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NAS JACKSONVILLE
5090.3a

LETTER REGARDING PROPOSED PIEZOMETER LOCATIONS AND FIGURES FROM
SIMULATED PUMP TEST AT BUILDING 103 NAS JACKSONVILLE FL
3/1/1994
U S DEPARTMENT OF THE INTERIOR

cc: file



United States Department of the Interior



GEOLOGICAL SURVEY
WATER RESOURCES DIVISION
227 N. BRONOUGH STREET, SUITE 3015
TALLAHASSEE, FLORIDA 32301

0106-7559
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March 1, 1994

Mr. Mark Cheyne, Geological Engineer
ABB Environmental Services, Inc.
2120 Washington Boulevard, Suite 300
Arlington, VA 22204

Dear Mr. Cheyne,

Enclosed is the map of proposed piezometer locations in the vicinity of OU3. I have marked three locations where an extra peizometer may be helpful in resolving water-table elevation contours. I have also suggested moving one of the piezometers marked in green, which is located near the seawall.

I have also enclosed four figures from a simulated pumptest on the southeast (downgradient) corner of the Dry Cleaners at Building 103. If you or Wayne have questions about these simulated pumptests or about proposed piezometer locations, please call me.

Sincerely,
For the District Chief,

William J. Andrews
Hydrologist

Enclosures

cc: Joel Murphy, Southern Division, NAVFACOM
Peter Redfern, ABB-ES, Jacksonville

Components of USGS Draft Model of OU3, NASJAX

Software Packages:

Modflow, Modpath, Modplot

Modeling Procedure:

Finite Difference, 3-dimensional, Strongly Implicit Procedure (SIP)

Model Nodes:

2 Layers, 87 columns, 67 rows

11,658 variably-sized nodes measuring 105 by 111 ft to 315 by 333 ft

Aquifers:

Layer 1:

Thickness: variable from 10 to 35

Bottom Elevation: -10 ft

Unconfined

K: 5 ft/d or 0.5 ft/d

Porosity: 20 percent

Layer 2:

Thickness: 40 ft

Confined (conductance $.0002 \text{ d}^{-1}$)

T: 200 ft/d

Porosity: 20 percent

Recharge to Layer 1:

3.0 in/yr for K=5 ft/d or 1.5 in/yr, for K=0.5 ft/d

River Nodes:

1,959 nodes with stages based on USGS topographic quadrangle maps

Variable riverbed hydraulic conductivities

Anthropogenic Features:

Recharge restricted to 1% in paved areas, fully-penetrating sea wall in layer 1

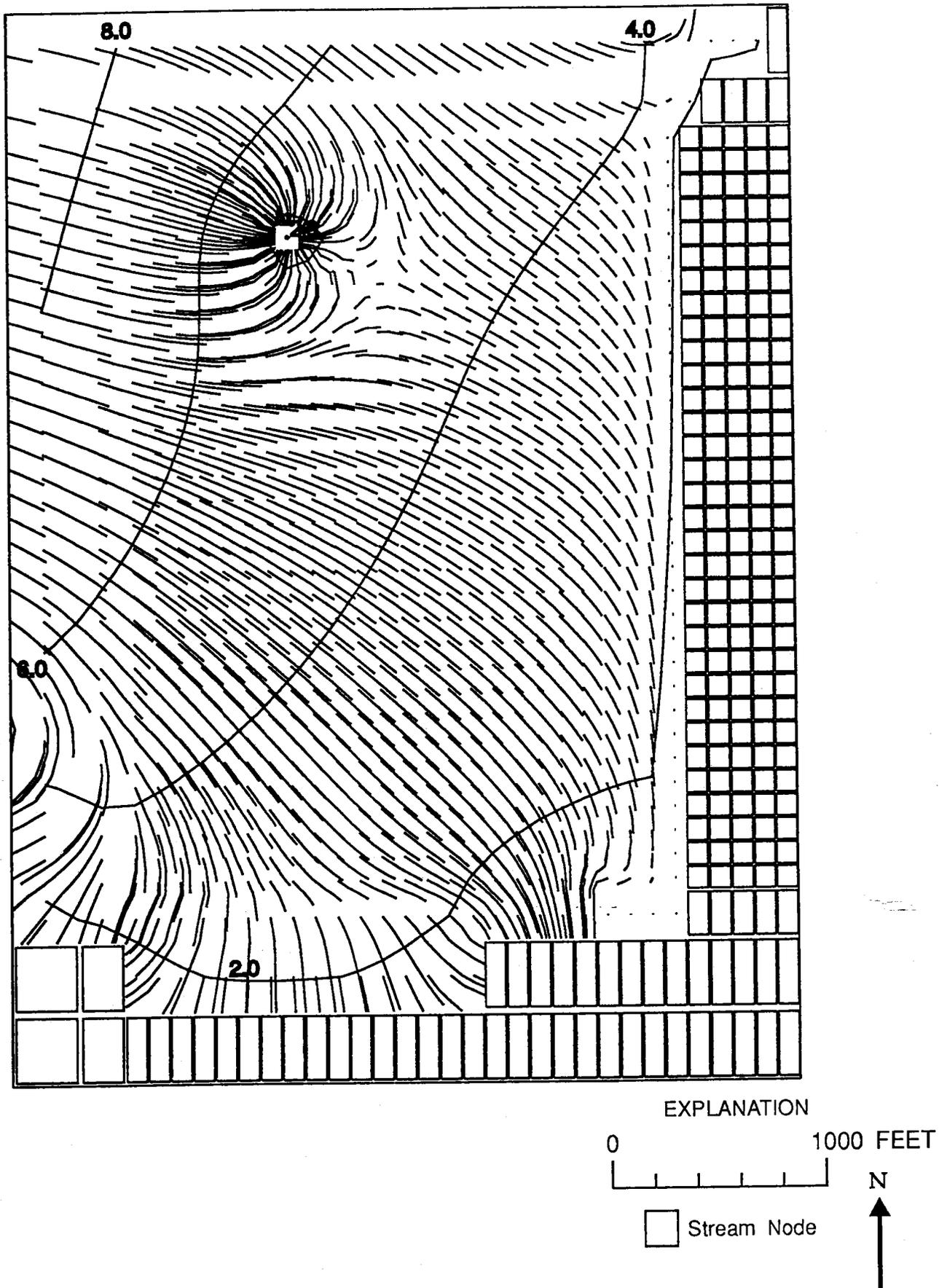


Figure 1. Forward-tracking Ground-water Flowlines and Water-table Elevation Contours (4-inch Well Pumping Southeast of Dry Cleaners, $K=5$ ft/d $r_{ch}=.0007$ ft/d Pump Rate= 522.5 ft³/d or 2.72 gpm)

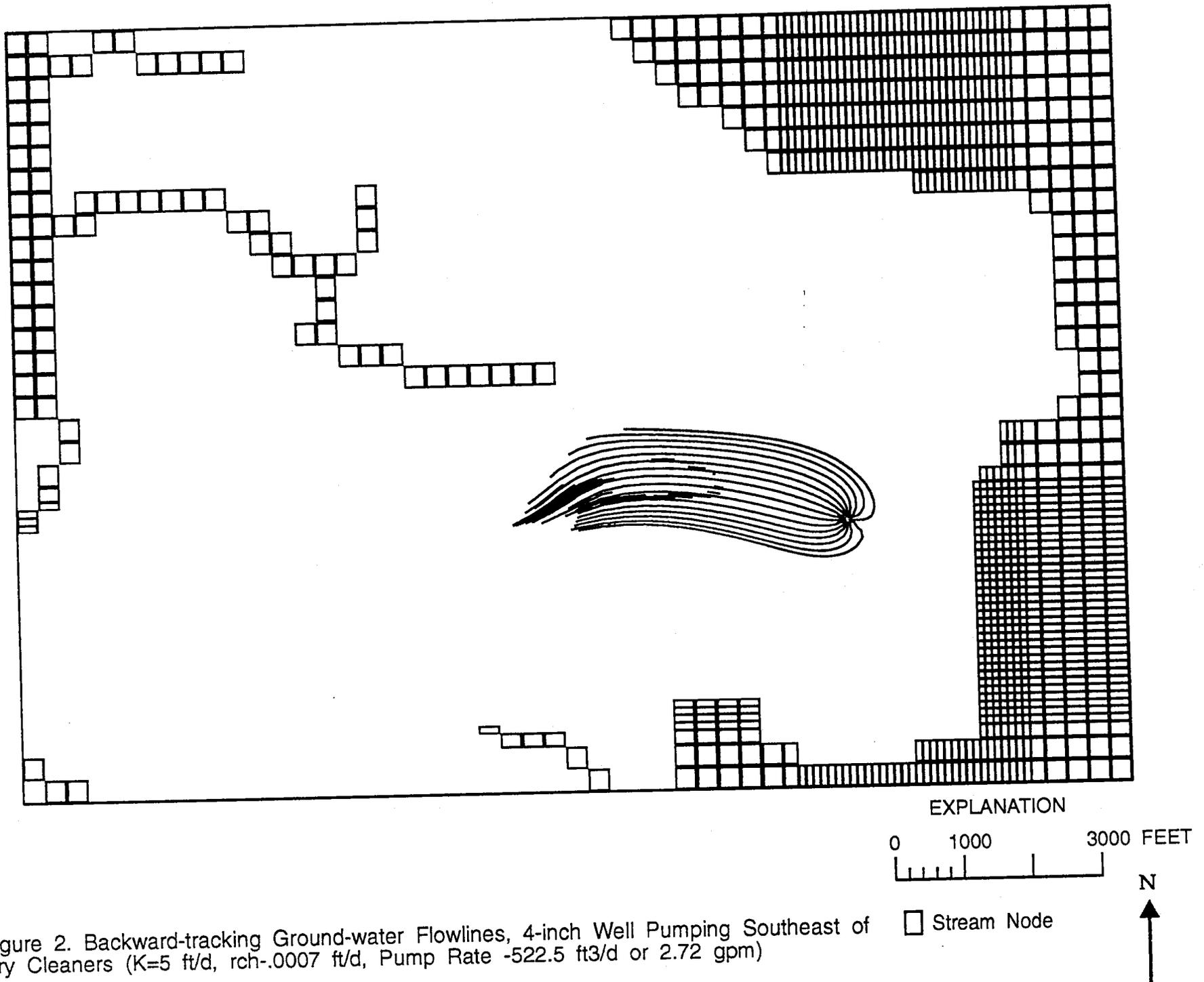


Figure 2. Backward-tracking Ground-water Flowlines, 4-inch Well Pumping Southeast of Dry Cleaners ($K=5$ ft/d, $rch=.0007$ ft/d, Pump Rate -522.5 ft³/d or 2.72 gpm)

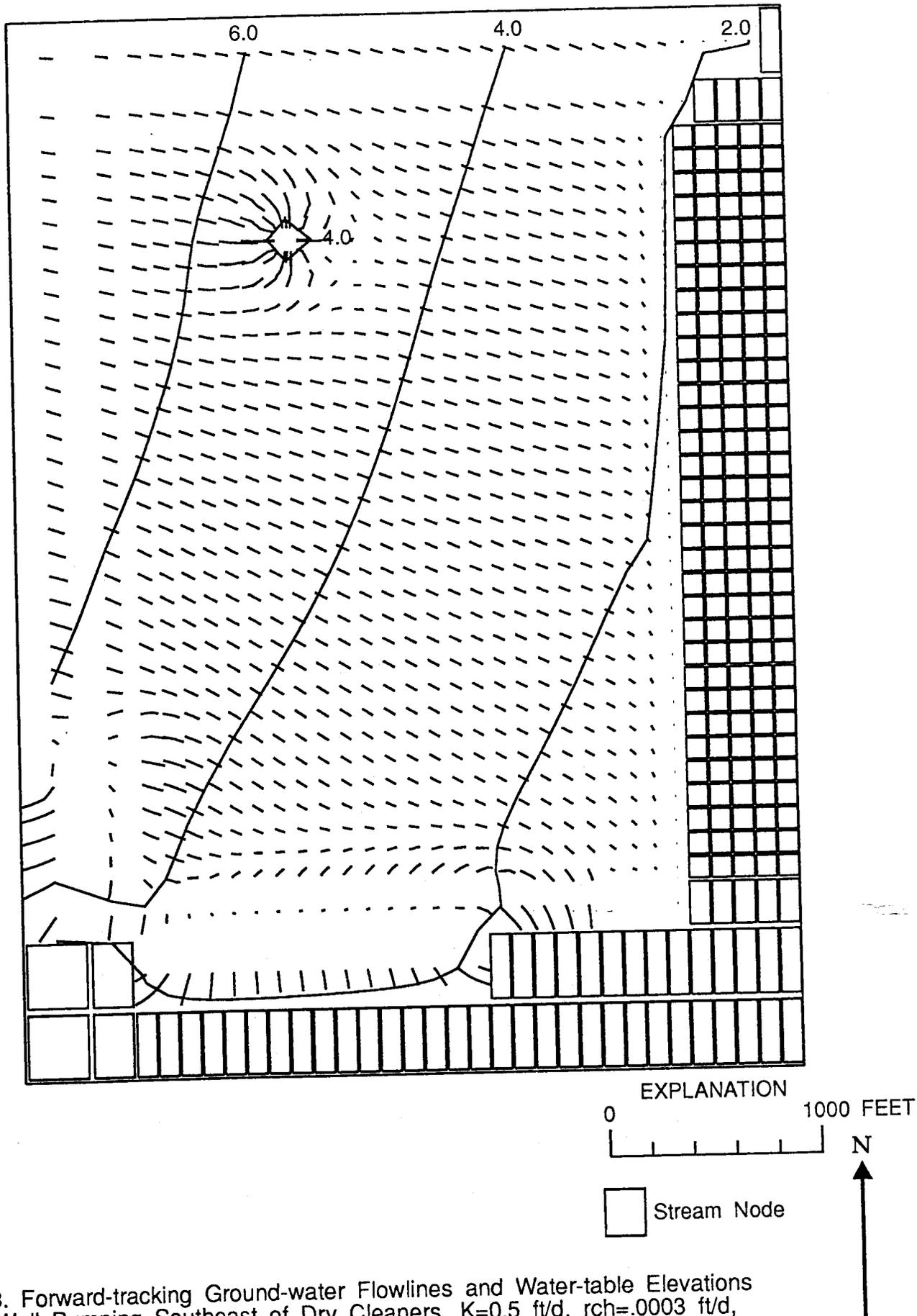


Figure 3. Forward-tracking Ground-water Flowlines and Water-table Elevations (6-inch Well Pumping Southeast of Dry Cleaners, $K=0.5$ ft/d, $r_{ch}=0.0003$ ft/d, Pump Rate=60.8 ft³/d or .32 gpm)

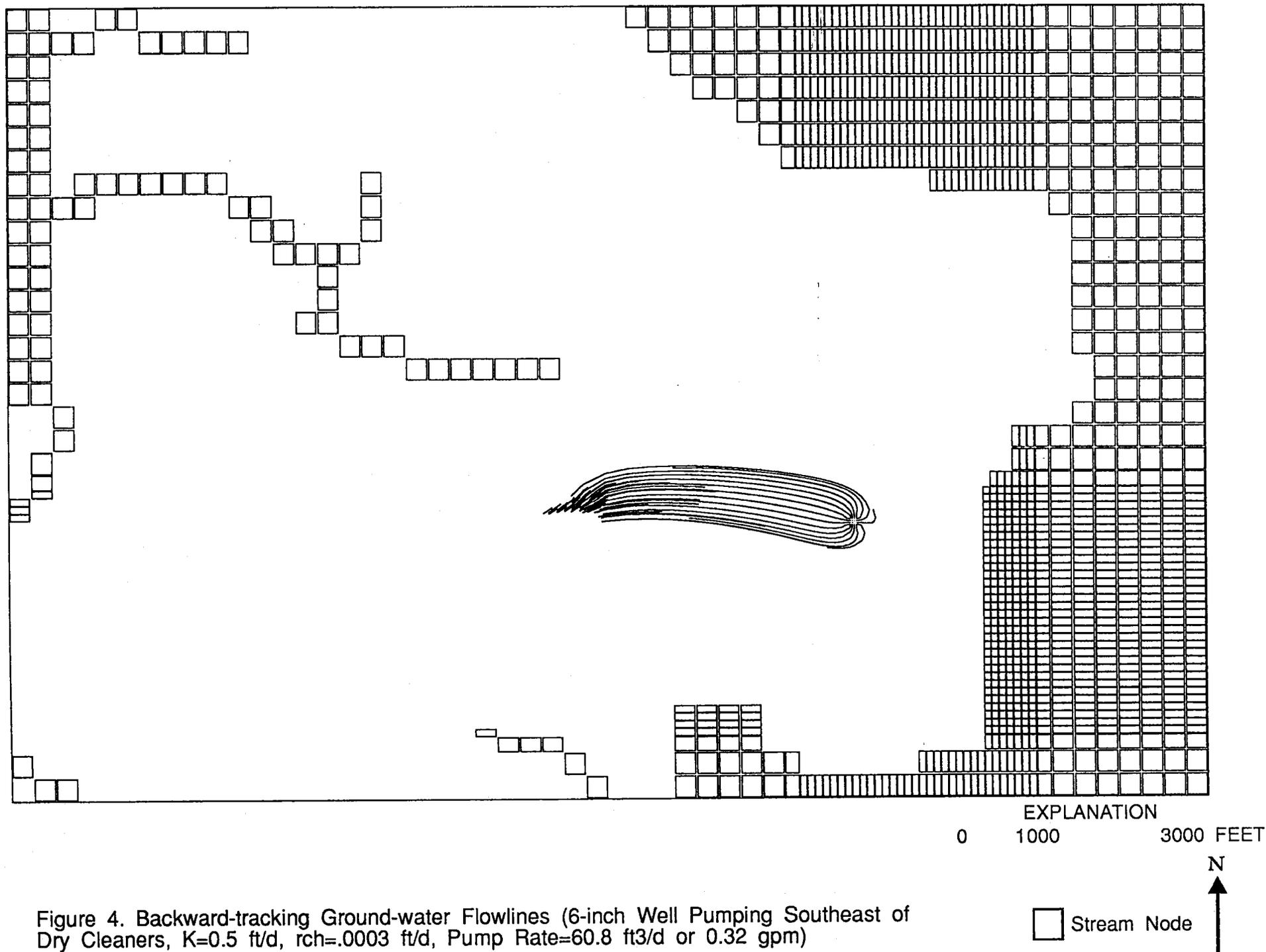


Figure 4. Backward-tracking Ground-water Flowlines (6-inch Well Pumping Southeast of Dry Cleaners, $K=0.5$ ft/d, $r_{ch}=0.0003$ ft/d, Pump Rate= 60.8 ft³/d or 0.32 gpm)