

TRACKWORK

LAYOUT DESIGN STANDARDS

MINIMUM RADIUS IS 6' ON MAINLINE TRACK AND 4' ON BRANCLINES. ALL OF THESE CURVES ARE TO HAVE SPIRAL EASEMENTS AT EACH END. MAXIMUM GRADIENT ON THESE LINES IS 1 ½ %. MAINLINE TURNOUTS ARE #10 AND OTHERS SHALL BE #8.

(IT MAY BE USEFUL TO RELAX RADIUS AND FROG # STANDARDS IN INDUSTRIAL AREAS).

CONSTRUCTION STANDARDS

ROADBED

SINGLE LINE ROADBED CONSISTS OF THREE LAYERS. A BOTTOM OR SUB-SUBROADBED OF 4" WIDE 5/8" PLYCORE, A SUB ROADBED OF 2" WIDE 5/8" PARTICLE BOARD AND A ROADBED OF 1 ¼" WIDE LUAN PLYWOOD. ALL ARE TO BE CUT ACCORDING TO THE TRACK PLAN. THE WIDTH DIFFERENCE BETWEEN THE PLYCORE AND THE PARTICLE BOARD PROVIDES A PLACE TO ANCHOR SCENERY WHILE ALSO LEAVING ROOM FOR DRAINAGE DITCHES. PARALLEL TRACKS SHALL BE 2" APART CENTER TO CENTER. FOR EACH ADDITIONAL TRACK ADD 2" TO THE WIDTHS OF THE SUB – SUB AND THE SUB ROADBEDS, BUT USE SEPARATE LINES OF LUAN FOR EACH TRACK. THE CLUB HAS A CIRCLE CUTTING DEVICE, WHICH CAN BE USED TO CUT THE VARIOUS ROADBED SECTIONS, WHICH ARE TRUE ARCS OF CIRCLES, BUT THE EASEMENTS WILL HAVE TO BE CUT BY HAND. ALL CUTS OF THE ROADBED PIECES SHALL BE VERTICAL TO THE SURFACE OF THE MATERIAL. AFTER THE LUAN IS IN PLACE SPACKLE WILL BE USED TO PROVIDE A SLOPE FOR THE LATER APPLICATION OF BALLAST.

TRACKWORK –GENERAL

TIES ARE TO BE LOW PROFILE AND A SCALE 9' LONG. MAIN TRACK RAIL SHALL BE WEATHERED CODE 83 IN PIECES NOT OVER 6' LONG. BRANCH TRACK RAIL WILL BE CODE 70. RAILS ARE TO BE SPIKED EVERY FOURTH TIE. EVERY PIECE OF RAIL SHALL HAVE A FEEDER WIRE ATTACHED. RAIL JOINTS SHOULD BE STAGGERED AND CUT TO FALL BETWEEN TIES.

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SUB- SUBROADBED DETAIL

THE ACCURATE CUTTING AND PLACEMENT OF THE SUB-SUB ROADBED IS THE KEY TO THE PERFORMANCE OF ALL THAT GOES ABOVE IT. THERE ARE BASE LINES REPRESENTING ZERO ELEVATION AT FREQUENT INTERVALS AROUND THE WALLS. IN ORDER TO MORE EASILY GET THE TRACK TO BE AT THE ELEVATION CALLED BY THE PLAN IT WOULD BE HELPFUL TO PUT IN A FEW ZERO ELEVATION MARKERS ATTACHED TO JOISTS IN THE CENTER OF THE BENCHWORK.

WHEN INSTALLING RISERS TO GET THE SUB-SUBROADBED AT THE PROPER LEVEL ADJUST THE RISERS SO THAT THE BOTTOM OF THE SUB- SUB IS 1 5/8" (41mm) below the top of rail height specified on the track plan. A typical riser would be 1"x 4" WOOD. RISERS SHOULD BE WHITE GLUED TO THE JOIST WITH FOUR #10 FLAT HEAD 1 1/4" WOOD SCREWS PILOT DRILLED WITH A #33 DRILL BIT AND COUNTER SUNK TO BE FLUSH WITH THE RISER SURFACE. THE SUB SUBROADBED SHOULD BE FASTENED TO THE RISERS WITH THE SAME 1 1/4" FLAT HEAD #10 WOOD SCREWS PILOT DRILLED AND COUNTERSUNK FROM THE TOP DOWN. THIS SUB SUB ROADBED WILL CONSIST OF MANY PIECES, WHICH WILL HAVE TO BE SPLICED TOGETHER TO PROVIDE A CONTINUOUS SURFACE TO SUPPORT THE LATER INSTALLATION OF THE PARTICLE BOARD SUB-ROADBED. SPLICES SHOULD BE 8" LONG PIECES OF PLYCORE CENTERED ON THE JOINT, . THEY SHOULD BE WHITE GLUED TO THE UNDERSIDE OF THE JOINT, CLAMPED IN POSITION AND FASTENED TO THE SUB-SUB WITH #10 1 1/4" STEEL FLATHEAD WOOD SCREW RUNNING FROM THE UNDERSIDE OF THE SPLICE BLOCK UP INTO THE SUB SUB ROADBED. IT WOULD HELP THE LATER INSTALLATION OF SWITCH MACHINES IT SPLICE POINTS FOR THE SUB SUB COULD BE LOCATED AWAY FROM THE TURNOUT LOCATIONS INDICATED ON THE TRACK PLAN.

THE FOREGOING DESCRIBES HOW TO INSTALL SUB SUB ROADBED FOR THE MAIN TRACKS. THESE TRACKS ARE PROPERLY CALLED THE "HIGH IRON" BECAUSE THE EARTH GRADING UPON WHICH THE BALLAST, TIES AND RAIL ARE SET WHILE PROVIDING GOOD DRAINAGE AND STABLE SUPPORT FOR THE RAILS TEND TO RAISE THE TRACK ABOVE THE SURROUNDING TERRAIN. TRACKAGE FOR CUSTOMERS (INDUSTRIES, TEAM TRACKS, ETC. IS NOT SUBJECT TO THE STRESS IMPOSED ON THE "HIGH IRON" BY TRAINS MOVING AT SPEED. AND THUS DOES NOT NEED THE DEEP BALLAST OF THE "HIGH IRON". THIS SECONDARY TRACK IS THEREFORE GENERALLY AT A LOWER ELEVATION THAN THE NEARBY MAIN. SHOULD WE MODEL THIS REALITY BY DROPPING ALL SECONDARY TRACKAGE PERHAPS A 1/4" BELOW THE MAIN? IT MIGHT ALSO BE REASONABLE TO ALLOW SHARPER RADII AND LOWER FROG NUMBERS ON CUSTOMERS PROPERTY. THE MAIN TRACKS WILL PASS OVER BRIDGES AND CULVERTS. WE SHOULD DECIDE HOW THESE WILL AFFECT ROADBED INSTALLATION. TUNNELS, STAGING YARDS AND ANY OTHER HIDDEN TRACKAGE PRESENT ANOTHER OPPORTUNITY FOR

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RETHINKING TRACK STANDARDS. SHALL WE USE FLEX TRACK? PERHAPS HAND LAID TURNOUTS WOULD PROVIDE NECESSARY OPERATING RELIABILITY IN THESE LOCATIONS. BECAUSE THIS TRACK MUST BE IN PLACE BEFORE ANY OVERLYING TRACK OR SCENERY IS INSTALLED IT MUST BE THE FIRST TRACK PUT DOWN.

SUB ROADBED WILL BE 5/8" PARTICLE BOARD CUT TO THE SAME PATTERN AS THE SUB-SUB ROADBED EXCEPT THAT ALL SIDE EDGES SHALL BE ONE INCH LESS THAN THE SUB SUB ROADBED. THIS WILL PROVIDE SPACE FOR DRAINAGE DITCHES AND A PLACE TO ATTACH ANY SCENIC TERRAIN. THE SUB ROADBED SHOULD BE WHITE GLUED TO THE SUB SUB ROADBED AND ALSO SCREWED WITH PILOT HOLED #10 FLAT HEAD WOOD SCREWS AT ??? INCH INTERVALS. (1)

ROADBED SHALL BE 1/4" LUAN CUT 1 1/4" WIDE AND FOLLOWING THE TRACK PLAN. THERE SHOULD BE A SEPARATE LINE OF LUAN FOR EACH MAIN TRACK AND IT SHOULD BE CUT TO SUPPORT #10 TURNOUTS WHERE NEEDED ON MAIN TRACKS AND FOR #8 TURNOUTS AT OTHER LOCATIONS. TEMPLATES FOR THIS SPECIAL WORK WILL BE AVAILABLE.

NOTE 1- JOINTS IN THE SUB ROADBED AND IN THE LUAN SHOULD BE OFFSET BY AT LEAST 2 INCHES FROM ANY JOINTS IN THE UNDERLYING SUB SUB ROADBED OR SUB ROADBED.

THERE WILL BE MANY PLACES WHERE TWO PIECES OF LUAN ABUT ONE ANOTHER. IT IS IMPORTANT THAT THE TWO SURFACES BE AT THE SAME LEVEL. IF THE DIFFERENCE IS MORE THAN 1/32", STEPS SHOULD BE TAKEN TO ELIMINATE THIS DIFFERENCE. A SHIM AT THE JOINT WOULD BE ONE WAY. IF THE DIFFERENCE IS NOT DISCOVERED UNTIL AFTER THE LUAN IS FASTENED IN PLACE, THEN SANDING OR A THIN LAYER OF WOOD PUTTY MAY SOLVE THE PROBLEM.

WITH THE ROADBED PROPERLY LEVELED AND SMOOTHED THE LAST STEP BEFORE TIE LAYING IS TO DETERMINE THE LOCATION OF UNCOUPLING RAMPS. THE CLUB HAS LONG PLANNED FOR ELECTROMAGNETIC UNCOUPLING AS OPPOSED TO BETWEEN THE RAILS PERMANENT MAGNETS. TO MAKE THIS POSSIBLE IT IS NECESSARY TO CUT RECTANGULAR OPENINGS THROUGH ALL LAYER OF THE ROADBED AT ALL UNCOUPLING LOCATIONS. THESE OPENINGS SHOULD BE CENTERED AT ALL UNCOUPLING SPOT AND SHOULD BE 1"X4".

TO PROVIDE A GOOD SURFACE ON WHICH TO PLACE THE TIES IT WILL BE NECESSARY TO COVER THE HOLES WITH A SHEET OF 1/16" WOOD. TO PROVIDE SUPPORT FOR THIS, CUT AWAY THE TOP LAYER OF THE LUAN FOR 1/4" ALL AROUND THE HOLE AND THEN GLUE THE 1 1/2"X 4 1/2" PIECE IN PLACE.