

**C. D. Besadny Fish and Wildlife Area
Kewaunee, Wisconsin
GIS Application and Geodatabases**

STS Consultants, Ltd. created a Geographic Information System (GIS) for the management of the many data layers acquired and generated over the life of the Kewaunee Marsh project. The data has been organized in geo-databases by sampling date. Additional data, not represented in the GIS application (Kew_Marsh_STS.mxd), may be available within the corresponding geo-database. The geodatabase files and layers are relatively referenced inside the project, allowing for transportation of the data from one computer to another.

Please keep the project folder "Kew_Marsh_STS_GIS" intact to preserve the linking within the application (mxd). Layer files (symbolization) have been made for all data visualized in the GIS. The basemap and environmental data layers are located within the KewMarsh_DBs" folder and the grid layers are located in the "Grid_Files" folder. Additional layers have been made for the "Callout Labels" used in the final report figures. They are located inside the "Callout_Labels" folder.

Any questions concerning the GIS data or the application can be directed to JoAnne J. Blank at 920-468-1978 (ext 227) or email - jblank@stsconsultants.com.

The following is a list of the geo-databases available for the project.

1. Kew_Marsh_GIS_Jun03.mdb (All June 2003 Data)
2. Kew_Marsh_GIS_FebApr03.mdb (All February and April 2003 Data)
3. Kew_Marsh_GIS_Nov02.mdb (All November 2002 Data)
4. Kew_Marsh_GIS_July02.mdb (All July 2002 Data)
5. Kew_Marsh_GIS_Hist.mdb (All Data from 1994 – 2001)
6. KewMarsh_GIS_Basemap.mdb (All Basemap Data from WDNR)

The data layers within the GIS application have been grouped by the type of data represented, and the time period when it was acquired. The following is a list of this data,



organized by the groupings. The data type is listed in parenthesis following the group or layer name.

DATA LAYER LISTING FOR GIS APPLICATION

1. **IMAGERY** – Kewaunee Marsh area – 2000 Aerial photo – orthorectified (raster)
2. **BASEMAP LAYERS** (obtained from WDNR)
 - a. Railroad (Points)
 - b. Cyclone Fence (Points)
 - c. Cap Perimeter (Line)
 - d. Cap Perimeter (Poly)
3. **SAMPLE LOCATION LAYERS (POINTS)**
 - a. Soil Sample Locations (STS)
 - b. STS & DNR GW/MW Locations - 2002-2003
 - c. Monitoring Wells (STS only)
 - d. DNR Well Locations
 - e. Soil & Well Locations – STS - 2002-2003
 - f. Surface Soil Locations - November 2002
 - g. Surface Water Sample Locations - 2003
4. **GROUND & SURFACE WATER LAYERS (JUNE 2003) (POINTS)**
 - a. Surface Water Arsenic (Filtered) – June 2003
 - b. Surface Water - Arsenic (Unfiltered) – June 2003
 - c. Groundwater - Arsenic (Shallow -Filtered) – June 2003 (STS & DNR)
 - d. Groundwater – Arsenic (Intermediate-Filtered) – June 2003
 - e. Groundwater – Arsenic (Deep-Filtered) – June 2003
 - f. Groundwater - Sulfate (Shallow -Filtered) – June 2003 (STS & DNR)
 - g. Groundwater – Sulfate (Intermediate-Filtered) – June 2003
 - h. Groundwater – Sulfate (Deep-Filtered) – June 2003



5. GROUND & SURFACE WATER LAYERS (FEB – APRIL 2003) (POINTS)
 - a. Surface Water – Arsenic (Filtered) – April 2003
 - b. Surface Water – Arsenic (Unfiltered) – April 2003
 - c. Groundwater – Arsenic (Shallow-Filtered) – Feb 2003 (STS & DNR)
 - d. Groundwater – Arsenic (Intermediate-Filtered) – Feb 2003
 - e. Groundwater – Arsenic (Deep-Filtered) – Feb 2003
6. GROUNDWATER & SURFACE SOIL LAYERS (NOVEMBER 2002) (POINTS)
 - a. Surface Soils – Iron – November 2002
 - b. Surface Soils – Organic Percent – November 2002
7. GROUNDWATER LAYERS (JULY 2002) (POINTS)
 - a. Groundwater – Arsenic (Shallow-Filtered) – July 2002
 - b. Groundwater – Arsenic (Intermediate-Filtered) – July 2002
 - c. Groundwater – Arsenic (Deep-Filtered) – July 2002
8. SOIL LAYERS (JULY 2002) (POINTS)
 - a. Soil – Arsenic (0-2 ft) – July 2002
 - b. Soil – Arsenic (4-6 ft) – July 2002
 - c. Soil – Iron (0-2 ft) – July 2002
 - d. Soil – Iron (4-6 ft) – July 2002
 - e. Soil – Aluminum (4-6 ft) – July 2002
9. GROUND & SURFACE WATER LAYERS (1996-2001) (POINTS)
 - a. Groundwater – Arsenic (Shallow) – 1st Quarter 2001
 - b. Surface Water – Arsenic (Unfiltered) – June 1997
 - c. Monitoring Points – Arsenic (Filtered) – October 1996
 - d. Surface Pit Water (Unfiltered) – September 1996
 - e. Monitoring Points – Arsenic (Filtered) – June 1996
 - f. Surface Pit Water – Arsenic (Unfiltered) – May 1996
 - g. Monitoring Points – Arsenic (Filtered) – April 1996



- h. Groundwater – Arsenic (Shallow-Filtered) – April 1996
- i. Monitoring Points – Arsenic (Unfiltered) – 1996 (All Dates)
- j. Monitoring Points – Arsenic (Filtered) – 1996 (All Dates)
- k. Surface Water – Arsenic – June 1995
- l. Surface Water – Arsenic – Winter 1994-1995

10. SOIL & PLANT LAYERS (1994 – 1996) (POINTS)

- a. Plant Tissue – Historic 1996
- b. Surface Soils – Arsenic – 1996
- c. Deep Soils – Arsenic – 1996
- d. Surface Soils – Iron – 1996
- e. Surface Soils – Arsenic – 1995
- f. Surface Soils – Arsenic – 1994 (All Samples)
- g. Surface Soils – Arsenic – 1994 (Outside Cap Area)

11. CONTOUR LAYERS (LINE)

- a. Arsenic Groundwater (Shallow) Contours – June 2003
- b. Sulfate Groundwater (Shallow) Contours – June 2003
- c. Arsenic Surface Soil Contours – November 2002

12. DIFFERENCING GRIDS (GRID)

- a. Arsenic – Groundwater (Shallow) 2003 minus 2001
- b. Arsenic – Groundwater (Shallow) 2003 minus 1996
- c. Arsenic – Groundwater (Shallow) 2001 minus 1996

13. 2002 GRID LAYERS (GRID)

- a. Arsenic – Groundwater (Shallow-Filtered) - November 2002
- b. Arsenic – Surface Soil - November 2002
- c. Organic Content – Surface Soils - November 2002
- d. Arsenic – Groundwater (Shallow-Filtered) - July 2002
- e. Arsenic – Soil (0-2 ft) - July 2002



14. 2003 GRID LAYERS (GRID)

- a. Arsenic – Surface Water (Filtered) – June 2003
- b. Arsenic – Groundwater (Shallow-Filtered) – June 2003
- c. Sulfate – Groundwater (Shallow-Filtered) – June 2003
- d. Arsenic – Groundwater (Shallow-Filtered) – February 2003

15. HISTORIC GRID LAYERS (GRID)

- a. Arsenic – Surface Water – 1st Quarter 2001
- b. Arsenic – Groundwater (Shallow) – 1st Quarter 2001
- c. Arsenic – Surface Water – May 1996
- d. Arsenic – Groundwater (Shallow-Filtered) – April 1996
- e. Arsenic – Surface Water – Winter 1994-95