

NATURAL RESOURCES CONSERVATION SERVICE  
PACIFIC BASIN AREA  
CONSERVATION PRACTICE STANDARD

# IRRIGATION PIT OR REGULATING RESERVOIR, IRRIGATION PIT

(Number)  
CODE 552A

## DEFINITION

A small storage reservoir constructed to regulate or store a supply of water for irrigation.

## PURPOSE

To collect and store water until it can be used beneficially to satisfy crop irrigation requirements.

## CONDITIONS WHERE PRACTICE APPLIES

This practice applies only to sites meeting all the following criteria and conditions:

1. The existing water supply available to the irrigated area is insufficient to meet conservation irrigation requirements during part of all the irrigation season.
2. Construction of an irrigation pit is the most practical means of obtaining a needed additional supply of water.
3. An adequate and dependable supply of good-quality water is available for storage from surface runoff, streamflow, or from a subsurface source.
4. Topographic, geologic, water table, and soils conditions at the site are satisfactory for the feasible development of the irrigation pit.
5. If surface runoff enters the pit, the contributing drainage area is or can be protected against erosion so that normal sedimentation does not materially shorten the planned life of the pit.

## DESIGN CRITERIA

**Capacity.** Irrigation pits shall be designed to have a usable capacity sufficient to satisfy irrigation requirements in the design area throughout the growing season of the crop or crops being irrigated. In computing capacity

requirements, due consideration shall be given, where applicable, to groundwater inflow, surface runoff, precipitation, evaporation, and seepage. Additional capacity shall be provided as necessary for sediment storage. The usable capacity of a pit that depends wholly on groundwater as a source of supply shall be that part of the pit that is below the static water level.

**Pit Design.** Irrigation pits shall be designed according to the criteria for excavated ponds in the Pacific Basin standard, Pond (378).

**Outlet Works.** Suitable outlet works shall be provided for the controlled release of irrigation water. The capacity of the outlet works shall be no less than that required to provide the outflow rate needed to meet peak period irrigation system demands.

## PLANNING CONSIDERATIONS

This practice may adversely affect cultural resources. Planning, installation and maintenance must comply with GM 420, Part 401.

## WATER QUANTITY

Effects on the water budget, especially on volumes and rates of runoff, infiltration, evaporation, transpiration, deep percolation, and ground water recharge.

Effects on downstream flows or aquifers that would affect other water uses or users.

Potential for irrigation water management.

## WATER QUALITY

Effects on erosion and the movement of sediment, pathogens, and the soluble and sediment-attached substances carried by runoff.

## **IRRIGATION PIT OR REGULATING RESERVOIR, IRRIGATION PIT 552A - 2**

Effects on the movement of dissolved substances to ground water.

Short-term and construction-related effects on the quality of downstream water courses.

Potential of uncovering or redistributing toxic material.

Effects on wetlands or water-related wildlife habitats.

Effects quality of water resources.

### **PLANS AND SPECIFICATIONS**

Plans and specifications for irrigation pits shall be in keeping with this standard and shall describe the requirements for properly installing the practice to achieve its intended purpose.

Preliminary to developing a design and construction plans, survey data must be obtained. Such data shall include sufficient points to develop and show irrigation pit footprint, profile, cross sections, located physical features (road, trees, livestock structures, etc.) and location of spoil placement. All surveys will be in accordance with NEH Part 650 - EFH Chapter 1 and NEH Part 640 - Field Surveys (Technical Release 62)

A soil investigation to determine the adequacy of soils for lining. USDA-NRCS soil survey and NEH Part 650 - EFH Chapter 4 shall be used for soils classification and properties. The soils information shall be conveyed on the plans and specifications, where necessary to communicate construction preparation, installation and/or limitations.

Construction plans shall include a plan view drawn to scale, facility sectional views and spoil requirements as a minimum. If additional conservation practices are included in the project for water management and water quality concerns, the information necessary to construct these practices will also be conveyed on the plans. Development of plans will be guided by NEH Part 650 - EFH Chapter 5.

Incidental information necessary to construct the job will need to be either communicated in

the construction specifications or carried on the construction drawings in the form of construction notes.

### **OPERATION AND MAINTENANCE**

Operation and Maintenance (O&M) Plans shall be prepared for each specific job. O & M Plans shall encompass the daily operation and maintenance requirements and parties responsible to ensure proper functioning and performance of irrigation pit or regulating reservoir. Irrigation Pit storage and discharge capacity shall be given.

### **REFERENCE**

1. National Engineering Handbook, Part 631- Geology
2. National Engineering Handbook, Part 640 (Technical Release 62)
3. National Engineering Handbook, Part 650-Chapter 11, Ponds
4. National Engineering Manual, Part 531, Geology