

**ST. JOHNS IMPROVEMENT DISTRICT  
 PERMIT INFORMATION AND CRITERIA MANUAL  
 FOR USE OF OR CONNECTION TO WORKS OF THE DISTRICT**

**EXHIBIT I**

**DESIGN DISCHARGE FOR CULVERTED CROSSINGS IN DRAINAGE LATERALS**

Maximum Area Served (sq miles)	Culvert Diameter (inches)
0.25	60
0.50	84
0.75	96
1.00	108
1.25	120
1.50	120
1.75	Equivalent Flow Area to 132 in
2.00	Equivalent Flow Area to 144 in
2.25	Equivalent Flow Area to 156 in
2.50	Equivalent Flow Area to 162 in
2.75	Equivalent Flow Area to 168 in
3.00	Equivalent Flow Area to 174 in
3.25	Equivalent Flow Area to 180
3.50	Equivalent Flow Area to 186
3.75	Equivalent Flow Area to 192
4.00	Equivalent Flow Area to 198
4.25	Equivalent Flow Area to 204
4.50	Equivalent Flow Area to 210

Notes:

1. Design discharge for culvert crossings of irrigation or drainage laterals shall be based on a maximum flow of four inches per day over the drainage area. The rate of four inches per day is equivalent to 107.56 cubic feet per second per square mile (CSM).
2. Head losses as a result of a culvert crossing shall not exceed 0.1 foot.
3. Each culvert shall be set at an elevation which ensures that it will be fully submerged during its use, thereby utilizing the full cross sectional area of the culvert.
4. Culvert crossings within 660 feet of a pump station shall be prohibited.
5. Alternate culvert diameters may be approved per the review of the District Administrator and District Engineer for compliance with minimum design criteria.