

# Modular Integrated Landscaping System (II)

*In this second article we will start with the MILS rules related to the compatible terrain modules (CTM), so we can add new elements to the basic terrain modules (BTM) of the previous article.*

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Continuing with the explanation of the modular integrated landscaping system with LEGO® pieces started in HispaBrick Magazine® 013, we will start with some clarifications concerning some doubts people have voiced about this system.

- Firstly, the MILS system does not imply or require that all the modules in a diorama have to be MILS modules. MILS rules emphasize the need that these rules are to be satisfied in elements that will be adjacent to those of different builders within a diorama. The rest of the elements of the diorama can be built as their owners want. We in HispaBrick Magazine® decided to build as many MILS modules as possible in order to exploit and test the efficiency of the rules, so the dioramas in our examples will contain a majority of MILS modules.

- Non MILS compatible elements also have a place in this system and this will be analysed in the last article in this series. As one of the ideas was to show the development of the modules explained in each article, we want to describe all the elements of the MILS rules in order to build and test them before we explaining how to integrate non MILS elements.

- We have tried to make the rules describing the MILS system as simple as possible, in order to make it easy to work with them; this does not mean that no additional module types or details can be developed. But in the construction of a diorama in which many people participate with different qualities and parts, it is important to lay down some common rules that all participants can follow as the idea is to allow the easy integration of modules from anyone who wishes to participate in the joint diorama.

## CTM (Compatible Terrain Module)

As mentioned in the first article, the CTM modules are 32x32 studs in size and at least one of their sides must be compatible with the MILS rules. Unlike BTMs (Basic Terrain Modules), CTMs do not have a predefined height as that can change depending on the type. CTMs should be built as similar as possible to BTMs, especially on their compatible sides, with 2x2 stud corners for identifying the builder and the adjacent 1x4 Technic bricks.

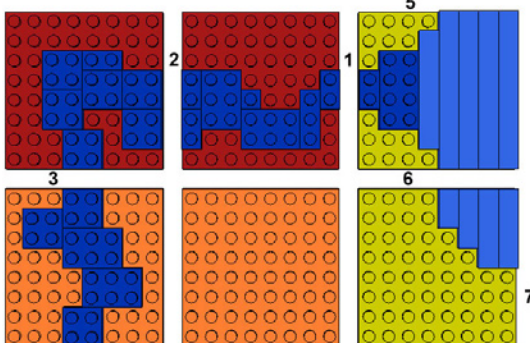
The first reference for the purpose of CTM modules is in the elements that are represented with them, and whose main characteristic is the need for continuity along several consecutive modules. This continuity means that CTM modules lose coherence with adjacent modules when their orientation is changed. The clearest examples would be rivers, roads, coasts, mountains etc. Why? Well, it's evident that a module with a part of a river will always need other modules with other parts of that river connected to its sides to make sense in a diorama, and on the end of that stretch of river there will have to be yet another one, which in addition needs to coincide in width and depth in order to create a consistent whole.

In the MILS system a number of groups have been defined to describe each type of element the CTM have been divided into.

- Roads and paths
- Rivers
- Coasts
- Hills and mountains
- Transitions between different types of terrain.

### AFOL 1

Common side 1: Both, AFOL 2 and AFOL 3 must have a perfect compliance with MILS rules related to rivers  
Common side 2: As these two sides belong to AFOL 1 elements, there is no need to fulfill the MILS rules. Size and dimension of the river in this part is up to the AFOL 1



### AFOL 2

Common side 3: Due to the fact that this joint side belong to two different builders, AFOL 1 and AFOL 2, both of them have to meet MILS rules  
Side 4: This is an external side, so the AFOL 2 is not obliged to comply with the MILS rules. If this module is intended to be part of other rivers built by different AFOLs then this side will have to comply with MILS rules

There are many more elements that could be included in CTM modules, like railway tracks, city streets, bridges, etc. but due to the complexity of describing all possible variations we have preferred to leave those outside the MILS system for now.

## CTM: Roads and paths

CTM modules related to roads are intended to be used to represent any type of track, path, paved road and so on. These modules will contain a section of road or path inside their 32x32 stud size. In most cases the section will have 2 ends (opposing for straight sections and adjacent for curved sections) to link to other roads of the same size, although it is possible to create modules with 1 (end of road), 3 (T-junction) or 4 (crossing) sides with a road end. MILS rules are compulsory on the edges of the module, but the dimensions described below may vary within the module. It is necessary to emphasize that not all the parts of a road are subject to the MILS rules; these rules are intended to be used for elements adjacent to those of different builders. You can build all your road elements as MILS modules if you want, but you are not required to.

In order to simplify the great variety of existing roads that can be built, this classification has been reduced to 3 types:

**Paths:** CTM modules related to paths are intended to represent small rough roads, of stone or earth surface. Paths will be integrated at the same height that the rest of the module surface (4 plates over the baseplate). On the module edge, the paths must be located in the middle, with a width of 4 studs. This type of roads can be built with brown/reddish brown, dark bluish gray, light bluish gray or tan parts and do not need to be uniform or levelled as they represent irregular paths. The height variation on the sides will be restricted to 1 plate difference from the standard height of the module.

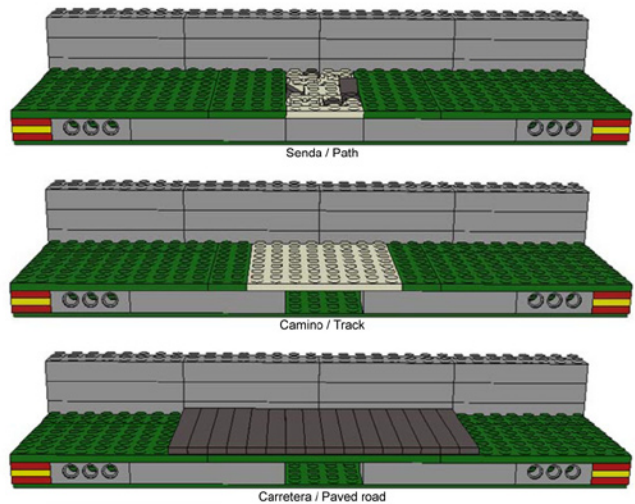
**Tracks:** CTM modules related to tracks are intended to represent regular roads of earth, larger and more regular than paths. Tracks will be integrated at the same height that the rest of the module surface (4 plates over the baseplate). On the module edge, tracks must be located in the middle, with a width of 8 studs. This type of roads can be built mainly with brown/reddish brown or tan parts. The height variation on the sides will be restricted to 1 plate difference from the standard height of the module.

**Paved roads:** CTM modules for roads are designed to represent paved roads with a regular surface. These roads are built on top of the surface of the module (at a height of 5 plates). In order to make them look like a road they are built with Dark Bluish Gray tiles. These roads will be 16 studs wide and start at the centre of the edge of the module. Variations in height are restricted to 1 plate, but only above standard height as a difference of two plates would be inconsistent with a road.

The restrictions of the MILS rules involving the types of edges built in the modules don't mean all the modules must be built as a straight segments or 90° curves. A builder can make a road with the desired course using several modules, as long as those elements are adjacent one each other and not intended to be adjacent to modules of a different builder. Each builder has to have on his mind that MILS rules are only mandatory for elements that he wants to connect with modules of other builders.

## CTM: Rivers

Perfiles laterales / Side profiles



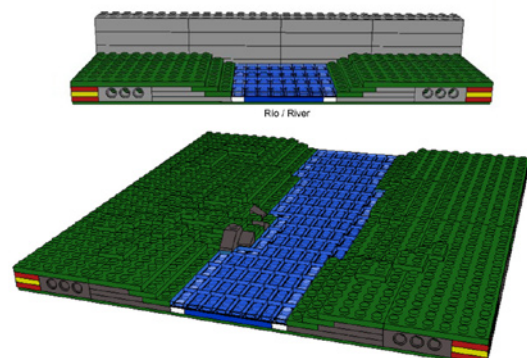
CTM modules related to rivers are intended to be used to represent parts of a river or watercourse. These modules will contain a section of road or path inside their 32x32 stud size. In most cases the section will have 2 ends (opposing for straight sections and adjacent for curved sections) to link to other parts of the river, although it is possible to create modules with 1 (start or end of river) or 3 (incorporation of tributary). Although there can be many sizes of river, in order to simplify the connection of different parts of the river it will be built in a single size. On the module edge, the course of the river must be 8 studs wide and located in the middle. This width may be made up of blue, white and brown plates in order to create different shades of water. They will be covered with Trans Dark Blue tiles. This does not mean the whole surface of the river must be covered with this kind of tiles, but it will be the main element. The height therefore will be two plates over the baseplate. On either side of the river, the riverbanks will rise one plate per stud with the stud adjacent to the river at 2 plates and increasing to the level of the module (4 plates). There may be variations of 1 plate in this height.

Any kind of element used to decorate the river bed, like slopes to represent stones or small white or trans clear plates to simulate foam on the river can be used on the edges without any problem.

No reference has been made to the slope of the river as under MILS rules the whole river will be at the same level. The complexity of making modules at different heights makes it infeasible for simple rules so this aspect is reserved for non standard constructions that can be connected to MILS modules.

## CTM: Coasts

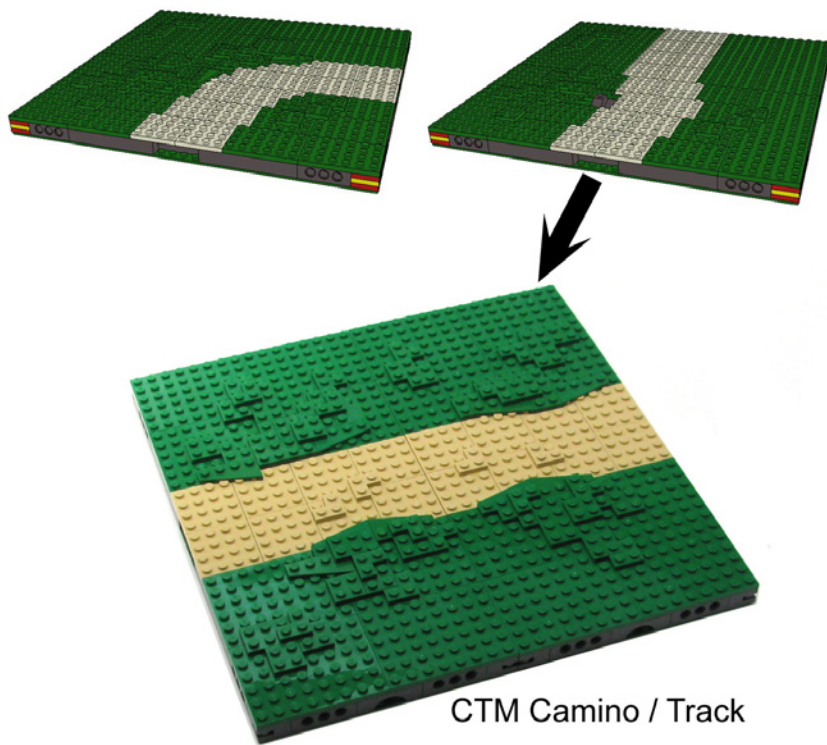
Perfil lateral / Side profile



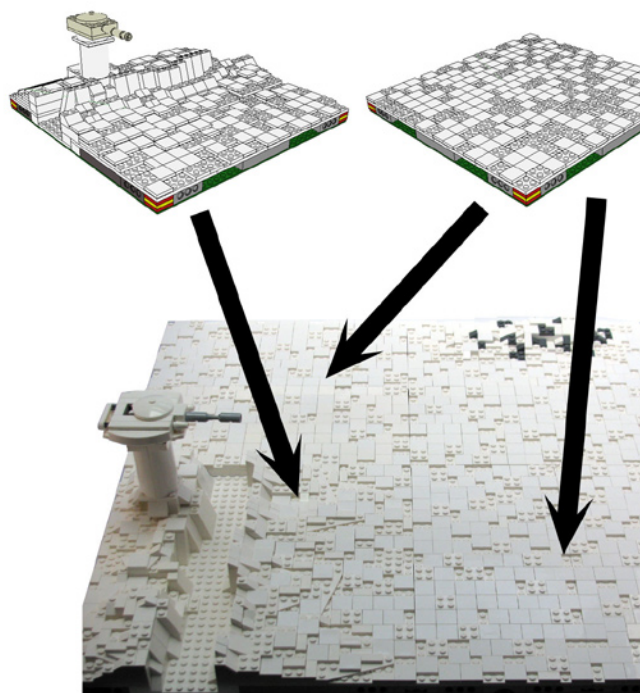


CTM modules for coast are those used to create a shoreline between land and the sea or a lake. In both cases the same rules apply, with the exception that for the water of the sea blue tiles will be used and for that of lakes trans dark blue tiles. Transition modules between land and sea must have at least one side on which there is stretch of land, which must comply with the conditions that will be explained below. The area that separates land and sea will be placed at 16 studs from either side (in the centre). In this way endless combinations of modules can be made, with edges that are all land, all sea or half sea half land. Looking at the area where land and sea meet, the sea should be made with tiles on the baseplate (a height of 1 plate) Where the land starts the parts representing land should be at a height of one plate above sea level and rising one plate per stud till the standard height of the modules. There can be variations of one plate in height at these edges. In modules that have corners with sea, one stud can be left free on each corner to allow joining adjacent modules with sea by means of a tile or plate. The fact that there is a type of piece that represents the bulk of a sea - blue tiles - or of the water of a lake - trans dark blue tiles - doesn't mean the entire surface must be made up of these elements. Trans clear or white tiles can be used to simulate waves or foam and can be included in these kinds of modules without any problem.

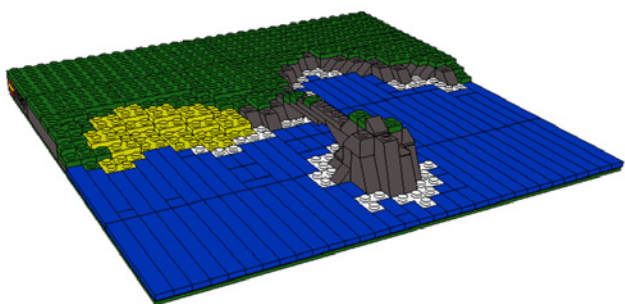
In addition to the described CTM types it is also possible to make combinations of types, like a river flowing into the sea, roads that cross a river or a path that leads to a paved road, etc. In these cases it is important that each edge follows the MILS rules corresponding to the type of terrain it has.



CTM Camino / Track



Módulos nieve / Snow modules



## Work on modules at Hispabrick Magazine®.

On of the goals of this series of articles was to create physical versions with LEGO® bricks of our digital designs. As examples and in order to coordinate our work, over thirty different designs have been made which, little by little, those involved in the MILS project are building. At the time of writing of this article more than 30 modules have been finished or are being built (mostly BTMs related to the previous article) and by the time this article is published we will have finished another 30 (mostly related to the material from this article). For this

reason, and in order to show our work, solve doubts, compile all the rules and show different examples as they are finished, the following website has been created:  
<http://www.abellon.net/MILS/index.html>.

In the next issue we will continue with the last CTM elements, hills and mountains, in order to finish the description of all the groups of CTM modules.

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