Taking Full Advantage of Your Layout Design Software

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What is layout design software?

The Programs

- Typically a Computer Assisted Design (CAD) program
- Programs vary in capability and complexity
- Simplest versions are geared toward a manufacturer (like Atlas)
- Some are focused on simulation/operation – not design
- A good CAD package opens up other possibilities for use

Presentation will focus on Cadrail experience

- Using it in the planning stages
- Furthering the design toward construction using the design tools
- Documenting your design utilizing utilities
- Post construction – what else can you do with the program

Layout Planning

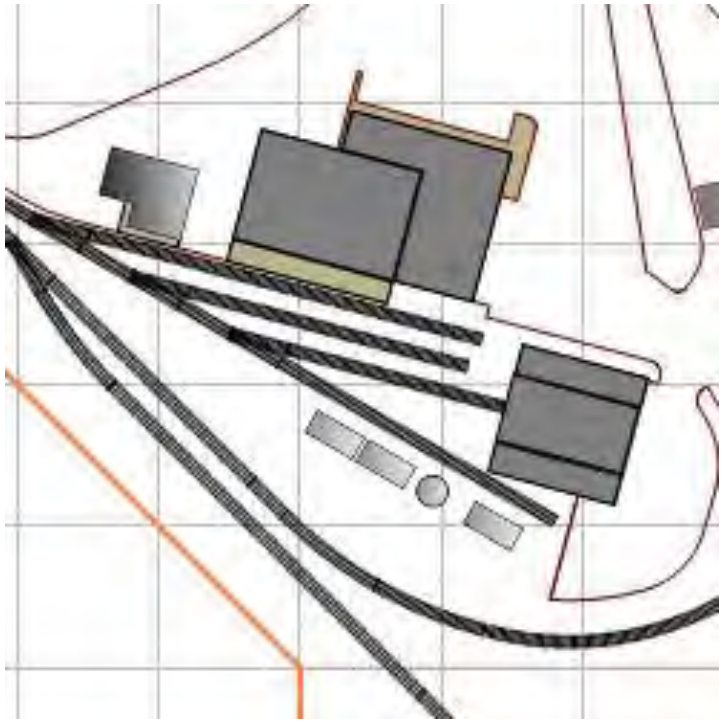
- Establish your design goals and recognize the constraints
- Use the software to guide you in your concept decisions – sketch time!
- Determine turnout control – manual or machine – conflicts with Benchwork?
- Power districts & reverse loops
- Hidden track accessibility for operations and maintenance
- Allow and plan for more than just track!

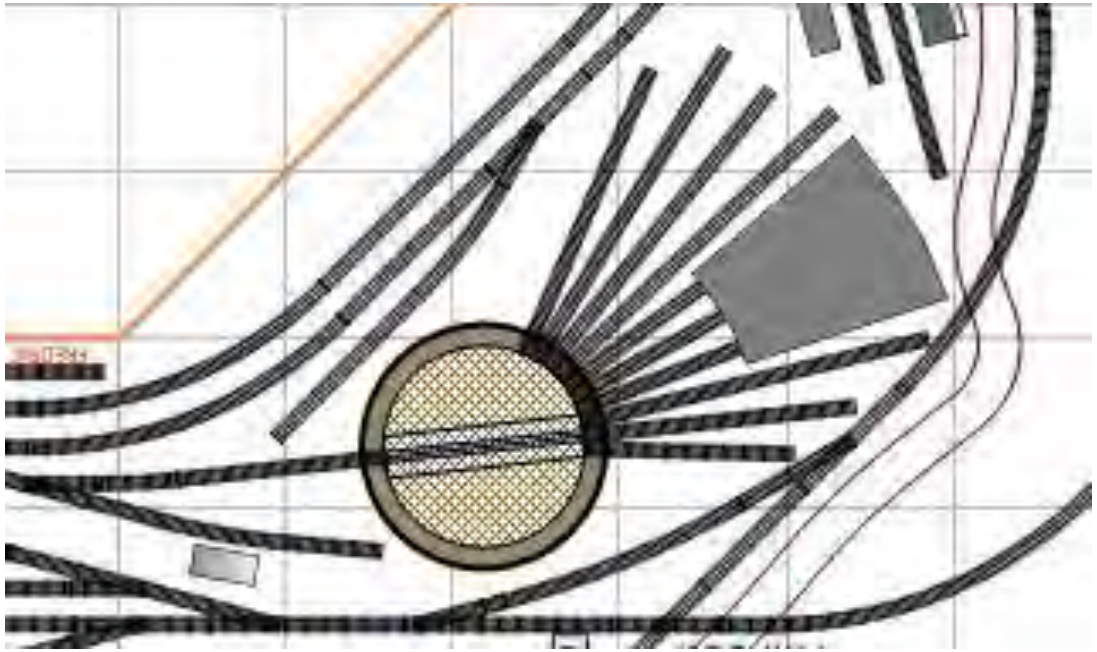
Design Goals

- Prototype or freelance
- Track Plan →switching or cross country
- Multi Level?
- Staging?
- Operations or just a pretty model?
- Trains on the move – how many?
- Aisle width – plan for operations in the long term – allow bodies to pass!
- Minimum radius, maximum grade and minimum turnout size
- Wiring and signals

Layout Space Hogs…

Large Industries

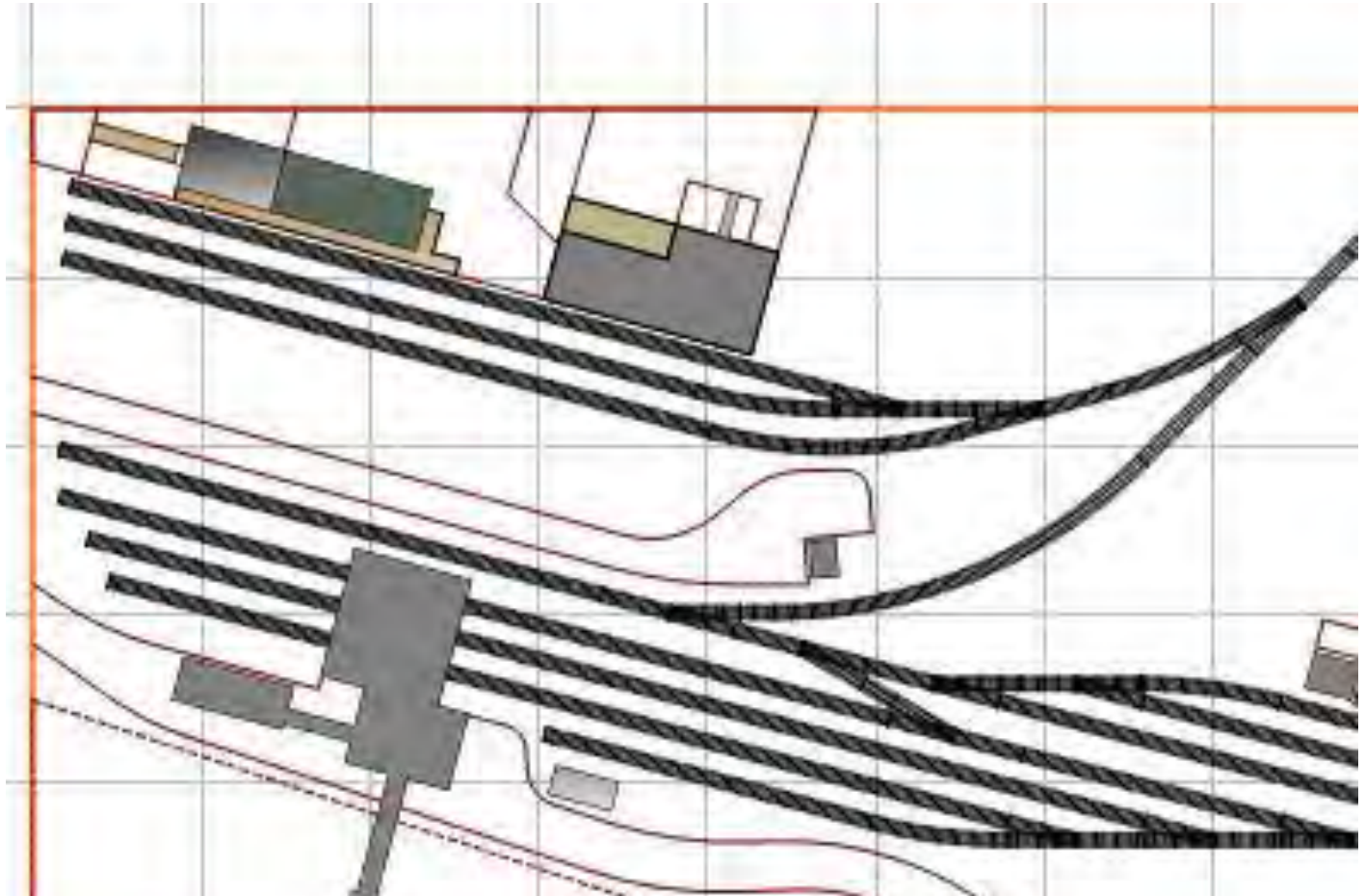




Turntables and Engine Facilities

More Space Hogs…

Industrial
Service Yards



Design Constraints

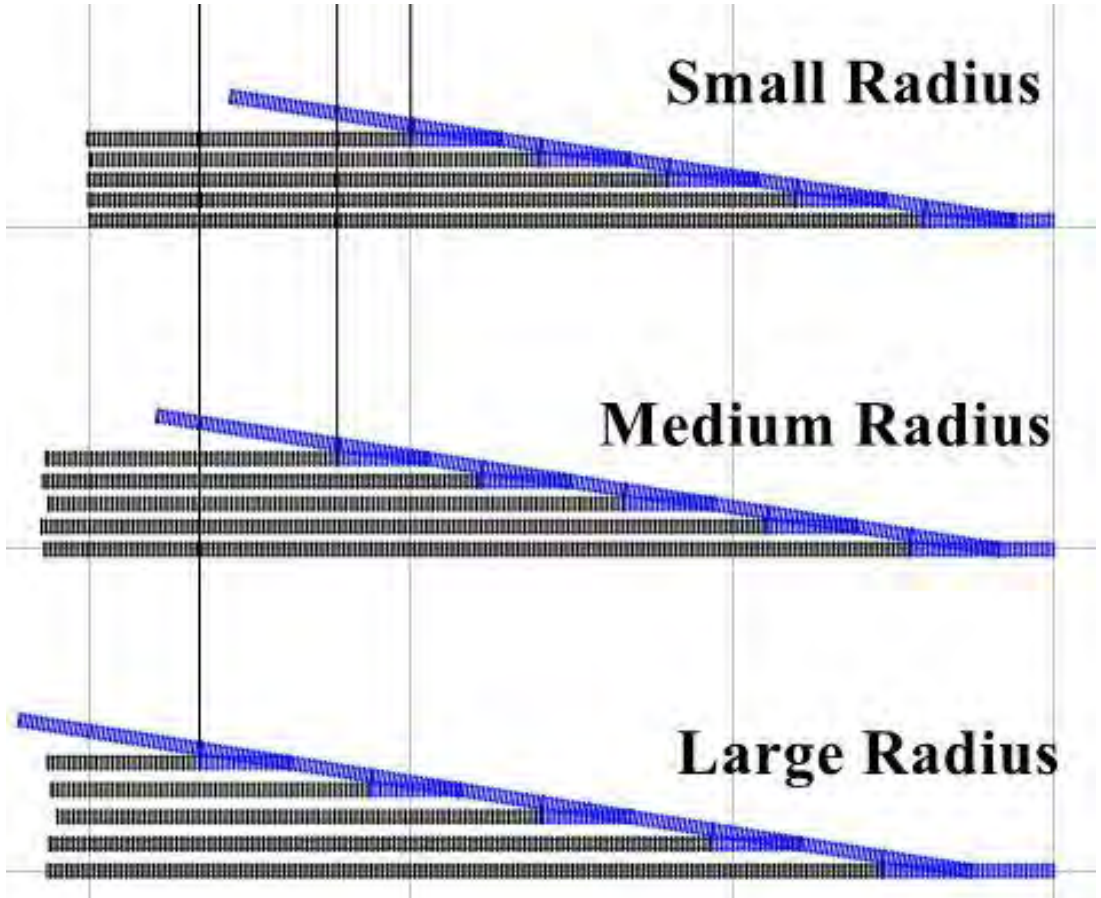
- Available space
- Budget
- Operating period of the layout →steam, transition, modern
- Maximum car length may dictate design standards – don't skimp
- Time to construct

Use the Software to Plan

- Test radii of track and space requirements
- Test grades →how long to go up how much
- Yard design → ladders take up more space than you think
- Use smooth transitions before turnouts – minimum ½ car length rule
- Building locations – build complete scenes or simply use backdrop mounted facades

Yard Ladder Impacts

The Turnout selected will Impact the length of the ladder as well as the yard track spacing,



Cadrail Design Tools that Help

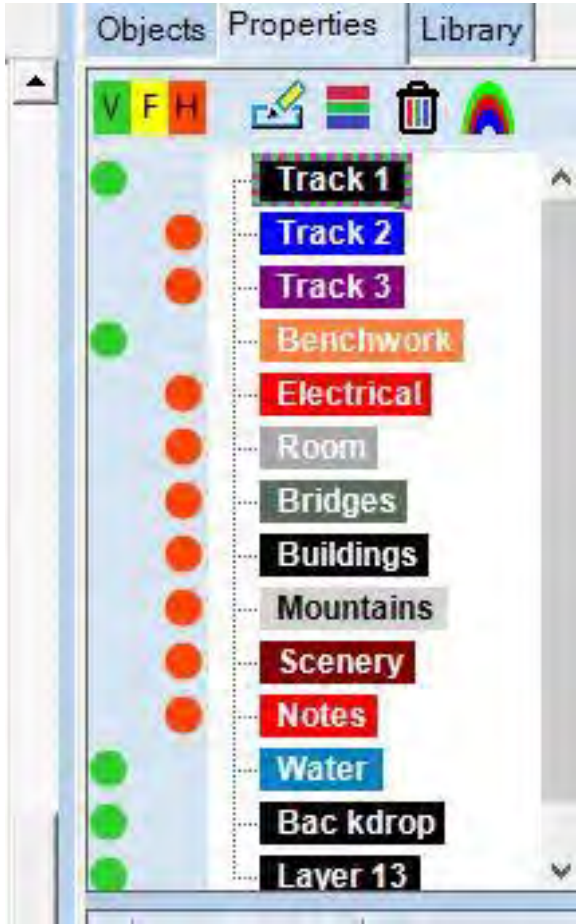
- Templates and Libraries improve accuracy and add simplicity to design
- You keep it square – tools like "Line Offset, Grid Snap, and Auto Align help make sure the plan works
- Layers help you keep organized – can be worked on individually and overlaid to check design issues and conflicts
- Printouts can be produced using variable scales

Good Start??

- Double check measurements of space for layout
- Check your arm reach with your layout height and depth
- Double check your aisle space allowance, wider is always better
- Test your mainline curves, transitions and grades
- Double check the electrical – reverse loops, power districts, circuit protection, signals – access to control boards

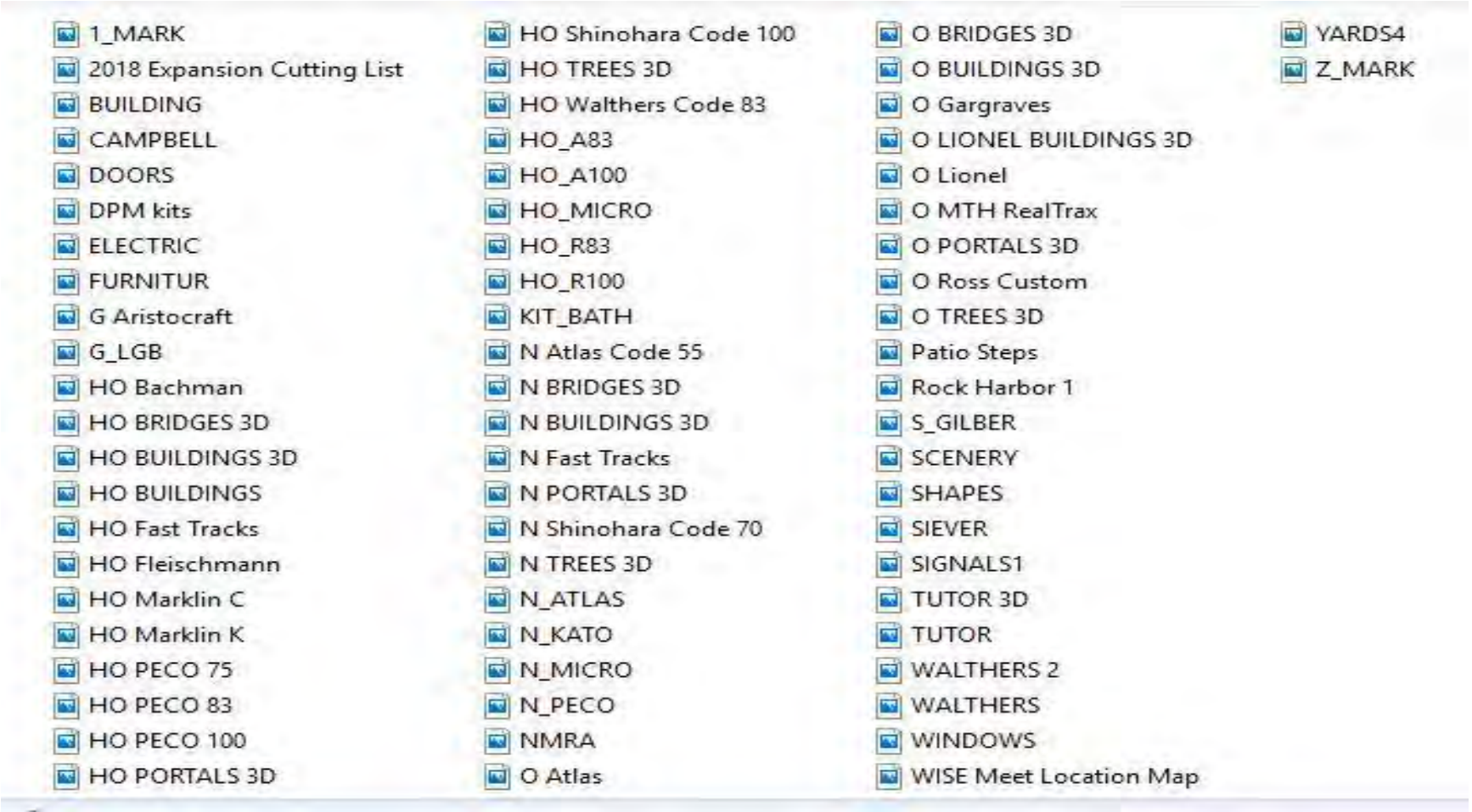
Cadrail Layers Keep it Organized

Turn Layers
On and Off
To Test for
Conflicts

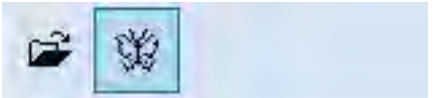


Define the color, line type
And assign names to your layers

Cadrail Libraries Simplify Design



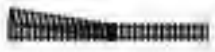
Cadrail Library for Peco “N”



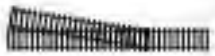
P-SL384 Sm
F 227

P-SL392 Med
F 228

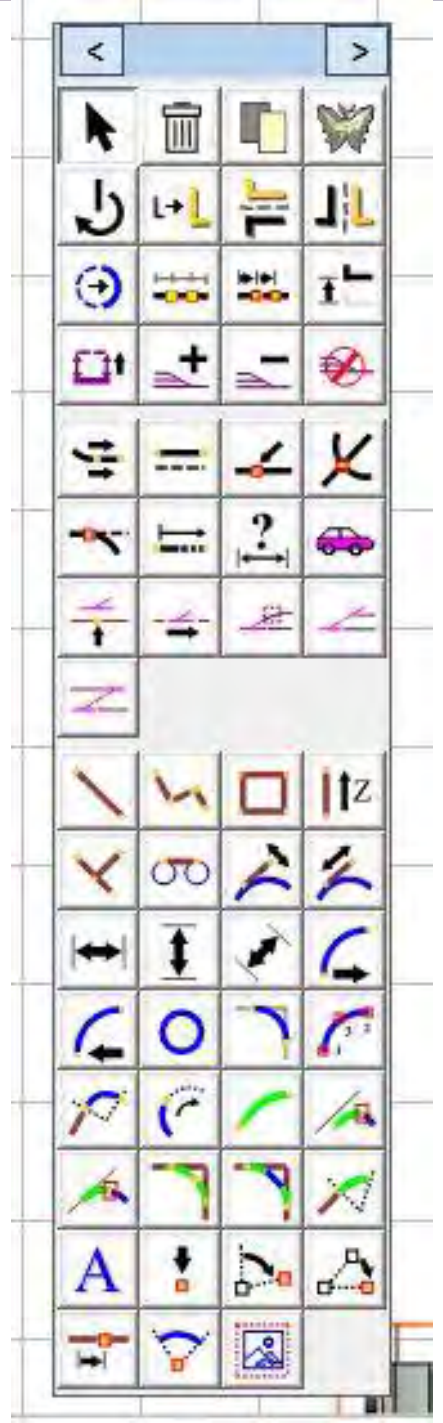
P-SL388 Lrg
F 229



P55 SL-E391F Sml
F 230



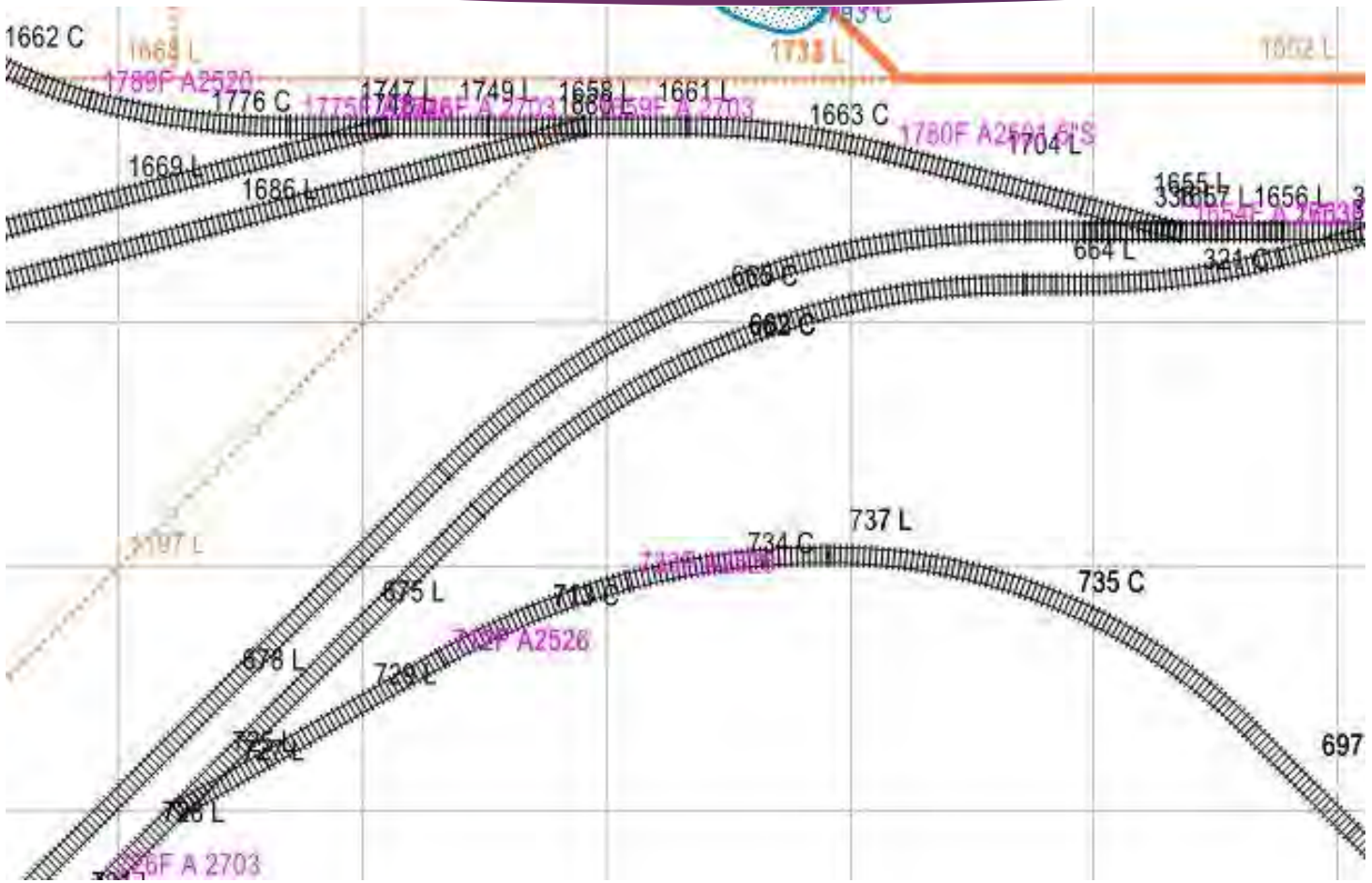
Cadrail Tools



Finalize the Concept and Design It

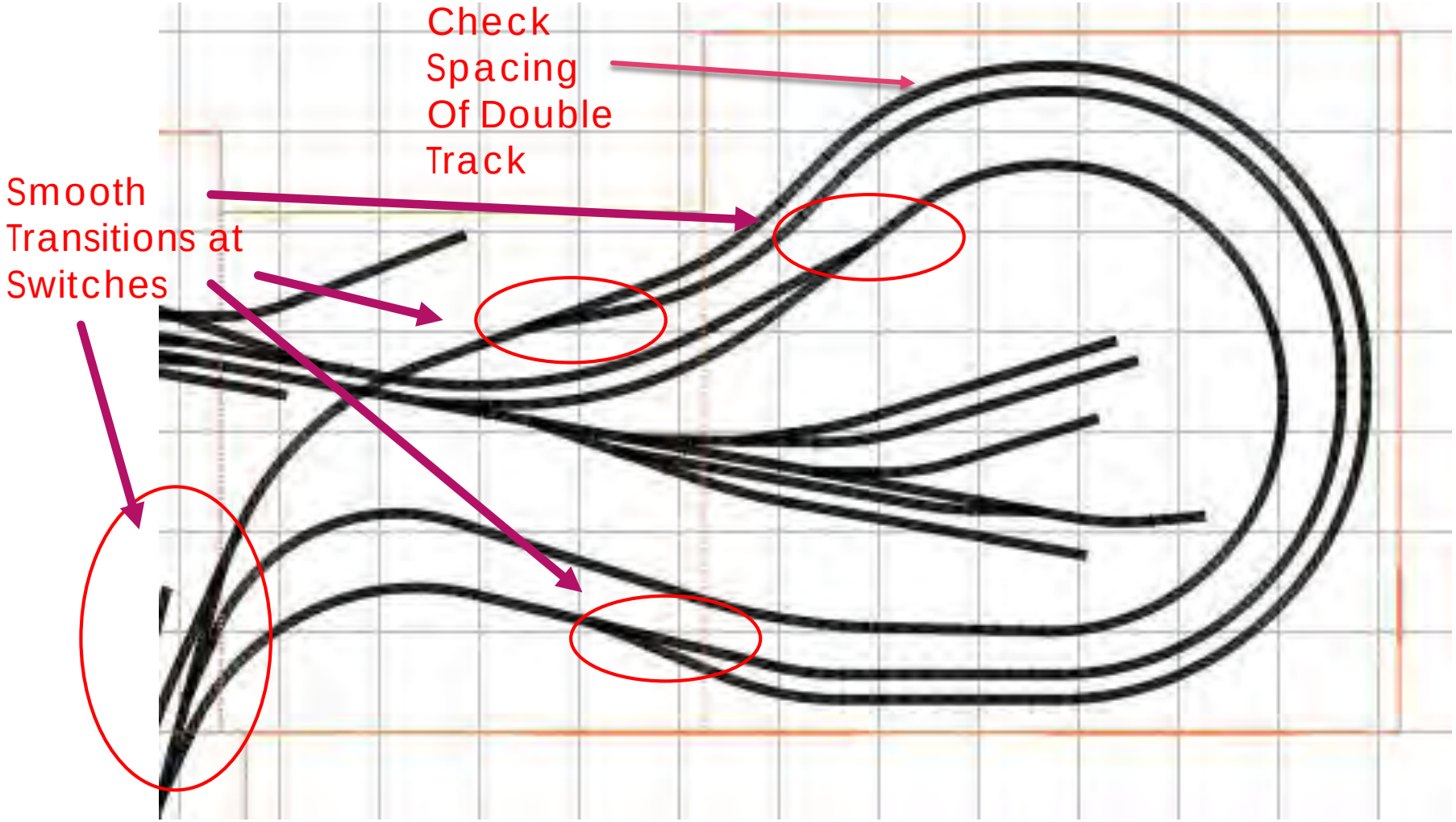
- Finish and test the track plan – you can test run a train in Cadrail
- Add buildings and other non-track elements – do they fit?
- Visualize your plan in 3D if the software allows
- Setup a timeline for what you want to accomplish and when – keeps you focused but be realistic
- Get ready to build

Use Cadrail Data Tables for Construction and Material Estimating

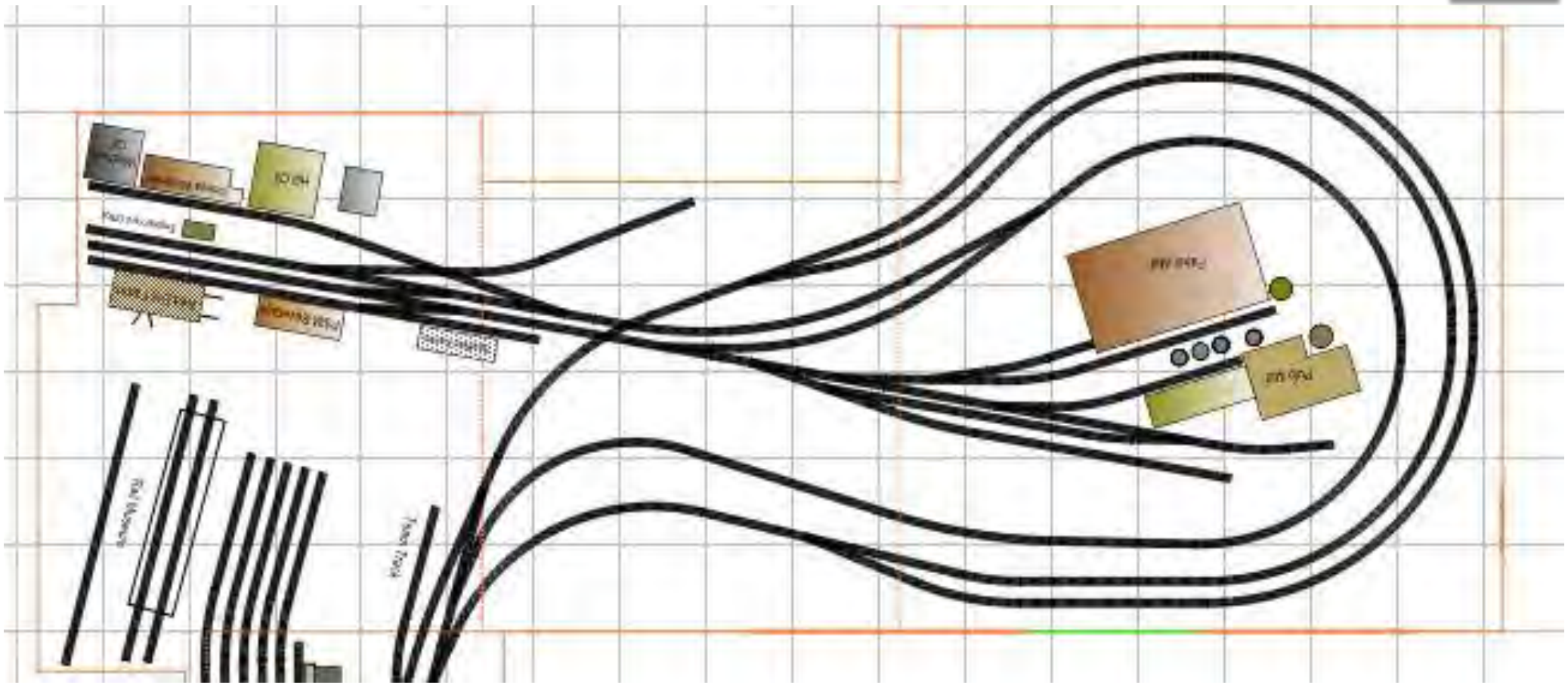


Grade and Elevation Data

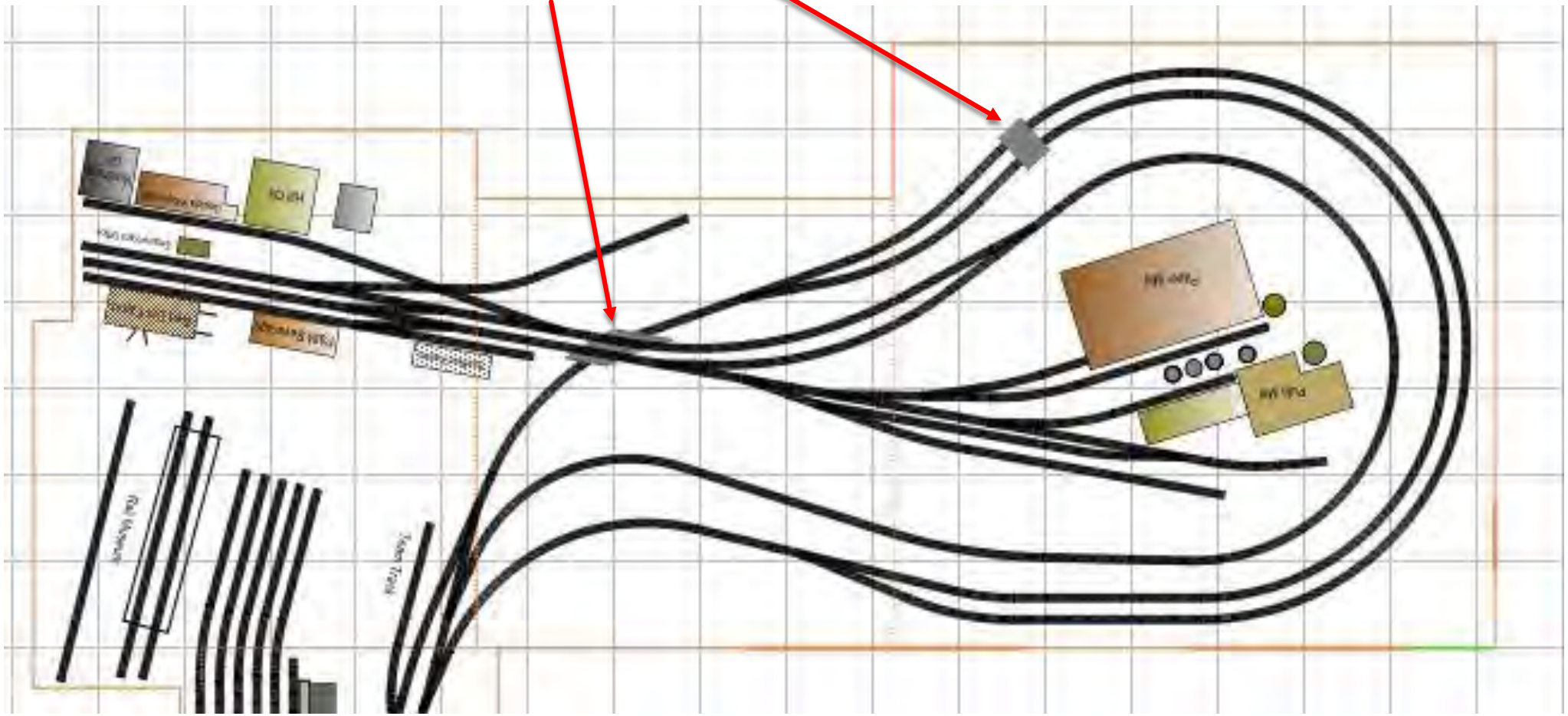
Test the Track Plan



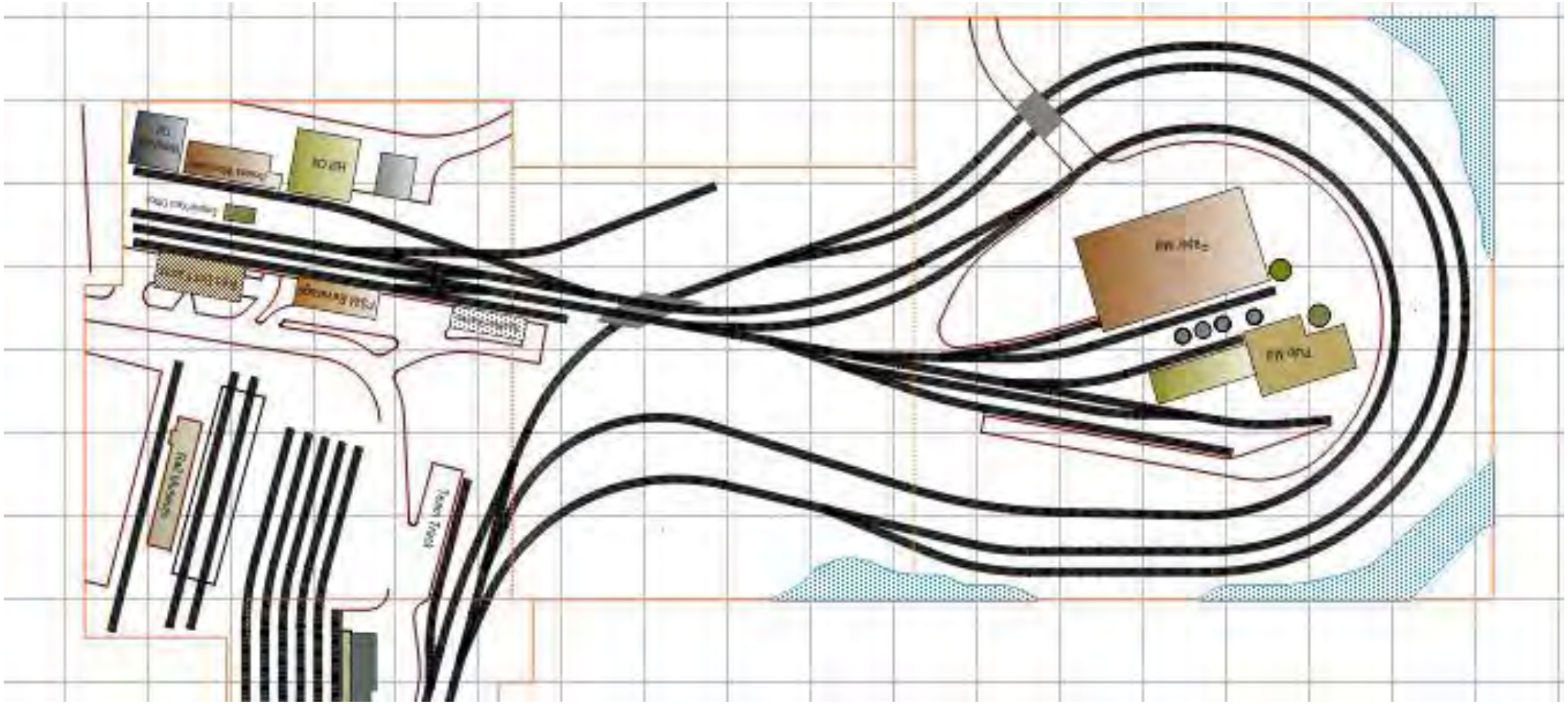
Add Buildings…



Add Bridges…



Add Water and Roads…

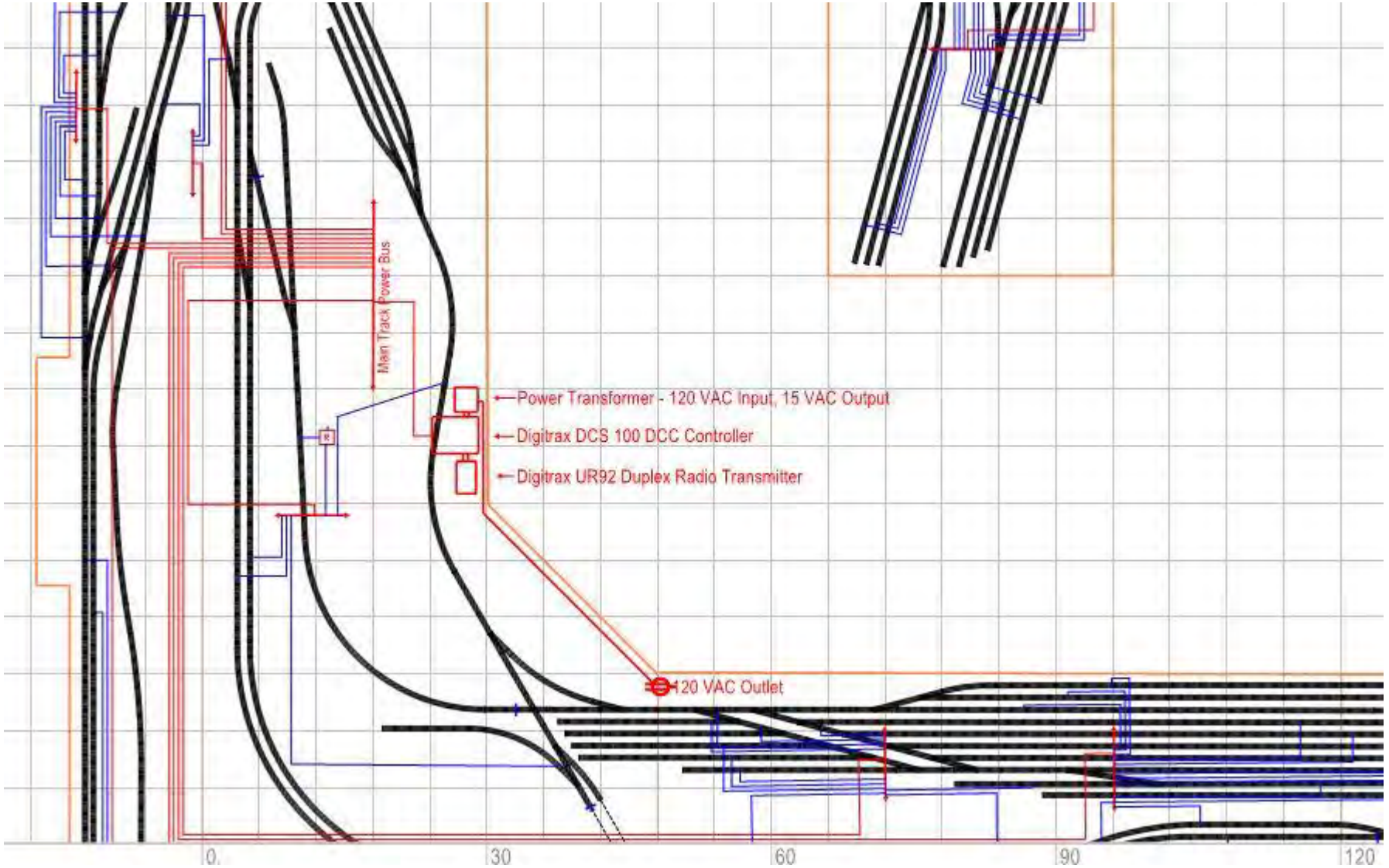


Other Planning Help

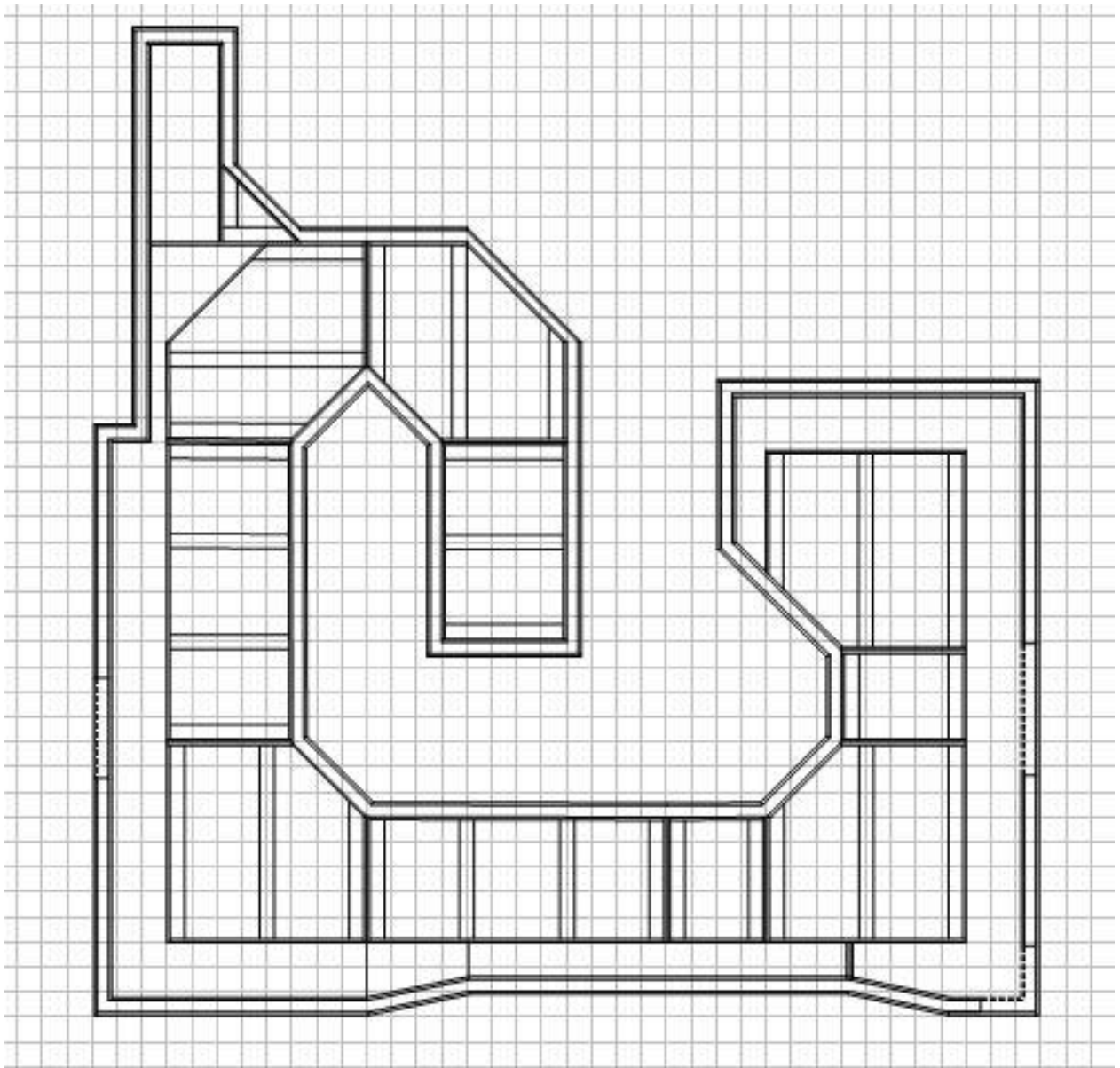
- Develop a wiring plan – take into account Benchwork to Track-work relationships
- Cutting diagram for Benchwork → better than guessing
- Print out 1:1 plans for building complex areas
- Identify riser heights by merging track layout to Benchwork locations
- Estimate quantities for roadbed, track, wire

Electrical Plan Only

Electrical Schematic with Track

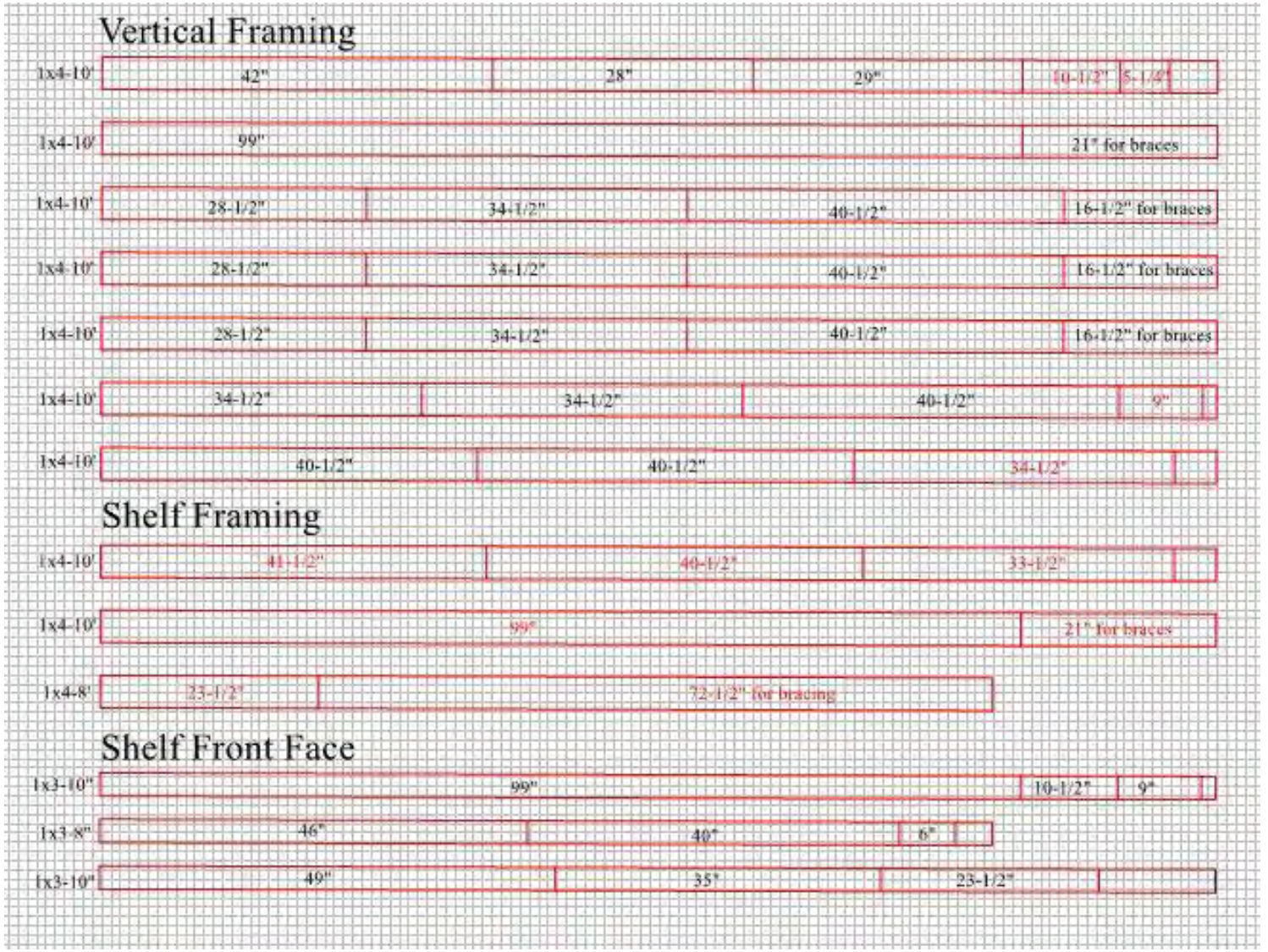


Benchwork Framing Plan



Develop a Cutting Schedule for Benchwork

Just buy the material that you need – not what you think you need ☺

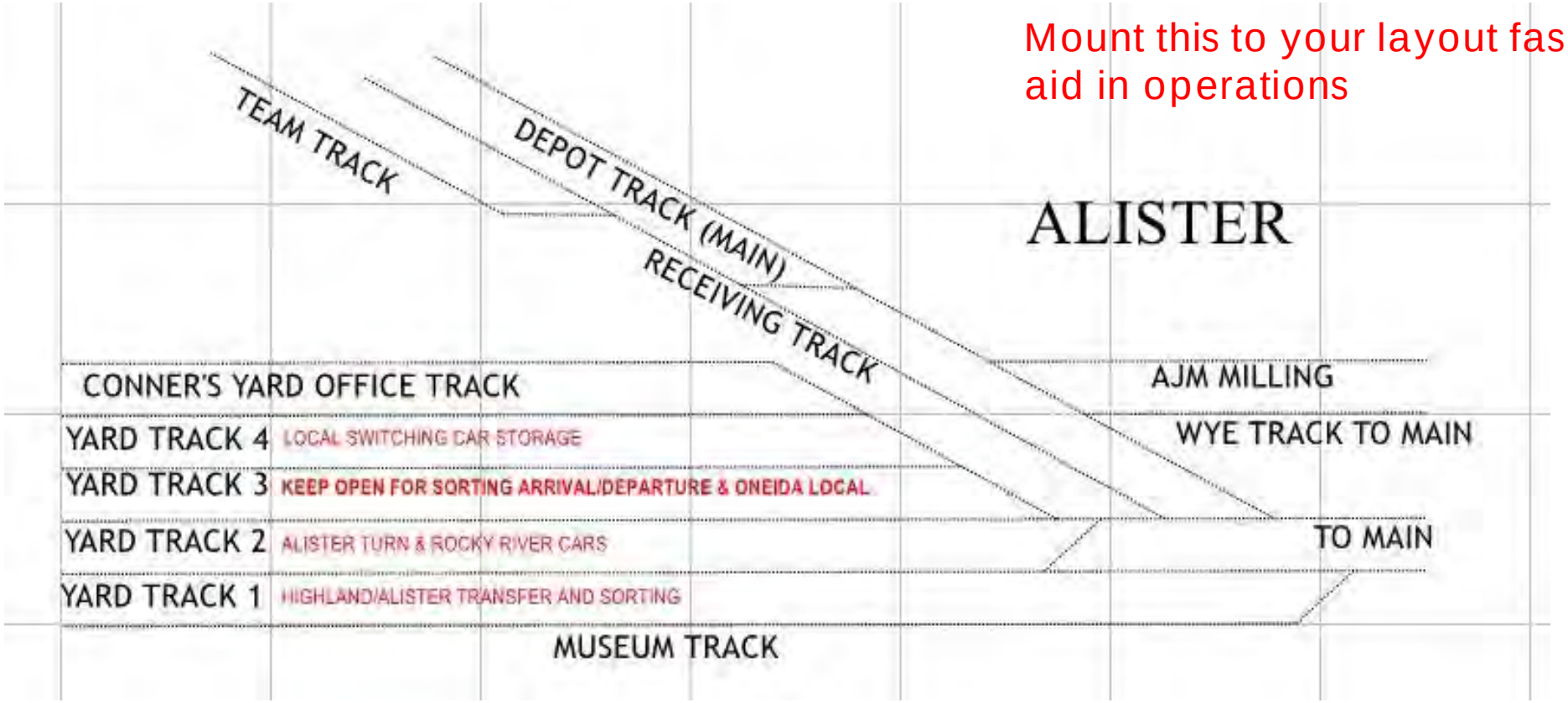


I'm Done…..
Now What Do I Use the Program For?

Here are some examples…

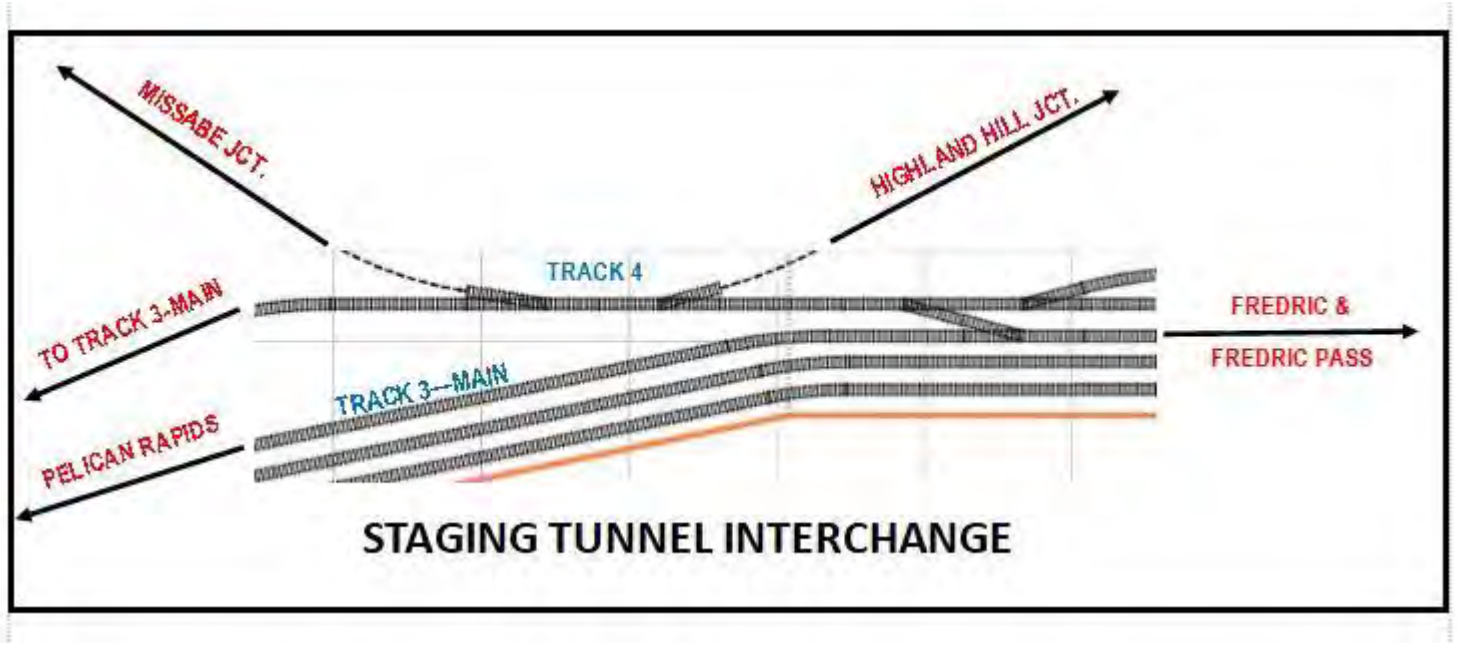
- Yard schematic signage
- Operations diagrams for your layout fascia
- Operating timetable graphs
- Structure planning and documentation
- Maps of anything
- Wiring diagrams
- Design around your house → patios, room additions, and more

Schematic Diagram for a Small Yard

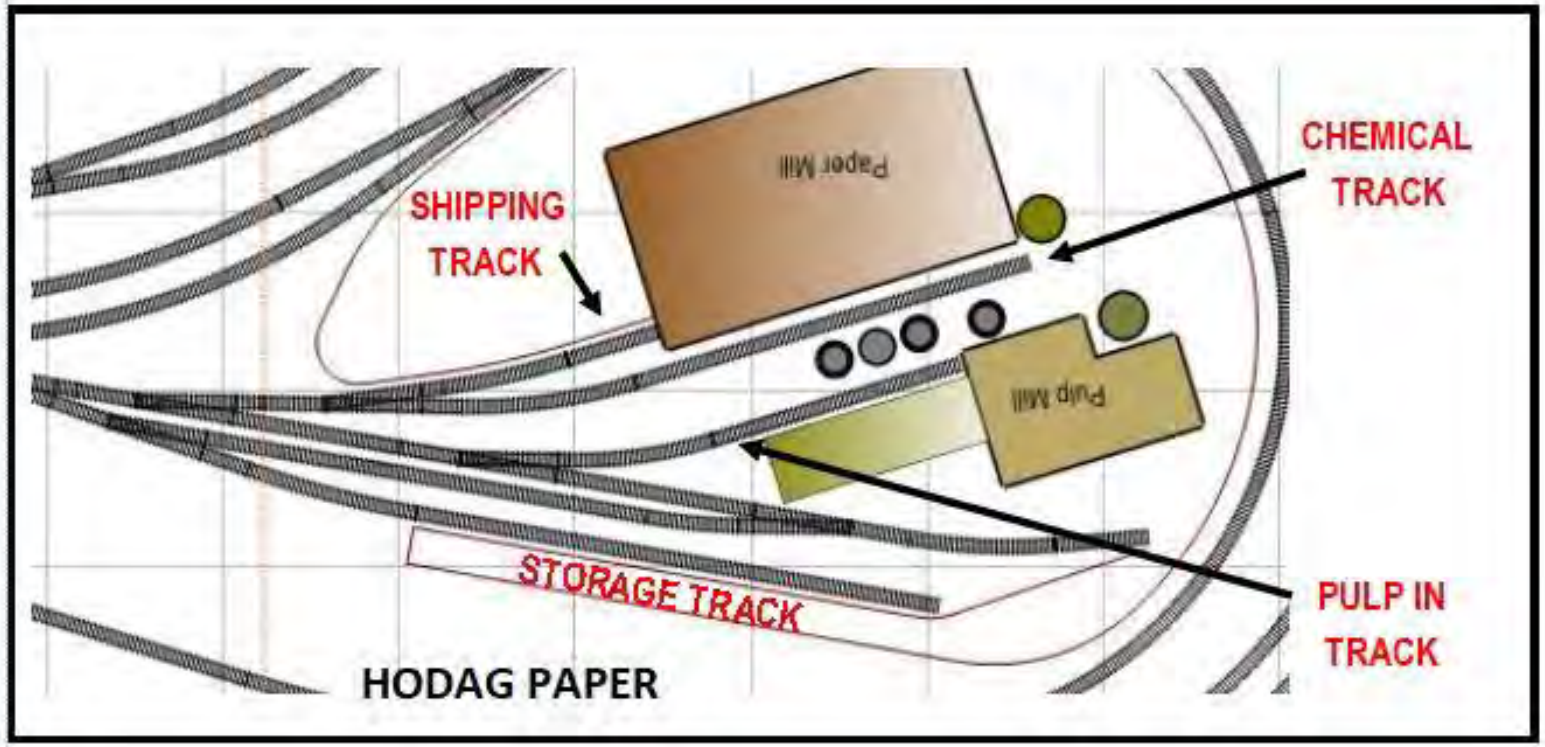


Mount this to your layout fascia to aid in operations

Fascia Mounted Sign for Operations Using CAD Rather than Schematic

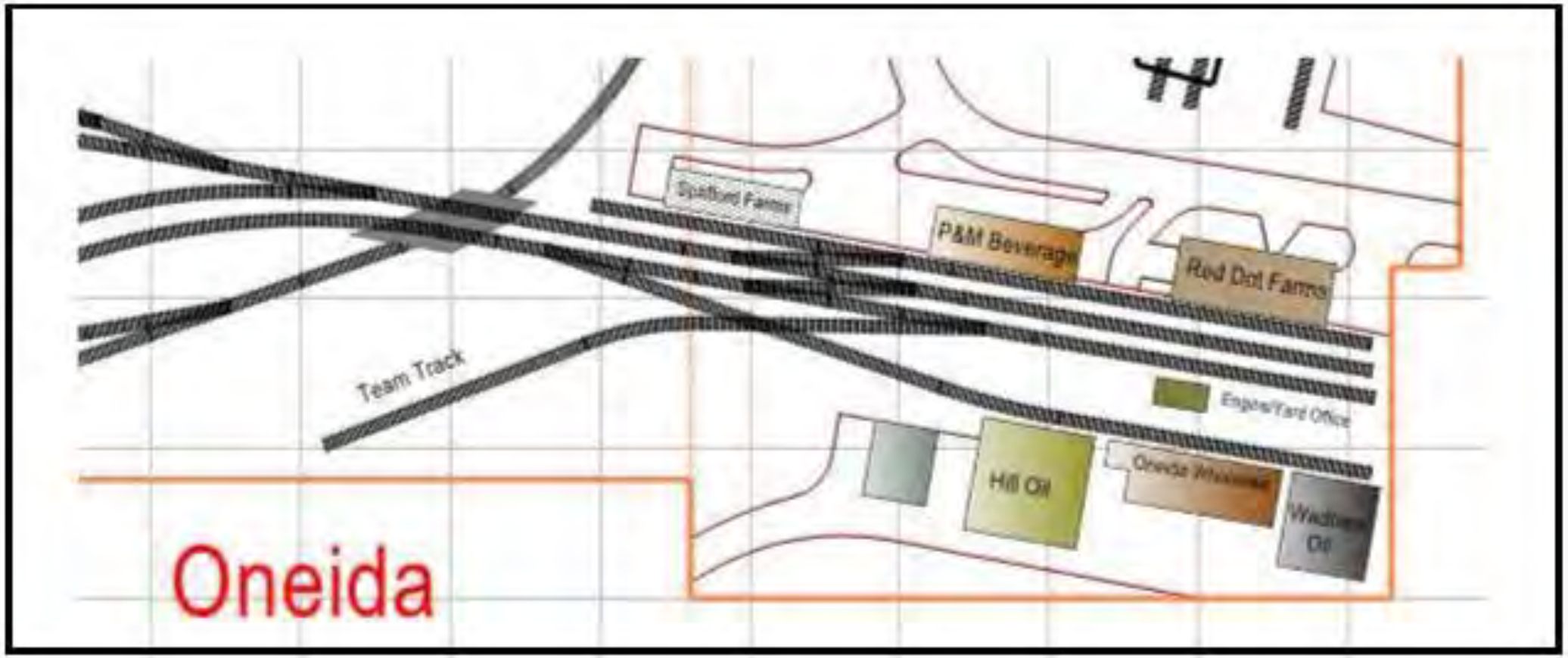


Another CAD Based Sign for Operations

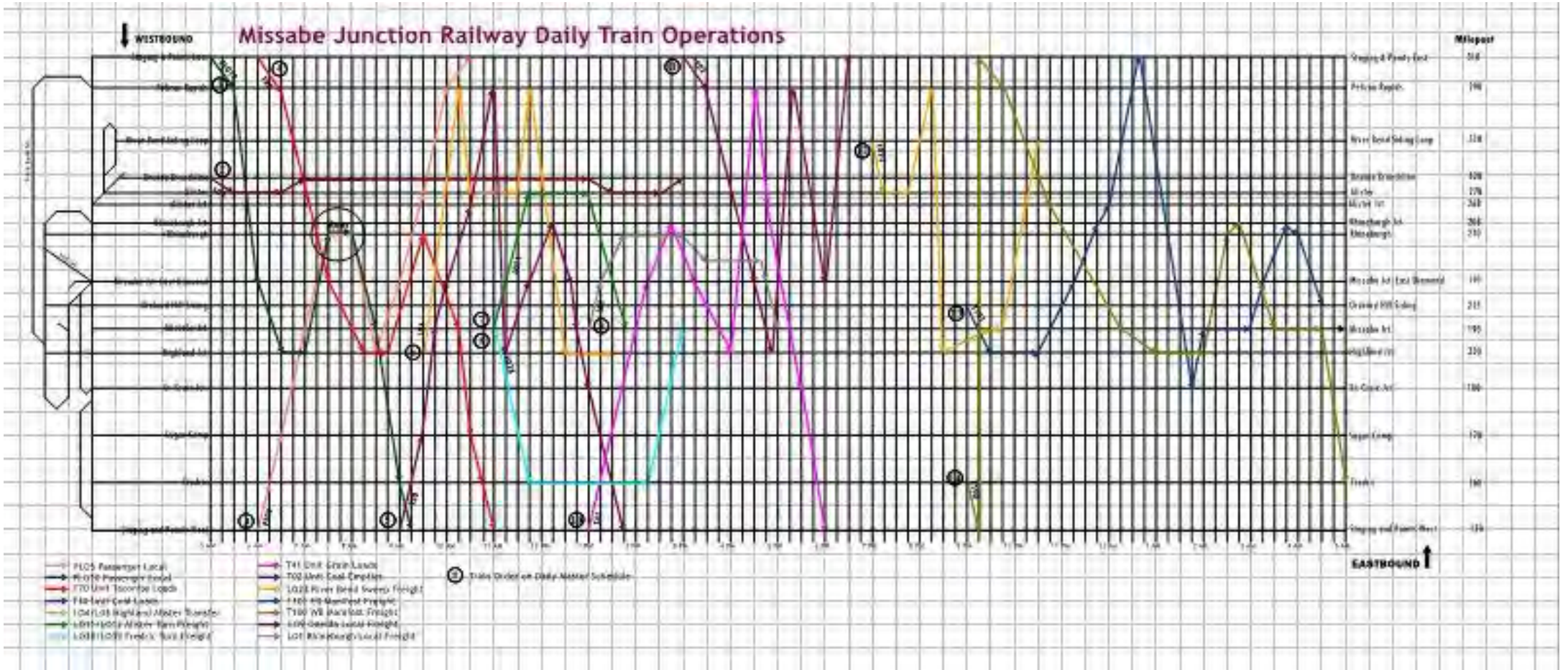


Text can be added to JPG Screen Shots using page layout software like Publisher

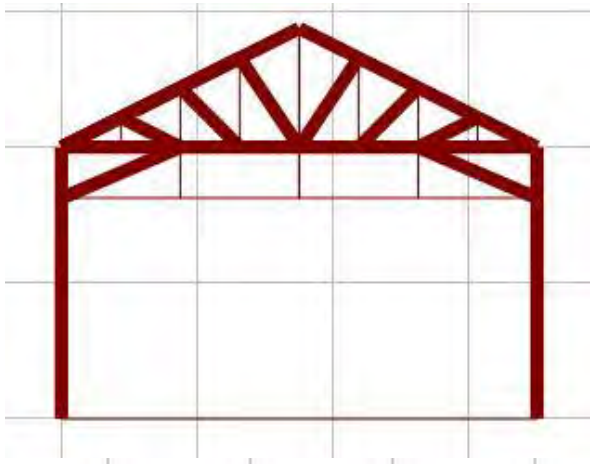
Another Sign Example with No Text Add-ons



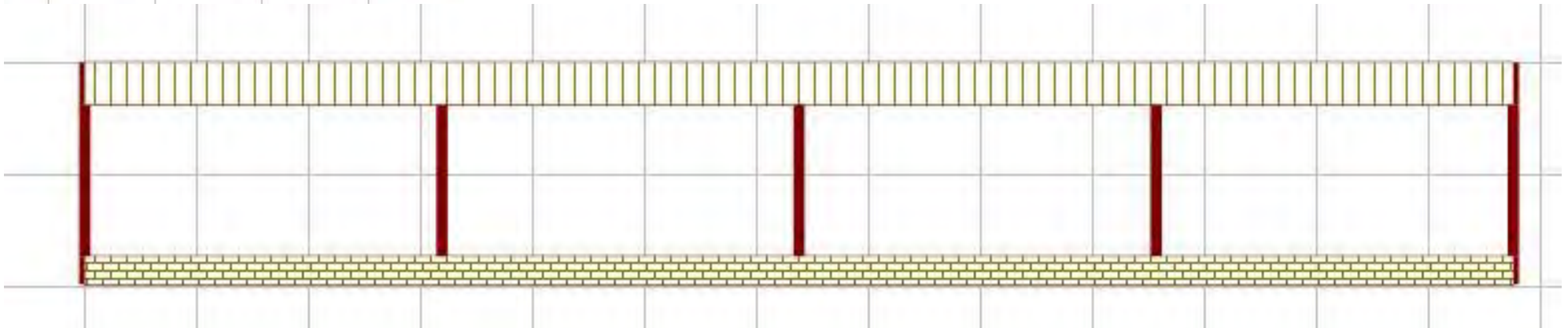
Develop a Timetable Graph



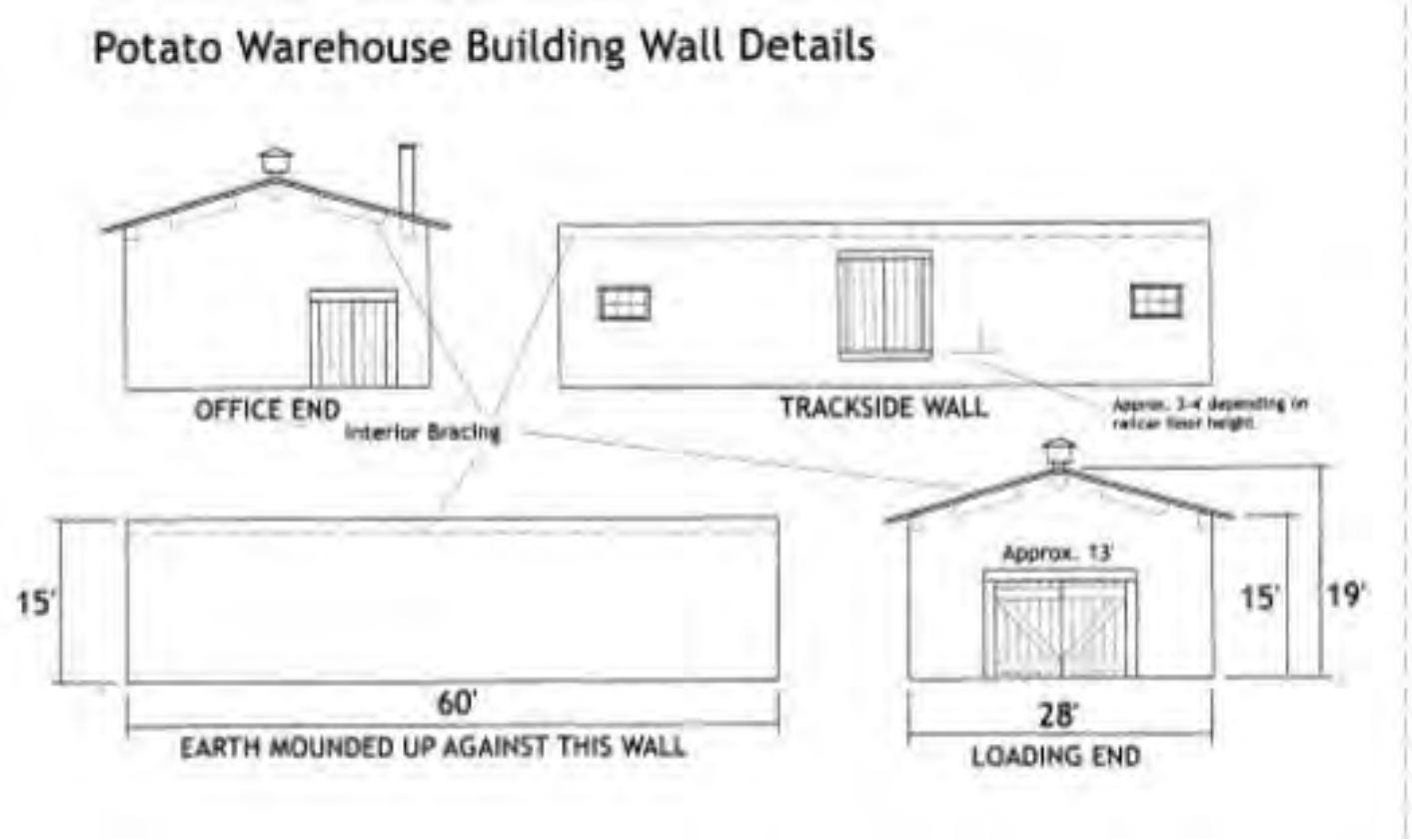
Scratchbuild Structure Planning to Scale



Use the program to layout a template for building a scratch-built structure

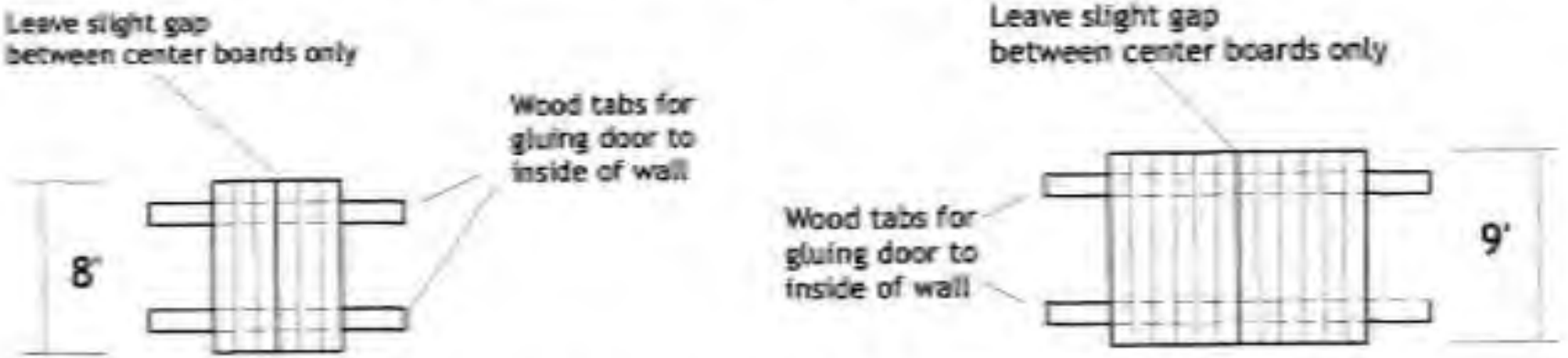


Document a Scratch-built Project



Building Detail Callouts Documented

Potato Warehouse Wood Door Details



All material Midwest Products #8003 Basswood

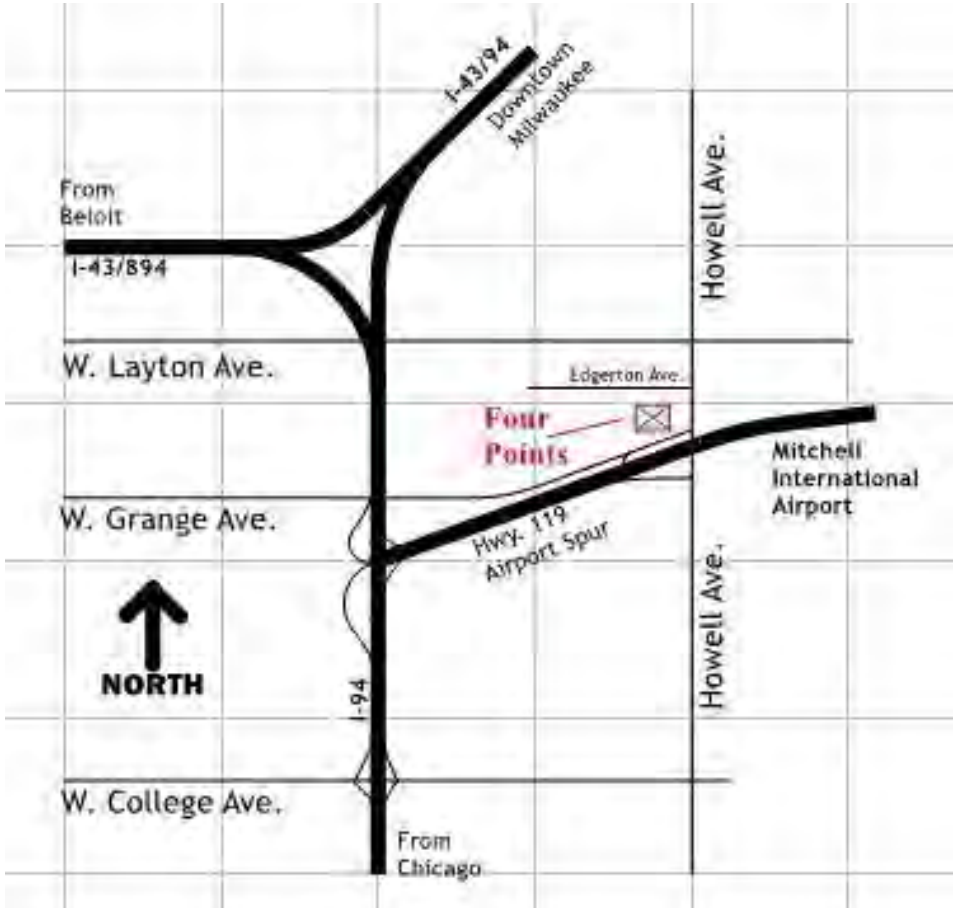
OFFICE & TRACKSIDE DOORS

LOADING DOOR

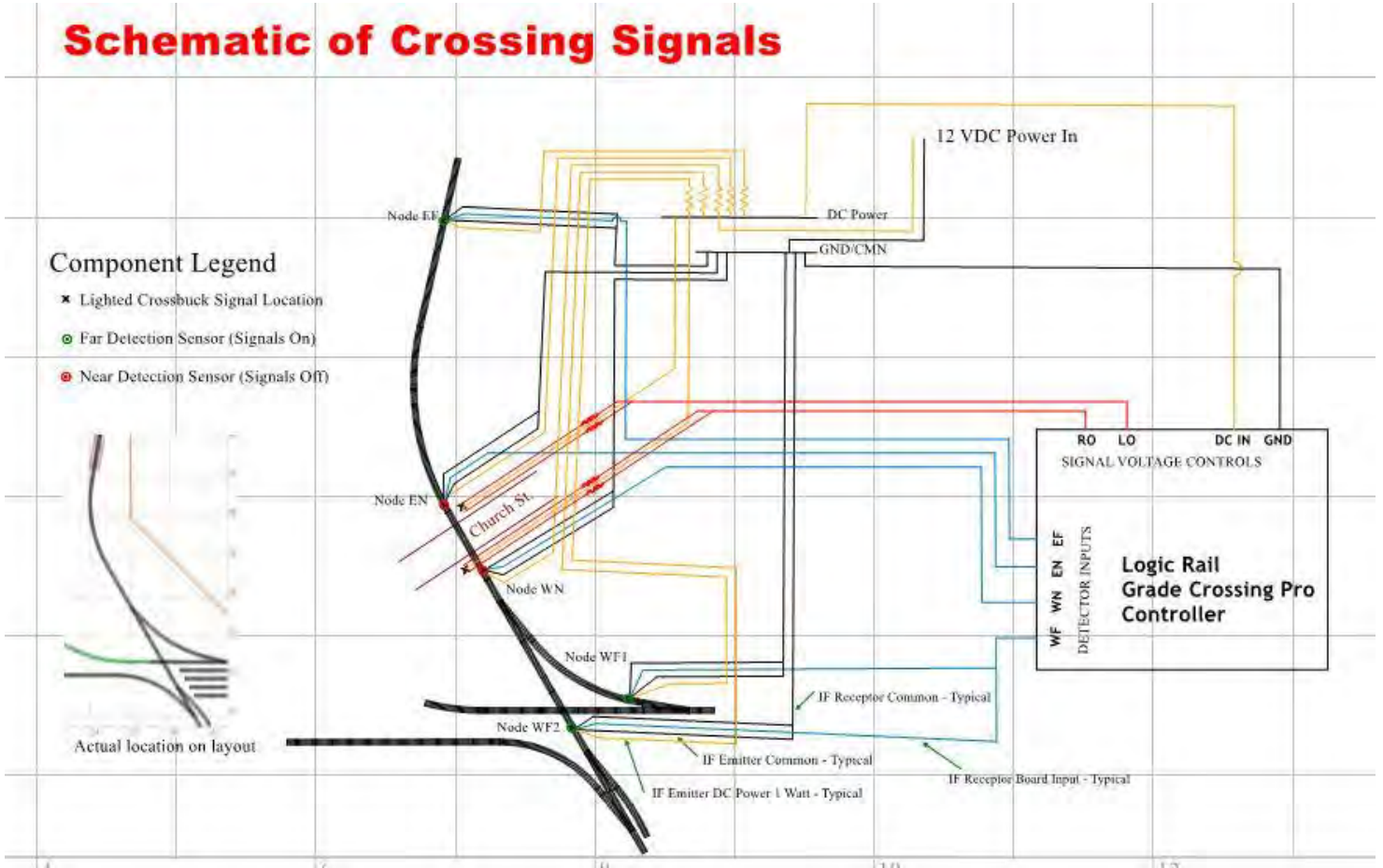
Need a Map?

Design the map in CAD.
Take a screen shot with Snip-It and save as a JPG.

JPG format allows for easy manipulation in your publishing software.

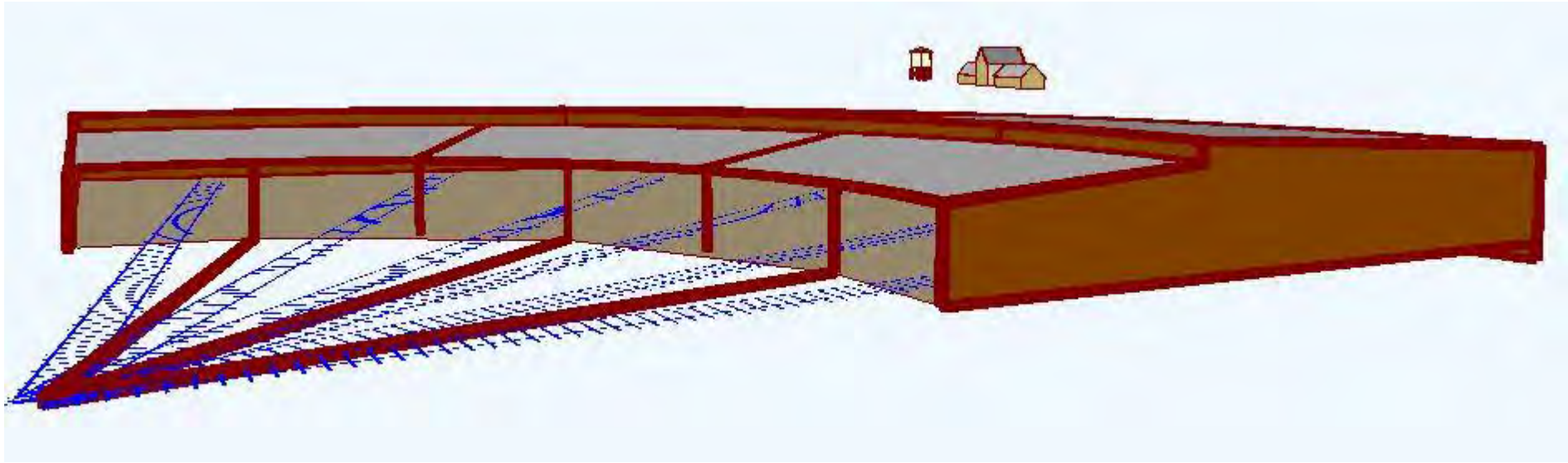


Document Your Project Wiring



In a Nutshell…

- Use the software for anything you need drawn to scale
- Plan how to include the design sketches with text
- Optimize the power of screen shots snipped from your designs for your projects



Questions?