DRAFT - August 24, 2000

Preliminary Plan for Expansion of the Regional Network of Floridan and Surficial Aquifer Monitor Wells for Northern Tampa Bay

Introduction

In 1999, the Southwest Florida Water Management District began the process of developing a Scope of Work for a series of projects designed to continue assessments of the biologic and hydrologic systems in the Northern Tampa Bay area. These projects will be designed primarily to support the ongoing development of minimum flows and levels, water resources recovery, water use permitting, and environmental resource permitting. The series of projects, referred to as the Northern Tampa Bay Phase II program (or NTB II), will advance work performed during the Northern Tampa Bay Water Resources Assessment Project (NTB WRAP). The NTB WRAP, completed in 1996, was a comprehensive effort to better understand the water resources of the area, as well as to provide the foundation for future, more detailed, hydrogeologic and biologic studies.

One of the most important components of NTB II will be the water level monitoring network for the area. Water level data in the Floridan and surficial aquifer, as well as in lakes and wetlands, will be needed to support a variety of assessments, including: 1) the development of future minimum flows and levels, 2) the assessment of the status of lakes and wetlands with already established minimum levels, 3) the assessment of existing minimum flows and level methodologies, 4) assessment of water level recovery as existing ground-water withdrawals in regional public supply wellfields are decreased via the Partnership Plan, and 5) the monitoring of new and existing permits for all use types. As the existing network of water level monitoring stations is assessed, and new sites are proposed, all the potential uses of the data must be considered.

The following outlines a proposal for expansion of the Floridan aquifer water level monitoring network in the Northern Tampa Bay area. Separate reports will present the plan addressing lakes and wetlands. A review of the existing network of Floridan aquifer monitor wells found that while the coverage of monitor wells within wellfield areas is very good, there are large gaps in areas in between and surrounding wellfields that have little to no aquifer monitoring.

The objective of the plan is primarily to fill in large gaps where no monitor wells currently exist, both in areas believed to currently have significant drawdowns in the Floridan and surficial aquifers (to measure existing impact and future recovery), and areas where little drawdown is believed to currently exist (for possible use as control areas). Existing monitor wells within the District's Water Management Database were considered in the assessment, and are shown on the accompanying figures. When available, well construction information for the existing wells was considered. Monitor

wells in the Regulatory Database were also reviewed, although the future reliability of these wells are questionable since they are controlled by the permit holders. Although the locations of these wells were considered, especially those controlled by Tampa Bay Water, only monitor wells in the Water Management Database are being considered as part of this Floridan aquifer monitoring network at this stage in the assessment.

All of the following sites are proposed to consist of both a Floridan aquifer and surficial aquifer monitoring well. Figure 1 presents all of the proposed monitor well sites. As a reference, the September 1997 potentiometric surface is also shown on each figure.

Hernando/North Pasco County area

Figure 2 presents the location of four well nests proposed for the Hernando/North Pasco County area. All four well locations were selected to fill large gaps in the existing network.

The three western-most sites are proposed along relatively flat areas of the Floridan aquifer potentiometric surface. All three are located in an area of relatively low known Floridan aquifer drawdown, although few high quality monitor wells exist in the area, and a better definition of drawdown may be estimated with the new wells. These wells will also provide refined information on water level fluctuations in the area.

The eastern-most site in Figure 2 is proposed along the northern end of the Pasco High. The Pasco High is an important feature in the potentiometric surface of the Northern Tampa Bay area, yet few quality monitor wells exist along the Pasco High to clearly define its extent. Therefore, this well will allow a better definition of the extent and shape of the northern reaches of the High, as well as fill in a large data gap.

Cypress Creek Wellfield area

Figure 3 presents the location of ten well nests proposed for the Cypress Creek wellfield area. Nine of the sites are located to the east of the Cypress Creek Wellfield area.

The western-most site is proposed along US 41. This site was chosen to fill in a large spatial data gap, as well as to provide another well nest located in an area of relatively little Floridan aquifer drawdown. The precise location was chosen based on the potential to located the site on Pasco County property. If it is not possible to locate the well on this property, it may be desirable to construct the well slightly to the south.

Seven sites are located immediately to the east of the Cypress Creek wellfield. Although drawdown has been predicted to be somewhat extensive in this area (as confirmed by observations in wetland health), no District Floridan aquifer monitors exist in the area. These wells will be key indicators of recovery in the area of the Cypress Creek wellfield, as well as provide an improved measurement of the potentiometric surface in the area. The proposed sites were located approximately along the four and eight foot drawdown contours as predicted by the Northern Tampa Bay Ground-Water Model, although the actual well sites will vary depending on site access.

The two eastern-most well sites are located along the southern end of the Pasco High. These well sites were chosen for similar reasons as the previously discussed site on the northern end of the Pasco High.

New River Area

Figure 4 presents the three well sites proposed for the New River area. The New River basin is a significant sub-basin of the Hillsborough River watershed, but no Floridan aquifer monitor wells exist in the area. The District is committed to developing minimum flows and levels in the Hillsborough River Basin by 2005, and an adequate coverage of monitor wells will be necessary to fully evaluate the hydrologic system within the watershed. Three well sites are proposed in the New River basin for purposes of spatial coverage of the region, as well as future minimum flows and levels assessment.

Eastern Hillsborough County area

Figure 5 presents the four well sites proposed for the eastern Hillsborough County area. With the exception of a few ROMP wells, wells recently installed on the Cone Ranch property (located in the northeast corner of Hillsborough County), and wells installed as part of a recent Crystal Springs study, there are few Floridan aquifer monitor wells in this area.

Two of the proposed sites are located to the west of the Cone Ranch property, and a third is proposed to the east of the property in Polk County. Wells at these sites would provide water level data in a region of few monitor wells in the Hillsborough River Basin, and can serve as monitor wells if the Cone Ranch property becomes a regional water supply source.

A fourth site is proposed in the headwaters of the Hillsborough River, likely to be placed on District-owned property. Few monitor wells exist in this region.

North-Central Hillsborough County area

Figure 6 presents three well sites proposed for the north-central Hillsborough County area. All three well sites are proposed in areas where no monitor wells currently exist.

Two wells are proposed to the west of the Morris Bridge wellfield, within the lower Cypress Creek watershed. The third well is proposed in the area of Lake Thonotosassa, which will provide aquifer monitoring in a large area where no monitor well sites exist.

NW Hillsborough County area

Figure 7 presents one well site proposed for the NW Hillsborough County area. This is an area that was targeted for new aquifer monitor sites during the Northern Tampa Bay Water Resource Assessment Project, and has relatively good coverage of aquifer monitor sites.

One new well site is proposed in the vicinity of Lake Alice, to fill a relatively large area where no monitor well sites currently exist. Lake Alice is located in area between two wellfields, Cosme-Odessa and Eldridge-Wilde, and has shown impacts to water levels over many years. A nested well site in this area will provide valuable information on the relationship between Lake Alice and the underlying aquifers, as well as help quantify drawdown and recovery in this inter-wellfield area.

Proposed Monitoring Network - Floridan Aquifer
New Wells Proposed for Northern Tampa Bay

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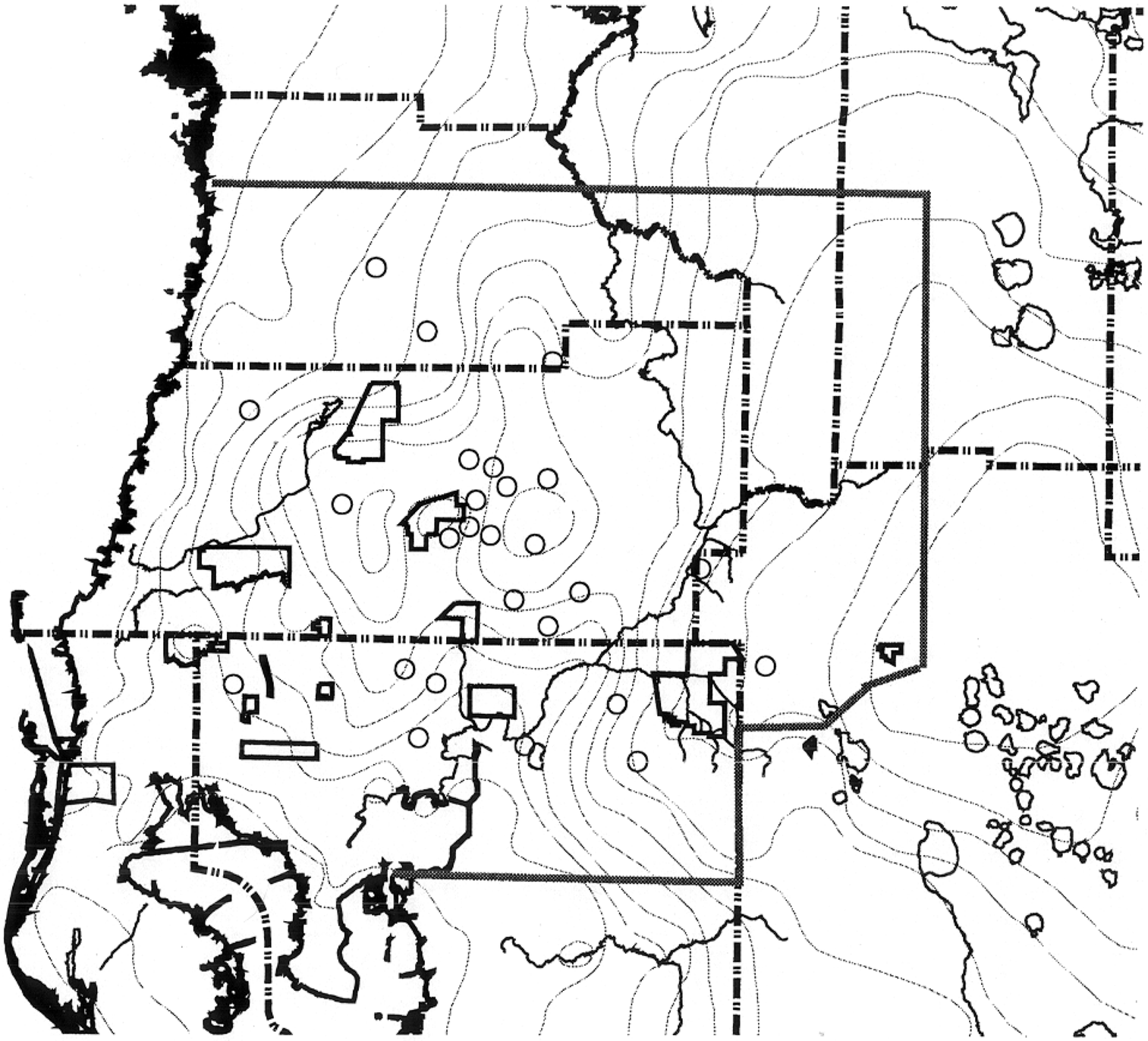
Figure 1



Proposed Monitoring Network - Floridan Aquifer
Hernando/North Pasco County area

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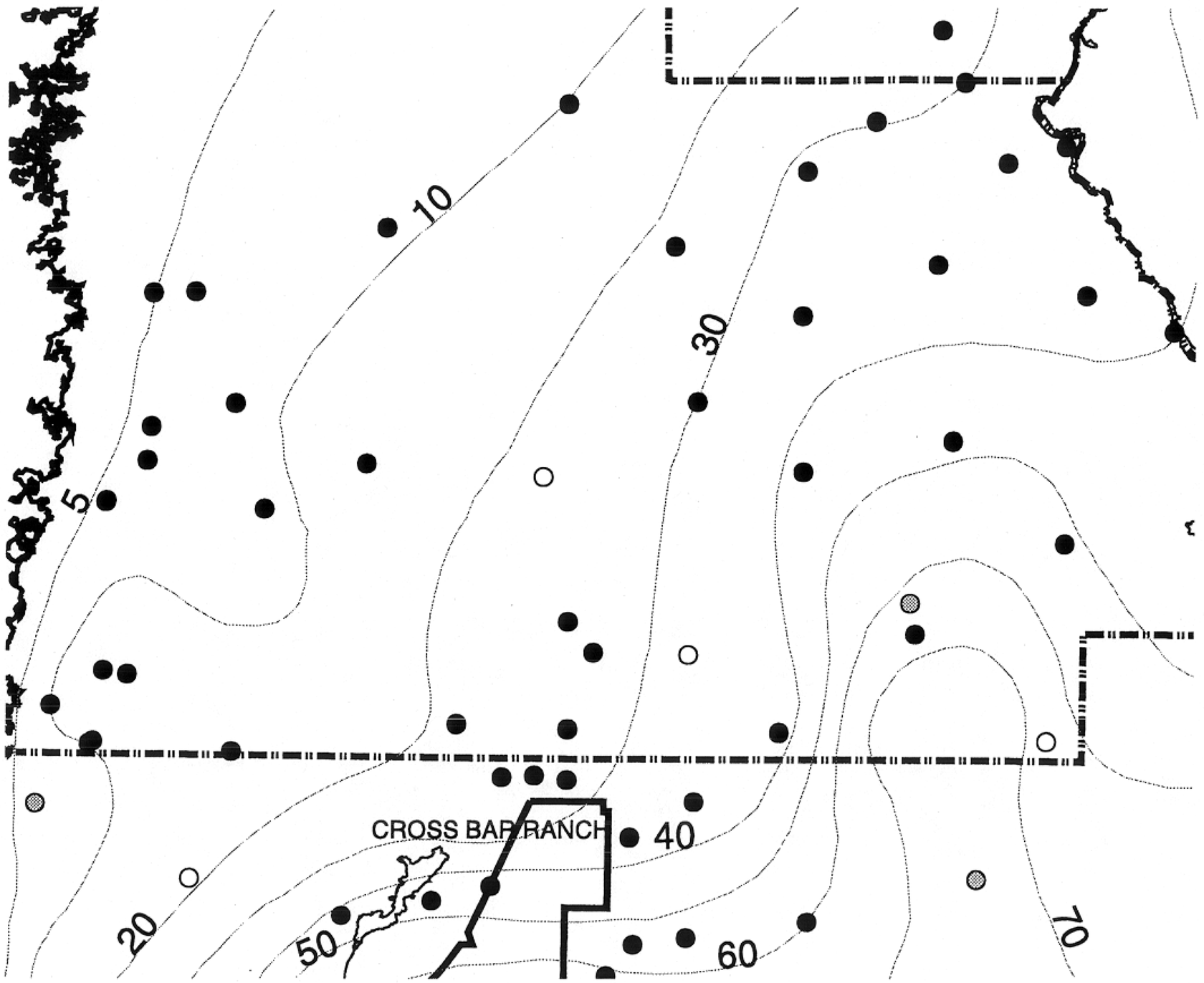
Figure 2



- Proposed Monitor Wells
- Exisiting Monitor Wells
- Other Wells of Potential Use

Proposed Monitoring Network - Floridan Aquifer
Cypress Creek Wellfield area

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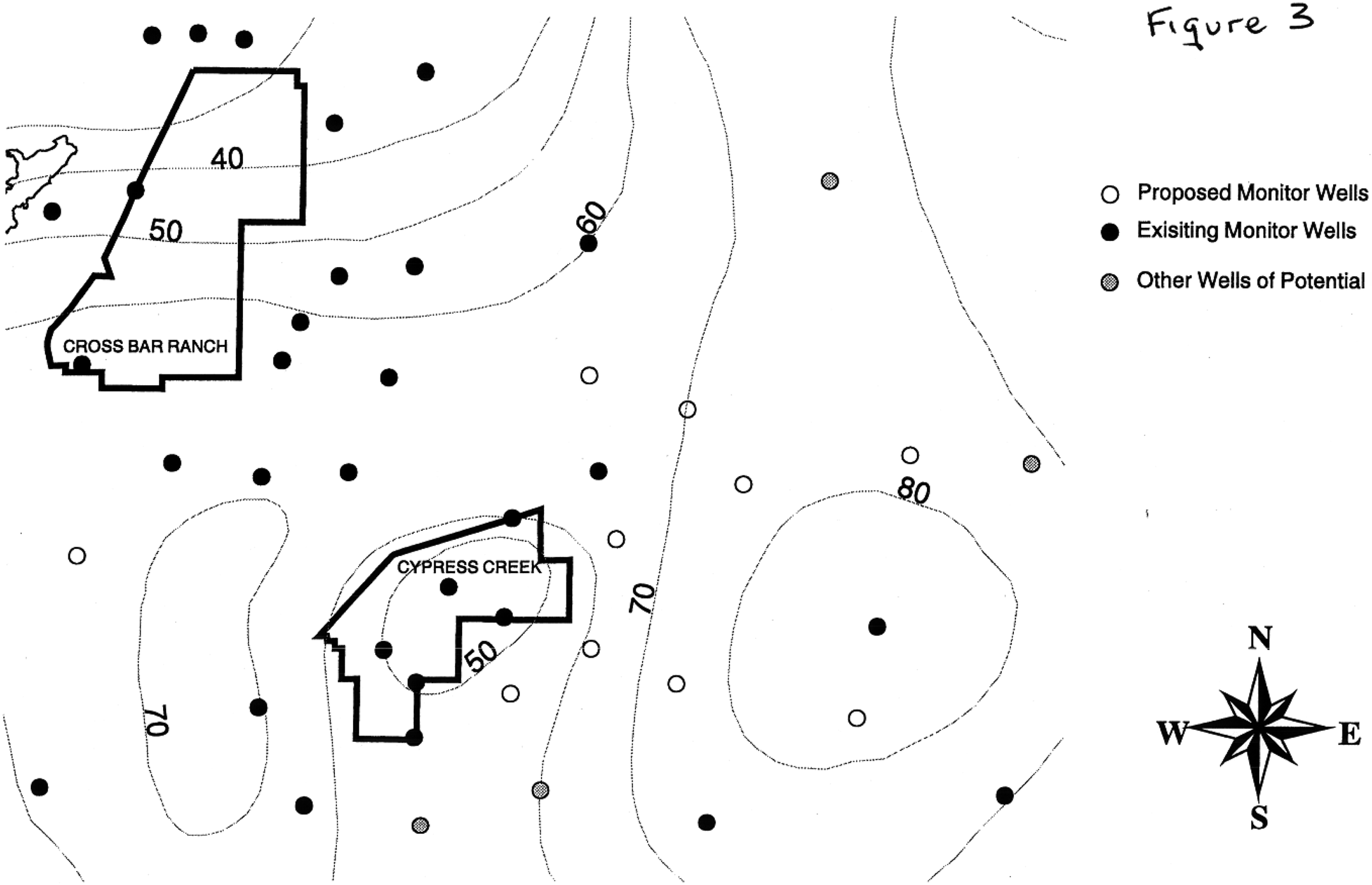
Figure 3



Proposed Monitoring Network - Floridan Aquifer
New River area

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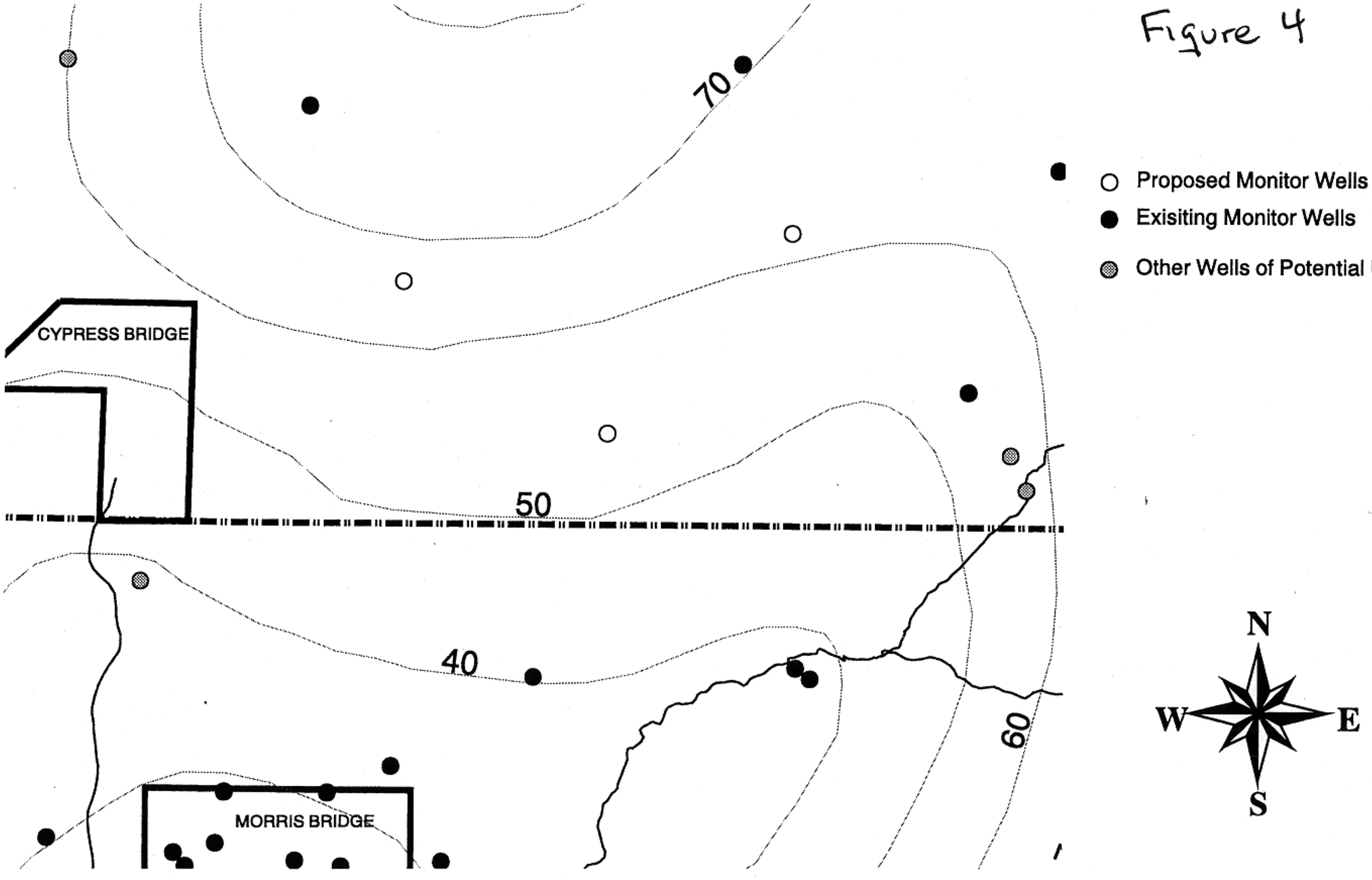
Figure 4



Proposed Monitoring Network - Floridan Aquifer
Eastern Hillsborough County area

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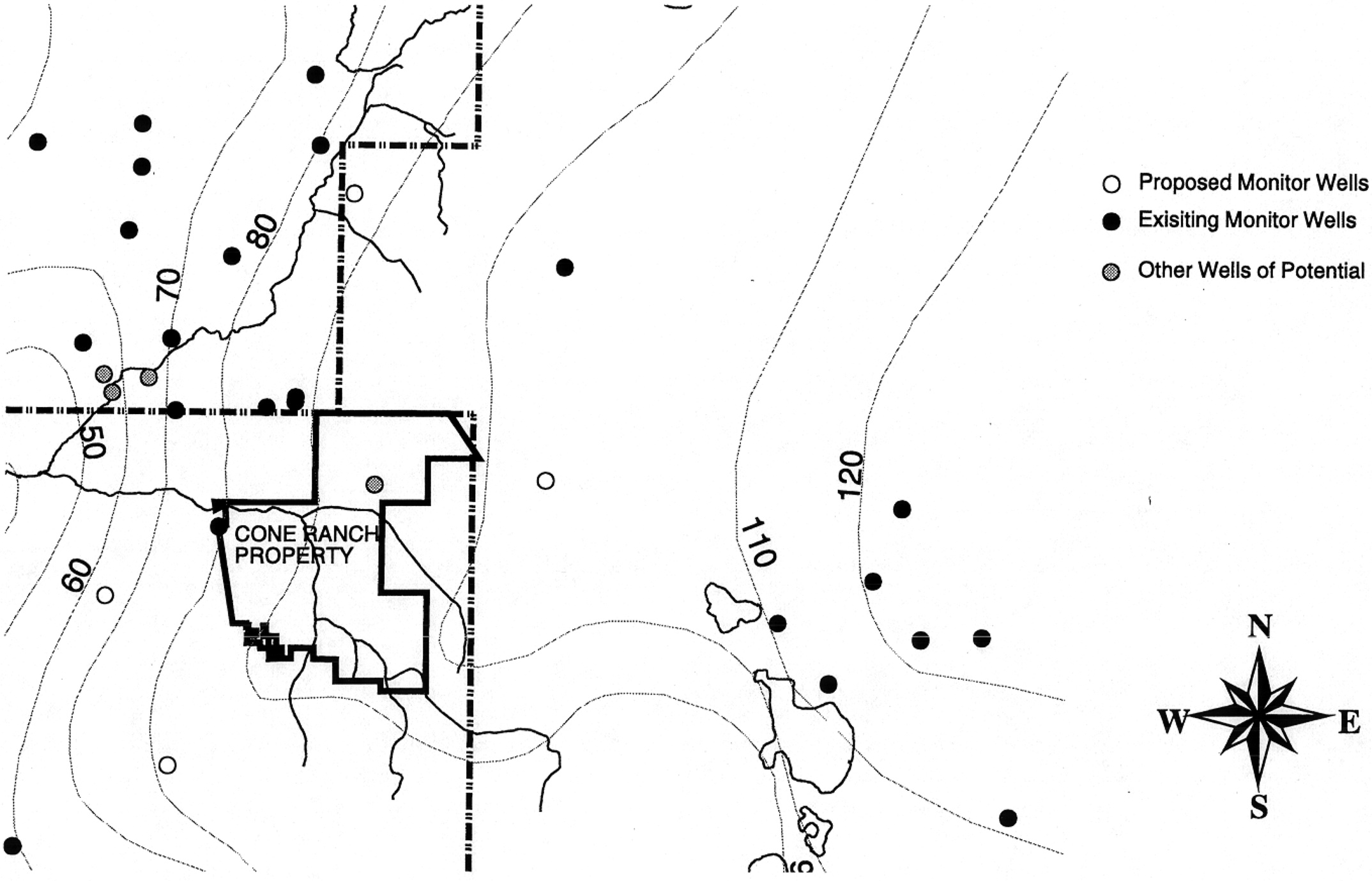
Figure 5



- Proposed Monitor Wells
- Exisiting Monitor Wells
- Other Wells of Potential Use

Proposed Monitoring Network - Floridan Aquifer
North-Central Hillsborough County area

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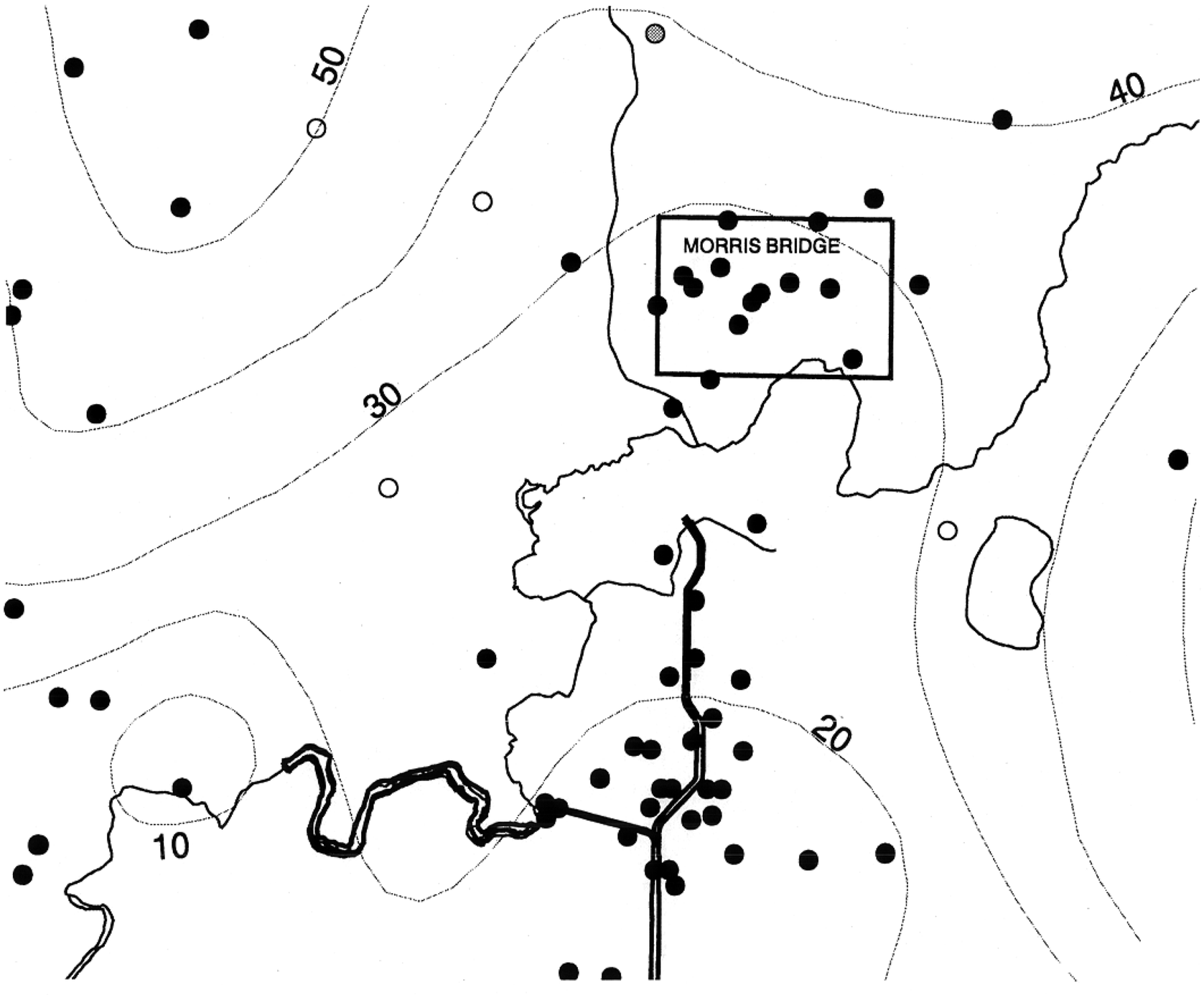
Figure 6



- ○ Proposed Monitor Wells
- ● Exisiting Monitor Wells
- ◍ Other Wells of Potential Use

Proposed Monitoring Network - Floridan Aquifer
NW Hillsborough County area

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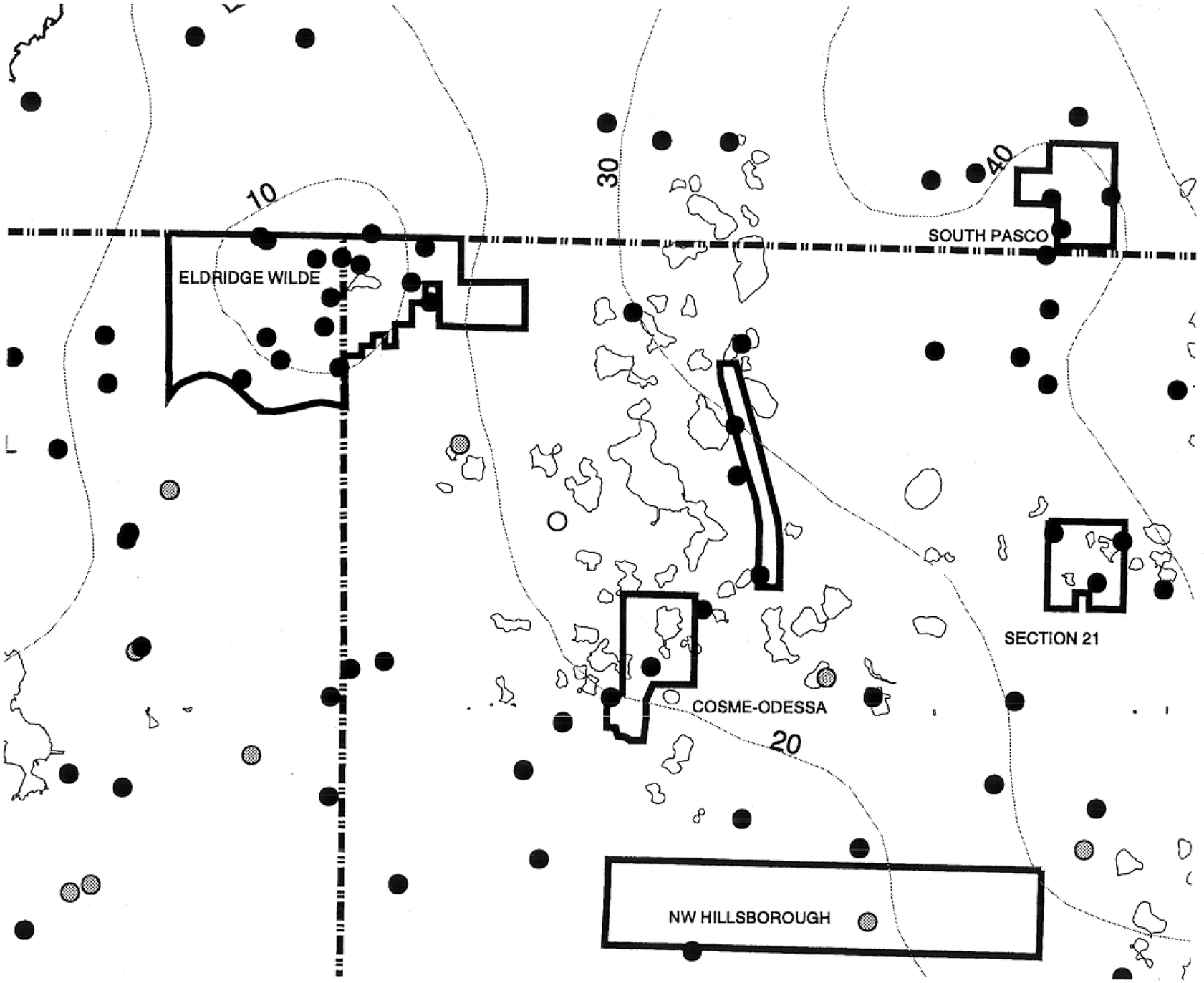
Figure 7



- Proposed Monitor Wells
- Exisiting Monitor Wells
- Other Wells of Potential Use