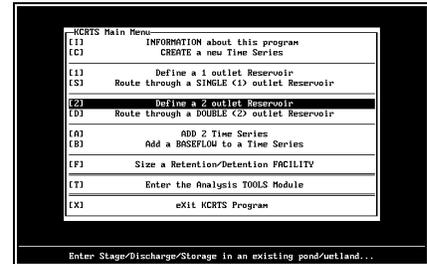


## SECTION 4 - DEFINE A 2-OUTLET RESERVOIR/ ROUTE THROUGH A DOUBLE (2) OUTLET RESERVOIR

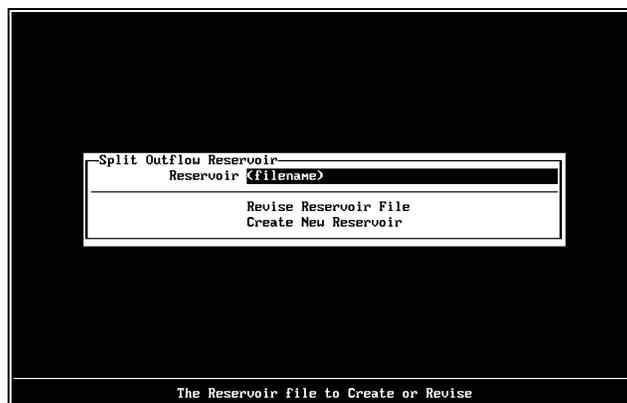
These routines allow the user to describe how a dual outlet reservoir (lake, pond, detention pipe, etc.) may attenuate flows from a contributing drainage basin. This routine is similar to ROUTE 1 - Single Outlet Reservoir Routing (Page 3-1). The level pool routing technique used is described in the *King County Surface Water Design Manual* Section 3.2.4.



### 4.1 DEFINE A 2-OUTLET RESERVOIR [2]

This menu item can be selected with the 2 key while in the main menu.

This option allows the user to create/modify a routing data file for a reservoir with dual outlets for use in the Route 2 Outlet routine.



The user is prompted to enter the reservoir file to be edited. The default extension is RS2.

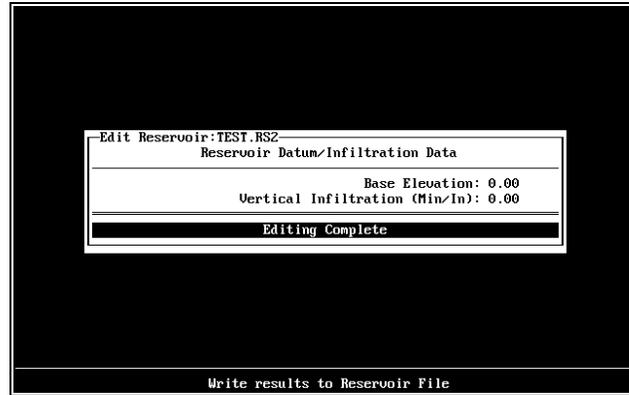
The user is presented with columns and rows of stage-discharge-storage-permeable area curves. Each record must contain (in order) stage (ft), discharge (cfs), storage (cu ft), and perm-area(sq ft). The first record must be all zeros. The remaining records should be entered in increasing stage order.

*Revise Reservoir File:* Select this option to modify an existing reservoir file.

*Create New Reservoir:* Select this option to create a new reservoir definition.



The user is then prompted to enter Base Elevation (elevation at 0 stage) and infiltration data.



The screenshot shows a software interface with a black background. A white-bordered dialog box is centered, containing the following text:

```
Edit Reservoir: TEST.RSZ
Reservoir Datum/Infiltration Data
-----
Base Elevation: 0.00
Vertical Infiltration (Min/In): 0.00
-----
Editing Complete
```

Below the dialog box, the text "Write results to Reservoir File" is displayed in a smaller font.

- **Base Elevation:** The elevation of the reservoir at stage = 0.0, usually based on KCAS datum.
- **Vertical Infiltration (Min/In):** The average vertical infiltration of the reservoir soils in minutes per inch. Vertical infiltration is the inverse of the design infiltration rate determined per Section 5.4 of the Surface Water Design Manual.

*Editing Complete:* Select this menu item to continue. All of the reservoir information will be saved to the reservoir file.

## 4.2 ROUTE THROUGH A DOUBLE (2) OUTLET RESERVOIR [D]

This menu item can be selected with the D key while in the Main Menu.

The program calculates two new "outflow" time series based on the inflow time series and reservoir data.

Double Outlet Reservoir	
Source Data	
Reservoir Data File (filename)	
Inflow Time Series (filename)	
Computed Time Series	
Outflow A File (filename)	
Outflow B File (filename)	
Route through the Reservoir	
Review Reservoir Data	

Route the Inflow Discharge to the Reservoir Outlet(s)

- **Reservoir Data File (filename):** Designate the reservoir file to be used in the routing. For a reservoir file the extension does not need to be entered, a default extension of RS2 is assumed.
- **Inflow Time Series (filename):** Enter the name of the time series to be routed through the reservoir. The TSF extension is assumed.
- **Outflow A File (filename):** Enter the name of the outflow time series which is generated at discharge point A. A TSF extension is automatically added by KCRTS.
- **Outflow B File (filename):** Enter the name of the outflow time series which is generated at discharge point B. A TSF extension is automatically added by KCRTS.

*Review Reservoir Data.* Select this option to review the reservoir data before routing.

*Route through the Reservoir.* Select this option to perform the reservoir routing.

The program calculates two new outflow time series based on the inflow time series and the reservoir data. When the process is completed the **F10** key reveals the following screen.

```

Route through a DOUBLE (2) outlet Reservoir
-----
Loading Reservoir File:RES2.RS2 :
Loading Time Series File:test.tsf 8

Reservoir Routing [Double Outlet]
Computing Series:test1.tsf
and Series:test2.tsf
Years Complete: 8

Inflow/Outflow Analysis
-----
Peak Inflow Discharge: 0.965 CFS at 9:00 on Jan 9 in Year 8
Peak A-Outflow Discharge: 0.003 CFS at 7:00 on Jan 9 in Year 8
Peak B-Outflow Discharge: 0.000 CFS at 7:00 on Jan 9 in Year 8
Peak Reservoir Stage: 0.03 Ft
Peak Reservoir Elev: 100.03 Ft
Peak Reservoir Storage: 277. Cu-Ft
: 0.006 Ac-Ft
Storing Time Series File:test1.tsf 8
Storing Time Series File:test2.tsf 8

Routing Complete
    
```

- **Peak-Inflow (cfs):** The maximum inflow rate, including date and time, of the specified time series entering the reservoir.
- **Peak-Outflow (cfs) A:** The maximum discharge rate exiting the reservoir, including date and time for this outflow time series at discharge point A.
- **Peak-Outflow (Cfs) B:** The maximum hourly discharge exiting the reservoir, including date and time for this inflow time series at discharge point B.
- **Peak-Stage-Elev (ft):** The maximum water surface stage for this inflow time series and routing data. The Peak Reservoir Elevation is equal to the Peak Stage plus the Base Elevation specified in the routing data file.
- **Peak Reservoir Storage:** The maximum storage volume of the reservoir for this inflow time series in cubic-feet and acre-feet. The timing of the maximum storage volume (and water surface) coincides with the timing of the Peak Outflow Discharge.

**\*\*CAUTION\*\***

**Routing Data Has Been Extrapolated...:** If this message is displayed, the inflow time series has exceeded the capacity of the reservoir. The program extrapolates the routing data to create a larger reservoir and continues execution. The extrapolation is based on the linear relationship between the last two data lines in the reservoir data table. The user should modify the reservoir data file to cover the full range of flows encountered.

