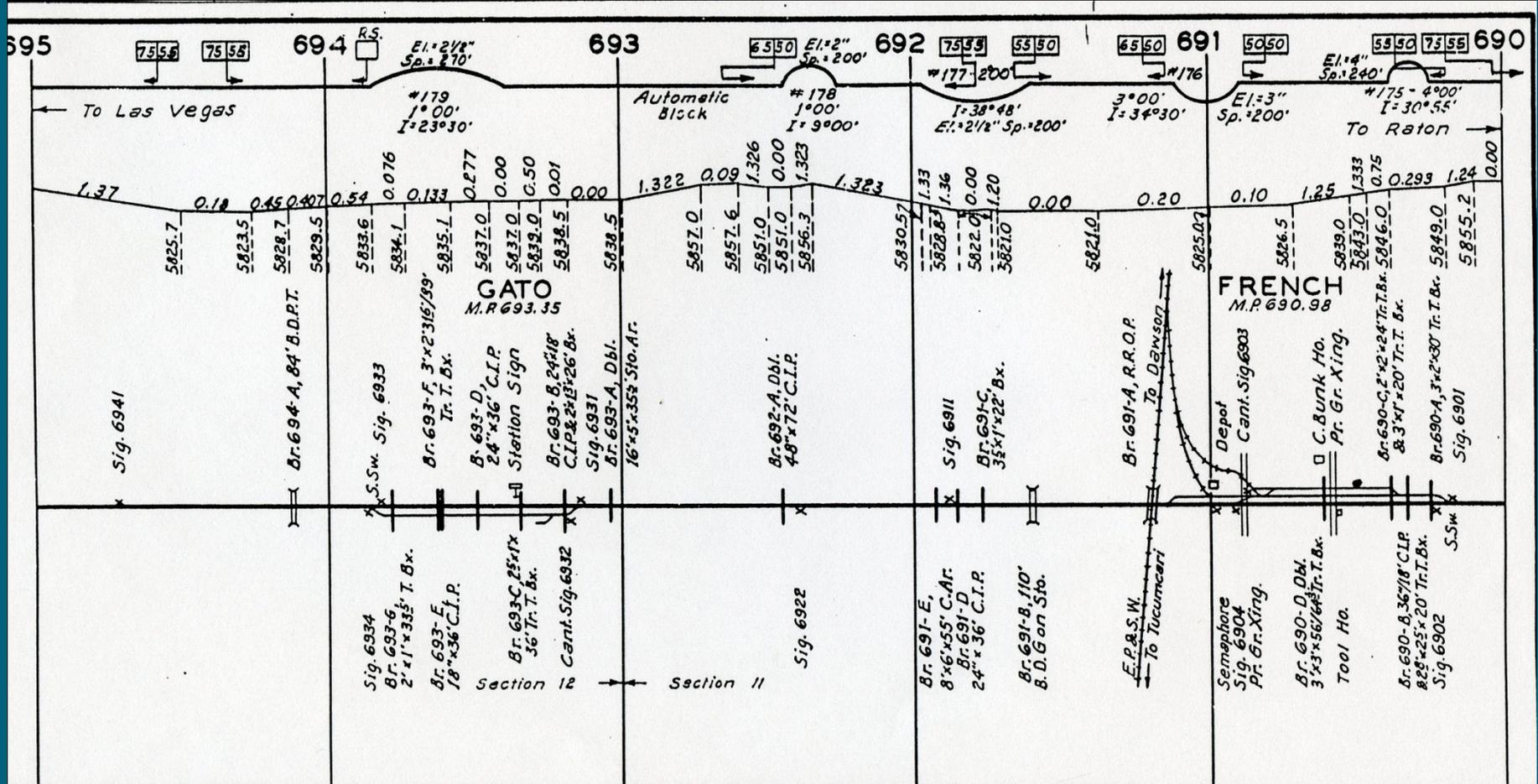


Helpers added west end of Rowe

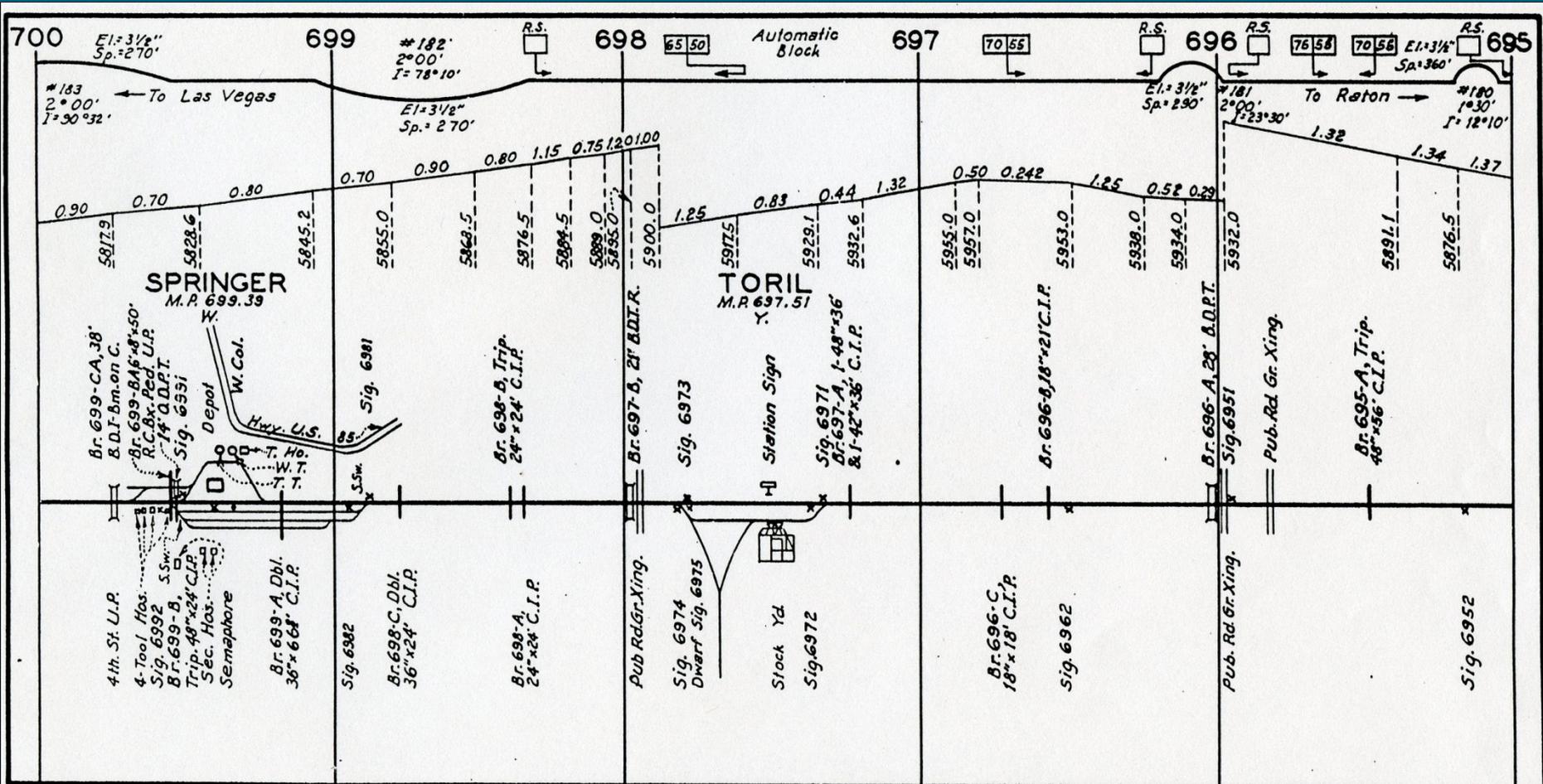


Depot area and Main Street

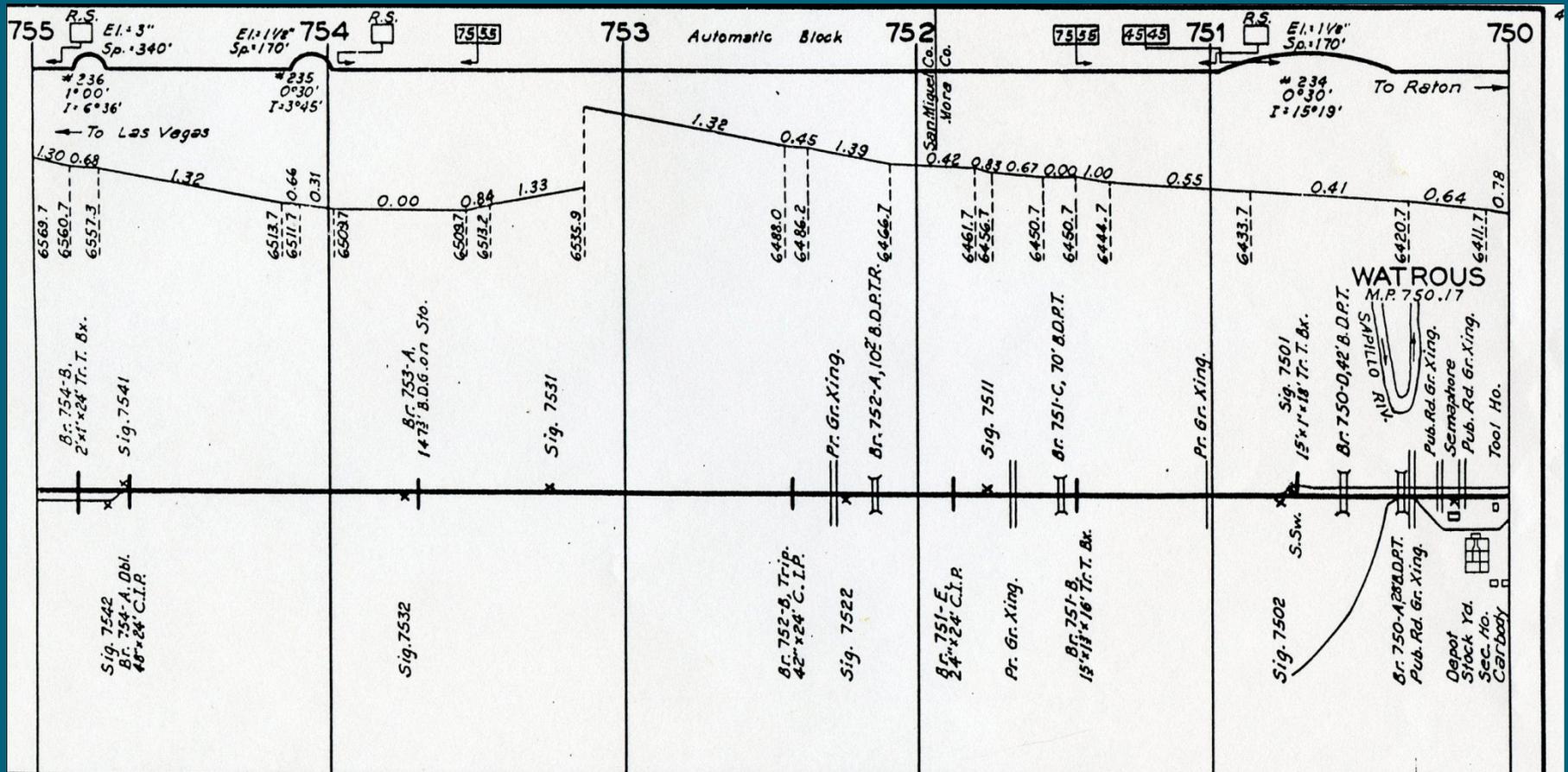
French Track Chart



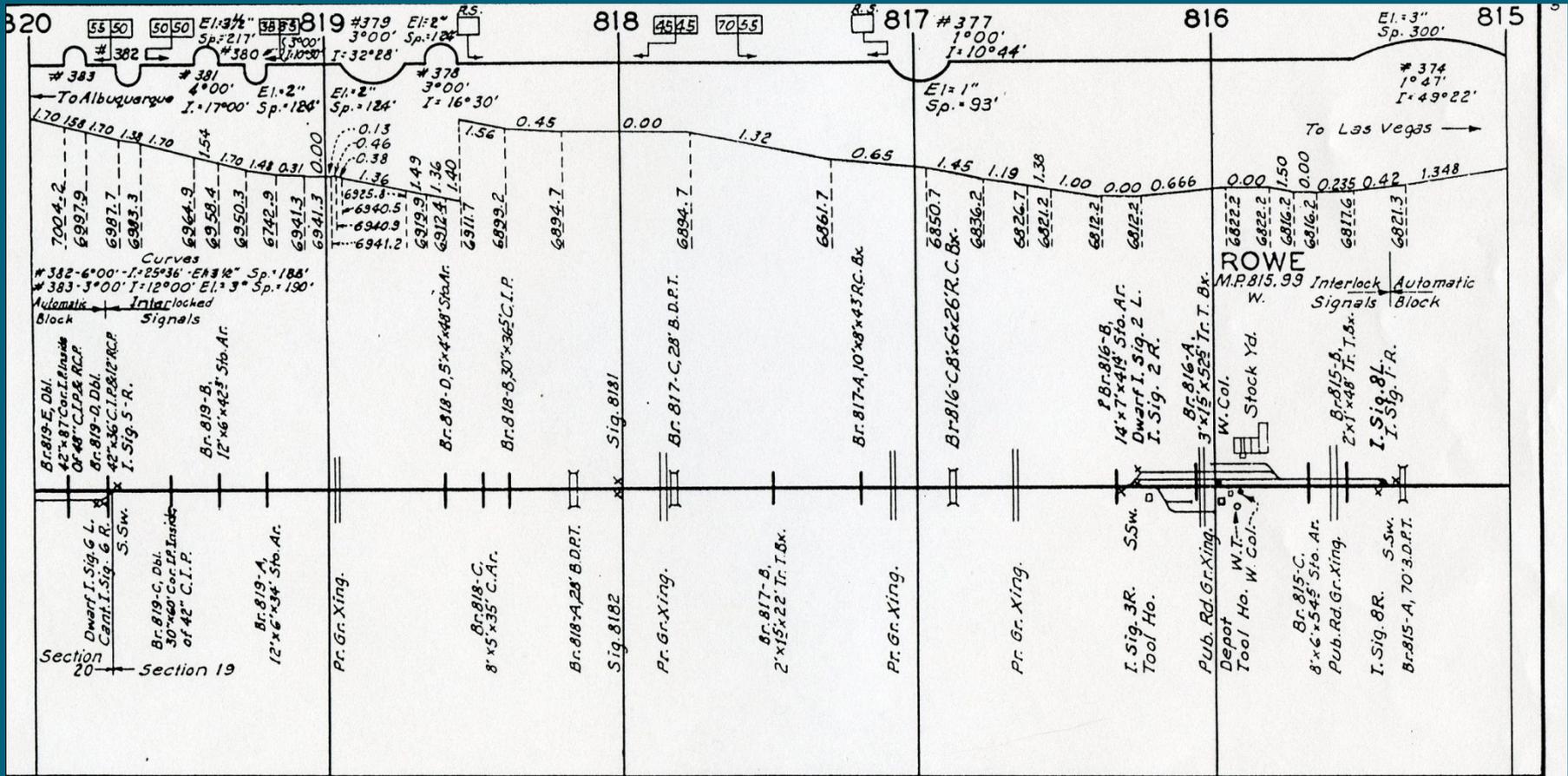
Springer Track Chart



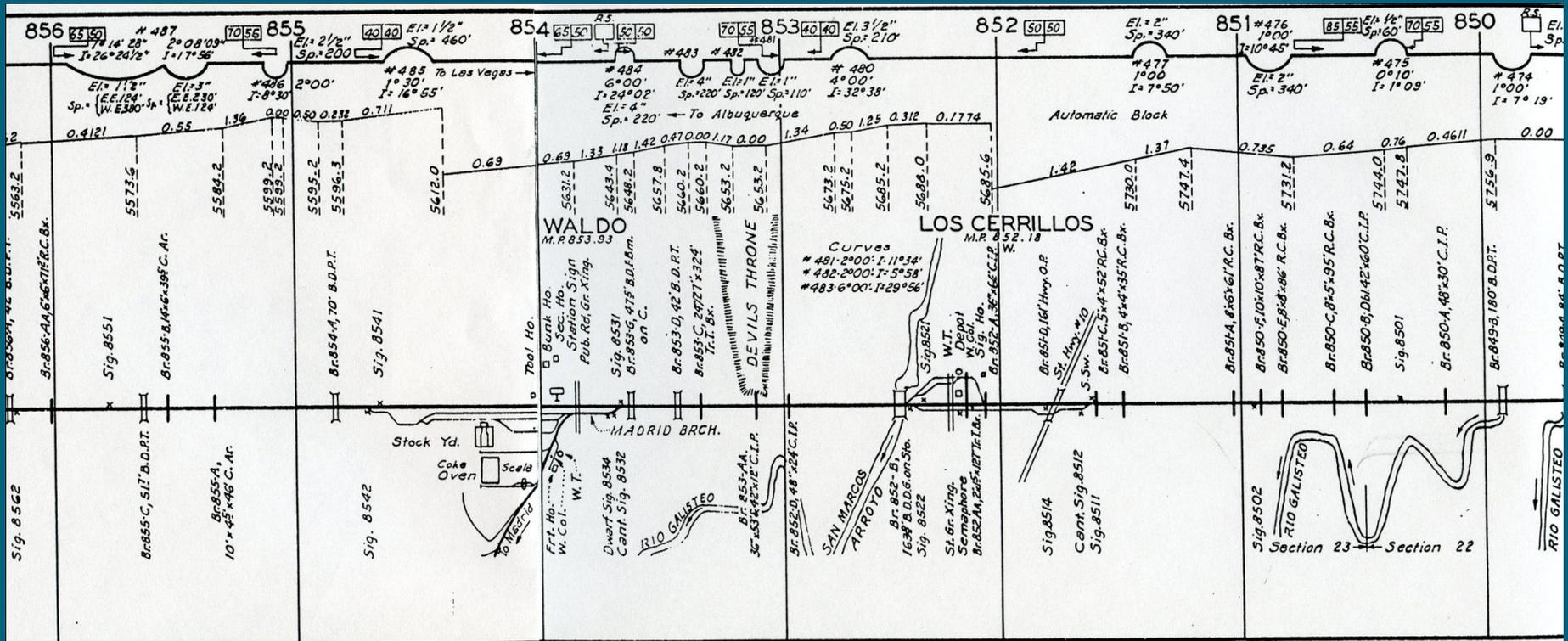
Watrous Track Chart

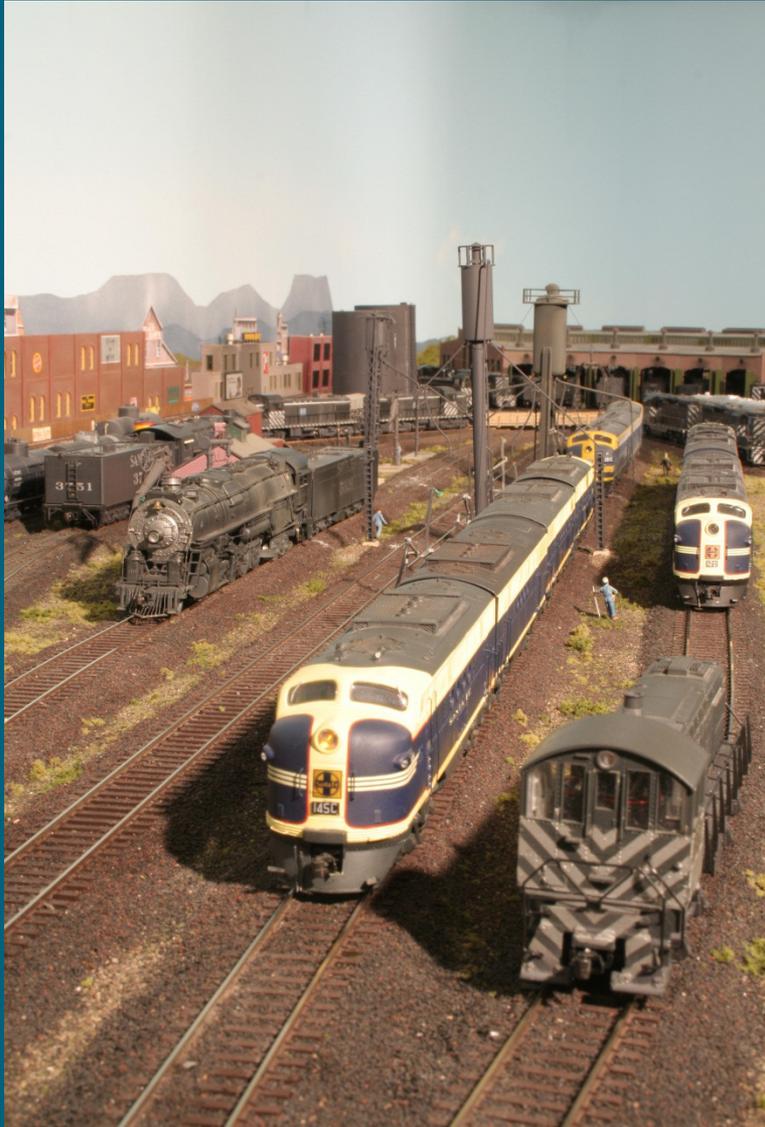


Rowe Track Chart

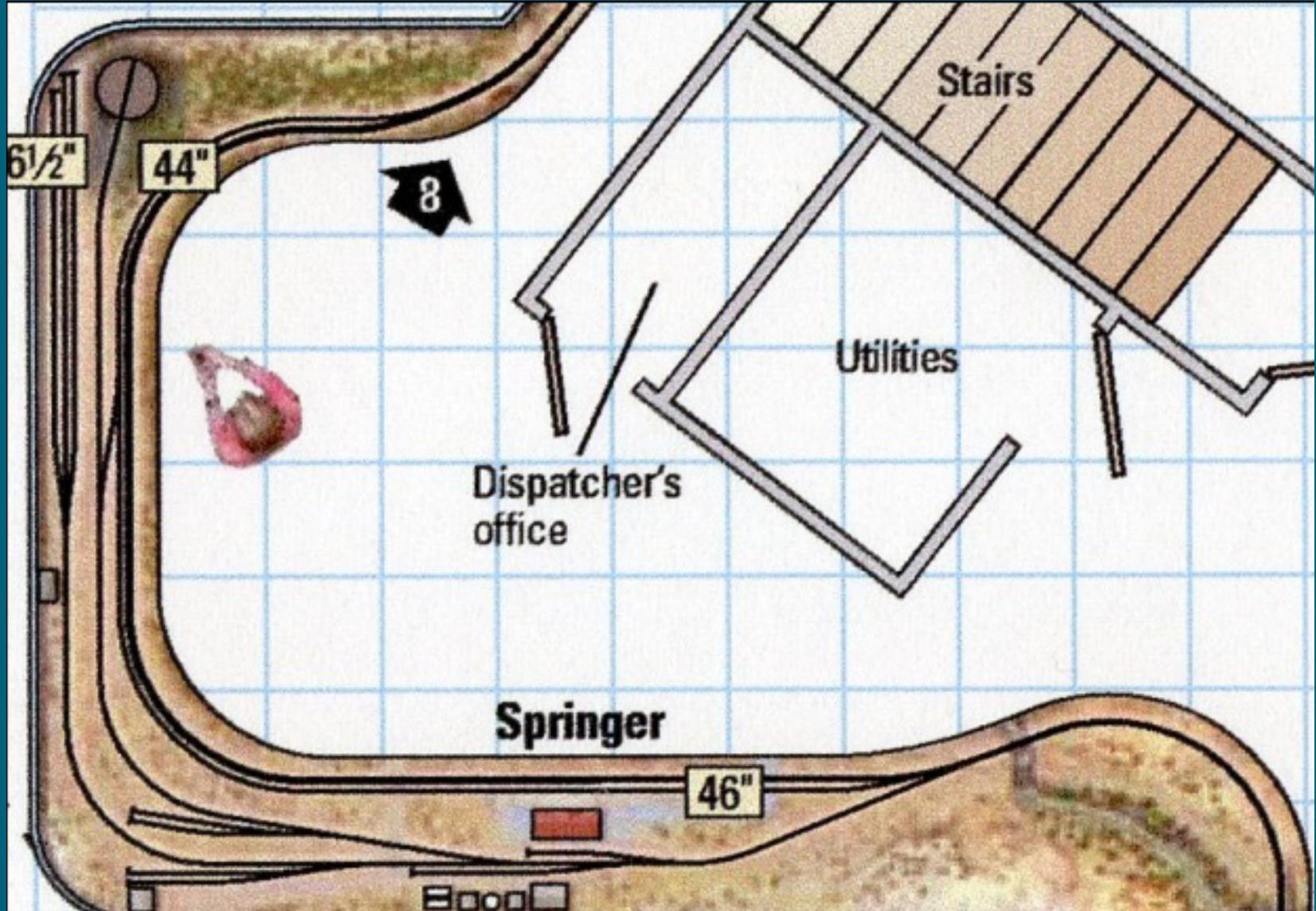


Los Cerrillos / Waldo Track Chart



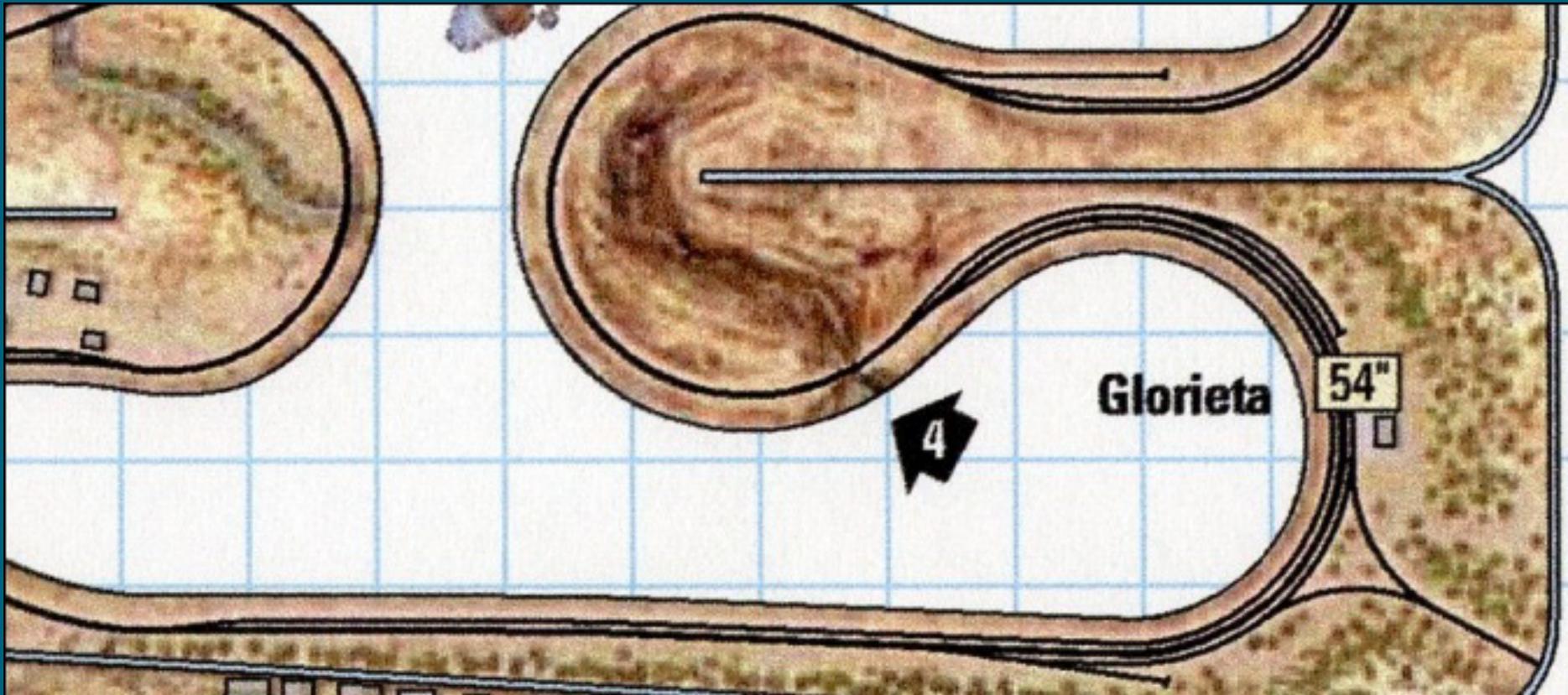


Springer Track Plan

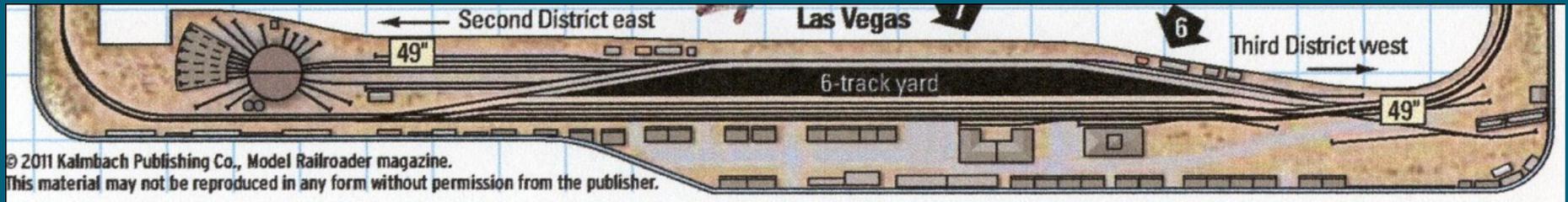




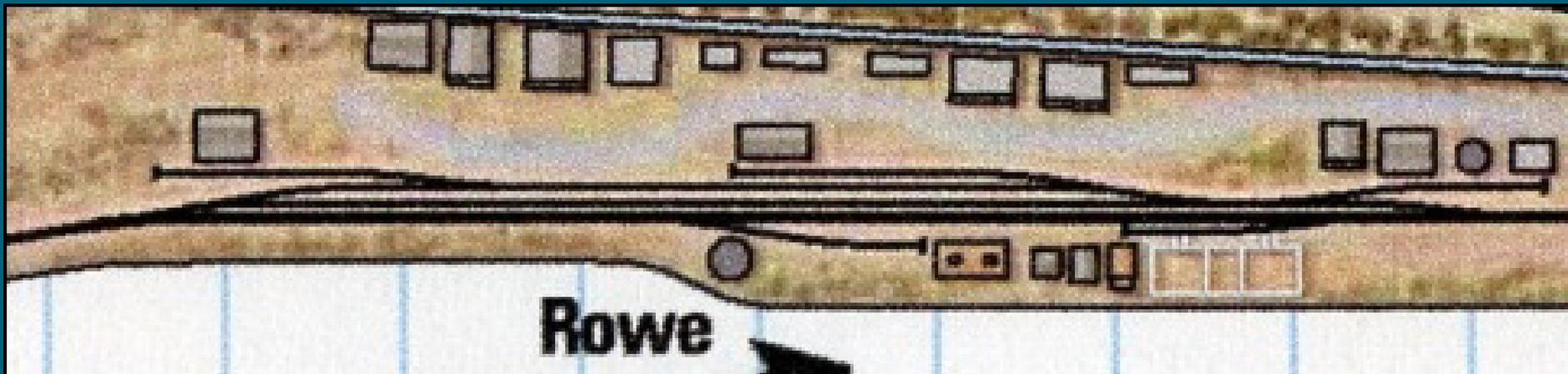
Glorieta Track Plan



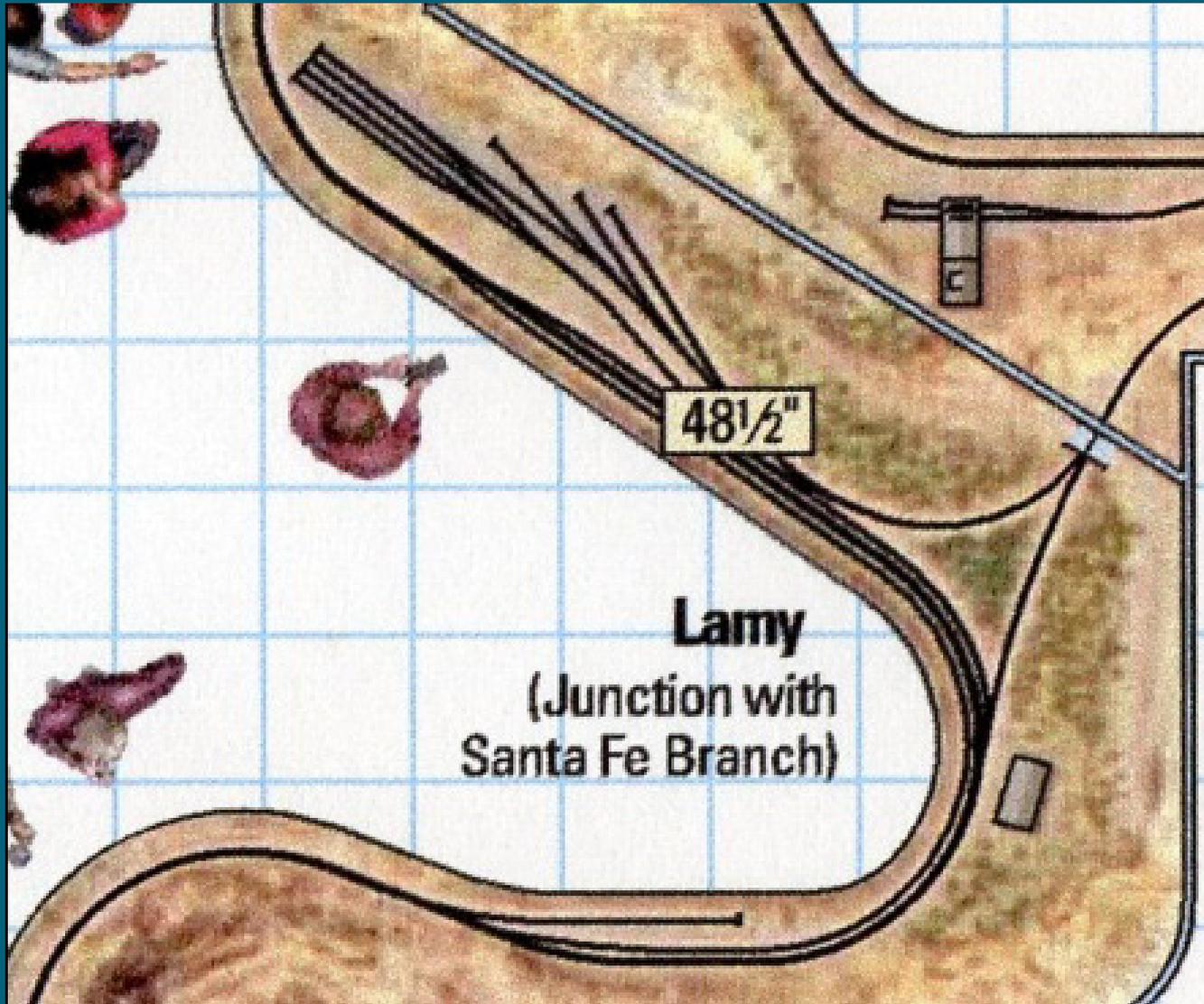
Las Vegas Track Plan



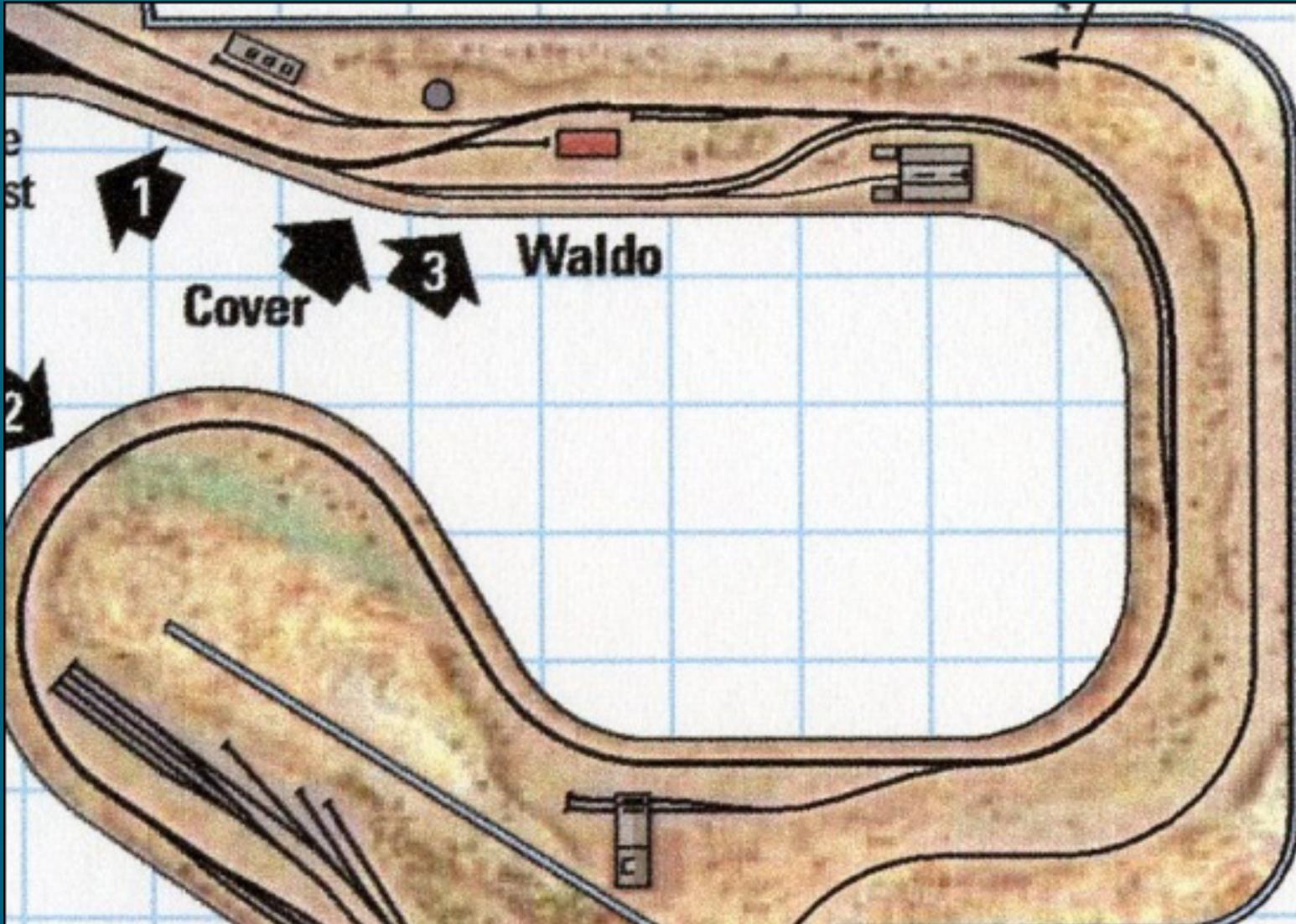
Rowe Track Plan



Lamy Track Plan



Waldo Track Plan



Santa Fe Track Plan

