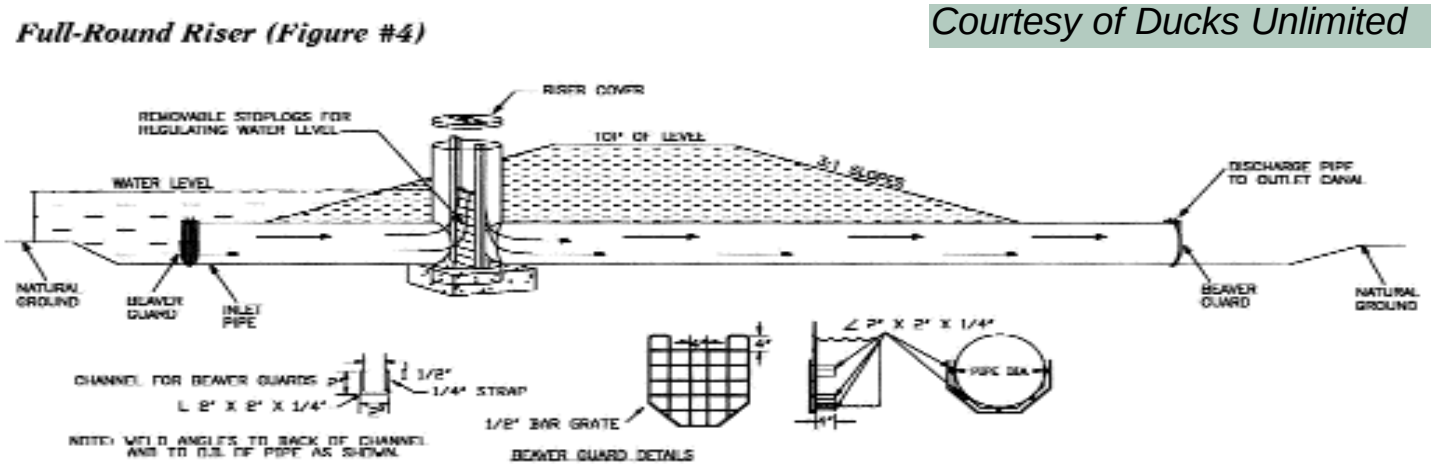
STRATEGIES FOR DEVELOPING WETLAND PROJECTS

By Alan Stacey, wetlands program coordinator

Courtesy of Ducks Unlimited



It's been 16 years since I shot my first duck down in the Deep Fork River bottoms. The spot was an old deepwater slough adjacent to the river and for a day or two prior to my hunt, I had been keeping a close eye on the growing number of greenheads using it.

I was elated because it was the first duck I'd ever harvested, and because it was my first effort at attempting to enhance habitat conditions on that same wetland the previous summer. Now the old slough was packed with mallards taking advantage of the smorgasbord of food present.

As an area manager for the Wildlife Department, it had been my first stab in working with wetland development and it had all added up to a very rewarding experience. The effort was actually quite straightforward. An old beaver dam present on a natural drainage outlet had controlled the level of the four foot deep slough.

The previous summer, we had removed the dam and replaced it with a small earthen plug and flashboard riser structure, providing a permanent structure to impound water and allow the capability to partially lower the level under controlled conditions. We implemented a slow, partial draw-down that same summer, exposing a wide area of mud normally inundated by water year-round.

Within two months, the results of such an artificial drawdown had created an explosion of grassy and weedy growth dominated by annual plants including smartweed, wild millet and sedge. By fall, these native "moist soil" plants had produced the abundance of seed so attractive to the mallards and other ducks observed using the slough later that fall.

Managing developed wetlands can be extremely rewarding, particularly when you are able to observe firsthand how quickly many species of migratory birds and resident wildlife can respond to newly-created habitat. By far, the most productive Oklahoma wetlands are those which go through at least one or more wet/dry cycles throughout any given year.

Shallow, seasonal wetlands begin to dry during the growing season. This allows native weedy and grassy plants to germinate and establish themselves so they can produce important food sources such as seeds, forage and tubers. The shallow water also warms quickly during late winter and early spring and produces an abundance of aquatic insects (invertebrates). These invertebrates provide an important and essential source of protein for migrating shorebirds and waterfowl, particularly hens preparing to head north and lay eggs on the breeding grounds.

Once complete, this full-round riser (shown in diagram above) will be partially surrounded by the dike. The design allows landowners to stay dry while manipulating water levels.

Temporary and seasonal wetlands have incurred the greatest loss in our state and a great deal of emphasis in recent years have focused on restoring, enhancing and even creating these types of wetland habitats. However, it is essential to have properly designed structural measures in place for a landowner to effectively implement various management strategies for developed wetlands.

The primary goal is to maximize shallow water condition throughout the majority of the wetland and this is often accomplished with the construction of low-level dikes or levees. Although costly, a contour dike or series of contour dikes run at 6-12 foot intervals maximizes coverage of shallow water. Contour diking is often the most effective strategy for varying topography.

These shallow water depths are essential for waterfowl which tip up to feed on the bottom. When preferred foods are available, ducks and geese are particularly attracted to forage areas that are flooded in two to three inches of water and most shorebirds feed at similar depths while wading birds prefer slightly deeper water (four to seven inches).

Developing dike dimensions with a min-

mum crown width of 10-12 ft. and 4:1 or 5:1 side slopes will help minimize wave action damage, deter burrowing animals such as beaver or muskrat and allow safe access on slopes for mowing purposes. Low level dikes are usually constructed at a height of 1-1.5 feet above the maximum planned water level.

Low dikes in areas along rivers and streams may submerge quickly and uniformly and often receive less damage than a large, protective levee if overtopped. A riprap-lined emergency spillway may also be necessary for structural integrity where flooding is frequent.

Water control structures are a critical component of wetland development projects. They control water levels throughout the wetland and also allow controlled drawdowns to encourage native food growth while providing an appropriate discharge outlet for excess water. The placement or location and the type of structure used are two important considerations. Several designs have been used in recent years, however, the most efficient types include structures which allow precise manipulations of water levels with minimal monitoring by the landowner or manager.

These features are especially important to implement successful moist soil management for growth of desirable native moist soil plants. Flashboard riser structures typically provide these functions because they are self regulating and flashboards as little as two inches tall allow water levels to be fine-tuned.

This wetland's contour dikes allows landowners to spread water evenly throughout their entire wetland. Shallow water and adequate food is very important for drawing many species of migrating and nesting waterfowl and shorebirds.

One drawback to most types of flashboard riser designs is their susceptibility to beaver activity. Overnight, beavers can often plug a half-round riser completely full of debris, particularly if water is running through the structure. This often requires labor-intensive work to remove sticks and mud and is usually only remedied by constructing hog panels around the riser combined with methods such as beaver trapping or night spotlighting (permit required). An alternative design that isn't completely beaver-proof but has proven to work well on many publicly-managed ODWC wetland projects is the full-round riser.

Ducks Unlimited engineers developed this design a few years ago. The modified flashboard riser is surrounded by backfill material inside the front slope of the dike. The design can muffle the sound of running water which is the attracting cue for beavers.

A properly placed inlet is located below the bottom of the impoundment, so beavers can not see it until most of the water has been drawn down. The design also allows easy manipulation of stoplogs from the bank without needing a set of waders or a catwalk.

Tubular metal stoplogs with welded studs can be easily removed with a simple hooking tool made specifically for the application. The structures should be located at the lowest elevation point of the impoundment in most instances to ensure effective drainage to accomplish management strategies or repair work.

In the last newsletter, a summary was given of the various agencies and organizations that offer both financial aid and/or technical assistance as they relate to current wetland programs.

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