

## X-GATE™ LOW HEAD CANAL GATES

### Low Head Flat Back Gate

#### Installation Guide for Attaching Flat Back Gate to Concrete Headwall

- 1 - Secure all specified anchor bolts in their proper position in concrete form, checking to see that anchor bolts, projections, perpendicular and horizontal alignments are all correct. Extra care is needed in this initial procedure to ensure that all bolts are properly set. Improperly set bolts will cause gate warpage and excess leakage between the seat surfaces. *Do Not Force Gate Onto Misaligned or Improperly Set Anchor Bolts.*
  - 2 - Each anchor bolt needs to be supplied with two nuts to properly mount gate to headwall. It is also recommended that you provide sufficient access to the back side of the gate to allow for easy adjustment of the back nuts. Sufficient grout space must be left for adjustment of back nuts and proper alignment of gate.
  - 3 - After the concrete has been poured and forms stripped, **place one nut on each anchor bolt and run them down so they are 1" from the headwall (See Detail Z).** Carefully place the closed gate onto the anchor bolts. *Do Not Force Gate onto Misaligned Anchor Bolts.* Place the second nut on each anchor bolt and bring front and back nuts into finger-tight contact with the gate frame, then align gate as necessary.
- At this point of the installation, check all clearances between seating surfaces with a .004" feeler gauge. If there is proper seating at this point the gauge will not admit. In the event that the gate is not seated properly, check to see if the gate has been warped. If so, readjust nuts on anchor bolts to flatten gate. Adjustment of the wedges may also be necessary.
- 4 - After the gate is seated properly, carefully dry pack or grout in the 1" gap between frame ring and concrete headwall using a non-shrink material. Check voids and fill as necessary.
  - 5 - Lightly tighten all exposed anchor bolt nuts uniformly so as not to warp gate to uneven surfaces.
  - 6 - Gate is now ready for operation.

**NOTE: Gates and Pipe Are Heavy! Use Care and Good Working Practice in Assembly and Installation.**  
**WARNING: Do Not Bolt Flat Back Gate Directly Against Head Wall. Leave 1" Space for Grouting.**

