

Achievement Program Master Builder - Scenery

Presented by : Mike Wood

Jan 20, 2013

Agenda

- **Introduction / my objectives**
- Requirements for the Scenery Certificate
- Checklist
- Module planning and Scenery, “how I did what did”
 - Track , hills, trees, etc
 - River module details
 - Grain Facility modules details
 - Industrial Park module details

Scenery Certificate Requirements

- Available at the NMRA website
nmra.org/education/achievement
- Three forms for this category:
 - Record and Validation Form
 - Judging Form
 - Statement of Qualifications Form
- Area : depends on your scale
- Five elements :
 - Terrain
 - Structures
 - Background
 - Lighting
 - Realism / Conformity



ACHIEVEMENT PROGRAM MASTER BUILDER SCENERY RECORD AND VALIDATION FORM May 2006

PLEASE ATTACH THIS FORM TO A COMPLETED STATEMENT OF QUALIFICATIONS (SOQ) FORM.

Member's Name: _____ NMRA #: _____

Date Submitted: _____ Region: _____

To qualify for this certificate you must:

1. Construct a completed section of a model railroad of at least sixty square feet in O scale, or forty-five square feet in S scale, or thirty-two square feet in HO scale, or eighteen square feet in N scale or other scales in proportional relationship to HO scale. This completed section must contain the necessary scenic elements of terrain, structures, background, lighting, and realism/conformity as combined to achieve a realistic effect using applicable NMRA standards, in that particular model railroad scene. The intent of this category is the prototypical rendering of the scenic elements from the ground up. The definitions of the various elements (which may be combined to comprise the setting for the model railroad) shall be:

TERRAIN - The ground and all natural features such as rocks, water, trees, hills and depressions, as well as manmade features such as the railroad roadbed, cuts, fills, drainage ditches, embankments, streets and roads.

STRUCTURES - Structures are considered from the standpoint of prototypical suitability, placement and appearance as scenic elements. (The quality of construction is covered under the Master Builder Structures category). Structures include: bridges, trestles, culverts, buildings and all other types of structures (towers, power lines, signs, fences, etc.), track and right-of-way appurtenances (such as turnout controls, signaling structures, crossing gates and shanties etc.), turntables and other service structures. The items described above are a few examples and additional features are encouraged.

BACKGROUND - Treatment of wall, backdrop or ceiling to realistically depict depth and distance, horizon and sky.

LIGHTING - Illumination effects from three aspects: railroad cars and signals, etc., buildings, streets and roads, etc., overall lighting effects - day and/or night. An entirely daylight scene is acceptable. This lighting information must be included in the material prepared for Section 4 below.

REALISM/CONFORMITY - General overall impression that the scene is a believable, miniature representation of prototype railroad.

2. Prepare a set of photographs and a written description clearly describing the intended setting of the model railroad and the scenic details including towns or cities in the area being judged.
3. Prepare a description of the materials and methods of construction used in creating various features of terrain, background, and lighting.
4. Attach one copy of materials in Sections 2 & 3 to the SOQ for use by the judges in determining the effectiveness of the craftsmanship displayed by the member requesting certification.
5. Earn a Merit Award of at least 87.5 points on the section of layout being judged.
6. Submit a completed Statement of Qualifications (SOQ) including the attachments for Sections 2 & 3 and the signed Merit Judging forms from Section 5.

SECTION 1
☐ OVERALL AREA REQUIREMENT MET
☐ TERRAIN
☐ STRUCTURES
☐ BACKGROUND
☐ LIGHTING
☐ REALISM/CONFORMITY

SECTION 2
☐ SET OF PHOTOGRAPHS OR VIDEO TAPE
☐ WRITTEN DESCRIPTION

SECTION 3
☐ WRITTEN DESCRIPTION

SECTION 4
☐ COPY OF MATERIALS IN SECTION 2 FOR JUDGES USE
☐ COPY OF MATERIALS IN SECTION 3 FOR JUDGES USE


SECTION 5
☐ MERIT AWARD OF AT LEAST 87.5 POINTS

Verified By: _____ REGION: _____ DATE: _____

Scenery Certificate Requirements

Judging form

This is your score sheet that the judges fill out based on their evaluation of your efforts.

	ACHIEVEMENT PROGRAM MASTER BUILDER SCENERY JUDGING FORM May 2006
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PLEASE ATTACH THIS FORM TO A COMPLETED STATEMENT OF QUALIFICATIONS (SOQ) FORM.

Member's Name: _____ NMRA #: _____

Date Submitted: _____ Region: _____

The undersigned judges certify that the scenic area of model railroad, built by the above named NMRA member, has been personally examined by two or more judges appointed by the Region AP Chair, meets all applicable NMRA Standards, has earned a minimum score of 87.5 points and has been awarded a Merit Award.

MERIT AWARD SCORING SCHEDULE


CATEGORY	DESCRIPTION	POINTS	SCORE
TERRAIN	The ground and all natural features such as rocks, water, trees, hills and depressions, as well as manmade features such as the railroad roadbed, cuts, fills, drainage ditches, embankments, streets and roads.	0-35	
STRUCTURES	Structures are considered from the standpoint of prototypical suitability, placement and appearance as scenic elements. (The quality of construction is covered under the Master Builder Structures category). Structures include: bridges, trestles, culverts, buildings and all other types of structures (towers, power lines, signs, fences, etc.), track and right-of-way appurtenances (such as turnout controls, signaling structures, crossing gates and shanties etc.), runtables and other service structures.	0-20	
BACKGROUND	Treatment of wall, backdrop or ceiling to realistically depict depth and distance, horizon and sky.	0-25	
LIGHTING	Illumination effects from three aspects: railroad cars and signals, etc., buildings, streets and roads, etc., overall lighting effects - day and/or night. An entirely daylight scene is acceptable.	0-20	
REALISM/ CONFORMITY	General overall impression that the scene is a believable, miniature representation of prototype railroad.	0-25	
		Total	

JUDGE'S NAME	SIGNATURE	NMRA #

REGIONAL AP CHAIR: _____ REGION: _____ DATE: _____

Scenery Certificate Requirements:

Statement of qualifications form

	ACHIEVEMENT PROGRAM MASTER BUILDER SCENERY STATEMENT OF QUALIFICATIONS FORM May 2006	
	<small>page 1 of 2</small>	

Member's Name: _____ NMRA #: _____ Exp: _____
 Street: _____ City: _____ State/Prov: _____
 ZIP/PC: _____ Country: _____ NMRA Region: _____
 Date Submitted: _____ E-Mail: _____ Phone: _____

To qualify for this certificate you must:

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REALISM/CONFORMITY - General overall impression that the scene is a believable, miniature representation of prototype railroad.

- Prepare a set of photographs and a written description clearly describing the intended setting of the model railroad and the scenic details including towns or cities in the area being judged.
- Prepare a description of the materials and methods of construction used in creating various features of terrain, background, and lighting.
- Attach one copy of materials in Sections 2 & 3 to the SOQ for use by the judges in determining the effectiveness of the craftsmanship displayed by the member requesting certification.
- Earn a Merit Award of at least \$7.5 points on the section of layout being judged.

	ACHIEVEMENT PROGRAM MASTER BUILDER SCENERY STATEMENT OF QUALIFICATIONS FORM May 2006	
	<small>page 2 of 2</small>	

- Submit a completed Statement of Qualifications (SOQ) including the attachments for Sections 2 & 3 and the signed Merit Judging forms from Section 5.

SECTION 1

- ☐ OVERALL AREA REQUIREMENT MET
☐ TERRAIN
☐ STRUCTURES
☐ BACKGROUND
☐ LIGHTING
☐ REALISM/CONFORMITY

SECTION 2

- ☐ SET OF PHOTOGRAPHS OR VIDEO TAPE
☐ WRITTEN DESCRIPTION

SECTION 3

- ☐ WRITTEN DESCRIPTION

SECTION 4

- ☐ COPY OF MATERIALS IN SECTION 2 FOR JUDGES USE
☐ COPY OF MATERIALS IN SECTION 3 FOR JUDGES USE

SECTION 5

- ☐ MERIT AWARD OF AT LEAST \$7.5 POINTS

Member's Statement and Agreement:

I certify that I have completed all of the requirements for this Certificate of Achievement as listed above and that I will agree to assist other members in this subject whenever possible, whether or not they are participants in the Achievement Program.

NAME: _____ SIGNATURE: _____ Date: _____

Certification of Regional Achievement Program Chair

As the NMRA Regional Achievement Program Chair of the _____, I certify that I have examined this SOQ and, having compared it to the stated requirements for this certificate, I am satisfied that the stated requirements have been met.

NAME: _____ SIGNATURE: _____ Date: _____

Region Cert #: _____

Approval by AP National Executive Vice Chair

NAME: _____ SIGNATURE: _____ Date: _____

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Scenery Certificate Requirements

- Paperwork/ photos/ reasearch/ field work/ documentation/ bill of materials....
- “This sounds more like my job”
- Use the Statement of Qualifications form as a punch list.
- Remember : while being judged as to whether or not your work meets the criteria, it's the judges job to determine “intent” to create a believable scene, not to determine if you are the next Michelangelo.
- Take input from others as an assist.
- Go for it and learn from it! You'll be glad you did !

Scenery Certificate Requirements:

Statement of qualifications form

- Construct a completed section of a model railroad at least 32 feet square in HO scale. The completed section must contain the necessary scenic elements of terrain, structures, background, lighting and realism/conformity as combined to achieve a realistic effect using applicable NMRA standards in that particular model railroad scene.

MERIT AWARD SCORING SCHEDULE

CATEGORY	DESCRIPTION	POINTS	SCORE
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BACKGROUND	Treatment of wall, backdrop or ceiling to realistically depict depth and distance, horizon and sky.	0-25	
LIGHTING	Illumination effects from three aspects: railroad cars and signals, etc.; buildings, streets and roads, etc.; overall lighting effects - day and/or night. An entirely daylight scene is acceptable.	0-20	
REALISM/ CONFORMITY	General overall impression that the scene is a believable, miniature representation of prototype railroad.	0-25	
		Total	

Statement of qualifications : my checklist

Terrain (35pts)	Feature	Included or not	Where did I implement this	Comments
	Rocks	y	river module	Exposed rock walls ,river module
	Water	y	river module	river module
	Trees	y	all four modules	All four modules
	Hills	y	river module	river module
	Depressions	y	river module	river module
	Roadbed	y	all four modules	HO cork road bed on mains , N-scale tapered to ground level on sidings
	Cuts	y	river module	exposed rock wall along mainline /river module
	Fills			
	Drainage Ditches	y	grain elevator, river module	Grain facility module
	Embankments			
	Streets and Roads	y	grain elevator	Curbs, sewer drains man-hole covers

Statement of qualifications : my checklist

Structures (20 pts)	Prototypical suitability / placement/ appearance	Included or not	Where did I implement this	comments
	Bridges	y	river module	Four Atlas Girder bridges single track , kit based in a double track bridge
	Trestles			
	Culverts			
	Buildings	y	grain elevator river module	Industrial building scratch built from DPM kits , Grain Facility built up from Walthers Cornerstone Kits (Elevator kit, add on siloes kit, two storage bin kits, elevator leg, surge bin and piping kits).
	Towers			
	Power lines	y	all four modules	Rix telephone pole kits
	Signs	y	all four modules	
	Fences	y	industrial park module	Scratch built from brass rod and Tulle
	Turnout controls	y	grain facility , industrial park module	switch stands, switch machines, brooms, relay boxes
	Signaling Structures	y	grain facility , industrial park module	Relay sheds, switch machines, and call boxes
	Crossing gates			
	Shanties			
	Service Structures (roundhouse ,yard maint facilities)			

Statement of qualifications : my checklist

Background (25 pts)		Included or not	Where did I implement this	comments
	Treatment of wall ,backdrop or ceiling to realistically depict depth and distance, horizon and sky	y	all four modules	Photo backdrop or painted backdrop building flats
Lighting (20 pts)				
	RR cars and signals			
	Buildings, Streets and roads			lights over doorways , parking lot lighting
	overall day and/or night			daylight backdrop
Realism and conformity (25pts)				
	Impression			I like it ;)

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 - Industrial Park module details

Module construction

The grain facility modules and river module are each constructed from $\frac{1}{2}$ " x 24" x 48" Basswood.

Each module also has a pair of $\frac{1}{2}$ " x 3" cross braces cut to fit and provides support to the foam base for track and structures.

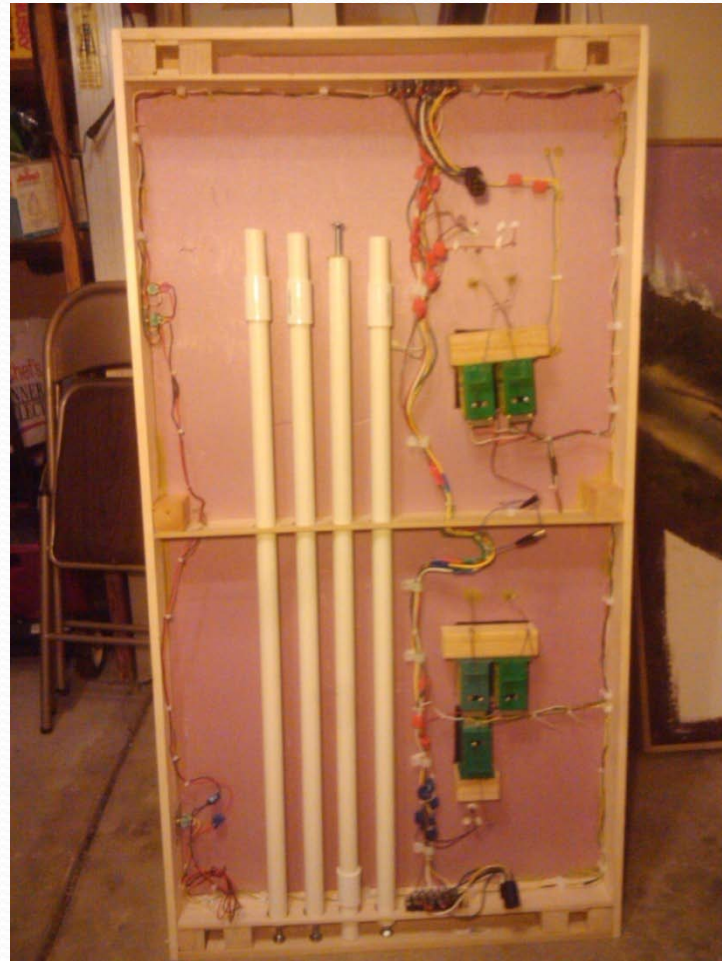
The industrial park module is an older unit and is constructed from 1" x 4" lumber. This module is 30" x 48"

The original grain facility modules weighed about 20 lbs each! I got tired of lugging them around so I've rebuilt them seeking lighter weight.

I've cut that in half. 😊



Module construction



Module construction

- PVC pipe leg with a sleeve at one end.
- It's purpose is to provide a stop when inserting the leg into the pocket and prevent the leg from pushing upward against the foam base.



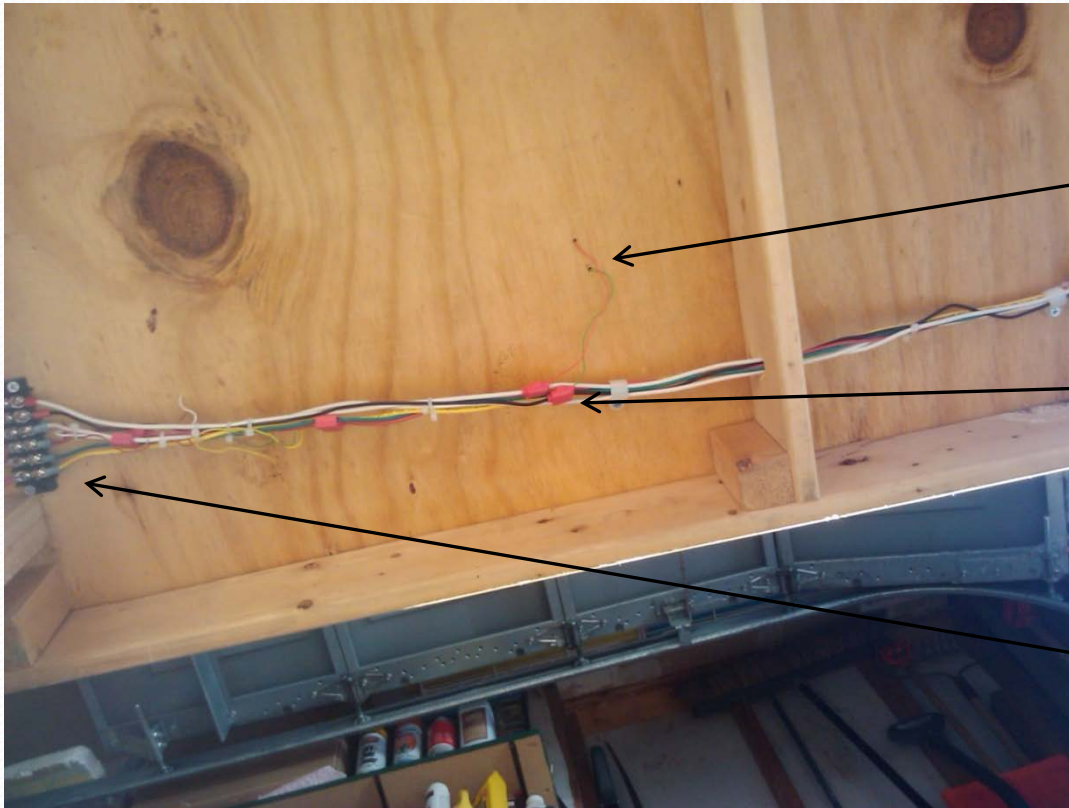
Module construction

Each section of track has a pair of feeder wires that drop down to the main power bus.

Feeder wires: 18 -20 gauge
6-8 inches.

Feeder wires secured to
main power bus wires with
crimp on connectors.

Main track power bus : 14
gauge wire. Spade lug
soldered to each wire and
connected to terminal
blocks at each end.



Module construction

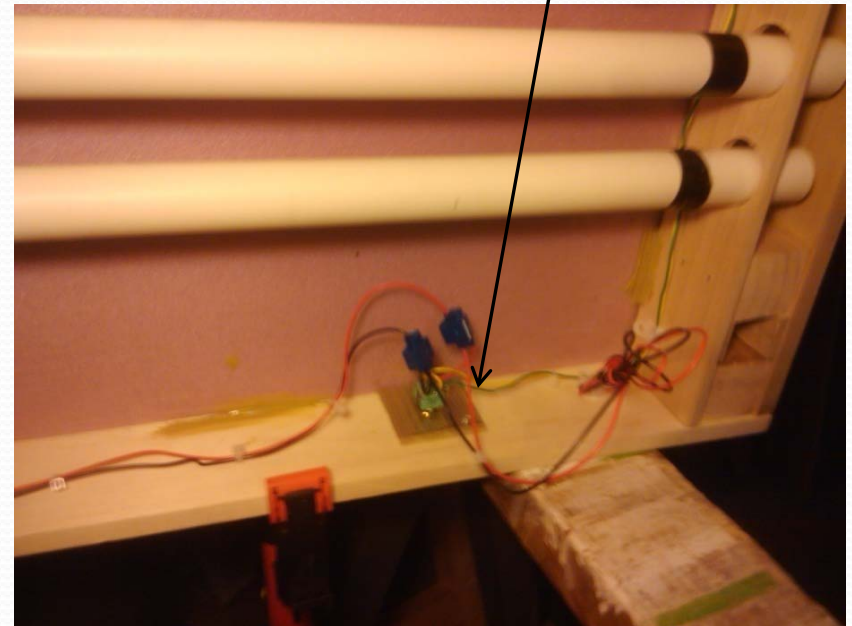
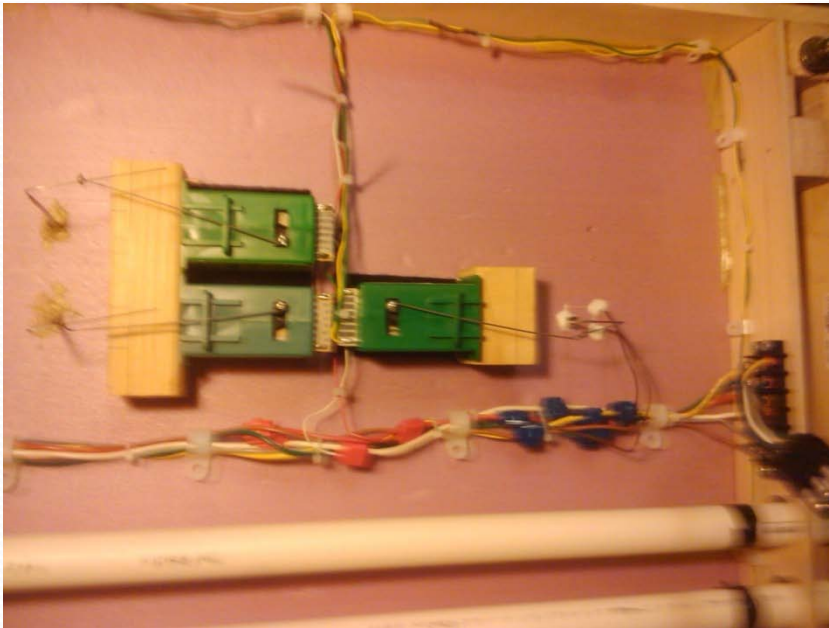


- Module to module power bus connections is made using a 6 pin trailer plug assembly secured at one end to a terminal strip.
- Other clubs I run with use Cinch -Jones connectors , all I need to do is swap out one plug style for the other at the end of my modules.

Module construction

Side mounted Tortoises
Model Railroader article:
08/2012 issue.

Turnout toggle switches
mounted to facial



Prepare the roadbed

Before gluing the roadbed into place make sure to sand beveled edge of the cork along the top edge of the roadbed.

Removing this rough edge will help later on when you apply the track ballast

Midwest Products HO Scale cork roadbed.



Placing track and structures



Dry fit: roadbed and track placement

Determine the location of the track work. Draw a set of guide lines indicating the centerline of each track

Glue the cork to the foam base with liquid nails. Stagger the joints and check that two adjoining pieces are smooth and level. Sand off any uneven or high spots.

Track is secured to the roadbed with track nails. Addition of ballast and gluing it down keeps the track in place.

Make sure that feeder wires will clear any supporting cross members underneath the foam base. Each section of track should get a feeder wire.



Track and Tie weathering

- The track was pre weathered using three shades of Krylon spray paints , Ruddy Brown, Flat black and Primer Gray.
- Wahl Clipper oil coats the rail head to facilitate rail cleanup after the paint was dry. I use a “Bright-boy” abrasive block to clean up the rails.
- Apply the dark rust color along the rail webs, by spraying the tracks edge on.
- Alternate the three colors over the tops of the track ties to get the overall shading.



Track and Tie weathering

- Turnouts require a bit more attention.
- Keep the turnout points and hinges clear of paint. Cover them with a strip of tape.
- After paint has dried peel the tape off and clean up the rail heads.
- Check the rail and rail web near the turnout points make sure they are free of paint.

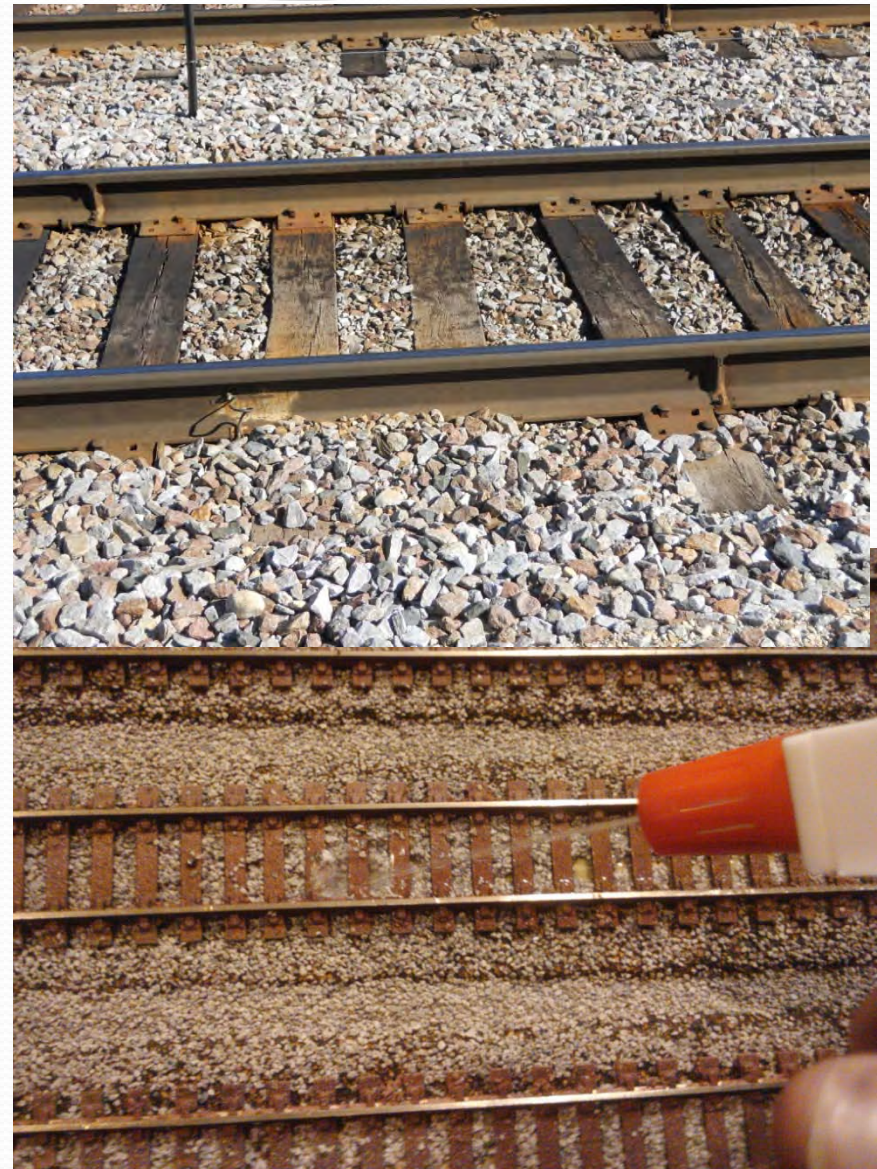


Ballasting the track

Spread initial layer of ballast material along the track and sides of the roadbed .

Keep the ballast below the tops of the ties.

Soak the ballast with Isopropyl alcohol 70%. This will break the surface tension of the glue /water mix applied next.



Ballasting the track

I use a 50 – 50 mix of white glue and water to secure the ballast.

Dilute glue mix is applied with a medicine dropper.

After the glue dries check the inside web of each rail to make sure no ballast is stuck there.

Run a wheel set / truck along the rails to ensure the ride is smooth and rail to rail connections are free of ballast.

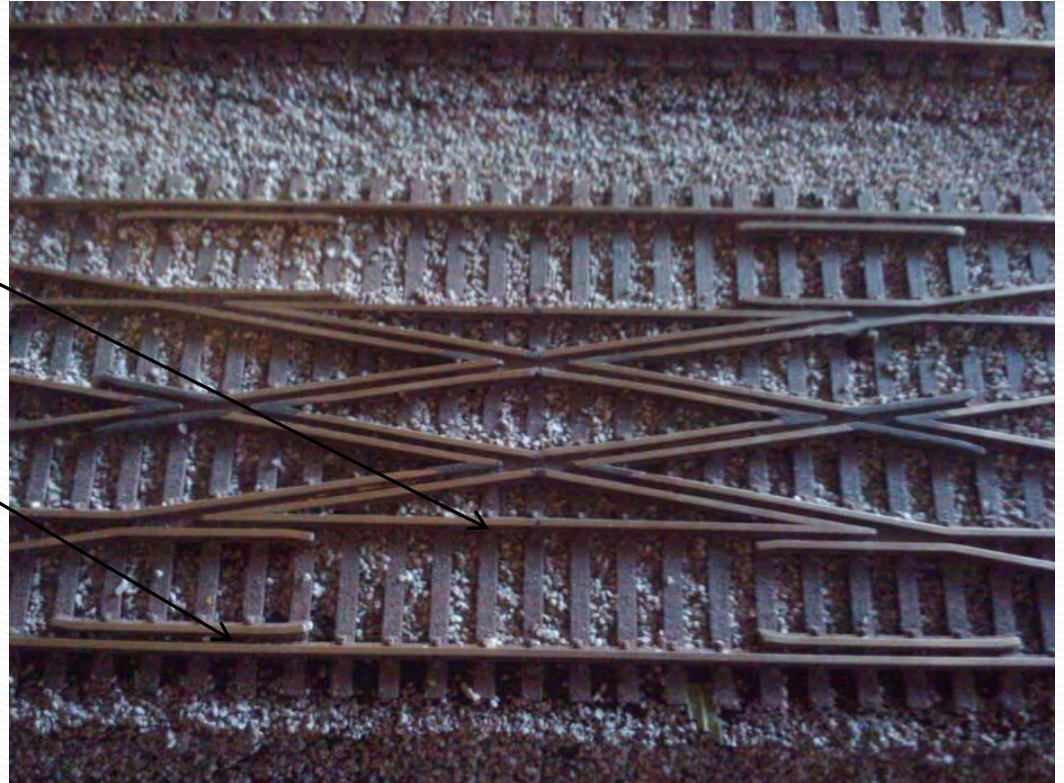


Ballasting the crossover

At each turnout and crossing, check the inside web of the rails for ballast and remove it.

Also check the guard rails for loose ballast

Make sure to avoid gluing the ballast at the turnout points.



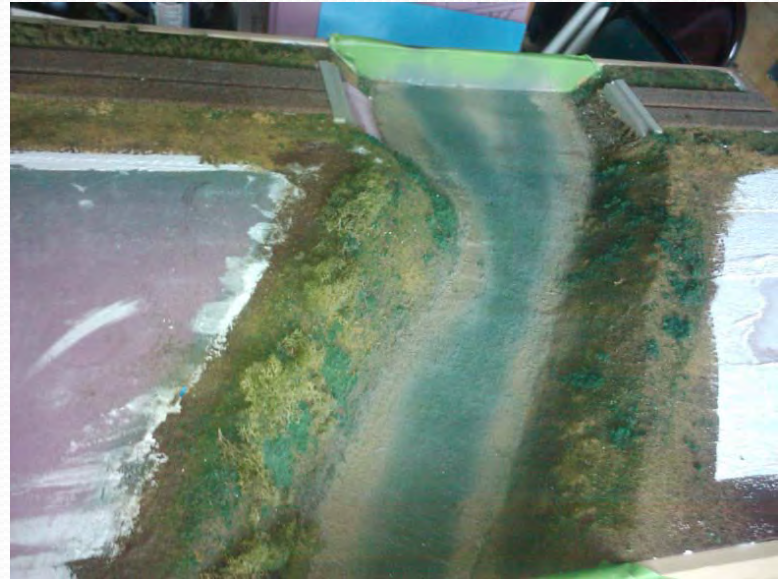
River module

The base of the module is 2" pink extruded foam, the river bottom is formed from a second layer of 2" foam. Woodland Scenic's plaster cloth forms the river basin.

The riverbed was painted a light desert sand color along the river banks and feathered to a drab green color to suggest deeper water.

Make sure the river bed ,shore line and ends or the module are completely sealed!

Place a bead of DAP clear caulk along the ends of the river bed and the wood frame.



River module

I cut various lengths of paint brush bristles to represent weed growth along the river bank. Use white glue to secure to the river bed.

Small tree branches and rocks were placed into the river bed.

Magic Water from Unreal Details was poured into the river bottom. An 18 oz bottle was all that was needed to give a depth of ~ 1/8".

It has a tendency to creep up the sides of the embankment resulting in a glossy look to the edges. I'll disguise this later with ground cover.

Once dry the surface of the water looks too placid and even. I dabbed the surface with Mod Podge to add ripples to the water surface and suggest movement.



River module: Two hills, two methods

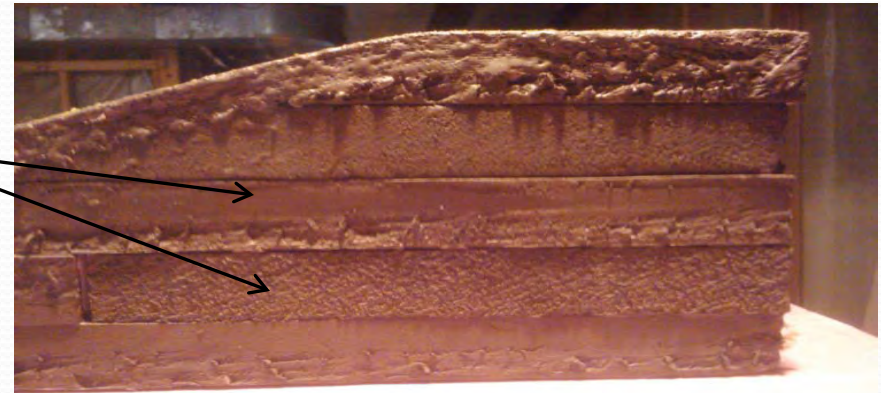
Terraced hillside:

Layered stacks of 1" pink extruded foam.

Trim each layer to produce a taper along the edge of each. I shaped each piece to create a terraced hill side. I used liquid nails to secure each layer to the other.

The surface is covered with Woodland Scenic's plaster cloth.

Dark earth paint was used to as the underlying base color. Woodland Scenic's blended turf, shrubs and lichen products are used as the landscaping materials. These were sprinkled on while the paint was wet. Follow on turf layers were secured with hair spray.



River module: Two hills, two methods

Exposed rock hill:

Formed by creating a “box” of the pink foam. For this hill there four 1” thick foam layers.

The vertical walls of the foam provide the gluing surface for the foam/foil rock face.



River module: Two hills, two methods

Exposed rock hill :

To create the top side of the hill, fill to overflowing the interior of the box using crumpled newspaper this forms the shape for the top side of the hill.

The newspaper wads were then covered by a web of masking tape to hold the rough shape of the hilltop.

The paper / tape web is covered by a couple of layers of plaster cloth to form the top shell. Woodland Scenic's blended turf, shrubs and lichen products are used as the landscaping materials.



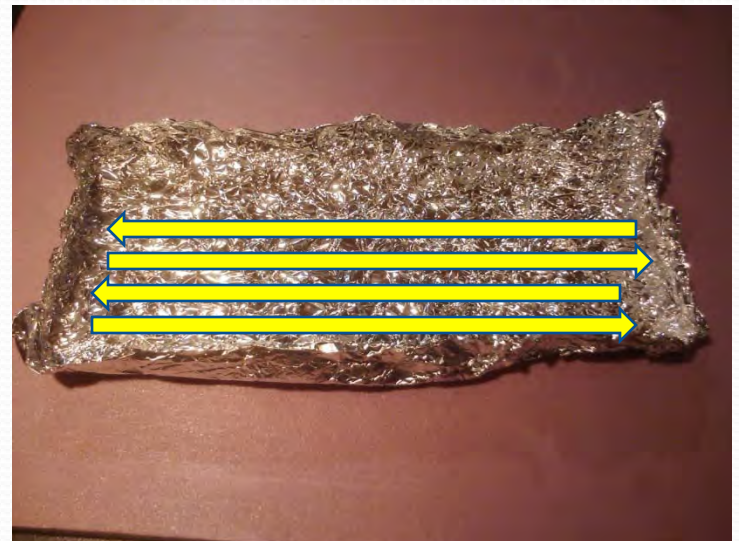
Expanding foam rockwork

Take a sheet of tin foil a bit larger than the area you intend to cover.

Loosely crumple the foil, (not into a tight ball).

Unfold the foil , laying it out flat
But don't smooth it out the wrinkles and folds in the foil will remain.
Fold up the edges about 1" like a cookie sheet.

I used Great Stuff expanding foam sealant to spray alternating rows of foam about 1 inch wide. The foam will expand filling the foil tray and more.



Expanding foam rockwork

After the foam has dried the exposed foil side of the rock face can now be painted and weathered.

I started with a thin base coat of gray primer and covered that with textured gray and sandstone colored spray paints from the hardware store.

When painting and weathering of the rock face is complete , seal the surface with a clear flat seal coat helps protect against chipping off.

The foil mold can be turned over and cut vertically to make a flat gluing surface. I use a hacksaw blade.



Trees

Near my home there are some open fields where I clip a bucket full of these grasses.

I secured two pieces of 2"x 2" scrap into my portable work table and tied a string between the two posts.

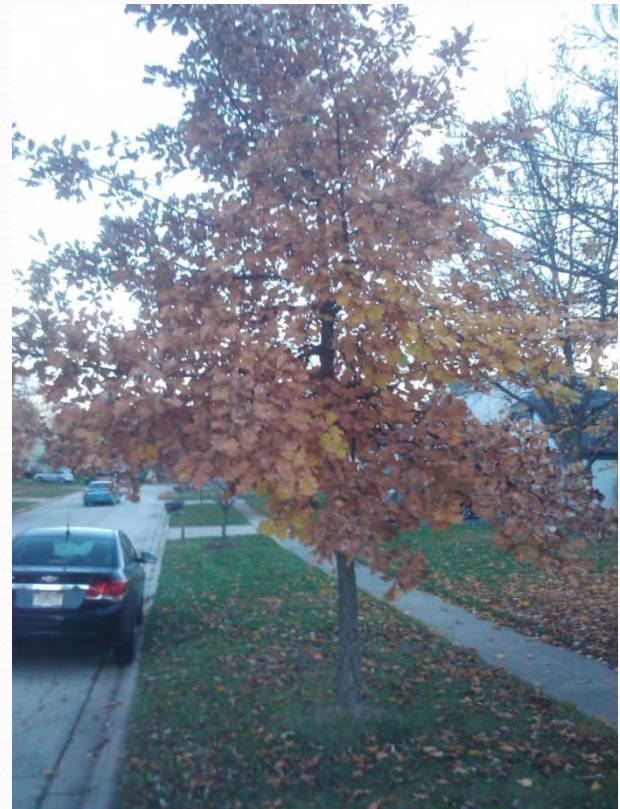
Securing the trunk end of each tree cluster in a spring clip. I sprayed a light misting of foliage green, brown and a lighter dusting of mustard yellow on each.

This provided a wide variety of shading to the trees to represent an early fall scene.



Trees

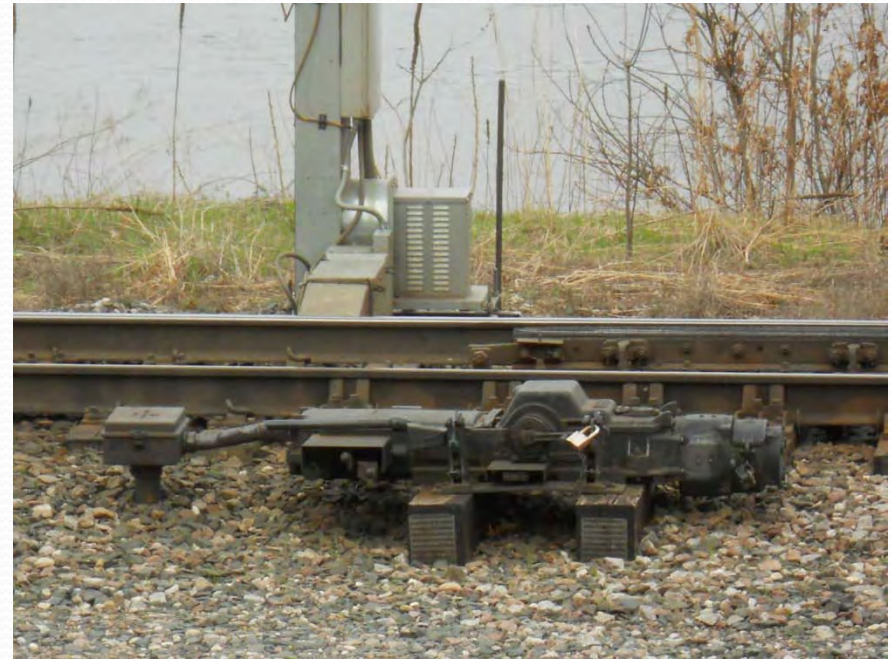
When planted on the layout they look incredible ! 😊



Trackside details



Trackside details



Trackside details



Trackside details



Details

On the grain facility module , I added roadside details such as sewer grates and electrical access hatches.

Images like these can be printed onto decal paper and placed on the streets or roads of the layout.

Street signs , speed limits, yard limits, RR property signs can also be reproduced.



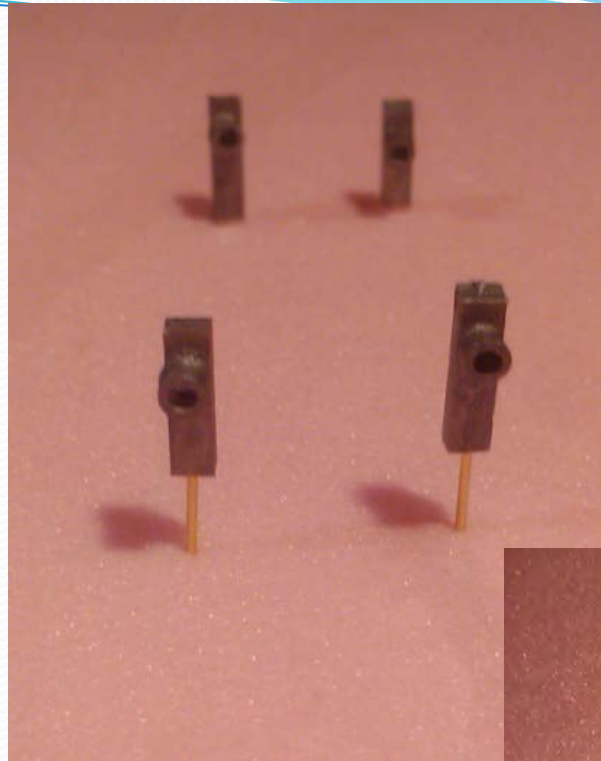
Trackside details

Electrical Boxes:

6" x 8" Plastic stock

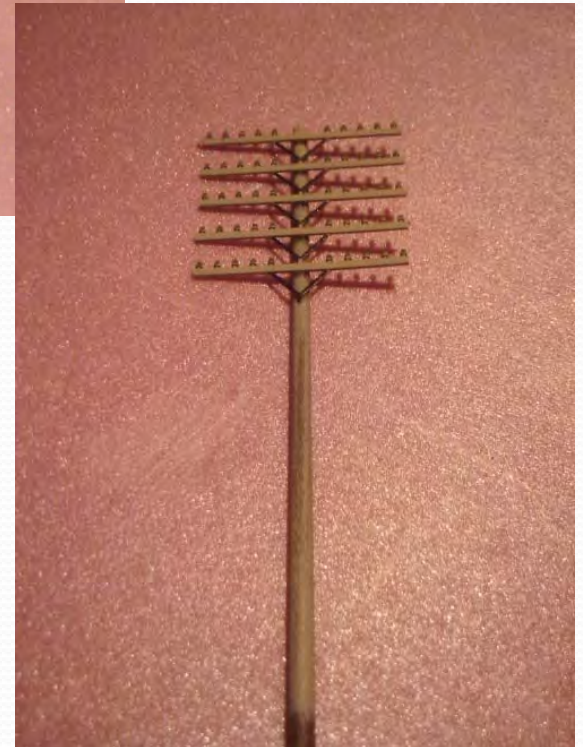
6" round stock for the meter housing,

2" diameter Model Details Brass rod for the Electrical Conduit .

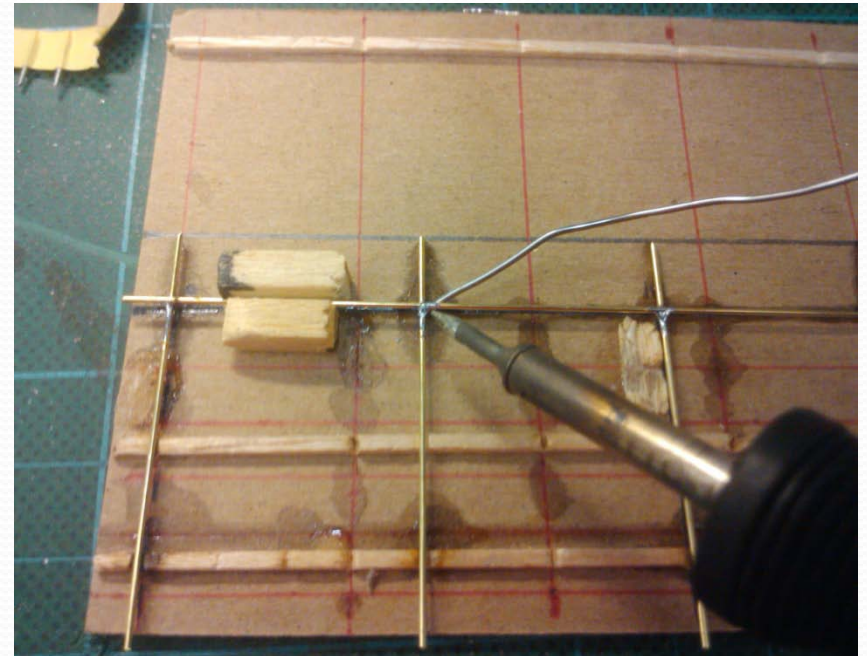
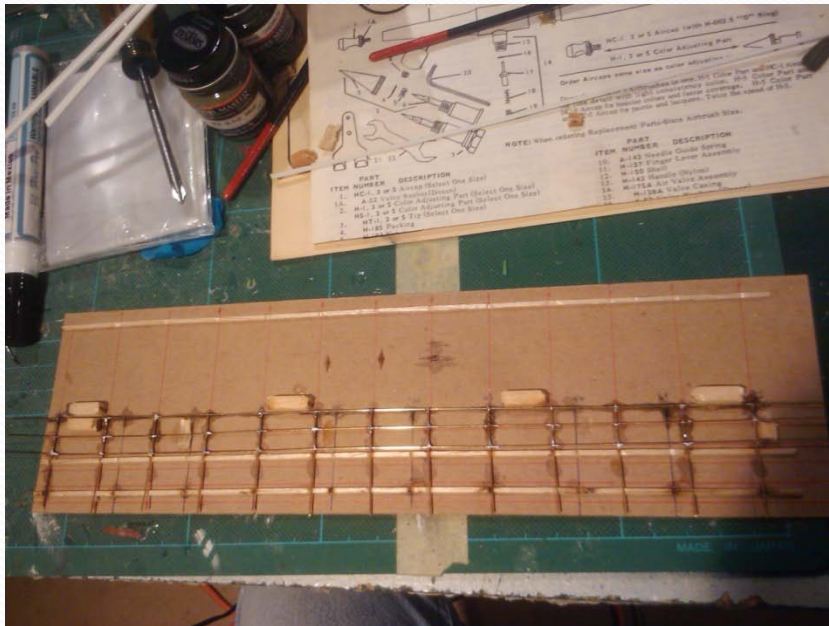


Power poles :

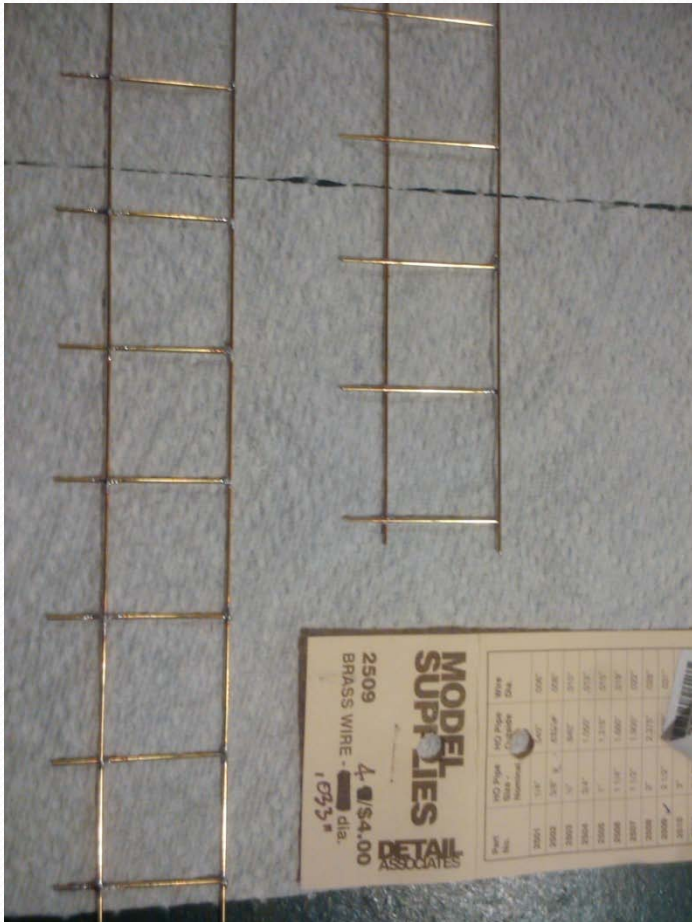
Made using RIX telephone pole and crossarms kit.



Fence making jig



Fences



Fences

The fence sections were sprayed with a coat of flat aluminum. The sealed with a coat of dull coat.

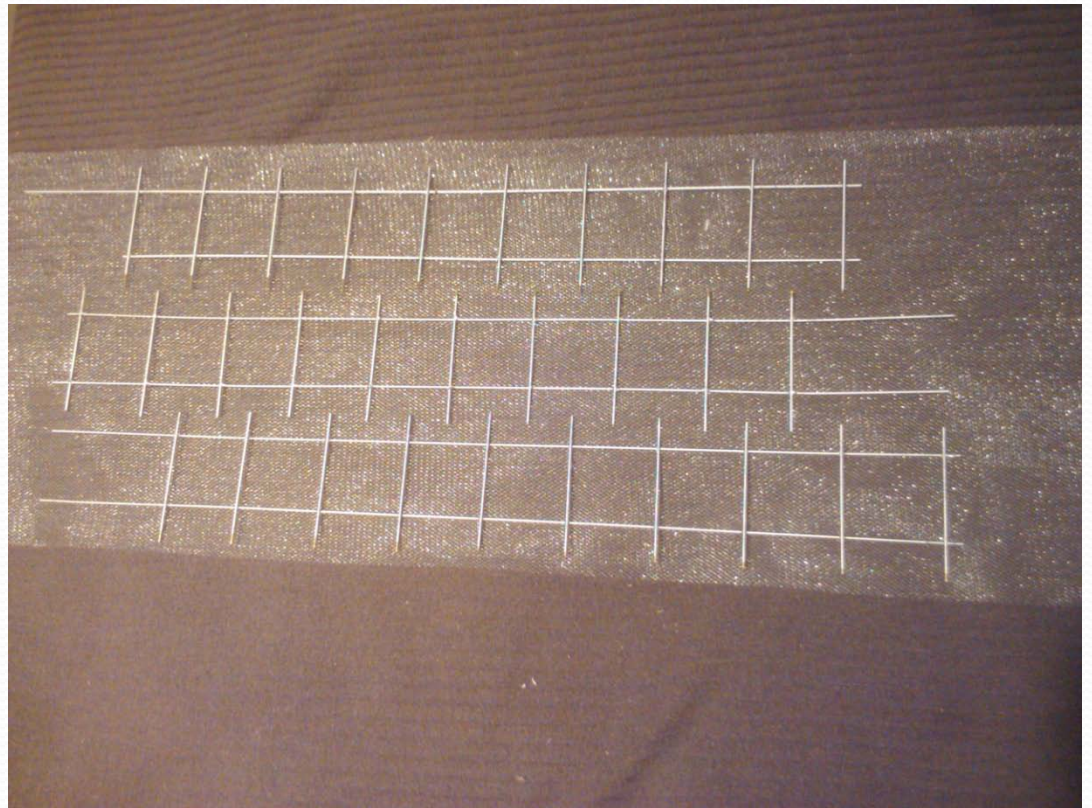
The chain link fence material is Tulle.

I used 3M spray adhesive and covered the fence posts with a fine mist of adhesive.

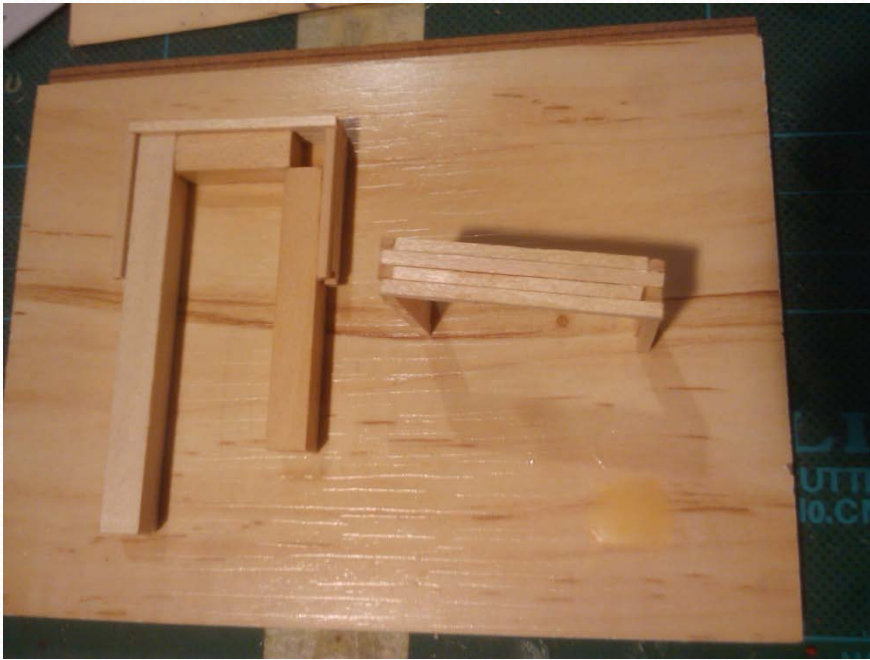
The Tulle was then stretched over the fence posts and left to dry.

Each fence section was glued and covered separately, the excess trimmed away.

Three strands of fine wire are then secured to the upper section of the fence to represent barbed wire.



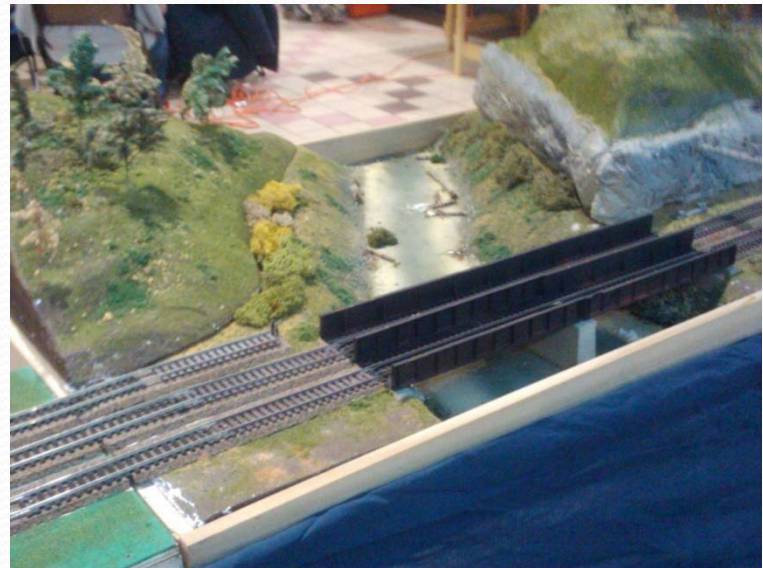
Retaining wall jig



River module



Displayed at Charlestown Mall
January 2011.



River module



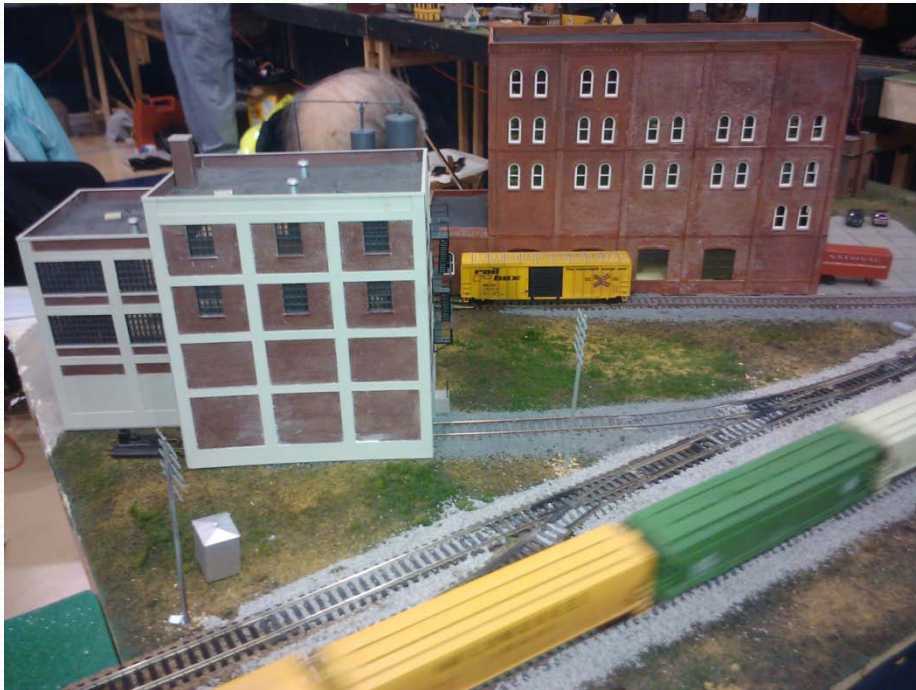
- The bridge is a kit-bashed set of four Atlas single track girder bridges.

Industrial park module

Displayed at Harper College March 2011



Industrial park



Grain facility



Grain facility



Displayed at Southland train show
Oak Lawn Oct 2012.



Grain facility



Backdrops : Grain facility modules

For the grain facility backdrop I plan to use a set of farmland photos I took in Wisconsin. The photos will be merged using Photoshop. I plan to trim the skyline out of the final print and mount the terrain to a foam core board that I will paint with blue sky and some airbrushed cloud.

By painting my own sky /cloud backdrop I will be able to keep a consistent background color for all four modules.



Backdrops : Industrial facility module

For the Industrial module backdrop I plan to implement King Mill Enterprises Building backdrops. The background print will be mounted to a foam core board that I will paint with blue sky and some airbrushed cloud.

By painting my own sky /cloud backdrop I will be able to keep a consistent background color for all four modules.



Backdrops : River module

By painting my own sky /cloud backdrop I will be able to keep a consistent background color for all four modules.

Add sketch



Thanks for listening.