

# Derry Township

## Stormwater Management Study — 2nd Phase

December 9, 2008



[ BUILDING RELATIONSHIPS.  
DESIGNING SOLUTIONS. ]

# HRG CONTACT INFORMATION

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**BUILDING RELATIONSHIPS.  
DESIGNING SOLUTIONS.**

## **PRIORITY AREA NO. 7 – EAST CHOCOLATE AVENUE**

The location of this priority area is illustrated on Drawing No. 7. There is an existing catch basin in the vegetated area between the old Chevrolet auto dealership and the Highmark building on the north side of Route 422. Runoff that enters the storm inlet is conveyed by an 18 inch diameter pipe under Route 422, where the flow is discharged to open ground on the Spring Creek Golf Course. The storm sewer does not have capacity to convey the flow that reaches the storm inlet during intense rain events and the storm inlet is not located in the lowest point in the roadside swale. As a result, the vegetated area floods and water flows over the curb and ponds on Route 422. The area draining to this inlet location is approximately 10 acres and the estimated peak discharges are presented in Table 15.

**TABLE 15  
PRIORITY AREA NO. 7 – ESTIMATED PEAK DISCHARGES**

<b>DRAINAGE AREA (SQ. MI.)</b>	<b>PEAK DISCHARGE (CFS) FOR INDICATED RETURN FREQUENCY EVENT</b>			
	<b>2.33 YEAR</b>	<b>10 YEAR</b>	<b>50 YEAR</b>	<b>100 YEAR</b>
0.02	2	24	45	58

The recommended solution is to install a new storm inlet at the lowest point in the roadside swale and to replace the existing pipe with a 30-inch concrete pipe approximately 150 feet long. The recommended system is illustrated on Drawing No. 7.

The estimated cost for the recommended system is \$27,540.



**LEGEND**

STRUCTURE BENEFITED BY PROJECT

PROPOSED STORM SEWER

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**DERRY TOWNSHIP  
 STORMWATER MANAGEMENT STUDY  
 PRIORITY AREA NO. 7  
 EAST CHOCOLATE AVENUE**

DAUPHIN COUNTY PENNSYLVANIA

PROJ. MGR. - MSB
DESIGN- ATB
CADD-
CHECKED-
SCALE- 1" = 500'
DATE- 11-4-08

DRAWING NO. <b>7</b>
SHEET NO. <b>7 OF 17</b>
PROJECT 2484.0429

## **PRIORITY AREA NO. 8 – SUNSET DRIVE**

The location of this priority area is illustrated on Drawing No. 8. The problem in this area is that Sunset Drive was built directly in the existing alignment of the drainage way for the contributing watershed, and when it rains, the runoff from upstream areas collects and runs down to Sunset Drive. An attempt was made to provide a drainage path through use of a small plastic pipe, but the constructed system size is severely under capacity. The total drainage area of this system is 3.66 square miles. The estimated peak discharges for the design storm events are presented in Table 16.

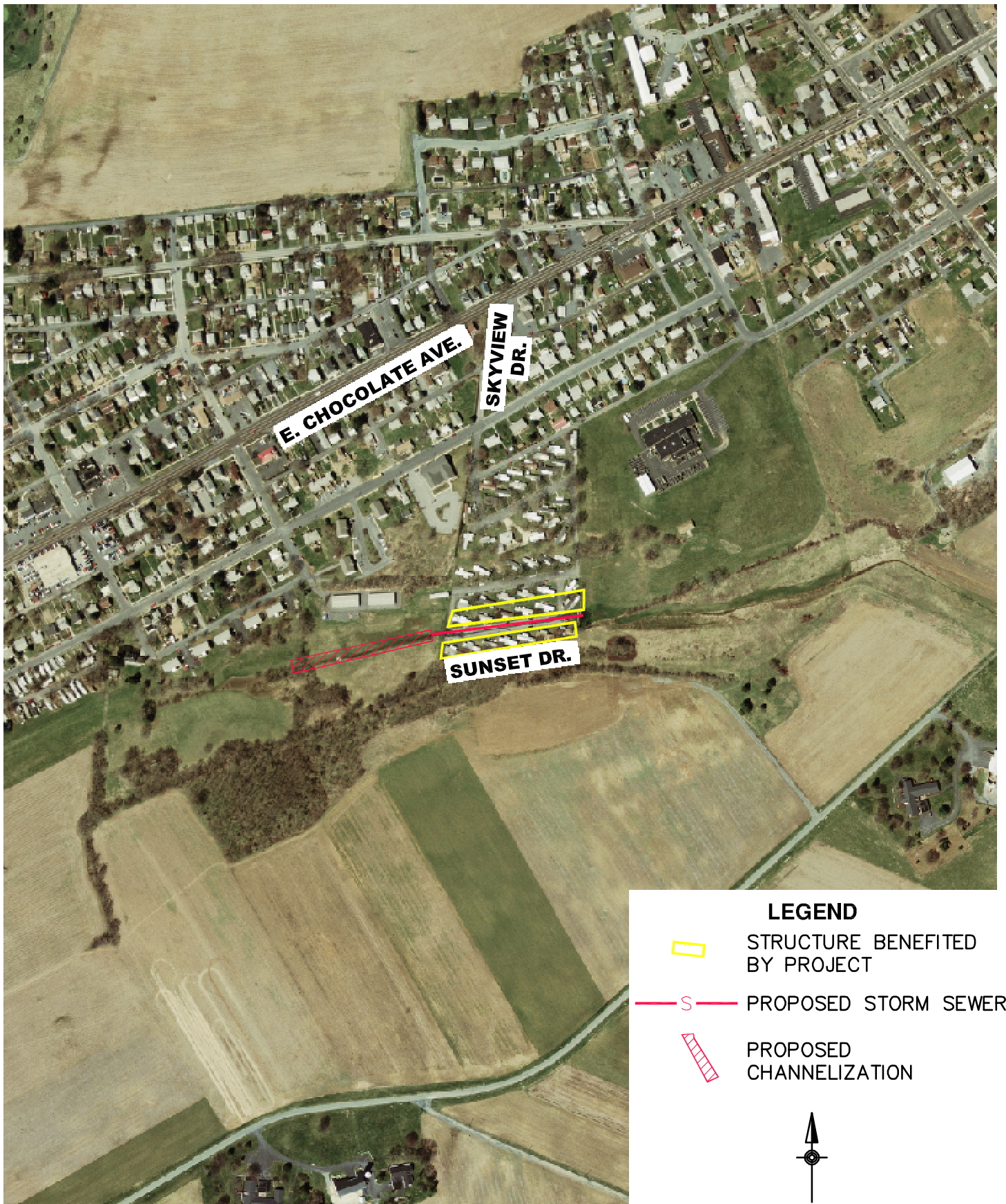
**TABLE 16  
PRIORITY AREA NO. 8 – ESTIMATED PEAK DISCHARGES**

<b>DRAINAGE AREA (SQ. MI.)</b>	<b>PEAK DISCHARGE (CFS) FOR INDICATED RETURN FREQUENCY EVENT</b>			
	<b>2.33 YEAR</b>	<b>10 YEAR</b>	<b>50 YEAR</b>	<b>100 YEAR</b>
3.66	204	517	1,106	1,449




The recommendation for this area is to install a storm sewer that would have a headwall or storm inlet at the east (upstream) end of Sunset Drive and then run under Sunset Drive and through a farm field to discharge into Spring Creek, approximately 500 feet west of the west end of Sunset Road. The total system length of the main storm sewer would be about 600 feet. There would be four (4) inlets along Sunset Drive to collect lateral inflow. The main storm sewer, illustrated on Drawing No. 8, would require two (2) 60 inch diameter HDPE pipes to convey the 50-year return frequency storm event peak discharge of 1,106 cfs.


The estimated cost for the recommended system is \$310,800.





**LEGEND**

-  STRUCTURE BENEFITED BY PROJECT
-  PROPOSED STORM SEWER
-  PROPOSED CHANNELIZATION

  
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**DERRY TOWNSHIP  
 STORMWATER MANAGEMENT STUDY  
 PRIORITY AREA NO. 8  
 SUNSET DRIVE**

DAUPHIN COUNTY PENNSYLVANIA

PROJ. MGR. - MSB
DESIGN - ATB
CADD -
CHECKED -
SCALE - 1" = 500'
DATE - 11-4-08

DRAWING NO. <b>8</b>
SHEET NO. <b>8 OF 17</b>
PROJECT 2484.0429

## **PRIORITY AREA NO. 9 – LUCY AVENUE**

This priority area is between Routes 422 and 322 and extends from Lucy Avenue west to the Route 422 ramp as shown on Drawing No. 9. Lucy Avenue has a low spot with a drainage area of approximately 0.06 square miles. On the east side of the road, there is a small detention pond that controls runoff from some commercial properties. The road has several storm inlets that connect to the discharge pipe from the pond and then discharges to an open channel on the west side of the road. The open channel continues down to the access driveway for Isaacs Restaurant where it enters a small culvert, then re-emerges as an open channel until it reaches the culvert under the Route 422 ramp. The parking lot of one building on the west side of the road floods during severe storm events and the open channel between Lucy Avenue and the Route 422 ramp is experiencing bank erosion. The estimated peak discharges for this area are summarized in Table 17.

**TABLE 17**  
**PRIORITY AREA NO. 9 – ESTIMATED PEAK DISCHARGES**

<b>DRAINAGE AREA (SQ. MI.)</b>	<b>PEAK DISCHARGE (CFS) FOR INDICATED RETURN FREQUENCY EVENT</b>			
	<b>2.33 YEAR</b>	<b>10 YEAR</b>	<b>50 YEAR</b>	<b>100 YEAR</b>
0.06	6	57	142	181

The recommended solution for this priority area is to install a larger storm sewer and eliminate the open channel between Lucy Avenue and the Route 422 ramp. Drawing No. 9 illustrates the approximate layout of the storm sewer. Additional and replacement inlets would also be required.

The estimated cost for the recommended improvements is \$68,860.

