

PLANTING IN WATER MORE THAN 6 INCHES DEEP

Be certain you know where normal water level will be most of the time.

In most stormwater projects, there will be a small pipe, or a cutout in a weir, that lets the water of the pond or wetland drain slowly after a storm. The bottom horizontal part of the pipe or cutout is where the water should drain down to and then remain, at least most of the time. Survival of the plants depends upon installing them at the right elevation relative to this "normal" water level.

Only a few, atypical species can be successfully planted in water more than 6" deep. In stormwater management settings we do NOT recommend planting ANY species in water that will be more than 12" deep under normal conditions! This is often going to conflict with what you see on your plans. Rest assured that if you install your "deep pool" plants in water normally between 6 and 12 inches deep they will move themselves into deeper water over the next few years. Whereas if you install them in 2-3 feet of water to begin with you will be lucky to if any survive. Plants labeled with deep purple should be planted in 6 to 12" water.

None of the species that are planted in water more than 6" deep have extensive root systems. They can't be grown in our normal deep plug containers, and instead come in a variety of formats.

Lemna **spp.** (Duckweed) and *Ceratophyllum demersum* (Coontail) are free floating species. You receive the plants in a water-filled bag. Planting them consists of emptying the bag of water plus plants anywhere on the water surface.

Potamogeton perfoliatus (Redhead Grass), Vallisneria americana (Eelgrass) and Eleocharis acicularis

(Needle Spikerush) are (slightly) rooted plants that spend nearly all of their lives underwater. They CANNOT TOLERATE EXPOSURE TO AIR for more than a few seconds, so keep them under water at all times! In most cases, the plants you receive will have small root ball made of a special media that holds together despite the paucity of actual roots. Make a slit in the underwater muck, tuck the root ball into the slit, then firm the muck around it to seal it in place. *Potamogeton perfoliatus* may, alternatively, be shipped as cuttings, with no roots or media. In this case simply tuck the lower end of the cutting into the muck. You can tell which end is lower by looking at the spot where the leaves join the stem. The leaves form a bit of a V shape, and the narrow part of the V points towards the lower part of the cutting.

Nymphaea odorata (White Waterlily) and *Nuphar advena* (Spatterdock) have leaves that float on the water surface, rhizomes that run along the surface of the underwater muck, and petioles (leaf-stems) connecting the two. In most cases the plants you receive will have small root balls made of a special media that holds together despite the paucity of roots. Make a shallow slit in the underwater muck, tuck the bottom 1/2 TO 2/3 of the root ball into the slit, then firm the muck around it to seal it in place. The goal is to keep the crown of the plant, where the leaves and roots emerge, ABOVE the soil surface. Sometimes your plants will be in the form of rhizomes, and look like sweet potatoes. In this case, look for the growing tip (it will be pointy and may have leaves and roots coming out) and the cut or broken off end. Place the rhizome into the soil at a 45 degree angle, with the growing tip OUT of the soil and the cut or broken end under a bit of soil to keep the plant in place. It is OK if the roots themselves are mostly covered with soil.

When you first install the plants all the leaves will be underwater. Soon the petioles will grow and get the leaves to the surface, but in the meantime it is very important that the petioles not break. So handle them gently.

Nelumbo lutea (American Lotus) is sold as bare rhizomes, which look like skinny potatoes. To plant, find the growing tip of the rhizome. It is somewhat similar to a sprout on a potato, at one end, and is often thinner than the main rhizome. Make a depression about 2 inches deep in the spot you will plant the lotus. Place the tuber on an angle with the thickest portion in the depression and the growing tip UP AND OUT OF THE SOIL. Consider placing a good size stone on top of the fat part of the rhizome to hold it in contact with the soil and keep it from floating out, or pinning it in place with wire, etc. If your rhizome has already started growing leaves, be extremely gentle with it and try very hard not to break the petiole (the part that connects the leaf with the rhizome).