Real Railway NAM 35

Flex Track (Version 1.1)

Additional Functionality Documentation

(New Functionality in with FlexTrack Additions in NAM 35)

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Preface

The Flex Track component of the Real Railway mod has gained some more functionality for the release of NAM 35. This contains new functionality that enhances or is completely new to the Real Railway mod. Some of the new functionality is detailed in this document. Pre-existing content is not contained in this document. Existing **(Pre-NAM 35 documentation)** can be found in the *RRW FlexTrack User's Manual*.

There has been an update to many existing components for the Flex Track component of the RealRailway mod which include a codebase rewrite for the advent of future functionality in future NAM editions. Most of the Flex Track components will function the same as before. Little will be noticed if anything for the major parts of the Flex Track. NAM 35 also hails the advent of better Single Track Rail or STR integration which will be described later in the document.

Changes to current items

Overall Changes

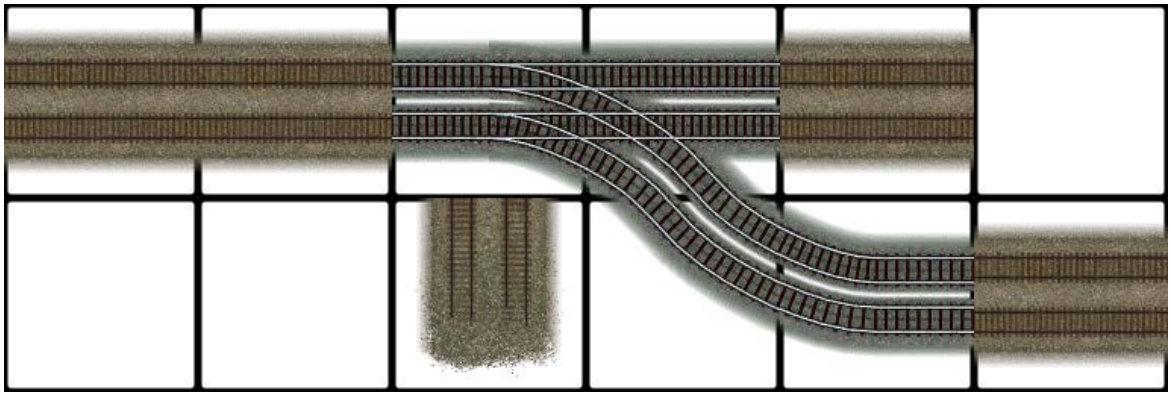
With new functionality comes change with some of the existing functionality. This includes the following:

- **Radius 4 and Radius 5 (R4 and R5) curves can now be converted to STR or Single Track Rail**
- **STR adjacency code for better flow of the STR override for Orthogonal pieces. This also links in with the Real Railway Mini Curve components**
- **Some Pieces have had their footprint reduced to allow future functionality to be added in future NAM editions.**
- **Some pieces have had their footprint or Pattern changed for integration of new functionality. (See below)**
- **Autoplace functionality has been disabled so there won't be any autoplace pieces appearing since they have been replaced with draggable pattern functionality.**

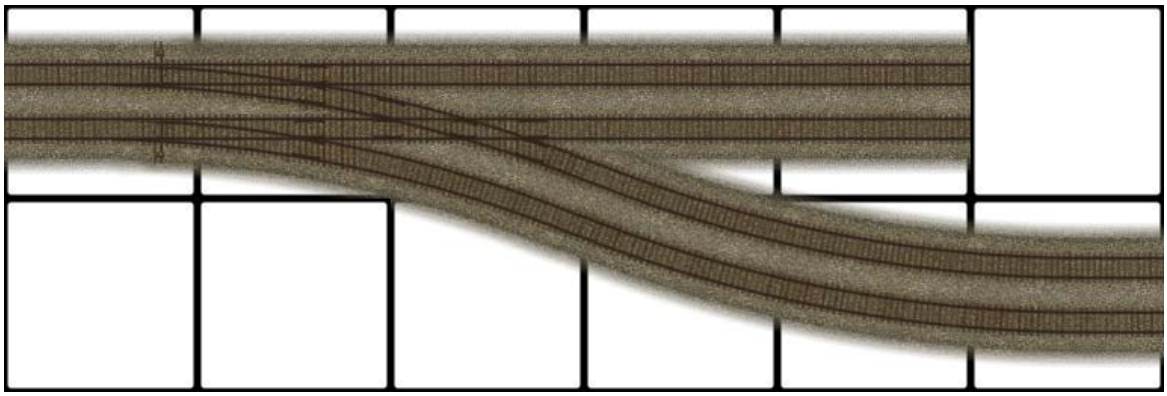
With this in mind there should be no problem in integrating the new functionality into your regions. Some pattern may overlap but that is a side effect of the codebase rewrite. If this happens one of the pieces will have to move. In addition, Maxis or former standard pieces may appear in certain circumstances. The best way to avoid problems is to follow the guides written and experiment.

A2 Type 2 Turnout New Pattern

Pattern



Resultant



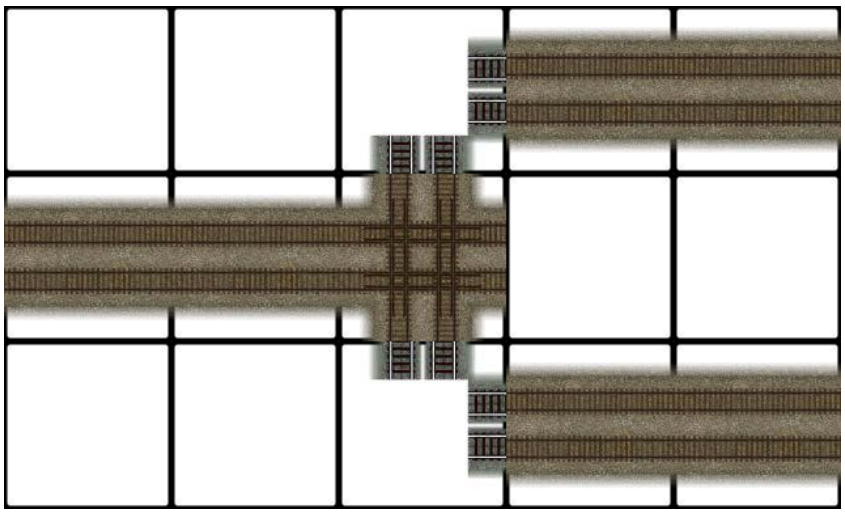
The pattern for the A2 Type 2 has been changed for the purpose that the pattern was needed elsewhere. This piece still has the same functionality as the last edition of the Real Railway Flex Track Component.

The piece has not ability to be overridden and no further enhancements are planned.

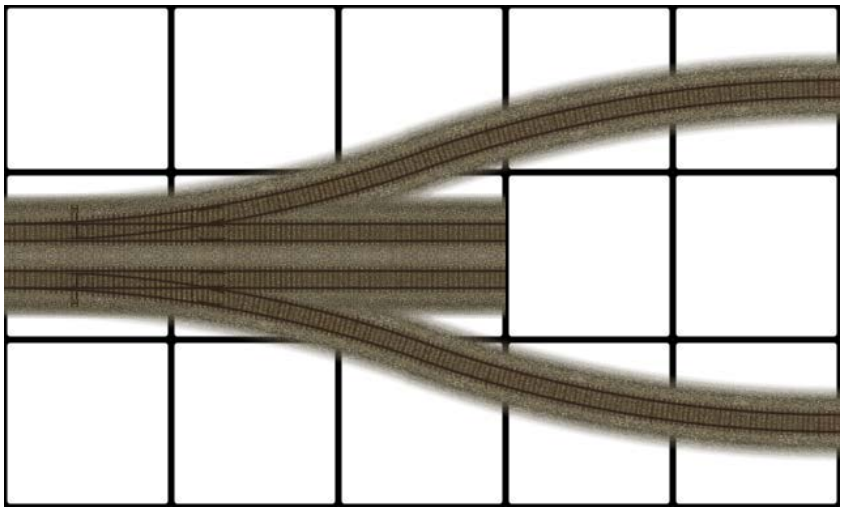
New Flex Track Items

A1 Dual

Pattern



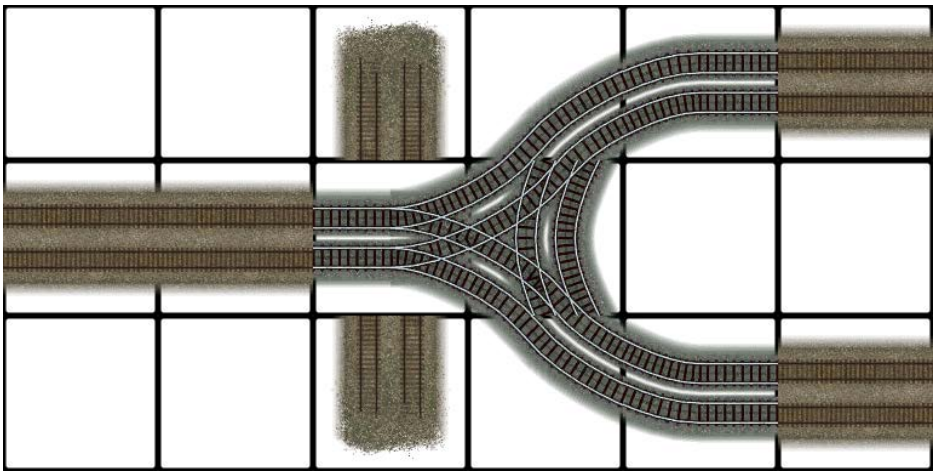
Resultant



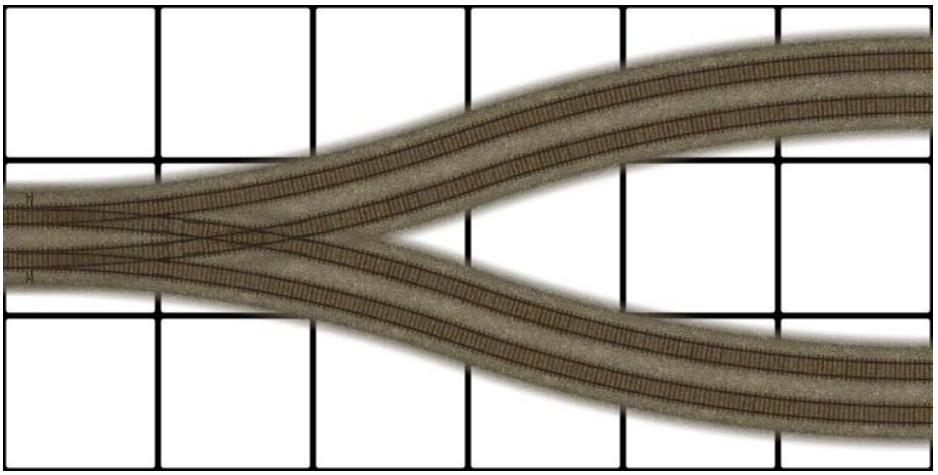
The A1 dual Turnout is designed for express stations and other applicable situations so trains can bypass stations or be used to have additional platforms. This piece cannot be converted to STR for obvious reasons and no more enhancements are planned. The ends of the STR have override adjacency code so most conversions to other networks are supported. The Piece has pathing in only one direction for each piece of track and turnout so the automata cannot transfer between opposing track directions.

A2 Wye Turnout

Pattern



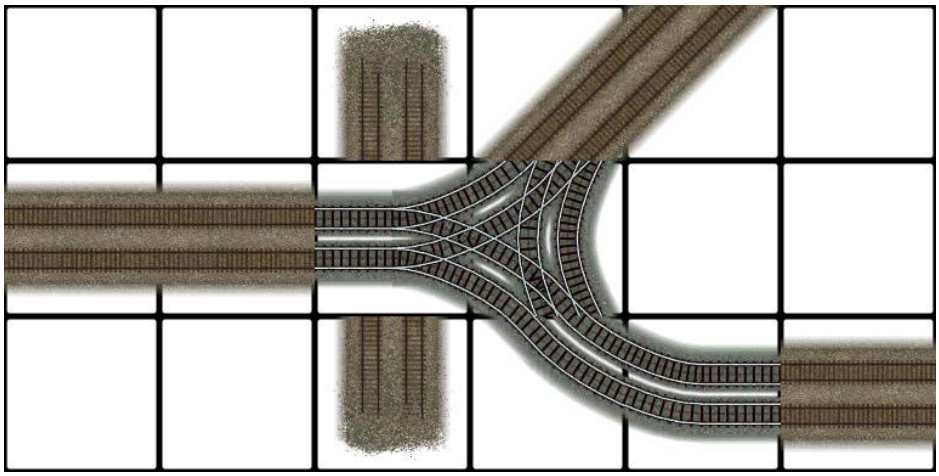
Resultant



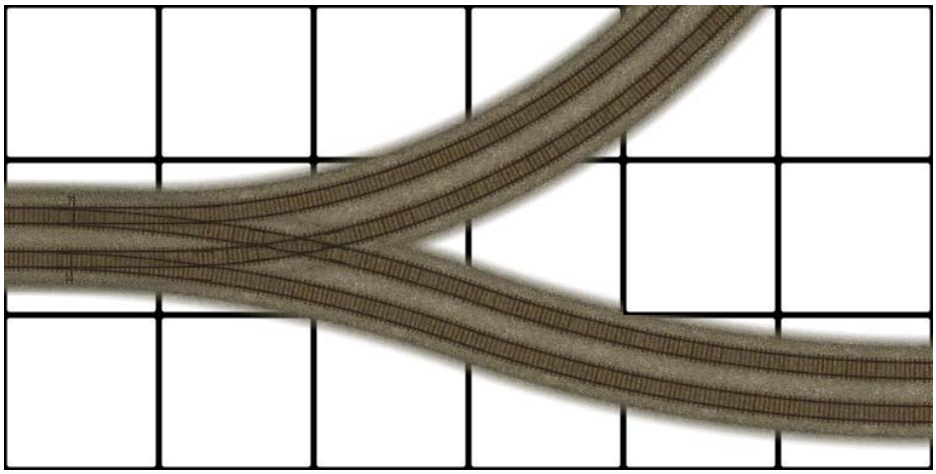
The A2 wye is an elongated version of the Mini Curve wye and has much of the same functionality. The turnout cannot be made into STR but that functionality may appear later. No other enhancements are planned.

A2 B2 Wye Turnout

Pattern



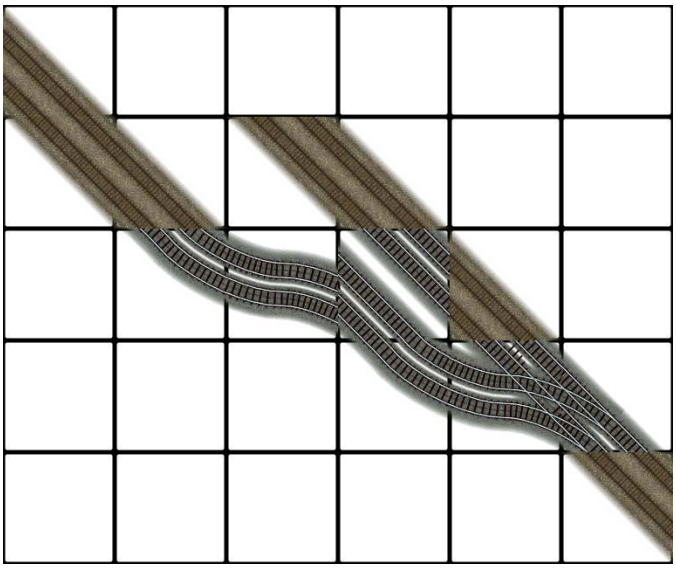
Resultant



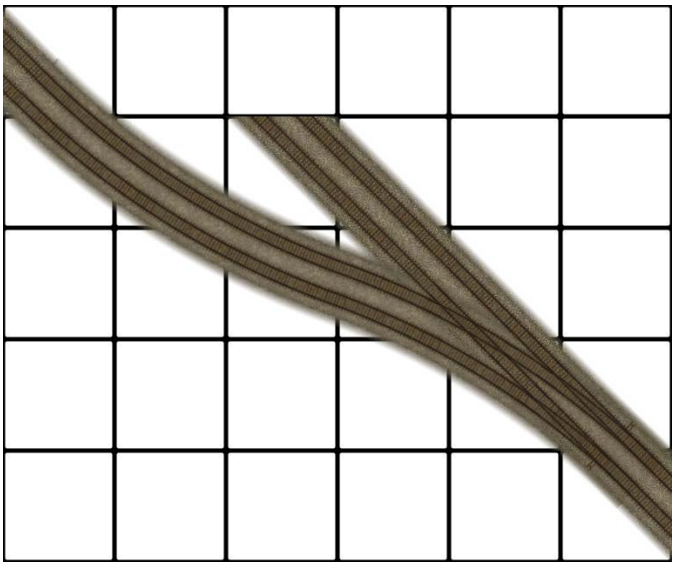
The A2 B2 wye turnout is also like the Mini Curve Counterpart. There are plans to convert the piece to STR but for now it is DTR only. Overrides may occur on the diagonal B2 part due to it using the MRC R2 Tiles. These overrides will not extent over the whole piece until the a new STR section is made.

A2 Diagonal Turnout

Pattern



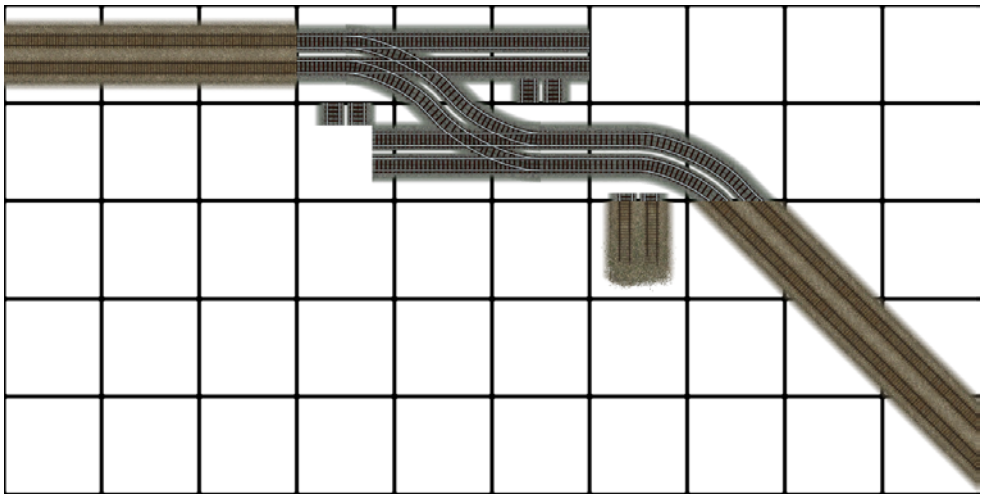
Resultant



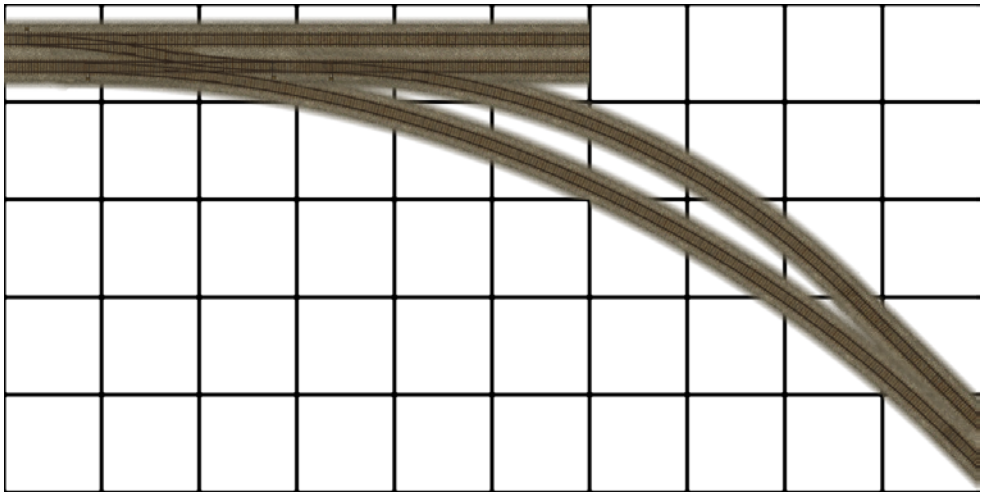
The A2 diagonal pattern uses a slightly modified pattern from the B2 Diagonal. Instead of drawing orthogonally the network should be drawn up diagonally at the branch for the A2 Diagonal Pattern to function. An A1 Branch off the DTR and a STR variant A1 planned for a future release. For this release it is DTR only.

B2 Extended Orthogonal

Pattern



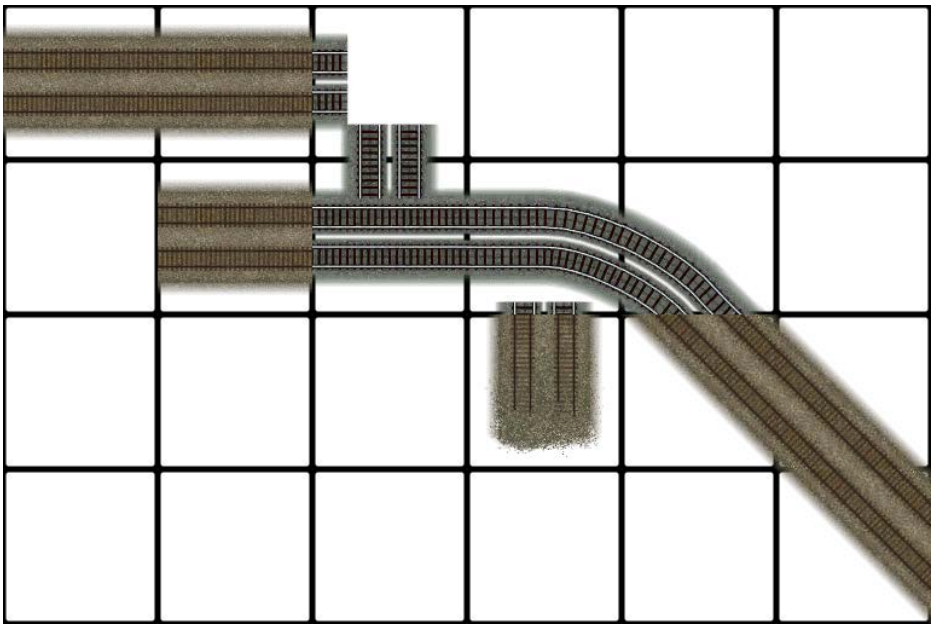
Resultant



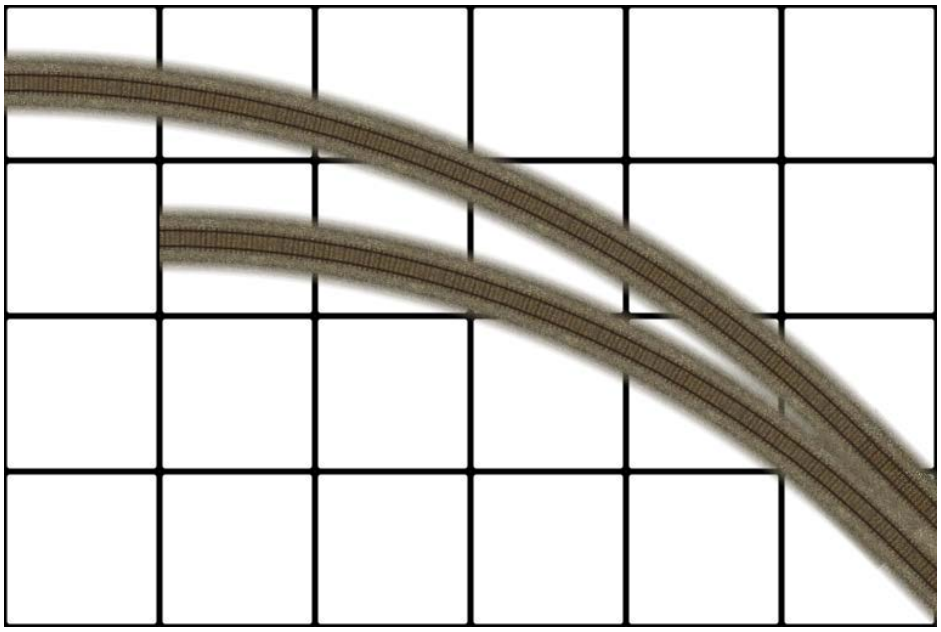
The B2 Extended is much like the A2 Extended and is designed for two High speed mainlines converging or diverging depending on usage. This is due to the lack of a diamond crossing and uses the crossover switch to perform the function. There are pathing issues with this piece much like the A2 Extended piece that has been previously released so care and mindfulness must be considered when making this piece. As expected there are no STR functions for this piece and none are planned. This piece is quite large so be mindful to extend the diagonal and orthogonal sections to make the turnout.

D2 Split curved

Pattern



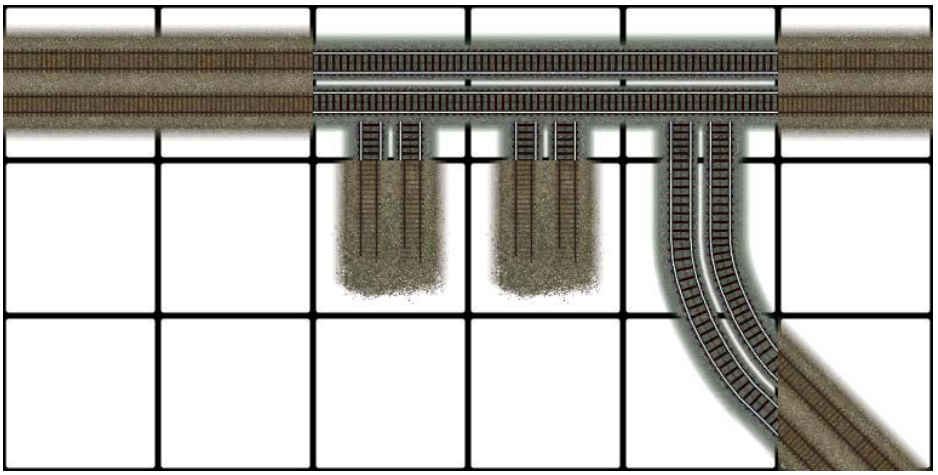
Resultant



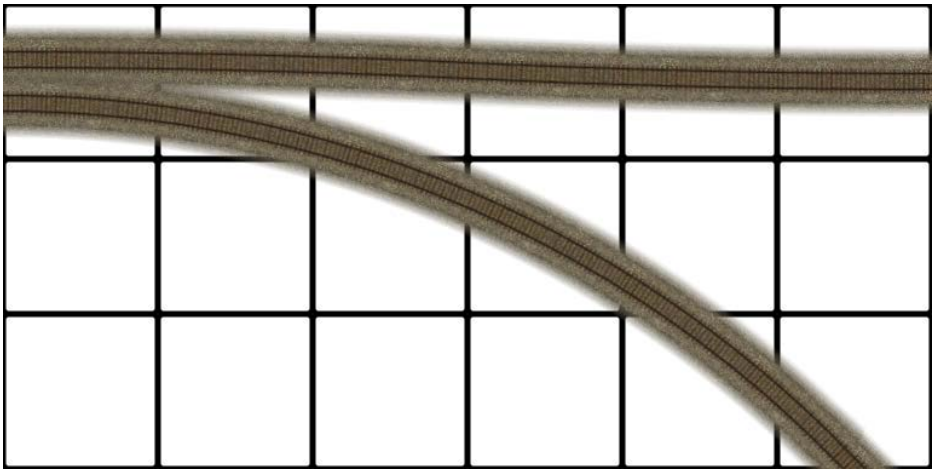
Much like the D2 orthogonal split the D2 Split curve is designed for Wide DTR or STR over two tiles to a Single tile diagonal component. There is adjacency code at each of the ends for overrides that will work with the majority of pieces that can be converted to STR. Larger variants are planned but that depends on certain patterns being made available. No other functionality is planned.

E1 Turnout

Pattern



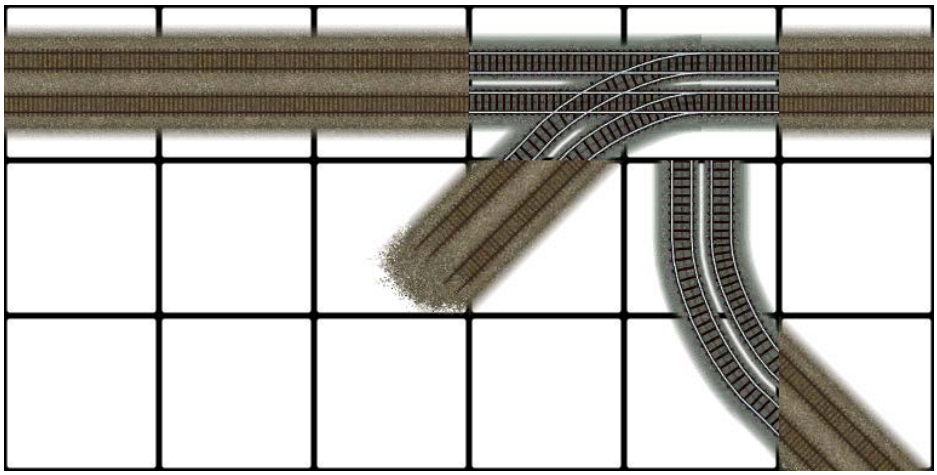
Resultant



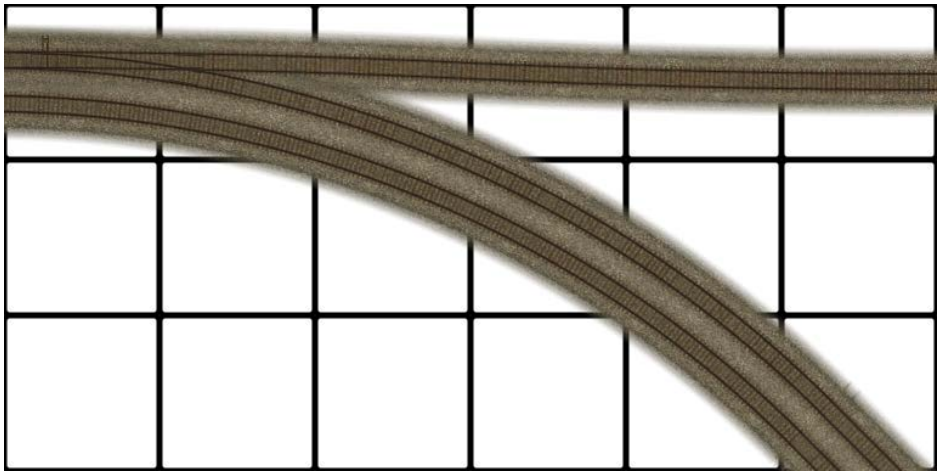
The E1 turnout or split is also aimed at future additional functionality. Overrides are available for STR on both the orthogonal and diagonal ends. The orthogonal end has more override options due to the adjacency code. The diagonal section can only go in the diagonal direction for now. Apart from some diagonal adjacency code there is no more functionality planned for this piece.

E2 Turnout

Pattern



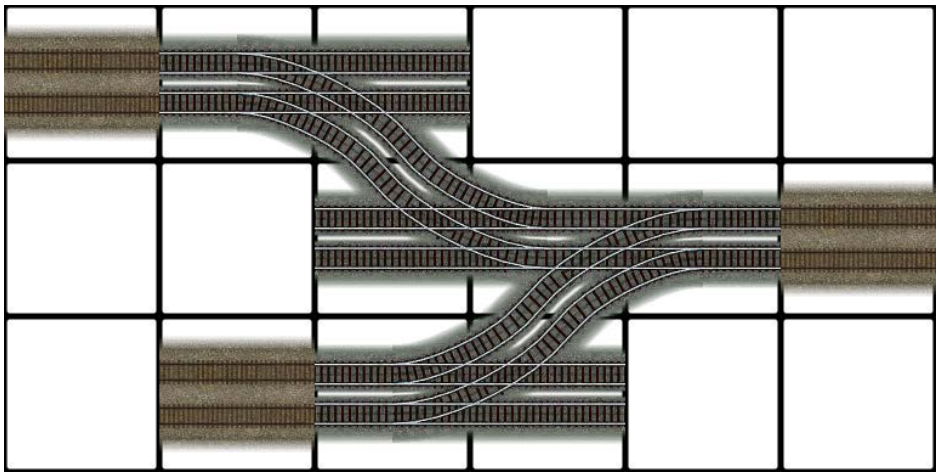
Resultant



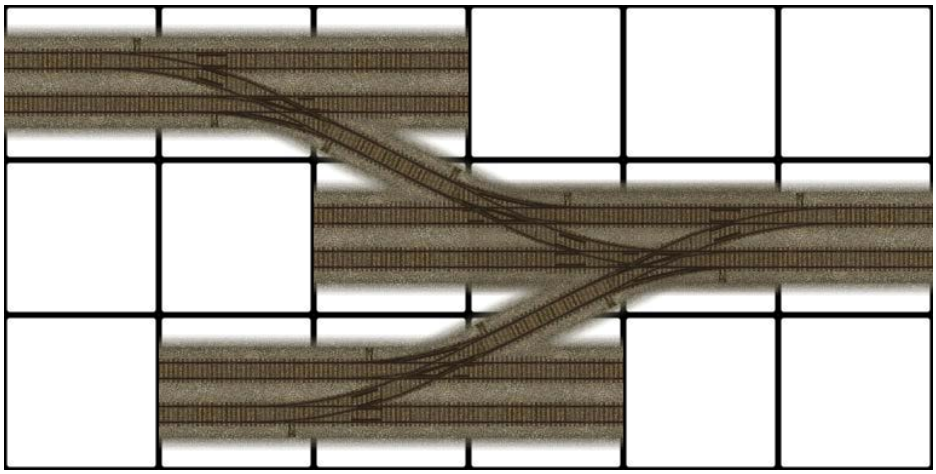
The E2 turnout uses the R3 curve with an orthogonal spur. The DTR Orthogonal end makes a crossover switch when drawn out and STR is made at the STR end. Pathing problems may exist with this piece. the diagonal may override some of the Curve due to the curve using the R3 curve pieces. Apart from some possible path fix no other enhancements are planned.

Asymmetric Small Turnouts

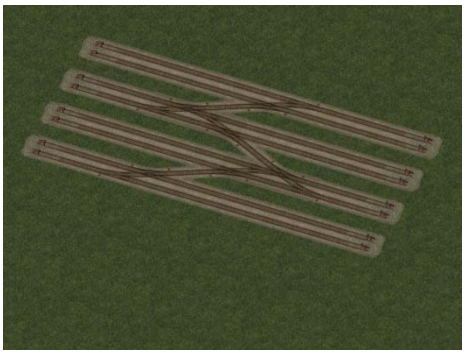
Pattern



Resultant



The asymmetric turnouts are designed to give some more flexibility at stations and rail yards and are designed for slow speed movement across a set of tracks. The pattern shown can be extended to include the normal small turnouts in addition to compounded sections as well. Mainline conversion to STR is planned for the future. apart from some adjustments no other enhancements are planned.



(Examples of extended functionality for the asymmetric small turnout)

Draggable Fractional Angle Railroad (FARR)

(Demonstration of the capabilities of the FARR components)

Preface

The Fractional Angle Rail Road or (FARR) is the new approach for different angles in the RealRailway mod. There are three new draggable angles for the RealRailway mod which include FARR 3 (the current angle in the puzzle piece form), FARR 2 (one of the draggable angles of the road network) and FARR 1.5, 1.33 (Completely new angle in the game)

FARR 3 functions like the current road, Maxis rail and RealRailway FARR in the game and has the same geometry. There is the ability to override the network to Single Track Rail (STR) (although limited) while the other angles are Dual Track Rail (DTR) only! The Angles can be crossed with DTR rail and Road (no overrides) but those are the only exceptions. You can cross these networks only on the straight components only! Crossing at curves are not permitted! That includes orthogonal, diagonal and different FARR angles. This also true for turnouts.

You cannot transition between FARR 3 and FARR 1.5/ 1.33! FARR 2 MUST be used for transitioning between the two angles. All other angle transitions are permitted. Patterns contained in this document reflect the abilities of the mod to make all the necessary curves, turnouts and transitions.

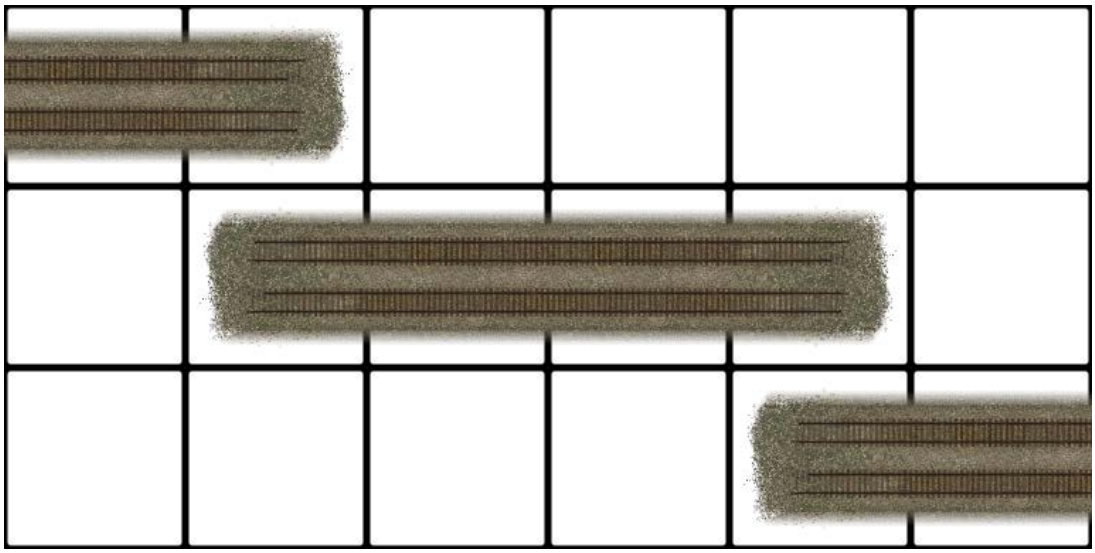
Code has been added to make the FARR function with good stability but some experimentation is required by the end user to familiarise themselves with the mechanics of the mod. For best results it is

suggested that the new FARR is used on an unbuilt region before doing major works in one of your cities.

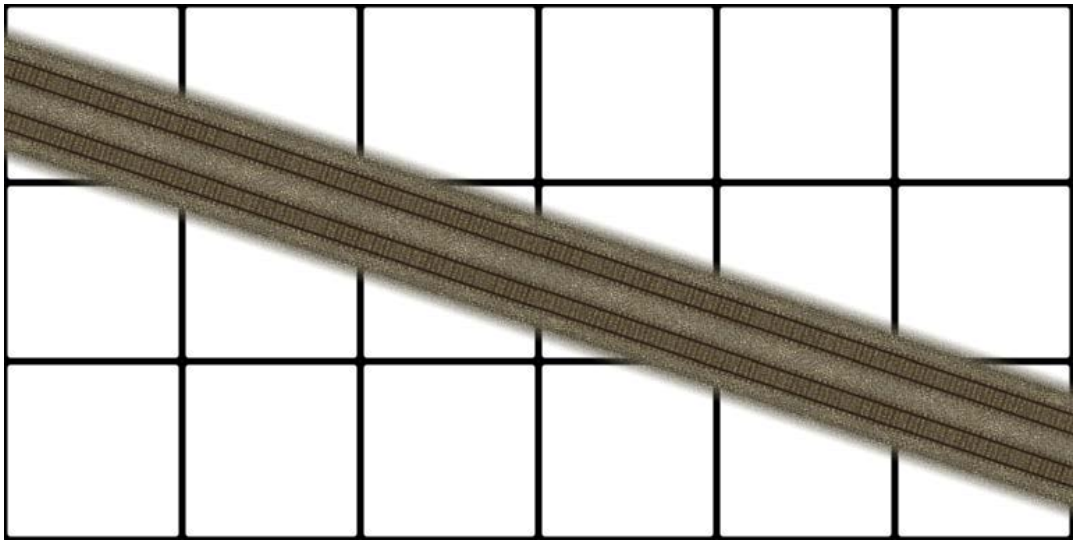
FARR 3

Straight

Pattern

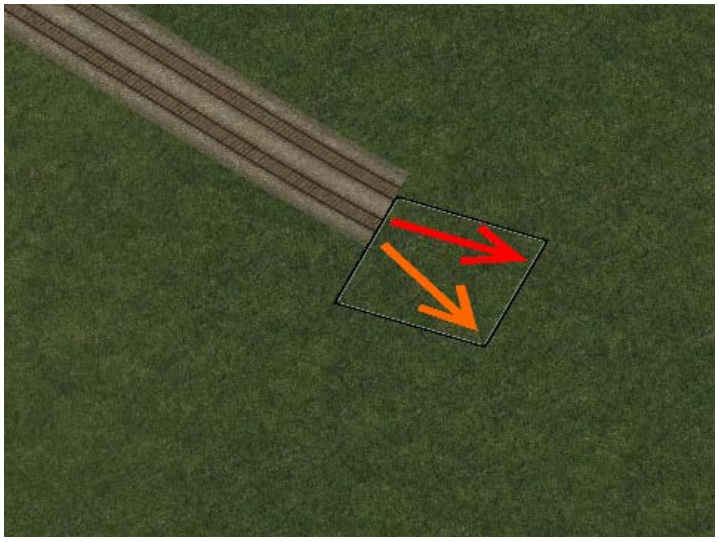


Resultant

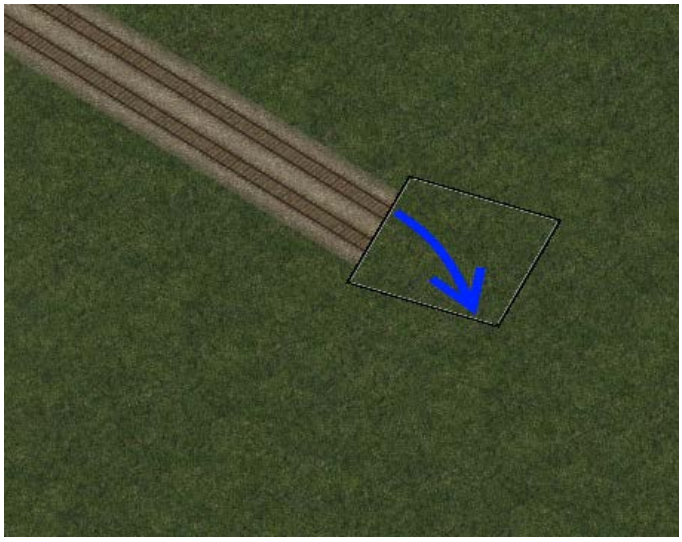


The FARR 3 has the following pattern as its base pattern. This pattern can be overridden to STR once drawn out and in place. Once drawn out you can extend the FARR 3 as long as you want. But at some point a change in direction will be required. That is where the *preview* tiles come in. There are two for the FARR 3 network and are shown below on the next page.

Preview Tiles



FARR 3 continue (orange arrow) and FARR 3 to Orthogonal (red arrow)



Draw one tile further for FARR 3 to diagonal (blue arrow)

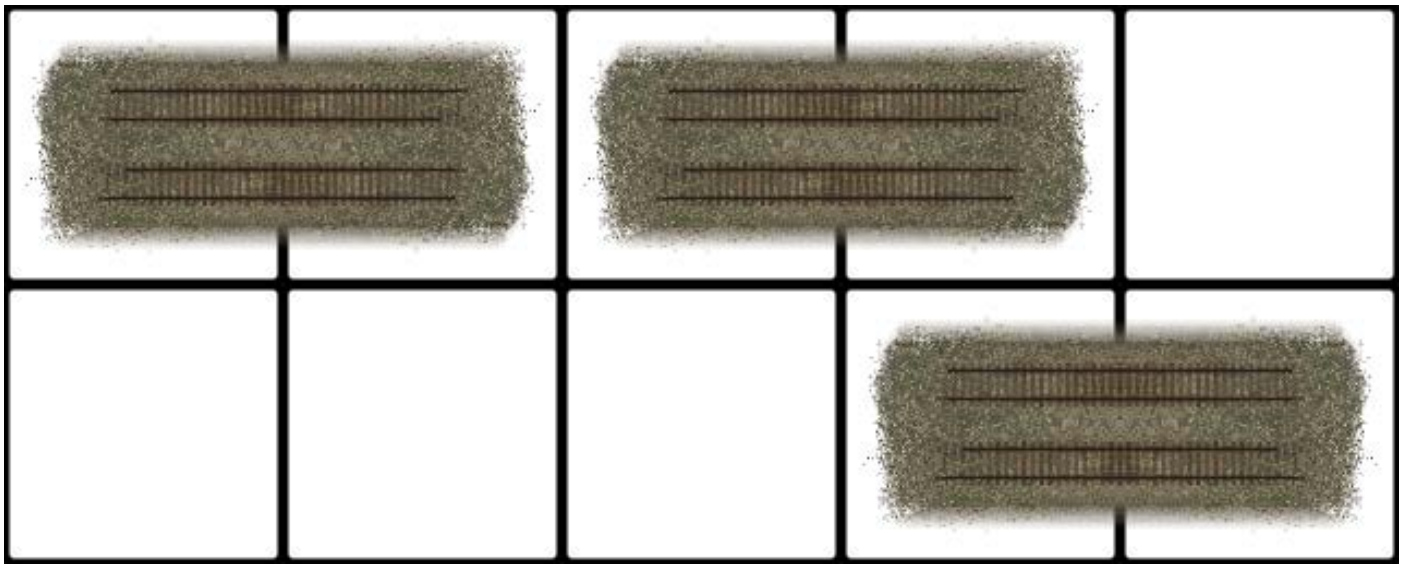
Preview tiles only show the main directions off the FARR 3 angle. They include diagonal and orthogonal angles. Draw orthogonally or diagonally when applicable to make transitions off the FARR 3 to other directions.

More options will be described later in the document for FARR 3 to other functionality.

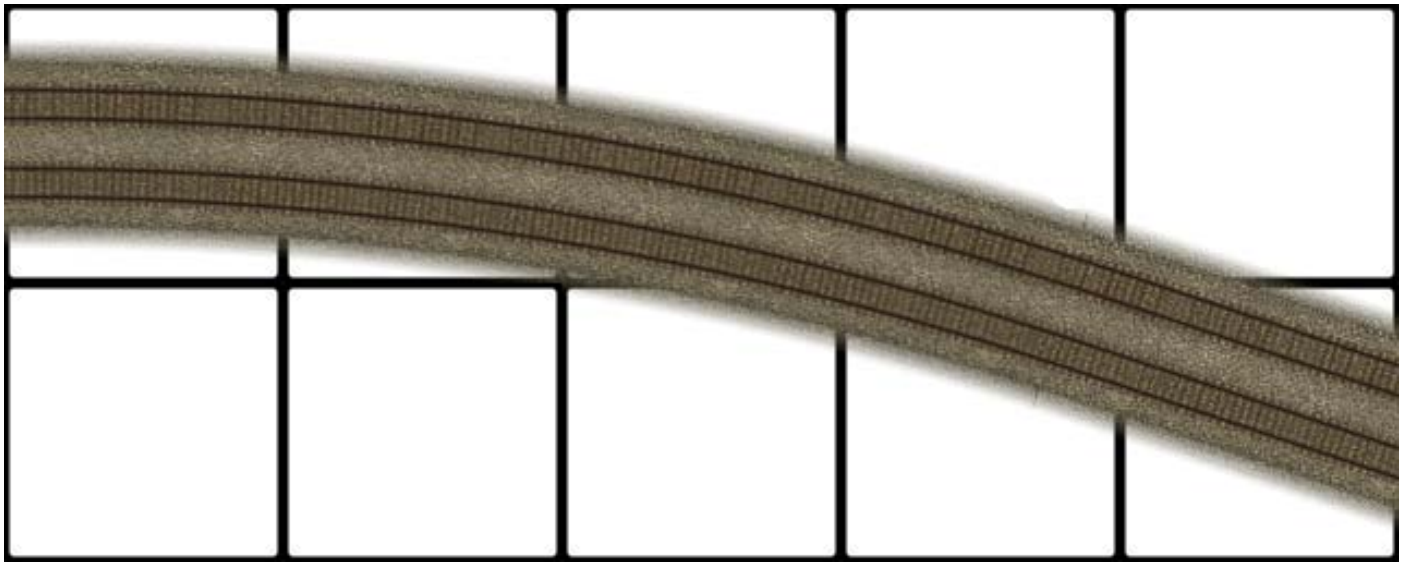
Curves

FARR 3 to Orthogonal

Pattern



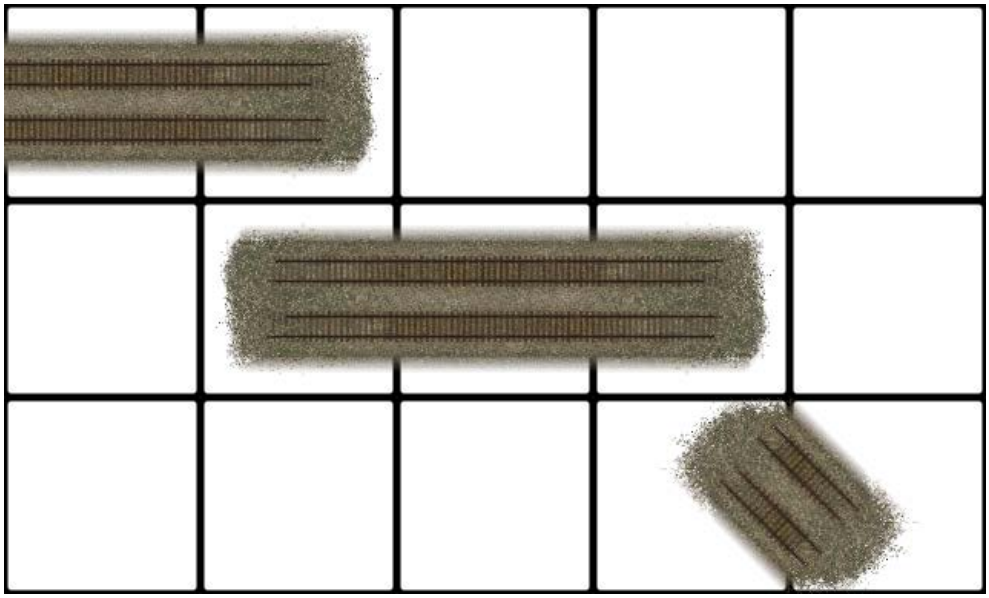
Resultant



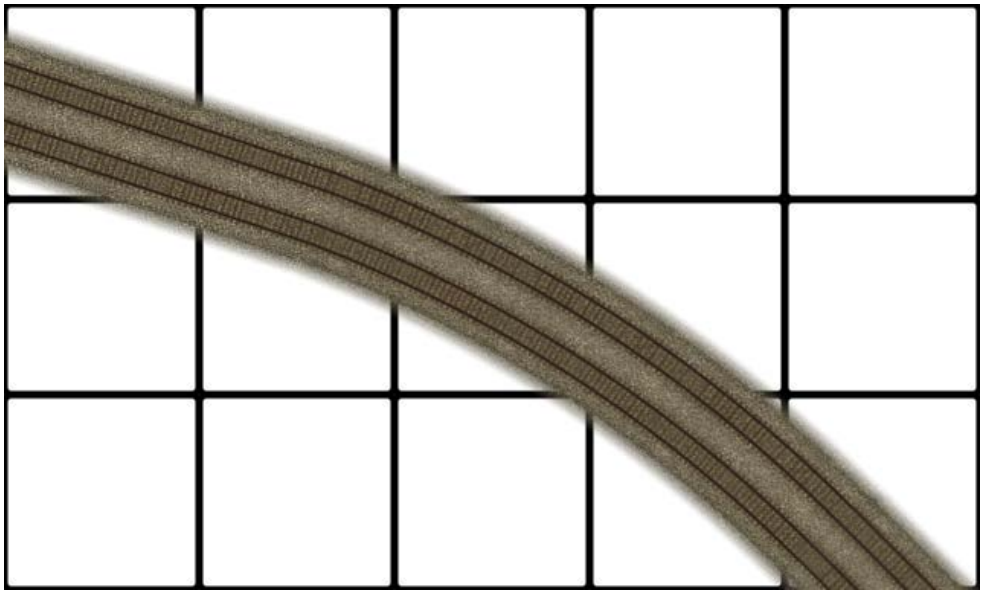
The FARR 3 uses the following pattern to make the curve. The break is on purpose and code has been added to prevent the base code being broken. Code has been added to stabilise the transition and the following curve slope conforms. The piece can be converted to STR as shown later in the document.

FARR 3 to Diagonal

Pattern



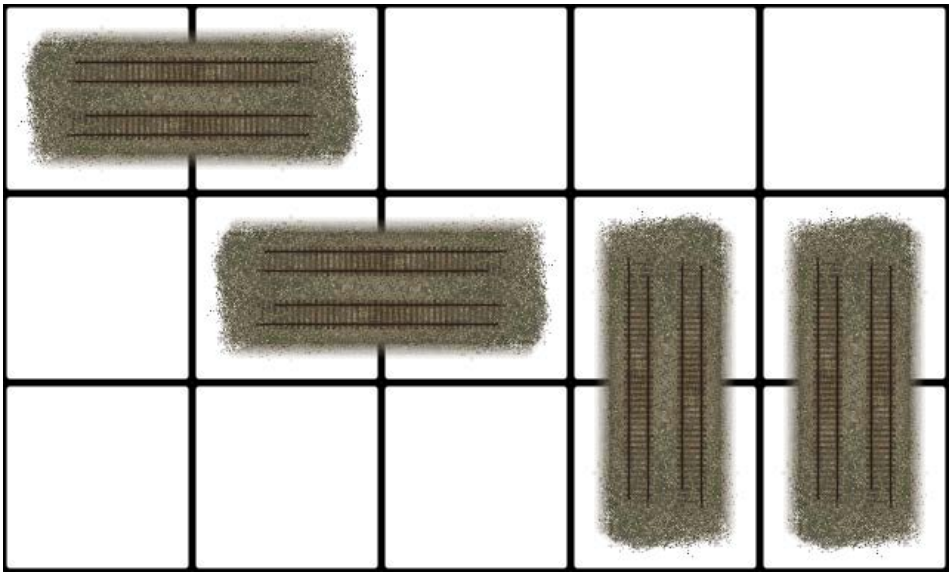
Resultant



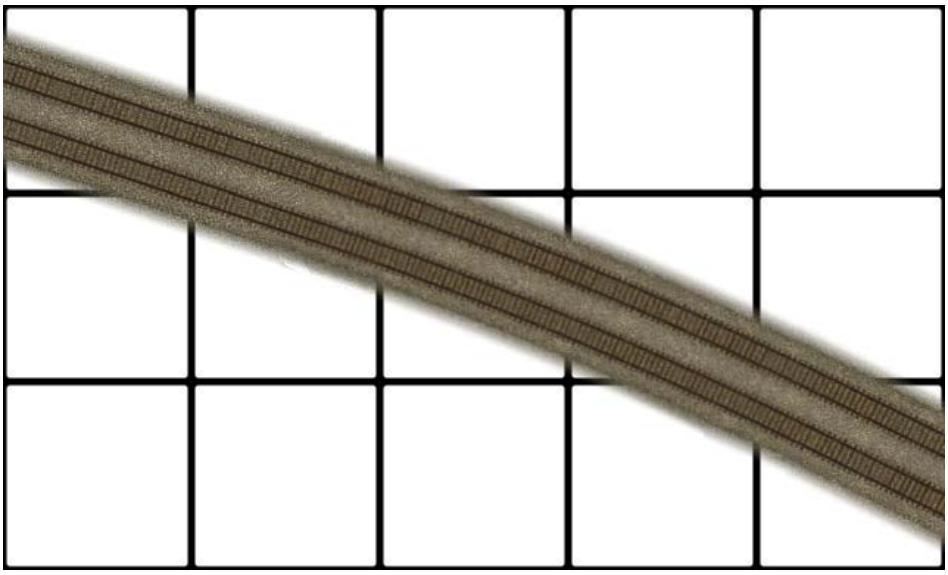
The FARR 3 to diagonal curve has the same geometry as the Puzzle Piece counterpart. Follow the pattern above to draw out the curve. There is a *preview piece* that has been added to help make the curve. This curve can be converted to STR as well. Drawing from the FARR 3 end will allow the codebase to extend the FARR 3.

FARR 3 to FARR 2

Pattern



Resultant

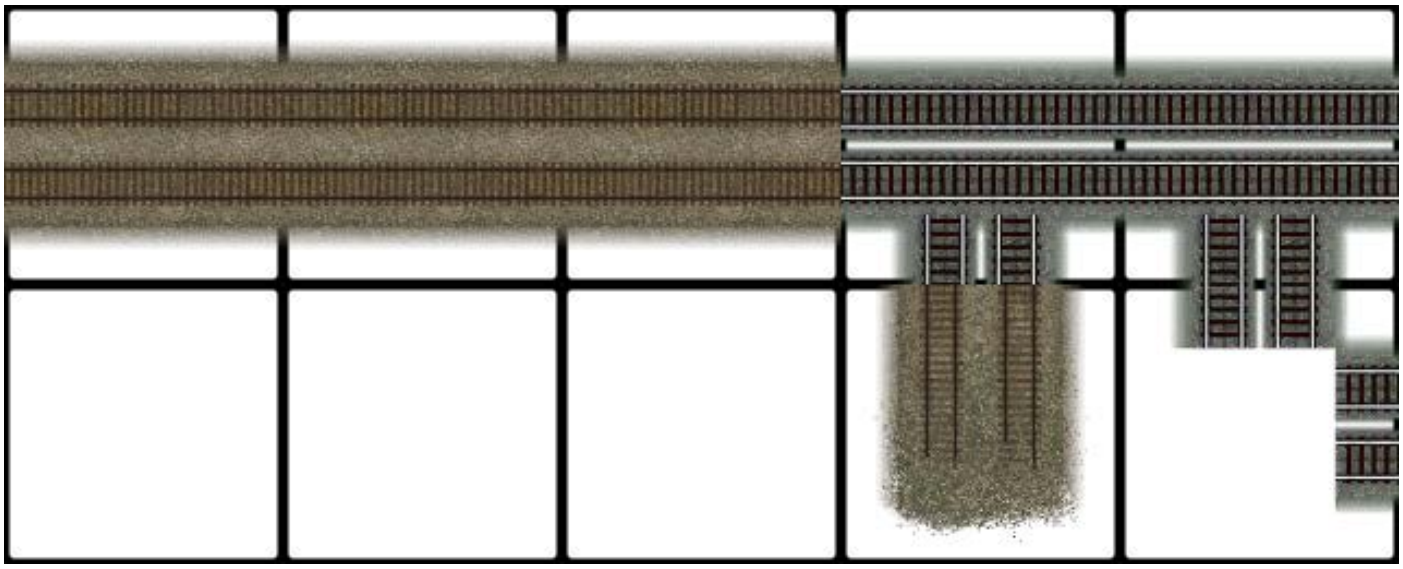


The double BAR method (The rails that are perpendicular to the FARR direction) has been used to convert from FARR 3 to FARR 2. Upon drawing this pattern the applicable FARR angle will override in each direction when drawn out as a straight. No STR support is given in this release. There are plans for making that functionality in the future.

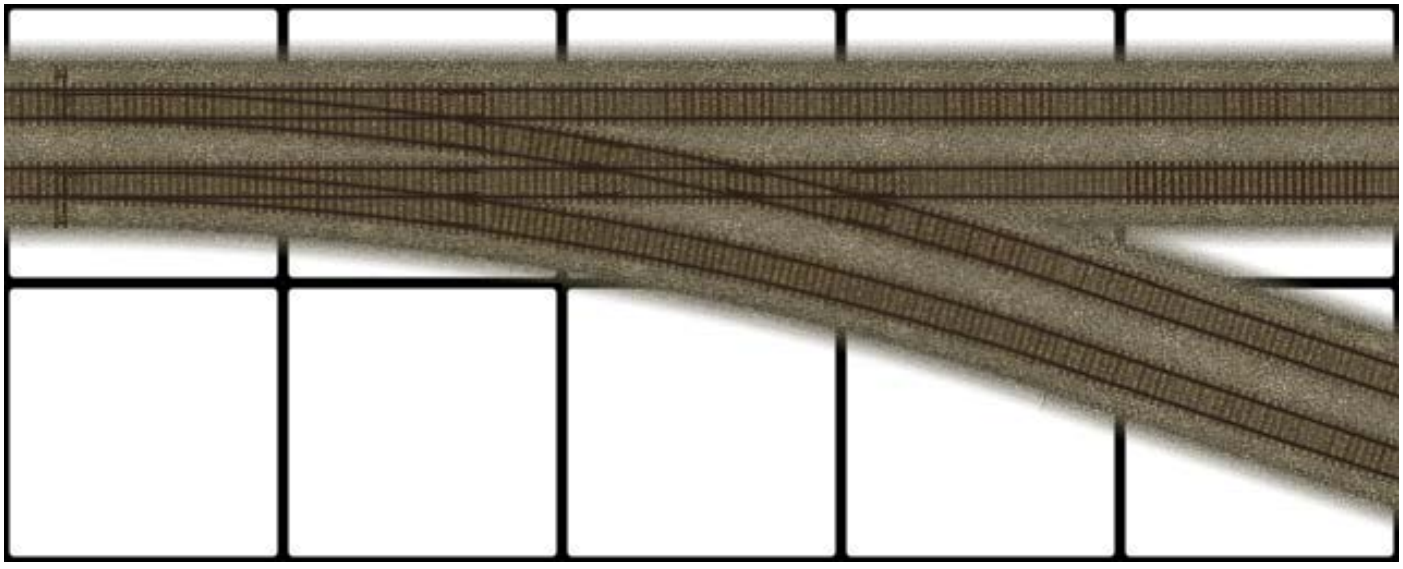
Turnouts

FARR 3 C2 Turnout

Pattern



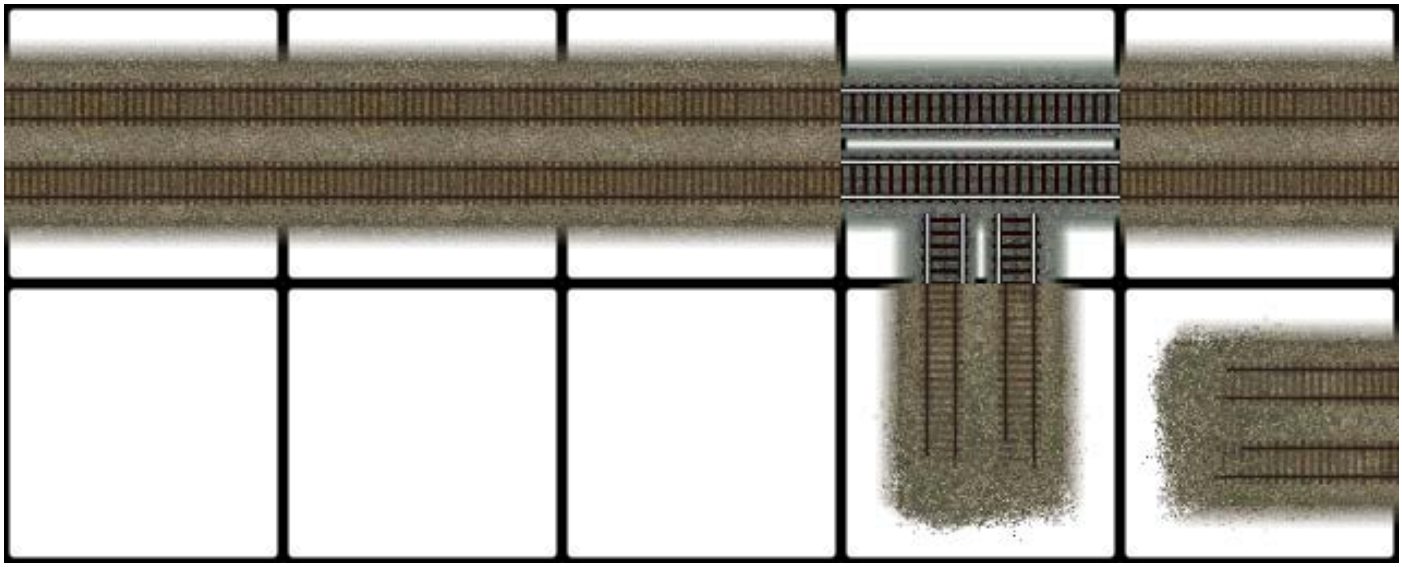
Resultant



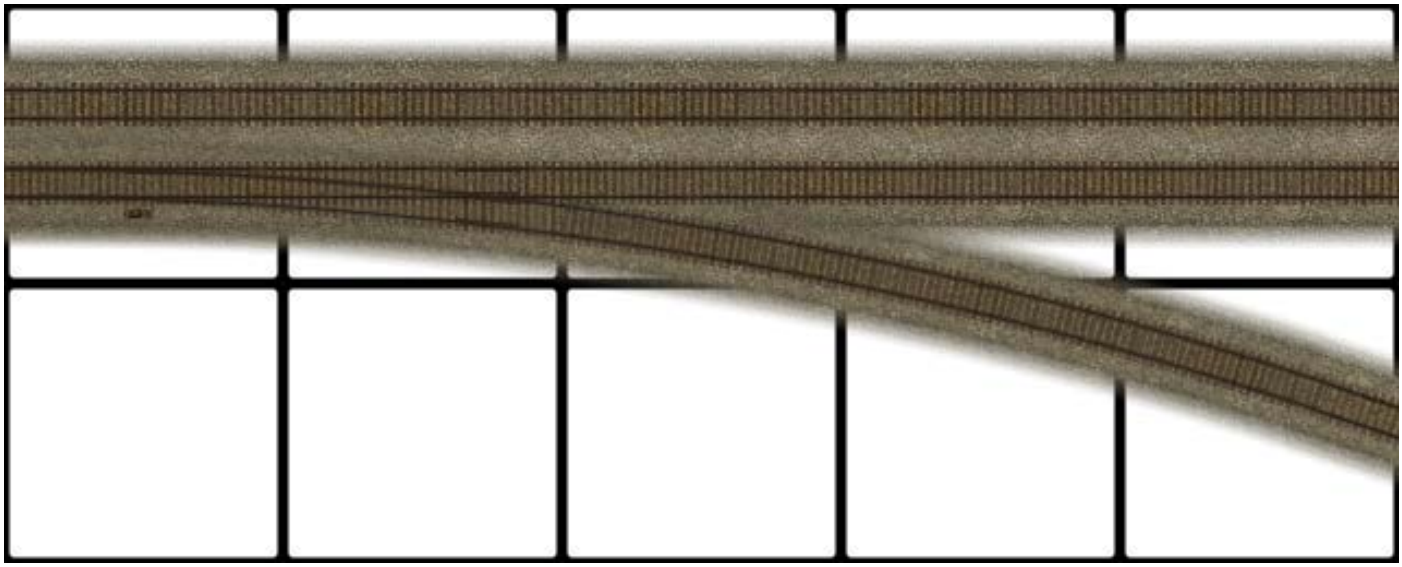
The FARR 3 C2 Turnout uses the following pattern that is given above. This Turnout can be converted to STR. No other enhancements are planned.

FARR 3 C1 DTR Turnout

Pattern



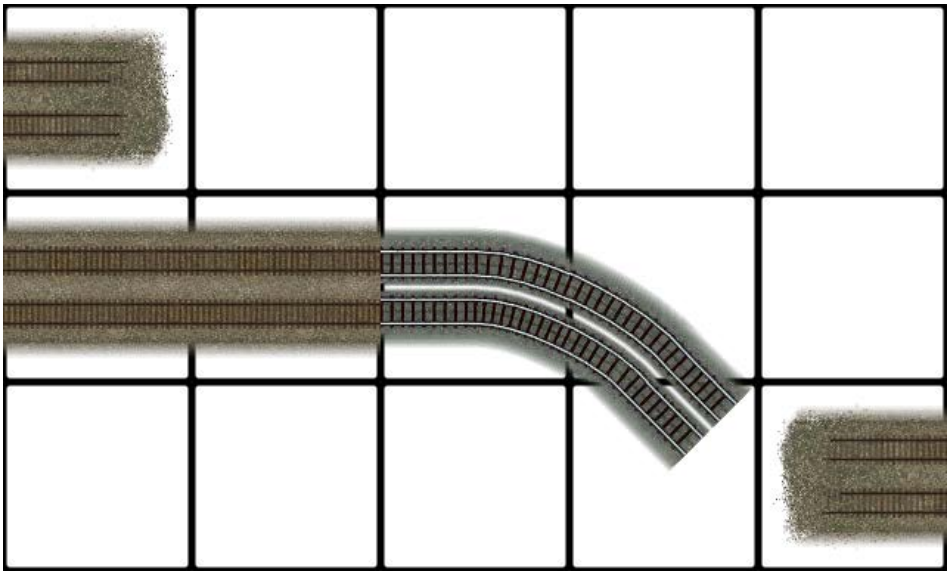
Resultant



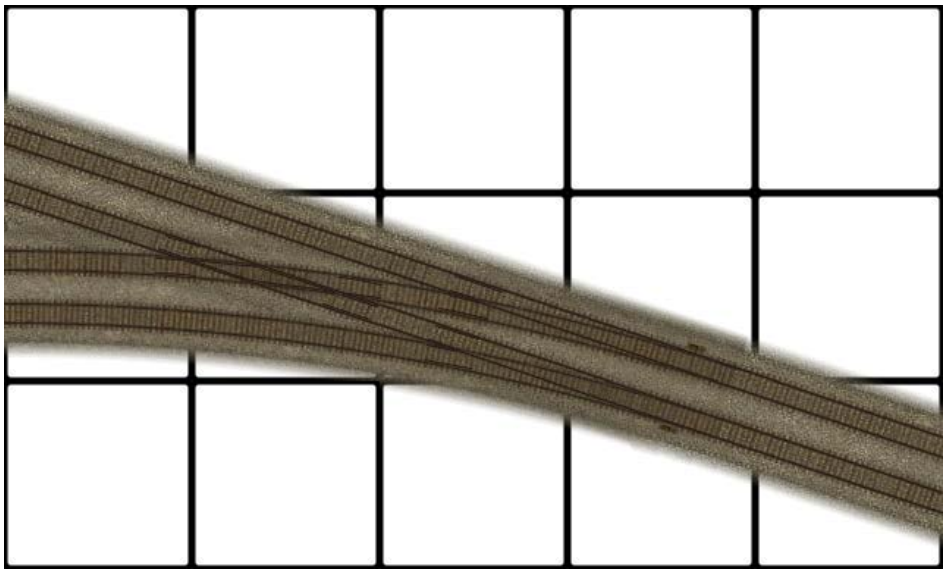
The C1 DTR turnout uses the pattern above. No other enhancements are planned.

Orthogonal DTR C2 branching off FARR 3 Turnout

Pattern



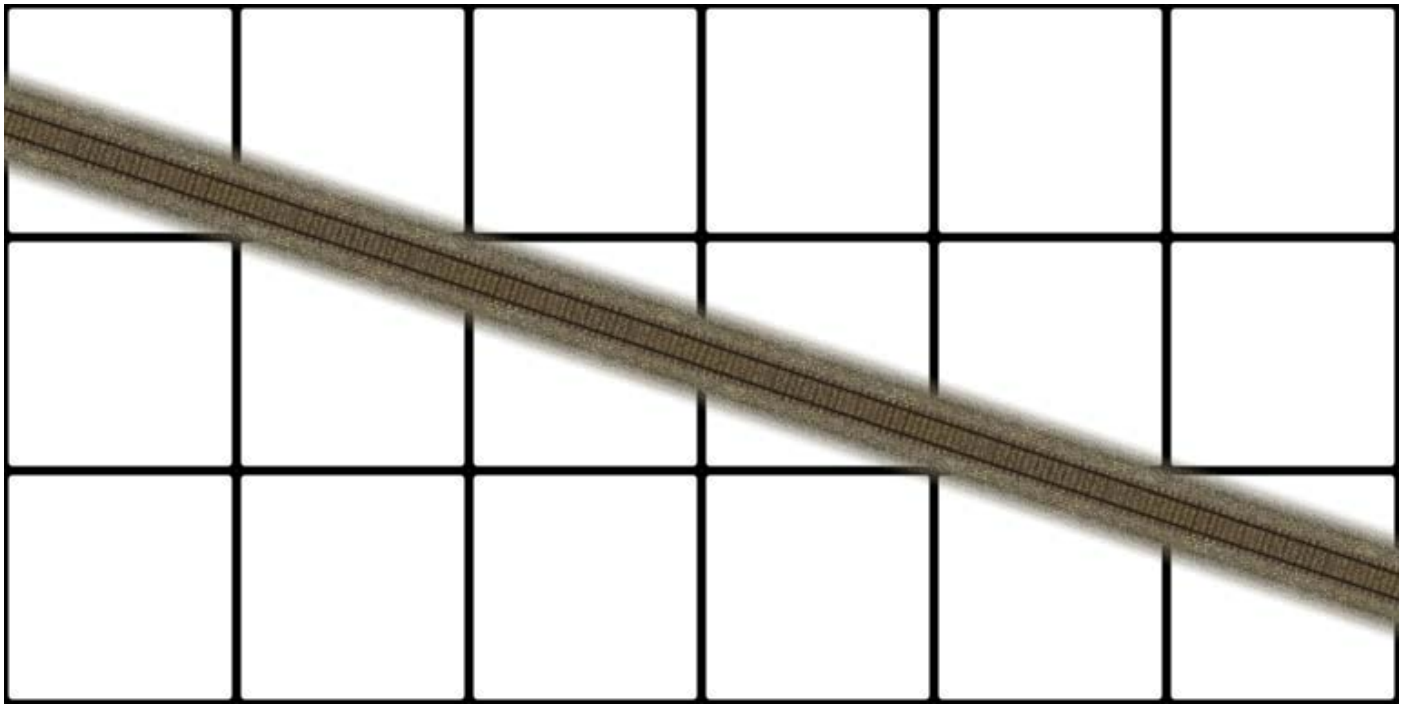
Resultant



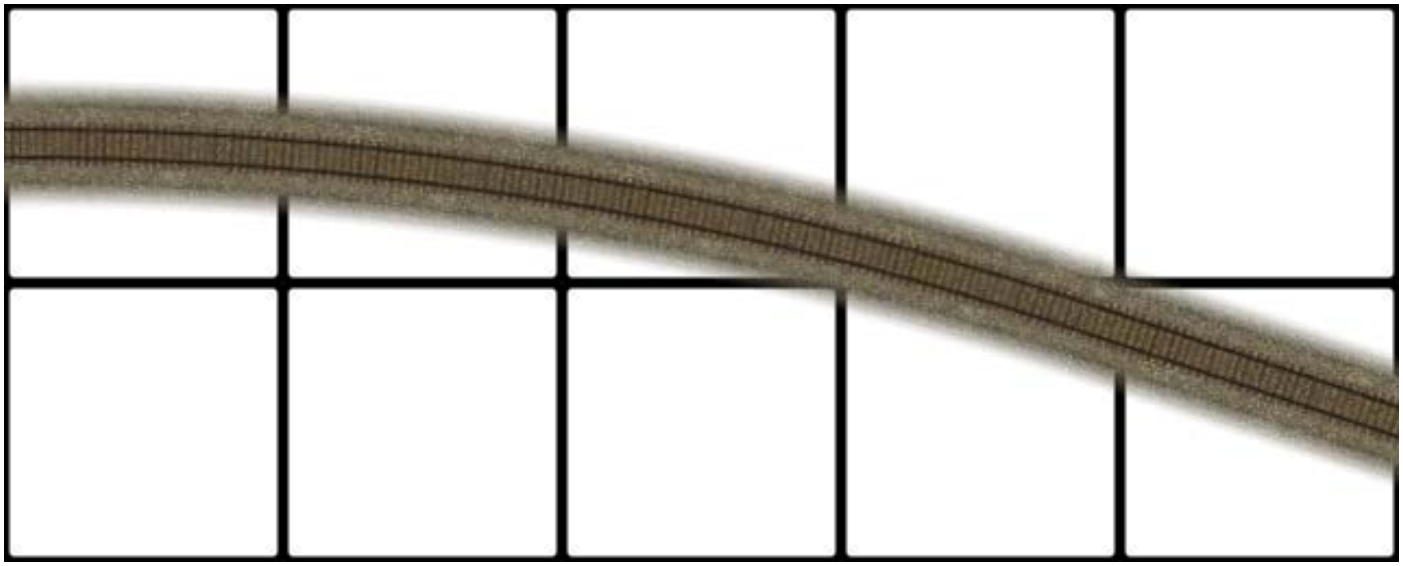
The C2 branching off the FARR 3 Base is the only kind in the FARR series for the moment. An STR and porting the concept over to other FARRs are planned.

FARR 3 Extra Features

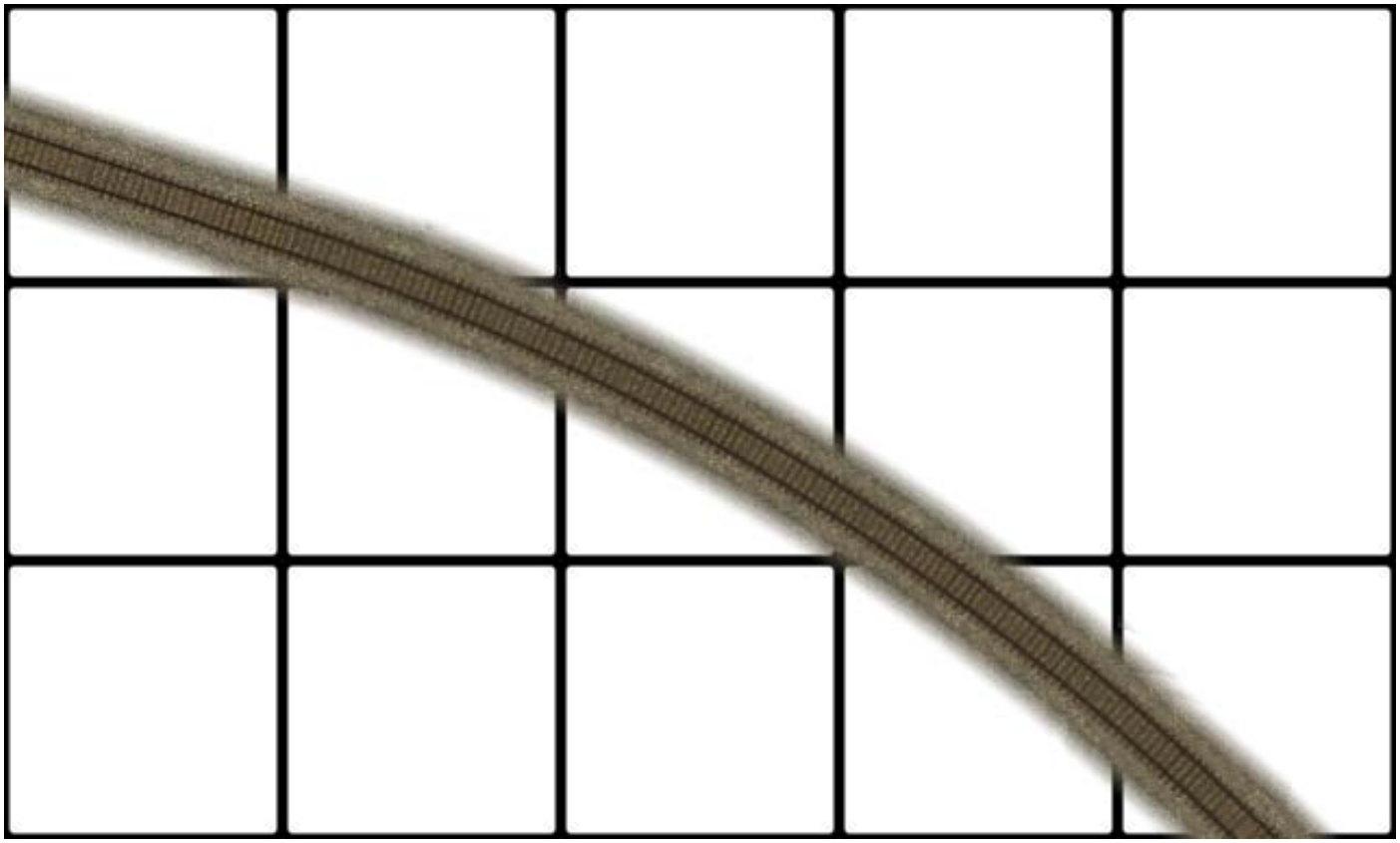
- The following sections can be overridden to **Single Track Rail** or **STR:**



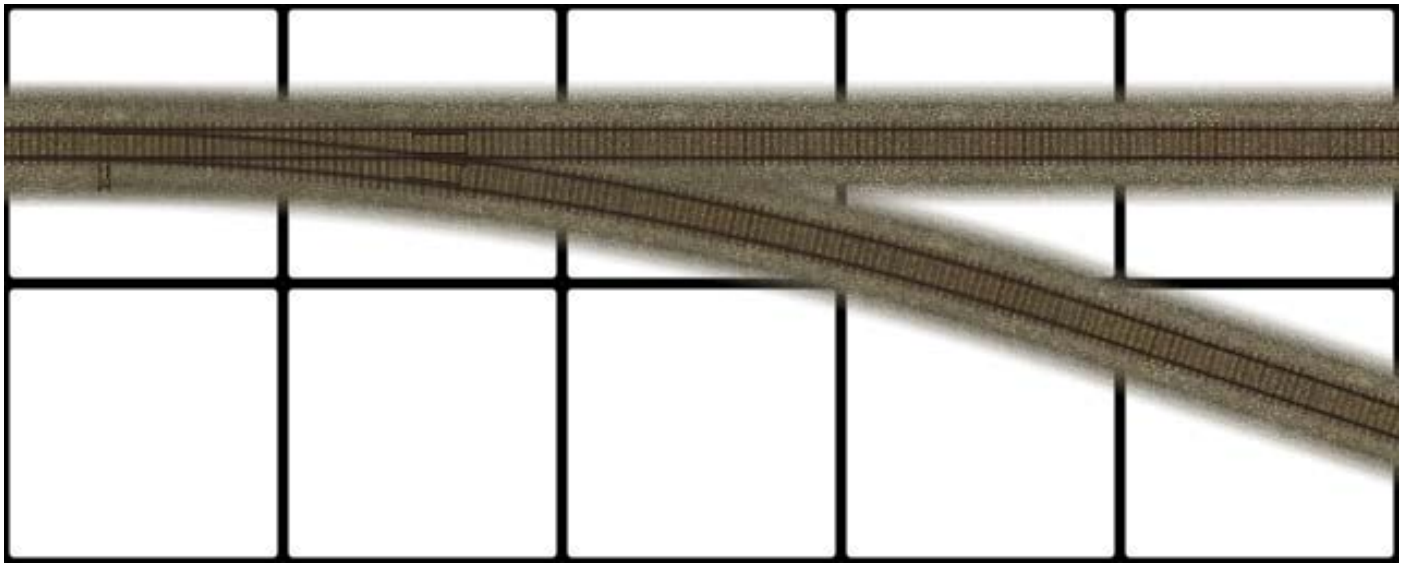
FARR 3 Straight



FARR 3 to Orthogonal



FARR 3 to Diagonal



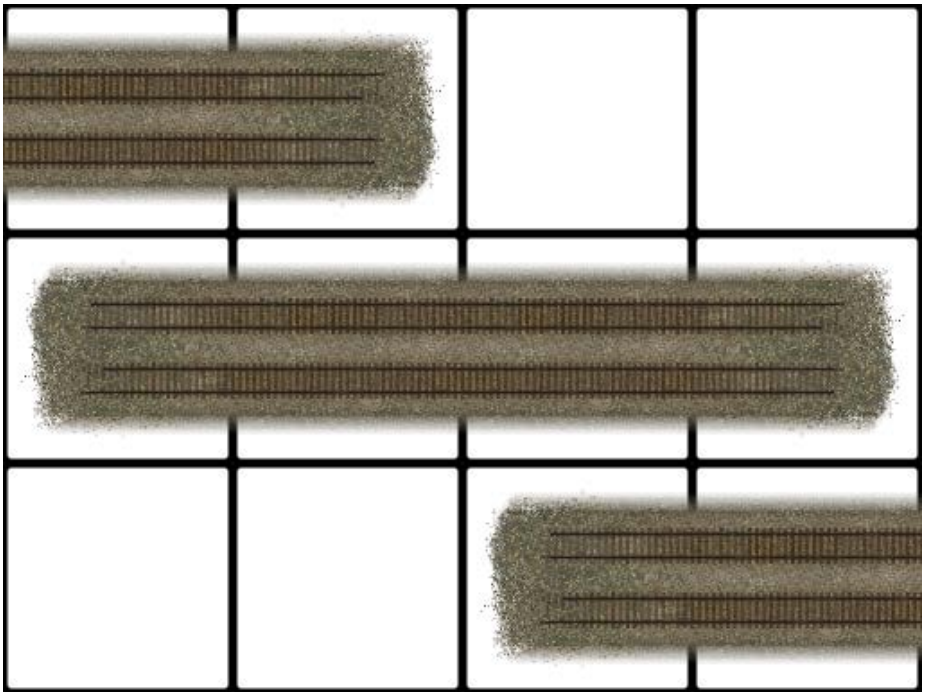
FARR 3 C2 DTR Turnout to FAR 3 C1 STR Turnout

Overrides can be initiated on the orthogonal or diagonal sections to override the FARR 3. This is the limit at this stage for STR FARR! Future enhancements are planned for future edition of the NAM. The overrides are a bit unstable in this release. This feature is still in heavy development so there will be greater functionality in this area covering the whole Fractional Angle side of things.

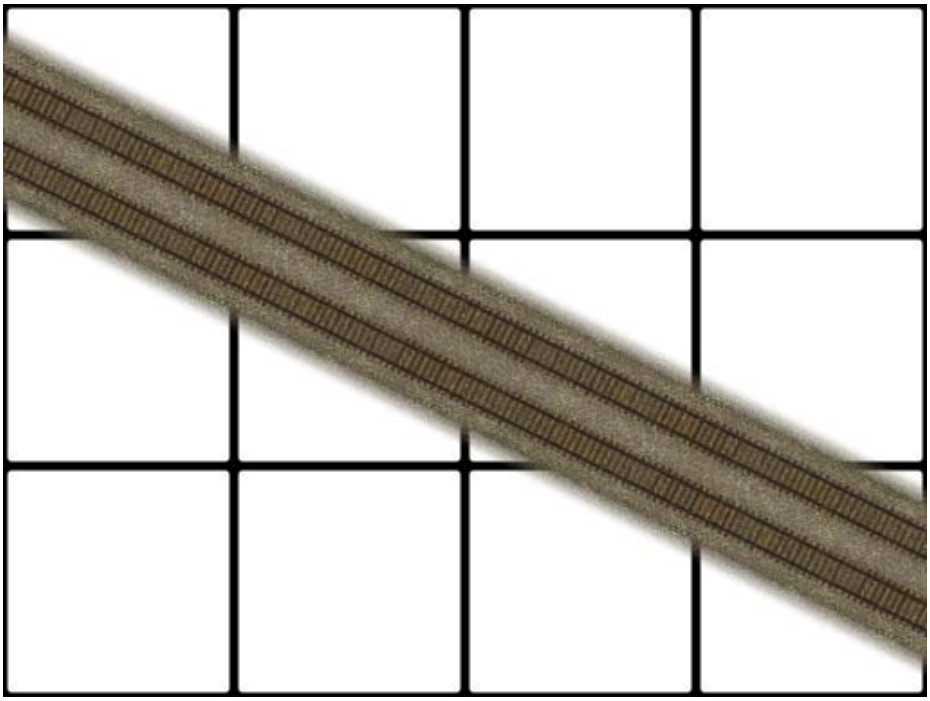
FARR 2

Straight

Pattern



Resultant

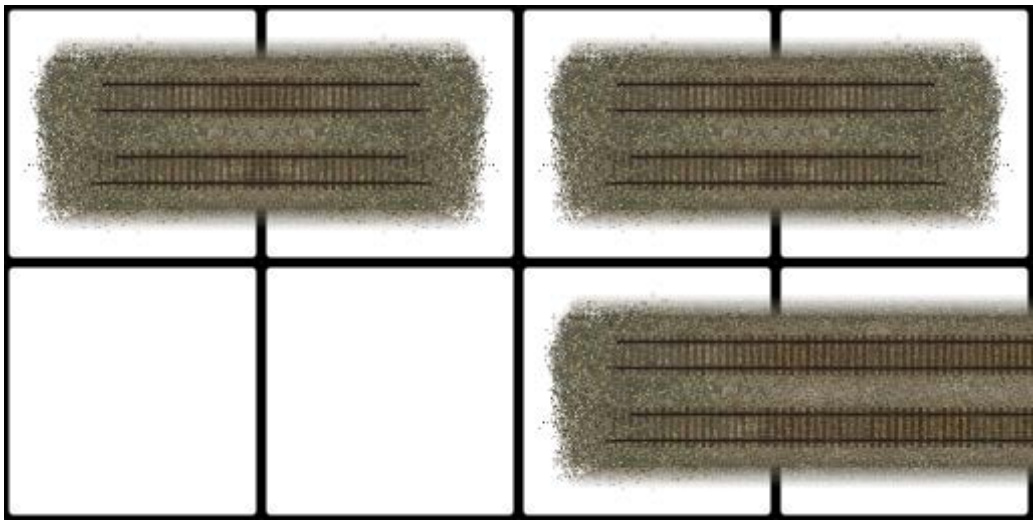


The following creates the FARR 2 network. To draw out FARR 2 there only needs to be a two-tile deep section drawn out. The following slope conforms.

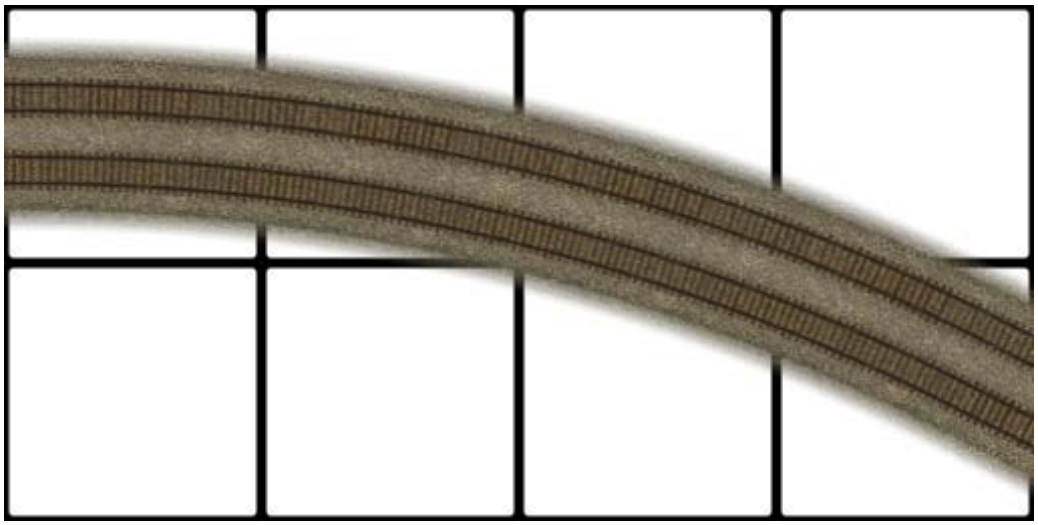
Curves

FARR 2 to Orthogonal

Pattern



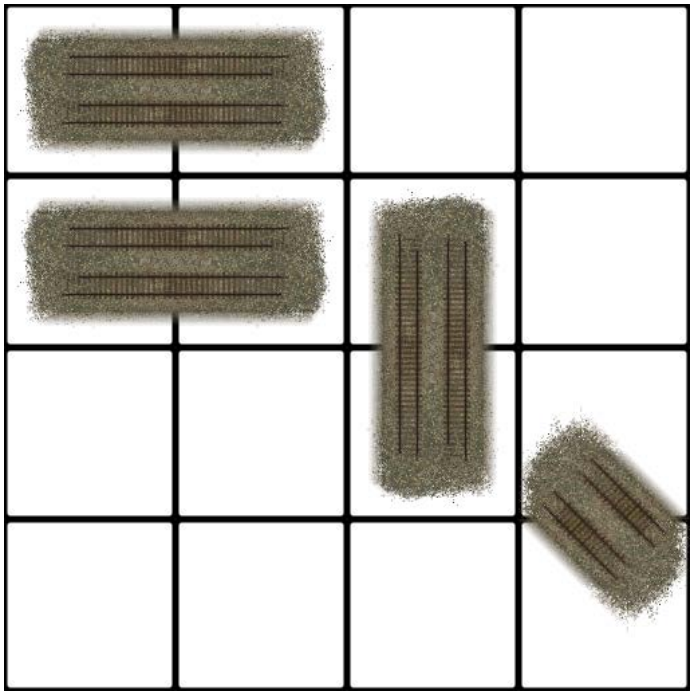
Resultant



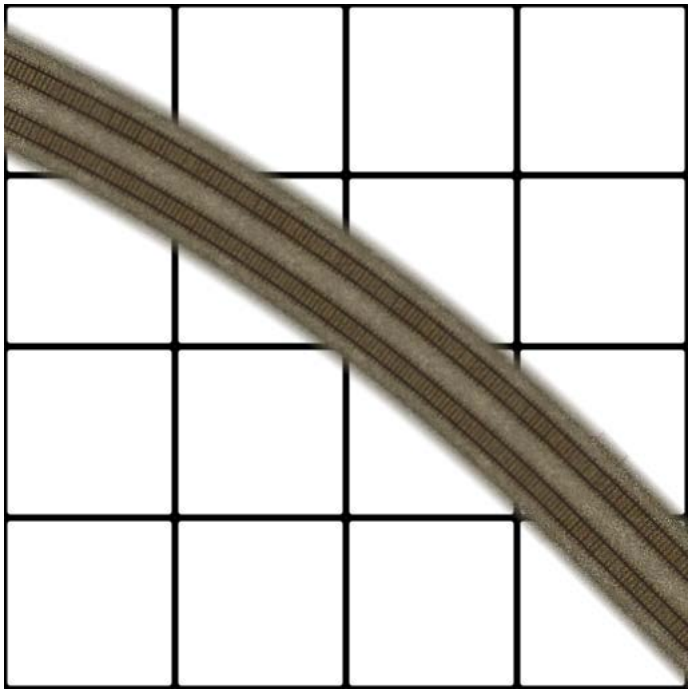
The following FARR 2 to orthogonal also uses the break method in the base code for the creation of the curve. The Piece slope conforms as well.

FARR 2 to Diagonal

Pattern

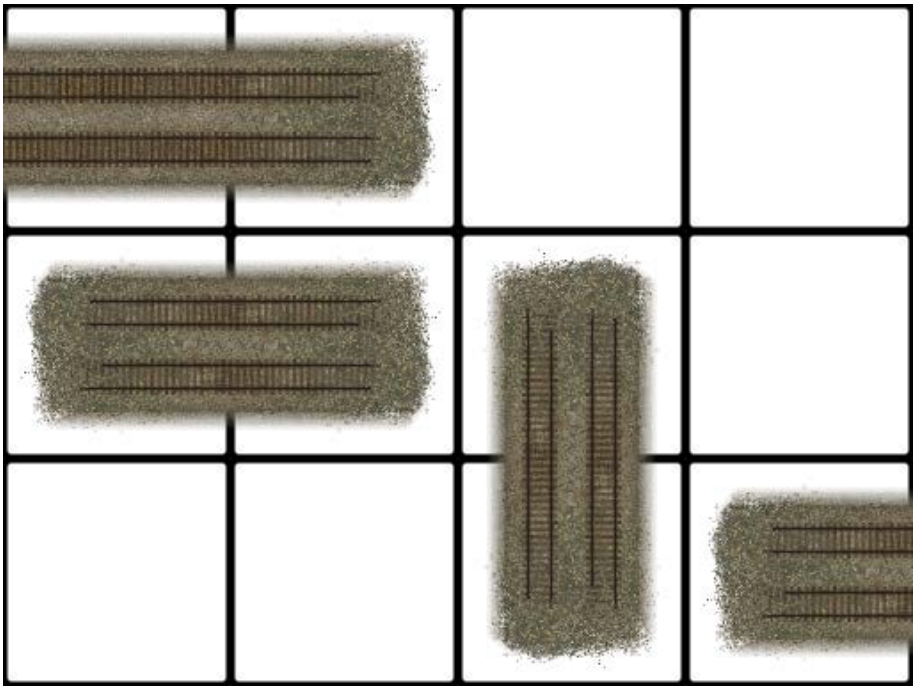


Resultant

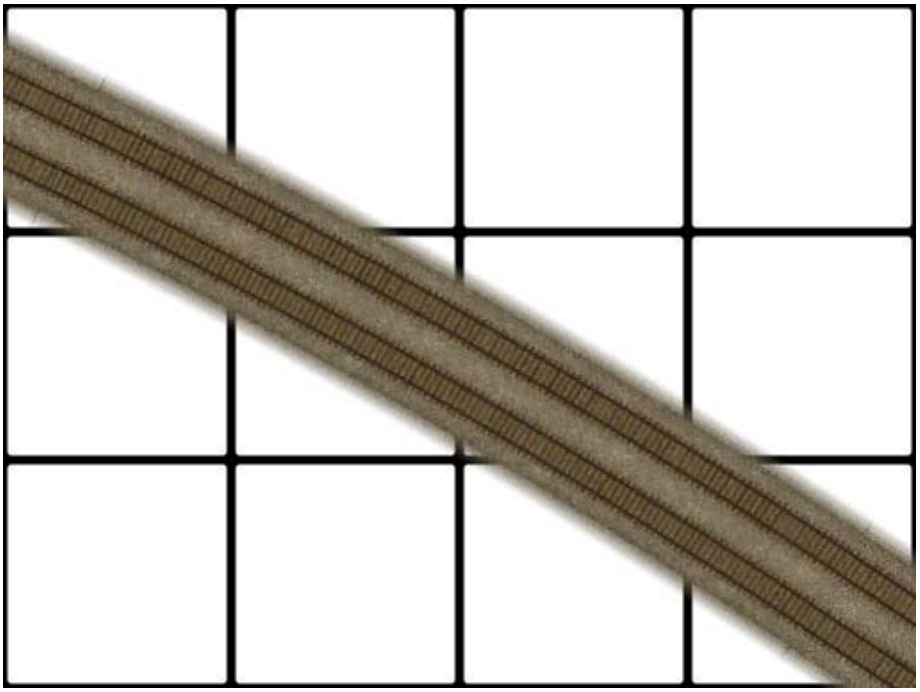


The FARR 2 to diagonal uses the BAR method with the diagonal at one end and orthogonal at the other.

Pattern



Resultant

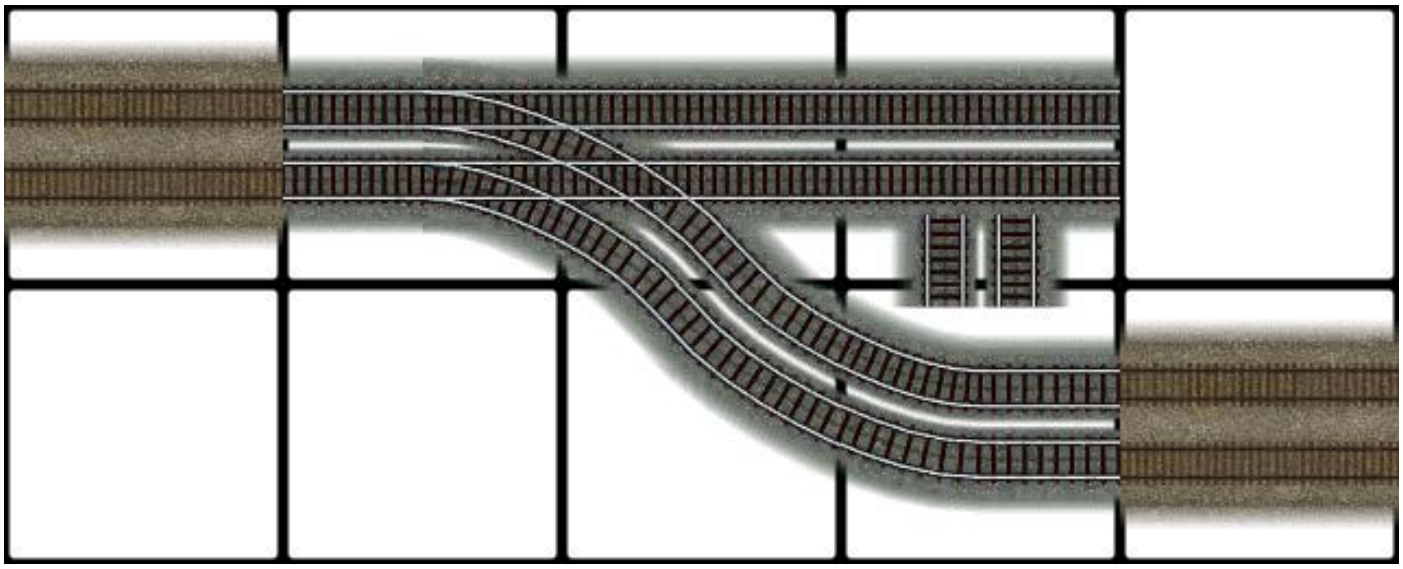


The FARR 2 to FARR 1.5/ 1.33 uses a single BAR (Perpendicular to the travelling direction of the FARR) for the transition as opposed to the double BAR used from FARR 3 to FARR 2. An STR Version is planned.

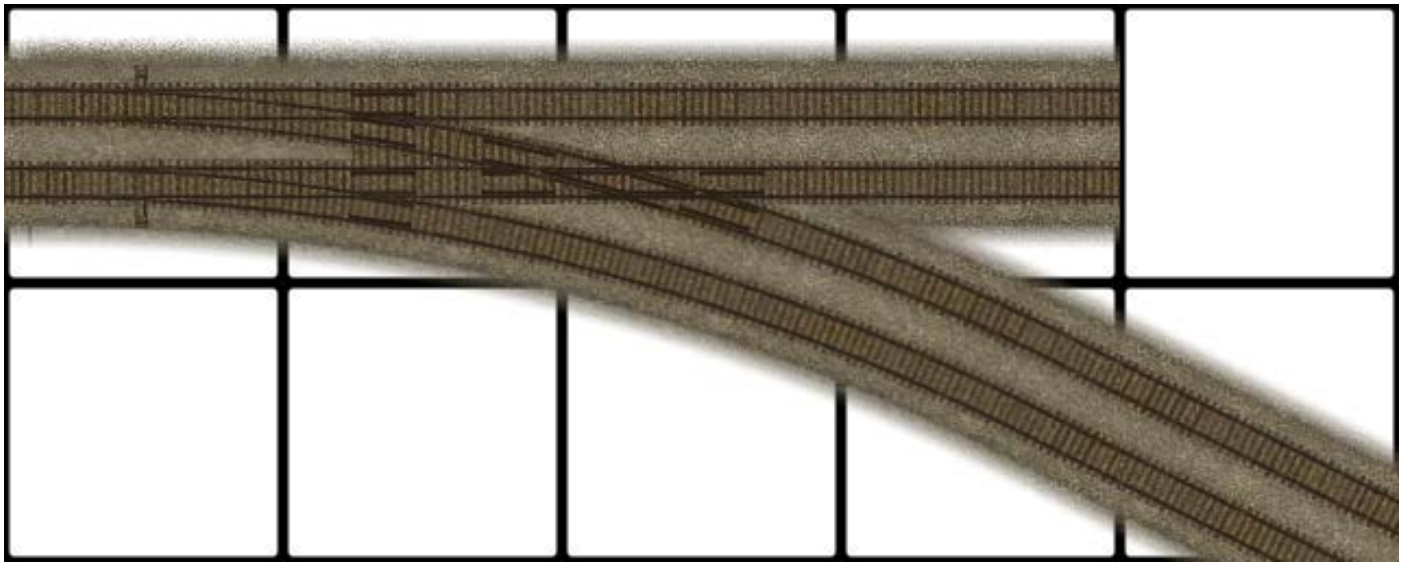
FARR 2 Turnouts

FARR 2 G2 Turnout

Pattern



Resultant



This is the pattern for the Orthogonal to FARR 2 G2 turnout. An STR version is planned for future releases.

Alternative FARR 2 Geometry

Introduction

The FARR 2 Alterative geometry has the same angle (26.6 degrees off orthogonal) as the FARR 2 counterpart and is shifted to the centre of the S curve pattern for the Heavy Rail network.

The "FARR 2 Alt" as it will be referred to in this document, is a *FlexTrack* component and should be treated as such. There is no cross compatibility with the FARR 2 as described in the Fractional Angle Networking documentation. The FARR 2 Alt has its own dedicated functionality which will be described later in the document. A quick overrun of the features follows:

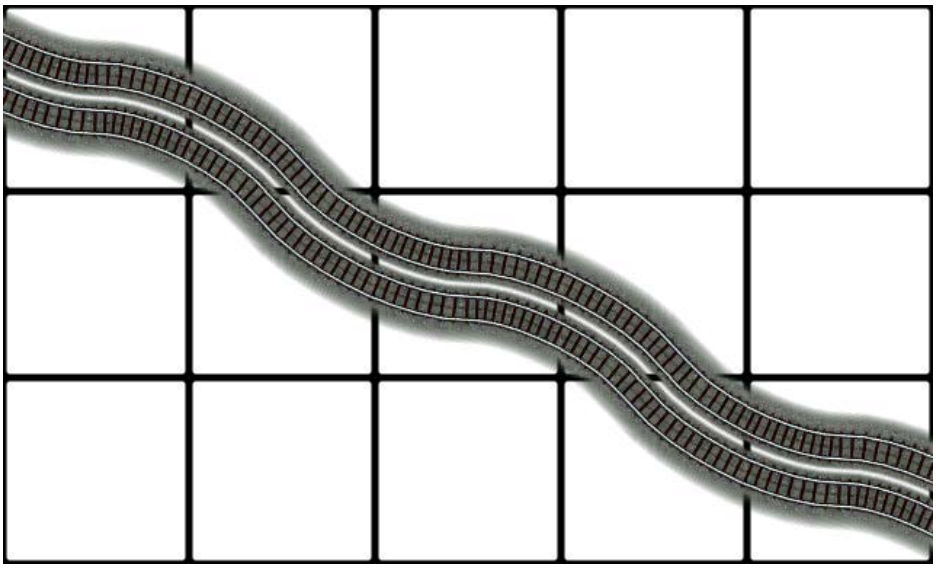
- More turnout options for crossings with the orthogonal network like the orthogonal base.
- Orthogonal and diagonal components to make large curves. These can be accessed by modifying the R3 curve base.
- Future capability to make complex turnout arrangements for the FARR 2 Alt in future NAM editions.

These are some of the features for future NAM releases. Cross compatibility with normal FARR 2 is not anticipated. The two networks are distinct and have their own purpose. The FARR 2 Alt is a Turnout based setup designed for flat areas. There are limited situations where the pieces can go up slopes. For mainline slope conformity, the FARR 2 normal with the other angles should be used.

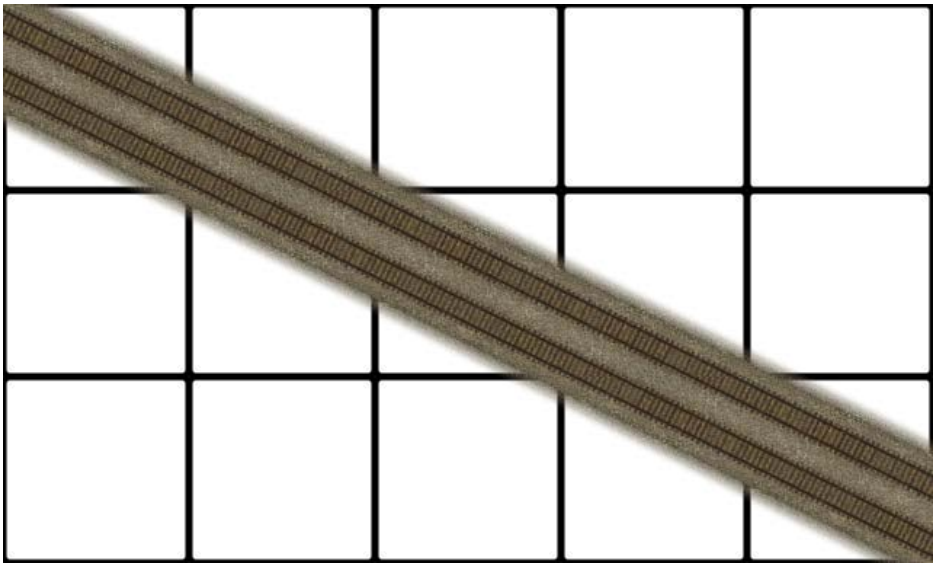
Due to the large variety of possibilities for the FARR 2 Alt only a set number of setups are documented. Experimenting with the network should be done to find the full extent of functionality that is contained in this document.

FARR 2 Alt Straight

Pattern



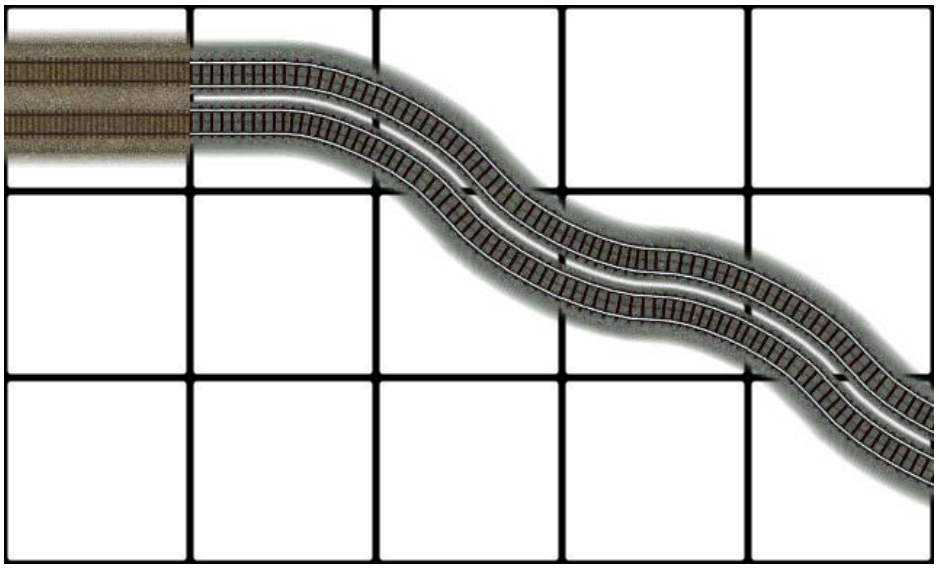
Resultant



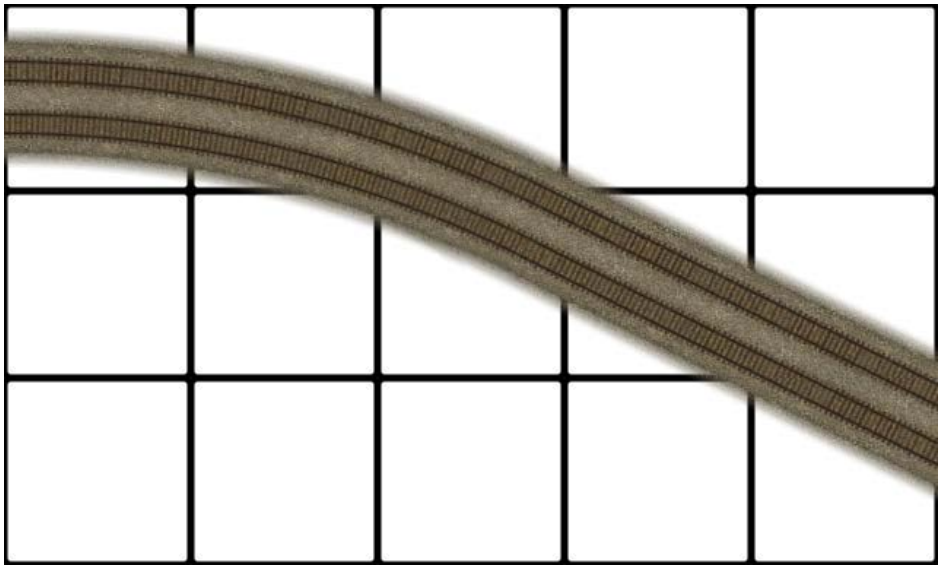
The straight section of FARR 2 Alt uses the S Curve geometry from the maxis rail network for base for the straight. This forms the basis of the FARR 2 alt functionality and is the format for extra functionality. STR is planned for this piece.

FARR 2 Alt to Orthogonal

Pattern

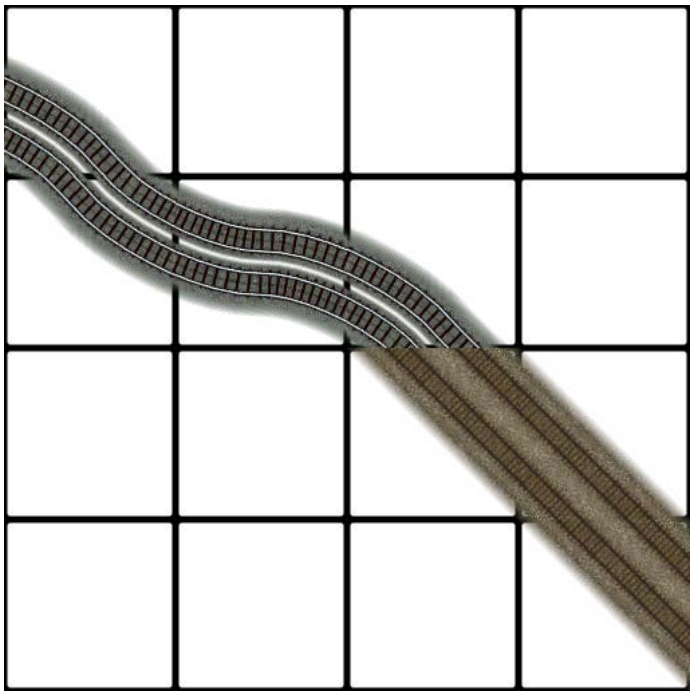


Resultant

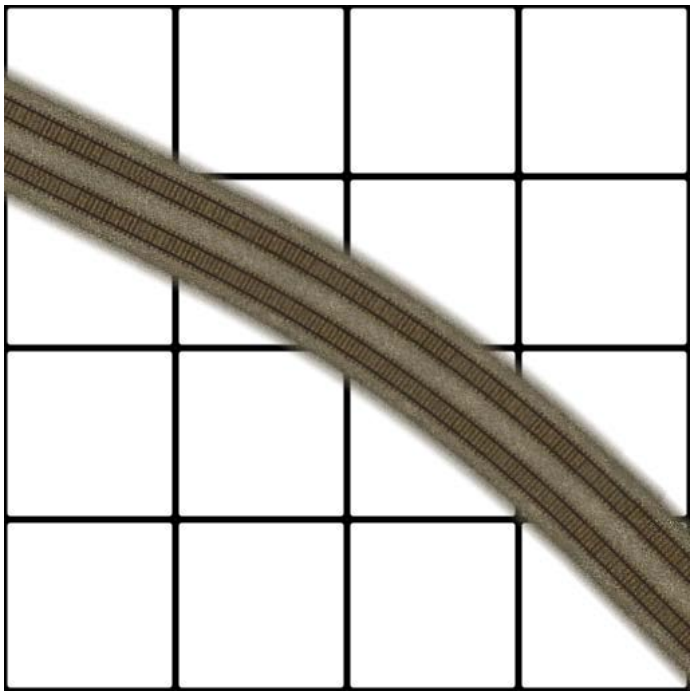


FARR 2 Alt to Diagonal

Pattern



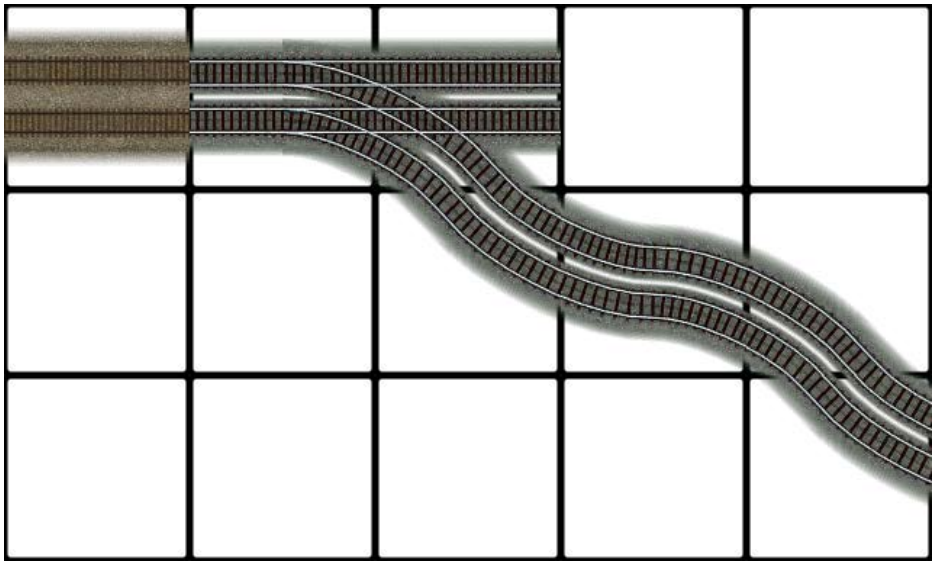
Resultant



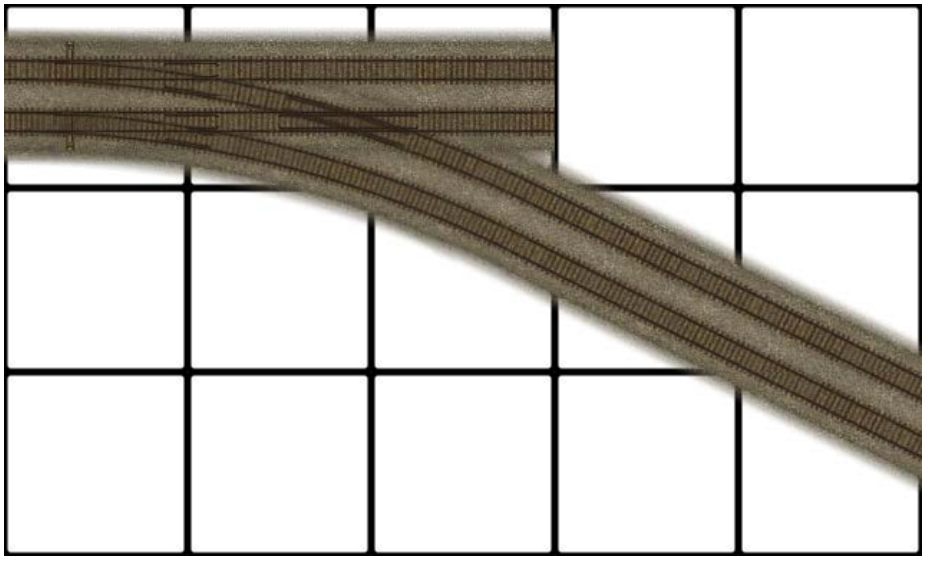
The pattern for the FARR 2 Alt to Diagonal is shown above. STR overrides are planned but that is the extent of future functionality. The diagonal section has to be drawn out by three tiles for the full override to take effect.

FARR 2 Alt Turnout off Orthogonal

Pattern



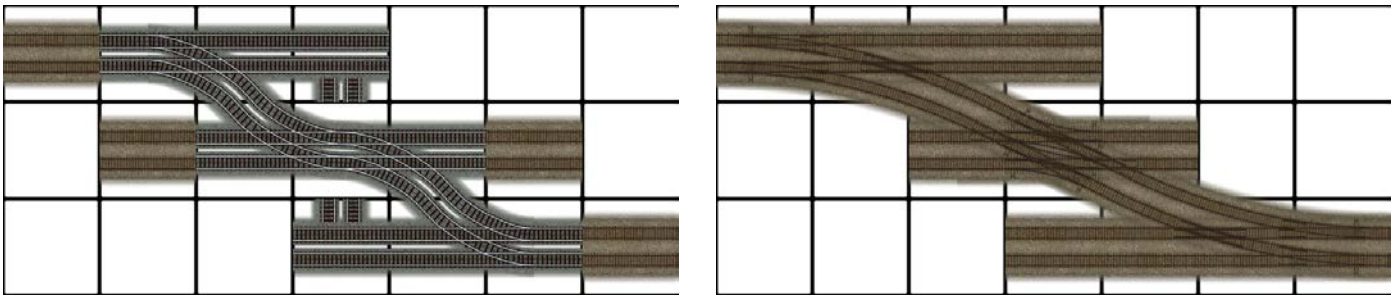
Resultant



The pattern for the FARR 2 Alt loosely follows the Pattern for the R3 Turnout released in NAM 33. An STR Equivalent in planned and this piece has extra functionality that is described in the next section. The Piece can for an orthogonal, diagonal and another FARR 2 Alt turnout. Some experimentation is needed to reveal these pieces.

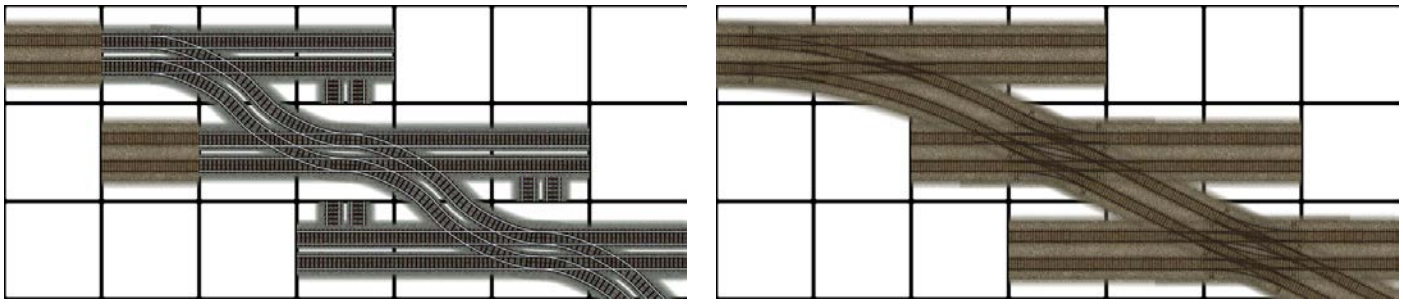
Patterns for the FARR 2 Alt complex Turnouts

Pattern **Resultant**



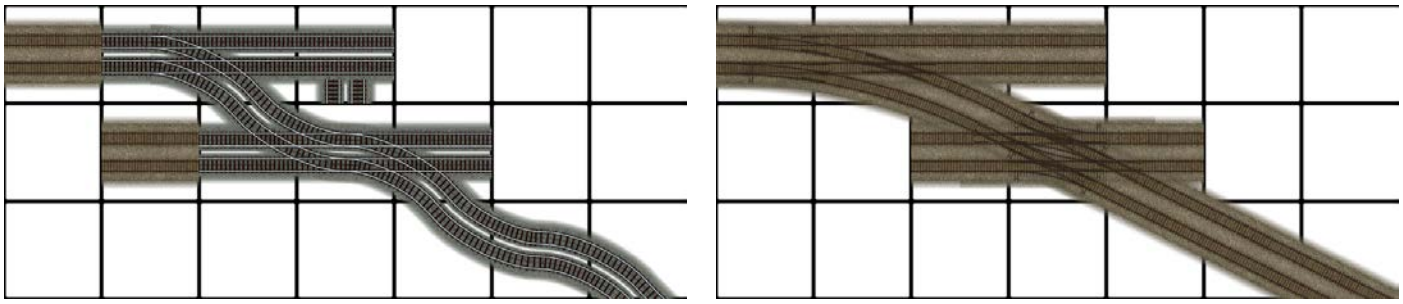
Full cross three tracks

Pattern **Resultant**



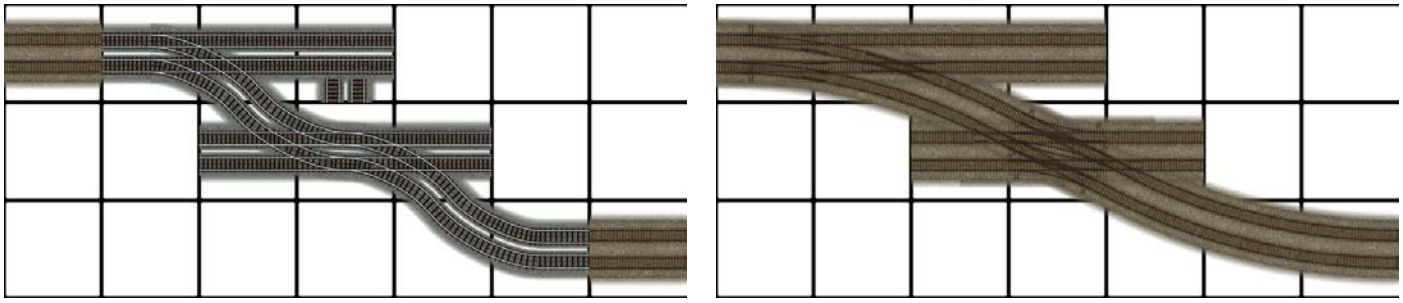
Extension into greater than four tracks

Pattern **Resultant**

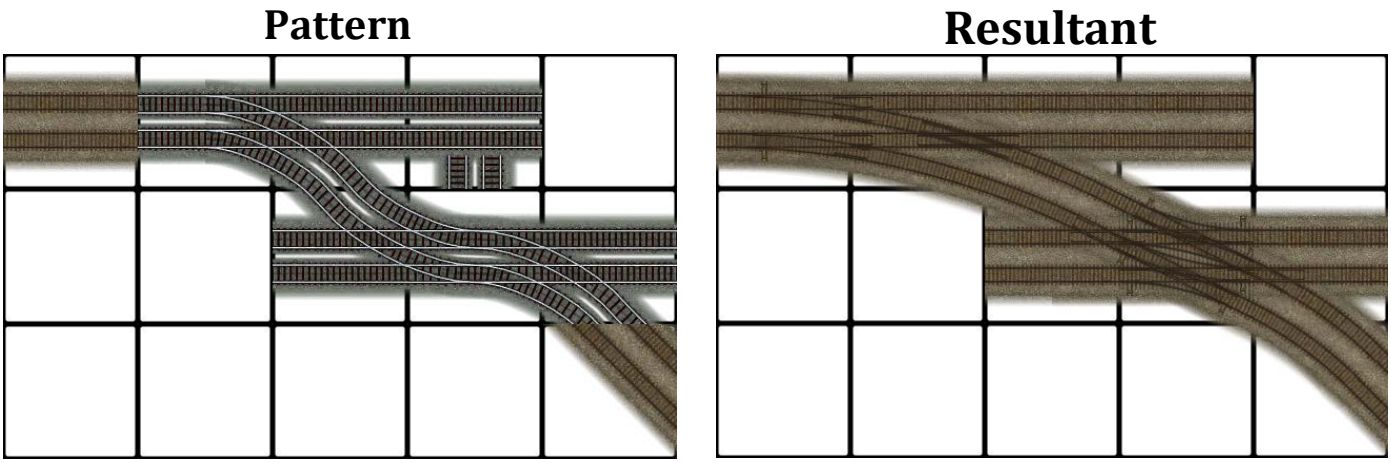


Offshoot to FARR 2 Alt

Pattern **Resultant**



Offshoot to Orthogonal



Offshoot to Diagonal

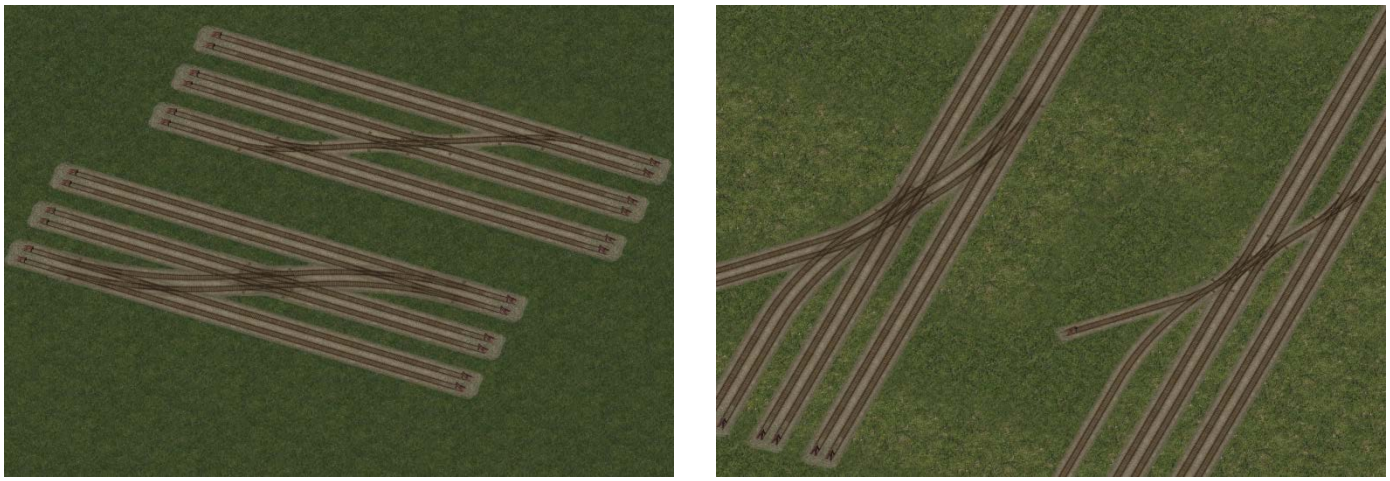
As shown there are a number of possibilities to make extended and fully functional track for your railways. These have the same mechanics and geometry of the ***"Small turnouts"*** which featured in NAM 33. To upgrade to DTR versions as shown above just draw through the middle section for the turnout. *Offshoots* should only be drawn to one side while middle sections need to be drawn the whole way through.

The minimum amount of tracks needed for these switches to work are...

- A minimum of *two* tracks for an off shoot directional section
- A minimum of *three* tracks for a continuation between a set of tracks

As mentioned above the complex turnouts have that same geometry as the ***"small turnouts"*** That arrived in NAM 33.

Here is a side by side comparison of two different sets...

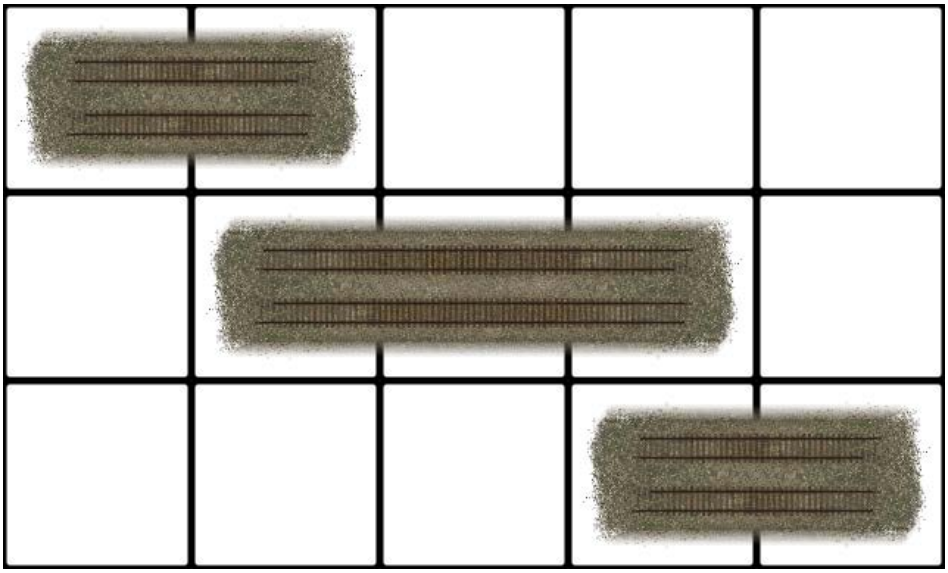


(Left is the comparison of the cross through while Right is the offshoot of the respective networks)

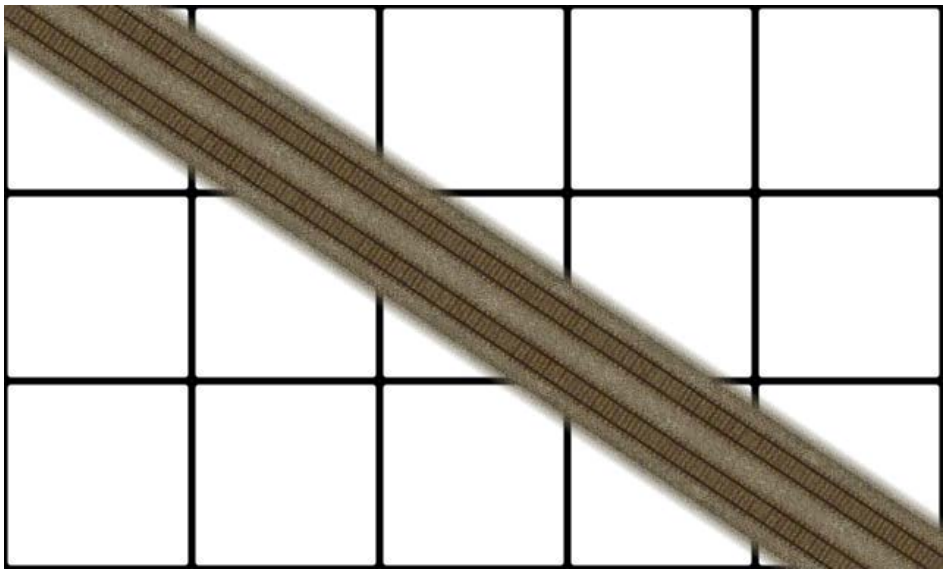
FARR 1.5/ 1.33

Straight

Pattern



Resultant

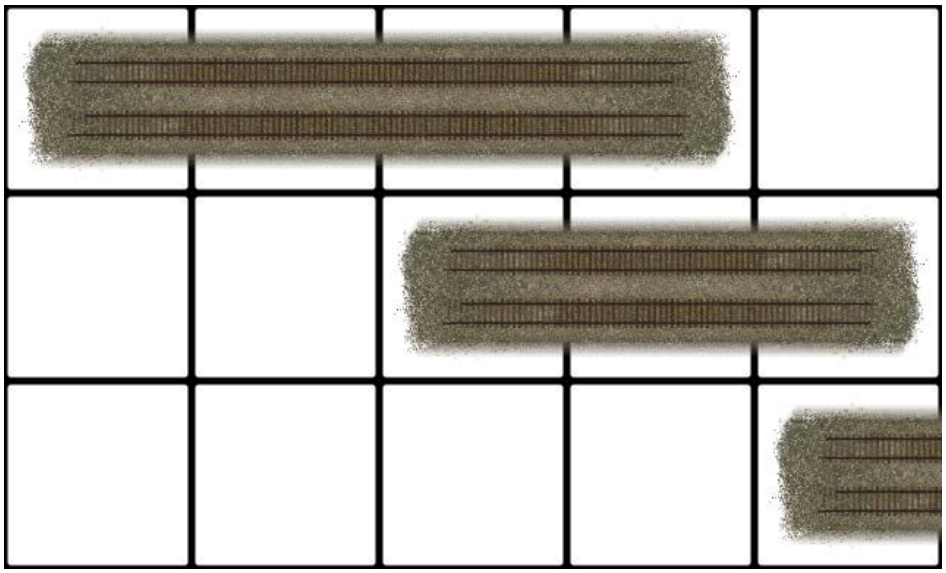


The FARR 1.5/1.33 Straight must be 3 tiles deep and 5 tiles long for the codebase to activate. The pattern is asymmetric and that asymmetry should be accounted for when drawn out. A future STR version is planned as well as offshoots to orthogonal and diagonal.

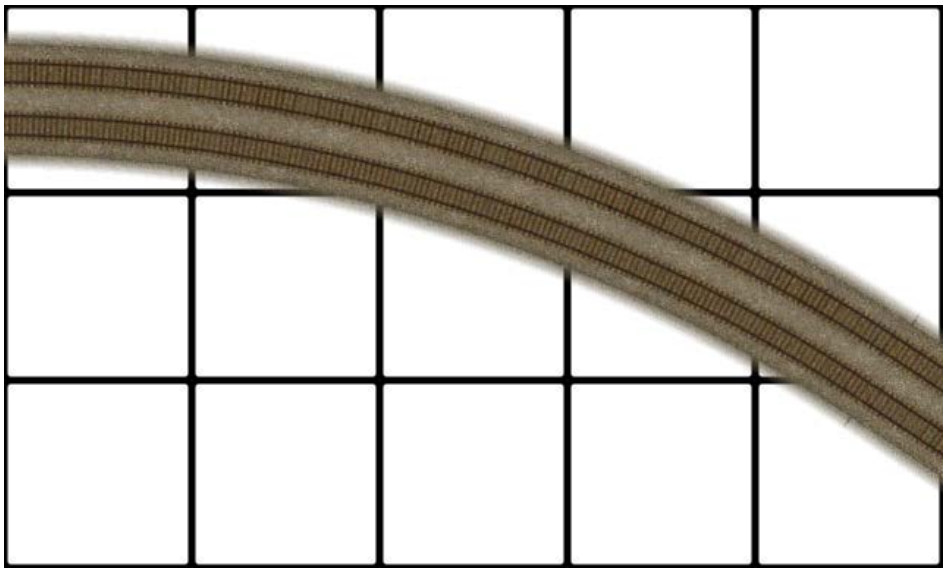
Curves

FARR 1.5 / 1.33 to Orthogonal

Pattern



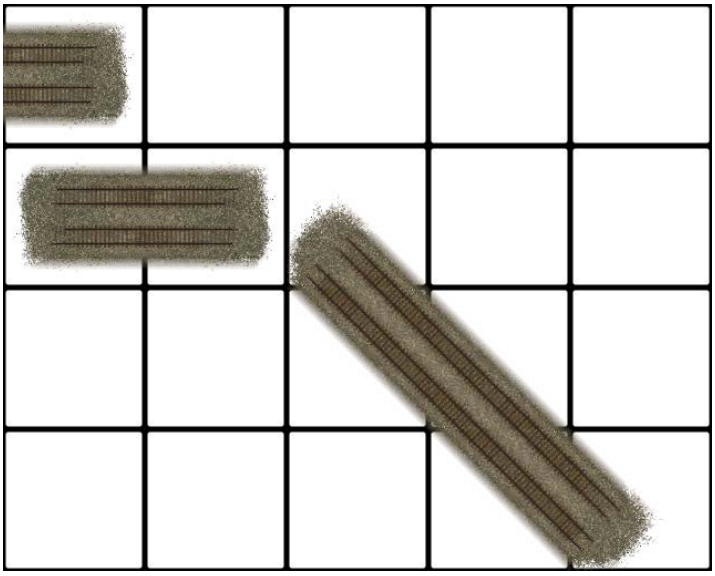
Resultant



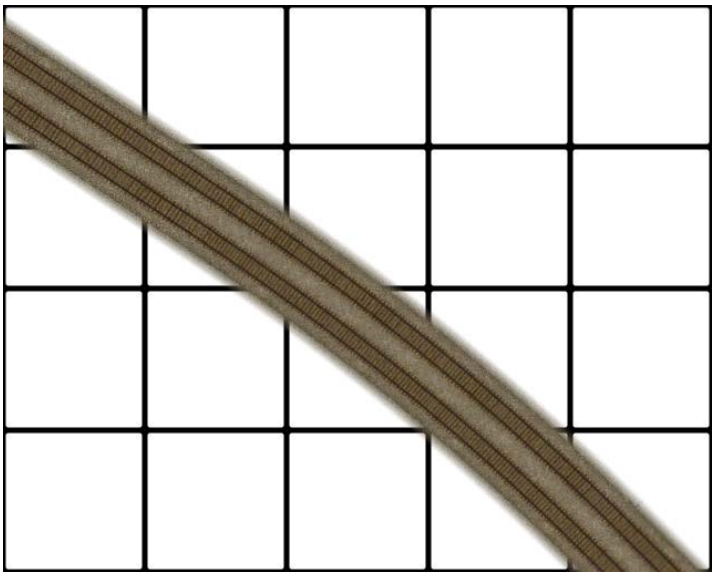
This is the pattern for the orthogonal to FARR 1.5/1.33 piece. Drawing this pattern can activate the codebase for the FARR 1.5/ 1.33 at the FARR end of the curve.

FARR 1.5/ 1.33 to Diagonal

Pattern



Resultant

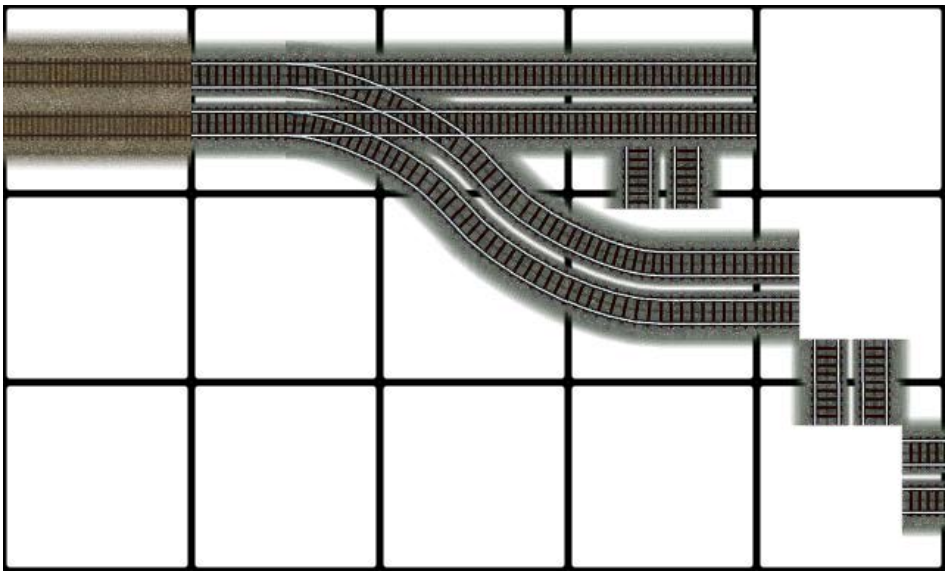


The FARR 1.5/ 1.33 to diagonal is probably the easiest curve to draw diagonally of all the Real Railway FARR networks. An STR version is planned as well as turnouts of the from FARR 1.5/ 1.33 to diagonal.

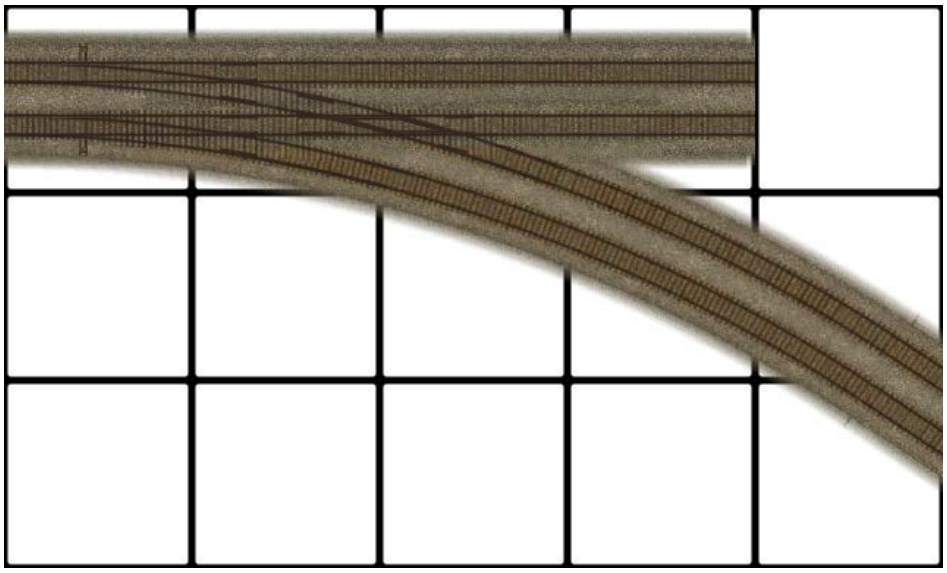
FARR 1.5/ 1.33 Turnouts

FARR 1.5/ 1.33 J2 Turnout

Pattern



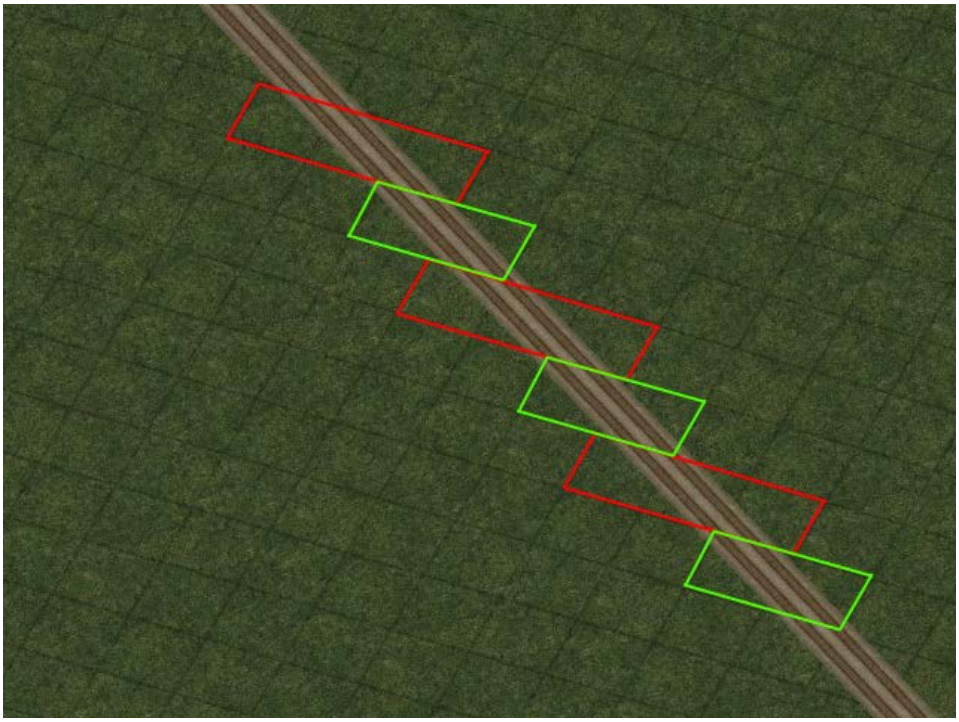
Resultant



The FARR 1.5/1.33 turnout is designed to transition to FARR 1.5/1.33 from Orthogonal. FARR 1.5/ 1.33 from Diagonal and intermediates including STR offshoots are also in consideration. The pattern shown allows for an STR turnout from DTR in future editions of the NAM.

FARR 1.5/1.33 extra notes

Unlike the ***FARR 3*** and ***FARR 2*** the ***FARR 1.5/ 1.33*** has an **asymmetric grid** pattern as shown below



Red rectangles shown are the *three tile* segments while Green rectangles are the *two tile* segments. Some familiarity of the pattern should be taken note of since the alignment to Orthogonal, Diagonal, FARR 2 and the J2 turnout for the best outcome.

Here is what happens when the Green two tile section is drawn to three tiles.

Figure 1

Figure 2

Figure 1 is the standard straight section of FARR 1.5/ 1.33 while figure 2 is the leaning movement towards an orthogonal to FARR 1.5/ 1.33 curve transition. You can make the curves for turnouts mentioned earlier in the document and continue to draw out the FARR 1.5/ 1.33 as a consistent measure.

Final Notes

The Flextrack component of NAM 35 has evolved to the state where new condensed sections of track can be made with turnouts covering the vast majority of the situations that the user may encounter. Reference to past manuals are still needed for in depth understanding of the functionality. The Real Railway mod in its entirety is under consistent development and as such it is hard to see what future functionality it may have.

The FARR Network (**FARR 3**, **FARR 2** and **FARR 1.5/1.33**) in draggable form are all new to the Network Addon Mod and can interact with each other except for some limitations. STR will cover the FARR in later editions as well as additional content.

Preventive code has been added to help stabilise and prevent certain actions being done. This is on purpose to allow the FARRs to function.

Several different methods had to be used for the FARRs to work together nicely.

FARR Technical Standards

The following angles are the FARR 3 angles off orthogonal and are in degrees.

FARR 3 = 18.43 degrees

FARR 2 = 26.56 degrees

FARR 1.5/ 1.33 = 33.96 degrees

There is an extra FARR (FARR 6), which is 9.5 degrees off the Orthogonal, that has not been implemented yet. The mechanics are still being sorted out.

Credits

The following members have had an impact on the development of the RealRailway Mod and are listed below.

- **Swordmaster**
- **eggman121**
- **woodb3kmaster**
- **Tarkus**
- **memo**
- **Shadow Assassin**
- **rivit**
- **MGB204**

Without their help, directly or indirectly, these projects for the Real Railway would not have taken off.