MCM # 3

ILLICIT DISCHARGE DETECTION

&

ELIMINATION

DALLAS TOWNSHIP

ILLICIT DISCHARGE DETECTION AND ELIMINATION PROGRAM

Contents

Procedures for Identifying Priority Areas

1. Past Discharge Complaints and Reports - Frequency of past discharge complaints, hotline reports, and spill responses per subwatershed. Any subwatershed with a history of discharge complaints should automatically be designated as having high Illicit Discharge Potential (IDP).

2. Dry Weather Discharges - Indicates high IDP from sewer/septic systems failures.

3. Density of Generating Sites or Industrial NPDES Stormwater Permits - Density of more than 10 generating sites or five industrial NPDES stormwater sites per square mile indicates high IDP. Density determined by screening business or permit databases.

4. Stormwater Outfall Density - Density of mapped stormwater outfalls in the subwatershed, expressed as the average number per stream or channel mile. A density of more than 20 outfalls per stream mile indicates high IDP.

5. Age of Subwatershed Development - Defined as the average age of the majority of development in a subwatershed. High IDP is often indicated for developments older than 50 years. Determined from tax maps and parcel data, or from other known information about neighborhoods.

6. Sewer Conversion - Subwatersheds that had septic systems but have been connected to the sanitary sewer system in the last 30 years have high IDP.

7. Historic Combined Sewer Systems - Subwatersheds that were once served by combined sewer system but were subsequently separated have a high IDP.

8. Presence of Older Industrial Operations - Subwatershed with more than 5% of its area in industrial sites that are more than 40 years old are considered to have high IDP. Determined from historic zoning, tax maps.

9. Aging or Failing Sewer Infrastructure - Defined as the age and condition of the subwatersehd sewer network. High IDP is indicated when the sewer age exceeds design life of its construction materials.

10. Density of Aging Septic Systems – Subwatershed with a density of more than 100 older drain fields per square mile are considered to have high IDP. Determined from analysis of lot size outside of sewer service boundaries.

Procedures for Screening Outfalls

1. Use MS4 Map to locate outfalls.

   During the field work, the MS4 mapping shall be maintained by locating previously unidentified municipal owned stormwater management facilities as well as any newly constructed facilities.

2. When to conduct field screening:

   - During dry season and leaf off conditions
   - After a dry period of at least 48 hours
   - During periods of low groundwater levels

3. Identify where to conduct field screening.

   Prioritize by using the discharge screen factors listed in I above. Outfall inspections need to be prioritized according to the perceived chance of illicit discharges within the outfall's contributing drainage area.

   Each of the identified regulated small MS4 outfalls must be screened at least once during each permit coverage term. For areas where past problems have been reported or known sources of dry weather flows occur on a continual basis, outfalls shall be screened annually.

4 . Conduct field screening.

   Observations of each outfall shall be recorded each time an outfall is screened, regardless of the presence of dry weather flow. Proper quality assurance and quality control procedures shall be followed when collecting, transporting or analyzing water samples. All outfall inspection information shall be recorded on the Outfall field inspection sheet. Adequate written documentation shall be maintained to justify a determination that an outfall flow is not illicit. If an outfall is illicit the actions taken to identify and eliminate the illicit flow also shall be documented.

Procedures for Identifying the Source of an Illicit Discharge

When an illicit discharge is identified, a combination of methods may be necessary to isolate the source including the following:

1. Storm Drain Network Investigation - Inspect manholes within the drainage network system to isolate the discharge to a specific segment of the network.

Once the pipe segment has been identified, conduct on-site investigation to locate the specific discharge or an improper connection.

2. Drainage Area Investigation - Analyze the land use or other characteristics of the drainage area that is producing the illicit discharge through a review of available maps and/or by conducting a windshield survey of the drainage area.

3. On-site Investigation - On-site investigations might involve dye, video or smoke testing within an isolated segment of the storm drain network.

4. Septic System Investigation - Survey homeowner(s) and conduct surface inspections to locate a failing septic system.

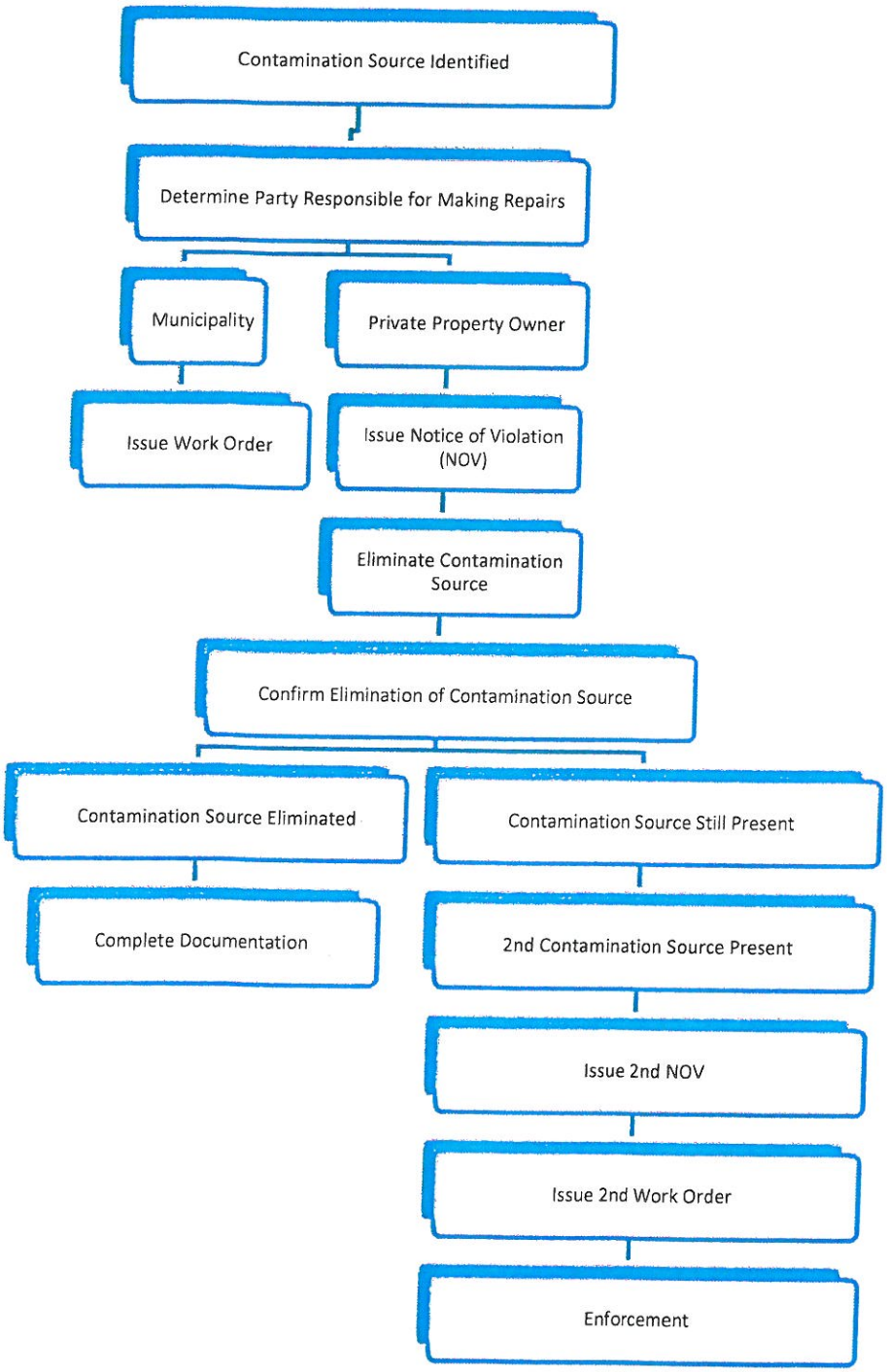
Refer to Chapter 13 of the Illicit Discharge Detection and Elimination Guidance Manual developed by the Center for Watershed Protection and Robert Pitt of the University of Alabama, dated October 2004for more detailed guidance on tracking a discharge to a source.

Procedures for Eliminating an Illicit Discharge

Illicit discharges generally originate from one of the following sources:

- An internal plumbing connection (e.g., discharge from a washing machine is directed to the building's storm lateral; the floor drain on a garage is connected to the building's storm lateral)
- A service lateral cross-connection (e.g., the sanitary lateral from a building is connected to the MS4)
- An infrastructure failure within the sanitary sewer or MS4 (e.g., a collapsed sanitary line is discharging into the MS4)
- An indirect transitory discharge resulting from leaks, spills, or overflows

Specific procedures for eliminating an illicit discharge will depend on the type source of the discharge. Following is a flow chart to guide corrective actions for removing or correcting an illicit discharge.



The following table provides a summary of a range of methods for fixing the more significant issues. The last six techniques in the table are used for sanitary sewer line repair and rehabilitations. These activities are typically used when there is evidence of significant seepage from the sanitary system to the storm drain system.

Methods to Eliminate Discharges

Technique	Application	Description
Service Lateral Disconnection, Reconnection	Lateral is connected to the wrong line.	Lateral is disconnected and reconnected to appropriate line.
Cleaning	Line is blocked or capacity diminished.	Flushing; pigging; or rodding.
Excavation and Replacement	Line is collapsed, severely blocked, significantly misaligned, or undersized.	Existing pipe is removed, new pipe placed in same alignment; existing pipe abandoned in place and replaced by new pipe in parallel alignment.
Manhole Repair	Decrease ponding; prevent flow of surface water into manhole; prevent groundwater infiltration.	Raise frame and lid above grade; install lid inserts; grout, mortar or apply shortcrete inside the walls; install new precast manhole.
Corrosion Control Coating	Improve resistance to corrosion.	Spray- or brush-on coating applied to interior of pipe.
Grouting	Seal leaking joints and small cracks.	Seals leaking joints and small cracks.
Pipe Bursting	Line is collapsed, severely blocked, or undersized.	Existing pipe used as guide for inserting expansion head; expansion head increases area available for new pipe by pushing existing pipe out radially until it cracks; bursting device pulls new pipeline behind it.
Slip Lining	Pipe has numerous cracks, leaking joints, but is continuous and not misaligned.	Pulling of a new pipe through the old one.
Fold and Formed Pipe	Pipe has numerous cracks, leaking joints.	Similar to sliplining but is easier to install, uses existing manholes for insertion; a folded themoplastic pipe is pulled into place and rounded to conform to internal diameter of existing pipe.
Inversion Lining	Pipe has numerous cracks, leaking joints; can be used where there are misalignments.	Similar to sliplining but is easier to install uses existing manholes for insertion; a soft resin impregnated felt tube is inserted into the pipe, inverted by filling it with air or water at one end, and cured in place.

Procedures for Assessing the Potential for Illicit Discharges Caused by the Interaction of Sewage Disposal Systems with Storm Drain Systems

During assessments or maintenance of outfalls located in areas served by on-lot systems, Township staff shall note for following up any of the following key surface conditions which may be indicative of an illicit discharge.

- Foul odors in the yard
- Wet, spongy ground; lush plant growth; or burnt grass near the drain field
- Algal blooms or excessive weed growth in adjacent ditches, ponds and streams
- Shrubs or trees with root damage within 10 feet of the system
- Cars, boats, or other heavy objects located over the field that could crush lateral pipes
- Storm water flowing over the drain field
- Cave-ins or exposed system components
- Visible liquid on the surface of the drain field (e.g., surface breakouts)
- Obvious system bypasses (e.g., straight pipe discharges)

Mechanisms for Gaining Access to Private Property to Inspect Outfalls

The Township's Stormwater Management Ordinance provides for access to private property for the purpose of inspecting the condition of the stormwater structures and facilities in regard to any aspect regulated by the Ordinance.

Procedures for Program Documentation, Evaluation and Assessment

The following information shall be updated, maintained and logged for all MS4 outfalls:

- Outfall coordinates
- Watershed
- Diameter and other identifying physical characteristics
- Outfall field inspection sheet
- Any follow-up monitoring at the outfall or further up the pipe
- Any complaints logged for the outfall, along with the response/action
- Status and disposition of any enforcement actions

- Maintenance and inspection data

The MS4 mapping shall continue to be updated as previously unidentified facilities are located and to include newly constructed facilities.

References

1 . Illicit Discharge Detection and Elimination A Guidance Manual for Program Development and Technical Assessments by the Center for Watershed Protection and Robert Pitt University of Alabama, October 2004

OUTFALL RECONNAISSANCE INVENTORY/ SAMPLE COLLECTION FIELD SHEET

Section 1: Background Data

Subwatershed:		Outfall ID:	
Today's date:		Time (Military):	
Investigators:		Form completed by:	
Temperature (°F):	Rainfall (in.): Last 24 hours: Last 48 hours:		
Latitutde:	Longitude:	GPS Unit:	GPS LMK #:
Camera:		Photo #s:	

Land Use in Drainage Area (Check all that apply):

- ☐ Industrial
- ☐ Ultra-Urban Residential
- ☐ Suburban Residential
- ☐ Commercial
- ☐ Open Space
- ☐ Institutional
- Other: _____
- Known Industries: _____

Notes (e.g.., origin of outfall, if known):

Section 2: Outfall Description

LOCATION	MATERIAL	SHAPE		DIMENSIONS (IN.)	SUBMERGED
☐ **Closed Pipe**	☐ RCP ☐ CMP ☐ PVC ☐ HDPE ☐ Steel ☐ Other: _____	☐ Circular ☐ Elliptical ☐ Box ☐ Other: _____	☐ Single ☐ Double ☐ Triple ☐ Other: _____	Diameter/Dimensions: _____	In Water: ☐ No ☐ Partially ☐ Fully With Sediment: ☐ No ☐ Partially ☐ Fully
☐ **Open drainage**	☐ Concrete ☐ Earthen ☐ rip-rap ☐ Other: _____	☐ Trapezoid ☐ Parabolic ☐ Other: _____		Depth: _____ Top Width: _____ Bottom Width: _____	
☐ **In-Stream**	**(applicable when collecting samples)**				
Flow Present?	☐ Yes ☐ No *If No, Skip to Section 5*				
Flow Description (If present)	☐ Trickle ☐ Moderate ☐ Substantial				

Section 3: Quantitative Characterization

FIELD DATA FOR FLOWING OUTFALLS				
PARAMETER		**RESULT**	**UNIT**	**EQUIPMENT**
☐Flow #1	Volume		Liter	Bottle
	Time to fill		Sec	
☐Flow #2	Flow depth		In	Tape measure
	Flow width	____' ____"	Ft, In	Tape measure
	Measured length	____' ____"	Ft, In	Tape measure
	Time of travel		S	Stop watch
Temperature			°F	Thermometer
pH			pH Units	Test strip/Probe
Ammonia			mg/L	Test strip

Outfall Reconnaissance Inventory Field Sheet

Section 4: Physical Indicators for Flowing Outfalls Only

Are Any Physical Indicators Present in the flow? ☐ Yes ☐ No *(If No, Skip to Section 5)*

INDICATOR	CHECK if Present	DESCRIPTION	RELATIVE SEVERITY INDEX (1-3)		
Odor	☐	☐ Sewage ☐ Rancid/sour ☐ Petroleum/gas ☐ Sulfide ☐ Other:	☐ 1 – Faint	☐ 2 – Easily detected	☐ 3 – Noticeable from a distance
Color	☐	☐ Clear ☐ Brown ☐ Gray ☐ Yellow ☐ Green ☐ Orange ☐ Red ☐ Other:	☐ 1 – Faint colors in sample bottle	☐ 2 – Clearly visible in sample bottle	☐ 3 – Clearly visible in outfall flow
Turbidity	☐	See severity	☐ 1 – Slight cloudiness	☐ 2 – Cloudy	☐ 3 – Opaque
Floatables -Does Not Include Trash!!	☐	☐ Sewage (Toilet Paper, etc.) ☐ Suds ☐ Petroleum (oil sheen) ☐ Other:	☐ 1 – Few/slight; origin not obvious	☐ 2 – Some; indications of origin (e.g., possible suds or oil sheen)	☐ 3 - Some; origin clear (e.g., obvious oil sheen, suds, or floating sanitary materials)

Section 5: Physical Indicators for Both Flowing and Non-Flowing Outfalls

Are physical indicators that are not related to flow present? ☐ Yes ☐ No *(If No, Skip to Section 6)*

INDICATOR	CHECK if Present	DESCRIPTION	COMMENTS
Outfall Damage	☐	☐ Spalling, Cracking or Chipping ☐ Peeling Paint ☐ Corrosion	
Deposits/Stains	☐	☐ Oily ☐ Flow Line ☐ Paint ☐ Other:	
Abnormal Vegetation	☐	☐ Excessive ☐ Inhibited	
Poor pool quality	☐	☐ Odors ☐ Colors ☐ Floatables ☐ Oil Sheen ☐ Suds ☐ Excessive Algae ☐ Other:	
Pipe benthic growth	☐	☐ Brown ☐ Orange ☐ Green ☐ Other:	

Section 6: Overall Outfall Characterization

☐ Unlikely ☐ Potential (presence of two or more indicators) ☐ Suspect (one or more indicators with a severity of 3) ☐ Obvious

Section 7: Data Collection

1. Sample for the lab?	☐ Yes	☐ No		
2. If yes, collected from:	☐ Flow	☐ Pool		
3. Intermittent flow trap set?	☐ Yes	☐ No	If Yes, type: ☐ OBM	☐ Caulk dam

Section 8: Any Non-Illicit Discharge Concerns (e.g., trash or needed infrastructure repairs)?

Storm Water Mgt. Agreements

Dallas Township is in possession of the agreements that appear in Bold and are underlined.

994-1997	CONTACT PERSON
• **Applewood Manor**	Geri Wisnewski Ryman Road Dallas Twp.
• Newberry Estates	
• Country Club Shopping Center	Humford Equities
• Encon (Pulverman)	Pulverman- Randy Mark
1998	
• Angelicola Retail-Pa Liq. Store	Rich Angelicola
• **Coates Repro**	Coates Repro -
• **Dallas Ele. School – Gym** Replaced with Blanket agreement in 2009	Grant Palfey
• **EEI-Little Meadows Day Care**	Carl Noto - EEI
• First Union	
• **Misericordia Library**	John Risboskin - Misericordia
• **Misericordia Banks Life Center**	John Risboskin - Misericordia
• **Preston Hollow**	John Halbing
• **Sisters of Mercy-Indep. Living**	Sisters of Mercy Attn: Administrator
• **Winterberry**	Drew Fitch
• **Wycallis School** Replaced with Blanket agreement in 2009	Grant Palfey
• **W.V.H.C. Facility-Demunds Road**	WVHC Attn: Peter Onukevich
1999	
• **DSD – Athletic Fields** Replaced with Blanket agreement in 2009	Grant Palfey
• **Ondish Hills -2 Agreements**	John Halbing
• **Parker Storage**	Cliff Parker
• **Newell Self Storage**	Russ Newell
• **Offset Paperback**	Offset - attn. Director of Maintenance
• **Sisters of Mercy Parking Lots**	Sisters of Mercy Attn: Administrator
• **St. Pauls Chruch**	St. Pauls Chruch
2000-2001	
• **Misericordia Parking Lots**	John Risboskin - Misericordia
• **Fellowship Chruch-SR415**	
• **DSD Middle School** Replaced with Blanket agreement in 2009	Grant Palfey
2002	
• **Grace Chruch**	
• **Misericordia Tennis Courts**	John Risboskin - Misericordia
• **Misericordia Track Complex**	John Risboskin - Misericordia
• **Parker Storage 2**	Cliff Parker
• Penn State Seed	Jim Harkins
2002	
• **Greenbriar –Nursing Center**	Rich Angelicola
• **Dakota Woods**	Greg Pascal
• **Oberst-Dance Studio**	Oberst
2003	
• **Newell Storage Phase 2**	Russ Newell
• Offset Paperback	Offset - attn. Director of Maintenance

2004

- Bk. Mt. Storage-Main Road
- **Greenbriar Indep. Living** Rich Angelicola
- **Ondish Hills Basin 4 Pond2** John Halbing

2005-2006

- Dollar General
- **Roosevelt St.** John Halbing
- **C&N Dining-Yalick Farms** Perry Dunford
- **CH Waltz-Tractor Store**
- **Goodleigh Manor** Charles Revitt
- **Masonic Homes –Phase 1** Joseph Murphy
- **Overbrook Farms** Matt McGowen
- **Saddle Ridge Phase 1&2** John Halbing

2007

- **Masonic Homes – Club House** Joseph Murphy
- **Misericordia Univ.- Alum Hall and Insalaco Center** John Risboskin - Misericordia
- **Greenbriar –Nursing Hm. Addition** Rich Angelicola

2008

- **Steve Shannon Tire** Steve Shannon
  Dorchester Development – Phase1-Hildebrant Learning Center Bill Grant

2009

- **Dallas School Dist. This agreement replaces all previous agreements.**
  This is a blanket agreement for all SW Basins located on the Campus as of 2009. Grant Palfey

- **Geisinger Medical Facility _ Dorchester and Cleary Drive**

2010

- **Pulverman Addition**

2012

- **Turkey Hill SR 415 & SR 118**

2013

- **Dallas School Dist. Athletic Fields**

DALLAS TOWNSHIP STORM WATER FACILITIES

FACILITY	LOCATION	LAT	LONG	E.
A&A Auto and Bank				
	Front	41 19 40 N	75 56 50 W	
Applewwood				
	Underground	41 22 15 N	75 56 30 W	
Bank SR415&118		41 20 32 N	75 59 35 W	
Wyo Valley Health				
	Upper Demunds	41 20 59 N	75 57 32 W	
	Rear	41 20 07 N	75 57 37 W	
CH Waltz				
	SR 309 & Center	41 20 43 N	75 57 42 W	
Coats Reprographics				
	Undeground	41 21 06 N	75 58 29 W	
College Misericordia				
	Front Lawn	41 20 32 N	75 58 14W	
	Rear Parking Lot	41 20 51 N	75 58 12 W	
	Anderson	41 20 48 N	75 58 34 W	
	Library			
	Baseball Field	41 20 52 N	75 58 15 W	
	Old Track	41 20 58 N	75 58 28 W	
	New Track	41 21 00 N	75 58 26 W	
	Softball Field	41 20 41 N	75 58 22 W	

Phone Company				
	In Back	41 21 32 N	75 57 58 W	
CC Shopping Center				
	Parking Lot	41 20 51 N	75 57 34 W	
	Upper Demunds	41 20 48 N	75 57 35 W	
Dakota Woods				
		41 21 29 N	75 57 45 W	
		41 21 22 N	75 57 39 W	
Dallas Fire Station				
		41 20 38 N	75 57 43 W	
Dallas Schools				
	Wycallis	41 20 39 N	75 57 13 W	
	Elementry	41 20 40 N	75 57 17 W	
	Middle			
	Stadium			
	Baseball Field	41 20 35 N	75 57 00 W	
	New Track	41 20 37 N	75 57 20 W	
Dollar General				
	415 & 118	41 20 31 N	75 59 39 W	
Dorchester				
	309 at end	41 19 50 N	75 56 57 W	
Ecumenical Ent.				
	Care Ctr. Hill	41 20 29 N	75 58 05 W	
	Day Care	41 20 29 N	75 58 12 W	
	Hi-Meadows	41 20 25 N	75 58 05 W	

Ecumenical Ent.	Pond	41 20 26 N	75 58 06 W	
Fellowship Church				
	Parking Lot	41 20 51 N	75 56 59 W	
Grace Com. Church				
	Upper lot	41 20 28N	75 59 52 W	
	Lower Lot	41 20 29 N	75 59 56 W	
Goodleigh Estates				
		41 22 56 N	75 58 44 W	
		41 22 47 N	75 58 41 W	
		41 22 43 N	75 58 37 W	
		41 22 56 N	75 58 35 W	
		41 23 00 N	75 58 20 W	
		41 22 46 N	75 57 45 W	
		41 22 43 N	75 57 49 W	
		41 22 33 N	75 57 06 W	
		41 22 38 N	75 56 52 W	
		41 22 32 N	75 56 42 W	
Green Briar				
		41 20 23 N	76 00 16 W	
		41 20 22 N	76 00 18 W	
High Point TH				
	Parrish St.	41 19 29 N	75 57 28 W	

Masonic Homes		41 21 09 N	75 58 26 W	
		41 21 10 N	75 58 27 W	
		41 21 11 N	75 58 25 W	
		41 21 13 N	75 58 22 W	
		41 21 07 N	75 58 28 W	
Mapplewood Height		41 20 02 N	75 56 02 W	
New Berry				
	Long Bridge	41 19 36 N	75 57 21 W	
	Short Bridge	41 19 34 N	75 57 05 W	
Newell Self Storage				
		41 21 36 N	75 57 49 W	
North Woods				
	At Road	41 20 55 N	75 59 41 W	
	Access Road	41 20 48 N	75 59 47 W	
Oberst Dance Studio				
		41 21 36 N	76 00 00 W	
OffSet Paperback				
	By Guard House	41 19 46 N	75 56 43 W	
		41 19 47 N	75 56 48 W	
Ondish Hills				
		41 20 00 N	75 56 23 W	
		41 19 58 N	75 56 20 W	
Overbrook Estates	None Found			

Overbrook Farms				
	Big Pond	41 19 13 N	75 57 15 W	
	Morris Ct.	41 19 14 N	75 57 06 W	
	Hemlock Ct.	41 19 15 N	75 57 07 W	
Conners Rt. 309				
	Underground	41 19 41 N	75 56 48 W	
Pa American Water				
	Huntsville	41 18 59 N	75 58 20 W	
		41 18 58 N	75 58 20 W	
Parker Self Storage				
		41 19 51 N	75 56 35 W	
Penn State Seed				
		41 23 00 N	75 58 55 W	
Preston Hollow				
		41 23 09 N	75 59 31 W	
Pulverman/Encon				
		41 20 08 N	75 56 30 W	
Roosevelt St.				
		41 20 06 N	75 56 06 W	
Saddle Ridge				
		41 20 21 N	75 56 10 W	

Saddle Ridge Con.		41 20 28 N	75 56 10 W	
		41 20 22 N	75 55 36 W	
		41 20 18 N	75 55 38 W	
St. Pauls Church				
		41 20 28 N	75 59 43 W	
	Lower Corner	41 20 27 N	75 59 53 W	
Sisters Of Mercy				
		41 20 42 N	75 58 06 W	
Winterberry				
		41 21 33 N	75 56 34 W	
Yalick Farms				
		41 20 20 N	75 59 20 W	
		41 20 20 N	75 59 20 W	
		41 20 26 N	75 59 14 W	
		41 20 31 N	75 59 25 W	
Turkey Hill				
	Rt 415	41 20 33 N	75 59 34 W	