MILS

Modular Integrated Landscaping System

and how it is used by Cactus Brick for displays.

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What is MILS?

- a modular standard for landscaping.
- defines the interfaces for the sections.
- allows many different layouts to be created from the same pieces.
- allows multiple users to contribute.
- can be expanded by just creating a few new sections.
- Webpages:
 - o http://www.abellon.net/MILS/
 - http://www.hispabrickmagazine.com
 - Tutorial in HBM013

MILS - BTM (Basic terrain module)

- Size: 32x32 studs
- Bottom layer: baseplate
- Surface: 4 plates above the baseplate
 - The surface level only matters at the edges, interior can be any height
- Edge: 1x4 technic bricks on baseplate 2 studs in from each corner
- Color: Can be whatever color you want your landscape.
 - Green grassy area
 - Tan desert or beach area
 - White snow area

MILS - CTM (Compatible terrain module)

- Allows for defined interconnects
 - Roads, paths, rivers, and interfaces between types of terrain.
- Standards defined by "MILS":
 - paths are at 4 plates high, 4 studs wide centered.



MILS - CTM (track)

Tracks are at 4 plates high and are 8 studs wide centered



MILS - CTM (paved road)

Paved roads are tile at 5 plates high and are 16 studs wide centered



MILS - CTM (rivers)

Rivers are blue plate with trans-dark blue tile on top. They are 8 studs wide centered. The river banks should gradually go up to the 4 plate level.



MILS - Construction - Basic Step 1

Basic MILS - Step 1

- Place the outer edge pieces
- I use neutral colors for edges
- In the center, put 2x2 bricks at each corner of the "ground" level plates.
- This example uses 4x6 plates
- I find any gap larger than 4 studs has too much flex.



MILS - Construction - Basic Step 2

Basic MILS - Step 2

• Place the "ground" level plates



MILS - Construction - Basic Step 3

Basic MILS - Step 3

• The ground is finished, but very plain.



MILS - Construction - Basic Step 4 Basic MILS - Step 4

- Add some type of texture.
- A rock, a patch of some other color (like dirt) or a below ground hole would be better.
- A later step for the display will be to add foliage, so this is not what is going to be seen.



- 8 studs wide at the center for the edge of the piece.
- Blue plate with white edges.



River MILS - Step 2

 Place filler plates around the river to support the next layer of plates



- Add green plates along the river
- Filler plates behind the green
- Add small formations so the river isn't too plain
 - small rock formation using dark bluish gray cheese slopes



- green plates near the river
- filler plate further away from river
- trans-dark blue tile 1x2s to river
- If there's a gap that can't be filled with the 1x2s, just add a trans-clear cheese slope or a trans-clear plate round 1x1.



- Add another layer of green plates to form the ground level.
- Add addition green plates to this so the ground isn't perfectly smooth.



MILS - notes

- Small variations are expected
- Large variations at the edges create disconnects that either look awful or must be fixed at setup
- Technic pins between sections are great if tables are uneven
- corner identifier is not practical, just put a label on the bottom with your name
- Standards are embraced and extended...
 - Cactus Brick has been using MILS since June 2014 (first display was castle)
 - Cactus Brick has added quite a few "standards" for ourselves.
 - Display edge
 - Winter path ways
 - Beach (sandy and grassy)
 - Desert River
 - 9v track

MILS - display edge

For every layout, there is an edge that is visible by the public.

The edge of MILS modules does not look good with technic bricks and bricks of all colors (or gaps).

For Cactus Brick display, we ask everyone that has a section on the edge of the display to use solid brick of the same color as the surface for that edge.



MILS - Winter Paths

Winter paths are 4 plates high and are 4 or 8 studs wide centered. They are made up of various round 1x1s (tile and plate), round 2x2 tile, usually in the grays.



MILS - Beach and Ocean

Beach and Ocean are designed with the MILS philosophy but only have the outer each of the Beach (or Grass) that follow the MILS standard.

Ocean:

Blue (0, 1 and 2 plates high) trans-dark blue plate round 1x1 trans-clear plate round 1x1 trans-clear cheese slopes

Coast (centered)

Dark Azure (1 or 2 plates high) Medium Azure (2 plates high) Tan (3 plates high) Green (4 plates high) Beach option (use tan)



MILS - Desert MILS and River

Desert MILS is tan with dark tan, olive green, sand green and brown "speckles"

- Desert River:
 - Water is blue plate covered by trans-dark blue tile
 - 4 studs wide at edge
 - Banks are sand green with dark tan, reddish brown and/or olive green.



MILS - Foliage

MILS looks nice, but it's still a bit bare without foliage.

- Trees
- Bushes
- Weeds
- Flowers





MILS and Roads

- Our city road standard meets up with MILS
 - 4 plates above baseplate



- MILS track
 - MILS base
 - 2 plate high ballasting
 - allow for 16x16 sizes
- We use 4 types of MILS track
 - Desert/Western
 - Green
 - Trainyard
 - Winter



Reasons for converting:

- Raises track up to MILS height
 - avoid MILS edges from showing up
- Allows wires to be completely hidden
- Allows terrain to go under ground-level
 - Bridges across rivers or lakes

Downside:

• Road crossings are a lot more difficult

- Curves are sectional for easy transport
 - Bases are made of:
 - Right and left (16x32)
 - Center (16x16 or 32x32)



- All switches are wired up with Motor for remote control.
- Wires are run under the track within the MILS sections



MILS - 9v track (road crossing)

- Top of MILS track is 8 plates high
- Difficult to raise road up to track
- My solution:
 - disconnected road section
 - loose & raised on one side



- Lots of different 9v track types
- Part numbers are attached to all types for easy identification
- Layouts include the part numbers
- Track pieces are packed by sections of the layout for ease of finding the right pieces.
- All of these pieces were packed in one bin, "Track 1"



MILS - 9v track - secret decoder ring

- Char 1: Type of MILS background
 - G = Green
 - T = Trainyard
 - D = Desert (Tan)
 - W = Winter (White)
- Char 2: Category of piece
 - M = MILS
 - T = Track
 - C = Curve
 - \circ S = Switch

- Char 3: Size of piece, type of piece
 - F = Full 32x32
 - H = Half 16x32
 - S = Small 16x16
 - L = Left (Switch only), direction
 - R = Right (Switch only), direction
 - \circ U = under wire run
 - W = raise area for wire connection
- optional char 4: (Switches)
 - \circ F = Forward
 - B = Backword