

Option 8 Lava and Water

```
Choose (<h = help +i = items eg 3h):
1) Sand based utilities
2) Vertical wall from surface
3) Create enclosed area
4) Clear volume of water
5) Sinking platform
6) Ocean monument utilities
7) Ladder down to water/lava
8) Clear water plants
9) Convert all water to source
10) Create sloping water
Back = 'q' or number + Enter: _
```

Option 1 Sand Based Utilities

These functions use sand to delete water or lava

1. Drops sand into water or lava for a specified length, eg a walled enclosure round an ocean monument, or a flooded cave.
2. Drops sand into a rectangular area. Similar to the above, but automatically repeats
3. Clears the sand dropped in 1. above
4. Clears the sand in 2. above

```
1.Drop sand or gravel wall
Place me on water/lava surface

2.Fill area with sand
Place on left corner of area

3.Clear (1) sand wall
Place me on the surface of sand.

4.Clear (2) sand filled area
Place on left corner of sand field
Type number of choice: _
```

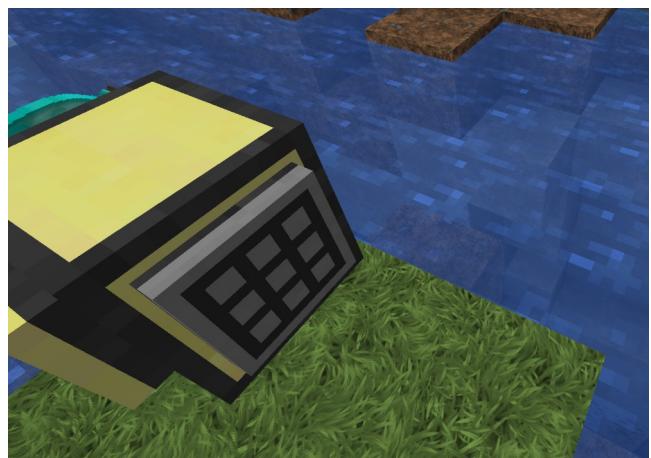
Option 8.1.1 Drop sand or gravel wall

Example fill this 3 block wide but very deep hole

```
Length of sand wall (0=to block) _
```

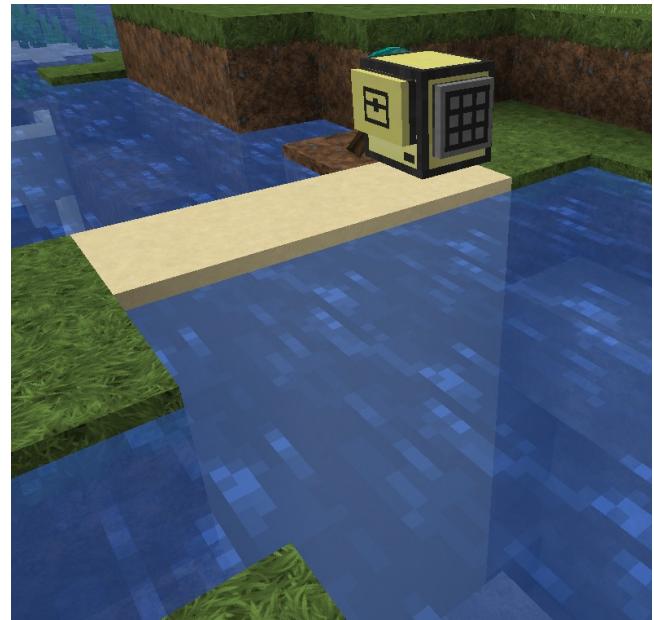
If you enter 0, it will stop dropping sand once it reaches solid block on the opposite side.

```
Add 1024 sand to any slot(s)
Or add 1024 gravel to any slot(s)
(Optional: 'Enter' if not required)
```



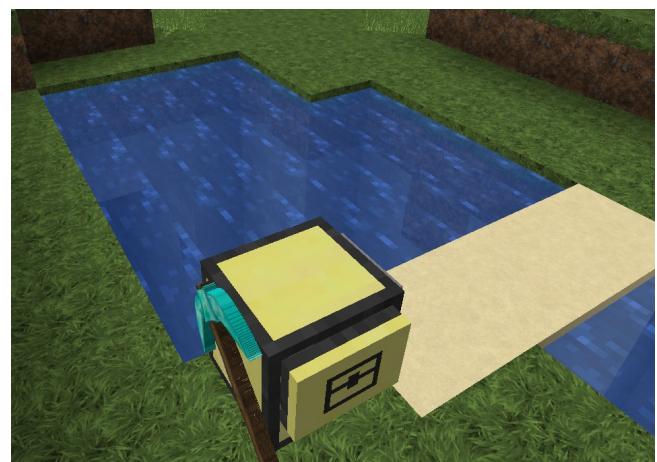
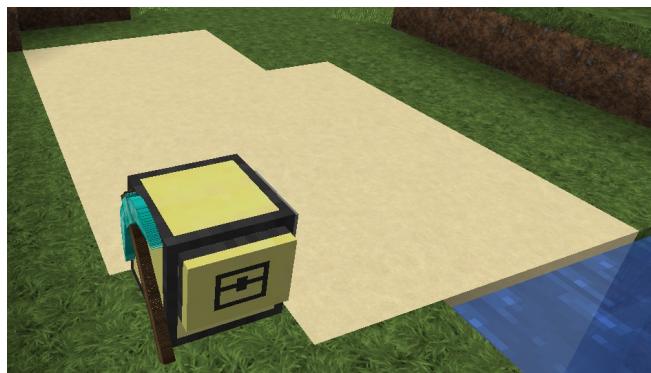
Add as much sand as you think will do the job

A single stack was more than enough



Option 8.1.2 Fill an area

```
Width of area (<=30) 4
Length of area (<=30) 5
Am I outside the active zone (y/n)? y_
```



Option 8.1.3 Clear Sand wall

```
Length of sand (0=auto-detect) 5_
```

```
Choose your preference
1) Stay at end of wall
2) Return home
Type number + Enter _
```

```
Am I outside the active zone (y/n)? _
```

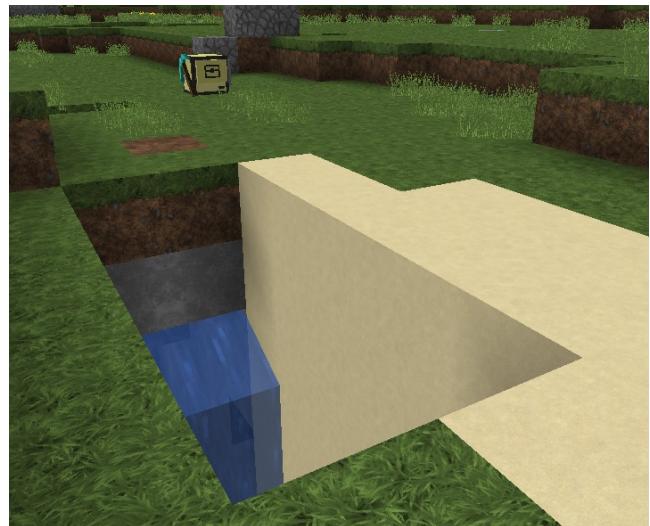
Option 8.1.4 Clear sand filled area

```
Width of sand (<=30) 4  
Length of sand (<=30) 5  
Am I outside the active zone (y/n)? n
```

This does not work well on irregular areas where the turtle can stray into open water.

If the area is completely contained then it can be used.

It is better to use another method to drain irregular areas such as option 5.6 Sinking Platform or option 8.4 clear volume of water.



Option 8.2 Vertical wall from surface

This builds a solid stone wall across water. It can be used to dam a river, or to build an enclosure around an ocean monument.

The task is to build a dam across this river. The function will want to know the width.



Use **Option 10.3 Measure Length** first:

Move the turtle forward 1 so it is over water.

Measurement is made by searching for “grass” below, which can be seen on the opposite bank. If already on “grass” it would not move!

```
Choose (th = help +i = items eg 3h):
1) Measure height
2) Measure depth
3) Measure length
4) Measure greatest depth
5) Borehole: Analyse blocks below
Back = 'q' or number + Enter: 3
```

```
Measure using?
1) Obstruction ahead
2) No further blocks above
3) No further blocks below
4) Detect specific block above
5) Detect specific block below
Type number + Enter 5_
```

```
Method:Until search: 'grass' below met
Length measured: 19 blocks
Found minecraft:grass_block
Thank you for using 'survival toolkit'
>
```

```
Length measurement
1 2 3 4 5 6 7 8 9 10
x|x|*|*|*|*|*|5| |*|*| 8. No block up
T |*| |*| |*| |*| |*| 7. Search block
x|*|*|*|*|5|*|*| |*|*| 9. Obstruction
|*| |*| |*| |*| |*| |*| 5. Search block
8. No block down
T = Turtle
Enter to continue
```

```
Search for? eg 'ore', 'obsidian'
> grass
Max distance before abort? 30_
```

Now use **Option 8.2 Vertical wall from surface**

```
Turtle position > T (W to enclose)
Plan view          Start:W
|>| | | | | | to |x|x|x|x|x|V| enclose
                           x area
Side view
T
| | | | | | | to |x|x|x|x|x|x| |
| | | | | | | |x|x|x|x|x|x|
| | | | | | | |x|x|x|x|x|x|
|S| | | |S|S| |S|x|x|x|S|S|
|S|S|S|S|S|S|S| |S|S|S|S|S|S|  
Enter to continue _
```

This is used when enclosing a monument.
It defaults to a width of 56, but can be changed.

```
Going 90 deg. from existing? (y/n) n
Length of the wall (1-60) 19
Fixed depth or 0 = to floor 0_
```

Choose 'n' as shown, enter the measurement obtained from above (19) then 0 to go down automatically.

Finished wall from under water:



Option 8.3 Create Enclosed Area

From this help screen onwards:

This is the same as

Option 7.10 Direct control of movement

Instructions repeated here for convenience

On the surface, use option 1

In a cave you might want to use 2, so you get a roof over your head!

Build a walled rectangle

```
L | *| *| *| *| *| *|  
e | *| | | | | *|  
n | *| | | | | *|  
g | *| | | | | *|  
t | *| *| *| *| *| *|  
h ^  
W i d t h ^ = Turtle
```

Enter to continue _

Choose your path option

- 1) Simple path
- 2) Covered 2 block high path

Type number + Enter

Choose your preference

- 1) Command driven
- 2) Menu driven

Type number + Enter

Command driven interface

```
Commands:  
  
direction + number eg f2 = forward 2  
direction without number = 1  
  
f = forward b = backward  
l = left r = right  
u = up d = down  
  
q = quit  
  
command _
```

Menu driven interface

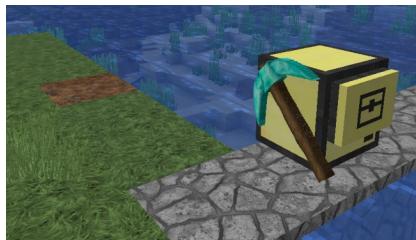
Choose next step

- 1) Forward 1 block
- 2) Forward # blocks
- 3) Back 1 block
- 4) Back # blocks
- 5) Turn Right
- 6) Turn Left
- 7) Up 1 block
- 8) Down 1 block
- 9) Quit

Type number + Enter _

An example using the command driven interface:

Starting position



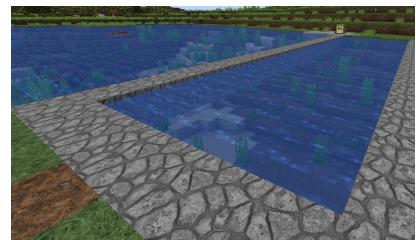
command f6_



After command "f6"

command r

command f19



Completed enclosure (only 1 block deep)

To get full depth you need to repeat 8.2 Vertical Wall from Surface

Option 8.4 Clear Volume of Water



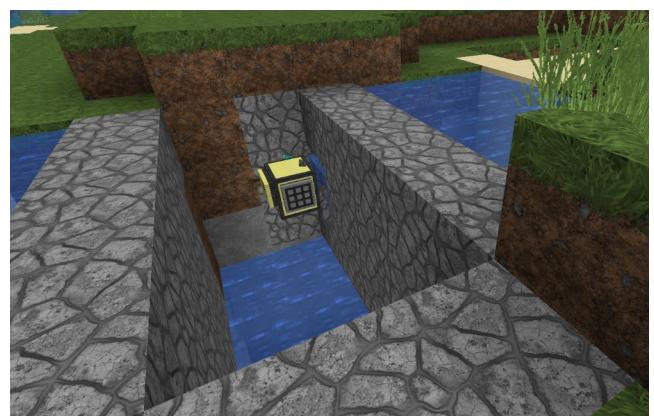
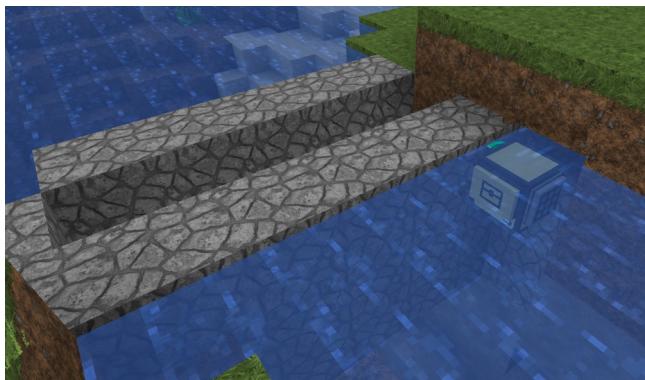
```
Clear volume of water

Plan view
+---+---+---+---+---+---+---+---+---+---+
| x | x | x | x | x | x | x | x | x | x |
+---+---+---+---+---+---+---+---+---+---+
| x | x |   | x | x |   | x |   | x |   |
+---+---+---+---+---+---+---+---+---+---+
| x |   |   |   |   | x |   |   |   | x |
+---+---+---+---+---+---+---+---+---+---+
| x |   |   |   |   | x |   |   |   | x |
+---+---+---+---+---+---+---+---+---+---+
| x |   |   |   |   | x | x |   |   |   |
+---+---+---+---+---+---+---+---+---+---+
| x | ^ | x |   |   | x | x |   |   |   |
+---+---+---+---+---+---+---+---+---+---+
| x | x | x | x | x | x | x | x | x | x |
+---+---+---+---+---+---+---+---+---+---+
Width: 6, length: 6

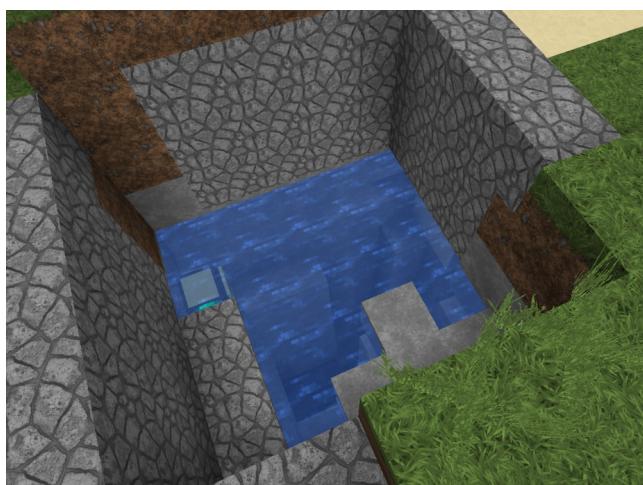
Enter to continue _
```

```
Width of water (0=autodetect) 5  
Length of water 5  
Depth of water (0=autodetect) 0_
```

Starting here will cut across the water and drain the area to the right. It is very deep



The retaining wall has been built and the first of 2 3-block deep walls used to delete water sources



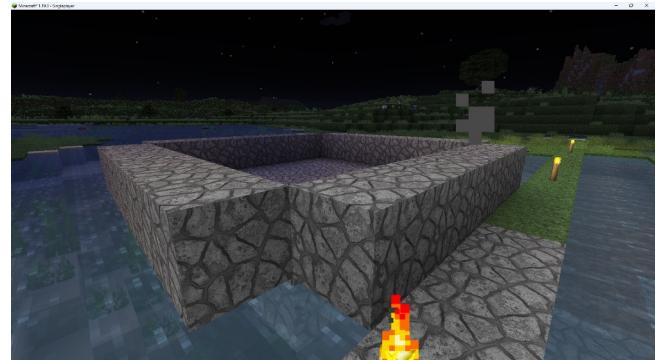
The first 6 layers deleted



Final pit 21 blocks deep

Option 8.5 Sinking Platform

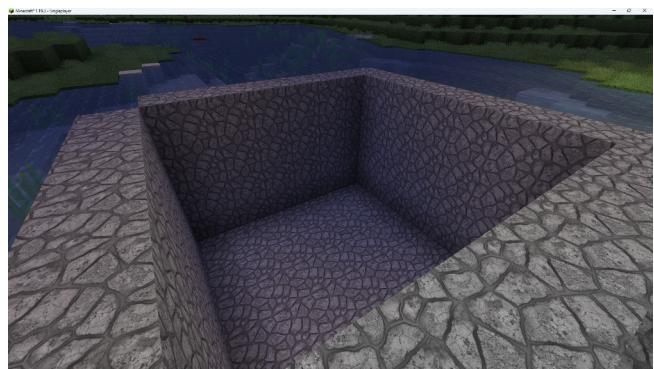
This is the same function used in **Option 5.6** duplicated in this menu for convenience:



This function builds a walled enclosure in water (or lava) and places a floor as screenshot.

It then continues downward for the specific depth, finishing with a box shaped enclosure.

This could be used on dry land to create a pit e.g. slime farm or similar construction.



```
Place ^ above water.  
Existing platform replaced below  
| |x| |x| |x| |x| | * = Block  
| |x| |x| |x| |x| |  
| |^| |x| |x| |x| | ^ = Turtle  
| | | | | | | |  
Blocks placed under the turtle  
Enter to continue _
```

```
Width (excluding retaining wall)? 6  
Length (excluding retaining wall)? 6  
Levels to go down? 4
```

The difference between 8.4 Clear Volume of Water and 8.5 Sinking platform is that the former continues until no more water is discovered, so complete drainage is achieved.

8.5 Sinking platform function works to pre-set depth, can be incremented 1 or more layers at a time, and can even be used where there is no water.

Option 8.6 Ocean monument utilities

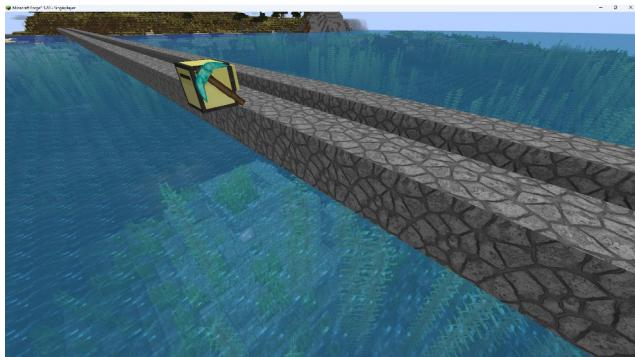


This takes an enormous amount of resources and time. The more turtles you have, the faster it can be done.

If you do not need to preserve the structure, it can be completely demolished using one or more turtles using either the option **8.4 Clear Volume of Water** or perhaps with dividing it into sections. Typically the monument is 56 x 56 blocks in size

Start by lining a turtle up with the centre of a monument, 3 blocks above the ocean. Use a sandbank or island as a base

Use **Option 5.1 Simple path on air, water or lava** 3 x or with 3 turtles to build a protective path from land over the monument.



You are now ready to use the monument utilities. The screenshot shows the turtle placed over the highest part of the monument facing to one side. Do NOT face the front, as it will not be able to define the edge

This is the menu for the 7 utilities

```
Which utility?
1) Build 4 corner marker columns
2) Retaining wall between 2 columns
3) Clear plants pre sand draining
4) Drop sand wall
5) Recover sand wall
6) Sinking platform
7) Drain and remove structure
Type number (q to quit) + Enter _
```

Option 8.6.1 Build 4 marker corner columns.

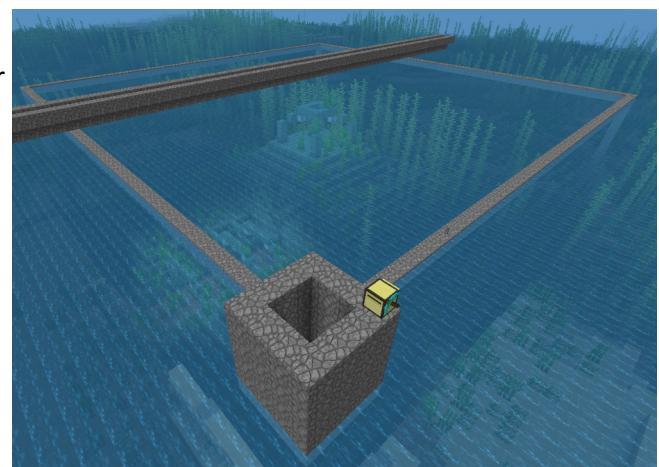
The screenshot above equates to the **++** area shown on the help screen

```
Turtle placement V < ^ > over monument
*****      ***** * = Avoid this area
*****      ***** V do not face front
*****      ***** < ^ > Ideal facing
*****      ****
*****+****+***** + = Ideal position
*****+****+***** * = Good position
*****+****+***** Or any corner <12
*****+****+***** blocks from edge
Enter to continue _
```

The turtle goes down to the monument and tracks the outside edge. It builds a column from each of the 4 corners and joins them together with a path.

Finally it builds a small shelter on the last corner.:

The player can get to this shelter by using another turtle to build a protected path over to it, similar to the first one from land



Option 8.6.2 Retaining wall between 2 columns

As indicated on the help screen, place a turtle facing along the existing wall, but NOT on the corner block

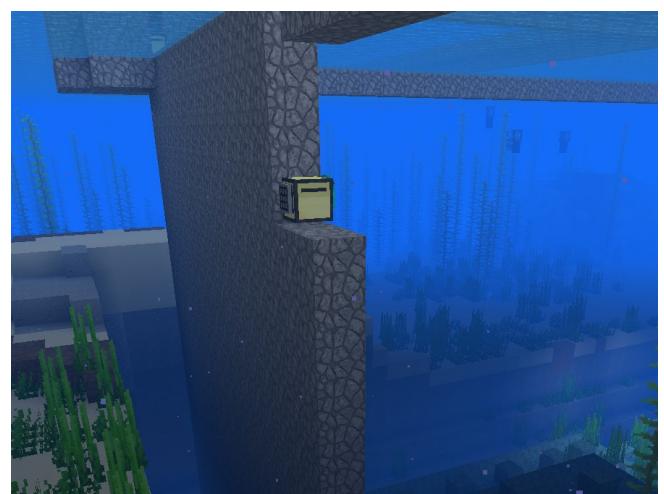
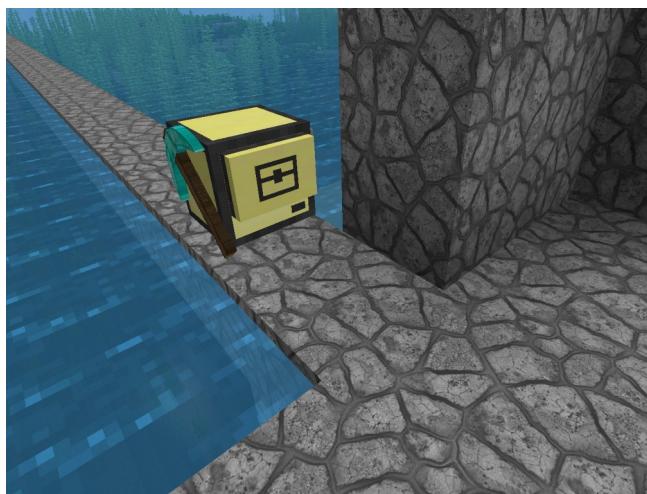
Confirm the length of the wall.
If on an ocean monument Enter only is sufficient

Wall length minus corners
(Ocean monument default 56)
Number -> Enter or Enter only (56)

Add a full inventory of stone (16 stacks, 1024 blocks). When these have been depleted, the turtle will ask for more.

Starting position accessed from the shelter base:

Building in progress:



Option 8.6.3 Clear Plants pre-Sand Draining

If sand is dropped onto a plant, it becomes an entity, not a block and floats away.

If sand is to be used to delete water then the plants need to be removed

```
Turtle > < on side walls only
```

```
| x | x | x | x | x | x | x | x | x | x |  
>| xxxx | xxxx |<  
>| xxxx | xxxx |<  
>| xxxx | xxxx |<  
>| xxxx++|xxxxx |<  
>| xxxx++|xxxxx |<  
>| xxxxxxxxx |<  
>| xxxxxxxxx |<  
| x | x | x | x | x | x | x | x | x | x |
```

```
Enter to continue _
```

Enter the actual measurements 56 x 56 in the case of an ocean monument. 0 values will also work

```
water width (0=auto detect) 56  
water length (0=auto detect) 56_
```

This will attempt to remove all plants in the area. The turtle will use around 15,000 fuel and take a long time.

It may be better to use multiple turtles and restrict the water width to 1 for a single row, or a few strips at a time.

For reference, it uses the same function as **Option 10.4 Measure Greatest Depth**

Option 8.6.4 Drop Sand

This uses ***Option 8.5.1 Drop Sand or Gravel Wall*** via an alternate menu system

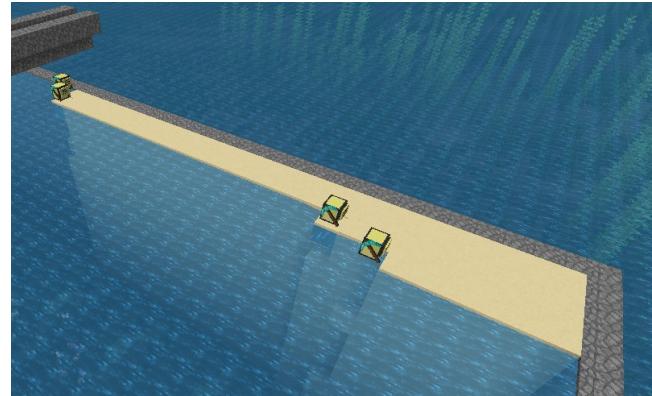
Place turtle(s) on the side walls

The same help screen as above is shown



As soon as you press Enter the function starts

This screenshot shows 4 turtles at a time placing sand.



Option 8.6.5 Recover Sand Wall

This uses ***option 8.5.2 Clear Sand Wall*** via an alternative menu system.

Place turtle(s) on the side walls

The same help screen as above is shown

This screenshot shows 4 turtles recovering sand.

A falling column of sand tends to break into entities and scatter around, so the player will need to be in the area to collect them before they de-spawn.

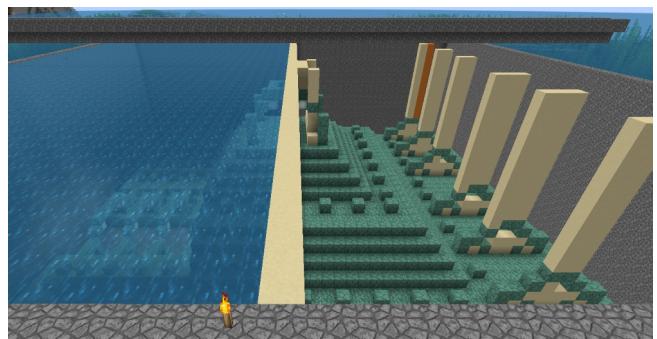


Option 8.6.6 Sinking Platform

Same as 8.5 Sinking Platform

Example Monument draining / deletion

This screenshot shows a half completed sand drainage. Water sources not deleted by the falling sand have been plugged by the player



There are a number of possibilities from here:

1. Complete the drainage to preserve the structure. Draining the inside is a laborious process.
2. Complete the drainage with the intention to remove all resources and level the area. This is the course of action for building a guardian farm.
3. Build a solid wall next to the sand so the exposed back half can be destroyed by option 5.6 Sinking Platform which can both mine out all blocks and at the same time delete the water sources. This would provide prismarine and sponges and reduce the effort required by half

For demonstration purposes the last option has been used:

Start with **option 8.2 Vertical wall from the surface** as above

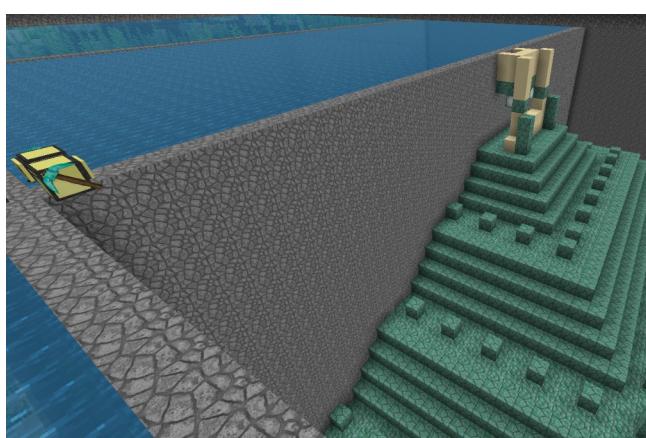
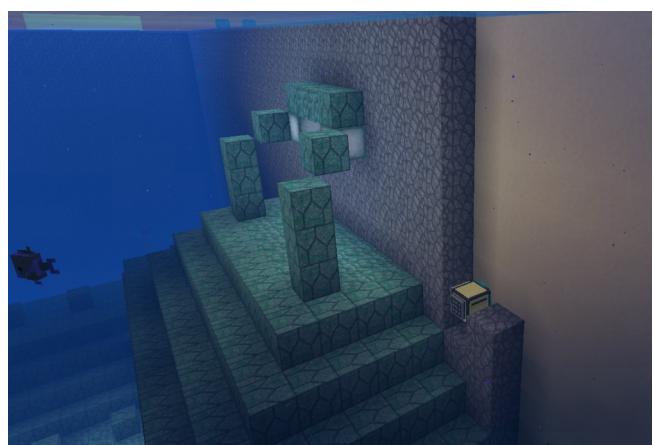
Either option regarding 90 deg will work.

Length = 56

The screenshot shows over half the wall built.

The remaining sand wall is still present.

This can be removed when the wall is complete



Completed wall with sand removed

Players should tidy the top, using Silk Touch for the lamps and leaving the top clear:

Use **option 7.2 Clear rectangle** along with manual sand / cobble filling to get to this stage:

Fill any sand exposed in the wall with cobble

This is 11 blocks down from the surface and is ideal for the next step

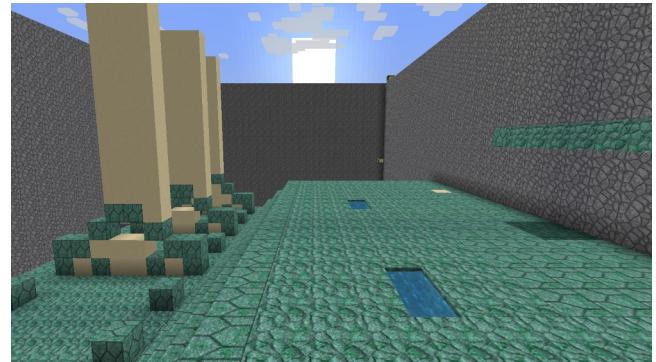
drop the turtle down to this level , and back 30.

This will site it against the side wall at the correct height ready for:

Option 8.5 (or Option 5.6) Sinking Platform

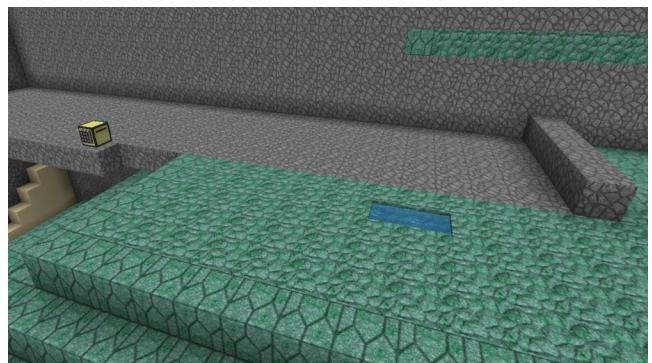
Setting depth to 13 will remove the floor as well.

Although the inventory will ask for large amounts of blocks, leave 5 slots free and press Enter



Screenshot: top layer going down

Follow the turtle around as it will need constant emptying / recharging with cobble

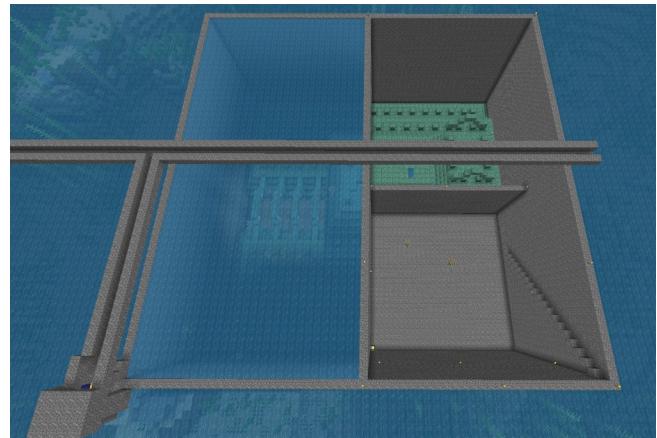


Once the first layer is done, it will only need half a stack of cobble to build the end wall on subsequent layers, so more slots can be freed up for all the loot!



The finished result. One quarter of the monument completely robbed out gave the following items:

- Prismarine 34 stacks
 - Prismarine bricks 34 stacks
 - Dark prismarine 3 stacks
 - Prismarine crystals 84
 - Prismarine shards 6
 - Sponge 2 stacks



Option 8.6.6 Drain and Remove Structure

This uses option ***8.4 Clear volume of water*** on a quarter of the monument at a time.
Attempting to remove all of it would take over 100,000 moves and exceed the turtle fuel capacity.

It is mainly used for emptying out the area to create a guardian farm, or to obtain large quantities of prismarine or sponges. Sponges are found in the back half of the monument.

The retaining walls will use around 2500 blocks, each layer requiring 120, with a working load of 15 stacks (960) just to build and destroy the platform as it goes down

You will need to follow the turtle with at least 6 chests per quarter to store all the items, as it spits them out when the inventory is full.



Option 8.7 Ladder down to Lava/ Water



Starting position

Helps to calculate stone and ladders needed.
Safer to add plenty

Ladder completed, even a block to stand on!



Option 8.8 Clear Water Plants

This is the same function as Option ***8.6.3 Clear Plants pre-Sand Draining*** as described above, with a slightly different help screen:

```
water width (0=auto detect) 4  
water length (0=auto detect) 0
```

Place Turtle at water edge.
Returns max depth. Water plants removed

Enter to continue _

If in an enclosed area you can use the auto width / length settings (Type 0)

If in a river, set the width manually and allow auto for length.

The width / length is determined by the turtle going through the surface of the water until it hits an obstruction, so be careful on ocean, as the turtle is likely to continue until the chunk unloads...

Option 8.9 Convert all water to source

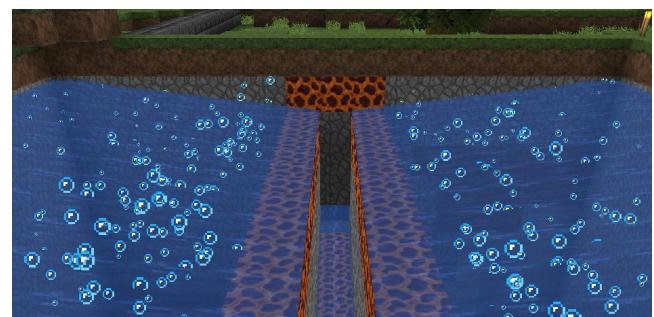
Option 8.10 Create Sloping Water

These are experimental functions written to build a squid farm:

The first one attempts to convert all water in a cubic area into source.

e.g. extending a river into its banks to make a rectangular area.

The second uses slabs to add a sloping layer of water on top of an existing river, lake or ocean.



Use at your own risk.

