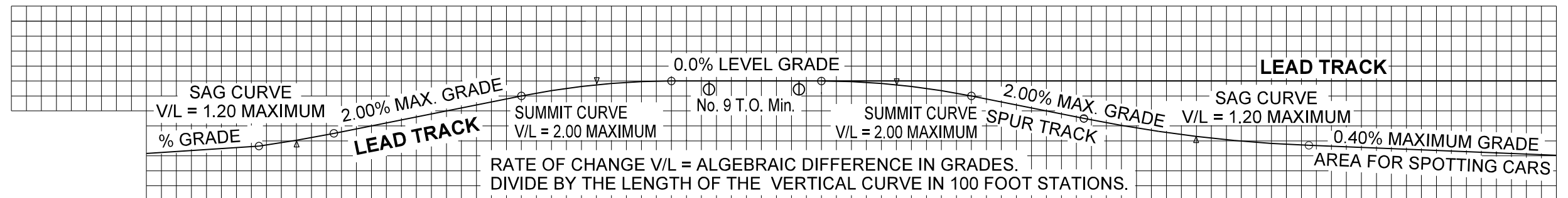


TURNOUTS, TRACK CENTERS, CURVES AND DERAILS



GRADES AND VERTICAL CURVES

NOTES:

1. THE MINIMUM RADIUS OF CURVE IS SHOWN ON THIS TYPICAL LAYOUT DRAWING. THE MINIMUM RADIUS SHOULD BE 573.69-FEET FOR INDUSTRIAL LEAD TRACKS, EXCEPT THAT THE RADIUS OF THE REVERSE CURVE FOR ANY TRACK ADJACENT AND PARALLEL TO A MAIN LINE, RUNNING TRACK OR SIDING TRACK SHOULD CORRESPOND TO THE THEORETICAL CURVE FOR THE TURNOUT USED FOR THE TRACK.
2. IN ALL CASES THE MINIMUM ALLOWABLE RADIUS OF A CURVE IS 573.69-FEET, EXCEPT THAT THE RADIUS ON A LEAD OR SPUR TRACK MUST BE INCREASED BY THE TRACK CENTER DISTANCE FOR EACH ADDITIONAL TRACK WHERE IT IS PLANNED TO CONSTRUCT ADDITIONAL TRACKS AS CONCENTRIC CURVES ON THE INSIDE OF A LEAD OR SPUR TRACK.
3. DERAILS SHALL BE INSTALLED TO PROTECT MAINLINE, SIDING, RUNNING OR LEAD TRACKS WHERE GRADE AND OTHER LOCAL CONDITIONS JUSTIFY THE INSTALLATION AS DETERMINED BY THE AVP TRACK MAINTENANCE.
4. THERE MUST BE AT LEAST 60-FEET OF TANGENT BETWEEN REVERSE CURVES.
5. TRACK CENTERS MUST BE AT LEAST 15-FEET WHERE NO. 9 CROSSOVERS ARE INSTALLED. MEASUREMENT FROM THE HEEL OF FROG IS PREFERRED FOR TANGENT TRACK BETWEEN TURNOUT AND REVERSE CURVE OR TANGENT IN CROSSOVERS, BUT MEASUREMENT FROM TOE OF FROG IS ALLOWABLE.
6. A NEW CURVE MUST BEGIN AT OR BEYOND THE LAST LONG TIE OF A TURNOUT.
7. PROPOSED INDUSTRY TRACK CENTERS ARE SUBJECT TO UNION PACIFIC'S REVIEW TO ENSURE THAT PROPOSED INDUSTRY TRACKS WILL NOT HAVE IMPACTS ON FUTURE PROJECTS.

EXHIBIT
"A-3"



UNION PACIFIC RAILROAD

Office of Chief Engineer Design

INDUSTRY STANDARDS

**PREFERRED LAYOUT
STANDARDS FOR
INDUSTRIAL TRACKS**

ADOPTED: JAN. 1, 1980
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EXHIBIT

"A-3"