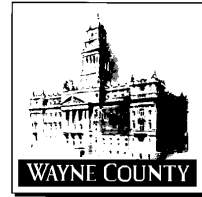


THE ROUGE RIVER PROJECT  
A WORLD CLASS EFFORT



BRINGING OUR RIVER BACK TO LIFE



**STORM WATER DRAINAGE  
DATA DEFINITION  
DOCUMENT**

**FINAL DRAFT  
APRIL 1999**

**SPONSORED BY**

**WAYNE COUNTY ROUGE PROGRAM OFFICE  
AND  
THE ROUGE WATERSHED COMMUNITIES**

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## PURPOSE

This document has been developed to provide the Rouge River watershed communities a data base design template to use in building their storm water drainage coverage and related attribute tables. The data base tables provided herein have been developed through several workshop meetings and incorporate the comments of several Rouge communities at various stages of GIS development.

There are three types of Rouge communities who will benefit from this document:

1. Communities that are building just an attribute data base for their storm water drainage system. This type of community may or may not have GIS tools available to supplement their work.
2. Communities that are building their GIS using ArcView and planning to store the attributes in some desktop data base environment.
3. Communities that are building their GIS using Arc/Info and store their attributes in INFO tables or a relational data base management system like Oracle, Informix or Ingres, linked to Arc/Info.

The information provided in this document is focused on the storm water drainage attribute tables and any Arc/Info or ArcView tables required to link the attributes to the spatial data in the GIS. There is a unique feature identifier created in each feature attribute table (Section 1) and also listed in the Arc/Info tables (Section 3) and ArcView tables (Section 4). This feature identifier (FAC\_ID) is the link between the feature attribute tables defined in this document and the GIS spatial features that may be created by a community GIS program.

If the community is building spatial features as they build their attribute data base, there is one very important function that must be conducted that is NOT described in this document. Assuming that each feature attribute table presented in this document is going to eventually be a graphic feature in the community GIS, then a structured approach to the naming convention used for the feature identifier (FAC\_ID) must be pre-defined and used during both graphics development and attribute development. This is very, very important especially for those communities building just the attribute tables at this time to meet the requirements of the general permit OR those communities building just the spatial graphic features at this time. The two can not be linked unless the feature identifier (FAC\_ID) in the GIS is the same as the FAC\_ID in the attribute tables.

Other GIS development issues not covered in this document relate among others, to feature map projection, coordinate system, feature symbology, and conversion methods that a community must define before embarking on the graphics development phase of their program.

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This document is a starting point for communities using only a database application or ArcView or Arc/Info and should not be considered a complete database design.

The sections of this document include:

- Section 1. Storm Water Drainage Feature attribute tables definitions with a Entity- Relationship diagram. A storm water drainage database can be started using these table definitions.
- Section 2. Support table or Look up / Code table for the Attribute data tables
- Section 3. Arc/Info table definitions for use by those communities using Arc/info to build their storm water drainage coverage. A relationship diagram is also provided.
- Section 4. ArcView table definitions for use by communities using ArcView to build their storm water themes. A relationship diagram is also provided.

Throughout this document a specific nomenclature has been used. These are:

<b>SW_XXXXX</b>	Storm water drainage attribute table name
<b>YYY_CODE</b>	Storm water drainage support / look up table name
<b>AAA_BBB_CCC</b>	Storm water drainage field names
<b>Numeric</b>	Field type equals a number (Decimal or Integer) field
<b>Text</b>	Field Type equals an alpha-numeric or character field
<b>Key</b>	Field type equals a look up key in a supporting code table
<b>Date</b>	Field type equals date (MM/DD/YYYY)
<b>FAC_ID</b>	Each feature has a unique user defined identifier using a common field name.

Special thanks goes to the communities and organizations in the GIS Work Group:

West Bloomfield Township	Dearborn	Canton Township
Westland	WC Health	Livonia
Oakland County GIS	Novi	Farmington Hills
Wayne	Redford Township	
Detroit Water & Sewerage Dept.		

In addition, the relationship of the ARC/Info data files and ArcView data files with the feature (attribute) data tables have been demonstrated in diagrams in Section 3 and 4 , respectively.. However, each community should use whatever nomenclature fits into the standards of your community.

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## SECTION 1. STORM WATER DRAINAGE FEATURE TABLES

There are nine (9) storm water drainage features defined in this database. These features consist of all three types of features - lines (arcs); points (nodes); and areas (polygons). A definition table is defined for each storm water drainage feature which include:

SW_PIPE	Line / Arc
SW_INLET	Point / Node
SW_CULVERT	Line / Arc
SW_MH	Point / Node
SW_MISC	Point / Node
SW_OUTFALL	Point / Node
SW_POND	Area / Polygon
SW_CHANNEL	Line / Arc
SW_PUMP	Point / Node

For Arc/Info users the terms arc / node / polygon are used. For ArcView users the terms line / point / area are used.

These attribute data definition tables, which the community can use to develop their storm water drainage database, include the following information:

- Field Name** - Data base field name (does not follow 8.3 format)
- Data Type** - Type of data (Text / character, numeric, key, Memo)
- Data Size** - the size of the data field, Numeric decimal is implied in format.
- Description** - a brief description of the field
- Level** – 1, 2, or 3 level of data development requested by the communities to help prioritize the development of the database tables. The levels are:

- 1) Minimum data development with mapping with the main attributes being location and facility ID;
- 2) Maintenance Management / Inspections which is Level 1 plus attributes such as material, owner, etc; and
- 3) Detailed Analysis / Modeling which is Level 2 plus the attributes such as invert elevations, slopes, etc.

Additional storm water drainage features recommended by workshop reviewers included:

Weirs / Dams	To be included as SW_MISC
Backwater Gates	To be included in SW_MISC
Siphons	To be included in SW_MISC
Clean Out	to be included in SW_MISC

The primary key field of each table is identified using a **BOLD font**.

**TABLE NAME:** SW\_PIPE

(Storm water drainage closed underground pipe or conduit; represented as an ARC or a LINE with end points (FROM / TO) defined)

FIELD NAME	DATA TYPE	SIZE	DESCRIPTION	LEVEL
FAC_ID	TEXT	15	UNIQUE FEATURE ID – PRIMARY KEY / USER DEFINED	1
UP_FAC_ID	TEXT	15	UPSTREAM FEATURE ID – UNIQUE IN ONE OF THE NODE TABLES (FROM NODE)	1
DN_FAC_ID	TEXT	15	DOWNSTREAM FEATURE ID – UNIQUE IN ONE OF THE NODE TABLES (TO NODE)	1
COMMENTS	MEMO	N/A	TO DOCUMENT ANY SPECIAL NOTES – INTERMEDIATE CONNECTIONS	1
PIPE_LEN	NUMERIC	99999.99	LENGTH OF PIPE (FEET)	2
WIDTH_DIA	NUMERIC	999.99	DIAMETER OF PIPE (INCHES)	2
UP_INV_ELEV	NUMERIC	999.99	UPSTREAM PIPE INVERT ELEVATION (FEET)	3
DN_INV_ELEV	NUMERIC	999.99	DOWNSTREAM PIPE INVERT ELEVATION (FEET)	3
PIPE_SLOPE	NUMERIC	999.99	PIPE SLOPE (PERCENT)	3
ROUGH_COEFF	NUMERIC	999.99	PIPE ROUGHNESS COEFFICIENT	3
MODEL_NO	NUMERIC	999999	MODEL PIPE IDENTIFIER	3
ASBUILT_REF	TEXT	20	REFERENCE TO ASBUILT PLANS (PAGE / SHEET)	2
YEAR_INSTALL	NUMERIC	9999	YEAR PIPE WAS INSTALLED	2
PROJ_NAME	TEXT	15	PROJECT NAME / NUMBER ASSOCIATED WITH PIPE	2
CONC_CODE	KEY		CONC_CODE TABLE	
SHAPE_CODE	KEY		SHAPE_CODE TABLE	
MATL_CODE	KEY		MATL_CODE TABLE	
OWNER_CODE	KEY		OWNER_CODE TABLE	
STRUC_INT_CODE	KEY		STRUC_INT_CODE	
MAINT_INSP_CODE	KEY		MAINT_INSP_CODE TABLE	

**REVIEW COMMENTS - DEPTH** - Not required due to fields XX\_INV\_ELEV that will define the depth of the pipe.

GRD\_ELEV - Not required; can be found in each node feature table.

Connectivity - From node and To node covered with upstream and downstream node identifiers Intermediate connections –

Tracking sump leads, yard drains is not included. Can be added by communities as a different pipe record, type = Sump or yard drain.

**TABLE NAME:** SW\_INLET

(Storm water inlet; represented as a NODE or a POINT)

FIELD NAME	DATA TYPE	SIZE	DESCRIPTION	LEVEL
FAC_ID	TEXT	15	UNIQUE FEATURE ID – PRIMARY KEY / USER DEFINED	1
COMMENTS	MEMO		TO DOCUMENT ANY SPECIAL NOTES – INTERMEDIATE CONNECTIONS	1
INLET_LEN	NUMERIC	999.99	LENGTH (INCHES)	2
INLET_WIDTH	NUMERIC	999.99	WIDTH OR DIAMETER OF INLET (INCHES)	2
INV_ELEV	NUMERIC	999.99	INLET INVERT ELEVATION (FEET)	3
MODEL_ID	NUMERIC	999999	MODEL NODE IDENTIFIER	3
ENTR_SHAPE	TEXT	15	INLET ENTRANCE SHAPE, CAN BE SHAPE_CODE TABLE	2
ENTR_TYPE	TEXT	15	INLET ENTRANCE TYPE, CAN BE A LOOK UP TABLE	2
ASBUILT_REF	TEXT	15	ASBUILT PLAN REFERENCE NUMBER	2
YEAR_INSTALL	NUMERIC	9999	YEAR INLET INSTALLED	2
X_LOC	NUMERIC	99999999.99	X LOCATION (STATE PLANE) OF THE INLET	1
Y_LOC	NUMERIC	999999.99	Y LOCATION (STATE PLANE) OF THE INLET	1
SHAPE_CODE	KEY		SHAPE_CODE TABLE	
MATL_CODE	KEY		MATL_CODE TABLE	
OWNER_CODE	KEY		OWNER_CODE TABLE	
OBS_TYPE_CODE	KEY		OBS_TYPE_CODE TABLE	
STRUC_INT_CODE	KEY		STRUC_INT_CODE TABLE	
GRATE_TYPE_CODE	KEY		STRUC_TYPE_CODE TABLE	

**REVIEW COMMENTS** - Location - Store the x-y location of the node in the attribute table.

Entrance type / shape can be added to the shape code look up table

**TABLE NAME:** SW\_OUTFALL

(Storm water outfall; represented as a node or a point)

FIELD NAME	DATA TYPE	SIZE	DESCRIPTION	LEVEL
FAC_ID	TEXT	15	UNIQUE FEATURE ID – PRIMARY KEY / USER DEFINED	1
REC_WATER	TEXT	45	NAME OF RECEIVING WATER	1
COMMENTS	MEMO		TO DOCUMENT ANY SPECIAL NOTES – INTERMEDIATE CONNECTIONS	1
OUT_WIDTH_DIA	NUMERIC	999.99	WIDTH OR DIAMETER OF OUTFALL (INCHES)	2
OUT_LEN	NUMERIC	999.99	LENGTH OF OUTFALL (FEET)	2
OUT_DEPTH	NUMERIC	999.99	DEPTH TO OUTFALL (INCHES) FROM GROUND	2
INV_ELEV	NUMERIC	999.99	ELEVATION OF OUTFALL INVERT (FEET)	3
PIPE_FAC_ID	KEY		FACILITY ID FROM SW_PIPE TABLE	1
YEAR_INSTALL	NUMERIC	9999	YEAR OUTFALL INSTALLED	2
LOC_DESCR	TEXT	50	TEXT DESCRIPTION OF THE OUTFALL LOCATION	2
DEBRIS_GATE	LOGICAL	YES / NO	IS THERE A DEBRIS GRATE ON THE OUTFALL	2
X_LOC	NUMERIC	99999999.99	X LOCATION (STATE PLANE) OF THE OUTFALL	1
Y_LOC	NUMERIC	999999.99	Y LOCATION (STATE PLANE) OF THE OUTFALL	1
ASBUILT_REF	TEXT	15	ASBUILT PLAN REFERENCE NUMBER	2
WS_ELEV	NUMERIC	999.99	ELEVATION OF RECEIVING WATER (FEET)	3
MODEL_ID	NUMERIC	999999	MODEL NODE IDENTIFIER	3
NPDES_PERMIT	TEXT	15	NPDES PERMIT NUMBER FOR THE OUTFALL	2
OUT_TYPE_CODE	KEY		FAC_TYPE_CODE TABLE	
SHAPE_CODE	KEY		SHAPE_CODE TABLE	
MATL_CODE	KEY		MATL_CODE TABLE	
OWNER_CODE	KEY		OWNER_CODE TABLE	
FACE_TYPE_CODE	KEY		STRUC_TYPE_CODE TABLE	
STRUC_INT_CODE	KEY		STRUC_INT_CODE TABLE	
OBS_TYPE_CODE	KEY		OBS_TYPE_CODE TABLE	
FIELD_SAM_CODE	KEY		FIELD_SAM_CODE TABLE	
MAINT_INSP_CODE	KEY		MAINT_INSP_CODE TABLE	

**REVIEW COMMENTS** - Location - store x-y location of the nodes in the attribute table.

Bank Location - in addition to the X-Y location a community can add a bank location description.

**TABLE NAME:** SW\_CULVERT

(Storm water drainage culvert; represented as an ARC or a LINE with end points defined)

FIELD NAME	DATA TYPE	SIZE	DESCRIPTION	LEVEL
FAC_ID	TEXT	15	UNIQUE FEATURE ID – PRIMARY KEY / USER DEFINED	1
UP_FAC_ID	TEXT	15	UPSTREAM FEATURE ID – UNIQUE IN ONE OF THE NODE TABLES (FROM NODE)	1
DN_FAC_ID	TEXT	15	DOWNSTREAM FEATURE ID – UNIQUE IN ONE OF THE NODE TABLES (TO NODE)	1
COMMENTS	MEMO		TO DOCUMENT ANY SPECIAL NOTES – INTERMEDIATE CONNECTIONS	1
CULV_DEPTH	NUMERIC	99.99	DEPTH TO BARREL (INCHES)	2
CULV_WIDTH	NUMERIC	99.99	WIDTH OR DIAMETER OF BARREL (INCHES)	2
CULV_LEN	NUMERIC	99.99	LENGTH OF BARREL (FEET)	2
TOT_WIDTH	NUMERIC	99.99	TOTAL WIDTH OF ALL BARRELS (INCHES)	2
NO_BARRELS	NUMERIC	5	NUMBER OF BARRELS (INTEGER)	2
CULV_UP_ELEV	NUMERIC	999.99	UPSTREAM ELEVATION (FEET)	3
CULV_DN_ELEV	NUMERIC	999.99	DOWNSTREAM ELEVATION (FEET)	3
ROAD_ELEV	NUMERIC	999.99	LOWEST ROAD ELEVATION OVER THE CULVERT (FEET)	3
ASBUILT_REF	TEXT	15	ASBUILT REFERENCE PLAN NUMBER	2
ROUGH_COEFF	NUMERIC	999.99	ROUGHNESS COEFFICIENT FOR THE CULVERT	3
MODEL_ID	NUMERIC	99999	MODEL CULVERT IDENTIFIER	3
SLOPE	NUMERIC	99.99	SLOPE (PERCENT)	2
SHAPE_CODE	KEY		SHAPE_CODE TABLE	
MATL_CODE	KEY		MATL_CODE TABLE	
UP_FACE_TYPE_CODE	KEY		STRUC_TYPE_CODE TABLE	
DN_FACE_TYPE_CODE	KEY		STRUC_TYPE_CODE TABLE	
IN_MATL_CODE	KEY		MATL_CODE TABLE	
OUT_MATL_CODE	KEY		MATL_CODE TABLE	
UP_HEAD_TYPE_CODE	KEY		STRUC_TYPE_CODE TABLE	
DN_HEAD_TYPE_CODE	KEY		STRUC_TYPE_CODE TABLE	
OWNER_CODE	KEY		OWNER_CODE TABLE	
STRUC_INT_CODE	KEY		STRUC_INT_CODE TABLE	
OBS_TYPE_CODE	KEY		OBS_TYPE_CODE TABLE	
CONC_CODE	KEY		CONC_CODE TABLE	

**REVIEW COMMENTS -** Connectivity - From node and To node covered by upstream and downstream facility identifier;

Intermediate connections - blind drains and edge drains can be added as a pipe record, type = blind drain or edge drain;

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Stream elevations - upstream and downstream elevation can be added by the communities if the survey data is available

**TABLE NAME:** SW\_MH

(Storm water catch basin and manholes; represented by a node or a point)

FIELD NAME	DATA TYPE	SIZE	DESCRIPTION	LEVEL
FAC_ID	TEXT	15	UNIQUE FEATURE ID - PRIMARY KEY / USER DEFINED	1
FAC_TYPE_CODE	KEY		TYPE OF NODE (CATCH BASIN, MANHOLE, COMBINED)	1
COMMENTS	MEMO		TO DOCUMENT ANY SPECIAL NOTES – INTERMEDIATE CONNECTIONS	1
MH_DIA	NUMERIC	999.99	DIAMATER OF NODE (INCHES)	2
MH_DEPTH	NUMERIC	999.99	DEPTH OF NODE (FEET)	2
MH_WIDTH	NUMERIC	999.99	WIDTH OF NODE (INCHES)	2
ASBUILT_REF	TEXT	15	ASBUILT REFERENCE OF DATA SOURCE	2
RIM_ELEV	NUMERIC	999.99	RIM OR TOP OR GROUND ELEVATION (FEET)	3
BOT_ELEV	NUMERIC	999.99	ELEVATION OF BOTTOM (FEET)	3
MODEL_ID	NUMERIC	999999	MODEL NODE IDENTIFIER	3
YEAR_INSTALL	NUMERIC	9999	YEAR CATCH BASIN / MANHOLE INSTALLED	2
X_LOC	NUMERIC	99999999.99	X LOCATION (STATE PLANE) OF THE MH	1
Y_LOC	NUMERIC	999999.99	Y LOCATION (STATE PLANE) OF THE MH	1
SHAPE_CODE	KEY		SHAPE_CODE TABLE	
MATL_CODE	KEY		MATL_CODE TABLE	
OWNER_CODE	KEY		OWNER_CODE TABLE	
STRUC_INT_CODE	KEY		STRUC_INT_CODE TABLE	
OBS_TYPE_CODE	KEY		OBS_TYPE_CODE TABLE	
COVER_TYPE_CODE	KEY		STRUC_TYPE_CODE TABLE	
INSP_DATE_CODE	KEY		MAINT_INSP_CODE TABLE	

**REVIEW COMMENTS** - Location - store x-y location in the attribute table;  
 Depth can be calculated from rim and bottom elevations;  
 Multiple incoming (upstream) and outgoing (downstream) pipe inverts; invert elevations are found on the SW\_PIPE table;  
 Miscellaneous connections - down spouts, sump leads can be added as a new pipe record with type = drain, downspout, etc.

**TABLE NAME:** SW\_MISC

(Miscellaneous storm water features; represented as a node or a point).

FIELD NAME	DATA TYPE	SIZE	DESCRIPTION	LEVEL
FAC_ID	TEXT	15	UNIQUE FEATURE ID - PRIMARY KEY / USER DEFINED	1
FAC_TYPE_CODE	KEY		STRUCTURE NODE TYPE CODE TABLE (IE: SUMP, WEIR, DAM, CONTROL DEVICE, GATES, ETC.)	1
COMMENTS	MEMO		TO DOCUMENT ANY SPECIAL NOTES – INTERMEDIATE CONNECTIONS	1
MISC_DIA	NUMERIC	999.99	DIAMETER (INCHES) OF THE STRUCTURE	2
MISC_LEN	NUMERIC	999.99	LENGTH (FEET) OF THE STRUCTURE	2
MISC_WIDTH	NUMERIC	999.99	WIDTH (INCHES) OF THE STRUCTURE	2
TOP_ELEV	NUMERIC	999.99	TOP OR GROUND ELEVATION (FEET)	3
BOT_ELEV	NUMERIC	999.99	ELEVATION OF BOTTOM (FEET)	3
MODEL_ID	NUMERIC	999999	MODEL NODE IDENTIFIER	3
YEAR_INSTALL	NUMERIC	9999	YEAR STRUCTURE WAS INSTALLED	2
X_LOC	NUMERIC	99999999.99	X LOCATION (STATE PLANE) OF THE NODE	1
Y_LOC	NUMERIC	999999.99	Y LOCATION (STATE PLANE) OF THE NODE	1
FIELD1	TEXT		EXTRA TEXT FIELD	2
FIELD2	TEXT		EXTRA TEXT FIELD	2
NUM1	NUMERIC	99999	EXTRA NUMBER FIELD	2
NUM2	NUMERIC	99999	EXTRA NUMBER FIELD	2
SHAPE_CODE	KEY		SHAPE_CODE TABLE	
MATL_CODE	KEY		MATL_CODE TABLE	
OWNER_CODE	KEY		OWNER_CODE TABLE	
STRUC_INT_CODE	KEY		STRUC_INT_CODE TABLE	
OBS_TYPE_CODE	KEY		OBS_TYPE_CODE TABLE	

**REVIEW COMMENTS -** Location - store x-y location in the attribute table

**TABLE NAME:** SW\_POND

(Storm water drainage pond or basin (retention / detention); represented by an area or polygon)

FIELD NAME	DATA TYPE	SIZE	DESCRIPTION	LEVEL
FAC_ID	TEXT	15	UNIQUE FEATURE ID - PRIMARY KEY / USER DEFINED	1
REC_WATER	TEXT	25	RECEIVING WATER NAME FOR POND DISCHARGE	1
EPA_REACH	TEXT	25	EPA REACH NUMBER FOR SEGMENT OF RECVNG WATER	2
COMMENTS	MEMO		TO DOCUMENT ANY SPECIAL NOTES – INTERMEDIATE CONNECTIONS	1
FAC_TYPE_CODE	KEY		FACILITY TYPE CODE (RETENTION, DETENTION, SEDIMENT, UNKNOWN)	1
PERM_POOL_DEPTH	NUMERIC	999.99	PERMANENT POOL DEPTH (FT)	2
DRAIN_AREA	NUMERIC	99999.99	AREA DRAINING TO POND (AC)	2
NUM_INLETS	NUMERIC	999	NUMBER OF INLETS TO THE POND	2
INLET_SIZE	NUMERIC	999.99	SIZE OF INLET (DIA) (INCHES) REPEAT FOR EACH INLET	2
OUTLET_SIZE	NUMERIC	999.99	SIZE OF OUTLET DIA (IN)	2
FIRST_FLUSH	LOGICAL	YES/NO	DOES POND HAVE FIRST FLUSH CAPABILITIES ?	2
FIRST_FLUSH_TYPE	TEXT	25	TEXT DESCRIPTION OF TYPE OF FIRST FLUSH	2
STORAGE_METH	TEXT	15	TYPE OF STORAGE - ROOFTOP, ONLINE, OFFLINE, UNDGRD, PARKING LOT, ETC	2
YEAR_INSTALL	NUMERIC	9999	YEAR POND WAS INSTALLED or CONSTRUCTED	2
POND_DGN_CIRC	NUMERIC	99999.99	CIRCUMFERENCE OF POND (FT)	2
DGN_FLOOD_YR	NUMERIC	999	DESIGN FLOOD YEAR (5, 10, 25, 50, 100 YEAR)	2
POND_DGN_CAPAC	NUMERIC	99999.99	DESIGN CAPACITY OF POND (ACRE-FEET OR GALLONS)	2
POND_DGN_DIA	NUMERIC	999.99	DESIGN DIAMETER OF POND (FEET)	2
POND_DSG_DEPTH	NUMERIC	999.99	DESIGN DEPTH OF POND (FEET)	2
POND_DGN_CIRC	NUMERIC	99999.99	DESIGN CIRCUMFERENCE OF POND (FEET)	2
OWNER_CODE	KEY		OWNER_CODE TABLE	
MATL_CODE	KEY		MATL_CODE TABLE	
POND_OUT_TYPE	KEY		STRUC_TYPE_CODE TABLES	
MAINT_INSP_CODE	KEY		MAINT_INSP_CODE TABLE	

**REVIEW COMMENTS** - Pond volume (gallons) - can be calculated from measured parameters (diameter, circumference, depth);  
Design Parameters - store design parameters to compare with measured parameter;  
RPO Grant projects for F. Hills and Canton Twp developed an inventory with a related database.

Other community specific attributes - Basin location, Development Name, Maintenance Agreement number, Emergency Overflow, Perimeter Fence, and Asbuilt Ref. Number / Plan Drawer Number - can be added.

**TABLE NAME:** SW\_PUMP

(Storm water drainage closed underground pipe or conduit; represented as an ARC or a LINE with end points defined)

FIELD NAME	DATA TYPE	SIZE	DESCRIPTION	LEVEL
FAC_ID	TEXT	15	UNIQUE FEATURE ID – PRIMARY KEY / USER DEFINED	1
COMMENTS	MEMO		TO DOCUMENT ANY SPECIAL NOTES – INTERMEDIATE CONNECTIONS	1
NUM_PUMPS	NUMERIC	999	NUMBER OF PUMPS IN STATION	2
US_NODE	TEXT	15	UPSTREAM NODE ID GOING TO PUMP	3
DS_NODE	TEXT	15	DOWNSTREAM NODE ID LEAVING PUMP	3
PUMP_Q	NUMERIC	9999.99	AVERAGE MEASURED PUMP FLOW (GPM)	3
PUMP_HEAD	NUMERIC	9999.99	PUMP HEAD FOR AVERAGE FLOW (FT)	3
TOT_CAPAC	NUMERIC	9999.99	TOTAL CAPACITY OF PUMP (GPM)	2
YEAR_INSTALL	NUMERIC	9999	YEAR PUMP(S) WAS INSTALLED	2
PROJ_NAME	TEXT	15	PROJECT NAME / NUMNER ASSOCIATED WITH PUMP(S)	2
MATL_CODE	KEY		MATL_CODE TABLE	
OWNER_CODE	KEY		OWNER_CODE TABLE	
MAINT_INSP_CODE	KEY		MAINT_INSP_CODE TABLE	

**REVIEW COMMENTS**

Pump table added per request of workshop group review.

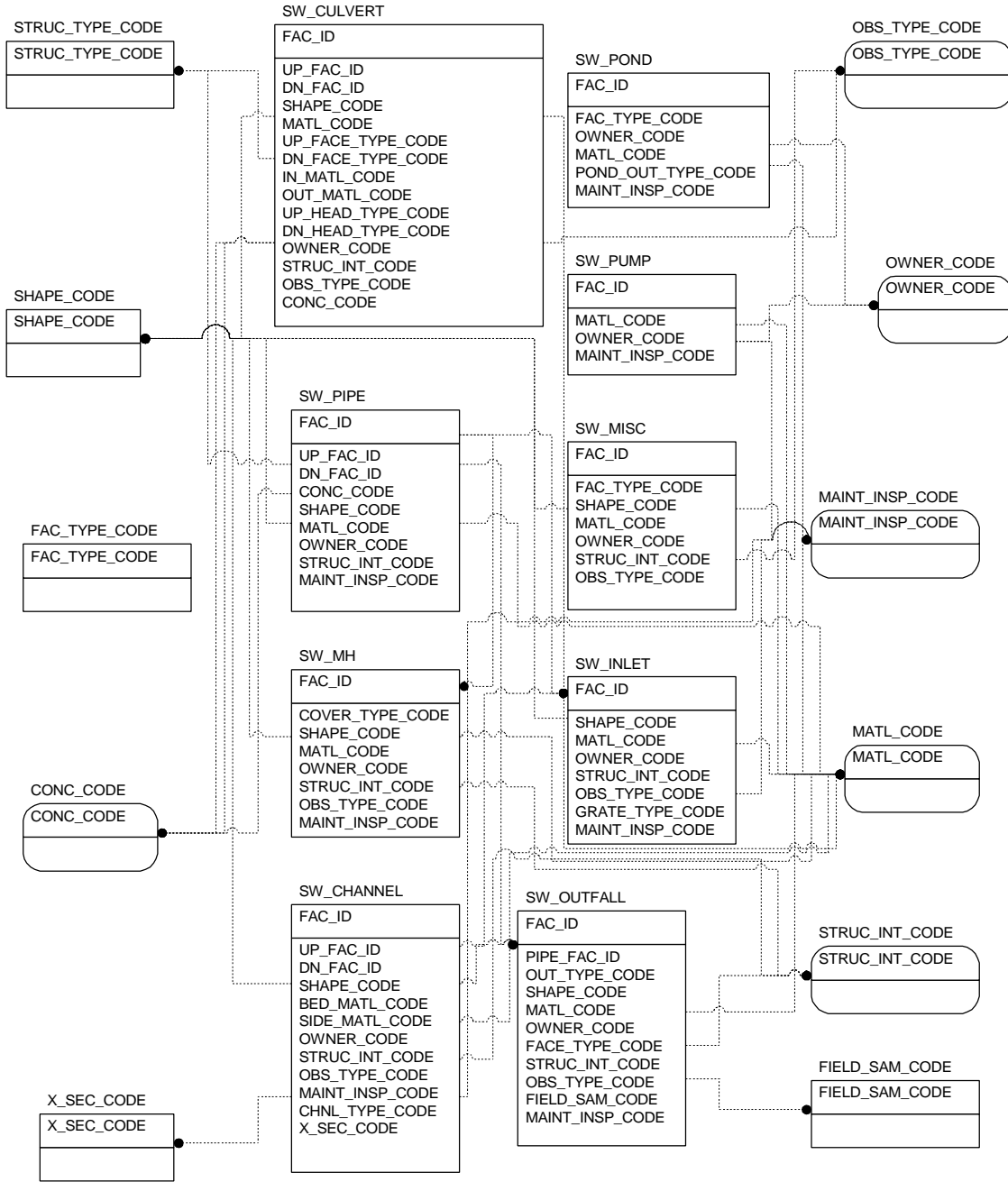
**TABLE NAME:** SW\_CHANNEL

(Storm water drainage open channels; represented by a line or arc)

FIELD NAME	DATA TYPE	SIZE	DESCRIPTION	LEVEL
FAC_ID	TEXT	15	UNIQUE FEATURE ID - PRIMARY KEY / USER DEFINED	1
UP_FAC_ID	TEXT	15	UPSTREAM FEATURE ID NUMBER - UNIQUE IN NODE TABLE (FROM NODE)	1
DN_FAC_ID	TEXT	15	DOWNSTREAM FEATURE ID NUMBER - UNIQUE IN NODE TABLE (TO NODE)	1
COMMENT	MEMO		TO DOCUMENT ANY SPECIAL NOTES - INTERMEDIATE CONNECTIONS	1
CHNL_NAME	TEXT	15	CHANNEL NAME	1
ROUGH_COEFF	NUMERIC	999.99	ROUGHNESS COEFFICIENT OF CHANNEL	3
EPA_REACH_ID	TEXT	30	UNIQUE EPA REACH ID - USED BY STATE.	2
CHNL_DEPTH	NUMERIC	999.99	AVERAGE DEPTH OF CHANNEL (FEET)	2
CHNL_LEN	NUMERIC	9999.99	LENGTH OF CHANNEL (FEET)	2
CHNL_TOP_WIDTH	NUMERIC	999.99	TOP WIDTH OF CHANNEL (FEET)	2
CHNL_BOT_WIDTH	NUMERIC	999.99	WIDTH OF CHANNEL BOTTOM (FEET)	2
UP_ELEV	NUMERIC	999.99	UPSTREAM ELEVATION (FEET)	3
DN_ELEV	NUMERIC	999.99	DOWNSTREAM ELEVATION (FEET)	3
CHNL_SLOPE	NUMERIC	99.99	MAIN CHANNEL SLOPE (PERCENT)	3
MODEL_ID	NUMERIC	999999	MODEL NODE IDENTIFIER	3
L_SLOPE	NUMERIC	99.99	LEFT SIDE SLOPE (PERCENT)	3
R_SLOPE	NUMERIC	99.99	RIGHT SIDE SLOPE (PERCENT)	3
SHAPE_CODE	KEY		SHAPE_CODE TABLE	
BED_MATL_CODE	KEY		MATL_CODE TABLE	
SIDE_MATL_CODE	KEY		MATL_CODE TABLE	
OWNER_CODE	KEY		OWNER_CODE TABLE	
STRUC_INT_CODE	KEY		STRUC_INT_CODE TABLE	
OBS_TYPE_CODE	KEY		OBS_TYPE_CODE TABLE	
MAINT_INSP_CODE	KEY		MAINT_INSP_CODE TABLE	
CHNL_TYPE_CODE	KEY		FAC_TYPE_CODE TABLE	
X_SEC_CODE	KEY		X_SEC_CODE TABLE	

**REVIEW COMMENTS** - Link channel to EPA Reach identifier for those channels which are natural waterways; Modeling Information - Base flow depth (FEET) and base flow rate (CFS) can be added to each channel record

The following figure (FIGURE 1) represents the relationships among the database entities. The purpose of the diagram is to demonstrate the complexity of the relationships among the feature tables and the following lookup tables.



<b>DATABASE</b>		Edit Date: 3/29/99 6:25:49 PM
Rouge Watershed Community GIS Work Group Stormwater Drainage Data Definition Document		
Microsoft Access	Rev: 0	Creator: bRISTOL
Filename: SWDataBase.vsd	FIGURE 1	

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## SECTION 2. STORM WATER DRAINAGE LOOK UP TABLES

There are 11 storm water drainage look up tables defined in this data base. These look up tables support the main feature tables by storing commonly used data. A definition table is defined for each storm water drainage look up code table for the following:

<u>TABLE NAME</u>	<u>LEVEL</u>
OWNER_CODE	1
STRUC_INT_CODE	2
MATL_CODE	2
OBS_TYPE_CODE	2
SHAPE_CODE	2
STRUC_TYPE_CODE	1
CONC_CODE	2
FAC_TYPE_CODE	1
MAINT_INSP_CODE	2
FIELD_SAM_CODE	2
X_SEC_CODE	3

These tables, which the community, can use to develop their storm water drainage data base, include the following information:

**Field Name** - Data base field name

**Data Type** - Type of data (Unique Key, Text / character, numeric)

**Data Size** - the size of the data field

**Description** - a brief description

The primary key field of each table is identified using a **BOLD** font. The look up code key is the indexed key to the table.

Look up tables can be added to the data base structure as needed.

If a community expands their maintenance management activities then several code tables would be expanded to handle the data. These tables would be

STRUC\_INT\_CODE,  
OBS\_TYPE\_CODE,  
MAINT\_INSP\_CODE.

There would be a ONE to MANY relationship between the feature tables (SW-XXXX) and these code tables.

**TABLE NAME:** OWNER\_CODE

FIELD NAME	DATA TYPE	SIZE	DESCRIPTION
OWNER_CODE	KEY		UNIQUE CODE KEY - PRIMARY KEY
OWN_NAME	TEXT	25	OWNER NAME (IE: COMMUNITY, STATE, MDOT, COUNTY, ETC.)
OWN_DEPT	TEXT	25	OWNER DEPARTMENT
OWN_ADDR_1	TEXT	50	ADDRESS FIELD ONE
OWN_ADDR_2	TEXT	50	ADDRESS FIELD TWO
OWN_CITY	TEXT	25	CITY NAME
OWN_STATE	TEXT	3	STATE ABBREVIATION
OWN_ZIP	NUMERIC	99999.9999	ZIP CODE
CONTACT_NAME	TEXT	30	NAME OF CONTACT PERSON
PHONE	NUMERIC	999.999.9999	PHONE NUMBER
EMAIL	TEXT	30	EMAIL ADDRESS

**REVIEW COMMENTS** None.

**TABLE NAME:** SHAPE\_CODE

FIELD NAME	DATA TYPE	SIZE	DESCRIPTION
SHAPE_CODE	KEY		UNIQUE CODE KEY - PRIMARY KEY
SHAPE_NAME	TEXT	30	SHAPE NAME (IE: CIRCULAR, ELLIPTICAL, ARCH, RECTANGULAR, SQUARE, TRAPEZOIDAL< P< P< P< PARABOLIC< UNKNOWN, ETC.)
FIELD_1	TEXT	25	EXTRA TEXT FIELD

**REVIEW COMMENTS** None.

**TABLE NAME:** MATL\_CODE

<b>FIELD NAME</b>	<b>DATA TYPE</b>	<b>SIZE</b>	<b>DESCRIPTION</b>
MATL_CODE	KEY		UNIQUE CODE KEY- PRIMARY KEY
MATL_NAME	TEXT	25	MATERIAL NAME (IE: CONCRETE, CAST IRON, RCP, VCP, UNKNOWN, GRASS, STONE, GRAVEL, RIPRAP, PLASTIC, CMP, RCPE, DUCTILE IRON, GRASS, EARTH, BRUSH, OTHER, ETC.)

**REVIEW COMMENTS** None.

**TABLE NAME:** STRUC\_INT\_CODE

<b>FIELD NAME</b>	<b>DATA TYPE</b>	<b>SIZE</b>	<b>DESCRIPTION</b>
STURC_INT_CODE	KEY		UNIQUE CODE KEY - PRIMARY KEY
STRUC_INT_NAME	TEXT	30	STRUCTURAL INTEGRITY NAME (IE: SOUND, PARTIAL COLLAPSED, CRACKED, UNKNOWN, ETC.)

**REVIEW COMMENTS** None.

**TABLE NAME:** OBS\_TYPE\_CODE

<b>FIELD NAME</b>	<b>DATA TYPE</b>	<b>SIZE</b>	<b>DESCRIPTION</b>
OBS_TYPE_CODE	KEY		UNIQUE CODE KEY - PRIMARY KEY
OBS_TYPE_NAME	TEXT	25	OBSTRUCTION TYPE (IE: NONE, SEDIMENT, DEBRIS, TRASH, GREASE, OTHER, ETC.)
OBS_PERCENT	NUMERIC	999	PERCENT OF FEATURE OBSTRUCTED (PERCENT)

**REVIEW COMMENTS**

Additional field added (OBS\_PERCENT). This field may work best as a separate field in the MAINT\_INSP\_CODE where many obstruction percent values can be tracked for one feature.

**TABLE NAME:** CONC\_CODE

<b>FIELD NAME</b>	<b>DATA TYPE</b>	<b>SIZE</b>	<b>DESCRIPTION</b>
CONC_CODE	KEY		UNIQUE CODE KEY - PRIMARY KEY
CONC_NAME	TEXT	25	PIPE CONCRETE CLASS (IE: C75, C76, UNKNOWN, ETC.)

**REVIEW COMMENTS** None.

**TABLE NAME:** STRUC\_TYPE\_CODE

FIELD NAME	DATA TYPE	SIZE	DESCRIPTION
STRUC_TYPE_CODE	KEY		UNIQUE CODE KEY - PRIMARY KEY
STRUC_TYPE_NAME	TEXT	25	STRUCTURE TYPE (IE: HEADWALLS - NONE, U SHAPED, L SHAPED, FLAT, FLARED, UNKNOWN; FACE TYPES, INLET TYPES; MAHOLE TYPES; OUTLET TYPES; ETC.)

**REVIEW COMMENTS** None.

**TABLE NAME:** FAC\_TYPE\_CODE

FIELD NAME	DATA TYPE	SIZE	DESCRIPTION
FAC_TYPE_CODE	KEY		UNIQUE CODE KEY - PRIMARY KEY
FAC_TYPE_NAME	TEXT	25	FACILITY TYPE (IE: RETENTION POND, SEDIMENT POND, DETENTION POND, GATES, SIPHONS, CATCH BASIN, MANHOLE, DUMMY OUTFALL, NPDES OUTFALL, REGULAR OUTFALL, STREAM, DITCH, SWALE, DRAIN, ETC.)

**REVIEW COMMENTS** None.

**TABLE NAME:** MAINT\_INSP\_CODE

FIELD NAME	DATA TYPE	SIZE	DESCRIPTION
MAINT_INSP_CODE	KEY		UNIQUE CODE KEY - PRIMARY KEY
INSP_DATE	DATE	MM/DD/YYYY	INSPECTION DATE
INSPECTOR	TEXT	25	NAME OF INSPECTOR
FIELD_SAM_CODE	KEY		FIELD_CODE TABLE
OBST_TYPE_CODE	KEY		OBS_TYPE CODE TABLE
TEXT1	TEXT	25	EXTRA TEXT FIELD - TO BE DEVELOPED BY EACH COMMUNITY
TEXT2	TEXT	25	EXTRA TEXT FIELD - TO BE DEVELOPED BY EACH COMMUNITY
NUMERIC1	NUMERIC	9999999	EXTRA NUMERIC FIELD - TO BE DEVELOPED BY EACH COMMUNITY
NUMERIC2	NUMERIC	9999.99	EXTRA NUMERIC FIELD - TO BE DEVELOPED BY EACH COMMUNITY

**REVIEW COMMENTS** None.

**TABLE NAME:** FIELD\_SAM\_CODE

FIELD NAME	DATA TYPE	SIZE	DESCRIPTION
FIELD_SAM_CODE	KEY		UNIQUE CODE KEY - PRIMARY KEY
FIELD_SAM_NUM	TEXT	25	FIELD SAMPLE NUMBER
DATE_SAM	DATE	MM/DD/YYYY	DATE SAMPLE TAKEN
OWNER_CODE	KEY		SAMPLE OWNER
PARAM_NAME	TEXT		PARAMETER NAME
PARAM_VAL	NUMERIC		PARAMETER VALUE
PARAM_UNITS	TEXT	10	PARAMETER UNITS

**REVIEW COMMENTS** None.

This table could become a complete sampling database. Each community can expand this table into as many tables required to track field screening data collected at outfalls. The RPO has a database structure available for use.

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**TABLE NAME:** X\_SEC\_CODE

<b>FIELD NAME</b>	<b>DATA TYPE</b>	<b>SIZE</b>	<b>DESCRIPTION</b>
X_SEC_CODE	KEY		UNIQUE CODE KEY - PRIMARY KEY
X_SEC_NUM	TEXT	25	X SECTION NUMBER
X_LOC_1	NUMERIC	99999999.99	X LOCATION OF SURVEY POINT
LOC_1_ELEV	NUMERIC	9999.99	ELEVATION VALUE (FEET) AT XY LOCATION
Y_LOC_1	NUMERIC	99999999.99	Y LOCATION OF SURVEY POINT

**REVIEW COMMENTS**

Repeat the Cross Section records for as many to define the cross section for the channel.

**SECTION 3.  
STORM WATER DRAINAGE  
ARC/INFO TABLES**

There are three ARC/Info tables defined in this document. These are the required tables used by ARC/Info.

Node Attribute Table (NAT)  
Arc Attribute Table (AAT)  
Polygon Attribute Table (PAT)

Once the proper arc, node or polygon table has been created in ARC/Info, the link can be made via the **FAC\_ID** field found in the Arc/Info table and in each of the attribute tables. These tables as presented in Section 1 are called RELATE tables in Arc/Info.

**TABLE NAME:**     NODE ATTRIBUTE TABLE (NAT)

FIELD NAME	DATA TYPE	WIDTH / DISPLAY	DESCRIPTION
ARC#	NUMERIC	4 / 5	UNIQUE PRIMARY KEY - ASSIGNED BY ARC/INFO
STORM#	NUMERIC	4 / 5	INTERNAL FEATURE ID ASSIGNED BY ARC/INFO
STORM_ID	NUMERIC	4 / 5	USER DEFINED STORM FEATURE ID
FAC_ID	TEXT	15	UNIQUE FACILITY ID FROM ATTRIBUTE TABLES
CONV_SOURCE	KEY	1 / 1	SOURCE OF DATA USED IN THE CONVERSION PROCESS (IE: QUARTER SECTION MAPS, DESIGN DRAWINGS, GPS, OTHER, INKNOWN, ETC.)
REV_DATE	DATE	MM/DD/YYYY	DATE THE NODE COVERAGE WAS CHANGED
STATUS_CODE	KEY	1 / 3	STATUS OF FEATURE (IE: OPERATIONAL, OUT OR SERVICE, ABANDONDED, ETC.)
FAC_SYM	NUMERIC	3 / 3	PLOTTING SYMBOL FOR THE STD MAP DISPLAY

**REVIEW COMMENTS - WIDTH / DISPLAY** - The field width in the database and the display width in all output;

The FAC\_ID field in the feature tables will link to other attributes such as facility type (SW\_OUTFALL, SW\_MH, SW\_MISC, SW\_INLET) and owner (OWNER\_CODE).

The X-Y-Z Coordinates for each node / point can be found in the attribute tables (SW\_OUTFALL, SW\_MH< SW\_MISC, SW\_INLET).

**TABLE NAME:** ARC ATTRIBUTE TABLE (AAT)

FIELD NAME	DATA TYPE	WIDTH / DISPLAY	DESCRIPTION
FNDE#	NUMERIC	4 / 5	FROM NODE ASSIGNED BY ARC/INFO
TNDE#	NUMERIC	4 / 5	TO NODE ASSIGNED BY ARC/INFO
LPOLY#	NUMERIC	4 / 5	LEFT POLYGON ASSIGNED BY ARC/INFO
RPOLY#	NUMERIC	4 / 5	RIGHT POLYGON ASSIGNED BY ARC/INFO
LENGTH#	NUMERIC	8.5 / 18.5	LENGTH OF ARC ASSIGNED BY ARC/INFO
STORM#		4 / 5	INTERNAL FEATURE ID ASSIGNED BY ARC/INFO
STORM_ID	NUMERIC	4 / 5	USER DEFINED STORM FEATURE ID
FAC_ID	TEXT	15	UNIQUE FACILITY ID FOUND IN THE ATTRIBUTE TABLES
CONV_SOURCE	KEY	1 / 1	SOURCE OF DATA USED IN THE CONVERSION PROCESS (IE: QUARTER SECTION MAPS, DESIGN DRAWINGS, GPS, OTHER, INKNOWN, ETC.)
REV_DATE	DATE	MM/DD/YYYY	DATE THE ARC COVERAGE WAS CHANGED
STATUS_CODE	KEY	1 / 3	STATUS OF FEATURE (IE: OPERATIONAL, OUT OR SERVICE, ABANDONDED, ETC.)
FAC_SYM	NUMERIC	3 / 3	FACILITY SYMBOL FOR STD MAP DISPLAY

**REVIEW COMMENTS - WIDTH / DISPLAY** - The field width in the database and the display width in all output.

The FAC\_ID field in the feature tables will link to other attributes such as facility type (SW\_PIPE, SW\_CULVERT, SW\_CHANNEL) and owner (OWNER\_CODE).

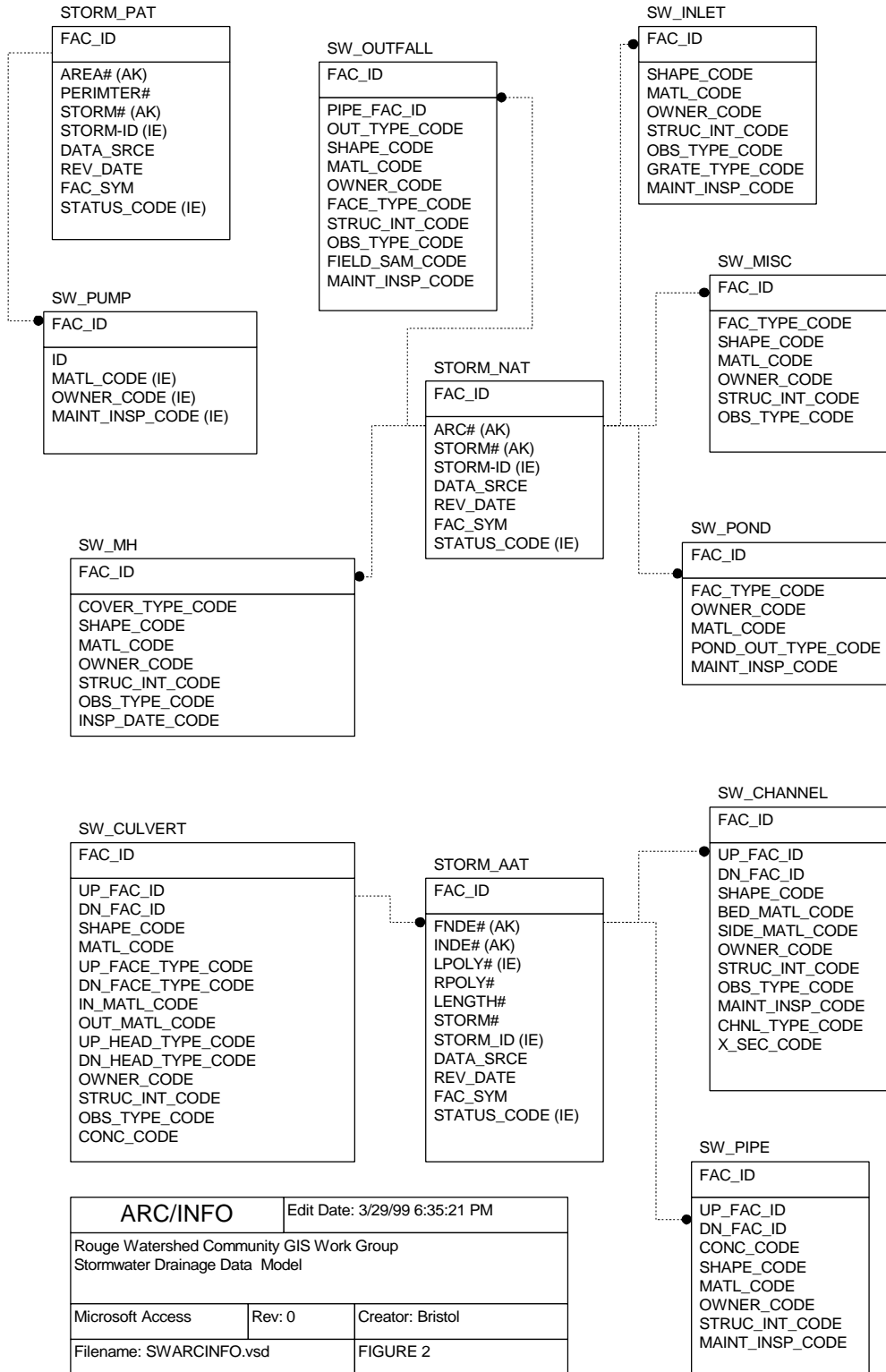
**TABLE NAME:** POLYGON ATTRIBUTE TABLE (PAT)

<b>FIELD NAME</b>	<b>DATA TYPE</b>	<b>WIDTH / DISPLAY</b>	<b>DESCRIPTION</b>
<b>AREA#</b>	NUMERIC	8.5 / 18.5	AREA - ASSIGNED BY ARC/INFO
<b>PERIMETER#</b>	NUMERIC	8.4 / 18.5	PERMETER ASSIGNED BY ARC/INFO
<b>STORM#</b>	NUMERIC	4 / 5	UNIQUE STROM FEATURE ID - ASSIGNED BY ARC/INFO
<b>STORM_ID</b>	NUMERIC	4 / 5	USER DEFINED STORM FEATURE ID
<b>FAC_ID</b>	TEXT	15	UNIQUE FACILITY ID FOUND IN THE ATTRIBUTE TABLES
<b>CONV_SOURCE</b>	KEY	1 / 1	SOURCE OF DATA USED IN THE CONVERSION PROCESS (IE: QUARTER SECTION MAPS, DESIGN DRAWINGS, GPS, OTHER, INKNOWN, ETC.)
<b>REV_DATE</b>	DATE	MM/DD/YYYY	DATE THE NODE COVERAGE WAS CHANGED
<b>STATUS_CODE</b>	KEY	1 / 3	STATUS OF FEATURE (IE: OPERATIONAL, OUT OR SERVICE, ABANDONDED, ETC.)
<b>FAC_SYM</b>	NUMERIC	3 / 3	PLOTTING SYMBOL FOR STD MAP DISPLAY

**REVIEW COMMENTS - WIDTH / DISPLAY** - The field width in the database and the display width in all output.

The FAC\_ID field in the feature tables will link to other attributes such as facility type (SW\_POND) and owner (OWNER\_CODE).

The following figure (FIGURE 2) demonstrates the relationship between the stormwater drainage features and the three primary ARC/Info tables described above.



**SECTION 4.  
STORM WATER DRAINAGE  
ARCVIEW TABLES**

For those communities that will be building their storm water drainage data base and conducting mapping using ArcView, there are several tables required by ArcView that need to be created. These tables include the following:

- Point Theme
- Arc Theme
- Area Theme

These tables are required to be in a Xbase format (dbf). The two primary fields, which are used by ArcView, are the SHAPE and ID fields. The link or join to the storm water drainage attribute tables is via the FAC\_ID field. ArcView scripts can be written to enable the ID field to be populated during graphic data development.

**TABLE NAME:** POINT THEME (SHP FILE)

FIELD NAME	DATA TYPE	WIDTH	DESCRIPTION
SHAPE	TEXT	POINT	UNIQUE PRIMARY KEY - ASSIGNED BY ARCVIEW. ALWAYS "POINT"
ID	NUMERIC	4 / 5	INTERNAL FEATURE ID ASSIGNED BY ARCVIEW
FAC_ID	TEXT	15	UNIQUE FACILITY ID FROM ATTRIBUTE TABLES
CONV_SOURCE	KEY	1 / 1	SOURCE OF DATA USED IN THE CONVERSION PROCESS (IE: QUARTER SECTION MAPS, DESIGN DRAWINGS, GPS, OTHER, INKNOWN, ETC.)
REV_DATE	DATE	MM/DD/YYYY	DATE THE POINT THEME WAS CHANGED
STATUS_CODE	KEY	1 / 3	STATUS OF FEATURE (IE: OPERATIONAL, OUT OR SERVICE, ABANDONDED, ETC.)
FAC_SYM	NUMERIC	3 / 3	PLOTTING SYMBOL FOR THE STD MAP DISPLAY

**REVIEW COMMENTS** - The FAC\_ID field in the feature tables will link to other attributes such as facility type (SW\_OUTFALL, SW\_MH, SW\_MISC, SW\_INLET) and owner (OWNER\_CODE).

**TABLE NAME:** LINE THEME (SHP FILE)

FIELD NAME	DATA TYPE	WIDTH	DESCRIPTION
SHAPE	TEXT	LINE	UNIQUE PRIMARY KEY - ASSIGNED BY ARCVIEW. ALWAYS "LINE"
ID	NUMERIC	4 / 5	INTERNAL FEATURE ID ASSIGNED BY ARCVIEW
FAC_ID	TEXT	15	UNIQUE FACILITY ID FROM ATTRIBUTE TABLES
CONV_SOURCE	KEY	1 / 1	SOURCE OF DATA USED IN THE CONVERSION PROCESS (IE: QUARTER SECTION MAPS, DESIGN DRAWINGS, GPS, OTHER, INKNOWN, ETC.)
REV_DATE	DATE	MM/DD/YYYY	DATE THE LINE THEME WAS CHANGED
STATUS_CODE	KEY	1 / 3	STATUS OF FEATURE (IE: OPERATIONAL, OUT OR SERVICE, ABANDONDED, ETC.)
FAC_SYM	NUMERIC	3 / 3	PLOTTING SYMBOL FOR THE STD MAP DISPLAY

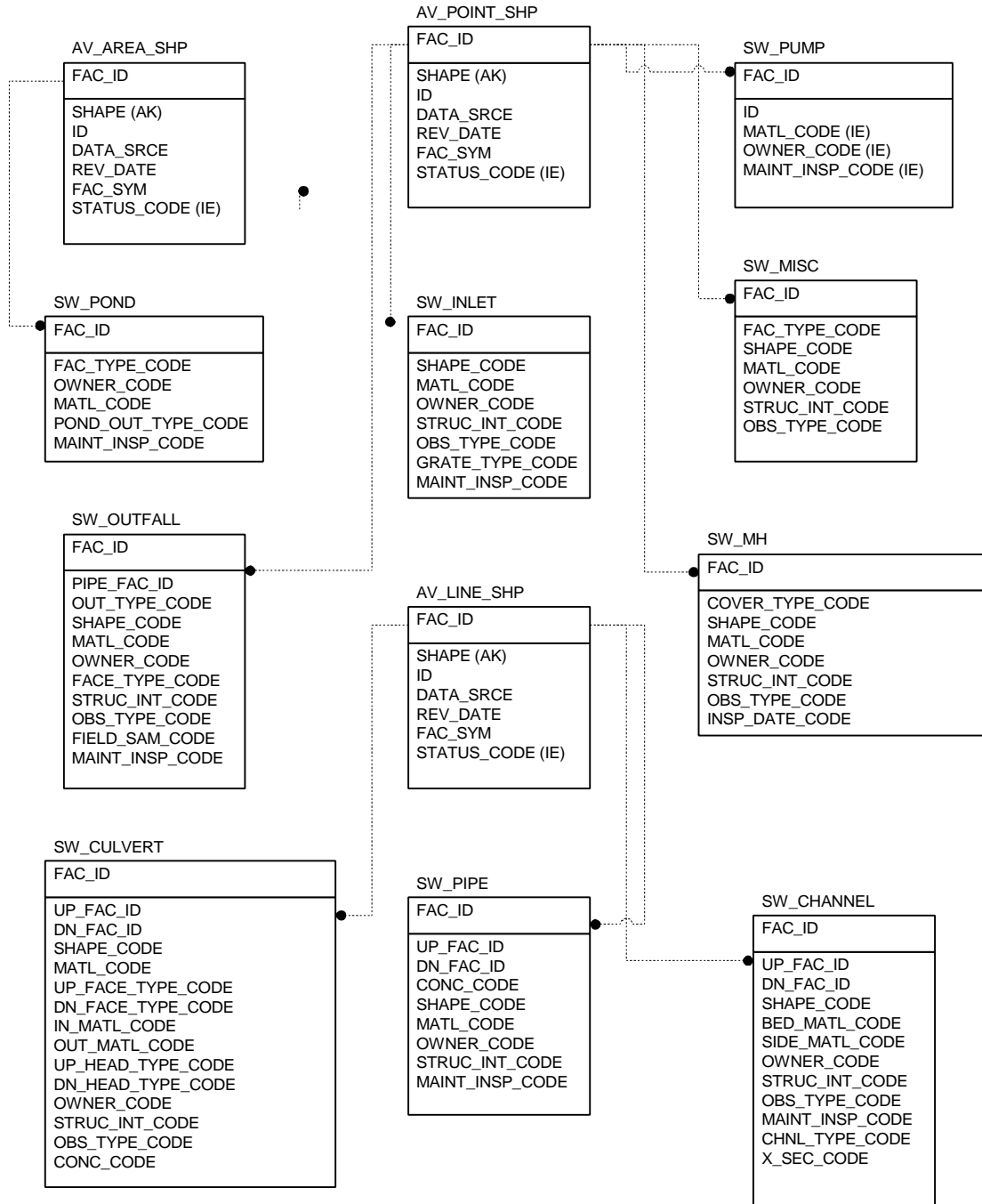
**REVIEW COMMENTS** - The FAC\_ID field in the feature tables will link to other attributes such as facility type (SW\_PIPE, SW\_CULVERT, SW\_CHANNEL) and owner (OWNER\_CODE).

**TABLE NAME:** POLYGON THEME (SHP FILE)

<b>FIELD NAME</b>	<b>DATA TYPE</b>	<b>WIDTH</b>	<b>DESCRIPTION</b>
<b>SHAPE</b>	TEXT	POLYGON	UNIQUE PRIMARY KEY – ASSIGNED BY ARCVIEW. ALWAYS “POLYGON”
<b>ID</b>	NUMERIC	4 / 5	INTERNAL FEATURE ID ASSIGNED BY ARCVIEW
FAC_ID	TEXT	15	UNIQUE FACILITY ID FROM ATTRIBUTE TABLES
CONV_SOURCE	KEY	1 / 1	SOURCE OF DATA USED IN THE CONVERSION PROCESS (IE: QUARTER SECTION MAPS, DESIGN DRAWINGS, GPS, OTHER, INKNOWN, ETC.)
REV_DATE	DATE	MM/DD/YYYY	DATE THE LINE THEME WAS CHANGED
STATUS_CODE	KEY	1 / 3	STATUS OF FEATURE (IE: OPERATIONAL, OUT OR SERVICE, ABANDONDED, ETC.)
FAC_SYM	NUMERIC	3 / 3	PLOTTING SYMBOL FOR THE STD MAP DISPLAY

**REVIEW COMMENTS** - The FAC\_ID field in the feature tables will link to other attributes such as facility type (SW\_POND) and owner (OWNER\_CODE).

The following figure (FIGURE 3) demonstrates the relationship between the feature tables described in Section 1 and the ArcView shape file tables listed above.



<b>ARCVIEW</b>		Edit Date: 3/29/99 6:42:37 PM
Rouge Watershed Community GIS Work Group Stormwater Drainage Data Definition Document		
Microsoft Access	Rev: 0	Creator: Bristol
Filename: SWArcView.vsd		FIGURE 3