DRAFT ENVIRONMENTAL IMPACT STATEMENT
VOLUME II

LOWE'S HOME IMPROVEMENT CENTER

SOUTHWESTERN BOULEVARD (US ROUTE 20)
TOWN OF HAMBURG
ERIE COUNTY
NEW YORK

JUNE 2007

LEAD AGENCY:
TOWN OF HAMBURG TOWN BOARD
TOWN OF HAMBURG
S6100 SOUTH PARK AVENUE
HAMBURG, NEW YORK 14075
MR. STEVEN J. WALTERS, SUPERVISOR
PHONE: (716) 649-6111

STATEMENT PREPARED BY:
COSTICH ENGINEERING
217 LAKE AVENUE
ROCHESTER, NEW YORK 14608
PHONE: (585) 464-3020

SUPPLEMENTAL INFORMATION SUPPLIED BY:
EARTH DIMENSIONS, INC
EVERGREEN TESTING AND ENVIRONMENTAL SERVICES
F-E-S ASSOCIATES
FOUNDATION DESIGN, P.C.
GAR ASSOCIATES, INC.
JOHN HEINIKE
LOWES HOME CENTERS, INC.
MORADA BAY ASSOCIATES, LLC
NORTHERN ECOLOGICAL ASSOCIATES, INC.
JAY POHLMAN, ESQ.
SCHIRMER ENGINEERING
SRF ASSOCIATES
RESOURCE SYSTEMS GROUP, INC

FOR FURTHER INFORMATION CONTACT:
TOWN OF HAMBURG PLANNING DEPARTMENT
TOWN OF HAMBURG
S6100 SOUTH PARK AVENUE
HAMBURG, NEW YORK 14075
MR. ANDREW REILLY P.E., A.I.C.P., TOWN PLANNING
PHONE: (716) 649-2023

DATE OF ACCEPTANCE OF THE DRAFT ENVIRONMENTAL IMPACT STATEMENT ____________

DATE FOR SUBMISSION OF COMMENTS ____________

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APPENDIX D

Appendix D

Dated: November 28, 2006

Morada Bay Associates, LLC
1941 Davis Road
West Falls, NY 14170
Phone 716/655-2727
Fax 716/625-1212

November 28, 2006

Town of Hamburg Town Board
S-6100 South Park Avenue
Hamburg, New York 14075

RE: Lowe's Project

Dear Hamburg Board Members and Officials:

The following is a summary of site selection/analysis with respect to how Paradigm chose a site for Lowe's Home Centers for their proposed Hamburg, New York location. It is essential to understand both the process of site selection that is inherent to a successful, Fortune 500 (#42) Company. It has been our experience that Lowe's reviews a town and the limits of attracting customers with respect to drive time, driving distance and the existing and future road infrastructure. From this data, a potential trade area is established and the demographic profile (i.e. number of households, age of homes, average household income, etc.) is established for the population within which the trade area is created. Secondly, a study of whether (if any) an existing Lowe's store is servicing the new trade area. This analysis is done by mapping the addresses of proposed customers who purchase merchandise at surrounding Lowe's stores. In some instances, this same information is used to divide an existing trade area where a Lowe's store is reaching peak operating conditions and requires relief.

After establishing a successful trade area, the site selection process turns to what part of town is most accessible to the majority of the population within that trade area. As depicted by the existing housing densities within the Hamburg market, the majority of Lowe's customers will be coming from the North (Blasdell and Lakeshore area) and from the South via Camp Road and Sowles Road. As one travels to the West, housing densities drop significantly. Thus, the proposed Lowe's location on Southwestern Boulevard and north of Camp Road is most attractive. It should also be noted that the existing infrastructure of Southwestern Boulevard (i.e. five lanes with sidewalks) allows safe and convenient access.

Lastly, as with all newly developed major retailers, size/acreage of potential sites is a key limiting factor. A typical Lowe's store requires approximately 15 acres to develop. However, recognizing municipal demands for such items as preservation of green space, vegetative buffers and landscaping increases the required acreage considerably. The large amount of available acreage and the potential to utilize mature trees and other vegetation to satisfy these requirements was paramount in the decision for moving forward with the currently proposed site.

The below bullet points will provide some insight as to what alternative locations were available and to why each site was subsequently discounted.

Within the Hamburg trade area there were eight potential sites to be considered for a Lowe's Home Center, the current proposed Southwestern Boulevard site being the only one which met the above criteria.

The other seven sites considered and the reasons they were rejected are as follows:

A. Leisure Land – Camp Road
- Impossible customer access with Thruway (I-90) entrance ramp and cloverleaf
- Safety, cost and environmental concerns – Traffic, asbestos, petroleum spill, demolition, etc.
- Existing owner has development plans/not willing to sell.
- Adequate acreage – excellent demographics
- Inadequate street frontage

B. South Shore Golf Course – Camp Road/Southwestern Blvd.
- Town Fathers rejected idea of rezoning
- Loss to Town of Hamburg of existing recreational facility
- Owner not willing to sell
- Adequate acreage

C. Sites on Camp Road – North of Southwestern Blvd.

- Loss of Southwestern traffic (insufficient traffic counts)
- Neighborhood trend to light industrial use
- No neighboring retail
  Prior retail failures, i.e. Grossmans, Gold Circle, restaurants, etc.

D. South Park Avenue – Vacant Retail Plazas
(North of Hamburg Town Hall)

- Existing Buildings – insufficient size
- Lack of available property at site for buffering, parking and depth necessary for store footprint
- Insufficient road capacity and lack of site identification for those outside the Hamburg Village. (Inaccessible to the vast majority of primary trade area)
- Only access road – South Park Avenue – insufficient capacity
- Existing leases for smaller tenants presently on premises.

E. Camp Road – Across from the Holiday Inn
(Southeast Corner of Camp Road and I-90)

- Majority of property is wetlands
- Overhead power lines/utility easements
- Potential loss of East/West Southwestern Boulevard traffic
- Undeveloped site

F. Camp Road at Scranton Road – Southeast corner
(Buffalo News Building (former Tops supermarket), Junkyard)

- Existing creek/watershed renders site small and unusable
- Proximity to railroad line
- Poor site line/store visibility
- Environmental clean up cost (junkyard/petroleum) and timeline for remediation

G. <u>Brierwood Plaza – Southshore Plaza</u>
(Proposed site for Super Walmart)

- Demographic studies reflect maximum existing traffic pattern at Camp and Southwestern – site too far west and severely diminished traffic count
- Potential for substantial future residential development for this quadrant of Hamburg
- Lack of existing neighboring retail

In summary, the site chosen for the Lowe's store which is currently before the Hamburg officials is the best site for the following reasons:

1. The site is located on a roadway with adequate infrastructure (five lanes and sidewalks) to provide safe and easy access.

2. The site is located in an area that is easily accessible to a large trade area and to those portions of the trade area with the most housing density. Additionally, the site is well positioned to adequately serve future housing growth.

3. The site has more than adequate existing, mature vegetation to meet and exceed greenspace requirements and provide excellent zoning buffers.

Please contact the undersigned should you have any further questions or concerns.

Very truly yours,

Ronald Bronstein
Morada Bay Associates, LLC

APPENDIX E

Appendix E

By: Schirmer Engineering
707 Lake Cook Road, Suite 200
Deerfield, Illinois 60015

Dated: November 21, 2006

SCHIRMER ENGINEERING
707 Lake Cook Road, Ste. 200
Deerfield, IL 60015
Phone (847) 272-8340 Fax (847) 272-2639
Fire Protection ■ Code Consulting ■ Risk Control ■ Security Consulting

LOCATION ANALYSIS ATTACHMENTS
FOR
LOWE'S OF HAMBURG, NEW YORK
SOUTHWESTERN BOULEVARD

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PART 3 – ATTACHMENTS

ATTACHMENT A

Fire Marshal Confirmation Letter

SCHIRMER ENGINEERING
707 Lake Cook Road, Ste. 200
Deerfield, IL 60015
Phone (847) 272-8340 Fax (847) 272-2639
Fire Protection ■ Code Consulting ■ Risk Control ■ Security Consulting

PLEASE REPLY TO:
339 Edgewood Road
West Springfield, MA 01089
Phone: (413) 737-5922
Fax: (413) 737-5922
E-mail: peter_kinsley@schirmereng.com

January 17, 2007

Mr. Kurt Allen
Supervisor of Building Inspectors
Town of Hamburg
6100 South Park Avenue
Hamburg, NY 14075-3774

Re: Lowe's Store

Dear Mr. Allen:

Thank you for taking time to discuss the fire protection for the proposed Lowe's store. Attached is a copy of the fire hydrant flow test for your records. I wanted to confirm some of the items we discussed.

Fire Hydrants

Five fire hydrants will be provided around the perimeter of the store. You will verify their locations when you are provided with a copy of the Site Utility Plan drawing. A copy of this drawing will be sent to you for your review and comments. Average hydrant spacing should be not more than 500 feet. A hydrant should be located within 50 to 100 feet of the fire department connection at the front of the building.

Sprinkler Systems

ESFR sprinklers will be used to protect the sales, receiving and seasonal display areas of the store. The sprinkler systems will be provided with central station supervision.

The sprinkler systems are not required to be designed with a specific safety factor with regard to the available water supply.

It is acceptable to have no sprinkler protection or smoke/heat detection provided for electrical closets, provided that there is no combustible storage of any kind within the spaces.

Fire Hoses

No inside hose connections are required by either Chapter 23 of the State Fire Code (Section 2306.8) or Chapter 9 (Section 905) for an occupancy of this type. You indicated that with ESFR suppression mode sprinklers provided throughout the Sales Area and Receiving Area of this store, no inside hose connections would be needed.

Fire Department Connection

A 5-inch Storz-type fire department connection should be installed on the front wall of the store.

Doors

The arrangement and number of doors appeared to be satisfactory.

Smoke Removal System

Smoke and heat vents are not required by the State Fire Code (Section 2306.7) when ESFR sprinklers are provided.

Delayed Egress Locks

The use of delayed-egress locks is acceptable, as long as the requirements of NFPA 101 and the State Building Code are met for special locking arrangements, including unlocking of doors with delayed-egress locks upon sprinkler actuation, loss of power, fire alarm actuation or a signal from an emergency control station.

Feel free to contact me if you have any questions regarding the project.

Sincerely yours,

SCHIRMER ENGINEERING CORPORATION

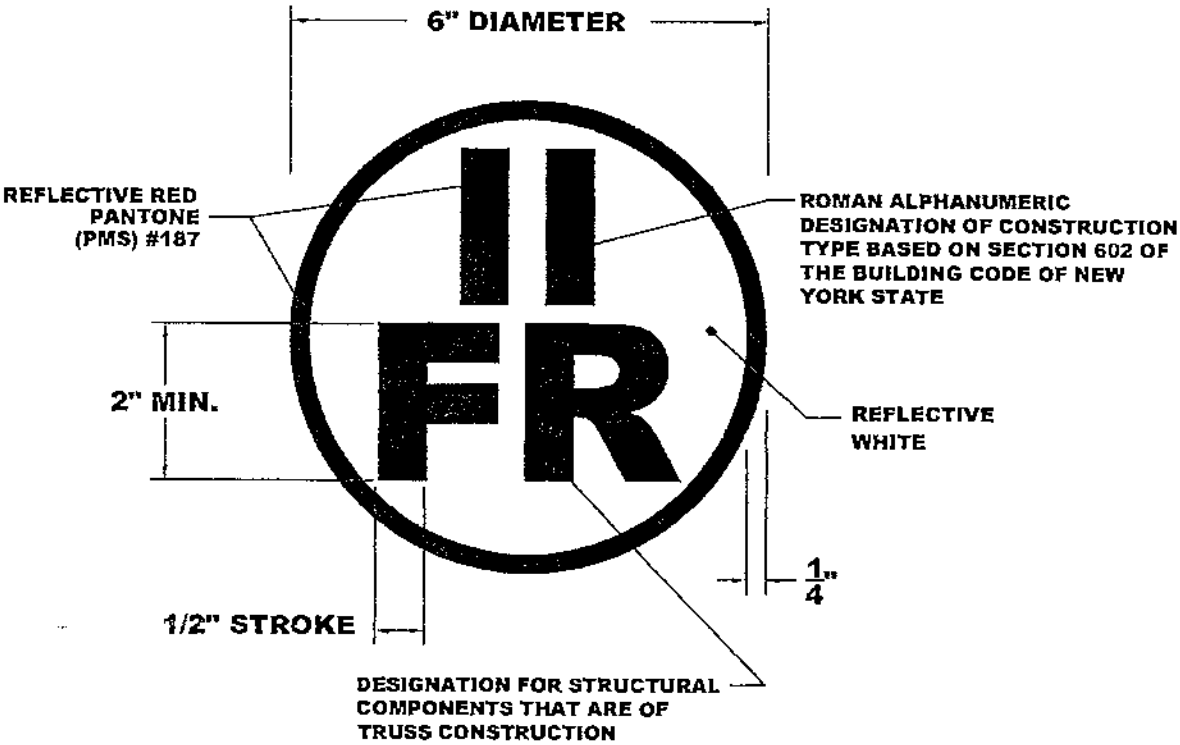
Peter Kinsley

Peter Kinsley

Enclosure (water test results)

ATTACHMENT B

NY State Truss Marking Requirements



"F"	FLOOR FRAMING, INCLUDING GIRDERS AND BEAMS
"R"	ROOF FRAMING
"FR"	FLOOR AND ROOF FRAMING

TRUSS IDENTIFICATION SIGN

COMPLIANCE WITH 19 NYCRR PART 1264

NOT TO SCALE

CODES DIVISION

DEPARTMENT OF STATE

EXAMPLE TRUSS IDENTIFICATION SIGN DATE:03/08/2005

NEW YORK STATE DEPARTMENT OF STATE
DIVISION OF CODE ENFORCEMENT
AND ADMINISTRATION

TEXT OF RULE
Effective December 29, 2004
19 NYCRR Part 1264

Subchapter C of Chapter XXXIII of Title 19 of the Official Compilation of Codes, Rules and Regulations of the State of New York is amended by adding a new Part 1264 to read as follows:

Part 1264

IDENTIFICATION OF BUILDINGS UTILIZING TRUSS TYPE CONSTRUCTION

1264.1 Introduction. Section 382-a of the Executive Law provides that commercial and industrial buildings and structures that utilize truss type construction shall be marked by a sign or symbol that informs persons conducting fire control and other emergency operations of the existence of truss construction. Section 382-a further directs the State Fire Prevention and Building Code Council to promulgate rules and regulations it deems necessary to carry into effect the provisions of the statute. This Part establishes certain requirements pertaining to the identification of buildings and structures that utilize truss type construction.

1264.2 Enforcement. (a) Subdivision 4 of section 382-a of the Executive Law directs local governments to provide for enforcement of the statute. Enforcement of section 382-a of the Executive Law shall include enforcement of the provisions of this Part. A fee of fifty dollars shall be paid by the owner of a building with truss type construction to the authority having jurisdiction for enforcement of section 382-a of the Executive Law prior to the issuance of a building permit.

(b) This Part shall not apply within a city with a population of one million or more persons.

1264.3 Definition. For the purposes of this Part, truss type construction shall mean a fabricated structure of wood or steel, made up of a series of members connected at their ends to form a series of triangles to span a distance greater than would be possible with any of the individual members on their own. Truss type construction shall not include:

(1) individual wind or seismic bracing components which form triangles when diagonally connected to the main structural system; and

(2) structural components that utilize solid plate web members.

1264.4 Identification of truss type construction. (a) Truss type construction shall be identified by a sign or signs in accordance with the provisions of this Part.

(b) Signs shall be affixed where a building or a portion thereof is classified as Group A, B, E, F, H, I, M, or S occupancy, and in hotels and motels classified as Group R-1 or R-2 occupancy, in accordance with the provisions for the classification of buildings set forth in chapter 3 of the Building Code of New York State (see 19 NYCRR Part 1221).

(c) Signs shall be provided in newly constructed buildings that utilize truss type construction and in existing buildings where an addition that extends or increases the floor area of the building utilizes truss type construction. Signs shall be affixed prior to the issuance of a certificate of occupancy or a certificate of compliance.

(d) Signs identifying the existence of truss construction shall consist of a circle 6 inches (152.4 mm) in diameter, with a stroke width of ½ inch (12.7 mm). The sign background shall be reflective white in color. The circle and contents shall be reflective red in color, conforming to Pantone matching system (PMS) #187. Where a sign is directly applied to a door or sidelight, it may be a permanent non-fading sticker or decal. Signs not directly applied to doors or sidelights shall be of sturdy, non-fading, weather resistant material.

(e) Signs identifying the existence of truss construction shall contain the roman alphanumeric designation of the construction type of the building, in accordance with the provisions for the classification of types of construction set forth in section 602 of the Building Code of New York State (see 19 NYCRR Part 1221), and an alphabetic designation for the structural components that are of truss construction, as follows:
"F" shall mean floor framing, including girders and beams
"R" shall mean roof framing
"FR" shall mean floor and roof framing
The construction type designation shall be placed at the twelve o'clock position over the structural component designation, which shall be placed at the six o'clock position.

(f) Signs identifying the existence of truss construction shall be affixed in the locations specified in Table I-1264.

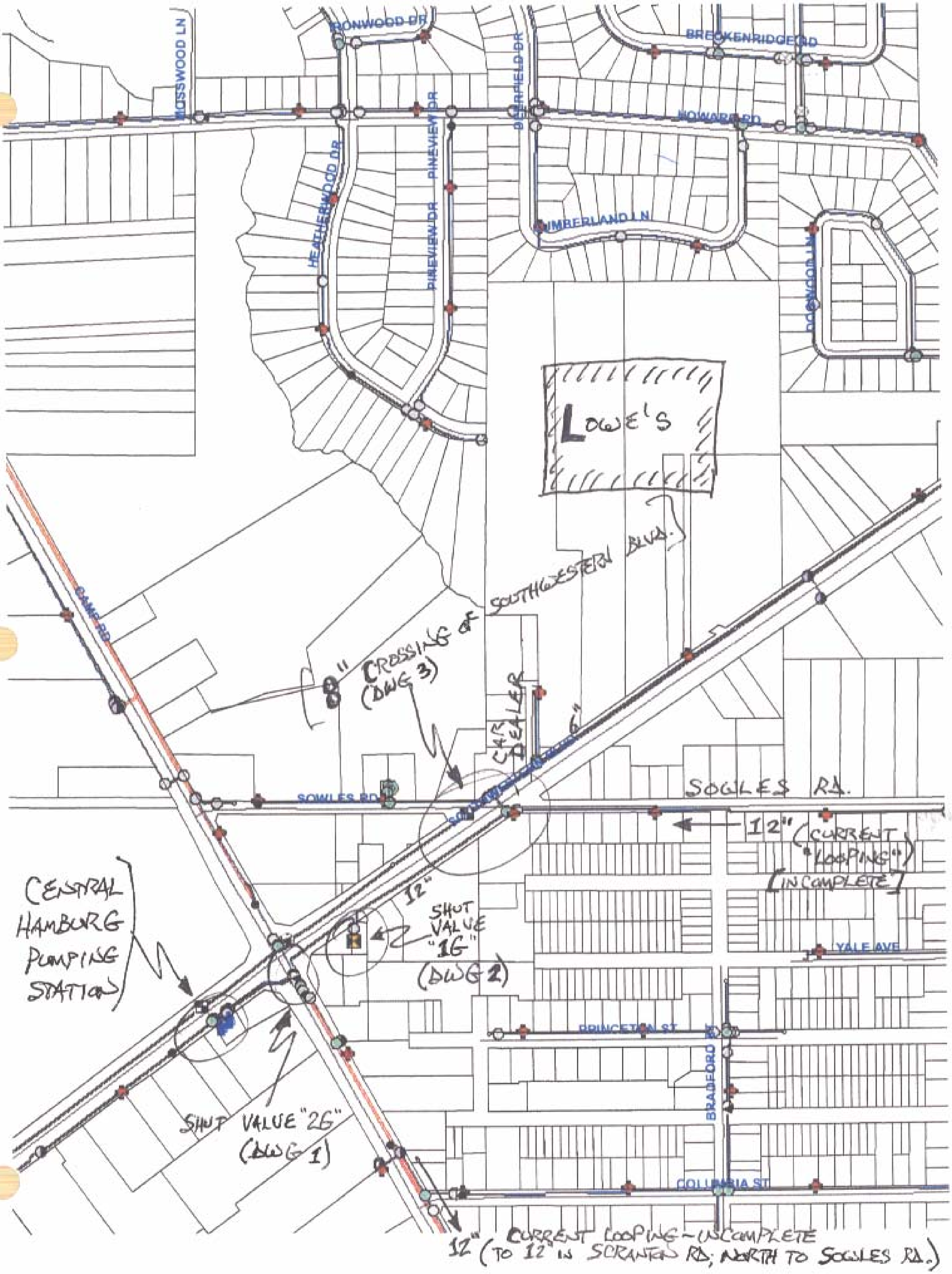
TABLE I-1264
TRUSS IDENTIFICATION SIGN LOCATIONS

Sign location	Sign placement
Exterior building entrance doors, exterior exit discharge doors, and exterior roof access doors to a stairway	Attached to the door, or attached to a sidelight or the face of the building, not more than 12 inches (305 mm) horizontally from the latch side of the

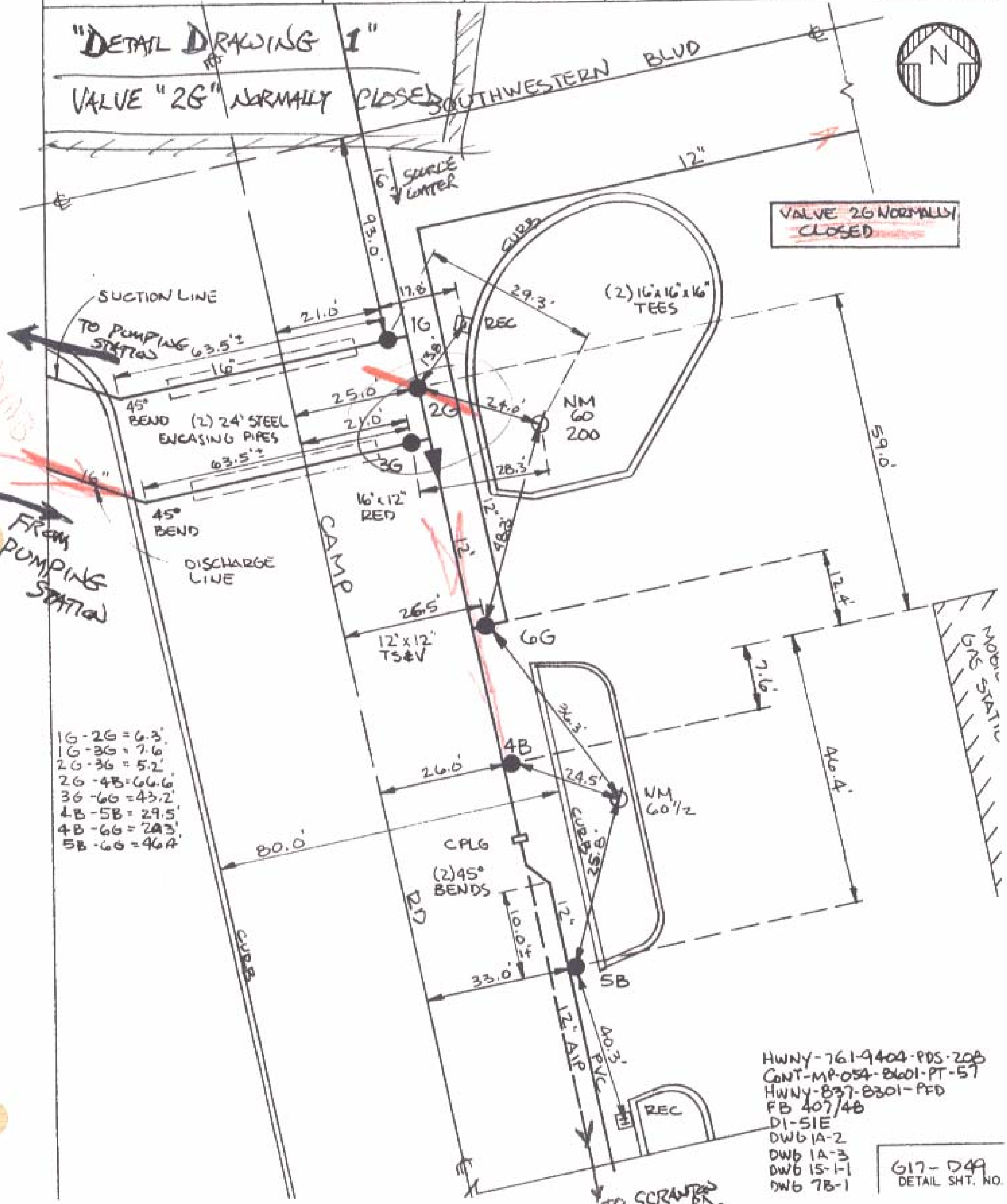
	door jamb, and not less than 42 inches (1067 mm) nor more than 60 inches (1524 mm) above the adjoining walking surface.
Multiple contiguous exterior building entrance or exit discharge doors	Attached at each end of the row of doors and at a maximum horizontal distance of 12 feet (3.65M) between signs, and not less than 42 inches (1067 mm) nor more than 60 inches (1524 mm) above the adjoining walking surface
Fire department hose connections	Attached to the face of the building, not more than 12 inches (305 mm) horizontally from the center line of the fire department hose connection, and not less than 42 inches (1067 mm) nor more than 60 inches (1524 mm) above the adjoining walking surface

ATTACHMENT C

Water System Map and Detail Drawings

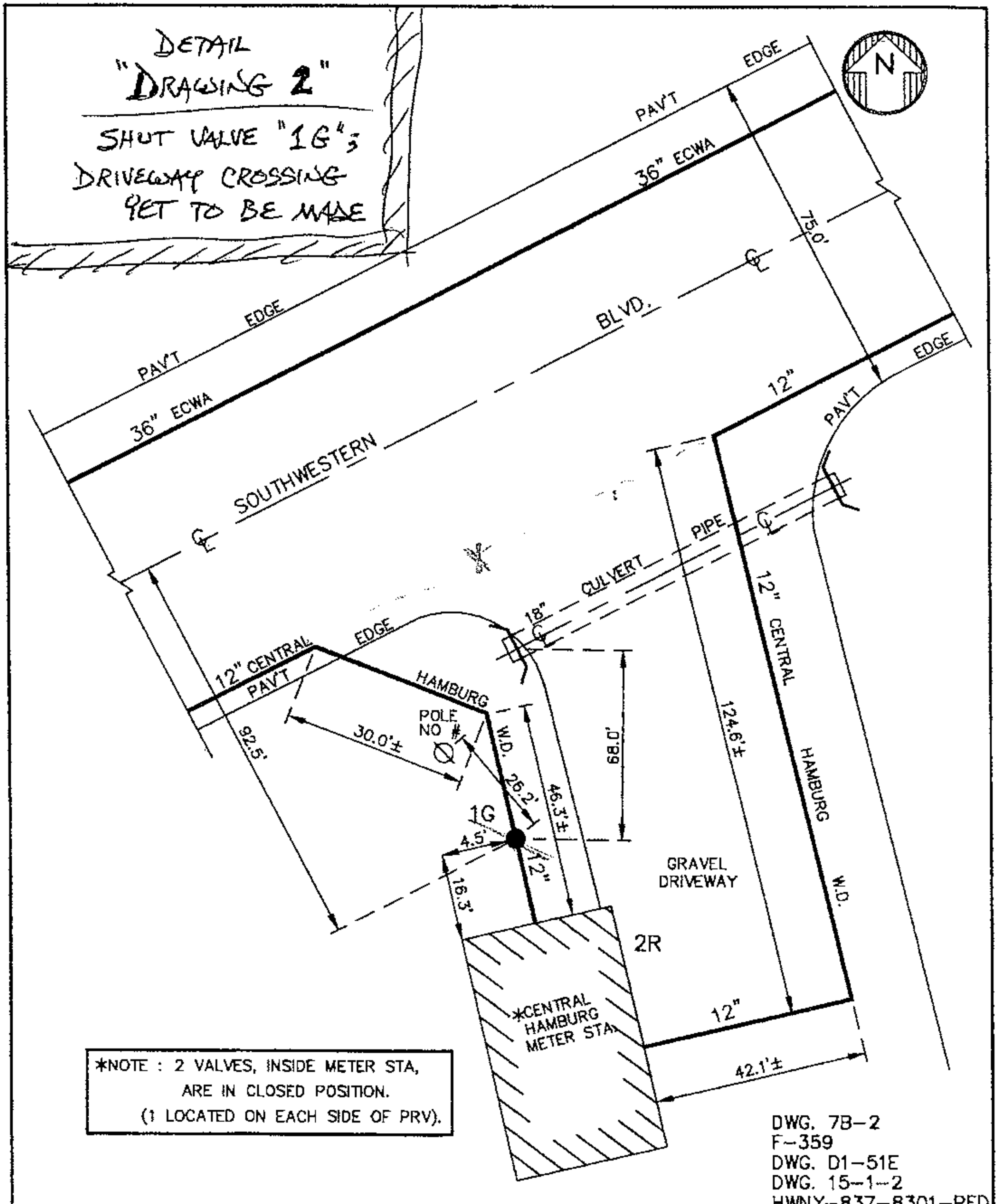

IRONWOOD DR
MOSSWOOD LN
BRECKENRIDGE RD
HOWARD RD
HEATHERWOOD DR
PINEVIEW DR
PINEVIEW DR
LOWE'S
CROSSING OF SOUTHWESTERN BLVD.
8" CROSSING (DWG 3)
CAMP RD
CAR DEALER
6"
SOWLES RD
SOWLES RD.
12" (CURRENT "LOOPING") [INCOMPLETE]
12"
SHUT VALVE "1G" (DWG 2)
YALE AVE
(CENTRAL HAMBURG PUMPING STATION)
BRADFORD ST
SHUT VALUE "2G" (DWG 1)
COLUMBIA ST
12" CURRENT LOOPING - INCOMPLETE (TO 12" IN SCRANTON RD; NORTH TO SOWLES RD.)

ECWA ERIE COUNTY WATER AUTHORITY BUFFALO, NEW YORK	REV DR. BM DATE 9-27-00 FIELD	REVISED DR. DATE OFFICE	TOWN OF HAMBURG E.C.W.A.	617-D49 DETAIL NO.(NTS) 199400499 CURRENT PROJECT



DETAIL
"DRAWING 2"

SHUT VALVE "1G";
DRIVEWAY CROSSING
YET TO BE MADE



*NOTE : 2 VALVES, INSIDE METER STA, ARE IN CLOSED POSITION. (1 LOCATED ON EACH SIDE OF PRV).

DWG. 7B-2
F-359
DWG. D1-51E
DWG. 15-1-2
HWNY-837-8301-PFD

EC WA ERIE COUNTY WATER AUTHORITY BUFFALO, NEW YORK	REVISED DR. AMW DATE: 7-21-86 FIELD	REVISED DR. DCC DATE: 1-20-97 OFFICE	TOWN OF HAMBURG E.C.W.A. & CENTRAL HAMBURG W.D.	G17-D41 DETAIL SHT. NO. N.T.S.

MASTER COPY

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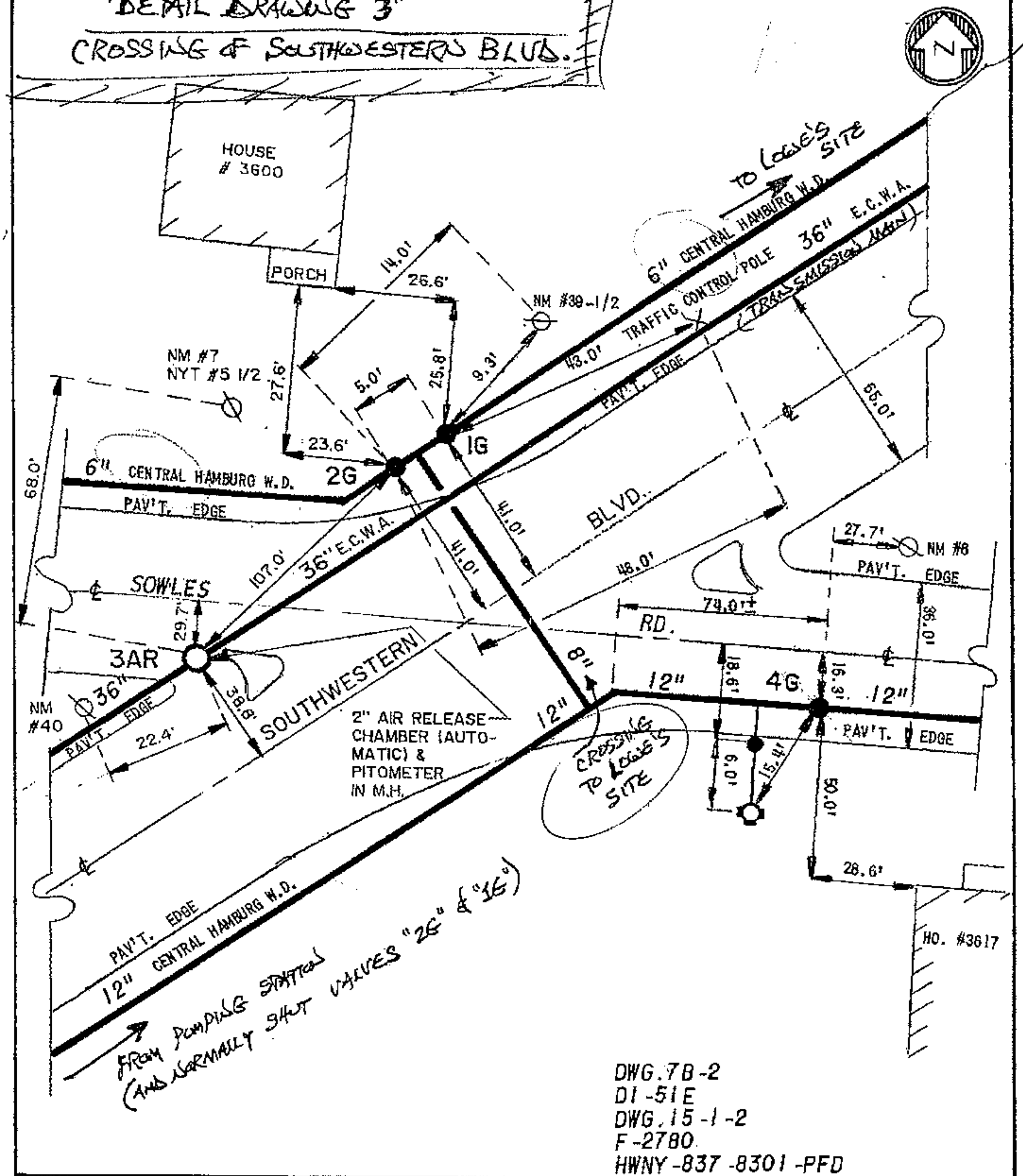
"DETAIL DRAWING 3"

CROSSING OF SOUTHWESTERN BLVD.



ECWA ERIE COUNTY WATER AUTHORITY BUFFALO, NEW YORK	REDRAW DR. BY: D.C.C. DATE: 12-1-88 NOT TO SCALE	TOWN OF HAMBURG E.C.W.A. & CENTRAL HAMBURG W.D.	G17-D35 DETAIL SHEET NO.

ATTACHMENT D

Application for New Water Service

PLEASE PRINT

APPLICATION FOR NEW WATER SERVICE

PLEASE PRINT

ERIE COUNTY WATER AUTHORITY • 3030 UNION RD. • CHEEKTOWAGA, N.Y. 14227

WATER DIST. NO.__________ PHONE: CUST. SERVICE: (716) 684-1510 ORDER:________

APPLICANTS NAME			CONTRACTOR	ACCOUNT NO. (BY ECWA)	
LOT NO.	HOUSE NO.	STREET NAME	OCCUPANCY DATE / /	SERVICE NO. (BY ECWA)	
TOWN/VILLAGE		TOWN TAX NO. (IF KNOWN)	SIZE OF SERVICE	CONTROL NO. (BY ECWA)	
CROSS STREET TO N S E W		IS LINE OUT AND READY FOR CONNECTION? ☐ Y ☐ N	IS OUTSIDE METER TILE NECESSARY? ☐ Y ☐ N	CONNECTION FEE	TILE FEE

The above applicant hereon applies to the Erie County Water Authority for water service in compliance with the "Rules for the Sale of Water and the Collection of Rents and Charges" and all subsequent duly adopted amendments or modifications thereof duly published and filed in the Office of the County Clerk and the Administrative Offices of the Authority.

In cases where the premises to be serviced by the Authority lies within the boundaries of a legally constituted Water District, the applicant also agrees to abide by the terms of the Lease Management Agreement between the Authority and the Governing Body of said Water District.

The applicant acknowledges he/she is the person entitled to possession of the premises and is legally liable for payment for services.

The applicant further agrees to release and discharge the Authority from any liability for damages suffered to the premises in the normal course of service from any cause.

APPLICANT USE		AUTHORITY USE	
SIGNATURE OF APPLICANT:	TODAY'S DATE: / /	EMPLOYEE NAME	DATE / /
MAILING ADDRESS (No. and Street)	PHONE NO. (Home)	PLEASE FILL OUT AND MAIL WITH FEES AND SURVEY	
CITY, STATE AND ZIP CODE	PHONE NO. (Work)		

(WA-57)

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ERIE COUNTY WATER AUTHORITY
APPLICATION FOR NEW SERVICE

I. APPLICATION

Applications for water service may be made to the office of the Erie County Water Authority, 3030 Union Road, Cheektowaga, New York 14227.

A. You must submit a signed Application for Water Service Card (WA57) with the basic information filled out.

B. With the card, you must submit:

1. Connection fee
2. Copy of property survey
3. Copy of building permit (For new builds)

Note: Non-Residential Services will require complete backflow submittal.

II. BUILDING LOCATION

The building must face and be numbered on the same street where the service will be installed.

Clearly mark the building with the proper number.

III. WATER SERVICE LINES

A. General Information

The Authority will make the connection to the new water main. It is the applicant's responsibility to prepare interior and exterior plumbing to receive the new connection. Those steps are detailed below. If a resident has a service connection made, the Authority requires a meter to be installed. No blind taps or services intended for future use will be permitted. If you complete this application and have a tap installed, you must receive a meter for water service from the Authority.

Before a service connection is made, the homeowner must complete the following steps:

1. Complete the application card (WA57) and return it to the Water Authority together with payment of the tap-in fee.

2. Install the service line to the front right-of-way line.

3. Complete steps inside the home to accept a water meter.

4. Disconnect any well feeds. (If well is your current supply of water, do not disconnect well feeds until a connection has been made and a meter setting coordinated with our meter shop.)

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The Authority will make the service pipe connection to the water main and provide the road crossing (if necessary), the curb box and curb stop up to your home's right-of-way line.

1. Each individual meter requires a separate water service line, curb box and curb stop. No service connection will be made until the service pipe and service connection from the premises to the street has been installed in a manner satisfactory to the Erie County Water Authority.

2. The water service line on the property of the applicant must be installed from the premises to the property line by the applicant (drawing A3-28).

3. Each water service line must be 4-1/2 feet underground. The Authority is not responsible for customer service lines on the owner's side of the curb box that are damaged including damage due to freezing. The 4-1/2 foot depth must follow the contour of the finished grade of the ground.

    a. You must plainly mark the end of the service line at the end of the property line by leaving the end of the pipe protruding above the ground with a stake marked "water" attached to the end of the service pipe. During times of snowfall, it is the customer's responsibility to keep this line clear of snow. If we can't see the end of the line, we can't perform the connection.

B. Sewer, Other Utilities

1. The water service line shall not be installed in the same trench as the sewer or other utilities.

C. Well System

1. It is prohibited by Law to connect in any way to a well system with a public water system. To disconnect from a well system, see plate B1-180.

D. Service Lines and Materials

1. All lines shall be at least 3/4-inch diameter and shall be of the type K soft copper tubing. The Authority will not make any connections to plastic pipe. All lines three inches in diameter and larger must meet specifications of the Erie County Water Authority. The sizing of owner's line is <u>not</u> the responsibility of the Erie County Water Authority.

IV. METERS AND METER COUPLINGS

A. General Information

1. The Erie County Water Authority will furnish, install and maintain meters and meter couplings.

2. The customer shall install on his/her premises the necessary piping, fittings, valve and pipe couplings to receive the meter.

3. The Erie County Water Authority recommends:

   a. That you suitably install and locate equipment to prevent the backflow of hot water that may cause damage to the meter; and

   b. That you consult a plumber as to the need of an expansion tank in your internal plumbing system; and

   c. That you install a shut-off valve between the meter placement and the entrance wall.

4. You must have an inlet and outlet valve for ALL 1-1/2" and 2" meter sets.

B. Meter Sizes

1. The Authority reserves the right, in all cases, to stipulate the size, type and make of the meter to be used on any connections.

   Recommended Service Sizes for Residences:

One Family	3/4 inch
Two and Three Family	1 inch
Four to Seven Family	1-1/2 inch
Eight Family	2 inch

C. Meter Placement

1. <u>In the basement or other location:</u> Meters 5/8 x 3/4 inch through 2 inch in size may be installed in the basement or other location as approved by the Authority so as to protect the meter and to measure the entire supply of water through the connection.

2. <u>Not in the BASEMENT</u>: If your building is more than 150 feet from the right-of-way, you may not set the meter in the building. Where a meter cannot be set in the building of the premises to be served, you must place the meter in a tile set or a meter pit on the consumer's property near the highway right-of-way.

2a. <u>Tile Set</u>: The Authority can install the meter tile set for 3/4 inch and 1 inch services (see detail enclosed).

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2b. Meter Pit: Meters 1-1/2 inch and 2 inch set in a meter pit shall be in a pit constructed according to approved plans available from the Authority. Meter pits shall be installed by the consumer, subject to approval by the Authority.

3. Remote Read Meters: Remote read meters will be installed by the Water Authority at the time of meter installation. They are connected by cable from the meter to the outside of the building so they can be serviced without entering the premises.

D. Spaces for Meter Sets Inside Building

*	**5/8"x 3/4" - 13"**	**between 3/4" female pipe thread coupling and valve**
	3/4"- 14"	between 3/4" female pipe thread coupling and valve
	1" - 16"	between 1" female pipe thread coupling and valve
	1-1/2" - 14-1/2"	between 1-1/2" diameter pipe thread nipples
	2"- 18-1/2"	between 2" diameter pipe thread nipples

*** Note: This is the meter/spacing required for normal ECWA residential service.**

E. Charges for Connection to Water Main

Size of Connection	Charge
3/4"	$1,080.00
1"	$1,080.00
1-1/2" x 2"	$1,400.00
Over 2"	At Cost
Tile Set for Meter	$560.00

V. FRONTAGE CHARGE

As of March 11, 2001, frontage charges will no longer apply. A restrictive agreement may be required if the property does not meet the Authority's Tariff requirements.

VI. PROCESSING TIME FOR APPLICATION

Depending on peak construction periods and seasonal inclement weather conditions, it may take approximately six weeks from the time that an application is accepted until the service line is connected to the main. Contact the Authority after the service line is run from the building to the property line so that the Authority's section may be scheduled for installation.

VII. FOR METER INSTALLATION

You should make an appointment for meter installation after the service has been connected to the main. **Please call the Erie County Water Authority Meter Shop at 685-8226 from 8:00 a.m. to 4:30 p.m. Monday through Friday to make an appointment**. If you request a meter installation other than normal working hours, 8:00 a.m. to 4:30 p.m. Monday through Friday, you will be subject to a $25 service charge. If you do not keep your appointment, you will be subject to a $20 service charge. In addition, if a meter pit must be pumped, you will be subject to a $55 service charge.

ERIE COUNTY WATER AUTHORITY

NEW SERVICE APPLICATION

The Erie County Water Authority is a nonprofit public benefit corporation which provides safe, quality drinking water to more than 500,000 people in Western New York.

The Erie County Water Authority wants to supply you with quality, reliable service. If you have any questions, problems or concerns about your service feel free to contact us.

Erie County Water Authority Important Phone Numbers to Remember

Administrative Offices	***849-8484***
350 Ellicott Square Building	
Buffalo, NY 14203	
Call in Meter Reading	849-8426
Customer Service	849-8444
Service Center	***684-1510***
3030 Union Road	
Cheektowaga, NY 14227	
Construction Services	685-8224
Control	685-8247
Dispatch	685-8241
Emergency and Repairs	684-0900
Engineering Design Services	685-8251
Meter Shop	685-8226/8253
New Services	685-8208

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NEW SERVICE APPLICATION
(3/4" to 2" sizes)

QUESTIONNAIRE

1. Did you fill out your application completely and sign it? YES ___ NO ___
If no, it will not be accepted.

2. Does your building face the street where it is numbered? YES ___ NO ___
If no, your application will not be accepted.

3. If a new building, did you attach a copy of your survey and building permit? If no, your application cannot be processed. YES ___ NO ___

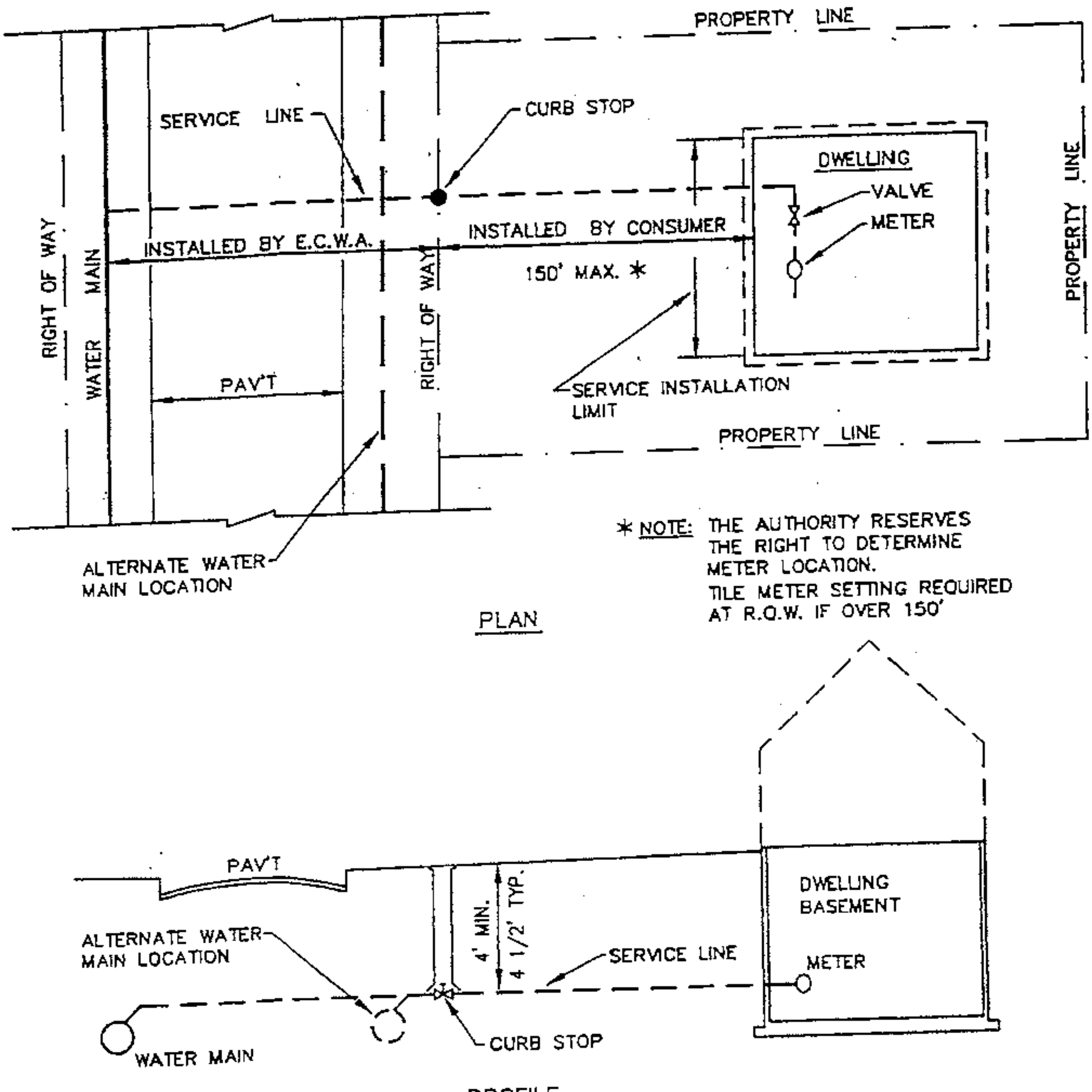
4. Is your building more than 150 feet from the right-of-way? YES ___ NO ___
If yes, a tile setting or meter pit will be required.

5. Is your building to be used for commercial purposes? YES ___ NO ___

If yes, a backflow prevention device will be required.

6. Are your now on a well system? If yes, the well must be completely severed from the public system. YES ___ NO ___

E-22



REVISED 3/11/97
REVISED 8/31/73
ORIGINAL DRAWN 7/13/59

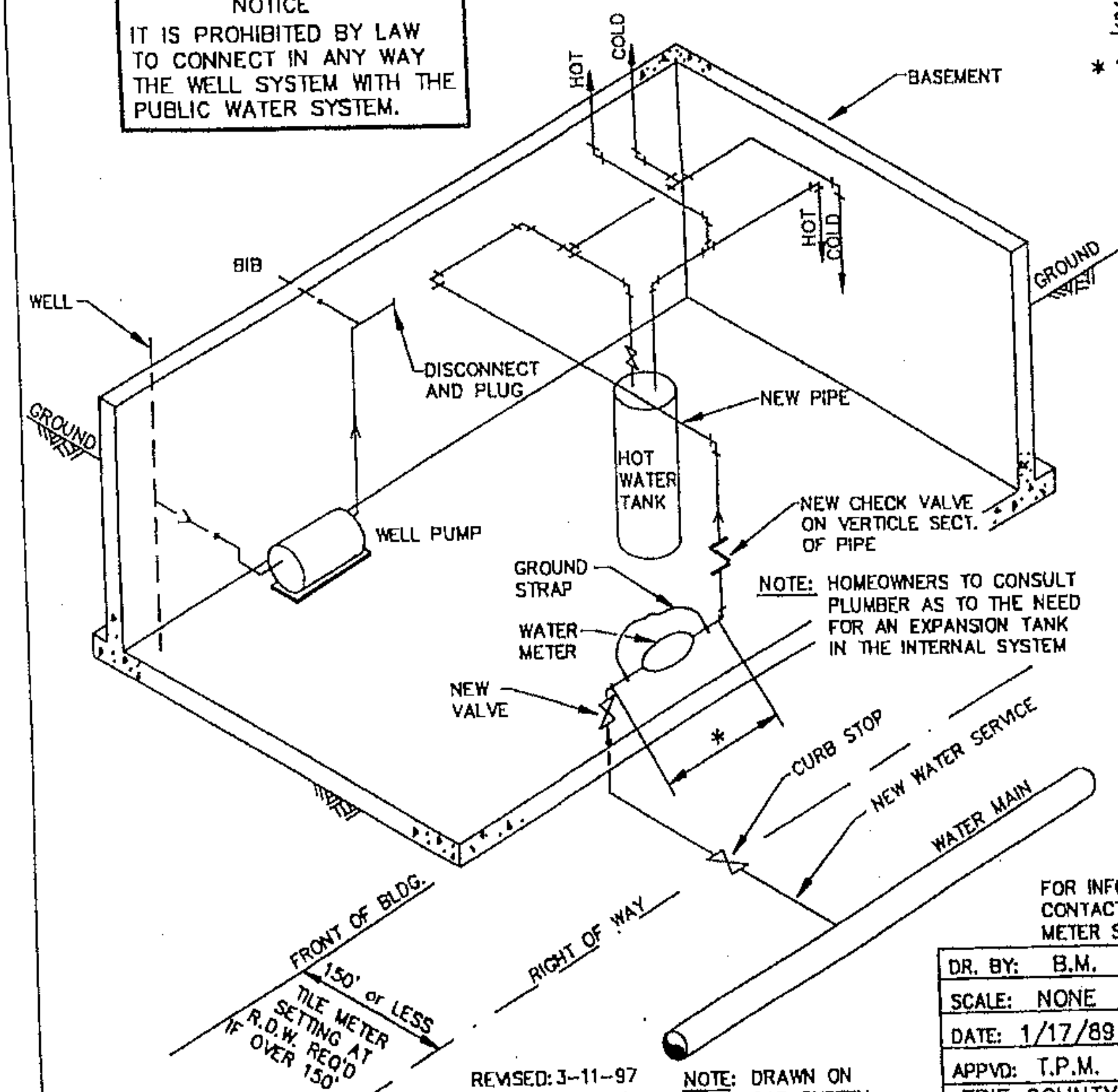
SEE ALSO A3-28A & A3-29

NOTE: DRAWN ON CAD SYSTEM.
F:\DRAWMGS\METRSHOP\A3-28

STANDARD SERVICE LINE INSTALLATION	DR. B. M.	ERIE COUNTY WATER AUTHORITY BUFFALO, NEW YORK	
	DATE: 1/17/89		
	SCALE NONE		
	CK. T.P.M.		
	APPV.	DWG. NO.	A3-28
	SHEET 1 OF 1		

E-23

NOTICE
IT IS PROHIBITED BY LAW TO CONNECT IN ANY WAY THE WELL SYSTEM WITH THE PUBLIC WATER SYSTEM.



NOTE: HOMEOWNERS TO CONSULT PLUMBER AS TO THE NEED FOR AN EXPANSION TANK IN THE INTERNAL SYSTEM

SPACE REQUIREMENTS FOR SETTING METERS:

* 1) DISTANCE BETWEEN FEMALE FITTINGS:

METER	DISTANCE	FIT. SIZE
5/8"x3/4"	13"	3/4"
3/4"	14"	3/4"
1"	16"	1"

2) DISTANCE BETWEEN FLOOR AND METER BASE NO LESS THAN 1 FT. AND NO MORE THAN 3 FT. FOR ALL METERS.

3) MINIMUM DISTANCE BETWEEN WALL AND PIPE:

METER	DISTANCE
5/8"x3/4"	6"
3/4"	7"
1"	12"

4) OWNER SHALL INSTALL THREADED FEMALE FITTINGS AND PROVIDE CORRECT SPACING. ERIE COUNTY WATER AUTHORITY SHALL INSTALL METER COUPLINGS AND METER.

5) METER MUST BE ACCESSIBLE AT ALL TIMES FOR READING AND CHANGING.

6) ALL METERS MUST BE INSTALLED IN THE HORIZONTAL POSITION, PARALLEL TO THE FLOOR. METERS CANNOT BE SET IN A VERTICAL SECTION OF A PIPE. A PERMANENTLY CLAMPED COPPER GROUNDING STRAP MUST BE INSTALLED AT THE METER LOCATION AS SHOWN.

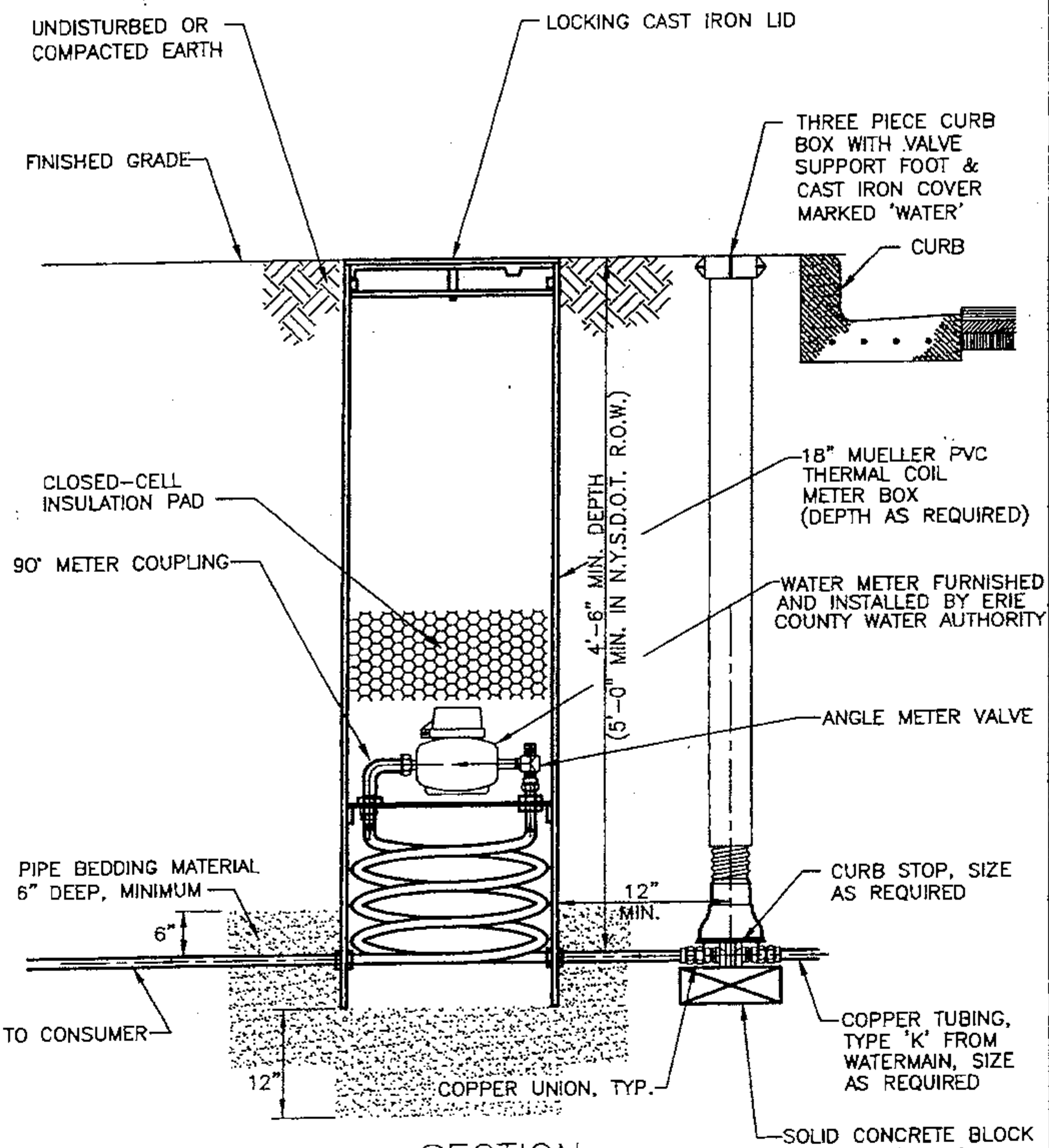
FOR INFORMATION ON 1-1/2" AND 2" METERS CONTACT ERIE COUNTY WATER AUTHORITY METER SHOP PHONE 684-1510

REVISED: 3-11-97
REVISED: 7-6-92

NOTE: DRAWN ON CAD SYSTEM.

I:\ECWA\QDLS\PCSTUFF\M_R\DRAWINGS\METRSHOP\B1-180

DR. BY: B.M.	TYPICAL METHOD OF DISCONNECTING FROM A WELL SYSTEM AND CONNECTING WITH THE PUBLIC WATER SYSTEM
SCALE: NONE	
DATE: 1/17/89	
APPVD: T.P.M.	
ERIE COUNTY WATER AUTHORITY BUFFALO, N.Y.	B1-180



SECTION

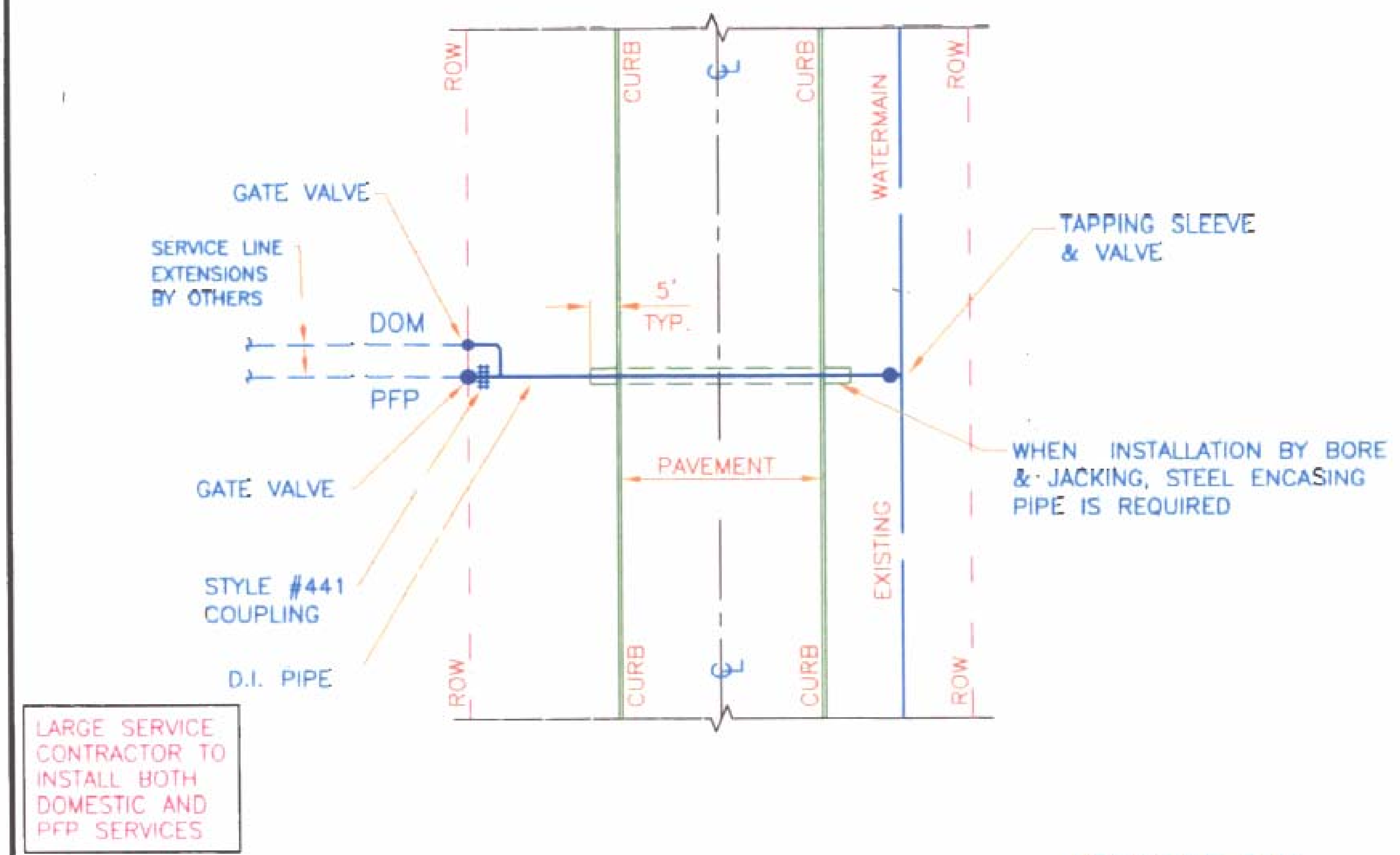
N.T.S.

ERIE COUNTY WATER AUTHORITY BUFFALO, NEW YORK	WATER METER VAULT FOR OUTSIDE CURB INSTALLATION	CADD FILE PAGE4.DWG	
		DATE 4/28/92	REVISED 6/00
		DWG. NO. SD25	

E-25

ATTACHMENT E

ECWA Sample Water Service Drawings

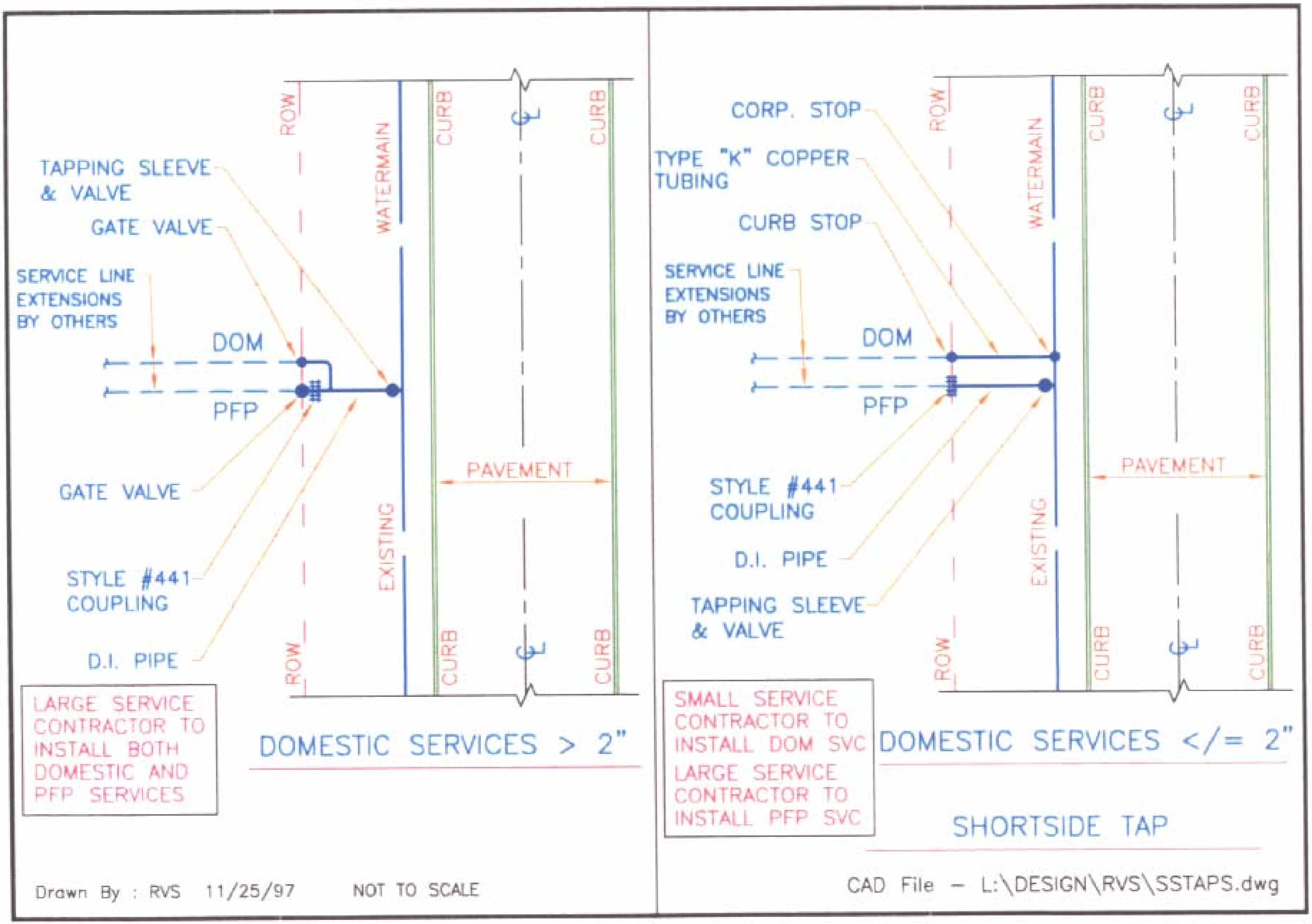


LONGSIDE TAP

Drawn By : RVS 11/25/97 NOT TO SCALE

CAD File – L:\DESIGN\RVS\LSTAPS.dwg

E-27


TAPPING SLEEVE & VALVE
GATE VALVE
SERVICE LINE EXTENSIONS BY OTHERS
DOM
PFP
GATE VALVE
STYLE #441 COUPLING
D.I. PIPE
ROW
WATERMAIN
EXISTING
CURB
PAVEMENT
LARGE SERVICE CONTRACTOR TO INSTALL BOTH DOMESTIC AND PFP SERVICES
DOMESTIC SERVICES > 2"
CORP. STOP
TYPE "K" COPPER TUBING
CURB STOP
SERVICE LINE EXTENSIONS BY OTHERS
DOM
PFP
STYLE #441 COUPLING
D.I. PIPE
TAPPING SLEEVE & VALVE
ROW
WATERMAIN
EXISTING
CURB
PAVEMENT
SMALL SERVICE CONTRACTOR TO INSTALL DOM SVC
LARGE SERVICE CONTRACTOR TO INSTALL PFP SVC
DOMESTIC SERVICES </= 2"
SHORTSIDE TAP
Drawn By : RVS 11/25/97
NOT TO SCALE
CAD File – L:\DESIGN\RVS\SSTAPS.dwg

ATTACHMENT F

Private Fire Protection or Metered Service Request - Rules
(incl. Backflow Device Approval Process and Form)

ERIE COUNTY WATER AUTHORITY
3030 UNION ROAD
CHEEKTOWAGA, NEW YORK 14227
Telephone (716) 684-1510

PRIVATE FIRE PROTECTION OR METERED SERVICE REQUEST

REQUIREMENTS FOR APPLICANTS

1. Location of property to be served

   a. Two copies of **SURVEY OF PROPERTY**

   b. Two copies of **PLOT PLAN** showing the size and location of proposed service and meter pit. The drawing must indicate details at property line, including details of the meter pit and backflow prevention device (meter pit is not required for fire line).

2. **APPLICATION CARDS** and appropriate **ORGANIZATION FORM** by the property owner of the company requesting service.

3. Information as requested on **APPLICANT'S HYDRAULIC SERVICE DEMAND AND ELEVATIONS FORM**. ** IMPORTANT **

4. Copy of necessary **BUILDING PERMITS**.

5. If backflow prevention is required, complete and submit a backflow application with all the information required in the **DESIGN APPROVAL CRITERIA.** The Backflow Application can be made in conjunction with above information. The Backflow Application must first be submitted to the ECWA, then ECWA will forward it to the N.Y.S. Public Health Engineer for review and approval.

APPLICANT'S HYDRAULIC SERVICE DEMANDS AND ELEVATIONS

Please have your engineer/architect/consultant submit the following information on his company stationary and submit to the Customer Service Department of the Erie County Water Authority at 3030 Union Road, Cheektowaga, New York 14227.

Building Address: ____________________

Street Name: ____________________

Town/Village: ____________________

Zip Code: ____________________

1. Domestic Service demand required is ________ G.P.M.
2. Fire Service demand required is ________ G.P.M. @ ________ P.S.I.
3. Irrigation system demand required is ________ G.P.M.
4. Total (Dom. & Fire & Irrig.) demand required is ________ G.P.M.
5. Finished ground elevations at:
    1. The proposed service connection to the existing watermain ________
    2. All proposed hydrants.
        a. Hydrant # 1 = Station ________ Elevation ________
        b. Hydrant # 2 = Station ________ Elevation ________
        c. Hydrant # 3 = Station ________ Elevation ________

Engineer/architect/consultant signature:

____

SVCDEMAN.DS Rev. 1/12/95

ERIE COUNTY WATER AUTHORITY
ORGANIZATION FORM FOR APPLICANTS

Indicate the correct legal name of the business organization or the official owner. A corporation must contain, corporation, "Corp.", Incorporation, "Incorp.", or Limited, :Ltd." A partnership must indicate whether it is General, "Gen." Limited, "Ltd.", or "Sole". An individual or individuals "Doing business as" must indicate, for example, "John Smith & Henry Jones d/b/a Northern Associates." If the business organization is composed of a Husband and Wife, the name should denote, "John Smith and Mary Smith, his wife".

LEGAL NAME: (Owner of Property of Record)

____

OFFICIAL MAILING ADDRESS: Of Legal Name Above. (Including Town and Zip Code)

____

____

____

TELEPHONE: (_____) ______________________________

Organization Certificate Registered under the Laws of the State of ______________

______ Corporation   ______ Partnership   ______ D/B/A

______ Individual   ______ Proprietorship   ______ Other

and filed in the office of the Clerk of the City or County of ______________
State of ______________ Dated ___/___/___

Name, Address and Official Title of three (3) Principal Officers of Company:

____

____

____

ID NUMBER:
Federal Employer Identification Number: ______________________
OR
Social Security Number: ______________________

ERIE COUNTY WATER AUTHORITY

3030 UNION ROAD
CHEEKTOWAGA, NEW YORK 14227

To: Engineers/Architects

From: S. Alan Strycharz, Civil Engineer S.A.S.

Subject: Backflow Application Approval Procedures

The Erie County Water Authority, in a continuous effort to update and improve its Cross Connection Control Program, is sending you the enclosed "Backflow Information Package" for your use in all future Backflow Application Submittals to the Authority.

The "Backflow Information Package" should aid all Engineers/Architects in following ECWA's procedure and requirements for a Backflow submittal. The design of the device installation is the responsibility of the Engineer/Architect.

The "Backflow Information Package" consists of the following:

- Checklist titled "Design Approval Criteria". (this checklist will outline all required information for a complete Backflow Application Submittal to the ECWA).
- Form DOH-347 (5/91) titled "Application for Approval of Backflow Prevention Devices" with instructions and sample copy.
- Form DOH-1013 (9/91) titled "Report on Test & Maintenance of Backflow Prevention devices" with instructions and sample copy.
- Sample drawings titled "Backflow Application Site Plan", "Backflow Application's Details" and "Drainage Options", to aid your submittal.

A copy of "ECWA Standard Specifications", "N.Y.S.D.O.H. Cross-Connection Control Manual" and/or the "Guidelines for Designing Backflow Prevention Assembly Installations Supplement of Jan. 1992", will be provided to aid you in your design, upon written request to E.C.W.A.

If you need assistance with any of the enclosed information, or have any questions regarding the Erie County Water Authority's Cross Connection Control Program, please feel free to contact me at 685-8251, or the Design Unit at 685-8230.

SAS/mjp
Enclosure
I:\PUBLIC\DESIGN\RETROFIT\BFAPLAPR.WPD

Rev. 6/11/02

PART 5
DRINKING WATER SUPPLIES

5-1.31 Cross connection control. (a) The supplier of water shall protect the public water system, in accordance with procedures acceptable to the commissioner, by containing potential contamination within the premises of the user in the following manner:

(1) by requiring an acceptable air gap, reduced pressure zone device, double check valve assembly or equivalent protective device acceptable to the commissioner consistent with the degree of hazard posed by any service connection;
(2) by requiring the users of such connections to submit plans for the installation of protective devices to the supplier of water and the State of approval; and
(3) by assuring that all protective devices be tested at least annually. Records of such tests shall be made available to and maintained by the supplier of water. Such tests shall be conducted by certified backflow prevention device testers pursuant to the following requirements:

   (i) A "general tester" certification will be issued when the applicant presents proof of a high school diploma or equivalency certificate and proof of satisfactory complection of a training course for testers of backflow prevention devices which has been approved by the department.
   (ii) A "limited tester" certification will be issued when the applicant presents proof of a high school diploma or equivalency certificate and proof of employment by a manufacturer as its agent for the servicing maintaining and testing of backflow prevention devices.
   (iii) The department has the authority to require any person applying for certification or renewal of certification as a certified tester of backflow prevention devices to take a written, oral or practical examination, if it deems such examinations to be reasonable necessary in determining the applicant's qualifications. The results of such examinations may be the sole basis for approval of disapproval of an application for certification or renewal of certification.
   (iv) At least three (3) months prior to the expiration date of a current certificate, both a general tester and a limited tester must submit proof that they are still engaged in the activity represented by their current certification.
   (v) A certification will be suspended or revoked upon due notice and an opportunity for a hearing thereon, for any of the following reasons: submission of false test reports for backflow prevention devices; proof that the person is no longer engaged in servicing maintaining and testing backflow prevention devices; or failure to make application for re-certification.

(b) The supplier of water should not allow a user to establish a separate source of water. However, if the user justifies the need for a separate source of water, the supplier of water shall protect the public water system from a user who has a separate source of water and does not pose a hazard as detailed in subdivision (a) of this section in the following manner.
   (1) by requiring the user to regularly examine the separate water source as to its quality;
   (2) by approving the use of only those separate water sources which are properly developed, constructed, protected and found to meet the requirements of sections 5-1.50 through 5-1.55 and sections 5-1.60 through 5-1.65 of this Subpart ; and
   (3) by filing such approvals with the department annually.

(c) All users of a public water system shall prevent cross connections between the potable water piping system and any other piping system within the premises.

DESIGN APPROVAL CRITERIA
(Per Requirements of the N.Y.S.D.O.H. and E.C.W.A.)

Provide four (4) copies of each item listed below.

- ☐ **1. Letter of Transmittal**
  - ☐ a. Listing all information submitted for the back-flow application.

- ☐ **2. Application (DOH-347)**
  - ☐ a. Items 1 thru 12 completed with all information that is applicable to the project.
  - ☐ b. Item #5 answered fairly specifically. * Information for 2 devices maybe listed if space permits.
  - ☐ c. Items 13 & 14 completed per enclosed example.

- ☐ **3. Site Plan** - (to scale or w/dimensions) of facility containing:
  - ☐ a. General Location Map
  - ☐ b. Name and address of facility
  - ☐ c. Property line
  - ☐ d. Buildings
  - ☐ e. Size and location of public water mains
  - ☐ f. All fire and domestic water services to include items to be installed by ECWA:
    1. Size of Corporation Stop, Tapping Sleeve or Saddle w/Valve.
    2. Size of Service Line within R.O.W.
    3. Size of Curb Stop or Line Valve at R.O.W.
  - ☐ g. Meter Pit or Tile Set
  - ☐ h. Fire Sprinkler System
    1. Show a riser detail (maybe submitted as a separate sheet and must include: Name & address of the facility, design engineer's/architects stamp & signature.)
    2. State AWWA M-14 Classification.
  - ☐ i. Yard piping and hydrants
  - ☐ j. Pumper connection(s)
  - ☐ k. Interconnection(s)
  - ☐ l. Lawn Irrigation Systems
  - ☐ m. Proposed location of back-flow preventers
  - ☐ n. If site is in 100 year flood plain indicate elevation on drawing.
  - ☐ o. Designers stamp and signature (stamp must be by a N.Y.S. Licensed Engineer/Architect.)

- ☐ **4. Plumbing Floor Plan** - (to scale or w/dimensions indicated from walls and nearby objects) Plan view or partial floor plan indicating:
  - ☐ a. Water Services
  - ☐ b. Name and address of facility
  - ☐ c. Water meter layout
  - ☐ d. Proposed back-flow preventer(s)
  - ☐ e. Booster pump system(s)
  - ☐ f. Floor drain(s)
  - ☐ g. All nearby objects (electrical panels, boilers, chillers, storage tanks, fire pumps, fire sprinkler risers, etc.)
  - ☐ h. All required clearance dimensions shown or noted
  - ☐ i. With device manufacturer's name, model number & size of device shown or noted, in plan view or cross-section.
  - ☐ j. Designers stamp and signature

- ☐ 5. **Vertical Cross-Section(s)** - Elevation view (to scale or w/dimensions) of the proposed installation with elevations from the floor, ceiling, outside grade and all nearby objects.
  - ☐ a. All required clearance dimensions shown or noted
  - ☐ b. Size & routing of floor drains
  - ☐ c. Presence of heat & light shown or noted
  - ☐ d. Indicate direction of flow
  - ☐ e. Designers stamp and signature

- ☐ 6. **Engineer's Report** - The report shall include:
  - ☐ a. General use of water in the facility
  - ☐ b. Size and descriptions of all fire and domestic water services
  - ☐ c. Number of floors within the facility
  - ☐ d. Actual or estimated maximum flow demand
  - ☐ e. Pressure - existing and after the installation of back-flow preventers
  - ☐ f. Description of fire fighting facility - indicate the AWWA manual M-14 class of sprinkler service. (State if back-flow device is required.)
  - ☐ g. Description of the proposed installation of the back-flow preventer with the locations, drainage, lighting, heating, access to the unit, square footage of the floor level where the back-flow preventer is to be located.
  - ☐ h. Description of existing or proposed booster pump system answering the following questions:
    - ☐ 1. After the installation of the proposed back-flow preventer(s), will the net positive suction head (NPSH) required for the proper operation of the booster pump system be adequate.
    - ☐ 2. After the installation of the back-flow preventer(s) in the suction line to the booster pump system, will the booster pump system operate properly at peak demand to deliver adequate pressure to the highest elevation and/or the most remote fixture unit or any other operation requiring a certain pressure? The NYS Uniform Fire Prevention and Building Code Part 902.4c requires the **minimum** pressure at water outlets at all times to be as follows:

      Fixture - non flush valve - 8 Psi
      Fixture - flush valve - 15 Psi
    - ☐ 3. Does the booster pump system have a pressure cutoff switch in the suction line? What is the pressure setting of the switch? An existing or proposed cutoff switch must be set at the following settings:

      For a cutoff switch where a back-flow is located upstream
      of the booster pump(s) - set at 10 psi
      For a cutoff switch where a back-flow is located
      downstream of the booster pump(s) - set at 20 psi
  - ☐ i. The need for dual back-flow preventers. Does this facility need a continuous water supply?
  - ☐ j. The evaluation and location of 100 year flood plain in relation to the facility. A reduced pressure zone (RPZ) back-flow preventer must generally be installed 1' above the 100-year flood plain elevation.
  - ☐ k. An inventory of any existing containment devices to include the make, model, size and serial number of the device. Current annual test reports must also be submitted. The degree of hazard for these services must be determined to insure that the device provides the correct protection.
  - ☐ l. Enclose a copy of the checklist. Any items left blank, could result in a delay in reviewing the back-flow application
  - ☐ m. Designers stamp and signature.

ADDENDUM TO

DESIGN APPROVAL CRITERIA

☐ **6. Engineer's Report (cont.)**

- ☐ n. A statement that it is the owner's responsibility to keep snow clear of any drain ports or exterior drains for the R.P.Z. device.
- ☐ o. A statement that all "Hot Box" enclosures shall be designed with security measures such as locking doors and panels, flow alarms or flow indicator lights, power indicator lights, etc...

ERIE COUNTY WATER AUTHORITY
3030 UNION ROAD
CHEEKTOWAGA, NEW YORK 14227

INSTRUCTIONS FOR COMPLETING FORM DOH-347 (5/91)

APPLICATION FOR APPROVAL OF BACKFLOW PREVENTION DEVICES

Refer to the sample DOH-347 form that is enclosed for reference.

1. Complete #1 - #12 with the information that is applicable to the project.

2. Complete #13 - #14 as per the sample DOH-347.

INSTRUCTIONS FOR COMPLETING FORM DOH-1013 (9/91)

REPORT ON TEST AND MAINTENANCE OF BACKFLOW PREVENTION DEVICE

Refer to the sample DOH-1013 form that is enclosed for reference.

The attached is a multi-use form for the following:

1. **Initial test** to approve and certify installation and operation of a backflow device. (Complete Part A and Part B).

   Part A
   1. Is to be completed by a N.Y.S. Certified Tester within 45 days of installation.

   Part B
   1. Is to be completed by the Design Engineer/Architect within 45 days of installation.

2. **Annual test** to certify the device meets the requirements of an acceptable containment device. (Complete Part A only.)

   Part A
   1. To be completed by a N.Y.S. Certified Tester on a yearly basis.

Upon completion of an Initial or Annual test, one copy should be mailed to the N.Y.S.D.O.H. and E.C.W.A. within 30 days of testing the device.

NEW YORK STATE DEPARTMENT OF HEALTH
Bureau of Public Water Supply Protection

Application For Approval of Backflow Prevention Devices

PRINT OR TYPE ALL ENTRIES EXCEPT SIGNATURES
Please complete items 1 through 12a + Block and Lot Numbers

Block # N/A | Lot # N/A | **FOR DEPARTMENT USE ONLY** **Log No.**

1. Name of Facility: ACME Manufacturing
2. City, Village, Town: Amherst
3. County: Erie
4. Location of Facility: street 123 Maple Road; city Amherst; state New York; zip 14228

4a. Phone Numbers: 123-4321
Contact Person: John Smith

5. Approx. Location of Device(s): In "Hot Box" approx. 10' North of South property line.
6. Mfg. Model #: Watts 909-S
Size of Device(s): 2"

# of Fire Services	# of Domestic Services	# of Combined Services	Total # of Services	Total # of Buildings
0	1	0	1	1

7. Name of Owner: Thomas Smith | Title: President | Phone Number: (716) 123-4321

Full Mailing Address: street 321 Maple Road; city Amherst; state New York; zip 14123

Owner's Signature: Thomas Smith   Date 12 / 12 / 99 (m d y)

8. Nature of works
- ■ Initial Device Installation
- ☐ Replace Existing Device

8a.
- ■ New Service
- ☐ Existing Service

8b.
- ■ New Building
- ☐ Existing Building
- ☐ Major Renovation

FOR REFERENCE ONLY

9. Name of Design Engineer or Architect: Henry Jones
Address: street 222 Rough Road; city Buffalo; state New York; zip 14123

Engineer or Architect Seal Required Here

Henry Jones
signature

Original ink signature and seal required on all copies

10. NYS License #: 1234-6
■ PE ☐ RA ☐ OTHER

10a. Telephone Number(s): (716) 123-5432

Date: 12 / 12 / 99 (m d y)

11. Water System Pressure (psi) at Point of Connection
Max 90 Avg 75 Min 50

12. Estimate Installation Cost: $ 1,500.00
12a. Estimate Design Cost: $500.00

13. Degree of Hazard
- ■ Hazardous
- ☐ Aesthetically Objectionable

List of processes or reasons that lead to degree of hazard checked:
E.C.W.A. / COMMERCIAL

14. Public water supply name: ERIE COUNTY WATER AUTHORITY
Mailing address: street 3030 UNION ROAD; city CHEEKTOWAGA; state N. Y.; zip 14227
Telephone No. (716) 684-1510

Name of supplier's designated representative: WESLEY C. DUST, P.E.
Title: EXECUTIVE ENGINEER

Signature* ____________ Date m d y / /
* Your Signature endorses proposal

Note: All applications must be accompanied by plans, specifications and an engineer's report describing the project in detail. The project must first be submitted to the water supplier, who will forward it to the local public health engineer. This form must be prepare in quadruplicate with four copies of all plans, specifications and descriptive literature.

DOH-347 (5/91)

NEW YORK STATE DEPARTMENT OF HEALTH
Bureau of Public Water Supply Protection

Application For Approval of Backflow Prevention Devices

PRINT OR TYPE ALL ENTRIES EXCEPT SIGNATURES
Please complete items 1 through 12a + Block and Lot Numbers

Block #	Lot #	FOR DEPARTMENT USE ONLY Log No.

1. Name of Facility	2. City, Village, Town	3. County
4. Location of Facility street	city / state / zip	
4a. Phone Numbers	Contact Person	
5. Approx. Location of Device(s)	6. Mfg. Model #	Size of Device(s)

# of Fire Services	# of Domestic Services	# of Combined Services	Total # of Services	Total # of Buildings

7. Name of Owner | Title | Phone Number

Full Mailing Address: street / city / state / zip

Owner's Signature   Date ___/___/___ (m d y)

8. Nature of works
☐ Initial Device Installation
☐ Replace Existing Device

8a. ☐ New Service
☐ Existing Service

8b. ☐ New Building
☐ Existing Building
☐ Major Renovation

9. Name of Design Engineer or Architect

Address: street / city / state / zip

signature

Original ink signature and seal required on all copies

10. NYS License # ____________
☐ PE ☐ RA ☐ OTHER

10a. Telephone Number(s)

Date ___/___/___ (m d y)

11. Water System Pressure (psi) at Point of Connection
Max ________ Avg ________ Min ________

12. Estimate Installation Cost

12a. Estimate Design Cost

13. Degree of Hazard
☐ Hazardous
☐ Aesthetically Objectionable

List of processes or reasons that lead to degree of hazard checked:

14. Public water supply name

Name of supplier's designated representative

Mailing address: street / city / state / zip

Title

Telephone No. (   )

Signature* ____________   ___/___/___ (m d y) Date

* Your Signature endorses proposal

Note: All applications must be accompanied by plans, specifications and an engineer's report describing the project in detail. The project must first be submitted to the water supplier, who will forward it to the local public health engineer. This form must be prepare in quadruplicate with four copies of all plans, specifications and descriptive literature.

DOH-347 (5/91)

E-41

NEW YORK STATE DEPARTMENT OF HEALTH
Bureau of Public Water Supply Protection

Report on Test and Maintenance of Backflow Prevention Device

For the year 1999

Part A

■ Initial test - *Complete entire form*
☐ Annual test - *Complete Part A only*

Please use a separate form for each device

Public Water Supply	Account No.	County	Block	Lot
Erie County Water Authority				

Facility Name: AMCE Manufacturing

Address: 123 Maple Road (street) Amherst (city) 14228 (zip)

Location of Device: In "Hot Box" approx 10' North of the South property line

Device Information	Manufacturer	Type	Model	Size (in inches)	Serial Number
	Watts	■ RPZ ☐ DCV	909	2"	123456

[redacted] Line Pressure 75 psi

[redacted]				
[redacted]	Leaked ☐ Closed tight ■ Pressure drop across first check valve 6.8 psid	Leaked ☐ Closed tight ■	Opened at 3.2 psid	Date 12 11 96 (m d y)
[redacted]				Repaired by Name Lic # Date repaired (m d y)
[redacted]	Closed tight ☐ Pressure drop across first check valve ____ psid	Closed tight ☐	Opened at ____ psid	Date (m d y)

Water Meter Number	Meter Reading	Type of Service: (check one)
123456789	123456	■ Domestic ☐ Fire ☐ Other

Remarks (Describe deficiencies: bypasses, outlets before the device, connections between the device and point of entry, missing or inadequate airgap, etc.)

Device is in good working condition

Certification: This device ■ meets ☐ does NOT meet, the requirements of an acceptable containment device at the time of testing
I hereby certify the foregoing data to be correct.

John Hancock	123456	John Hancock	12/ 12 / 99
Print name	Certified Tester No.	Signature	Expiration Date

Property owner's (or owner's agent) certification that test was performed:

Thomas Smith	President	Thomas Smith	(716) 123-1234
Print name	Title	Signature	Telephone

Part B Certification that installation is in accordance with the approved plans. (To be completed by the design engineer or architect or water supplier)

I hereby certify that this installation has been made in accordance with the approved plans.

Name: Henry Jones	Title: Civil Engineer	Date 12 30 99 (m d y)	NYS DOH Log # 1111-1
License Number: 123456	Phone: (716) 123- 5432		

Representing: C.C.R. Engineering
Address: 222 Rough Road
City: Buffalo State: New York Zip: 141234

Signature: Sanford M. Zappa

Describe minor installation changes: NONE

Note: Send one completed copy to the designated health department representative and one copy to the water supplier within 30 days of testing of the device.

DOH-1013 (9/91) **Notify owner and water supplier immediately if device fails test and repairs cannot immediately be made.**

E-42

NEW YORK STATE DEPARTMENT OF HEALTH
Bureau of Public Water Supply Protection

Report on Test and Maintenance of Backflow Prevention Device

For the year ____________

☐ Initial test - *Complete entire form*
☐ Annual test - *Complete Part A only*

Part A

Please use a separate form for each device

Public Water Supply	Account No.	County	Block	Lot

Facility Name ______________________________ Location of Device ______________________________

Address ______________________________
street city zip

Device Information	Manufacturer	Type ☐ RPZ ☐ DCV	Model	Size (in inches)	Serial Number

	Check Valve No. 1	Check Valve No. 2	Differential Pressure Relief Valve	Line Pressure ________ psi
Test before repair	Leaked ☐ Closed tight ☐ Pressure drop across first check valve ________ psid	Leaked ☐ Closed tight ☐	Opened at ______ psid	Date ☐ ☐ ☐ m d y
Describe repairs and materials used				Repaired by Name ____________ Lic # ____________ Date repaired ☐ ☐ ☐ m d y
Final test	Closed tight ☐ Pressure drop across first check valve ________ psid	Closed tight ☐	Opened at ________ psid	Date ☐ ☐ ☐ m d y

Water Meter Number	Meter Reading	Type of Service: (check one) ☐ Domestic ☐ Fire ☐ Other ____________

Remarks (Describe deficiencies: bypasses, outlets before the device, connections between the device and point of entry, missing or inadequate airgap, etc.)

Certification: This device ☐ meets ☐ does NOT meet, the requirements of an acceptable containment device at the time of testing

I hereby certify the foregoing data to be correct.

Print name	Certified Tester No.	Signature	/ / Expiration Date

Property owner's (or owner's agent) certification that test was performed:

Print name	Title	Signature	( ) Telephone

Part B

Certification that installation is in accordance with the approved plans. (To be completed by the design engineer or architect or water supplier)

I hereby certify that this installation has been made in accordance with the approved plans.

Name	Title	Date ☐ ☐ ☐ m d y	NYS DOH Log #
License Number	Phone ( )		____________

Representing	Describe minor installation changes
Address	
City / State / Zip	
Signature ____________	

Note: Send one completed copy to the designated health department representative and one copy to the water supplier within 30 days of testing of the device.

DOH-1013 (9/91) Notify owner and water supplier immediately if device fails test and repairs cannot immediately be made.

E-43

THIS DRAWING IS
FOR REFERENCE ONLY

FIRE SERVICES:

PIPE MATERIAL

FOR 3" & LARGER SERVICES: SERVICE LINE AT R.O.W. SHOULD BE DUCTILE IRON OR P.V.C. PIPE. REMAINDER OF SERVICE LINE CAN BE AN AWWA APPROVED MATERIAL.

SERVICE LOCATION

SHOW TAP VALVE, SERVICE LINE TO R.O.W. & CONTROL VALVE ON R.O.W. LINE. THE DOMESTIC SERVICE CONNECTION MAY BE MADE OFF THE FIRE SERVICE WITH A TEE OR A CORPORATION STOP AS REQUIRED. (SEE NOTE AT RIGHT.)

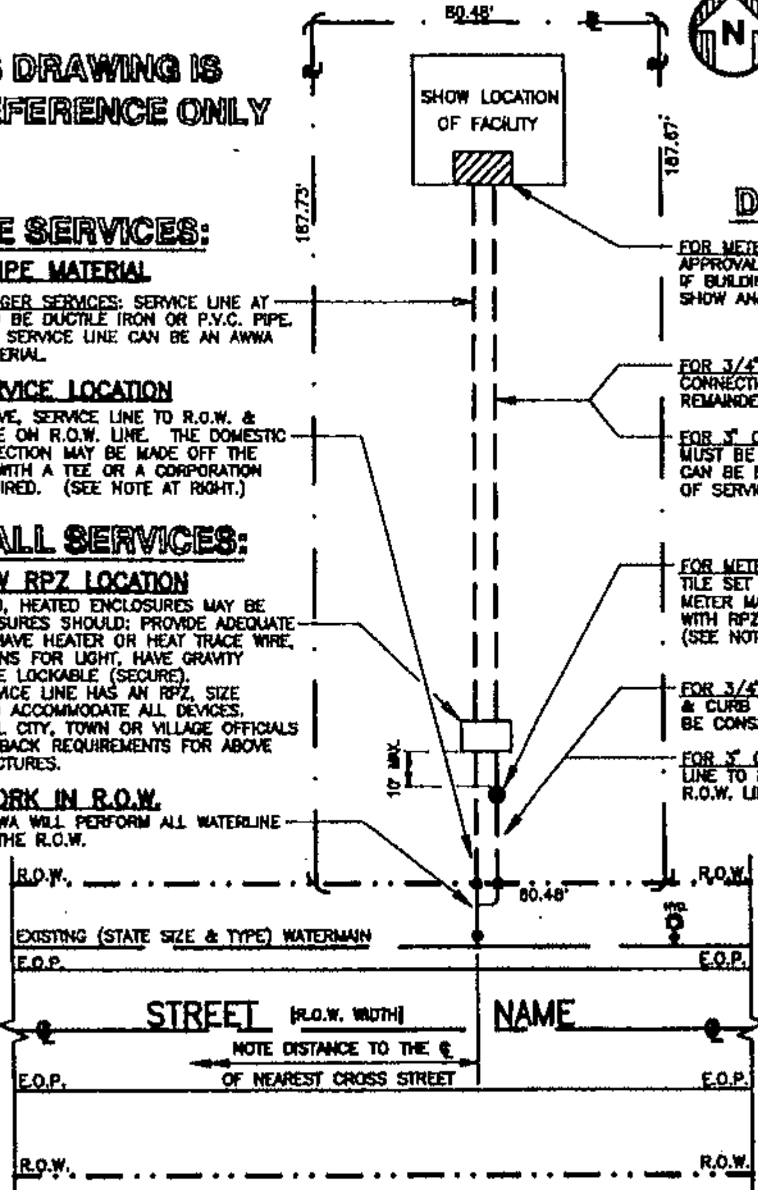
FOR ALL SERVICES:

SHOW RPZ LOCATION

ABOVE GROUND, HEATED ENCLOSURES MAY BE USED. ENCLOSURES SHOULD: PROVIDE ADEQUATE CLEARANCES, HAVE HEATER OR HEAT TRACE WIRE, HAVE PROVISIONS FOR LIGHT, HAVE GRAVITY DRAINS AND BE LOCKABLE (SECURE).
IF A FIRE SERVICE LINE HAS AN RPZ, SIZE ENCLOSURE TO ACCOMMODATE ALL DEVICES. CONTACT LOCAL CITY, TOWN OR VILLAGE OFFICIALS FOR ANY SET BACK REQUIREMENTS FOR ABOVE GROUND STRUCTURES.

WORK IN R.O.W.

NOTE THAT ECWA WILL PERFORM ALL WATERLINE WORK WITHIN THE R.O.W.



SITE PLAN

THIS DRAWING IS
FOR REFERENCE ONLY

DOMESTIC SERVICES:

FOR METER INSTALLATIONS BUILDINGS: SUBJECT TO ECWA APPROVAL, METER AND RPZ MAY BE INSTALLED IN BUILDING IF BUILDING IS LESS THAN 150'± FROM R.O.W. SHOW AND NOTE LOCATION OF METER & RPZ.

PIPE MATERIAL

FOR 3/4"-2" SERVICE: SERVICE LINE AT METER CONNECTION & AT R.O.W MUST BE TYPE "K" COPPER REMAINDER OF SERVICE LINE SHOULD BE TYPE "K" COPPER.

FOR 3" OR LARGER SERVICE: SERVICE LINE AT METER MUST BE DUCTILE IRON PIPE. SERVICE LINE AT R.O.W. CAN BE DUCTILE IRON OR P.V.C. PIPE. REMAINDER OF SERVICE LINE CAN BE AN AWWA APPROVED MATERIAL.

METER LOCATION

FOR METER INSTALLATIONS AT "CURBSIDE": TILE SET OR METER PIT 5' MIN/10' MAX FROM R.O.W. METER MAY BE INSTALLED IN ABOVE GROUND ENCLOSURE WITH RPZ(S), PROVIDED CLEARANCES CAN BE MAINTAINED. (SEE NOTE AT LEFT)

SERVICE LOCATION

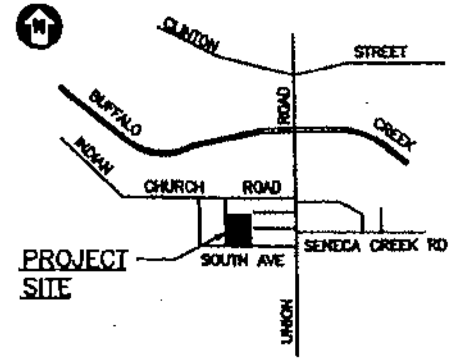
FOR 3/4"-2" SERVICE: SHOW SERVICE LINE TO R.O.W. & CURB STOP ON THE R.O.W. LINE. CURB STOP WILL BE CONSIDERED THE SERVICE CONTROL VALVE.

FOR 3" OR LARGER SERVICE: SHOW SERVICE LINE TO R.O.W. & CONTROL VALVE ON THE R.O.W. LINE.

TABLE FP1
RPZ REQUIREMENTS FOR FIRE SERVICES

AWWA M-14 SPRINKLER CLASS	WITH PRIVATE ON-SITE HYDRANTS	RPZ REQUIRED
1 & 2	NO	NO
	YES	YES
3-6	NO	YES
	YES	YES

ENGINEER'S/ARCHITECT'S SEAL & SIGNATURE MUST BE PRESENT



SHOW A
GENERAL LOCATION MAP
NOT TO SCALE

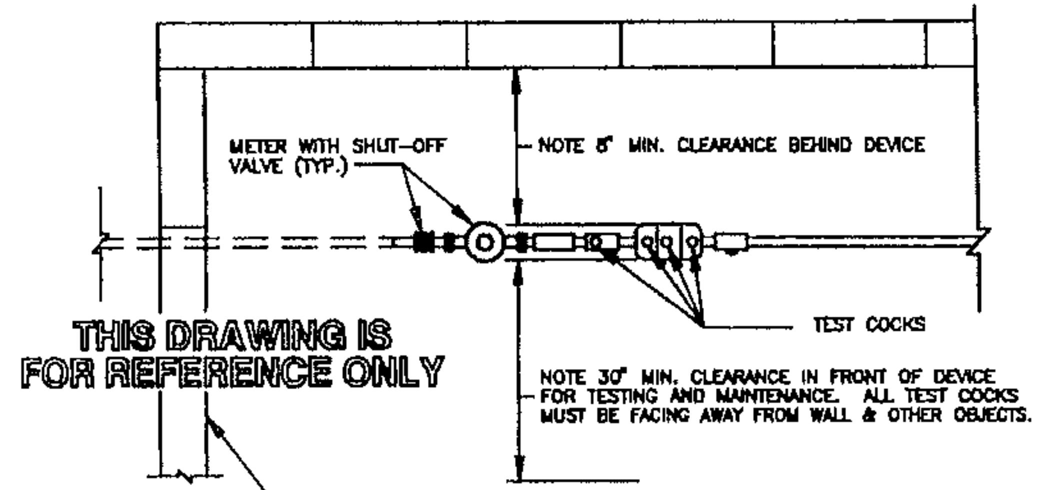
GENERAL NOTES

1. INFORMATION SHOWN ON THIS DRAWING IS FOR REFERENCE ONLY. ITEMS SHOWN OR NOTED SHOULD BE INCLUDED ON THE ENGINEER'S/ARCHITECT'S SITE PLAN DRAWING.
2. REFER TO THE "DESIGN APPROVAL CRITERIA" AND THE N.Y.S.D.O.H. CROSS CONNECTION CONTROL MANUAL AND SUPPLEMENTS FOR MORE INFORMATION.
3. BACKFLOW PREVENTION DEVICES, ON THIS DRAWING, WILL BE REFERRED TO AS AN RPZ.
4. STATE THE AWWA M-14 CLASSIFICATION OF FIRE SPRINKLER SYSTEM ON THE SITE PLAN. SEE TABLE FP1 AT LEFT FOR INFORMATION ON BACKFLOW PROTECTION. INCLUDE A RISER DETAIL DRAWING.
5. LAWN IRRIGATION SYSTEMS MUST BE CONNECTED OFF THE DOMESTIC SERVICE, DOWNSTREAM OF THE RPZ & SHOWN ON THE SITE PLAN.
6. IF SITE IS LOCATED IN THE 100 YEAR FLOOD PLAIN AREA, NOTE THE ELEVATION ON THE SITE PLAN.
7. CONTACT THE ECWA METER SHOP FOR SIZES AND REQUIREMENTS FOR METER INSTALLATIONS ON DOMESTIC SERVICES.
8. IF A 3" SERVICE IS PROPOSED, ECWA WILL INSTALL A 4" MINIMUM TAP. ECWA MAY REDUCE ITS SERVICE SIZE TO MEET APPLICANT'S 3" SERVICE, IF COORDINATED WITH ECWA PRIOR TO INSTALLATION.

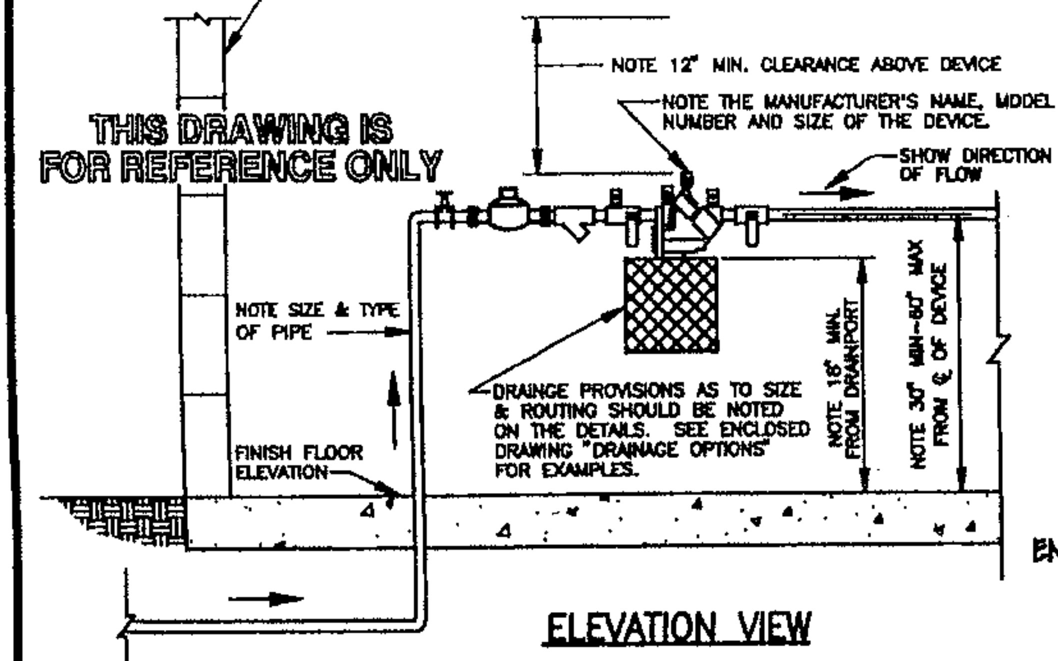
ECWA
ERIE COUNTY
WATER AUTHORITY
BUFFALO, NEW YORK

BACKFLOW APPLICATION
SITE PLAN REQUIREMENTS FOR
FIRE & DOMESTIC
SERVICE INSTALLATIONS

DRAWN BY :	NGS	SPECIAL PROJECT	
DATE :	5/3/96	CHK'D :	RVS
SHEET :	BF2	SCALE :	NONE
FILE:	F:\BACKFLOW\RPZSITE1.DWG		



PARTIAL PLAN VIEW



ELEVATION VIEW

GENERAL NOTES

1. INFORMATION SHOWN ON THIS DRAWING IS FOR REFERENCE ONLY. ITEMS SHOWN OR NOTED SHOULD BE INCLUDED ON THE ENGINEER'S/ ARCHITECT'S RPZ DETAILS.
2. REFER TO THE "DESIGN APPROVAL CRITERIA" AND THE N.Y.S.D.O.H CROSS-CONNECTION CONTROL MANUAL AND SUPPLEMENTS FOR MORE INFORMATION
3. BACKFLOW PREVENTION DEVICES, ON THIS DRAWING, WILL BE REFERRED TO AS AN RPZ. AN APPROVED RPZ ASSEMBLY MUST INCLUDE TWO (2) SHUT-OFF VALVES ON EACH SIDE OF THE RPZ.
4. RPZ'S TO BE INSTALLED ABOVE THE 100 YEAR FLOOD PLAIN ELEVATION. DRAIN PORT OPENING OF RPZ MUST BE 12 INCHES MINIMUM ABOVE 100 YEAR FLOOD ELEVATION. SEE ENCLOSED DRAWING "DRAINAGE OPTIONS" FOR MORE INFORMATION.
5. ALL RPZ's SHALL BE ADEQUATELY SUPPORTED TO PREVENT LATERAL MOVEMENT. PIPE HANGERS, BRACES, SADDLES, PIERS, ETC., SHOULD BE USED TO SUPPORT THE RPZ AND SHOULD BE PLACED IN A MANNER THAT WILL NOT OBSTRUCT THE FUNCTION OF, OR INTERFERE WITH ACCESS TO THE RPZ.
6. STRAINERS ARE RECOMMENDED PRIOR TO EACH RPZ ON NON-FIREFIGHTING WATER LINES. NO STRAINER IS TO BE USED WITHOUT THE APPROVAL OF THE INSURANCE UNDERWRITERS OR THE AUTHORITY HAVING JURISDICTION.
7. PARALLEL RPZ INSTALLATIONS SHOULD BE CONSIDERED AT THOSE FACILITIES WHERE WATER SERVICE CANNOT BE INTERRUPTED.
8. WHERE THE DISTANCE BETWEEN THE WATER METER AND THE RPZ IS GREATER THAN 10 FEET, ALL EXPOSED PIPING SHOULD BE STENCILED "FEED LINE TO BACKFLOW PREVENTER – DO NOT TAP" AT 5 FOOT INTERVALS.
9. THERMAL EXPANSION AND/OR WATER HAMMER DOWNSTREAM OF THE RPZ CAN CAUSE EXCESSIVE PRESSURE. TO AVOID POSSIBLE DAMAGE TO THE SYSTEM AND ASSEMBLY, USE WATER HAMMER ARRESTORS, SURGE PROTECTORS OR EXPANSION TANKS AS APPROPRIATE.
10. IF THE WATER METER IS TO BE INSTALLED WITHIN THE BUILDING, IT MUST BE LOCATED UPSTREAM OF THE RPZ AND DRAWN ON THE DETAILS. CONTACT ECWA METER DEPARTMENT FOR METER DIMENSIONS AND FOR SPOOL PIECE TO SET PIPING PRIOR TO METER INSTALLATION.
11. ALL FIRE SPRINKLER CONNECTIONS ARE TO BE LOCATED DOWNSTREAM OF THE RPZ. IF FLOWS AND PRESSURES ARE NOT ADEQUATE FOR THIS TYPE OF INSTALLATION, A SEPARATE FIRE SERVICE SHOULD BE INSTALLED.
12. SHOW ALL NEARBY OBJECTS SUCH AS: ELECTRICAL PANELS, BOILERS, CHILLERS, STORAGE TANKS, FIRE PUMPS, FIRE SPRINKLERS RISERS, ECT.

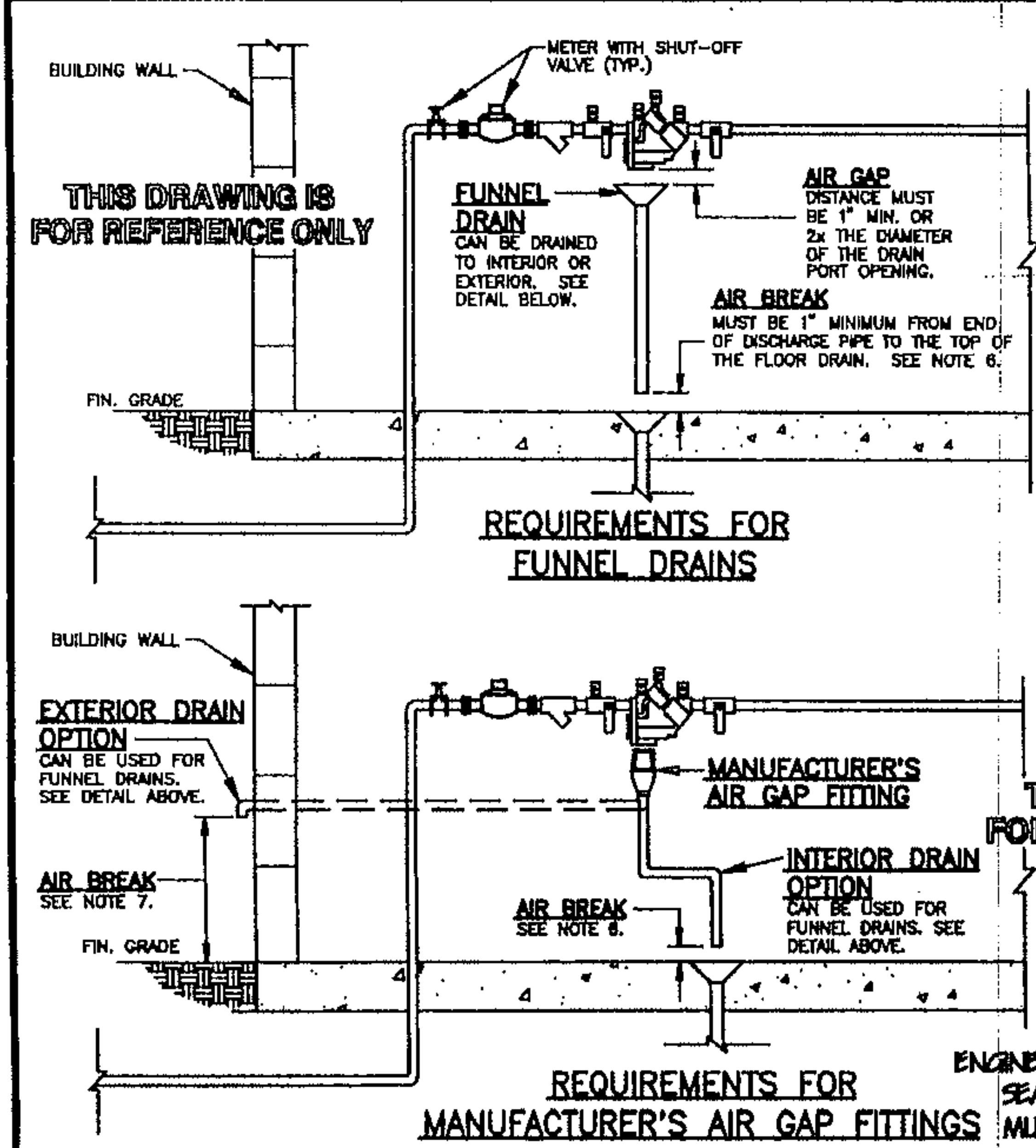
ENGINEER'S/ ARCHITECT'S SEAL & SIGNATURE MUST BE PRESENT

ERIE COUNTY WATER AUTHORITY
BUFFALO, NEW YORK

BACKFLOW APPLICATION PARTIAL PLAN VIEW AND ELEVATION VIEW FOR DOMESTIC OR FIRE SERVICE RPZ INSTALLATIONS

DRAWN BY :	NGB	SPECIAL PROJECT	
DATE :	11/19/97	CHK'D :	RVS
SHEET:	BF3	SCALE :	NONE
FILE:	F:\BACKFLOW\RPZDTAIL.DWG		

E-45



GENERAL NOTES

1. INFORMATION SHOWN ON THIS DRAWING IS FOR REFERENCE ONLY. ITEMS SHOWN OR NOTED SHOULD BE INCLUDED ON THE ENGINEER'S/ARCHITECT'S RPZ DETAILS.
2. REFER TO THE "DESIGN APPROVAL CRITERIA" AND THE N.Y.S.D.O.H. CROSS CONNECTION CONTROL MANUAL AND SUPPLEMENTS FOR MORE INFORMATION.
3. BACKFLOW PREVENTION DEVICES, ON THIS DRAWING, WILL BE REFERRED TO AS AN RPZ.
4. RPZ'S TO BE INSTALLED ABOVE THE 100 YEAR FLOOD PLAIN ELEVATION. DRAIN PORT OPENING OF RPZ MUST BE 12 INCHES MIN. ABOVE 100 YEAR FLOOD ELEVATION.
5. SHOW OR NOTE ROUTING OF DRAINS. SIZE OF DRAINS SHOULD BE DESIGNED TO ACCOMMODATE CATASTROPHIC OR FULL DISCHARGE FROM RPZ'S.
6. DISCHARGE PIPE CAN BE CONNECTED DIRECTLY TO THE FLOOR DRAIN. HOWEVER, FOR CONNECTION TO A DRAIN ROUTED TO A STORM SEWER, A BACKWATER CHECK VALVE IS REQUIRED IN THE DRAIN LINE. FOR CONNECTION TO A DRAIN ROUTED TO A SANITARY SEWER, A BACKWATER CHECK VALVE & A TRAP IS REQUIRED IN THE DRAIN LINE. OTHERWISE, A 1" MIN. AIR BREAK IS REQUIRED. SEE DETAIL AT LEFT.
7. DISCHARGE PIPES THAT DRAIN TO THE OUTSIDE MUST TERMINATE 12" MIN. ABOVE THE 100 YEAR FLOOD ELEVATION OR FINISHED GRADE. DISCHARGE PIPES MUST HAVE A RODENT SCREEN. A FLAP VALVE SHOULD BE CONSIDERED TO PREVENT ENTRY OF COLD AIR.
8. MANUFACTURER'S AIR GAP FITTINGS, WHEN USED, ARE ONLY SIZED TO HANDLE INTERMITTENT OR LOW FLOW DISCHARGES. ADDITIONAL DRAINAGE CAPACITY MAY BE REQUIRED TO ACCOMMODATE FULL DISCHARGE.
9. ALL DRAINAGE FROM RPZ'S MUST BE BY GRAVITY DRAIN. SUMP PUMPS ARE NOT ALLOWED UNLESS THEY ARE SIZED TO ACCOMMODATE FULL DISCHARGE RATE AND CONNECTED TO EMERGENCY POWER.
10. RPZ'S MAY DISCHARGE DIRECTLY TO THE FLOOR. HOWEVER, FOR AIR GAP FITTINGS, FUNNEL DRAINS AND DISCHARGE TO FLOOR DRAINAGE OPTIONS, THE OWNER OF THE FACILITY MUST BE MADE AWARE THAT WATER DAMAGE MAY OCCUR AS A RESULT OF THE RPZ DISCHARGING.

THIS DRAWING IS FOR REFERENCE ONLY

ENGINEER'S/ARCHITECT'S SEAL & SIGNATURE MUST BE PRESENT

ECWA ERIE COUNTY WATER AUTHORITY BUFFALO, NEW YORK

BACKFLOW APPLICATION "DRAINAGE OPTIONS" FOR DOMESTIC OR FIRE SERVICE RPZ INSTALLATIONS

DRAWN BY:	NGB	SPECIAL PROJECT	
DATE :	5/6/96	SCALE :	RVS
SHEET:	1/4	CHK'D :	NONE
FILE:	F:\BACKFLOW\RPZDRAIN.DWG		

ATTACHMENT G

Water Usage Fees

B) The farmer, or, the customer of the Authority engaged in farming operations, must have on file, at the office of the tax assessor for the municipality or district, a current agricultural exemption provided for in Article 25AA of the New York State Agriculture and Markets Law.

C) The customer seeking a refund, must make application to the Authority, between January 1 and March 1 of each year, for a refund of the previous year's summer use surcharge. In cases where the meter serves a dwelling, as well as farm fields, only that portion of the summer use surcharge which is in excess of forty ($40.00) dollars per year can be refunded. The refund will be in the form of a credit placed on the water bill of the applicant, in the year in which application is made. The application must be made on forms available at the Authority's Business Office.

4. In cases where the winter bill, as provided for in paragraphs 1 and 2 above, is less than the minimum charge based on the applicable meter size, the winter bill shall be considered to be the minimum charge.

MINIMUM CHARGE:

The quarterly minimum charge is payable in advance.
The monthly minimum charge is payable in arrears.

SIZE OF METER	QUARTERLY MINIMUM CHARGE	ALLOWANCE PER QUARTER GALLONS	MONTHLY MINIMUM CHARGE
5/8 inch	$ 20.79	9,000	$ 6.93
3/4 inch	27.72	12,000	9.24
1 inch	48.51	21,000	16.17
1-1/4 inch	62.37	27,000	20.79
1-1/2 inch	90.09	39,000	30.03
2 inch	145.53	63,000	48.51
3 inch	277.20	120,000	92.40
4 inch	457.38	198,000	152.46
6 inch	877.50	390,000	292.50
8 inch	1,369.50	630,000	456.50
10 inch	1,923.00	900,000	641.00
12 inch	2,599.50	1,230,000	866.50
20 inch	5,767.80	2,820,000	1,922.60
24 inch	7,695.60	3,840,000	2,565.20

Note: Monthly minimum allowance is 1/3 the quarterly allowance.

Rev. 8/01/93
Rev. 1/15/95
Rev. 1/01/96
Rev. 8/01/96
Rev. 1/01/97
Rev. 1/01/98
Rev. 4/14/99
Rev. 1/01/00
Rev. 1/01/02

Adopted 12/12/96
Adopted 12/04/97
Adopted 3/25/99
Adopted 11/24/99
Adopted 11/15/01

APPENDIX F

Appendix F

Dated: January 2007 (Revised)

LOWE'S NATIONAL STORM WATER POLLUTION PREVENTION PROGRAM

SECTION 800

["Lowe's is providing these Section 800 requirements for the purpose of assisting its third-party engineers in developing and drafting storm water pollution prevention plans that comply with Lowe's standards. Neither these requirements nor the attached annotated outline of a plan constitute legal or regulatory advice or in any way relieve or lessen third-party engineers of their obligation to independently ascertain, identify, and comply with applicable federal, state, or local requirements of either a generic or site-specific nature. ANY AND ALL RELIANCE UPON THESE REQUIREMENTS AND THE ATTACHED OUTLINE OF A STORM WATER POLLUTION PREVENTION PLAN ARE AT THE ENGINEER'S RISK."]

F-1

INTRODUCTION

It is the purpose of this Section 800 to provide a discussion of the general requirements that arise under environmental standards governing storm water from construction sites, so that Construction Activities associated with the development of Lowe's facilities will occur in compliance with those requirements. This Section 800 discusses the responsibilities of the Contractor, the Operator and the Operator's Engineer, as those terms are defined in Appendix A and further discussed below. (Note: All capitalized terms used herein are defined terms with their stipulated meaning set forth in Appendix A.) This Section 800 document also provides the Operator's Engineer with a model Storm Water Pollution Prevention Plan (SWPPP) for a construction site which meets the usual requirements of the federal general storm water permit. It is the Operator's Engineer's responsibility to adapt this document **and *to independently ascertain, identify, and comply with applicable federal, state, and local requirements*** based upon the specific ***Project*** location.

The Clean Water Act, established in 1972 as amendments to the Federal Water Pollution Control Act, prohibits the discharge of any pollutants to navigable waters of the United States from a point source, unless the discharge is authorized by a National Pollutant Discharge Elimination System (NPDES) permit. In 1990, EPA promulgated rules establishing Phase I of the NPDES storm water program. Phase I addresses discharges from large Construction Activities disturbing five (5) acres or more of land. Phase II of the NPDES storm water program covers small Construction Activities disturbing between one (1) and five (5) acres of land. Phase II became final on December 8, 1999 and the NPDES General Permit for both large and small Construction Activities became effective July 1, 2003. As the implementation of these regulations has evolved, most states have taken over both permitting and enforcement authority, but some states or areas are still under the direct jurisdiction of the EPA. While this program is intended to have either state or federal oversight, the Operator's Engineer should verify that this is the case, to ensure that more than one agency does not assert jurisdiction, as, for example, where there is a state system which has not been approved to take over all aspects of the federal system it may be necessary to document compliance with both state and federal systems. In addition, the Operator's Engineer should determine any other local, regional, special purpose or other governmental units that might assert jurisdiction over development and its storm water impacts (for example state and local erosion and sediment control programs and or county or municipal storm water regulations promulgated pursuant to Phase II).

The Operator's Engineer must supply any information which is site specific and/or required by state or local law. The Operator's Engineer should be aware that variances in the SWPPP requirements exist from state to state and that local jurisdiction also may have regulations which will also necessitate changes to specifics of the SWPPP. **THE OPERATOR'S ENGINEER MUST CONTACT THE APPLICABLE AUTHORITY(IES) TO DETERMINE CURRENT REGULATORY AND PERMITTING REQUIREMENTS. IT IS THE RESPONSIBILITY OF THE OPERATOR'S ENGINEER TO EVALUATE THE SITE, CHOOSE THE BEST MANAGEMENT PRACTICES ("BMPs") FOR THE SITE, AND INCORPORATE THOSE BMPs INTO THE SWPPP PREPARED FOR THE SITE, AND EXPLAIN THE SITE FEATURES ADDRESSED AND THE BMPs INCORPORATED IN THE SWPPP AT THE PRE-CONSTRUCTION MEETING.**

The EPA's regulations place responsibility for complying with the storm water discharge permitting requirements of the Federal Clean Water Act on the "Operator" of a project. There can be more than one Operator for a specific construction project. EPA's regulations define an Operator as any party associated with a construction project that meets either of the following two criteria: 1) the party has operational control over construction plans and specifications, including the ability to make modifications to those plans and specifications; or 2) the party has day-to-day operational control over those activities at a project which are necessary to ensure compliance with a storm water pollution prevention plan for the site or other permit conditions (*e.g.*, they are authorized to direct workers at a site to carry out activities required by the SWPPP or comply with other permit conditions) – (see Appendix A for additional definitions). Prior to submission of the Notice of Intent (NOI), it will be determined if an entity participating in Construction Activities at the Project is an Operator. Each entity must carefully review the applicable transaction documents for the project to determine if it satisfies the requirements of an Operator and/or has been assigned or has assumed the responsibility for complying with the storm water discharge permitting requirements of the Clean Water Act.

When the project site is owned by an entity other than Lowe's, the Operator's Engineer must carefully evaluate the applicable federal or state and local permit requirements to be sure that Lowe's interests are protected during the construction process, even though Lowe's may not be considered an Operator/permittee in these cases. **NOTE: If the Operator's Engineer (or an engineer of another party to the transaction) has any concern or question about the designation of a party's status in connection with the project, or the necessity for filing separate NOI's, the Operator's Engineer (or an engineer of another party) must contact the Lowe's Legal Department to ascertain the status assigned to all parties under the various applicable transaction documents. Failure to do so could result in**

violations of federal, state, and/or local laws. In any event, the Operator's Engineer shall prepare a SWPPP in strict compliance with Section 800, and the Operator(s) and Contractor(s) shall fully implement such SWPPP. In some cases, separate NOIs and SWPPPs shall be prepared for the Site and Building operations, if requested by Lowe's.

The Operator's Engineer is reminded that the SWPPP is more than an Erosion Control Plan, because it must also address measures to minimize potential storm water pollution from other sources which are common at construction sites. In order to complete the SWPPP with the information necessary to comply with regulatory requirements, the Operator's Engineer will also have to provide information on the following topics:

- Impact of construction activities on endangered species, critical habitat, and the basis for permit coverage
- Impact of construction activities on Indian lands and the name of the reservation
- Impact of construction activities on historical sites and eligibility of permit coverage
- Information on soils at the site
- Information on annual rainfall and months of peak rainfall at the site
- Latitude and longitude of the site
- Name of receiving waters for storm water discharges from the site including name of MS4 if present and impact of discharges on 303(d) Impaired Waterways.

The Operator's Engineer is reminded that evaluation of the site for endangered species and historical sites should begin very early in the design process because of the length of time these evaluations may take. The Operator's Engineer should also be aware that state and local jurisdictions may require redesigning the plans and/or additional information about issues or aspects of the site. As a result, the Operator's Engineer should determine any such requirements very early in the design process.

The following information is required to be included on the SWPPP site map by the EPA permit (check state and local permit requirements to determine other items which may be required):

1. Direction(s) of storm water flow and approximate slopes anticipated after major grading activities.
2. Total areas of soil disturbance and areas that will not be disturbed.
3. Locations of major structural and nonstructural BMPs identified in the SWPPP.
4. Locations where stabilization practices are expected to occur.
5. Locations of off-site material, waste, borrow and equipment storage areas.
6. Locations of all waters of the United States (including wetlands and surface waters of the state).
7. Locations where storm water discharge to a surface water and/or discharge to MS4.
8. Areas where final stabilization has been accomplished and no further construction-phase permit requirement apply.

Responsibilities for Compliance with Storm Water Discharge Permit Regulations at Construction Sites

Operator's Engineer's Responsibilities:

1. Prepare the ***SWPPP in accordance with this Section 800*** using good engineering practices, best management practices, and in compliance with all federal, state and local permit requirements. **This shall also include providing a description of the project and any outparcels as it relates to site ownership and development responsibilities.** The Operator's Engineer shall also prepare the SWPPP Ledger for use in the implementation and documentation of the SWPPP [two (2) copies, in three (3) ring binders] at the project site during construction activities. **Note: One (1) copy shall be provided to the Contractor and one (1) copy shall be provided to the Lowe's Project Manager (as defined in Appendix A). In addition, the Operator's Engineer shall provide an electronic copy of the SWPPP to include all attachments and/or appendices.**
2. Prepare the NOI form for the Operator's signature and forward to Operator for signature; submit the signed form to the appropriate regulatory agency along with any required fees and attachments. SWPPP must be complete prior to NOI submittal.
3. Include a signed NOI in the SWPPP prepared for the Project.
4. Participate at the pre-construction meeting with Contractor and appropriate subcontractors, which should include a review with all parties the requirements under this Section 800 and the SWPPP.
5. Review Contractor's SWPPP records on a periodic basis to ensure compliance with requirements for reports and inspection and maintenance logs, if requested by Operator.
6. Certify to Operator the Contractor's compliance with SWPPP record keeping requirements, if requested by Operator.

7. Sign, seal, and date the Certification Statement on the cover page of the SWPPP.

Operator's Responsibilities:

1. Have an authorized corporate officer sign the NOI and SWPPP Certification Statement on the cover page of the SWPPP.
2. Require the Contractor to implement fully the SWPPP prepared for the site by the Operator's Engineer.
3. Forward a copy of the original permit certificate received from the regulatory agency to the Contractor for inclusion in the SWPPP Ledger and display at the Project.
4. Ensure (through periodic observations by Operator's Project Manager) and document that the Contractor is implementing the controls, inspections, maintenance, record-keeping, and all other requirements of the SWPPP. The Lowe's Project Manager will maintain a separate copy of the SWPPP provided by the Operator's Engineer as stated above.
5. File an appropriately signed Notice of Termination ("NOT") form when site work construction is completed and stabilization is achieved.
6. Request and receive all SWPPP records from the Contractor and archive those records for a minimum of five (5) years after the NOT is filed. If the Operator is not Lowe's, the Operator shall archive the records in both paper and optically scanned format on CD, unless otherwise directed by authorized personnel at Lowe's.
7. Provide and document (Form J-1) certification and training of the Contractor's Project Manager and Contractor's Superintendent which shall be performed at a pre-construction meeting and administered by the Lowe's Project Manager and the Operator's Engineer.

Contractor's Responsibilities:

1. If required by the regulatory agency, prepare and sign an NOI form for the Contractor and submit to the regulatory agency along with any required fees and attachments.
2. Sign the SWPPP General Contractor's Certification Form in the SWPPP prepared for the Project (Form B-1).
3. Provide subcontractor training and require all subcontractors to sign the Subcontractor's Certification Form in the SWPPP prepared for the project (Form B-2).
4. Implement the stabilization, erosion control, and other requirements of the SWPPP.
5. Provide Qualified Inspectors, and documentation of qualifications, for the controls implemented at the Project.
6. Conduct all necessary inspections at the required intervals and prepare and retain written documentation of those inspections and all other written documentation required by the general permit.
7. Keep a copy of the SWPPP, all NOI's, permit certificates, permit language, Materials Management Plan (MMP), inspection records, and other required records on the Project.
8. Post in a prominent place near the Project entrance those documents required to be posted under the terms of the General Permit.
9. Contractor shall provide training sessions every thirty (30) days for all entities and subcontractors involved with the SWPPP.
10. Update and make changes to the SWPPP and supporting documents (such as the BMPs and/or MMP) as needed and with the approval of the Operator and the Operator's Engineer (see Sec. 801 J of this document)
11. If required by the regulatory agency, prepare and sign a NOT form when site work construction is completed and stabilization is achieved.
12. Transfer the SWPPP documents, along with all NOI's, permit certificates, NOT's, and written records required by the General Permit to the Operator for archiving in both paper and optically-scanned format on a CD. (In those instances where Lowe's is not an Operator, the Contractor shall also forward a copy of the SWPPP documents in both formats to Lowe's.)

Off-site borrow or fill locations

The Construction General Permit requires that off-site borrow, fill, and material storage sites be permitted under and covered by the SWPPP for the construction site, only if the off-site sites are used solely for that one project. If an off-site borrow or fill location or material storage site is operated by a subcontractor for more than one project, the operator of this multi-use site must obtain a separate NOI. The multi-use site must not be covered under the Project Permit. A General Permit from a state, local, or appropriate governmental agency may have different requirements relating to off-site borrow or excess (waste) locations. The Operator's Engineer must determine any applicable permit requirements for off-site borrow or excess (waste) locations. The requirements must be incorporated into the SWPPP, where applicable. If a separate permit is required for these activities, a copy of the permit must be provided in the SWPPP.

Definitions – please refer to Appendix A

References and Resources - Storm Water Pollution Prevention Plans for Construction Sites

Additional information regarding permit requirements, storm water pollution prevention plans, other federal information and links to state agencies can be found at the EPA website at http://cfpub.epa.gov/npdes/. Contact state environmental agencies and/or other local permitting authorities to determine any additional permitting requirements.

U.S. EPA, Storm Water Management for Construction Activities, Developing Pollution Prevention Plans and Best Management Practices, EPA 832-R-92-005, September, 1992.

North Central Texas Council of Governments, Arlington, Texas, Storm Water Quality Best Management Practices for Construction Activities, 2nd edition, 1999.

Asmus, Susan, ed., Storm Water and Urban Runoff Guide for Builders and Developers, National Association of Home Builders, Washington, D.C.

Dodson, Roy D., Storm Water Pollution Control, Industry and Construction NPDES Compliance, McGraw-Hill, New York, NY, 1995.

U.S. EPA Office of Water Management NPDES Web Page
[http://cfpub.epa.gov/npdes/]

U.S. EPA Office of Water Management, Construction General Permit
[http://www.epa.gov/npdes/pubs/cgp2003_entirepermit.pdf]

ASCE/EPA Storm Water Best Management Practices Database
[http://www.asce.org/community/waterresources/nsbmpdb.cfm]

Climate Data, NOAA Regional Climate Centers
[http://www.ncdc.noaa.gov/regionalclimatecenters.html]

Endangered Species Act Review Procedures
[http://cfpub.epa.gov/npdes/stormwater/esa.cfm]

National Register of Historic Places
[http://www.cr.nps.gov/nr]

Total Maximum Daily Loads (303(d) Impaired Waterways)
[http://epa.gov/owow/tmdl/]

Construction Industry Compliance Assistance
[http://www.cicacenter.org]

STORMWATER POLLUTION
PREVENTION PLAN
for
CONSTRUCTION ACTIVITIES
at
LOWE'S OF *HAMBURG, NEW YORK*
#4934,4940, 4946 & 4960* SOUTHWESTERN BOULEVARD *(NYS ROUTE 20)
TOWN OF HAMBURG, ERIE COUNTY, NEW YORK

Prepared for

LOWE'S HOME IMPROVEMENT CENTER
PO Box 1111
North Wilkesboro, NC 28656-0001W

Prepared by
Costich Engineering
217 Lake Avenue
Rochester, NY 14608

February 15,2007

"I hereby certify that to the best of my knowledge and belief, all of the requirements of the NPDES General Permit for Storm Water Discharges From Construction Activities [and identify the State General Permit for delegated states] and Lowes' Section 800 Development Criteria (regarding the preparation of this Storm Water Pollution Prevention Plan for this specific site development) have been incorporated into these plans and specifications."

____
Signature of Engineer

Russel Porter
Printed Name

____
Date

[ENGINEER'S SEAL]

Operator Certification

"I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations."

____

Signature of Lowe's Responsible Corporate Officer

____

Printed Name

____

Title

____

Date

Second Operator Certification (Contractor or Owner)

"I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations."

____

Signature of Responsible Corporate Officer

____

Printed Name

____

Title

____

Date

This form must be signed by a responsible corporate officer of the Operator(s) or other party meeting the "Signatory Requirements" in Appendix G, 11. of the Federal NPDES Permit or other applicable state permit.

Table of Contents

G. **Federal, State and/or Local NPDES Construction General Permit and State or Local Non-Storm Water Discharge Permits**

H. **Blank Federal, State or Local Notice of Intent (NOI) and Notice of Termination (NOT) or Other Applicable Forms and Blank NOI and NOT for Non-Storm Water Discharge Permits**

I. **Signatory Authorization Designation Form (Form A-1)**

J. **General Contractor's Certification (Form B-1)**

K. **Subcontractor's Certification (Form B-2)**

L. **Inspection Report (Form C-1)**

M. **Stabilization Form (C-2)**

N. **Implementation Form (C-3)**

O. **Modification Report (Form D-1)**

P. **Monthly Training Log (Form E-1)**

Q. **Final Stabilization/Termination Checklist (Form F-1)**

R. **Reportable Quantity Release Form (Form G-1)**

S. **Project Rainfall Log (Form H-1)**

T. **Construction Site Notice (Form I-1)**

U. **Pre-Construction Meeting Training Agenda (Form J-1)**

V. **Appendix A Definitions**

W. **Sample Forms A-1 Through I-1**

X. **Permit Eligibility Documentation.**

Appendix 1 – TMDL Documentation (303(d) Impaired Waterway)
Appendix 2 – Endangered Species Act Documentation
Appendix 3 – Critical Habitat Documentation
Appendix 4 – Historic Resource Documentation
Appendix 5 – Wetlands and/or Surface Water Impact Authorization Documentation
Appendix 6 -Joint Permit Application
Appendix 7 – Request Letter to the NYS DEC to Disturb Greater than 5 acres at one time
Appendix 8 – Operations and Maintenance Manual

801 SCOPE

A. **PURPOSE: Lowe's** has placed an emphasis on the development and proper implementation of a National Storm Water Pollution Prevention Program that will be utilized on each **Lowe's** project in addition to ***the New York State Department of Environmental Conservation (NYSDEC)*** State Pollutant Discharge Elimination System (SPDES) Construction General Permit governing storm water discharges during construction, and the National Pollutant Discharge Elimination System (NPDES) Construction General Permit governing stormwater discharges during construction, and in accordance with erosion control practices. The Contractor's participation in this program is mandatory and its non-compliance is subject to various remedies, including without limitation, monetary set-offs, withholding payments; reimbursement for costs, expenses (including reasonable attorney's fees), fines and civil penalties incurred by **Lowe's;** and/or liquidated damages as set forth in Section 9.5.a.8 of Division 0. This section provides a descriptive explanation of **Lowe's** National Storm Water Pollution Prevention Program and required Contractor participation.

B. **NPDES CONSTRUCTION GENERAL PERMIT FOR STORM WATER DISCHARGE FROM CONSTRUCTION SITES:** Regulations promulgated by the ***New York State Department of Environmental Conservation (NYSDEC)*** regulate the discharge of storm water from construction activity on sites where one or more acre of soil is disturbed. One of the ways to comply with these regulations for affected sites is to request coverage under the General Permit for Construction Activities for the particular state in which the site is found. In order to use the General Permit, a Notice of Intent (NOI) form must be completed and mailed to ***the New York State Department of Environmental Conservation*** at least ***five (5) business days*** prior to any earth-disturbing activities and a Storm Water Pollution Prevention Plan (SWPPP) for the site must be prepared and followed during the construction activities.

C. **NOTICE OF INTENT:** The Operator will petition the ***New York State Department of Environmental Conservation*** for storm water discharges during construction at this site to be covered by the SPDES General Permit for Construction Activity for the State of ***New York following completion of this SWPPP.*** A Notice of Intent (NOI) (using the form required by the federal, state, and/or local permitting agency) to be covered under this permit has been filed by the Operator. ***Authorization to discharge storm water from Construction Activities is effective five (5) business after receipt of the Notice of Intent by the NYSDEC.*** The SWPPP must be prepared prior to submittal of the NOI form. In some jurisdictions the Contractor, if it meets the permitting authority's definition of "Operator" may be required to file a separate NOI at least ***five (5) business days*** prior to any earth disturbing activities. In other jurisdictions, the Contractor may be a co-permittee with the Operator. **Confirmation of delivery of the NOI to EPA or EPA's electronic NOI system or state environmental agency must be included in the SWPPP.** Confirmation can include a postal receipt or electronic acknowledgement. Where discharging to an MS4, anyone filing an NOI must also submit a copy of the NOI to the MS4 and include confirmation of delivery for each party in the SWPPP. The signatory on the NOI must sign all documents (i.e., inspection reports) associated with the SWPPP. If the signatory chooses not to sign all documents, he/she must designate a duly authorized representative to sign all relevant documents. This designation must be made in writing and be included in the SWPPP. The duly authorized representative may be either a named individual or any individual occupying a named position. Additionally, in some states, the written designation must be submitted to the jurisdictional authority. Form A-1 is to be used for designating duly authorized representatives.

D. **RESPONSIBILITIES OF CONTRACTOR REGARDING THE CONSTRUCTION GENERAL PERMIT:** The Contractor shall manage the discharge of storm water from the site in accordance with the ***SPDES*** Construction General Permit for Construction Activities conditions and the following provisions of this section of the specifications. The Contractor shall be responsible for conducting the storm water management practices in accordance with the permit. The Contractor shall be responsible for providing Qualified Inspectors (See Section 801.1 and Appendix A for description) to conduct the inspections required by the SWPPP. The Contractor shall be responsible for any enforcement action taken or imposed by federal, state, or local agencies, including the cost of fines, construction delays, and remedial actions resulting from the Contractor's failure to comply with the permit provisions. **It shall be the responsibility of the Contractor to make any changes to the SWPPP necessary when the Contractor or any of his subcontractors elects to use borrow or fill or material storage sites, either contiguous to or remote**

F-10

from the construction site, when such sites are used solely for the Project. Such sites are considered to be part of the Project covered by the permit and this SWPPP. Off-site borrow, fill, or material storage sites which are used for multiple construction projects are not subject to this requirement, unless specifically required by state or local jurisdictional entity regulations. Off-site borrow and/or fill sites that are used for multiple construction projects must be operating under an approved permit from the jurisdictional entity. The Contractor must provide location and permit number of approved multi-use off-site borrow/fill sites in the SWPPP Ledger. The Contractor should consider this requirement in negotiating with earthwork subcontractors, since the choice of an off-site borrow, fill, or material storage site may impact their duty to implement, make changes to, and perform inspections required by the SWPPP for the site.

E. **CONTRACTOR CERTIFICATION & TRAINING**: Certification and Training of the Contractor's Project Manager and Superintendent will be performed at the pre-construction meeting and administered by the ***Lowe's Project Manager*** and ***Operator's Engineer*** **using Form J-1**. The Pre-Construction Meeting will occur before any land disturbing activities are started. This Certification and Training Program has been developed to stress the importance of the following topics:

- Erosion and sediment control for water quality protection
- Implementation of erosion and sediment control plans
- The importance to proper installation of erosion and sediment control measures
- Regular inspection by **qualified personnel** of erosion and sediment control measures
- Diligent maintenance to erosion and sediment control measures
- Contemporaneous preparation of accurate and complete records regarding inspection and maintenance of erosion and sediment control measures
- Record-keeping for inspections and maintenance activities

Upon completion of the certification and training program, the Project will receive a SWPPP Ledger for use by the Contractor's Project Manager and Contractor's Superintendent with all required certifications and record keeping forms involved with the installation and/or maintenance of erosion and sediment control measures. The Operator's certification and training shall be in addition to any federal, state or local certifications or training required or available to comply with NPDES stormwater permit requirements by the Contractor. A completed form J-1 must be included in the SWPPP Ledger to provide documentation that the pre-construction meeting has been conducted in compliance with Lowe's requirements.

F. **REQUIREMENTS FOR THE GENERAL CONTRACTOR AND SUBCONTRACTOR(S):** The SWPPP Ledger shall provide forms for both the General Contractor and Subcontractor(s) identifying the Company Name, Business Address and Telephone Number along with the Responsible Person for the Contractor and all subcontractors' who will implement the measures identified in the SWPPP. **The General Contractor shall sign Form B-1, "General Contractor's Certification" and all Subcontractors shall sign Form B-2, "Subcontractor's Certification"**, verifying they have been instructed on how to comply with and fully understand the requirements of the ***NYSDEC*** and SWPPP. **These certifications must be signed, by a responsible corporate officer or other party meeting the "Signatory Requirements" in** ***Part V, Section H of the SPDES General Permit for Stormwater Discharges from Construction Activity (GP-02-01) on*** **behalf of each entity, prior to the beginning of any Construction Activities and shall be filed in the Project's SWPPP Ledger.**

G. **STORM WATER POLLUTION PREVENTION PLAN LOCATION REQUIREMENTS:** The SWPPP Ledger is meant to be a working document that shall be maintained at the site of the Construction Activities at all times throughout the Project, shall be readily available upon request by the Operator's personnel or ***NYSDEC*** or any other agency with regulatory authority over storm water issues, and shall be kept on-site until the site complies with the Final Stabilization section of this document. **A sign must be posted at both the main entrance of the construction site and inside the job trailer (unless local laws require different locations). Such sign must include Form I-1 a completed NOI, the location of the SWPPP and the name and phone number of a contact person responsible for scheduling SWPPP viewing times, and any other state specific requirements The Letter of Acknowledgement, (LOA) notifying the applicant that coverage under the applicable permit has been obtained must also be posted at both locations, once received.** ***[A sample of this sign has been included as Form I-1].***

H. **SWPPP LEDGER: A minimum of two (2) copies of the SWPPP Ledger,** in three (3) ring binders **shall**

be provided by the Operator's Engineer. One (1) copy shall be provided for use by the General Contractor and one (1) copy shall be provided to the Lowe's Project Manager. SWPPP Ledgers shall be tabbed and indexed for the following sections:

Table of Contents

A. Written SWPPP
B. Site Map
C. Erosion and Sedimentation Control Plan(s) [Full size plan sheets must be provided for the SWPPP Ledger]
D. Signed Federal, State or Local Notice of Intent (NOI)
E. Confirmation of NOI Delivery
F. Copy of Notice of Permit Coverage
G. Federal, State or Local NPDES Construction General Permit
H. Blank Copy of NOI and Notice of Termination (NOT)
I. Signatory Authorization Designation (Form A-1)
J. General Contractor's Certification (Form B-1)
K. Subcontractor's Certification (Form B-2)
L. Inspection Report (Form C-1)
M. Stabilization Schedule (Form C-2)
N. Implementation Schedule (Form C-3)
O. Modification Report (Form D-1)
P. Monthly Training Log (Form E-1)
Q. Final Stabilization/Termination Checklist (Form F-1)
R. Reportable Quantity Release Form (Form G-1)
S. Project Rainfall Log (Form H-1)
T. Construction Site Notice (Form I-1)
U. Pre-Construction Meeting Training Agenda (Form J-1)
V. Sample Forms
W. Appendix A Definitions
X. Permit Eligibility Documentation

The Operator's Project Manager must review and evaluate for compliance the SWPPP Ledger at each Project review. All inspection and maintenance forms must be **signed** by the Operator's Project Manager **(or other duly authorized representative)** at this review and be submitted with the Contractor's monthly application for payment. The approval of the Contractor's application for payment will be withheld until the SWPPP Ledger is deemed in compliance and all SWPPP inspection and maintenance forms and have been submitted to the satisfaction of the Operator.

I. **INSPECTIONS AND RECORD-KEEPING:** Inspections are required at least ***[every seven (7) calendar days or more often if dictated by a State Permit or other requirement]*** and within 24 hours following a rainfall event ***greater than 0.5 inches of rain per 24-hour period***, and shall continue until the site complies with the Final Stabilization section of this document. **Inspections must be conducted by a "Qualified" Inspector. "Qualified" is defined as a person knowledgeable in the principles and practices of erosion and sediment controls who possesses the skills to assess conditions at the construction site that could impact storm water quality and to assess the effectiveness of any sediment and erosion control measures selected to control the quality of storm water discharges from the Construction Activity (See definition in Appendix A for ways to satisfy this requirement).** Each inspection must be followed up by a report documenting the Qualified Inspector's findings and request the required maintenance and/or repair for the erosion and sedimentation control measures.

Inspections must include all areas of the site disturbed by Construction Activities and areas used for storage of materials that are exposed to precipitation. Qualified Inspectors must look for evidence of, or the potential for, pollutants entering the storm water conveyance system. Sedimentation and erosion control measures identified in the SWPPP must be observed to ensure proper operation. Discharge locations must be inspected to ascertain whether erosion control measures are effective in preventing significant impacts to waters of the United States, where accessible. Where discharge locations are inaccessible, nearby downstream locations must be inspected to the extent that such inspections are practicable. Locations where vehicles enter or exit the site must be inspected for evidence of off-site tracking.

It is imperative that the Contractor documents the inspection and maintenance of all erosion and sediment control measures as soon as possible after the inspection and/or maintenance is completed (Form C-1). (The complete list of required inspections and maintenance documents is set forth in Section 816). These records are used to prove that the required inspection and maintenance were performed and shall be placed in the SWPPP Ledger. In addition to inspection and maintenance reports, records should be kept of the Construction Activities that occur on the site. The Contractor shall retain copies of the SWPPP, all reports and data for a minimum of **five (5) years** after the Project is complete in paper and CD format.

The inspection reports must identify any incidents of non-compliance with the permit conditions. Where a report does not identify any incidents of non-compliance, the report must contain a certification that the Project is in compliance with the SWPPP and the General Permit or other applicable State Permit. The report must be signed in accordance with *Part V, Section H of the NYSDEC SPDES General Permit (GP-02-01)*

J. **SWPPP MODIFICATIONS:** The inspection report should also identify if any revisions to the SWPPP are warranted due to unexpected conditions. The SWPPP is meant to be a dynamic working guide that is to be kept current and amended whenever:

- There is a change in design, construction, operation, or maintenance at the construction site that has or could have a significant effect on the discharge of pollutants to the waters of the United States that has not been previously addressed in the SWPPP. In addition to modifying the SWPPP, the site map may also require an amendment.

- Inspections or investigations by site staff, or by local, state or federal officials, determine that the discharges the SWPPP is ineffective in eliminating or significantly minimizing pollutants in storm water discharges from the construction site. Modifications that are the result of an inspection must be initiated within 24 hours and completed within 48 hours.

- Based on the results of an inspection, it must be modified as necessary to include additional or modified BMPs designed to correct problems identified. Revisions to the SWPPP must be completed within seven (7) calendar days following the inspection.

- There is a release containing a hazardous substance or oil in an amount equal or in excess of a reportable quantity established under either 40 CFR Part 110, 40 CFR Part 117 or 40 CFR Part 302 occurs during a 24 hour period. Revisions to the SWPPP must be completed within seven (7) calendar days of knowledge of the release.

- ***There is an off-site borrow or fill area that is used solely for the Lowe's construction Project. The modification will include, at a minimum, a revision to the SWPPP and site maps and may impact the Contractor's duty to implement and conduct inspections.*** The Contractor's failure to modify the SWPPP to include off-site borrow or fill areas used solely for the Project or to monitor or report deficiencies to the Operator will result in the Contractor being liable for fines and construction delays resulting from any federal, state, or local agency enforcement action.

Any such changes to the SWPPP must be made in writing on the Modification Report **(Form D-1)** within 7 days of the date such modification or amendment is made. The modification is also to be recorded on the Progress Drawing and referenced to the Modification Report (Form D-1).

K. **CONTRACTOR'S MONTHLY TRAINING:** The Contractor shall provide training sessions every 30 calendar days for all entities and subcontractors involved with installing, applying, performing, maintaining and inspection of the SWPPP. Logs of each monthly training shall be kept by the Contractor on the "Monthly Training Log" **(Form E-1)**, in the SWPPP Ledger. Training shall educate the attendees on the topics of:

- The Location and Type of Control Measures
- The Construction Requirements for the Control Measures
- Maintenance Procedures for each of the Control Measures
- Spill Prevention and Cleanup Measures
- Inspection and Maintenance Record Keeping Requirements

L. **FINAL STABILIZATION AND TERMINATION OF PERMIT COVERAGE:** A site can be considered finally stabilized when all soil disturbing activities have been completed and a uniform perennial vegetative cover with a density of **85%** for the unpaved areas and areas not covered by permanent structures has been established or equivalent permanent stabilization measures have been established and the facility no longer discharges storm water associated with Construction Activities and a Notice of Termination (NOT) form filed by the Operator(s) with the ***NYSDEC.*** The Operator(s) must notify Lowe's five (5) days prior to filing the NOT in order to coordinate the filing with Lowe's. The Operator's Project Manager must complete the NOT. The NOT must be signed by the signatory (or equivalent position) on the NOI and subsequently submitted to the appropriate agency. **Where discharging to an MS4, the signatory must also submit a copy of the NOT to the MS4 except where the Project is permitted solely by the MS4 in which case the Contractor will comply with appropriate MS4 termination requirements..** The Operator's Project Manager must provide a completed copy of the NOT to the Contractor for inclusion in the SWPPP, which will then be optically scanned into the final SWPPP document as required. This filing terminates coverage under the General Permit and terminates the Contractor's responsibility to implement the SWPPP, but the requirements of the SWPPP, including periodic inspections, must be continued until the NOT is filed. Upon achieving this milestone, the Contractor shall also submit "Final Stabilization Certification/Termination Checklist" **(Form F-1)**. Final payment and/or the release of retainage will be withheld until all provisions of the SWPPP have been submitted, completed and accepted by the Operator.

802 PROJECT NAME AND LOCATION

Lowe's of Hamburg, New York
#4934,4940, 4946 & 4960 Southwestern Boulevard, (Route 20)
Town of Hamburg, Erie County, New York 14075
42.7549°N and 78.8504°W

A general location map (i.e., USGS quadrangle map) with enough detail to identify the location of the construction site, direction of storm water flow, the receiving waters within one (1) mile of the site, locations of off-site material, waste, borrow, and equipment storage areas, surface waters and wetlands, storm water discharge locations and other areas as required by New York State and the Town of Hamburg is included.

803 OPERATOR'S NAME AND ADDRESS

Lowe's Home Center, Inc
P.O. Box 1111
Wilkesboro, NC 28658-0001
336-658-4000

804 PROJECT DESCRIPTION

This Project will consist of developing approximately 36.85 acres of land and constructing a 139,410± square foot Home Improvement Center and two 7,500 square foot outparcel buildings with associated utilities, drives, and parking areas. The estimated time for completion of the construction on the Project is *365* calendar days. General soil disturbing activities will include:

A. Construction of temporary construction exit points
B. Clearing and grubbing,

C. Construction of temporary sediment basins and storm water management facilities
D. Site grading including construction of perimeter diversion swale
E. Installation of storm sewer pipes and inlets
F. Construction of building pad
G. Construction of a retail building
H. Construction of utilities
I. Construction of curb and gutter, drives, and parking areas
J. Final grading

This Project is owned by *Lowes Home Centers, Inc.* and will be developed by *Lowes Home Centers, Inc. There* are *two (2)* out parcels associated with the construction of the Lowe's facility. These outparcels are contiguous to the Lowe's construction site and consist of *36.85* acre(s) for which erosion and sediment controls have been developed and fully addressed in this written plan and the Erosion and Sediment Control Plan(s). See Grading and erosion and Sediment Control plan # 3717-09, 3717-10 and Detail Sheet 3717-17 for additional details.

805 PROJECT SITE INFORMATION: EXISTING CONDITIONS, RUNOFF COEFFICIENT, SOILS, AND RAINFALL INFORMATION

The portion of the site designated for the Home Improvement Center is currently vacant land consisting of woods and dense underbrush. The portion of the site designated for the two outparcels is currently occupied by two small commercial businesses and two residential homes. The rear portion of the site currently drains in a westerly direction via overland flow where it enters a series of storm sewer systems located along the northern and western boundaries of the site The remaining portion of the site currently drains overland to an existing drainage ditch. The existing drainage areas affected by development are shown on drawing number 3717-ED, entitled "Existing Drainage area Map" and are labeled "E-1", "E-2", "E-3" and "E-4". As previously mentioned, area E-1 drains overland and eventually discharges to a storm sewer located on the westerly side of the site(Discharge Point1). Area E-2 also drains overland to a swale, which ultimately discharges to a storm sewer system on the northerly side of the site (Discharge Point 2). Area E-3drains overland to an existing storm sewer system at the end of Heatherwood Drive (Discharge Point 3). Area E-4 drains southerly towards the existing drainage ditch, which flows from east to west (discharge Point 4).

The developed drainage areas are shown on drawing number 3717-DD entitled, *"Developed Drainage Area Map"* Under developed conditions, new impervious surfaces will be conveyed to (2) new detention facilities. Areas D-1, D-2, and D-3 will continue to drain overland to each of their respective existing discharge points with a reduction of flows for points one and three due to a reduction in area of each due to the building and parking lot area which will be redirected to a new detention area. Flows to discharge point two will remain the same. Area D-4 will be partially occupied by Lowe's to the north and the proposed out parcels to the south of the existing drainage ditch. As a result, two detention facilities are needed to reduce peak runoff rates to discharge point four. The portion of this area (D-4A) which has been proposed for the out parcels will drain into the southerly stormwater management facility, which has been designed to provide water quality and channel protection volumes while limiting outflow for the over bank flood and extreme storm events prior to being released to discharge point four. Area D-4B is comprised of 14.30 acres containing the proposed Lowe's building as well as the proposed parking area and the northerly stormwater management facility. This area will drain into the northerly stormwater management facility, which has been designed to provide water quality and channel protection volumes while limiting outflow for the over bank flood and extreme storm events. The site is *36.85* acres of which *Construction Activities will disturb 18.0 acres.*

The initial coefficient of runoff for the pre-construction site is "c" = *0.26* The post-construction coefficient of runoff for the site will be "c" = . *50* (calculation of weighted "c" is shown below).

Calculation of "c" value for post-construction site:

$$c = [(0.25 \times 22.67) + (0.90 \times 14.19)]/36.85 = 0.50$$

The 2-year 24-hour storm rainfall amount is *2.5* inches. The total amount of impervious surface area is *14.91* acres. Total runoff from a 2-year 24-hour frequency storm from the site is *5.361* acre-feet.

The site has soils, which are described by the USDA Natural Resources Conservation Service as *the Collamer Silt Loam (CtB), the Dansley Silt Loam (DaD),) and the Remsen Silty Clay Loam (RfA and RfB) The dominant soil type,* the Remsen Silty Clay Loam, is described as very deep, somewhat poorly drained soil type designated Hydrologic Soil Group (HSG) Type "D". This soil has a 'B' horizon erodibility factor (K factor) of *0.28.* The Rainfall-Erosivity factor (R factor) for the site is *76.*

The site is in *Erie County* which receives an average of *37.31inches of rainfall* annually with the highest amounts of rainfall received in the months of *August and November.*

806 NAME OF RECEIVING WATERS

The portion of the site to be developed will drain into two new stormwater management facilities. Discharge from these facilities will drain south to existing drainage ways at peak flow rates attenuated below existing conditions. Stormwater runoff will continue to be conveyed to an intermittent Class C stream designated Tributary E-5 to Lake Erie. Stormwater runoff from the remaining drainage sub-areas will also discharge from the site at levels below existing conditions due to an overall decrease in the drainage areas. Stormwater runoff from these areas will continue to be conveyed to existing storm sewers owned and maintained by the Town of Hamburg, which is automatically designated as a Separate Storm Sewer District (MS4). *Confirm MS4and provide copy of MS4 NPDES Permit. In some jurisdictions, descriptions and locations (latitude and longitude) of site outfalls are also required].*

The NYSDEC provides an interactive stormwater map highlighting 303(d) segments, TMDL Watersheds, regulated MS4's and other stormwater data. Section X, Appendix 1 of this *SWPPP Report* provides documentation to show that the site does not discharge into a 303(d) listed stream nor is the site located in a TMDL watershed. Also included in this Appendix is the 303(d) list subject to condition C. This site is not included on the list.

807 INDIAN COUNTRY LANDS

The Site is not located on Indian Land

808 ENDANGERED AND THREATENED SPECIES

Discharges associated with the construction of the Project will not jeopardize the continued existence of any species that are federally listed as endangered or threatened under the Endangered Species Act or state listed under a separate state endangered species act and how the determination was made. A response from the U.S. Fish and Wildlife Service, project file reference # 60413, is included in Section X, Appendix 2 of this SWPPP Report. The response concluded that no Federally listed, or proposed endangered species are known to exist in the project impact area. Likewise, communication with the NYSDEC Division of Fish, Wildlife and Marine Resources concluded that no records of known occurrences of rare or state listed animals or plants are on or in the immediate vicinity of the site. Documentation is also to found in Section X, Appendix 2 of this SWPPP Report.

809 CRITICAL HABITAT

No habitat in the project area is currently designated or proposed "critical Habitat" A response from the U.S. Fish and Wildlife Service, project file reference # 60413, is included in Section X, Appendix 3 of this *SWPPP Report.* Likewise, communication with the NYSDEC Division of Fish, Wildlife and Marine Resources concluded that no significant natural communities or other significant habitats are known to occur on or in the immediate vicinity of the site. Documentation is also to found in Section X, Appendix 3 of this *SWPPP Report.*

810 HISTORIC STRUCTURES, ARCHEOLOGICAL AND CULTURAL RESOURCES

Evergreen Testing and Environmental Services completed a modified Phase 1 Environmental Site Assessment in December 2006. This document can be found in Section X, Appendix 4 of this SWPPP Report. Page 19 of this document states that no Historic Places were identified within a mile radius of the subject site.

Additionally, Northern Ecological Associates, Inc. (NEA) completed A Phase I Cultural Resource Report in February 2007 for the project site. Based on the results of the survey, the consultant concluded that no adverse effects on prehistoric or historic archaeological resources are anticipated for the Project as a result of construction, operation and maintenance activities, and no additional archaeological investigations are recommended for the Lowes-Hamburg Project. A copy of the Phase I Cultural Resource Report can be found in Section X, Appendix 4 of this SWPPP Report. Verification of the above recommendation received from the New York State Office of Parks, Recreation and Historic Preservation (OPRHP) will also be included in this Appendix upon receipt.

811 WETLANDS AND/OR OTHER SURFACE WATERS

Earth Dimensions, Inc. (EDI) completed a wetland delineation report in July 2006 for the project site. The purpose of this report was to provide information to the U.S. Army Corps of Engineers (Corps) and the NYSDEC in order to determine their jurisdictional authority over the investigation area, pursuant to Section 404 of the Clean Water Act and Article 24 (Freshwater wetlands) of the New York State Environmental Conservation Law. The preliminary data review found no wetlands subject to NYSDEC jurisdiction at the proposed development site, but evidence does suggest the presence of four wetlands totaling 2.341 acres that might have Corps jurisdiction. A Joint Permit Application has been filed with both regulatory authorities that describes the potential project impact to 1.205± acres of delineated wetland. A jurisdictional determination has not yet been made on this project and it is anticipated that at least a portion of the impacted wetland may be isolated and non-jurisdictional in nature. A copy of the Joint Permit Application can be found in Section X, Appendix 6 of this SWPPP Report

Receipt of the Jurisdictional Determination is not anticipated until the late spring, early summer of 2007. Upon receipt of the Jurisdictional Determination, a wetland mitigation plan will be developed. ***In addition, if a permit is required to impact wetlands and/or other surface waters, a copy of the applicable permit or authorization (i.e., 404 Permit) must be included with this document.*** *If impacts are proposed which require mitigation creation, a determination must be made with the applicable agency whether the mitigation area must be included in the SWPPP (to include all erosion control measures)*].

812 EROSION AND SEDIMENT CONTROLS

[Note the BMP examples listed below are for illustrative purposes only. The Operator's Engineer must only include actual BMP's used for this Project, with sufficient details for each measure. Reference to "National Menu of Best Management Practices for Storm Water Phase II" located on the internet at www.epa.gov/npdes/menuofbmps/menue.htm and/or the on-line database entitled "National Stormwater Best Management Practices (BMP) Database" sponsored by the EPA and the American Society of Civil Engineers (ASCE) and available on the internet at www.bmpdatabase.org is recommended].

812.1 Stabilization Practices (Permanent)

Permanent stabilization practices for this project include:

A. Land clearing activities shall be done only in areas where earthwork will be performed and shall progress, as earthwork is needed.
B. Use of stabilization fabric (RECP) for all slopes having a slope steeper than 3:1 (3 horizontal to 1 vertical).
C. Permanent seeding and planting of all unpaved areas using the hydromulching grass seeding technique.
D. Mulching exposed areas.
E. Vegetation preservation.
F. Sodding/Landscape Planting

812.2 Stabilization Practices (Temporary)

Temporary stabilization practices for this project include:

A. Temporary seeding and planting of all unpaved areas using the hydromulching grass seeding technique.

B. Mulching exposed areas.
C. Installation of Rolled Erosion Control Products.
D. Soil Roughening.
E. Dust Control (frequent watering to minimize wind erosion during construction).

812.3 Structural Practices (Permanent)

Permanent structural practices for this project include:

A. Inlet protection using.
B. Outlet protection (velocity dissipation) with a rip-rap apron
C. Storm sewer, curb and gutter.
D. Storm water detention pond (which may also serve as a temporary sediment basin).
E. Pipe slope drains.
F. Earthen dikes.
G. Grass channels.

812.4 Structural Practices (Temporary)

Structural practices for this project include: [add or delete to these practices to be site specific]
A. Inlet protection using [add site specific measures]
B. Outlet protection using (velocity dissipation) using a stone riprap apron
C. Perimeter protection using silt fence, orange safety fence to delineate environmentally sensitive areas, and a perimeter drainage swale.
D. Stabilized construction entrance/exit points and 30,000 S.F. laydown area
E. Temporary sediment basin (which may also serve as a storm water detention pond)
F. Temporary gravel and rip-rap filter basin.
G. Temporary rock dam filter basin.
H. Filter berm.
I. Check dam.
J. Silt fence.
K. Sediment chamber.
L. Pipe slope drains.

M. Temporary diversion berms

A temporary (or permanent) sediment basin (or sediment basins) that provide(s) storage for a calculated volume of runoff from the drainage area from a two (2) year, 24-hour storm, or equivalent sediment storage measure(s) must be provided until final stabilization of the site or stabilization of the areas of the site for which the sediment basin serves is achieved. [Provide Calculation].

Basin A *(2000 cu. yds)*
Minimum sediment storage volume = 134 cu. yds. X 14.6 acres of drainage areas =1961 cu. yds
Cleanout at 25% (Lowe's standard) of minimum required volume = 500 cubic yds
Elevation corresponding to scheduled time to clean out = 702.25 feet
Distance below top of riser 3.75 feet
Minimum surface area is larger of 0.01 $Q_{(1)}$ = 0.18 or, DA =).22. Use 0.22 square feet

Basin B

(1000 cu. yds)
Minimum sediment storage volume = 134 cu. yds. X 7.3 acres of drainage areas = 978 cu. yds
Cleanout at 25% (Lowe's standard) of minimum required volume = 50 cubic yds
Elevation corresponding to scheduled time to clean out = 702.25 feet
Distance below top of riser 3.75 feet
*Minimum surface area is larger of 0.01 $Q_{(1)}$ = 0.18 or, DA =).22. Use 0.22 square feet_*

812.5 Sequence of Major Construction Activities

The Contractor will be responsible for implementing the following erosion control and storm water management control measures. The Contractor may designate these tasks to certain subcontractors as he sees fit, but the ultimate responsibility for implementing these controls and ensuring their proper functioning remains with the Contractor. The order of activities will be as follows *(refer to the Erosion and Sediment Control Plan Sheet 3717-9 contained in this SWPPP for details):*

A. A pre-construction meeting shall be held by the Lowe's Project Manager and the Operator's Engineer prior to land disturbing activities.
B. Construct temporary construction exits at locations shown on the SWPPP plan sheet.
C. Install perimeter silt fences and temporary sediment basin in the locations shown on the SWPPP plan sheet.
D. Begin clearing and grubbing operations. Clearing and grubbing shall be done only in areas where earthwork will be performed and only in areas where building is planned to commence within 14 days after clearing and grubbing.
E. Commence site grading.
F. Disturbed areas of the site where Construction Activity has ceased for more than 14 days shall be temporarily seeded and watered.
G. Install inlet/outlet protection at the locations of all grate inlets, curb inlets, and at the ends of all exposed storm sewer pipes.
H. Finalize pavement subgrade preparation.
I. Construct all curb and gutter, gutter inlets, area inlets, and storm sewer manholes, as shown on the plans. Inlet protection may be removed temporarily for this construction. Place required riprap at locations shown on the plans.
J. Remove inlet protection around inlets and manholes no more than 48 hours prior to placing stabilized base course.
K. Install base material as required for pavement.
L. Carry out final grading and seeding and planting
M. Inspect and clean storm drainage system
N. Remove silt fencing only after all paving is complete and exposed surfaces are stabilized.
O. Remove temporary construction exits only prior to pavement construction in these areas (These areas are to be paved last).

[Add to, or delete, or rearrange these activities as required for the site specifics. ***Note sequence stated herein shall match verbatim the sequence listed on form C-3 and on the plan sheets for the Project.]*** A schedule for implementation for the activities identified above is included as Form C-3 of the SWPPP.

812.6 Storm Water Management

The following post-construction storm water management measures will be installed during the construction process to control pollutants in storm water discharges after construction operations have been completed. Following development, the existing four (4) sub-drainage areas will be modified. Areas D-1, D-2, and D-3 will continue to drain overland to each of their respective existing discharge points with a reduction of flows for points one and three due to a reduction in area of each due to the building and parking lot area which will be redirected to a new detention area. Flows to discharge point two will remain the same. Under developed conditions, new impervious surfaces will be conveyed to (2) new detention facilities to Discharge Point 4. These two proposed stormwater management facilities will be constructed with the proposed development in order to reduce the developed peak flow rates to less than the existing rates.
The stormwater runoff volumes and rates were estimated using the SCS TR—55 "Urban Hydrology for Small Watersheds". The PondPack Software, employing the SCS TR-55 method, was used to generate runoff inflow hydrographs, to combine hydrographs, and to calculate stormwater detention performance. The software also performed routing of inflow hydrographs through the new oversized storm sewer pipes. Appendix II includes the summary sheet, listing peak inflow and outflow rates, maximum storage volumes and runoff volumes, and related information for selected frequency storm events for the pre-development and post-development conditions.
The wet detention pond design was chosen based on the Town requirements as well as the criteria set forth by the NYS DEC Stormwater Management design Manual and the SPDES Phase II SPDES Permit GP-02-01. Water quality will be provided in permanent pools below static elevation in both basins as well as an extended detention for the one-year storm event by discharge through low flow orifices in both basins.

Pollutant removal rates for wet detention stormwater management facilities are rated as "good" in the NYS Stormwater Management Design Manual, August, 2003. Removal efficiencies from USEPA 832-F-99-048 (September 1999) lists the following:

Total Suspended Solids (TSS)	50-90%
Total Phosphorus (TP)	30-90%
Soluble Nutrients	40-80%
Lead	70-80%
Zinc	40-50%
Biochemical	20-40%

The following velocity dissipation devices will be placed at discharge locations along the length of any outfall channel to provide a non-erosive flow velocity from the structure to a water course so that the natural physical and biological characteristics and functions are maintained and protected (e.g. no significant changes in the hydrological regime of the receiving water). *Stone rock outlet protection has been provided at the outlets from basins 1 and 2. The outlet protection design, based on maximum tailwater conditions, requires a minimum 5 foot length of apron for both basins with a 32 inch width for basin one based on the 8 inch diameter of the outlet pipe and a 30 inch width for the apron in basin 2 based on a 6 inch diameter outlet. The peak flow rate of discharge for the 100-year storm event was calculated to be 2.74 cfs for basin 1 and 1.06 cfs for basin 2.*

813 OTHER CONTROLS

813.1 Off-Site Vehicle Tracking

A stabilized construction entrance/exit will be provided to help reduce vehicle tracking of sediments. The paved streets adjacent to the site entrance will be inspected daily and swept as necessary to remove any excess mud, dirt, or rock tracked from the site. Dump trucks hauling material from the construction site will be covered with a tarpaulin. The job Contractor's Superintendent will be responsible for seeing that these procedures are followed. Contractor will refrain from hauling materials offsite when conditions are too wet to maintain clean roads.

813.2 Excavation Spoil Materials

Excavation spoil materials are generated during the excavation of the facility's truckwell, footings and utilities installation. These materials must be properly managed to prevent them from contributing to storm water discharges. The materials generated from the development of this Project will be managed by the following method: [provide management method with details, i.e., mixed with on-site fill, hauled off-site. A copy of the receiving site's permit must be included in this SWPPP if spoil materials are transported off site.

813.3 Dust Control

Minimizing wind erosion and controlling dust will be accomplished by one or more of the following methods:

A. Covering 30% or more of the soil surface with a non-erodible material.
B. Roughening the soil to produce ridges perpendicular to the prevailing wind. Ridges should be about six (6) inches in height.
C. Frequent watering of excavation and fill areas.
D. Providing gravel or paving at entrance/exit drives, parking areas and transit paths.

813.4 Equipment Service Area

The Contractor shall identify an area on the Erosion and Sediment Control Plan for equipment cleaning, maintenance and repair. This area shall be protected by a temporary perimeter berm preventing all surface runoff from leaving the area, or equivalent measure, and shall be located no closer than 100' from any waters of the United States or state, and shall be located no closer than 50' from any storm inlet. External washing of trucks and other construction vehicles must be confined to this area. No engine degreasing or asphalt equipment or tool washing is permitted.

813.5 Material Stockpiles

Stormwater runoff to and from material stockpiles shall be controlled to prevent materials from creating a diversion of surface water to disturbed soils or from entering the surface water. Topsoil stockpiles shall be surrounded with perimeter sediment control measures *[such as silt fence]* and be covered with non-erosive material as soon as practicable but no longer than 14 days after completion of the pile. Non-erosive material may include temporary seeding with straw mulch and tackifier, mulch, or other material providing suitable cover.

814 COMPLIANCE WITH OTHER STATE AND LOCAL REGULATIONS

1. At a minimum the Contractor will obtain copies of any and all local and state regulations which are applicable to storm water management, erosion control, and pollution minimization at this Project and will comply fully with such regulations. The Contractor will submit written evidence of such compliance if requested by the Operator or any agent of a regulatory body. The Contractor will comply with all conditions of the *NYSDEC SPDES* Construction General Permit, GP-01-02, including the conditions related to maintaining the SWPPP and evidence of compliance with the SWPPP at the Project and allowing regulatory personnel access to the Project and to records in order to determine compliance. The Contractor shall also comply with any additional or more stringent requirements imposed by the permit issued by an approved state storm water program, or with permits issued, or requirements imposed by, an MS4 to which the Project discharges storm water. Requirements with which the Contractor must comply include installation of post-construction measures required by the State of New York or the Town of Hamburg MS4 Permit No: NYR20A084.

815 INSPECTION AND MAINTENANCE PROCEDURES

The following inspection and maintenance practices will be used to maintain erosion and sediment controls and stabilization measures (also see section 801 (I)).

2. All control measures will be inspected at least once every seven (7) calendar days and within 24 hours following a rainfall event of greater than 0.5 inches per 24-hour period.

3. All measures will be maintained in good working order; if repairs or other measures are found to be necessary, they will be initiated within 24 hours of report, and completed within 48 hours of report.

4. Built up sediment will be removed from silt fence when it has reached one-third the height of the fence.

5. Silt fences will be inspected for depth of sediment, tears, etc., to see if the fabric is securely attached to the fence posts, and to see that the fence posts are securely in the ground.

6. The sediment basin, if present, will be inspected for depth of sediment, and built up sediment will be removed when it reaches 25 percent of the design capacity.

7. Temporary and permanent seeding and all other stabilization measures will be inspected for bare spots, washouts, and healthy growth.

8. An Inspection Report (Form C-1) will be completed after each inspection. Copies of the report forms to be completed by the Qualified Inspector(s) are included in this SWPPP.

9. - The Contractor's Superintendent will be responsible for selecting and training the individuals who will be responsible for these inspections, maintenance and repair activities, and filling out inspection and maintenance reports.

10. Personnel selected for the inspection and maintenance responsibilities will receive training from the Contractor's Superintendent. They will be trained in all the inspection and maintenance practices necessary for keeping the erosion and sediment controls that are used onsite in good working order. They will also be trained in the completion of, initiation of actions required by, and the filing of the inspection forms. Documentation of this personnel training will be kept on site with the SWPPP.

11.Disturbed areas and materials storage areas will be inspected for evidence of or potential for pollutants entering stormwater systems.

12.Report to NYSDEC within 24 hours any noncompliance with the SWPPP that will endanger public health or the environment. Follow up with a written report within 5 days of the noncompliance event. The following events require 24 hour reporting:

13.Spills or Releases of Hazardous Substances or Oil in excess of reportable quantities (as established under 40 CFR Part 110, 40 CFR Part 117 or 40 CFR Part 302) must be reported. Section 818.2 and Form G-1 provides further details on the notification and reporting process.

816 INSPECTION AND MAINTENANCE REPORT FORMS

Once land disturbing construction activity begins or when installation of any required or optional sediment and erosion control device or measure has been implemented, at least once every seven (7) calendar days and within 24 hours following a rainfall event of greater than .5 inches inspections of each measure shall be performed by a **Qualified Inspector**. The forms found in this SWPPP shall be used by the Qualified Inspector(s) to inventory and report the condition of each measure to assist in maintaining the erosion and sediment control measures in good working order. The following list identifies the **required** Inspection and Maintenance documentation and record keeping that must be maintained by the Contractor under this SWPPP:

Form C-1	Weekly/Monthly/Quarterly SWPPP Inspection Reports
Form C-2	Stabilization Schedule
Form C-3	Implementation Schedule
Form D-1	Modification Report
Form E-1	Monthly Training Log
Form F-1	Final Stabilization/NOT Checklist
Form G-1	Reportable Quantity Release Form
Form H-1	Project Rainfall Log

These report forms shall become an integral part of the SWPPP and shall be made readily accessible to governmental inspection officials, the Operator's Engineer, and the Operator for review upon request during visits to the Project site. In addition, copies of the reports shall be provided to any of these persons, upon request, via mail or facsimile transmission. Inspection and maintenance report forms are to be maintained by the permittee for five years following the final stabilization of the site.

817 OTHER RECORD-KEEPING REQUIREMENTS

The Contractor shall keep the following records related to Construction Activities at the site:
- Dates when major grading activities occur and the areas which were graded
- Dates and details concerning the installation of structural controls
- Dates when Construction Activities cease in an area
- Dates when stabilization measures are initiated
- Dates when an areas is stabilized, either temporarily or permanently
- Dates of rainfall and the amount of rainfall
- Dates and descriptions of the character and amount of any spills of Hazardous Substances or Oil
- Records of reports filed with regulatory agencies if reportable quantities of hazardous Substances or Oil spilled

818 MATERIALS MANAGEMENT PLAN

818.1 MATERIALS COVERED

The following materials or substances are expected to be present onsite during construction:

Concrete/Additives/Wastes	Cleaning solvents
Detergents	Petroleum based products
Paints/Solvents	Pesticides
Acids	Fertilizers
Solid and construction wastes	Sanitary wastes
Soil stabilization additives	

818.2 MATERIAL MANAGEMENT PRACTICES

The following are the material management practices that will be used to reduce the risk of spills or other accidental exposure of materials and substances to stormwater runoff. The Contractor's Superintendent will be responsible for ensuring that these procedures are followed.

A. Good Housekeeping

The following good housekeeping practices will be followed onsite during construction.

1. An effort will be made to store only enough products required to do the job.
2. All materials stored onsite will be stored in a neat, orderly manner and, if possible, under a roof or in a containment area. At a minimum, all containers will be stored with their lids on when not in use. Drip pans shall be provided under all dispensers.
3. Products will be kept in their original containers with the original manufacturer's label in legible condition.
4. Substances will not be mixed with one another unless recommended by the manufacturer.
5. Whenever possible, all of a product will be used up before disposing of the container.
6. Manufacturer's recommendations for proper use and disposal will be followed.
7. The Contractor's Superintendent will be responsible for daily inspections to ensure proper use and disposal of materials.

B. Hazardous Substances

These practices will be used to reduce the risks associated with Hazardous Substances. Material Safety Data Sheets (MSDS's) for each product with hazardous properties that is used at the Project will be obtained and used for the proper management of potential wastes that may result from these products. An MSDS will be posted in the immediate area where such product is stored and/or used and another copy of each MSDS will be maintained in the job trailer at the Project. Each employee who must handle a Hazardous Substance will be instructed on the use of MSDS sheets and the specific information in the applicable MSDS for the product he/she is using, particularly regarding spill control techniques.

1. Products will be kept in original containers with the original labels in legible condition.
2. Original labels and MSDS's will be procured and used for each product.
3. If surplus product must be disposed manufacturer's and local/state/federal required methods for proper disposal must be followed.

C. Hazardous Waste

It is imperative that all Hazardous Waste be properly identified and handled in accordance with all applicable Hazardous Waste Standards, including the storage, transport and disposal of the Hazardous Wastes. There are significant penalties for the improper handling of Hazardous Wastes. It is important that the Site Superintendent seeks appropriate assistance in making the determination of whether a substance or material is a Hazardous Waste. For example, Hazardous

Waste may include certain hazardous substances, as well as pesticides, paints, paint solvents, cleaning solvents, pesticides, contaminated soils, and other materials, substances or chemicals that have been discarded (or are to be discarded) as being out-of-date, contaminated, or otherwise unusable, and can include the containers for those substances; other materials and substances can also be or become Hazardous Wastes, however. The Contractor's Superintendent is also responsible for ensuring that all site personnel are instructed as to these Hazardous Waste requirements and also that the requirements are being followed.

D. Product Specific Practices

The following product specific practices will be followed on the job site.

1. Petroleum Products

All onsite vehicles will be monitored for leaks and receive regular preventative maintenance to reduce the chance of leakage. Petroleum products will be stored in tightly sealed containers which are clearly labeled. Maximum total aggregate above ground storage capacity[DC1] (for the total permit area) shall not exceed 1,320 gallons (which includes both bulk and equipment operational storage volumes in fuel tanks greater than 55 gallons). Total aggregate petroleum storage exceeding 1,320 gallons shall require preparation, certification (using a Professional Engineer) and implementation of a Spill Prevention Control and Countermeasures (SPCC) Plan. The SPCC Plan, if needed, will be furnished by the Contractor. **Any petroleum storage tanks stored onsite will be located within a containment area that is designed with an impervious surface between the tank and the ground. The secondary containment must be designed to provide a containment volume that is equal to 110% of the volume of the largest tank. Any mobile petroleum tank shall be parked in a vehicular service area surrounded by a berm that provides a containment volume that is equal to 110% of the volume of the largest tank.** Containment must provide sufficient volume to contain expected precipitation and 110% volume of the largest tank. Accumulated rainwater or spills from containment areas are to be promptly pumped into a containment device and disposed of properly by a licensed hazardous waste transporter. Drip pans shall be provided for all dispensers. Any asphalt substances used onsite will be applied according to the manufacturer's recommendations. The location of any fuel tanks and/or equipment storage areas must be identified on *Erosion and Sediment Plan Phase I, Drawing No. 3717-9* by the Contractor once the locations have been determined.

2. Fertilizers

Fertilizers will be applied only in the minimum amounts recommended by the manufacturer. Once applied, fertilizer will be worked in the soil to limit exposure to storm water. Storage will be in a covered shed. The contents of any partially used bags of fertilizer will be transferred to a sealable plastic bin to avoid spills.

3. Paints, Paint Solvents, and Cleaning Solvents

All containers will be tightly sealed and stored when not in use. Excess paint and solvents will not be discharged to the storm sewer system but will be properly disposed of according to manufacturer's instructions or state and federal regulations.

4. Concrete Wastes

Concrete trucks will be allowed to wash out or discharge surplus concrete or drum wash water on the site, but only in specifically designated diked and impervious washouts which have been prepared to prevent contact between the concrete wash and storm water. Waste generated from concrete wash water shall not be allowed to flow into drainage ways, inlets, receiving waters or highway right of ways, or any location other than the designated concrete washout. Waste concrete may be poured into forms to make riprap or other useful concrete products. Proper signage designating the "Concrete Washout" shall be placed near the facility.

Concrete Washouts shall be located at minimum 100 linear feet from drainage ways, inlets and surface waters.

The hardened residue from the concrete wash out diked areas will be disposed of in the same manner as other non-hazardous construction waste materials or may be broken up and used on site as deemed appropriate by the Contractor. Maintenance of the washout is to include removal of hardened concrete. Facility shall have sufficient volume to contain all the concrete waste resulting from washout and a minimum freeboard of 12 inches. Facility shall not be filled beyond 95% capacity and shall be cleaned out once 75% full unless a new facility is constructed. The Contractor's Superintendent will be responsible for seeing that these procedures are followed.

The Project may require the use of multiple concrete wash out areas. All concrete wash out areas will be located in an area where the likelihood of the area contributing to storm water discharges is negligible. If required, additional BMPs must be implemented to prevent concrete wastes from contributing to storm water discharges. The location of concrete wash out area(s) must be identified on *Erosion and Sediment Plan Phase I, Drawing No. 3717-9* by the contractor once the locations have been determined. In addition, a standard detail on the construction of the concrete wash out is included on *Detail Sheet 3717-17.*

E. Solid and Construction Wastes

All waste materials will be collected and stored in an appropriately covered container and/or securely contained metal dumpster rented from a local waste management company which must be a solid waste management company licensed to do business in *Hamburg, New York* The dumpster will comply with all local and state solid waste management regulations.

All trash and construction debris from the site will be deposited in the dumpster. The dumpster will be emptied a minimum of once per week or more often if necessary. Once building construction has commenced, the dumpster will be emptied a minimum of once per week or when 95% full, or more often if necessary to prevent over-flow, and the trash will be hauled to a landfill approved by *Hamburg, New York.* No construction waste materials will be buried on site. All personnel will be instructed regarding the correct procedures for waste disposal.

All waste dumpsters and roll-off containers will be located in an area where the likelihood of the containers contributing to storm water discharges is negligible. Solid waste containers shall be located no less than 50 feet from any storm inlet, drainage way, or surface water. If required, additional BMPs must be implemented, such as gravel bags, wattles, dikes, berms, and fences around the base, to prevent wastes from contributing to storm water discharges. The location of waste dumpsters and roll-off containers must be identified on *Erosion and Sediment Plan Phase I, Drawing No. 3717-9* by the contractor once the locations have been determined.

F. Sanitary Wastes

A minimum of one portable sanitary unit will be provided for every ten (10) workers on the site. All sanitary waste will be collected from the portable units a minimum of one time per week by a licensed portable facility provider in complete compliance with local and state regulations.

All sanitary waste units will be located in an area where the likelihood of the unit contributing to storm water discharges is negligible. Additional containment BMPs must be implemented, such as gravel bags or specially designed plastic skid containers around the base, to prevent wastes from contributing to storm water discharges. The location of sanitary waste units must be identified on *Erosion and Sediment Plan Phase I, Drawing No. 3717-9* by the contractor once the locations have been determined.

G. Contaminated Soils

Any contaminated soils (resulting from spills of Hazardous Substances or Oil or discovered during the course of construction) which may result from Construction Activities will be contained and cleaned up immediately in accordance with the procedures given in the Materials Management Plan and in accordance with applicable state and federal regulations. Contaminated soils not resulting from Construction Activities, or which pre-existed Construction Activities, but which are discovered by virtue of Construction Activities, should be reported in the same manner as spills, but with sufficient information to indicate that the discovery of an existing condition is being reported. If there is a release that occurs by virtue of the discovery of existing contamination, this should be reported as a spill, if it otherwise meets the requirements for a reportable spill.

818.3 Spill Prevention and Response Procedures

The Contractor will train all personnel in the proper handling and cleanup of spilled Hazardous Substances or Oil. No spilled Hazardous Substances or Oil will be allowed to come in contact with storm water discharges. If such contact occurs, the storm water discharge will be contained on site until appropriate measures in compliance with state and federal regulations are taken to dispose of such contaminated storm water. It shall be the responsibility of the Contractor's Superintendent to be properly trained, and to train all personnel in spill prevention and clean up procedures.

A. In order to prevent or minimize the potential for a spill of Hazardous Substances or Oil to come into contact with storm water, the following steps will be implemented:

1. All Hazardous Substances or Oil (such as pesticides, petroleum products, fertilizers, detergents, construction chemicals, acids, paints, paint solvents, cleaning solvents, additives for soil stabilization, concrete curing compounds and additives, etc.) will be stored in a secure location, with their lids on, preferably under cover, when not in use.

2. The minimum practical quantity of all such materials will be kept at the Project.

3. A spill control and containment kit (containing, for example, absorbent materials, acid neutralizing powder, brooms, dust pans, mops, rags, gloves, goggles, plastic and metal trash containers, etc.) will be provided at the storage site.

4. Manufacturer's recommended methods for spill cleanup will be clearly posted and site personnel will be trained regarding these procedures and the location of the information and cleanup supplies.

5. It is the Contractors responsibility to ensure that all hazardous waste discovered or generated at the project site is disposed of properly by a licensed hazardous material disposal company. The Contractor is responsible for not exceeding hazardous waste storage requirements mandated by the EPA or state and local authority.

B. In the event of a spill of Hazardous Substances or Oil, the following procedures must be followed:

1. **All measures must be taken to contain and abate the spill and to prevent the discharge of the Hazardous Substance or Oil to storm water or off-site. (The spill area must be kept well ventilated and personnel must wear appropriate protective clothing to prevent injury from contact with the Hazardous Substances.)**

2. **Contact Info Track at 1-888-429-6281 (1-888-HAZMAT 1) to determine whether the spill is reportable. Info Track has been contracted by Lowe's to provide this service to Lowe's facilities, including new construction. You must state that you are working on a Lowe's new construction site.**

If the spill is determined to be reportable Info Track will notify the EPA immediately. Because of the difficulty in determining reportable quantities, Lowe's contracts for the expertise and support of Info Track. All spills of Hazardous Substances or Oil must be discussed with Info Track in order to determine if a reportable quantity has been released.

3. **Contact the Lowe's Project Manager or the Operator's Engineer immediately after discussing the spill with Info Track.**

4. **If the release is equal to or in excess of a reportable quantity, the SWPPP must be modified within seven (7) calendar days of knowledge of the discharge to provide a description of the release, the circumstances leading to the release, and the date of the release. The SWPPP must identify measures to prevent the recurrence of such releases and to respond to such releases. Form G-1 must be completed in accordance with this requirement.**

C. The Contractor's Superintendent will be the spill prevention and response coordinator. He will designate the individuals who will receive spill prevention and response training. These individuals will each become responsible for a particular phase of prevention and response. The names of these personnel will be posted in the material storage area and in the office trailer onsite.

819 CONTROL OF NON-STORM WATER DISCHARGES

Certain types of discharges are allowable under the *NYSDEC* Permit for Construction Activity, and it is the intent of this SWPPP to allow such discharges. These types of discharges will be allowed under the conditions that no pollutants will be allowed to come in contact with the water prior to or after its discharge. The control measures which have been outlined previously in this SWPPP will be strictly followed to ensure that no contamination of these non-storm water discharges takes place. Furthermore, some states may prohibit any non-storm water discharges, allow a limited number of types of non-storm water discharges and/or will require coverage for non-storm water discharges under a separate permit. The following non-storm water discharges are allowed by the NYSDEC GP-01-02 and may occur at the Project:

Non-stormwater discharges authorized in Part I.B.3 under the SPDES Phase II General Permit are as follows.

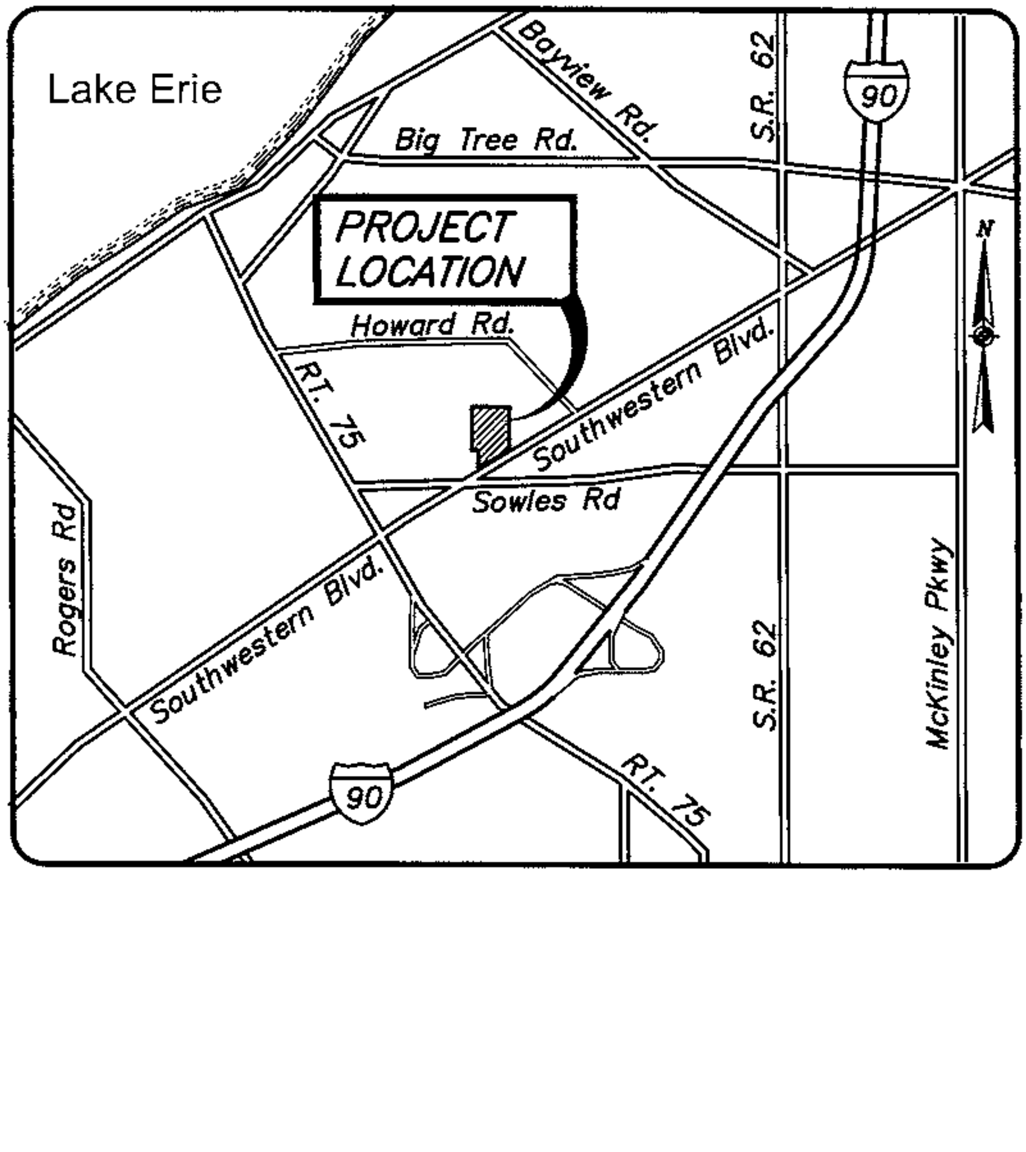
Discharges from fire fighting activities, fire hydrant flushing; waters to which cleansers and other components have not been added that are used to wash vehicles or control dust in accordance with the SWPPP, routine external building wash down which does not use detergents; pavement wash waters where spills or leaks of toxic or hazardous materials have not occurred (unless all spilled material has been removed) and where detergents are not used; air conditioning condensate; springs and foundation or footing drains where flows are not contaminated with process materials such as solvents. With the exemption of flows from fire fighting activities, the above discharges must be identified in the SWPPP.

820 DEDICATED CONCRETE BATCH PLANT

This SWPPP describes and identifies the location and description of any storm water discharge or non-storm water discharge associated with industrial activity other than construction at the site. This includes storm water discharges and potential non-storm water discharges associated with dedicated concrete plants that are covered by the General Permit. This construction project *will not* include a dedicated concrete batch plant. [Engineer is to complete the following subsections as part of the SWPPP or as an amendment to this SWPPP if a dedicated concrete batch plant will be used. Engineer is to delete the remaining subsections if there will not be a dedicated batch plant for this project.

Site Map

VICINITY MAP - NOT TO SCALE



F-30

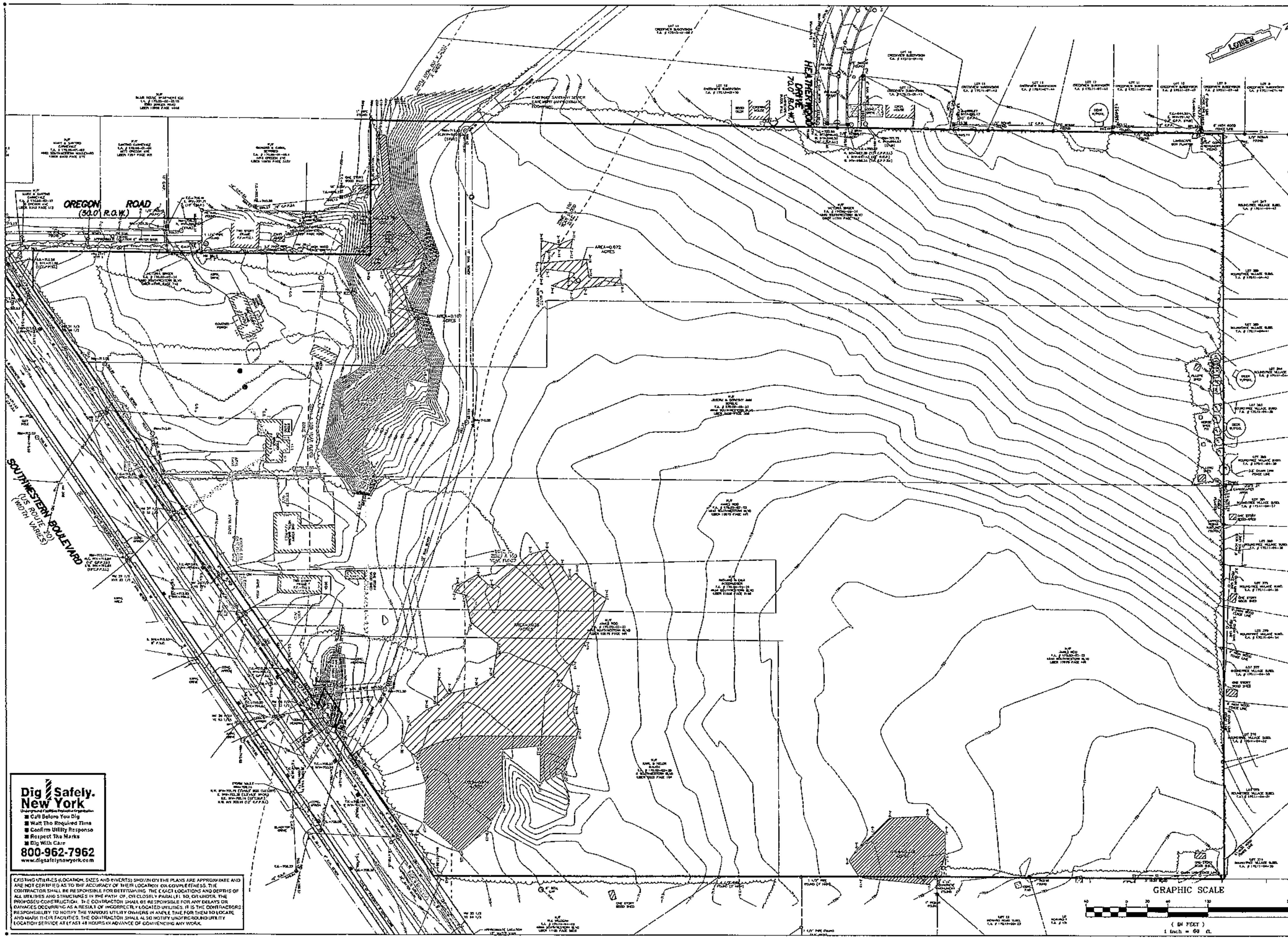
Approved Erosion and Sediment Control Plan and Details (Phase I and Phase II)

F-31

[INSERT THE FOLLOWING APPROVED PLAN SHEET(S) AND DETAILS HERE: EXISTING SURVEY, GRADING AND DRAINAGE PLAN, GRADING AND DRAINAGE DETAILS, SEDIMENT AND EROSION CONTROL (PHASE I AND PHASE II SWPPP), SEDIMENT AND EROSION CONTROL DETAILS, AND LANDSCAPING (SOIL STABILIZATION) PLAN]

NOTE: 8 ½ X 11 SHEETS REQUIRED FOR SECTION 2000, SPECIAL PROVISIONS OF DIVISION 2

24 X 36 FULL SIZE SHEETS REQUIRED FOR THE SWPPP LEDGER



EXISTING UTILITIES (LOCATION, SIZES AND INVERTS) SHOWN ON THE PLANS ARE APPROXIMATE AND ARE NOT CERTIFIED AS TO THE ACCURACY OF THEIR LOCATION OR COMPLETENESS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR DETERMINING THE EXACT LOCATIONS AND DEPTHS OF ALL UTILITIES AND STRUCTURES IN THE PATH OF, OR CLOSELY PARALLEL TO, OR UNDER THE PROPOSED CONSTRUCTION. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY DELAYS OR DAMAGES OCCURRING AS A RESULT OF INCORRECTLY LOCATED UTILITIES. IT IS THE CONTRACTORS RESPONSIBILITY TO NOTIFY THE VARIOUS UTILITY OWNERS IN AMPLE TIME FOR THEM TO LOCATE AND MARK THEIR FACILITIES. THE CONTRACTOR SHALL ALSO NOTIFY UNDERGROUND UTILITY LOCATION SERVICE AT LEAST 48 HOURS IN ADVANCE OF COMMENCING ANY WORK.

REVISIONS		
◇ PRE-BID SET ISSUE DATE		△ POST BID SET ISSUE DATE
DATE		DESCRIPTION

STATE OF NEW YORK
MARK R. COSTICH
NO. 065971
Licensed Professional Engineer

COSTICH ENGINEERING
- CIVIL ENGINEERING
- LAND PLANNING
- SURVEYING

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LOWE'S

EXISTING SURVEY
LOWES OF HANBURG, NY
SOUTHWESTERN BOULEVARD
HAMBURG, NEW YORK

PROJECT No: 3717 | DRAWN BY: DEL | CHECKED BY: RP

ORIGINAL ISSUE DATE: 3/23/2007
PERMIT SET ISSUE DATE:
CONSTRUCTION SET ISSUE DATE:
DRAWING NUMBER:
3717-3
SHEET 3 of 18

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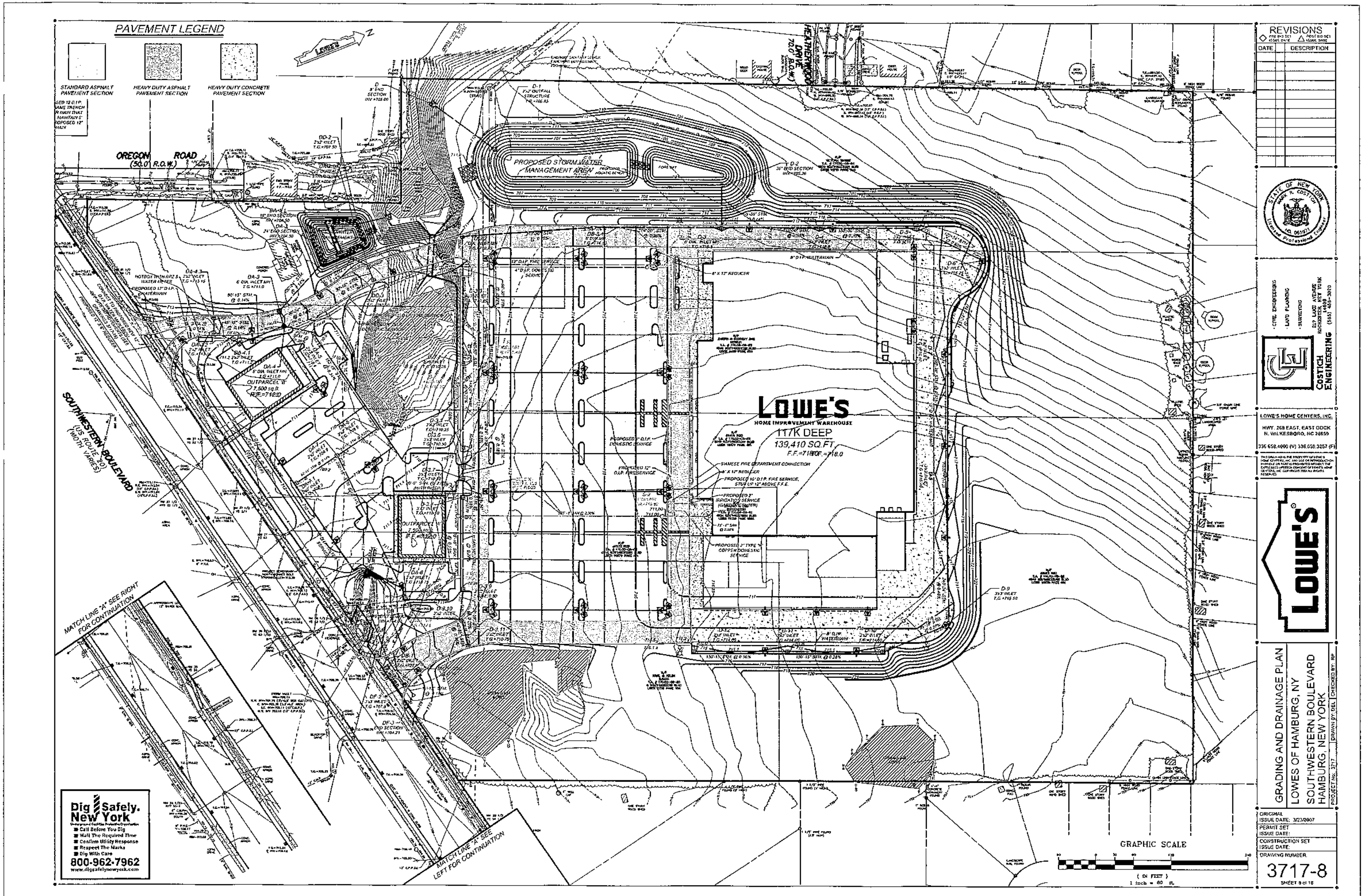

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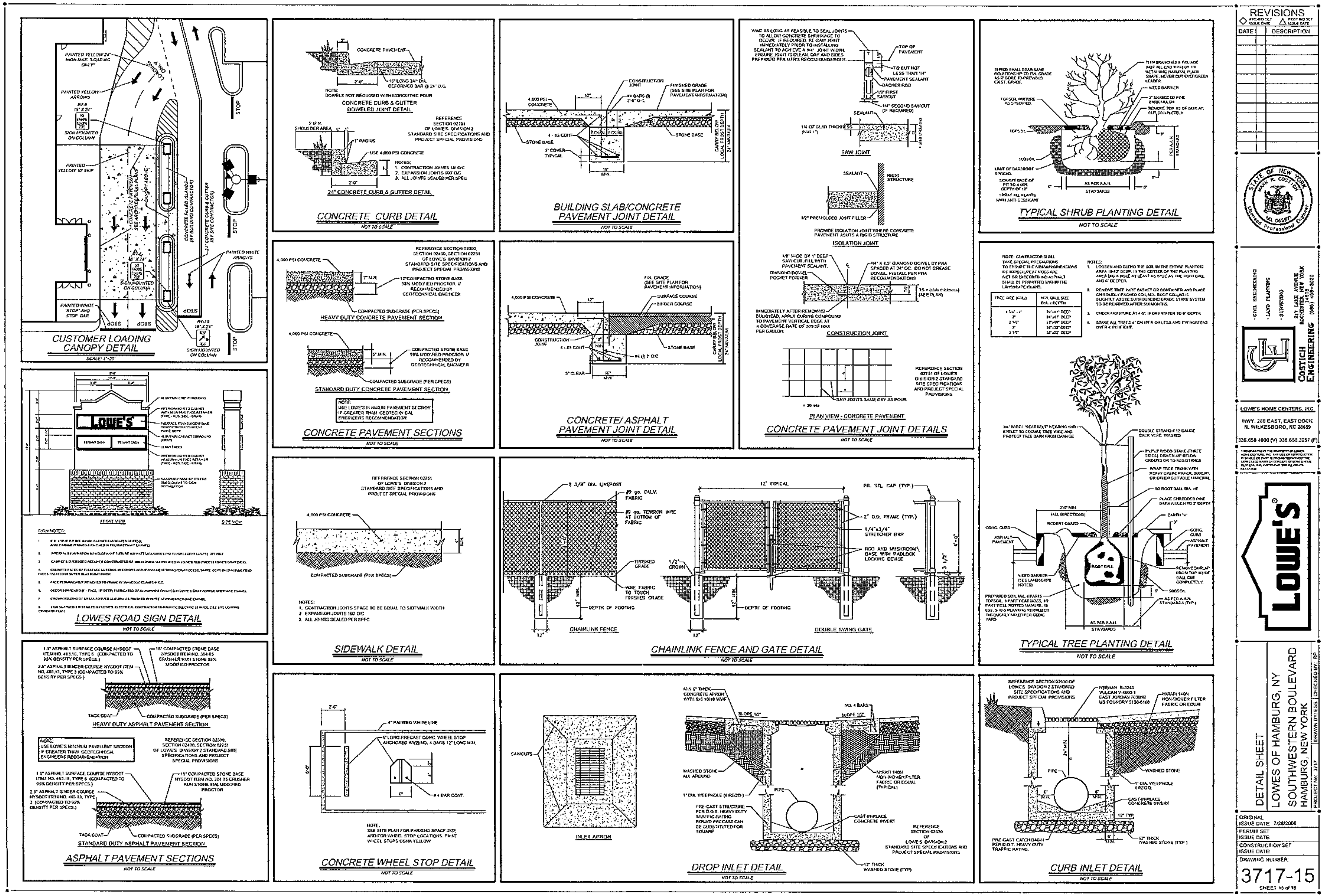

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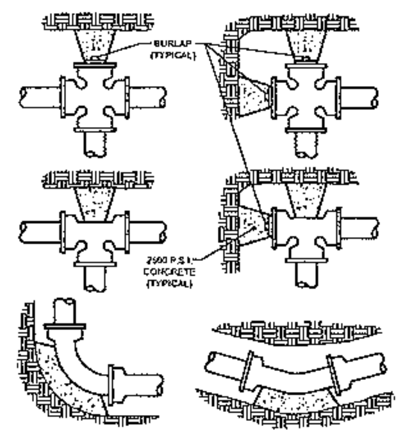
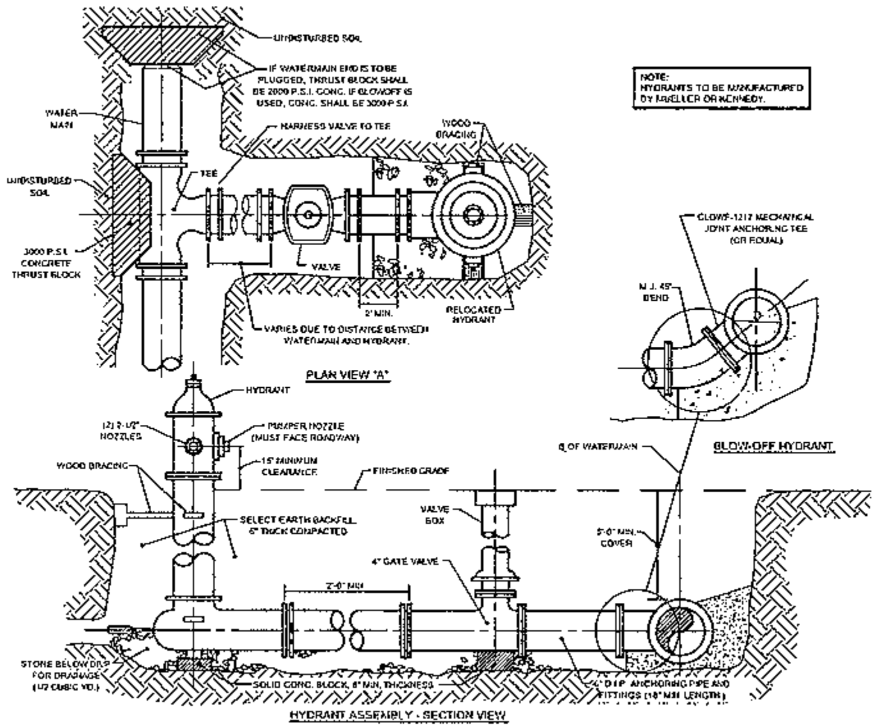


NOTE:
COVER ALL END CAPS OR CAPPED TEES W/BURLAP AS SHOWN TO PREVENT BONDING OF CONCRETE.

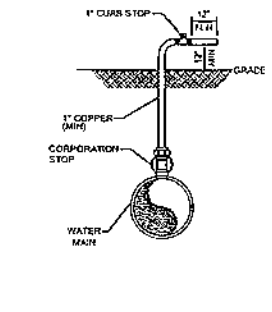
PIPE I.D. RL	PLUG	90° BEND	60° BEND	45° BEND	30° BEND	22-1/2° BEND
6	2	3	2	2	1	1
8	4	5	4	3	2	1
10	6	8	6	5	3	2
12	10	12	9	8	6	4

1. TEES ARE TO BE CONSIDERED AS 90° BENDS.
2. THE AREAS REFERRED TO ABOVE ARE THE CROSS-SECTIONAL AREAS OF THE CONCRETE REACTION BLOCKS WHERE THE CONCRETE COMES INTO CONTACT WITH THE SOLID UNDISTURBED TRENCH WALL.

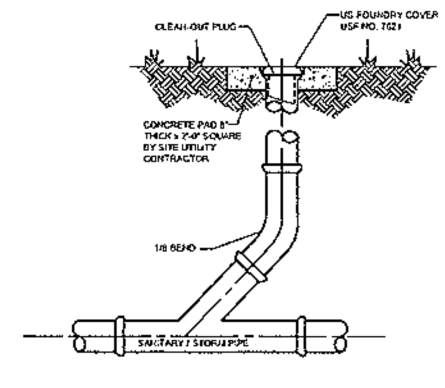
HORIZONTAL THRUST BLOCK DETAIL
NOT TO SCALE



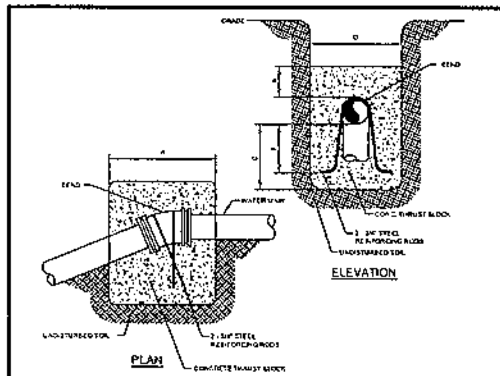
HYDRANT INSTALLATION & VALVE DETAIL
NOT TO SCALE



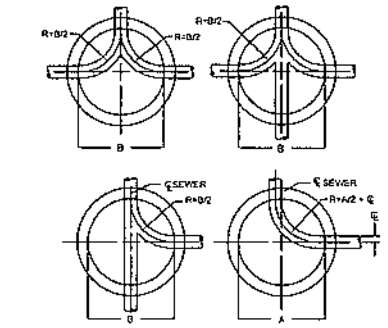
DISINFECTION BLOW-OFF SAMPLING TAP
NOT TO SCALE



CLEANOUT DETAIL
NOT TO SCALE

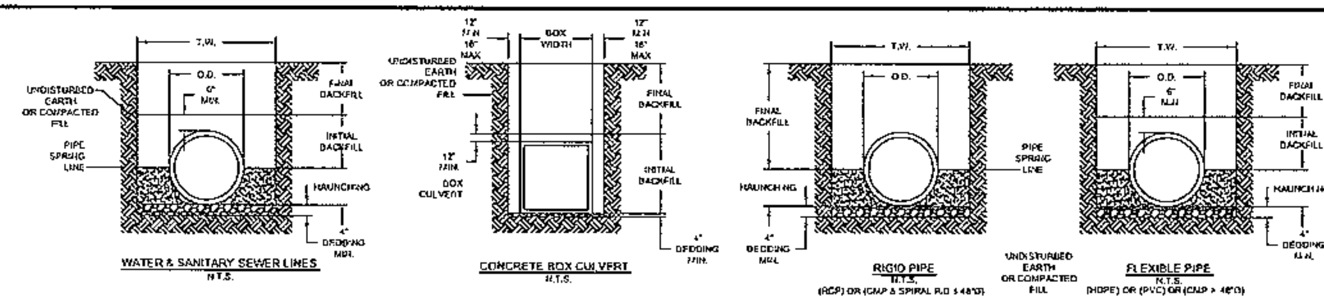


VERTICAL THRUST BLOCKS
NOT TO SCALE



MAX. PIPE DIA.	8"	10"
A	4'-0"	4'-0"
B	5'-0"	5'-0"
C	4"	5"

STANDARD MANHOLE DIMENSIONS
NOT TO SCALE



WATER & SANITARY SEWER LINES
N.T.S.

CONCRETE BOX CULVERT
N.T.S.

RIGID PIPE
N.T.S.
(RCP) OR (CMP & SPIRAL RIB ≤ 48"Ø)

FLEXIBLE PIPE
N.T.S.
(HDPE) OR (PVC) OR (CMP > 48"Ø)

NOTE: MAXIMUM TRENCH WIDTH (T.W.) SHALL BE THE GREATER OF (1.25 O.D. + 12") OR (O.D. + 16")

GENERAL NOTES

1. BEDDING SHALL BE DUMPED CLASS I-A WORKED BY HAND, OR CLASS I-B COMPACTED TO 95% STANDARD PROCTOR. LOCAL CODE PERMITTING WITH GEOTECHNICAL ENGINEER AND OWNER APPROVAL, NATIVE SOIL MAY BE USED FOR BEDDING PROVIDED IT MEETS THE EMBEDMENT AND BACKFILL MATERIALS IN TABLE 1 EXCLUDING CLASS IV-A.

2. HAUNCHING SHALL BE WORKED AROUND THE PIPE BY HAND TO ELIMINATE VOIDS AND SHALL BE CLASS I-A, OR CLASS I-B OR CLASS II COMPACTED TO 95% STANDARD PROCTOR. PEA GRAVEL SHALL NOT BE USED AS A HAUNCHING MATERIAL. CLASS III MATERIAL SHALL BE ALLOWED FOR RIGID PIPE COMPACTED AT 95% STANDARD PROCTOR.

3. INITIAL BACKFILL SHALL BE CLASS I-A WORKED BY HAND, OR CLASS I-B OR CLASS II COMPACTED TO 90% STANDARD PROCTOR, OR CLASS III COMPACTED 95% STANDARD PROCTOR. CLASS I & II MATERIAL SHALL BE USED FOR FLEXIBLE PIPE WHEN FILL HEIGHTS EXCEED 8'.

4. FINAL BACKFILL SHALL BE CLASS I-A WORKED BY HAND, OR CLASS I-B OR CLASS II COMPACTED TO 90% STANDARD PROCTOR, OR CLASS III COMPACTED TO 95% STANDARD PROCTOR.

5. FINAL BACKFILL NOT UNDER PAVED AREAS CAN BE CLASS IV-A COMPACTED TO 95% STANDARD PROCTOR.

6. ALL MATERIALS ARE CLASSIFIED IN ACCORDANCE WITH ASTM D 2321. (SEE TABLE 1)

7. ALL MATERIALS SHALL BE INSTALLED IN MAXIMUM 8" LOOSE LIFTS IN ACCORDANCE WITH ASTM D 698. CLASS III AND IV-A MATERIALS SHALL BE COMPACTED NEAR OPTIMUM MOISTURE CONTENT.

8. FILL SALVAGED FROM EXCAVATION SHALL BE FREE OF DEBRIS, ORGANICS AND ROCKS LARGER THAN 3".

9. ALL TRENCH EXCAVATIONS SHALL BE SLOPED, SHORED, SHEETED, BRACED, OR OTHERWISE SUPPORTED IN COMPLIANCE WITH OSHA REGULATIONS AND LOCAL ORDINANCES.

10. *DESIGN ENGINEER SHALL DESIGNATE ON THE PLANS WHERE WATERTIGHT JOINTS ARE TO BE REQUIRED.*

11. REPLACE WET OR UNSUITABLE SOIL AS NECESSARY TO PROVIDE A SUITABLE BASE, AS DIRECTED BY GEOTECHNICAL ENGINEER OR OWNER.

12. WHERE GROUND WATER IS PRESENT CLASS I-A MATERIAL SHALL BE WRAPPED WITH A NON-WOVEN GEO-TEXTILE, EXCLUDING BEDDING MATERIAL BETWEEN 4" & 6" THICK.

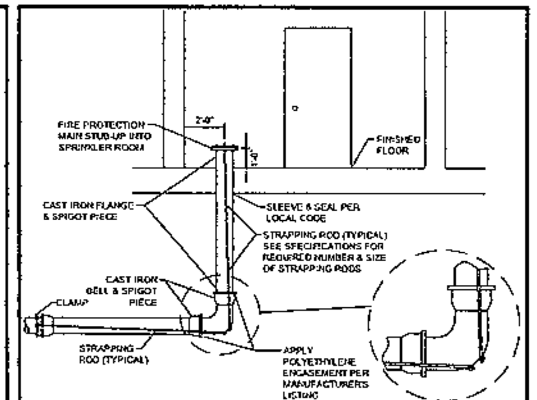
13. CONTRACTOR SHALL REFER TO GEOTECHNICAL REPORT FOR SOIL TYPE AND CLASSIFICATIONS FOR THIS PROJECT.

14. CONTRACTOR SHALL REFER TO THE LATEST VERSION OF ASTM STANDARDS PRIOR TO CONSTRUCTION.

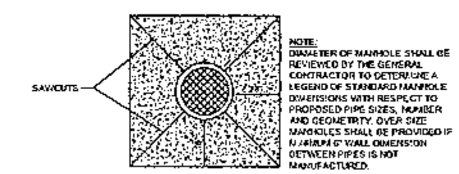
TABLE 1: CLASSES OF EMBEDMENT AND BACKFILL MATERIALS

ASTM D 2321 MATERIAL CLASS	ASTM D 2487 USCS SOIL GROUP	MATERIAL TYPE	% PASSING 1 1/2 IN.	% PASSING NO. 4	% PASSING NO. 200	ATTERBERG LIMITS LL	ATTERBERG LIMITS PI
IA	NONE	MANUFACTURED OPEN GRADED AGGREGATES	100%	≤10%	<5%	NON PLASTIC	
IB	NONE	MANUFACTURED DENSE GRADED AGGREGATES	100%	≤50%	<5%	NON PLASTIC	
II	GW	COARSE-GRAINED SOILS, CLEAN	100%	<50% OF "COARSE FRACTION"	<5%	NON PLASTIC	
	GP						
	SW			>50% OF "COARSE FRACTION"			
	SP						
III	GM	COARSE-GRAINED SOILS W/ FINES	100%	<50% OF "COARSE FRACTION"	12% TO 50%		<4 OR <"A" LINE
	GC						<7 OR >"A" LINE
	SM			>50% OF "COARSE FRACTION"			>4 OR <"A" LINE
	SC						>7 OR >"A" LINE
IV-A	ML	FINE-GRAINED SOILS	100%	100%	>50%	<50	<4 OR <"A" LINE
	CL						>7 OR >"A" LINE

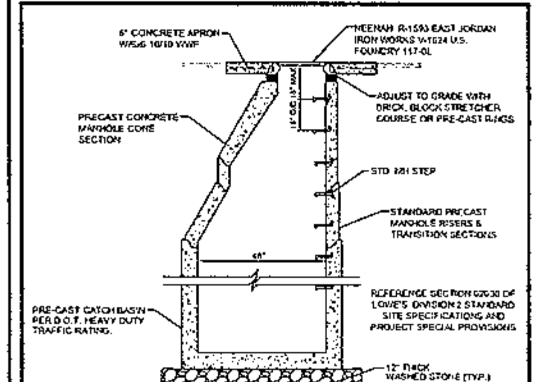
TRENCH AND BEDDING DETAILS
NOT TO SCALE



UNDERGROUND RESTRAINT DETAIL
NOT TO SCALE



STORM / SANITARY MANHOLE APRON DETAIL
NOT TO SCALE



STORM MANHOLE DETAIL
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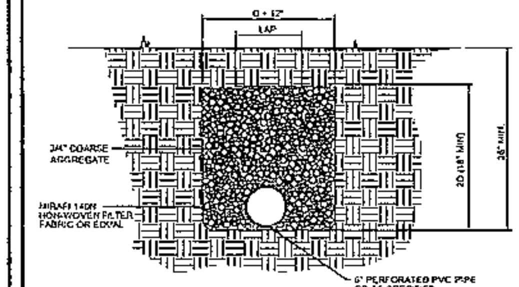

TO BE UTILIZED AS DIRECTED BY THE GEOTECHNICAL ENGINEER AND/OR AS SHOWN ON THE PLANS.

(IF REQUIRED) FRENCH DRAIN
NOT TO SCALE

REVISIONS

DATE	DESCRIPTION

COSTICH ENGINEERING
- CIVIL ENGINEERING
- LAND PLANNING
- SURVEYING

217 LAKE AVENUE
ROCHESTER, NEW YORK 14608
(585) 458-3020

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LOWE'S

DETAIL SHEET
LOWES OF HAMBURG, NY
SOUTHWESTERN BOULEVARD
HAMBURG, NEW YORK

PROJECT No: 3717 | DRAWN BY: ESS | CHECKED BY: RP

ORIGINAL ISSUE DATE: 7/28/2006
PERMIT SET ISSUE DATE:
CONSTRUCTION SET ISSUE DATE:
DRAWING NUMBER:
3717-16
SHEET 16 of 18

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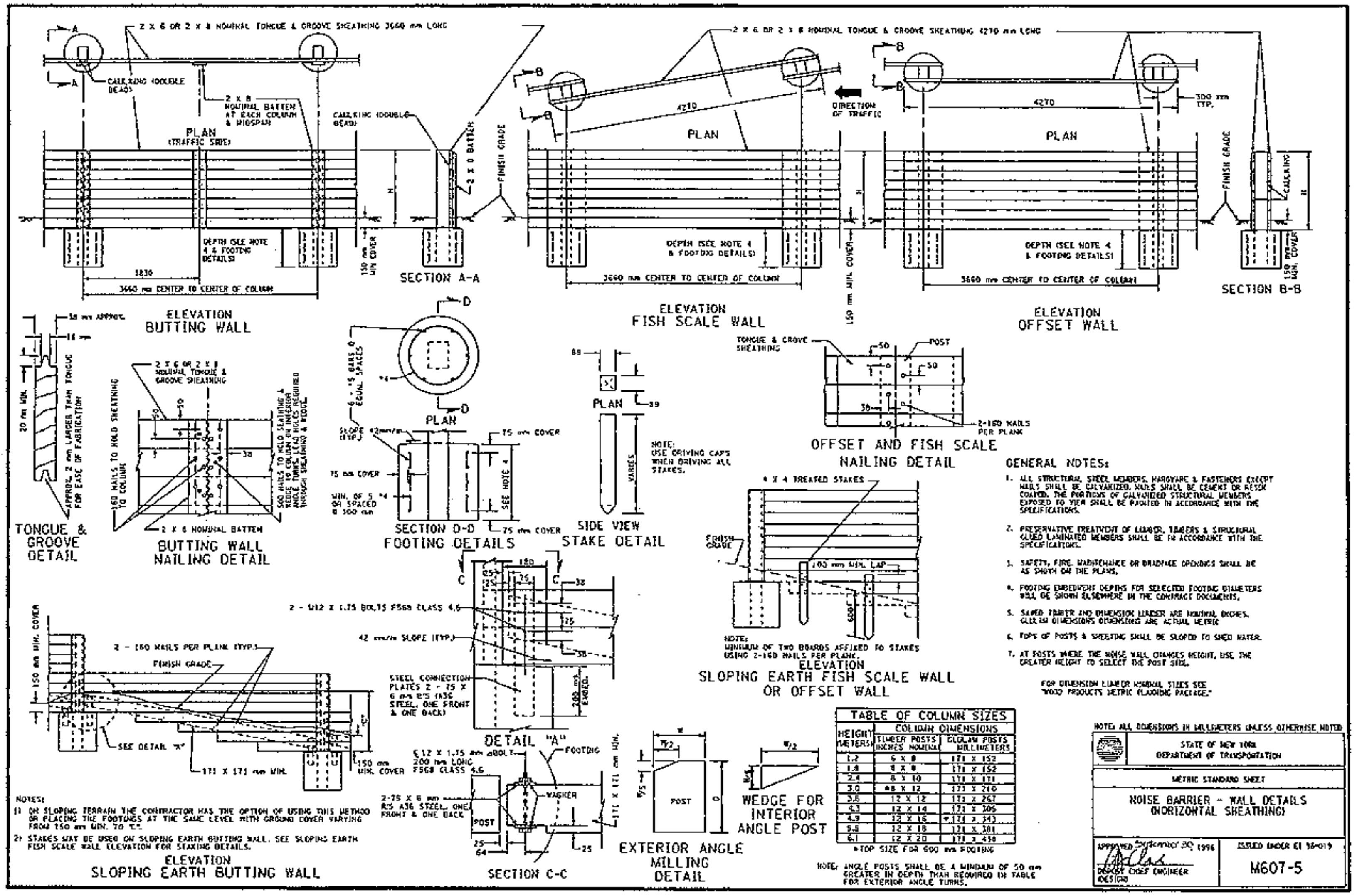
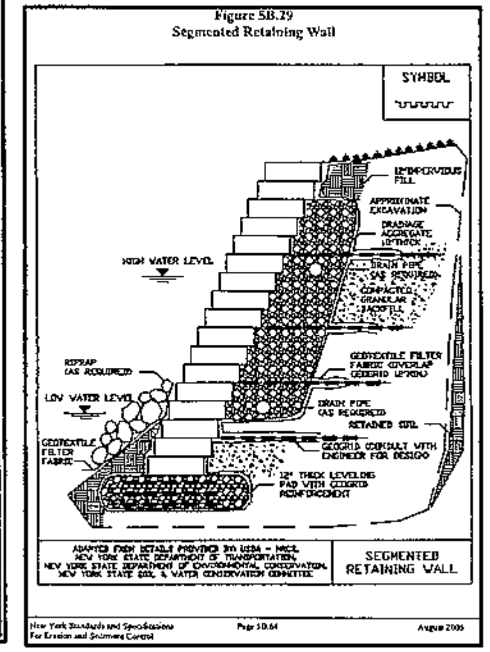
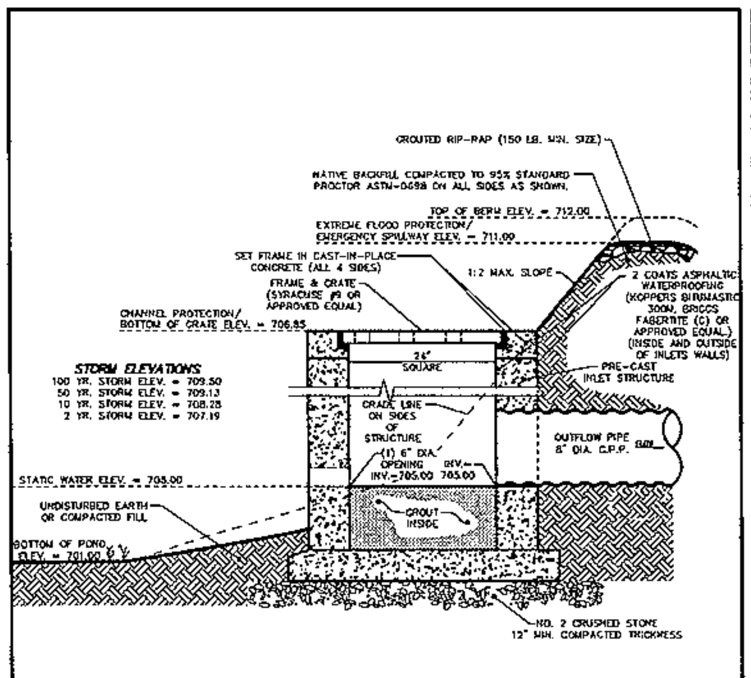
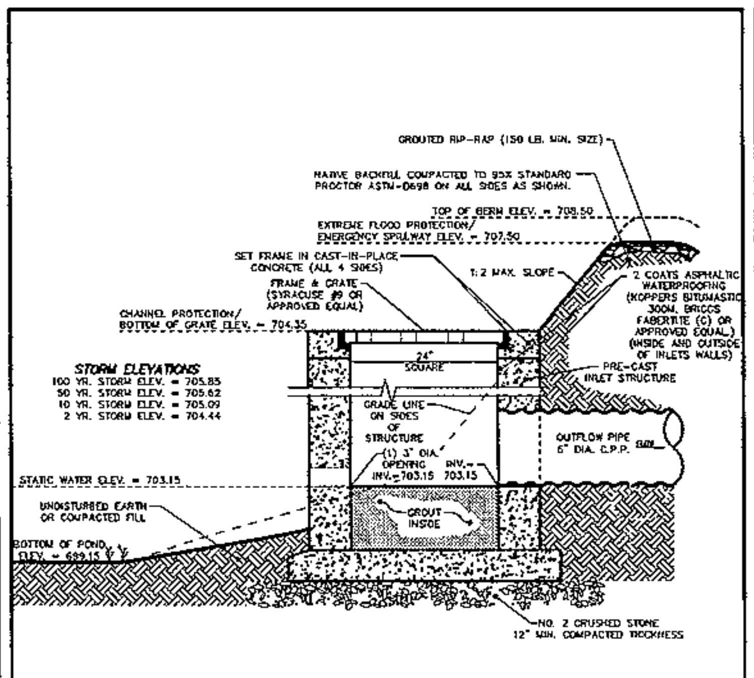


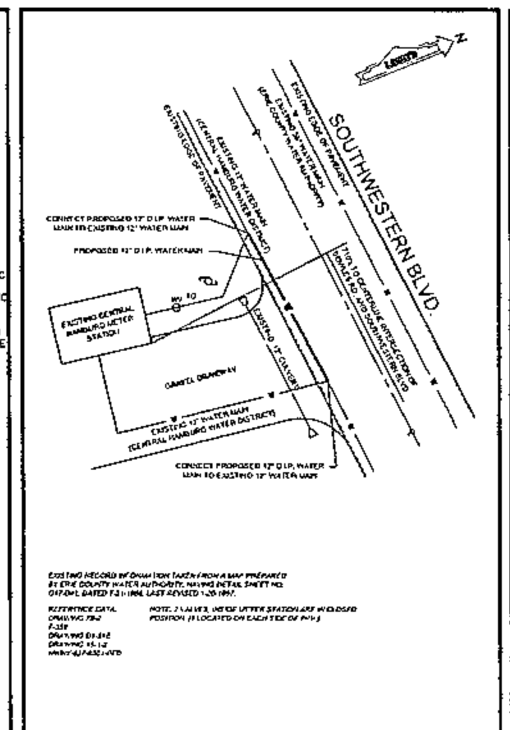




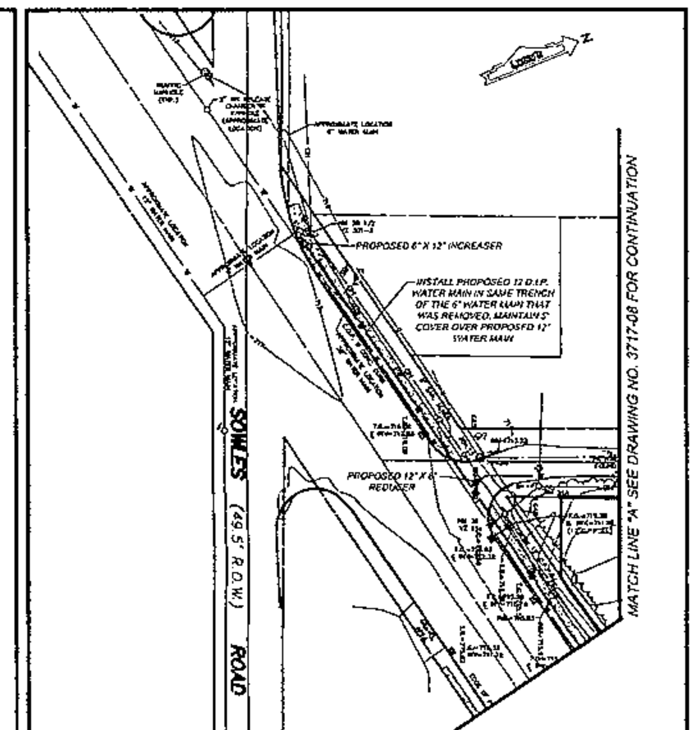
STORM WATER MANAGEMENT
OUTFALL STRUCTURE DETAIL - BASIN 1
NOT TO SCALE



STORM WATER MANAGEMENT
OUTFALL STRUCTURE DETAIL - BASIN 2
NOT TO SCALE



OFF SITE WATER MAIN IMPROVEMENT PART 1
NOT TO SCALE



OFF SITE WATER MAIN IMPROVEMENT PART 2

REVISIONS

DATE	DESCRIPTION

COSTICH ENGINEERING
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· LAND PLANNING
· SURVEYING
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336.658.4000 (V) 336.658.3257 (F)

LOWE'S

DETAIL SHEET
LOWES OF HAMBURG, NY
SOUTHWESTERN BOULEVARD
HAMBURG, NEW YORK

PROJECT NO. 3717 | DRAWN BY: DEL | CHECKED BY: RP

ORIGINAL ISSUE DATE: 3/23/2007
PERMIT SET ISSUE DATE:
CONSTRUCTION SET ISSUE DATE:
DRAWING NUMBER:
3717-18
SHEET 18 of 18

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SEDIMENTATION BASIN "A"

ASSOCIATED DRAINAGE AREA = 14.6 ACRES
REQUIRED STORAGE VOLUME = 1,961 C.Y.
PROVIDED STORAGE VOLUME = 1,961 C.Y.
BOTTOM OF BASIN ELEVATION = 701.0
EMERGENCY SPILLWAY ELEVATION = 711.0
TOP OF EMBANKMENT ELEVATION = 712.0 SEDIMENT CLEAN-OUT MARKER AT ELEVATION = 702.25 (25% OF POND VOLUME)

SPILLWAY INFORMATION:

PIPE OUTLET: 12" C.M.P. @ 1.11%
RISER SECTION: 21" DIA. CMP, 5' HIGH WITH 30" DIA. TRASH RACK AT 11" HIGH. CREST ELEVATION = 706.0
DEWATERING OFIFICE: 4 ROWS OF 6 HOLES OF 1 1/2" DIAMETER, SET AT 11 1/4" O.C. FROM BASE OF RISER.

EMERGENCY OUTFALL:

BOTTOM WIDTH = 12'
1: 3 SIDE SLOPES
CREST ELEVATION = 710.0
HIGH WATER ELEVATION = 710.90

SEDIMENTATION BASIN "B"

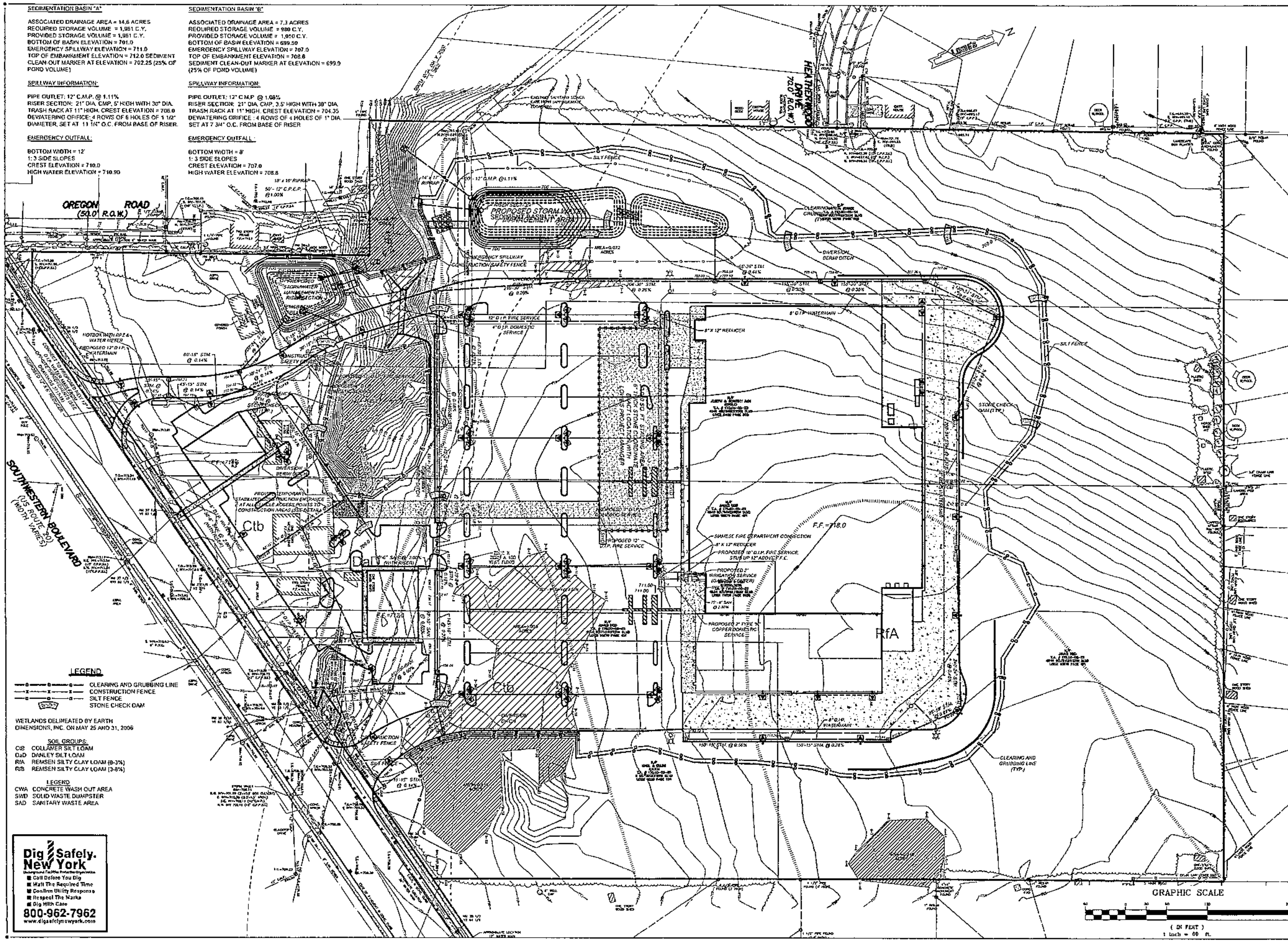
ASSOCIATED DRAINAGE AREA = 7.3 ACRES
REQUIRED STORAGE VOLUME = 980 C.Y.
PROVIDED STORAGE VOLUME = 1,050 C.Y.
BOTTOM OF BASIN ELEVATION = 699.50
EMERGENCY SPILLWAY ELEVATION = 707.0
TOP OF EMBANKMENT ELEVATION = 708.8
SEDIMENT CLEAN-OUT MARKER AT ELEVATION = 699.9 (25% OF POND VOLUME)

SPILLWAY INFORMATION:

PIPE OUTLET: 12" C.M.P. @ 1.08%
RISER SECTION: 21" DIA. CMP, 3.5' HIGH WITH 30" DIA. TRASH RACK AT 11" HIGH. CREST ELEVATION = 704.35
DEWATERING ORIFICE : 4 ROWS OF 4 HOLES OF 1" DIA. SET AT 7 3/4" O.C. FROM BASE OF RISER

EMERGENCY OUTFALL :

BOTTOM WIDTH = 8'
1: 3 SIDE SLOPES
CREST ELEVATION = 707.0
HIGH WATER ELEVATION = 708.8



LEGEND

CLEARING AND GRUBBING LINE
CONSTRUCTION FENCE
SILT FENCE
STONE CHECK DAM

WETLANDS DELINEATED BY EARTH DIMENSIONS, INC. ON MAY 25 AND 31, 2006

SOIL GROUPS:

CtB COLLAMER SILT LOAM
DaD DANLEY SILT LOAM
RfA REMSEN SILTY CLAY LOAM (0-3%)
RfB REMSEN SILTY CLAY LOAM (3-8%)

LEGEND

CWA CONCRETE WASH OUT AREA
SWD SOLID WASTE DUMPSTER
SAD SANITARY WASTE AREA

Dig Safely. New York
Underground Facilities Protective Organization
- Call Before You Dig
- Wait The Required Time
- Confirm Utility Response
- Respect The Marks
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REVISIONS
PRE BID SET ISSUE DATE / POST BID SET ISSUE DATE

DATE	DESCRIPTION

STATE OF NEW YORK · MARK R. COSTICH · NO. 065971 · Licensed Professional Engineer

COSTICH ENGINEERING
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217 LAKE AVENUE ROCHESTER, NEW YORK 14608 (585) 458-3020

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LOWE'S

EROSION CONTROL PLAN
PHASE I

LOWES OF HAMBURG, NY
SOUTHWESTERN BOULEVARD
HAMBURG, NEW YORK

PROJECT No: 3717 | DRAWN BY: DEL | CHECKED BY: RP

ORIGINAL ISSUE DATE: 3/23/2007
PERMIT SET ISSUE DATE:
CONSTRUCTION SET ISSUE DATE:
DRAWING NUMBER:

3717-9
SHEET 9 of 16

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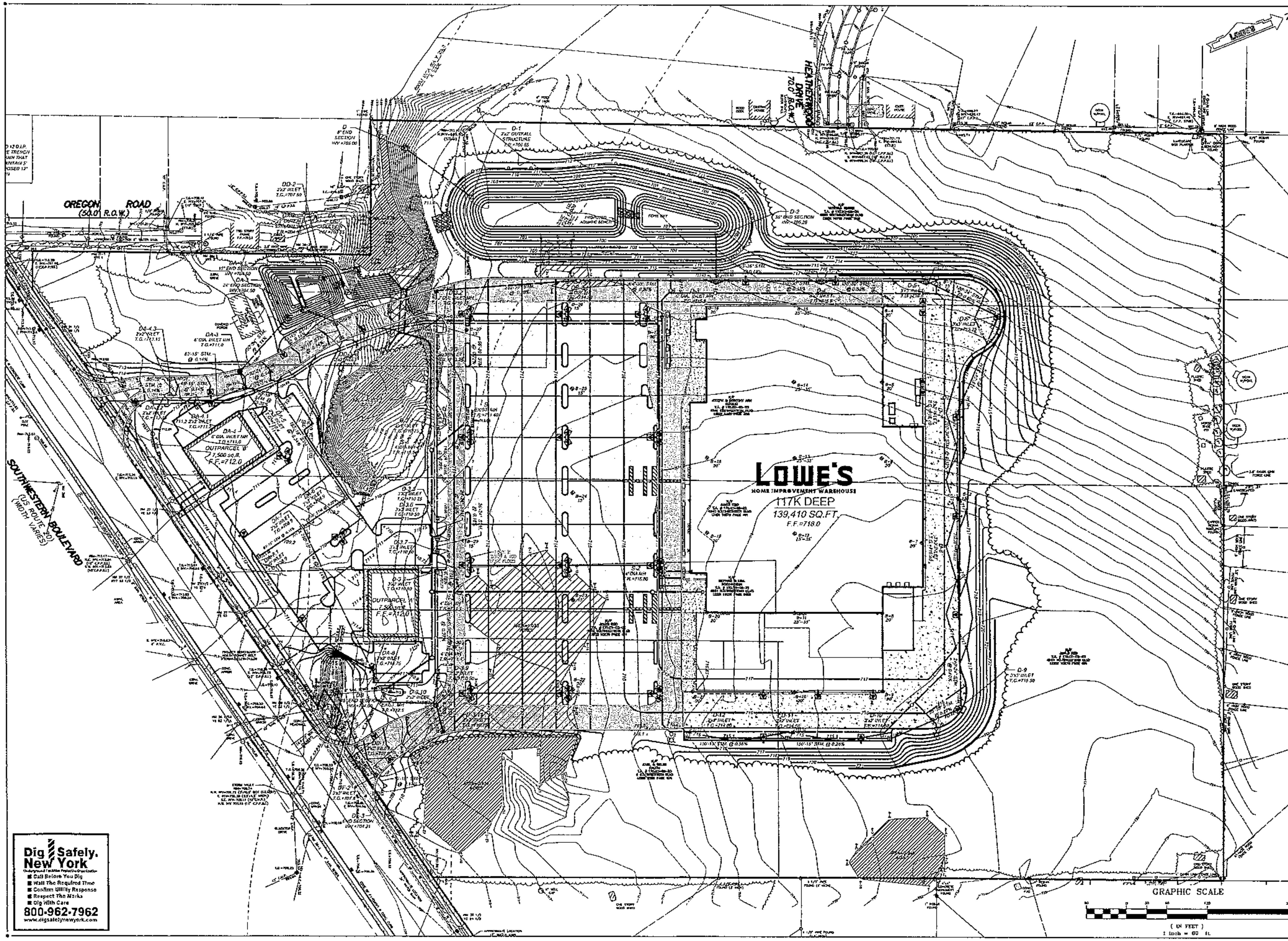
F-38



REVISIONS

DATE		DESCRIPTION

STATE OF NEW YORK · MARK R. COSTICH · NO. 065971 · Licensed Professional Engineer

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LOWE'S

EROSION CONTROL - PHASE 2
LOWES OF HANBURG, NY
SOUTHWESTERN BOULEVARD
HAMBURG, NEW YORK
PROJECT No: 3717 | DRAWN BY: DEL | CHECKED BY: RP

ORIGINAL ISSUE DATE: 3/23/2007
PERMIT SET ISSUE DATE:
CONSTRUCTION SET ISSUE DATE:
DRAWING NUMBER
3717-10
SHEET 10 of 16

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EROSION CONTROL NOTES

1. LAND DISTURBING ACTIVITIES SHALL NOT COMMENCE UNTIL APPROVAL TO DO SO HAS BEEN RECEIVED BY GOVERNING AUTHORITIES.
2. THE GENERAL CONTRACTOR SHALL STRICTLY ADHERE TO THE STORM WATER POLLUTION PREVENTION PLAN (SWPPP) DURING CONSTRUCTION OPERATIONS.
3. NO LAND CLEARING OR GRADING SHALL BEGIN UNTIL ALL PERIMETER EROSION AND SEDIMENT CONTROL MEASURES HAVE BEEN INSTALLED.
4. ALL EXPOSED AREAS SHALL BE SEEDED AS SPECIFIED WITHIN 14 DAYS OF FINAL GRADING. 5. SHOULD CONSTRUCTION STOP FOR LONGER THAN 14 DAYS, THE SITE SHALL BE SEEDED AS SPECIFIED.
6. SEDIMENT AND EROSION CONTROL MEASURES SHALL BE INSPECTED AT LEAST ONCE EVERY SEVEN (7) DAYS AND WITHIN 24 HOURS OF A RAINFALL EXCEEDING 0.5 INCHES DURING A 24-HOUR PERIOD OR MORE FREQUENTLY IF REQUIRED BY GOVERNING NPDES GENERAL PERMIT. ALL MAINTENANCE REQUIRED BY INSPECTION SHALL COMMENCE WITHIN 24 HOURS AND BE COMPLETED WITHIN 48 HOURS OF REPORT.
7. THIS PLAN SHALL NOT BE CONSIDERED ALL INCLUSIVE AS THE GENERAL CONTRACTOR SHALL TAKE ALL NECESSARY PRECAUTIONS TO PREVENT SOIL SEDIMENT FROM LEAVING THE SITE.
8. GENERAL CONTRACTOR SHALL COMPLY WITH ALL STATE AND LOCAL ORDINANCES THAT APPLY.
9. ADDITIONAL EROSION AND SEDIMENT CONTROL MEASURES WILL BE INSTALLED IF DEEMED NECESSARY BY ON SITE INSPECTION.
10. IF INSTALLATION OF STORM DRAINAGE SYSTEM SHOULD BE INTERRUPTED BY WEATHER OR NIGHTFALL, THE PIPE ENDS SHALL BE COVERED WITH FILTER FABRIC.
11. COMPACT & MAINTAIN 25' WIDE DRIVE FROM ACCESS ROAD TO 30,000 S. F. LAYDOWN AREA AND 25' WIDE DRIVE FROM LAYDOWN AREA TO BUILDING PAD. DRIVE AND LAYDOWN AREA TO BE CONSTRUCTED OF 6" COMPACTED STONE. COORDINATE LOCATION OF LAYDOWN AREA WITH LOWE'S PROJECT MANAGER.
12. GENERAL CONTRACTOR SHALL BE RESPONSIBLE TO TAKE WHATEVER MEANS NECESSARY TO ESTABLISH PERMANENT SOIL STABILIZATION.
13. SEDIMENT SHALL BE REMOVED FROM THE SEDIMENT BASIN BEFORE IT IS 25% FULL AND FROM SILT FENCE BEFORE IT IS 33% FULL.
14. ALL WORK TO BE DONE IN STRICT ACCORDANCE WITH DIVISION 2 OF LOWE'S STANDARD SITE SPECIFICATIONS.

SEEDING SPECIFICATION

GENERAL

SEEDING CAN BE USED FOR TEMPORARY OR PERMANENT STABILIZATION. DISTURBED AREAS OF THE SITE WHERE CONSTRUCTION ACTIVITY HAS CEASED FOR MORE THAN 14 DAYS (OR MORE FREQUENT IF REQUIRED BY THE STATE NPDES PERMIT) SHALL BE TEMPORARARILY SEEDED AND WATERED. AREAS WHERE FINAL GRADING HAS BEEN COMPLETED FOR MORE THAN 14 DAYS SHALL BE TEMPORARILY OR PERMANENTLY SEEDED. TEMPORARY SEED MIXTURES ARE SPECIFIED BELOW, PERMANENT SEED MIXTURES SHALL BE SEEDED DURING SEASON SPECIFIED

LIME TO BE INTRODUCED INTO THE SOILS AT THE FOLLOWING RATIOS:

INITIAL SOIL PH	SANDS	SANDY LOAMS	LOAMS AND SILT LOAMS	SILTY CLAY LOAMS
		T/A OF LIME		
4.5	2.5	6.0	9.5	13.0
4.6-4.7	2.5	6.0	9.0	12.5
4.8-4.9	2.5	5.5	8.5	12.0
5.0-5.1	2.0	5.0	7.5	10.5
5.2-5.3	1.5	4.0	6.5	8.5
5.4-5.5	1.0	3.0	4.0	6.0
5.6-5.7	1.0	2.0	3.0	4.5
5.8-5.9	0.7	1.5	2.5	3.5
6.0-6.1	0.6	1.5	2.0	3.0
6.2-6.3	0.4	1.0	1.5	2.0
6.4-6.5	0.3	0.7	1.0	1.5
6.6-6.7	0.2	0.5	0.7	1.0

LIME GUIDELINES ARE IN TONS PER ACRE AND ARE BASED ON A PLOW DEPTH OF 8.0 INCHES. CORRECT RATE IF PLOWING TO A DIFFERENT DEPTH.

REFERENCE: CORNELL COOPERATIVE EXTENSION, 2003 CORNELL GUIDE FOR INTERGRATED FIELD CROP MANAGEMENT, PG. 37.

3:1 SLOPES OR FLATTER

APPLY 5-10-10 COMMERCIAL ORGANIC FERTILIZER AT A RATE OF 600 LBS. PER ACRE. AND SEED IN ACCORDANCE WITH THE FOLLOWING SCHEDULE:

TEMPORARY SEEDING

PLANTING DATES	SEED VARIETY	APPLICATION RATE
SPRING, SUMMER	RYE GRASS	30 LBS / ACRE
EARLY FALL	(ANNUAL OR PERENNIAL)	

PERMANENT SEEDING

PLANTING DATES	SEED VARIETY	APPLICATION RATE
APRIL-OCTOBER	(SEE MIX #6)	(SEE MIX NO. 6)

MULCH SEEDED AREA WITH 2 TONS PER ACRE CLEAN GRAIN STRAW. ANCHOR STRAW WITH HYDRAULIC WOOD FIBER MULCH AT THE RATE OF 1000 LBS PER ACRE, OR 150-200 POUNDS OF ORGANIC MULCH TACKIFIER PER ACRE, OR USE NETTING, OR USE A MULCH ANCHORING TOOL.

SLOPES STEEPER THAN 3:1

APPLY 5-10-10 COMMERCIAL ORGANIC FERTILIZER AT A RATE OF 600 LBS. PER ACRE. AND SEED IN ACCORDANCE WITH THE FOLLOWING SCHEDULE:

TEMPORARY SEEDING

PLANTING DATES	SEED VARIETY	APPLICATION RATE
LATE FALL, EARLY WINTER	ARDOSTOCK WINTER RYE	100 LBS / ACRE

PERMANENT SEEDING

PLANTING DATES	SEED VARIETY	APPLICATION RATE
APRIL-OCTOBER	(SEE MIX #6)	(SEE MIX #6)

SEED MIX #6

SEED MIX	VARIETY	RATE IN LBS / ACRE	RATE IN LBS / 1,000 SQ. FT.
CREEPING FESCUE	ENSYLVA, PENNLAWN, BOREAL	20	.45
TALL FESCUE	KY 31, REBEL	20	.45
PERRENIAL RYEGRASS	PENNFINE, LINN	5	.10
BIRDSFOOT TREFOIL	EMPIRE, PARDEE	10	.45

*GENERAL PURPOSE EROSION CONTROL MIX NOT TO BE USED FOR TURF PLANTING OR PLAYGROUNDS.

MULCH SEEDED AREA WITH 2 TONS PER ACRE CLEAN GRAIN STRAW. ANCHOR STRAW WITH HYDRAULIC WOOD FIBER MULCH AT THE RATE OF 1000 LBS PER ACRE, OR 150-200 POUNDS OF ORGANIC MULCH TACKIFIER PER ACRE, OR USE NETTING.

SEED BED PREPARATION (PERMENTENT SEEDING)

SURFACE WATER CONTROL MEASURES SHALL BE IN PLACE. AREA TO BE SEEDED SHALL BE RIPPED AND SPREAD WITH AVAILABLE TOPSOIL. TOTAL SEEDBED PREPARED DEPTH SHOULD BE AT LEAST 4 INCHES. LOOSE ROCKS, ROOTS AND OTHER OBSTRUCTIONS NEED TO BE REMOVED FROM THE SURFACE SO THAT THEY WILL NOT INTERFERE WITH THE ESTABLISHMENT AND MAINTENANCE OF VEGETATION. SURFACE FOR FINAL SEEDBED PREPARATION SHOULD BE AT FINISH GRADE AND BE REASONABLY SMOOTH AND UNIFORM.

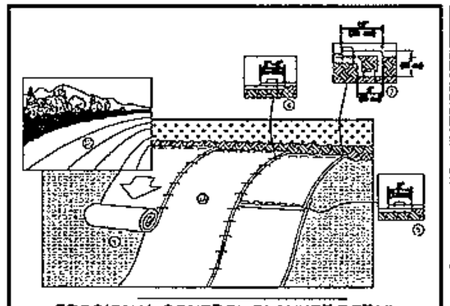
IF NO SOIL TEST IS TAKEN, FERTILIZER AND LIME SHOULD BE ACCORDING TO SEEDING SPECIFICATIONS. IF SOIL TEST IS TAKEN, APPLY FERTILIZER AND LIME ACCORDING TO SOIL TEST REPORT. FERTILIZER AND LIME SHALL BE APPLIED UNIFORMLY AND MIXED WITH THE SOIL DURING SEEDBED PREPARATION. WEIGHTS, SEED SPECIES AND PERCENTAGE OF PURITY AND GERMINATION MUST BE CHECKED PRIOR TO SEEDING.

SEEDING SHALL BE ACCOMPLISHED IN TWO DIRECTIONS AND AT RIGHT ANGLES TO EACH OTHER. LAWN AREAS SHALL BE SEEDED AT THE RATE INDICATED ON THE DRAWINGS BY SOWING EVENLY WITH AN APPROVED MECHANICAL CULTIPACKER SEEDER TO COVER THE SEED AND FORM THE SEEDBED IN ONE OPERATION. IF BROADCAST SEEDER IS USED THE SEEDING RATE SHALL BE TWO (2) TIMES THE DRILL RATE. IN INACCESSIBLE AREAS, THE SEED SHALL BE LIGHTLY RAKED WITH FLEXIBLE RAKES AND ROLLED WITH A WATER BALLAST ROLLER. AFTER ROLLING SEEDED AREAS ARE TO BE MULCHED ACCORDING TO SPECIFICATION. IF HYDROSEED OPERATION IS USED, SEEDING RATE SHALL BE FIVE (5) TIMES THE DRILL RATE INDICATED ON THE DRAWINGS.

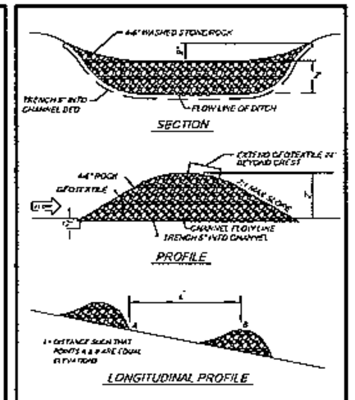
IF SEEDING CAN NOT BE ACCOMPLISHED DUE TO SEASONAL CONSTRAINTS, APPLY STRAW MULCH AND TACKIFIER TO ALL SLOPES AND DISTURBED AREAS UNTIL PERMANENT SEEDING IS ALLOWED. IN THE EVENT SEEDING OCCURS OUT OF SEASON, MAINTENANCE SHALL OCCUR AND CONTINUE INTO THE FOLLOWING GROWING SEASON OR UNTIL A UNIFORM STAND OF THE SPECIFIED PERMANENT GRASSES HAVE BEEN ESTABLISHED AND THE SITE HAS REACHED 85% STABILIZATION. PERMANENT AND TEMPORARY SEEDING SHALL BE ACCOMPLISHED THROUGHOUT THE CONSTRUCTION PROCESS.

INSPECTION

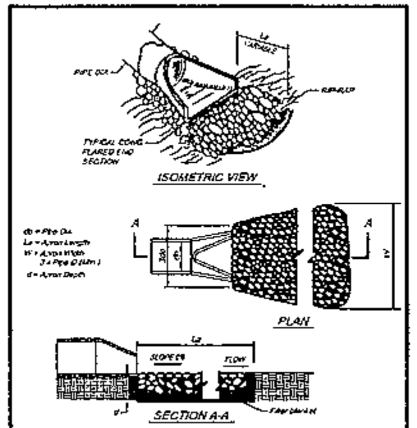
INSPECT SEEDED AREAS FREQUENTLY. IF SEEDED AREAS FAIL TO GERMINATE, OR TO PROVIDE ADEQUATE GROUND COVERAGE, THE AREA SHALL BE RE-SEEDED UNTIL FINAL STABILIZATION IS ACHIEVED. ALL EROSION AND SEDIMENT CONTROL MEASURES SHALL BE INSPECTED AT MINIMUM EVERY SEVEN (7) CALENDAR DAYS AND WITHIN 24 HOURS OF A RAINFALL EVENT OF GREATER THAN .5 INCHES OF RAIN DURING A 24 HOUR PERIOD (OR MORE FREQUENTLY IF REQUIRED BY THE STATE NPDES GENERAL PERMIT) THROUGHOUT CONSTRUCTION UNTIL FINAL STABILIZATION IS ACHIEVED OR MORE FREQUENTLY IF REQUIRED BY STATE NPDES GENERAL PERMIT



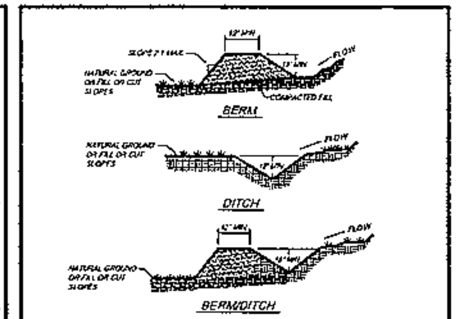
EROSIONAL CONTROL BLANKET DETAIL
FOR SLOPE INSTALLATION



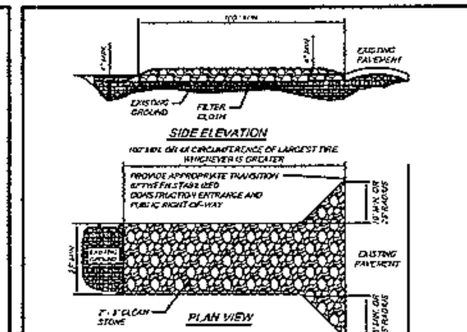
ROCK CHECK DAM DETAIL
(NOT TO SCALE)



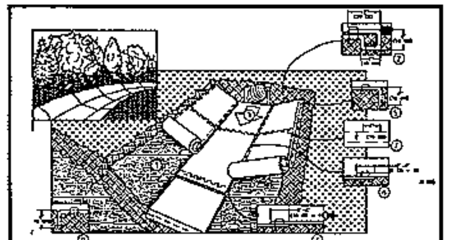
RIP RAP APRON - OUTLET CHANNEL
(NOT TO SCALE)



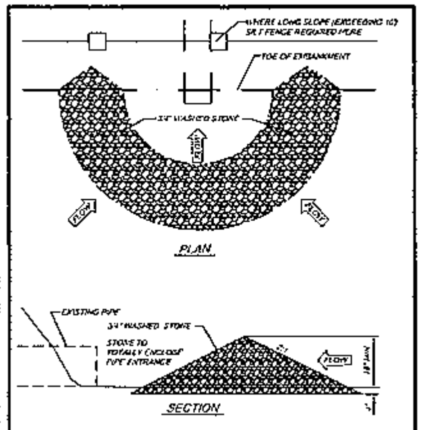
DETAIL TEMPORARY DIVERSION BERM/DITCH
(NOT TO SCALE)



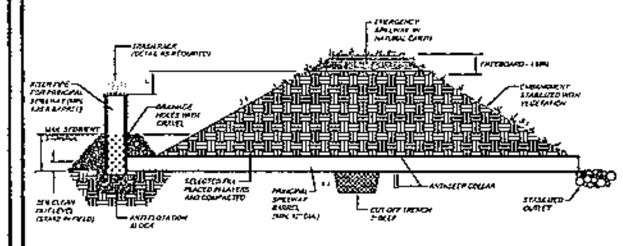
STABILIZED CONSTRUCTION ENTRANCE
(NOT TO SCALE)



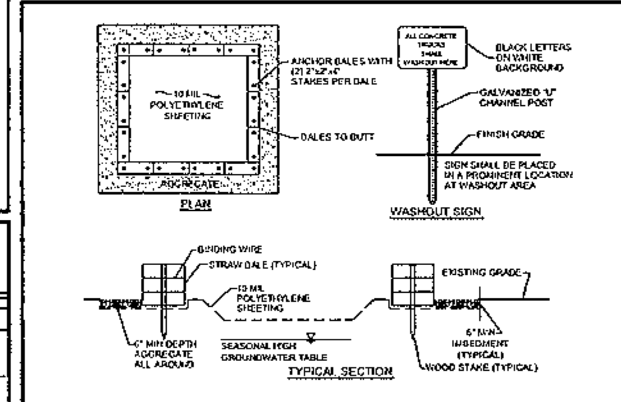
EROSION CONTROL BLANKET DETAIL
FOR CHANNEL INSTALLATION



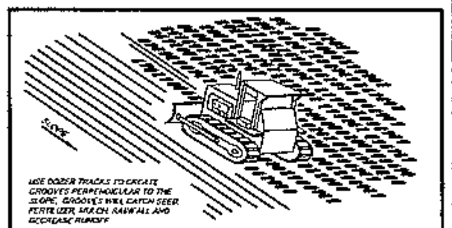
PIPE/RISER INLET PROTECTION
(NOT TO SCALE)



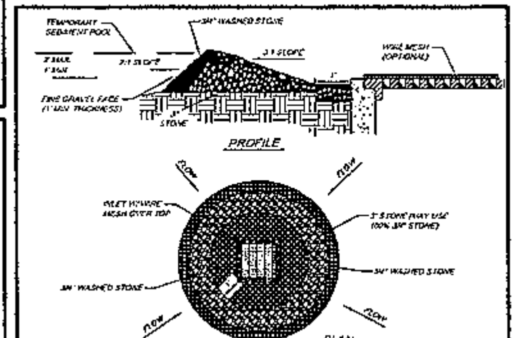
PERFORATED RISER DETAIL
(NOT TO SCALE)



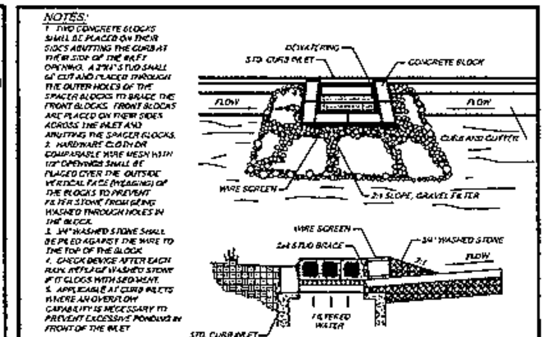
CONCRETE WASHOUT AREA DETAIL
NOT TO SCALE



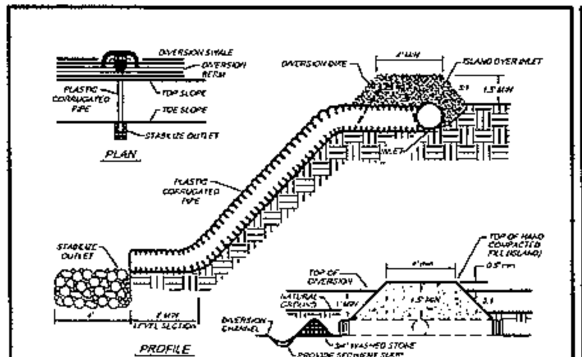
TRACKING DETAIL
(NOT TO SCALE)



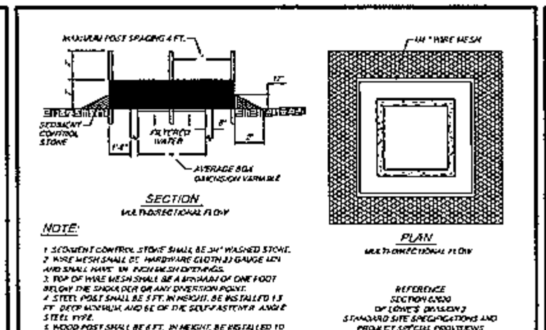
GRAVEL DROP INLET PROTECTION (GRAVEL DONUT)
(NOT TO SCALE)



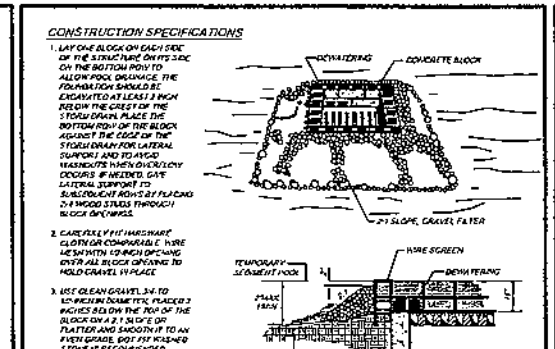
BLOCK AND GRAVEL CURB INLET PROTECTION
(NOT TO SCALE)



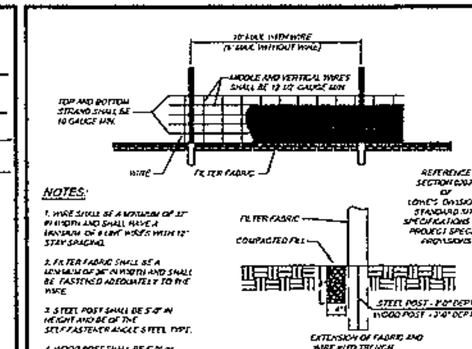
TEMPORARY SLOPE DRAIN
(NOT TO SCALE)



INLET PROTECTION
(NOT TO SCALE)



BLOCK AND GRAVEL DROP INLET PROTECTION
(NOT TO SCALE)



SILT FENCE DETAIL
(NOT TO SCALE)

REVISIONS

DATE		DESCRIPTION

COSTICH ENGINEERING
· CIVIL ENGINEERING
· LAND PLANNING
· SURVEYING
217 LAKE AVENUE
ROCHESTER, NEW YORK 14608
(585) 458-3020

LOWE'S HOME CENTERS, INC.
HWY. 268 EAST, EAST DOCK
N. WILKESBORO, NC 28659
336.658.4000 (V) 336.658.3257 (F)

DETAIL SHEET
LOWES OF HAMBURG, NY
SOUTHWESTERN BOULEVARD
HAMBURG, NEW YORK
PROJECT No: 3717 | DRAWN BY: ESS | CHECKED BY: RP

ORIGINAL ISSUE DATE: 7/28/2006
PERMIT SET ISSUE DATE:
CONSTRUCTION SET ISSUE DATE:
DRAWING NUMBER:
3717-17
SHEET 17 of 18

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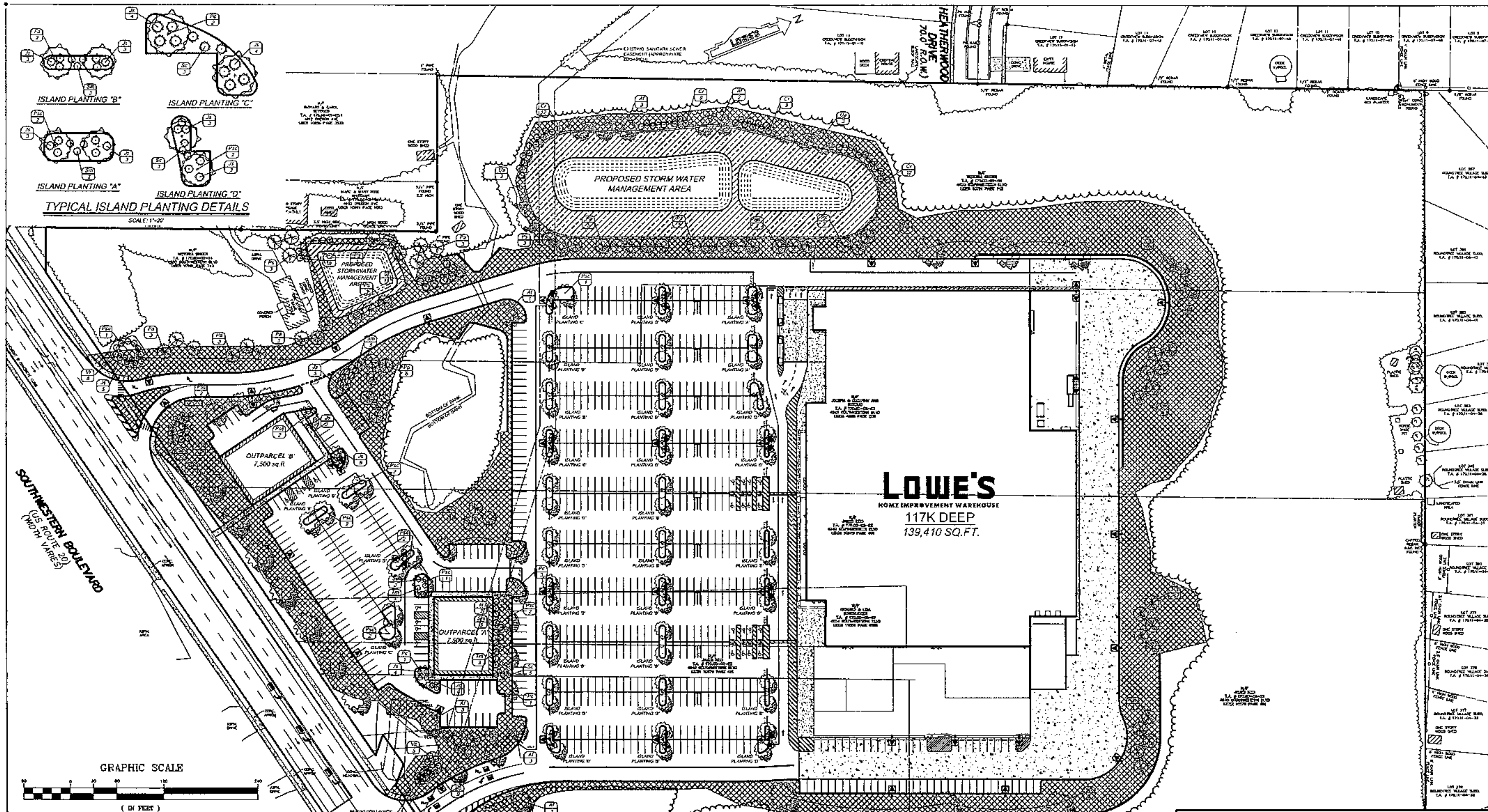
F-40



GRAPHIC SCALE

(IN FEET)
1 inch = 60 ft.

HYDRO SEED LEGEND

AREAS TO RECIEVE 4" TOPSOIL AND PERMANENT LAWN HYDRO SEED MIX

SLOPE AREA TO RECEIVE 4" TOPSOIL, CROWN VETCH/PERENNIAL RYE GRASS MIX AND ERDSION CONTROL BLANKET (AS REQUIRED)

Dig Safely. New York
Underground Facilities Protective Organization
- Call Before You Dig
- Wait The Required Time
- Confirm Utility Response
- Respect The Marks
- Dig With Care

800-962-7962
www.digsafelynewyork.com

LANDSCAPE NOTES

1. ALL PLANTED AREAS SHALL RECEIVE A 3" LAYER OF SHREDDED PINE BARK MULCH OVER A 10 MIL WEED MAT EQUAL TO "WEEDBLOCK" BY EASY GARDENER OR DEWITT WEED BARRIER.
2. ALL DISTURBED AREAS NOT RECEIVING PLANTINGS (INCLUDING RIGHT-OF-WAYS) SHALL BE SEEDED PER SPECIFICATIONS.
3. ALL WORK SHALL BE DONE IN STRICT ACCORDANCE WITH DIVISION 2 OF LOWE'S STANDARD SITE SPECIFICATIONS.

REGISTERED LANDSCAPE ARCHITECT
WILLIAM MAURICE PRICE
No. 001070-1
STATE OF NEW YORK

WM PRICE Design
Land Planning
Site Design &
Development
Strategies

William M. Price
Landscape Architect

305 Sylvan Road
Rochester, NY 14618
p. 585.256.7461
c. 585.732.6607

PLANT SCHEDULE

KEY	BOTANICAL NAME	COMMON NAME	SIZE	ROOT NOTE
DECIDUOUS SHADE TREES				
Af	ACER X. FREEMANII	CELEBRATION MAPLE	2.5" CAL.	BB
Fa	FRAXINUS AMERICANA	AUTUMN PURPLE ASH	2.5" CAL.	BB
Ta	TILIA AMERICANA 'REDMOND'	REDMOND LINDEN	2.5" CAL.	BB
Ua	ULMUS AMERICANA 'DELEWARE'	DELEWARE ELM	2.5" CAL.	BB
FLOWERING TREES				
Psc	PRUNUS SARGENTI 'COLUMNARIS'	COULMNAR SARGENTS CHERRY	2" CAL.	BB
Pc	PRUNUS C.'CHANTICLEAR'	CHANTICLEAR FLOWERING PEAR	2" CAL.	BB
EVERGREEN TREES				
Pa	PICEA ABIES	NORWAY SPRUCE	6'-7'	BB
Pp	PICEA PUNGENS	COLORADO BLUE SPRUCE	6'-7'	BB
Ps	PICEA SYLVESTRIS	SCOTCH PINE	6'-7'	BB
DECIDEOUS SHRUBS				
Ca	CORNUS ALBA	RED STEM DOGWOOD	24" HT.	BB
Cr	CORNUS RACEMOSA	GRAY DOGWOOD	30" HT.	BB
Sc	SPIREA X.B. COCCINEA	DWARF RED SPIREA	15"-18"	CONT.
Sm	SYRINGA MEYERI 'PALIBIN'	DWARF KOREAN LILAC	24" SP.	CONT.
Vt	VIBURNUM TRILOBUM	AMERICAN CRANBERRY BUSH	30" SP.	BB
Vd	VIBURNUM DENTATUM	ARROW WOOD VIBURNUM	30" SP.	BB
EVERGREEN SHRUBS				
Ix	ILEX XM. 'BLUE BOY/ GIRL'	BLUE BOY/ GIRL HOLLY	24" SP.	#5 CONT.
Js	JUNIPERUS SABINA 'BROADMOOR'	BROADMOOR JUNIPER	18" SP.	#5 CONT.
Tc	TAXUS M. DENSIFORMIS	DENSE SPREADING YEW	18" SP.	BB

ABBREVIATIONS:
BB=BALLED & BURLAPPED SP.=SPREAD NO.=GALLON SIZE BR.=BARE ROOT
CAL.=CALIPER IN INCHES HT.=HEIGHT CONT.=CONTAINER

REVISIONS
DATE | DESCRIPTION

STATE OF NEW YORK
MARK R. COSTICH
Licensed Professional Engineer

COSTICH ENGINEERING
- CIVIL ENGINEERING
- LAND PLANNING
- SURVEYING
217 LAKE AVENUE
ROCHESTER, NEW YORK 14608
(585) 458-3020

LOWE'S HOME CENTERS, INC.
HWY. 268 EAST, EAST DOCK
N. WILKESBORO, NC 28659
336.658.4000 (V) 336.658.3257 (F)

LOWE'S

LANDSCAPING PLAN
LOWES OF HAMBURG, NY
SOUTHWESTERN BOULEVARD
HAMBURG, NEW YORK

PROJECT No. 3717 DRAWN BY: DEL CHECKED BY: RP

ORIGINAL ISSUE DATE: 3/23/2007
PERMIT SET ISSUE DATE:
CONSTRUCTION SET ISSUE DATE:
DRAWING NUMBER:
3717-11
SHEET 11 of 18

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Signed Notice of Intent (NOI)

[INSERT COMPLETED FEDERAL, STATE OR LOCAL NOTICE OF INTENT (NOI) FOR NPDES PERMITS
AND
STATE OR LOCAL NOTICE OF INTENT (NOI) FOR NON-STORM WATER DISCHARGES (If Required) HERE]

1752059166

NOTICE OF INTENT

New York State Department of Environmental Conservation
Division of Water
625 Broadway, 4th Floor
Albany, New York 12233-3505

NYR (for DEC use only)

DRAFT

Stormwater Discharges Associated with Construction Activity Under State Pollutant Discharge Elimination System (SPDES) General Permit # GP-02-01

All sections must be completed unless otherwise noted. Failure to complete all items may result in this form being returned to you, thereby delaying your coverage under this General Permit. Applicants must read and understand the conditions of the permit and prepare a Stormwater Pollution Prevention Plan prior to submitting this NOI. Applicants are responsible for identifying and obtaining other DEC permits that may be required. To properly complete this form, please refer to the Instruction Manual which can be accessed at www.dec.state.ny.us/website/dow/toolbox/instr_man.pdf

-IMPORTANT-

THIS FORM FOR MACHINE PRINT ONLY

RETURN THIS FORM TO THE ADDRESS ABOVE

OWNER/OPERATOR MUST SIGN FORM

Owner/Operator Information

Owner/Operator (Company Name/Private Owner Name/Municipality Name)
LOWES HOME CENTERS INC.

Owner/Operator Contact Person Last Name (NOT CONSULTANT)
PARDUE

Owner/Operator Contact Person First Name
J DANIEL

Owner/Operator Mailing Address
REEC DOCK - 1605 CURTIS BRIDGE ROAD

City
WILKESBORO

State
NC

Zip
28697-

Phone (Owner/Operator)
336-658-4771

Fax (Owner/Operator)
336-658-2735

Email (Owner/Operator)
J.DAN.D.PARDUE@LOWES.COM

F-44

7599059161

Location Information

DRAFT

Project Site Information

Project/Site Name

LOWES OF HAMBURG

Street Address (NOT P.O. BOX)

4934 4940 4946 4960 SOUTHWESTERN BLVD

City/Town/Village (THAT ISSUES BUILDING PERMIT)

HAMBURG

State: NY

Zip: 14075 -

County: ERIE

DEC Region (if known): 9

Name of Nearest Cross Street

CAMP STREET

Distance to Nearest Cross Street (Feet): 2000

Direction to Nearest Cross Street

○ North ○ South ○ East ● West

1. Provide the Geographic Coordinates for the project site in NYTM Units. To do this you <u>must</u> go to the NYSDEC Stormwater Interactive Map on the DEC website at:

www.dec.state.ny.us/website/imsmaps/stormwater/viewer.htm

Zoom into your Project Location such that you can accurately click on the centroid of your site. Once you have located your project site go to the dropdown menu on the left and choose "Get Coordinates". Click on the center of your site and a small window containing the X, Y coordinates in UTM will pop up. Transcribe these coordinates into the boxes below. For problems with the interactive map use the help function.

X Coordinates (Easting)	Y Coordinates (Northing)
184770	4740380

2. What is the nature of this construction project?

● New Construction

○ Redevelopment with increase in imperviousness

○ Redevelopment with no increase in imperviousness

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4198059163

Project Site Information

3. Select the predominant land use for both pre and post development conditions.
SELECT ONLY ONE CHOICE FOR EACH

Pre-Development Existing Land Use

- ● FOREST
- ○ PASTURE/OPEN LAND
- ○ CULTIVATED LAND
- ○ SINGLE FAMILY HOME
- ○ SINGLE FAMILY SUBDIVISION
- ○ TOWN HOME RESIDENTIAL
- ○ MULTIFAMILY RESIDENTIAL
- ○ INSTITUTIONAL/SCHOOL
- ○ INDUSTRIAL
- ○ COMMERCIAL
- ○ ROAD/HIGHWAY
- ○ RECREATIONAL/SPORTS FIELD
- ○ BIKE PATH/TRAIL
- ○ SUBSURFACE UTILITY
- ○ PARKING LOT
- ○ OTHER

OTHER

Post-Development Future Land Use

- ○ SINGLE FAMILY HOME
- ○ SINGLE FAMILY SUBDIVISION — Number of Lots
- ○ TOWN HOME RESIDENTIAL
- ○ MULTIFAMILY RESIDENTIAL
- ○ INSTITUTIONAL/SCHOOL
- ○ INDUSTRIAL
- ● COMMERCIAL
- ○ ROAD/HIGHWAY
- ○ RECREATIONAL/SPORTS FIELD
- ○ BIKE PATH/TRAIL
- ○ LINEAR UTILITY (water, sewer, gas, etc.)
- ○ PARKING LOT
- ○ OTHER

OTHER

DRAFT

4. Will future use of this site be an agricultural property as defined by the NYS Agriculture and Markets Law ? — ○ Yes ● No

5. Is this a project which does not require coverage under the General Permit (e.g. Project done under an Individual SPDES Permit, or department approved remediation)? — ○ Yes ● No

6. Is this property owned by a state authority, state agency or local government? — ○ Yes ● No

7. In accordance with the larger common plan of development or sale; enter the total project site acreage, the acreage to be disturbed and the future impervious area (acreage)within the disturbed area. Round to the nearest tenth of an acre.

Total Site Acreage	Acreage To Be Disturbed	Existing Impervious Area Within Disturbed	Future Impervious Area Within Disturbed
36.9	18.0	1.9	14.1

8. Will there be more than 5 acres disturbed at any given time? — ● Yes ○ No

9. Indicate the percentage of each Hydrologic Soil Group(HSG) at the site.

A	B	C	D
0 %	0 %	20 %	80 %

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10. Is this a phased project? (if yes, The SWPPP must address all planned phases)

○ Yes* ● No

11. Enter the planned start and end dates of the disturbance activities

Start Date 04/01/2008 - End Date 04/01/2009

Receiving System(s)

12. Provide the name of the nearest, natural, classified surface waterbody(ies) into which construction site runoff has the potential to discharge.

TRIBUTARY E-5 TO LAKE ERIE

For Questions 13 and 14 refer to the Instruction Manual for a subset of 303(d) segments and TMDL watersheds subject to Condition A of the permit. These waterbodies and watersheds have been identified for regulation within the stormwater program due to some level of impairment by nutrients, silt or sediment. The Instruction Manual can be accessed at www.dec.state.ny.us/website/dow/toolbox/instr_man.pdf

13. Has the surface waterbody(ies) in question 12 been identified as a 303(d) segment?

○ Yes* ● No

14. Is this project located in a TMDL Watershed?

○ Yes* ● No

***NOTE: If you answered Yes to either question 13 or 14, Pursuant to Part I.D.3.(b) of the permit, you must have your SWPPP prepared and certified by a licensed/certified professional and the SWPPP is subject to a 60-business day review.**

15. Does the site runoff enter a separate storm sewer system-including roadside drains, swales, ditches, culverts, etc? **(if no, skip question 16)**

● Yes ○ No ○ Unknown

16. What is the name of the municipality/entity that owns the separate storm sewer system?

TOWN OF HAMBURG

17. Does any runoff from the site enter a sewer classified as a Combined Sewer?

○ Yes ● No ○ Unknown

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Stormwater Pollution Prevention Plan (SWPPP)

18. Has the required Erosion and Sediment Control component of the SWPPP been developed in conformance with the current NYS Standards and Specifications for Erosion and Sediment Control (aka Blue Book) ?

● Yes ○ No*

19. Does this construction activity require the development of a SWPPP that includes Water Quality and Quantity Control components (Post-Construction Stormwater Management Practices) **If no, Skip question 20**

● Yes ○ No

20. Have the Water Quality and Quantity Control components of the SWPPP been developed in comformance with the current NYS Stormwater Management Design Manual ?

● Yes ○ No

DRAFT

NOTE: If you answered no to question 18 or 20, Pursuant to Part I.D.3.(b) of the permit, you must have your SWPPP prepared and certified by a licensed/certified professional and the SWPPP is subject to a 60-business day review. Please provide further details in the details/comment section on the last page of this form.

21. The Stormwater Pollution Prevention Plan (SWPPP) was prepared by:

● **Professional Engineer (P.E.)**
○ **Soil and Water Conservation District (SWCD)**
○ **Registered Landscape Architect (R.L.A)**
○ **Certified Professional in Erosion and Sediment Control (CPESC)**
○ **Owner/Operator**
○ **Other**

SWPPP Preparer Information
(if different from Owner/Operator info)

SWPPP Preparer
COSTICH ENGINEERING, P.C.

Contact Name (Last, Space, First)
PORTER RUSSELL

Mailing Address
217 LAKE AVENUE

City
ROCHESTER

State
NY

Zip
14608-

Phone
585-458-3020

Fax
585-458-2731

Email
RPORTER@COSTICH.COM

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Stormwater Pollution Prevention Plan (SWPPP)

Erosion and Sediment Control Practices

22. Has a construction sequence schedule for the planned management practices been prepared? ● Yes ○ No

23. Select all of the erosion and sediment control practices that will be employed on the project site.

Temporary Structural

- ● Check Dams
- ○ Construction Road Stabilization
- ● Dust Control
- ○ Earth Dike
- ○ Level Spreader
- ● Perimeter Dike/Swale
- ● Pipe Slope Drain
- ○ Portable Sediment Tank
- ○ Rock Dam
- ● Sediment Basin
- ○ Sediment Traps
- ● Silt Fence
- ● Stabilized Construction Entrance
- ● Storm Drain Inlet Protection
- ○ Straw/Hay Bale Dike
- ○ Temporary Access Waterway Crossing
- ○ Temporary Stormdrain Diversion
- ○ Temporary Swale
- ○ Turbidity Curtain
- ○ Water bars

Biotechnical

- ○ Brush Matting
- ○ Wattling

Vegetative Measures

- ○ Brush Matting
- ○ Dune Stabilization
- ○ Grassed Waterway
- ● Mulching
- ● Protecting Vegetation
- ○ Recreation Area Improvement
- ● Seeding
- ○ Sodding
- ○ Straw/Hay Bale Dike
- ● Streambank Protection
- ● Temporary Swale
- ● Topsoiling
- ○ Vegetating Waterways

Permanent Structural

- ○ Debris Basin
- ○ Diversion
- ○ Grade Stabilization Structure
- ● Land Grading
- ○ Lined Waterway (Rock)
- ○ Paved Channel (Concrete)
- ○ Paved Flume
- ○ Retaining Wall
- ○ Riprap Slope Protection
- ● Rock Outlet Protection
- ○ Streambank Protection

Other

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Stormwater Pollution Prevention Plan (SWPPP)

Water Quality and Quantity Control

Important: Completion of Questions 24-30 is not required if the project:

Disturbs less than 5 acres and is planned for single-family residential homes (including subdivisions) or construction on agricultural property and does not have a discharge to a 303(d) water or is not located within a TMDL watershed.

Additionally, sites where there will be no future impervious area within the disturbed area and that do not have a change (pre to post development) in hydrology do not need to complete questions 24-30.

24. Indicate all the permanent Stormwater Management Practice(s) that will be installed on this site

Post Construction Stormwater Management Practices

Ponds

- ○ Micropool Extended Detention (P-1)
- ● Wet Pond (P-2)
- ○ Wet Extended Detention (P-3)
- ○ Multiple Pond System (P-4)
- ○ Pocket Pond (P-5)

Filtering

- ○ Surface Sand Filter (F-1)
- ○ Underground Sand Filter (F-2)
- ○ Perimeter Sand Filter (F-3)
- ○ Organic Filter (F-4)
- ○ Bioretention (F-5)

Wetlands

- ○ Shallow Wetland (W-1)
- ○ Extended Detention Wetland (W-2)
- ○ Pond/Wetland System (W-3)
- ○ Pocket Wetland (W-4)

Infiltration

- ○ Infiltration Trench (I-1)
- ○ Infiltration Basin (I-2)
- ○ Dry Well (I-3)

Open Channels

- ○ Dry Swale (O-1)
- ○ Wet Swale (O-2)

○ Other

Describe other stormwater management practices not listed above or explain any deviations from the technicial standards. If the SWPPP does not conform to the technicial standards, the SWPPP must be prepared and certified by a licensed/certified professional and is subject to a 60-business day review.

Has a long term Operation and Maintenance plan for the post construction management practices been developed? ● Yes ○ No

If Yes, Identify the entity responsible for the long term Operation and Maintenance

LOWES HOME CENTERS INC.

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25. Provide the total water quality volume required and the total provided for the site.

Total Water Quality Volume (WQv)

WQv Required	WQv Provided
0.835 acre-feet	1.104 acre-feet

26. Provide the following Unified Stormwater Sizing Criteria for the site.

Total Channel Protection Storage Volume (CPv) - Extended detention of post-developed 1 year, 24 hour storm event

CPv Required	CPv Provided
1.240 acre-feet	1.242 acre-feet

The need to provide for channel protection has been waived because
○ **Site discharges directly to fourth order stream or larger**

Total Overbank Flood Control Criteria (Qp) - Peak discharge rate for the 10 year storm

Pre-Development	Post-development
14.550 CFS	3.120 CFS

Total Extreme Flood Control Criteria (Qf) - Peak discharge rate for the 100 year storm

Pre-Development	Post-development
25.230 CFS	3.800 CFS

The need to provide for flood control has been waived because
○ **Site discharges directly to fourth order stream or larger**
○ **Downstream analysis reveals that flood control is not required**

IMPORTANT: For questions 27 and 28 impervious area should be calculated considering the project site and all offsite areas that drain to the post-construction stormwater management practice(s) (Total Drainage Area = Project Site + Offsite areas)

27. Pre-Construction Impervious Area - As a percent of the Total Drainage Area enter the percentage of the existing impervious areas before construction begins. 5 %

28. Post-Construction Impervious Area - As a percent of the Total Drainage Area enter the percentage of the future impervious areas that will be created/remain on the site after completion of construction. 39 %

29. Indicate the total number of permanent stormwater management practices to be installed 2

30. Provide the total number of stormwater discharge points from the site (include discharges to either surface waters or to seperate storm sewer systems) 4

Other Permits

31. Select any other DEC permits that are required for this project or ● None

DEC Permits

○ Air Pollution Control	○ Stream Protection/Article 15
○ Coastal Erosion	● Water Quality Certificate
○ Hazardous Waste	○ Dam Safety
○ Long Island Wells	○ Water Supply
○ Mined Land Reclamation	○ Freshwater Wetlands
○ Other SPDES	○ Tidal Wetlands
○ Solid Waste	○ Wild, Scenic and Recreational Rivers

Other

32. If this NOI is being submitted for the purpose of continuing coverage under a general permit for stormwater runoff from construction activities, please indicate the former SPDES number assigned.

NYR

Details/Comments

Certification

I have read or been advised of the permit conditions and believe that I understand them. I also understand that, under the terms of the permit, there may be reporting requirements. I also certify under penalty of law that this document and the corresponding documents were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person(s) who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations. I further understand that coverage under the general permit will be identified in the acknowledgment that I will receive as a result of submitting this NOI and can be as long as sixty (60) days as provided for in the general permit. I also understand that, by submitting this NOI, I am acknowledging that the SWPPP has been developed and will be implemented as the first element of construction. and agreeing to comply with all the terms and conditions of the general permit for which this NOI is being submitted.

Print First Name: J DANIEL

MI: D

Print Last Name: PARDUE

Owner/Operator Signature

Date __ / __ / ____

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Confirmation of NOI Delivery

[INSERT CONFIRMATION OF NOTICE OF INTENT (NOI) DELIVERY IN EITHER THE FORM OF A POSTAL RECEIPT OR ELECTRONIC ACKNOWLEDGEMENT]

Copy of the Letter of Acknowledgement from the NOI Processing Center Authorizing Permit Coverage

[INSERT COPY OF THE LETTER OF ACKNOWLEDGEMENT FROM THE NYSDEC}

SPDES Construction General Permit and State or Local Non-Storm Water Discharge Permits

[INSERT FEDERAL, STATE OR LOCAL NPDES GENERAL PERMIT
AND
STATE OR LOCAL NON-STORM WATER DISCHARGE PERMITS (If Required) HERE

NEW YORK STATE
DEPARTMENT OF ENVIRONMENTAL CONSERVATION

SPDES GENERAL PERMIT
FOR STORMWATER DISCHARGES

from

CONSTRUCTION ACTIVITY

Permit No. GP-02-01

Issued Pursuant to Article 17, Titles 7, 8 and Article 70
of the Environmental Conservation Law

Effective Date: January 8, 2003 | Expiration: January 8, 2008

William R. Adriance
Chief Permit Administrator

Address: NYS DEC
Div. Environmental Permits
625 Broadway, 4th Floor
Albany, N.Y. 12233-1750

Authorized Signature
William R. Adriance

Date: January 8, 2003

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NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION SPDES GENERAL PERMIT FOR STORMWATER DISCHARGES FROM CONSTRUCTION ACTIVITY

Preface

Pursuant to Section 402 of the Clean Water Act ("CWA"), stormwater discharges from certain construction activities to waters of the United States[1] are unlawful unless they are authorized by a NPDES (National Pollutant Discharge Elimination System) permit or by a state permit program. New York's SPDES (State Pollutant Discharge Elimination System) is a NPDES-approved program with permits issued in accordance with the Environmental Conservation Law ("ECL"). Discharges of pollutants to all other "Waters of New York State" such as groundwaters are also unlawful unless they are authorized by a SPDES permit.

A discharger, owner, or operator may[2] obtain coverage under this general permit by submitting a Notice of Intent ("NOI") to the Department. Copies of this General Permit and the NOI for New York are available by calling (518) 402-8109 or at any Department of Environmental Conservation (the Department) regional office (see Appendix A on Page 23). They are also available on the Department's website at:

www.dec.state.ny.us

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1 "Waters of the United States" means:

(a) All waters which are currently used, were used in the past, or may be susceptible to use in interstate or foreign commerce, including all waters which are subject to the ebb and flow of the tide; and
(b) All interstate waters, including interstate "wetlands"; and
(c) All other waters such as interstate lakes, rivers, streams (including intermittent streams), mudflats, sandflats, wetlands, sloughs, prairie potholes, wet meadows, playa lakes, or natural ponds the use, degradation, or destruction of which would affect or could affect interstate or foreign commerce including any such waters:
(1) Which are or could be used by interstate or foreign travelers for recreational or other purposes; or
(2) From which fish or shellfish are or could be taken and sold in interstate or foreign commerce; or
(3) Which are used or could be used for industrial purposes by industries in interstate commerce; and
(d) All impoundments of waters otherwise defined as waters of the United States under this definition; and
(e) Tributaries of waters identified in paragraphs (a) through (d) of this definition; and
(f) The territorial sea; and
(g) Wetlands adjacent to waters (other than waters that are themselves wetlands) identified in paragraphs (a) through (f) of this definition.

Waste treatment systems, including treatment ponds or lagoons designed to meet the requirements of the CWA are not waters of the United States. This exclusion applies only to manmade bodies of water which neither were originally created in waters of the United States (such as disposal areas in wetlands) nor resulted from the impoundment of waters of the United States.

2 "may" refers to circumstances under which the discharger is ineligible for coverage under this general permit because of other provisions of this permit. Dischargers which are excluded from coverage under this general permit as provided for in Part I, Section C, for example, are not authorized to discharge under this permit. This also applies to possible situations in which an NOI has been submitted and/or a regulatory fee paid pursuant to Article 72 of the ECL. The submittal of an NOI and/or regulatory fee has no bearing or relevance whatsoever on the eligibility of the construction activity discharging stormwater runoff under the authority of this permit.

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Local Programs of a Regulated MS4

Under the federal Phase II stormwater program, many cities, villages, towns, and other public entities in New York State which are located within "Urbanized Areas" as defined by the U.S. Census and who operate a Municipal Separate Storm Sewer System ("MS4") will be required to obtain SPDES permit coverage for stormwater discharges under their jurisdiction and control (see 40CFR Part 122 §122.26.32). Additionally, MS4s may be designated by the Department as regulated MS4s. Among other requirements, the Phase 2 NPDES stormwater regulations require regulated MS4s to address stormwater runoff from construction activities. Construction activities covered under this general permit, which are subject to stormwater runoff controls of a regulated MS4, will also need to comply with the MS4's controls.

Five (5) Day Coverage

Prior to the submission of an NOI, the owner or operator must have completed a Storm Water Pollution Prevention Plan (SWPPP) that complies with all requirements of this general permit. Submitting an NOI is an affirmation that a SWPPP has been prepared and will be implemented. If an applicant certifies that the SWPPP has been developed in conformance with the Department's technical standards, the applied-for activity may obtain coverage under this general permit in five (5) business days after the Department's receipt of the NOI provided, that the activity is eligible for coverage under this general permit and that the Department has not informed the applicant otherwise.

Sixty (60) Day Coverage

While the Department's technical standards are appropriate statewide, it is recognized that there may be situations where stormwater management goals can best be met by alternative means that are more suitable given local conditions.

For construction projects in these situations, applicants must identify in their NOI each of the deviations from the Department's technical standards that they are seeking. Applicants must also explain why the deviations are needed or desired and what impacts to water quality, if any, can be expected if the deviation were allowed. Applicants must also explain the actions, if any, that local board(s) have taken with respect to the deviation(s). For applicants which cannot certify conformance with the Department's technical standards, the SWPPP must also be certified by a licensed/certified professional that the SWPPP has been developed in a manner which will insure compliance with water quality standards and with the substantive intent of this permit.

In cases of deviations from the Department's technical standards, applicants must allow sixty (60) business days after the receipt by the Department of a completed NOI and certification before gaining coverage under this general permit and before initiating any construction activity. During this 60 day period, the Department may conduct further review of the NOI and SWPPP. If additional information is needed to complete the review, the NOI will be considered incomplete and the applicant will be so advised. The intent of this provision is to require conformance the Department's technical standards wherever possible and appropriate. At the same time, alternative means to address stormwater control may be allowed under this general permit where they are more suitable for the site in question and where they will not diminish water quality protection.

There are other scenarios under which coverage under this general permit will not occur until 60 business days from the receipt of a completed NOI. For example, if the construction activity or post construction runoff causes the discharge of a pollutant of concern to a water identified on the 303(d) list or a watershed with an approved TMDL for that pollutant of concern, coverage under the general permit will not occur until sixty (60) business days from the receipt by the Department of a completed NOI. For these projects the operator may be required to submit the SWPPP and/or appropriate certification(s) to the Department for review. The flowchart shown in Figure 1 on page vi will help to describe the process under which certain conditions exist that require possible further analysis and water quality/quantity considerations.

Computer Tool Available For Completion of SWPPPs and NOIs Under Development

The Department is currently developing an interactive computer software tool entitled "How to Prepare SWPPPs and Notices of Intent" to assist applicants in both developing SWPPPs and completing NOIs. This will be available in the near future for use on the Department website as well as being packaged independently on compact discs. This tool will contain guidance as well as many useful links to reference materials and documents concerning erosion and sedimentation control, as well as to the design of stormwater management practices . The Department's website will contain the latest information and guidance on the various tools available.

The Department's Technical Standards

The Department's technical standards for erosion and sediment control are contained in the document, *"New York Standards and Specifications for Erosion and Sediment Control"*[3] published by the Empire State Chapter of the Soil and Water Conservation Society. For the design of water quantity and water quality controls (post-construction stormwater control practices), the Department's technical standards are detailed in the *"New York State Stormwater Management Design Manual."* Both of these documents are available on the Department's website. If an applicant certifies that stormwater management practices will conform to the Department's technical standards, then coverage under the permit may occur sooner than otherwise would be the case if non-conformance with the manuals existed. See Figure 1 on page vi for more information.

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3 Previously, the *"New York Guidelines for UrbanErosion and Sediment Control"*, also commonly referred to as the "Blue Book".

Permit Valid for Any Size Disturbance

This permit may be used for construction activities involving any amount of disturbed acreage, provided that all other eligibility conditions in subsection B of Part I are satisfactorily met (see page 2 of this permit). Thus, this permit may apply to activities identified under 40 CFR Part 122, subsection 122.26(b)(14)(x) which are also referred to as "NPDES Phase 1 construction activities" involving soil disturbances of five (5) acres or more. This permit may also apply to activities identified under 40 CFR Part 122, subsection 122.26(b)(15) which are also referred to as "NPDES Phase 2 small construction activities" involving soil disturbances of between one (1) and five (5) acres. And, this permit may also apply to construction activities involving soil disturbances of less than one (1) acre if the Departmentdetermines that a SPDES permit is required pursuant to the ECL. In any and all cases, all of the eligibility provisions of this general permit must be met in order to gain coverage.

Notice of Termination

After construction is completed as defined in the general permit (see Part II beginning on Page 7), cancellation of coverage is accomplished by the submittal of a Notice of Termination ("NOT"). Failure to submit a NOT may result in the continued obligation to pay a yearly Regulatory Fee established pursuant to Article 72 of the ECL and/or may be cause for suspension of permit coverage.

Previous versions of NOIs, NOTs and Notices of Intent, Transfer and Termination ("NOITT"s) cannot be used in conjunction with this general permit. There is a new NOI required for obtaining coverage under this general permit. Failure to include information identified as "mandatory" entries on the new NOI form may prevent and/or delay discharge authorization being sought under this permit.

The new NOT will also include an identification of any permanent structures that are being left on the site after stabilization occurs and after termination of permit coverage under this general permit. The NOT will also include a certification that the structures were constructed as described in the SWPPP and that an Operation and Maintenance ("O&M") manual has been prepared and has been made available to the owner of such permanent structures who is expected to conduct the necessary O&M over the life ofthe structure(s).

Ineligible Activities

The submittal of a completed NOI and/or the payment of an annual regulatory fee by an applicant does not necessarily mean that an applicant is covered under this permit if the applicant is ineligible for coverage under this permit under the terms cited in Part I of this permit. In other words, submitting a completed NOI and paying an annual regulatory fee does not automatically gain an applicant permit coverage if the applicant is ineligible for coverage under this permit even if the Department fails to immediately inform the applicant of such ineligibility.

Permit Expiration Date

Coverage under this general permit is available January 8, 2003 and will expire five (5) years after issuance on January 8, 2008.

Activities Previously Covered Under GP-93-06

In a separate proposal, the Department is also concurrently seeking to re-issue GP-93-06 with an expiration of August 1, 2003. The purpose of this action is to provide a transition period for permittees which have had SPDES permit coverage under GP-93-06 immediately prior to January 8, 2003, the effective date of GP-02-01. **Prior to August 1, 2003**, these activities will need to:
(1) stabilize their sites in accordance with GP-93-06 and submit an NOT; or, if necessary,
(2) gain coverage under GP-02-01 by submitting a new NOI.

For **new** construction activities, coverage under GP-93-06 will not be available after the effective date of GP-02-01, January 8, 2003. Such discharges may be eligible for coverage under GP-02-01 (see Part I.B. on page 2 of this permit).

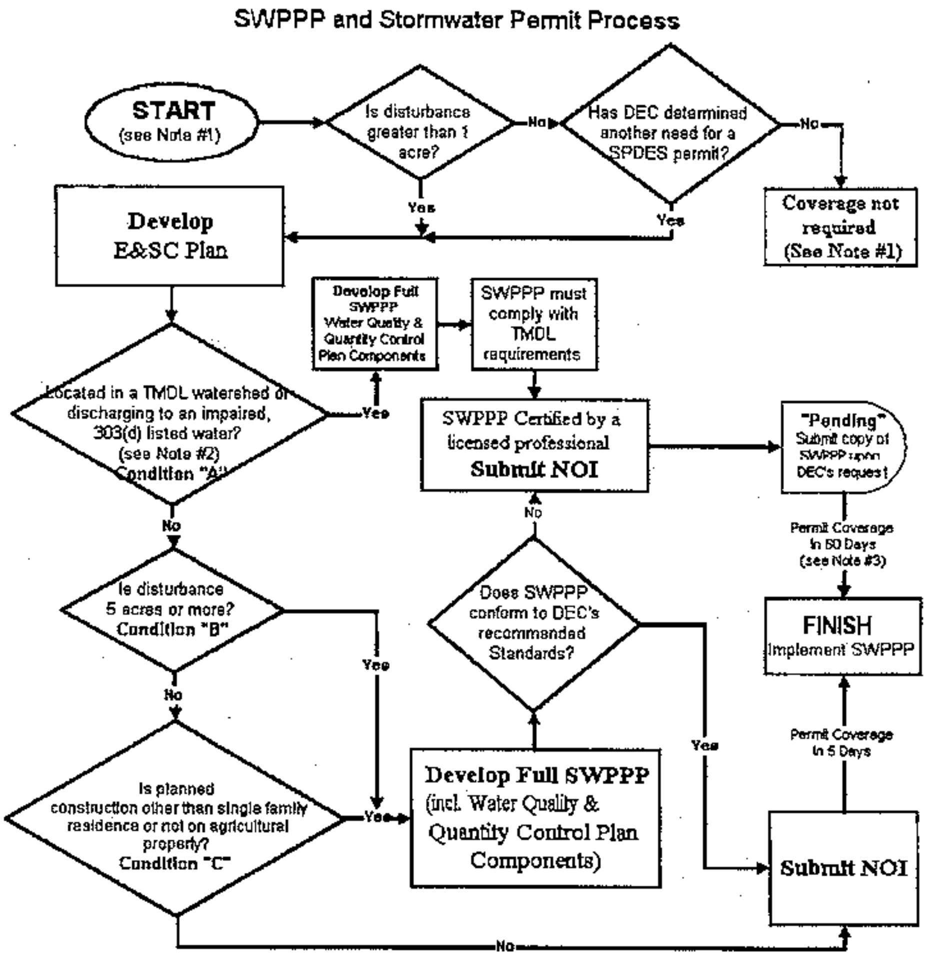
Water Quality Violations Not Permitted

This permit does not authorize any person to cause or contribute to a condition in contravention of any water quality standards that are contained in the Rules and Regulations of the State of New York (see Part I of this permit on page 2) even if the permittee is in compliance with all other provisions of this permit. Any violations of water quality standards may be considered by the Department to be violations of this permit and/or the ECL, including its accompanying regulations.

Other Department Permits

Construction activities may also require other Department permits in addition to the coverage provided by this general permit including, but not limited to, dam safety, wetlands and stream protection. Such other Department permits must be obtained separately from coverage under this general permit. Further information concerning these permits should be sought from the Regional Permit Administrator at the appropriate Department regional office (See Appendix A on page 23).

FIGURE 1



NOTES:

1. Under any of the above conditions other environmental permits may be required. DEC may require permit for construction disturbance < 1 acre on a case by case basis.
2. **and** the following exists: construction and/or stormwater discharges from the construction or post-construction site contain the pollutant of concern identified in the TMDL or 303(d) listing.
3. After receipt by DEC of completed application.

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NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION
SPDES GENERAL PERMIT FOR STORMWATER DISCHARGES

FROM CONSTRUCTION ACTIVITIES

TABLE OF CONTENTS

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Part I. COVERAGE UNDER THIS PERMIT

A. **Maintaining Water Quality** - It shall be a violation of this general permit and the Environmental Conservation Law ("ECL") for any discharge authorized by this general permit to either cause or contribute to a violation of water quality standards as contained in Parts 700 through 705 of Title 6 of the Official Compilation of Codes, Rules and Regulations of the State of New York including, but not limited to:

1. There shall be no increase in turbidity that will cause a substantial visible contrast to natural conditions;

2. There shall be no increase in suspended, colloidal and settleable solids that will cause deposition or impair the waters for their best usages; and

3. There shall be no residue from oil and floating substances, nor visible oil film, nor globules of grease.

B. **Eligibility Under This General Permit**

1. This permit may authorize all discharges of stormwater from construction activity[4] to surface waters and groundwaters except for ineligible discharges identified under subparagraph C of this Part (see below). Discharge authorization under this permit requires the submittal of a completed NOI.

2. Except for non-stormwater discharges explicitly listed in the next paragraph, this permit only authorizes stormwater discharges from construction activities.

3. Notwithstanding paragraphs B.1 and B.2 above, the following non-stormwater discharges may be authorized by this permit: discharges from fire

---

4 This includes discharges of stormwater associated with industrial activity identified under 40 CFR Part 122, subsection 122.26(b)(14)(x), small construction activties identified under 40 CFR Part 122, subsection 122.26(b)(15) or any other stormwater from construction activities that are not otherwise ineligible for coverage under this permit (SeePart I, subsection B beginning on page 2).

fighting activities; fire hydrant flushings; waters to which cleansers or other components have **not** been added that are used to wash vehicles or control dust in accordance with the SWPPP, routine external building washdown which does not use detergents; pavement washwaters where spills or leaks of toxic or hazardous materials have not occurred (unless all spilled material has been removed) and where detergents are not used; air conditioning condensate; springs; and foundation or footing drains where flows are not contaminated with process materials such as solvents. For those entities required to obtain coverage under this general permit, and who discharge as noted in this paragraph, and with the exception of flows from fire fighting activities, these discharges must be identified in the SWPPP(see Part III beginning on Page 7). Under all circumstances, the permittee must still comply with water quality standards (see Part I, subsection A on Page 2).

C. **Activities Which Are Ineligible for Coverage Under This General Permit** - All of the following stormwater discharges from construction activities are **not** authorized by this permit:

1. Discharges after construction activities have been completed and the site has undergone final stabilization[5];

2. Discharges that are mixed with sources of non-stormwater other than those expressly authorized under subsection B.3. of this Part (see page 3) and identified in the SWPPP required by this permit;

3. Discharges that are subject to an existing SPDES individual or general permit or which are required to obtain an individual or alternative general permit pursuant to Part V, subparagraph K (see page 21) of this permit;

4. Discharges that are likely to adversely affect a listed, or proposed to be listed, endangered or threatened species, or its critical habitat;

5. Discharges which are subject to an existing effluent (limitation) guideline addressing stormwater and/or process wastewater unless said guidelines are contained herein; or

6. Discharges which either cause or contribute to a violation of water quality standards adopted pursuant to the ECL and its accompanying regulations (See subsection A of Part I on page 2).

---

5 "Final Stabilization" means that all soil disturbing activities at the site have been completed, and that a uniform perennial vegetative cover with a density of 80% has been established or equivalent stabilization measures (such as the use of mulches or geotextiles) have been employed on all unpaved areas andareas not covered by permanent structures.

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D. Authorization Under This General Permit

1. An operator[6] must submit a completed NOI form in order to be authorized to discharge under this general permit. The NOI form shall be one which is associated with this general permit, signed in accordance with Part V. H.(see Page 19) of this permit and submitted to the address indicated on the NOI form. NOIs and NOITTs used in association with either previous or other general permits are not valid for obtaining coverage under this general permit. The submittal of an NOI is an affirmation to the operators' understanding and belief that the activity is eligible for coverage under this permit and that a SWPPP has been prepared and will be implemented in accordance with Part III of this permit.

2. All contractors and subcontractors of the operator identified under Part III.E.1 (see page 17) must provide the certification cited under Part III.E.2 (see page 17). Such certifications shall become part of the SWPPP for the construction activity covered under this general permit.

3. Unless notified by the Department to the contrary, operators who are eligible for coverage under this permit **and** who submit an NOI in accordance with the requirements of this permit, may be authorized to discharge stormwater from construction activities under the terms and conditions of this permit, and in accordance with the following timetable:

a. For construction activities which:

(1) develop a SWPPP in conformance with the Department's technical standards (See subsection D of Part III on page 10), and do not or will not discharge a pollutant of concern to an impaired water or a TMDL watershed;

or

(2) as of the effective date of this general permit, GP-02-01, have obtained coverage under, and are operating in compliance with, GP-93-06; and do not or will not discharge a pollutant of concern to an impaired water or a TMDL watershed;

authorization to discharge under this permit may occur <u>five (5) business days</u> after the date on which the NOI is received by the Department.

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6 For the purposes of this permit, the term"operator" means the person, persons, orlegal entity which owns or leases the property on which the construction activty is occurring. Also, see Part V, subsection H. on page 19 of this permit.

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b. For activities which do not comply with the preceding subsection (i.e. Part I.D.3.a.), authorization to discharge under this permit will begin no sooner than sixty (60) business days from the receipt of the completed NOI unless notified differently by the Department pursuant to Part V, subsection K of this permit (see page 21). For activities not satisfying Part I.D.3.a.(1) above, or for construction site runoff subject to a TMDL (see Figure 1 on page vi), the SWPPP must be prepared by a licensed/certified professional[7] and include a certification stating that the SWPPP has been developed in a manner which will assure compliance with water quality standards (see Part I.A.) and with the substantive intent of this permit.

c. For construction activities which are subject to a sixty-day period provision identified in the preceding subparagraph b., the SWPPP shall include each of the components identified in Part III.A.1.b. (see page 8).

4. At its sole discretion, the Department may deny or terminate coverage under this permit and require coverage under another SPDES permit at any time based on a review of the NOI, the SWPPP or other relevant information (see Part V, subsection K of this permit on page 21).

5. A copy of the NOI and a brief description of the project shall be posted at the construction site in a prominent place for public viewing.

6. A signed copy of the NOI, the SWPPP, and any reports required by this permit shall also be submitted concurrently to the local governing body and any other authorized agency[8] having jurisdiction or regulatory control over the construction project.

7. New stormwater discharges from construction activities that require any other Uniform Procedures Act permit (Environmental Conservation Law, 6 NYCRR Part 621) cannot be covered under this general permit until the other required permits are obtained. Upon satisfaction of the State Environmental Quality Review Act ("SEQRA") for the proposed action and issuance of necessary permits, the applicant may submit an NOI to obtain coverage under this general

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7 A "licensed/certified professional" means a personconcurrently licensed to practice engineering in New York State or is a Certified Professional in Erosion and Sediment Control (CPESC).

8 For the purposes of this general permit, "any other authorizedagency" shall include any local, regional, or state entity or agency except the Department which has authority to review stormwater discharge from the project, including authority under any approved watershed protection plan or regulations.

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permit.[9] In order to facilitate the Department's review of a multi-permitted project, an applicant should submit, at a minimum, a copy of the SWPPP which contains the information specified in Appendix B (see page 24). This information will assist the Department in determining whether or not coverage under this general permit or another SPDES permit is the more appropriate option. The Department may also require the submission of additional information in order to determine the SWPPP's conformance with the Department's technical standards.

8. Upon renewal of this general permit or issuance of a new general permit, the permittee is required to notify the Department of its intent to be covered by the new general permit. Coverage will continue under this permit for its term unless action is taken to terminate permit coverage as provided elsewhere in this permit. See also Part V. subsection B. on page 18 of this permit.

9. In the event of a transfer of ownership or responsibility for stormwater runoff, there can be no "automatic" transfer of permit coverage from one permittee to the next without appropriate notification from the dischargers. The former permittee must submit an NOT and notify the new discharger of the possible need for the new discharger to submit a new NOI (see Section E, subparagraph 2 below).

E. **Deadlines for Notification**

1. Operators who intend to obtain coverage under this general permit for stormwater runoff from construction activities must submit an NOI in accordance with the requirements of this Part at least five (5), or sixty (60) business days, as appropriately determined from Part I, Section D.3 (see page 4) prior to the commencement of construction[10] activities.

2. For stormwater runoff from construction activities where the operator changes, a new NOI must be submitted by the new operator in accordance with the requirements of this permit. The former operator must submit a NOT in accordance with Part II (see page 7) of this permit and notify the new operator of the requirement to submit a new NOI to obtain coverage under this permit. The new operator must also review and sign the SWPPP in accordance with Part III.B.(see page 9) and continue implementation of the SWPPP as required by this

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9 The purposes of this subsectbn is to assure that the requirements of SEQRA are fulfilled, if necessary, before any discharge authorization under this general permit isgranted.

10 "Commencement of Construction" means he initial disturbance of soils associated with clearing, grading, or excavating activities, or other construction activities.

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permit.

Part II. TERMINATION OF COVERAGE[11]

Where a site has been finally stabilized, the operator must submit a NOT form prescribed by the Department for use with this general permit. The NOT shall be signed in accordance with Part V. H.(see page 19) of this permit and submitted to the address indicated on the approved NOT form.

The permittee must identify all permanent stormwater management structures that have been constructed and provide the owner(s) of such structures with a manual describing the operation and maintenance practices that will be necessary in order for the structure to function as designed after the site has been stabilized. The permittee must also certify that the permanent structure(s) have been constructed as described in the SWPPP.

Part III. STORMWATER POLLUTION PREVENTION PLANS ("SWPPP"s)

A. **General**

1. **SWPPP Preparation**

a. A SWPPP shall be developed by the operator for construction activities at each site to be covered by this permit, prior to the initiation of activities requiring coverage under this permit. SWPPPs shall be prepared in accordance with sound engineering practices. The SWPPP shall identify potential sources of pollution which may reasonably be expected to affect the quality of stormwater discharges. In addition, the SWPPP shall describe and ensure the implementation of practices which will be used to reduce the pollutants in stormwater discharges and to assure compliance with the terms and conditions of this permit. Operators are encouraged to have their SWPPP reviewed for adequacy and completeness by the local soil and water conservation district ("SWCD") and/or other professionals qualified in erosion and sediment control practices[12] and stormwater management. Moreover, if the construction activity is identified under Part I, subsection D.3.b. (See page 5), or for construction site runoff subject to a TMDL (see Figure 1 on page vi), the SWPPP must include a certification by a licensed/certified professional.

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11 Submittal of an NOT will terminate coverage under thisgeneral permit and will also remove the permittee from subsequent billings of the annual regulatoryfee levied under Article 72 of the ECL.

12 For example, CPESC, Inc. administers a certified programof individuals under its CPESC (Certified Professional in Erosion and Sediment Control) program which is sponsored by the International Erosion Control Association (IECA) and the Soil and Water Conservation Society (SWCS) and is endorsed by USDA -Natural Resources Conservation Service. CPESC, Inc. also administers the CPSWQ (Certified Professional in Stormwater Quality) program.

b. All SWPPPs shall include erosion and sediment controls. For construction activities meeting either Condition "A", "B" or "C" described below, the SWPPP shall also include water quantity and water quality controls (post-construction stormwater control practices).(see Part III. D.).

(1) Condition A - Construction site or post construction runoff discharging a pollutant of concern to either an impaired water identified on DEC's 303(d) list or a TMDL watershed for which pollutants in stormwater have been identified as a source of the impairment.

(2) Condition B - Construction site runoff from Phase 1 construction activities (construction activities disturbing five (5) or more acres) identified under 40 CFR Part 122, §122.26(b)(14)(x).

(3) Condition C - Construction site runoff from construction activity disturbing between one (1) and five (5) acres of land during the course of the project, exclusive of the construction of single family residences and construction activities at agricultural properties.

2. **SWPPP Implementation** - Operators are responsible for implementing the provisions of the SWPPP and ensuring that all contractors and subcontractors who perform professional services at the site provide certification of the SWPPP in accordance with Part I.D.2. (see page 4) and Part III.E.2. (see page 17) of this permit. All contractors and subcontractors identified in the SWPPP in accordance with Part III.E.1. (see page 17) of this permit must agree to implement applicable provisions of the SWPPP and satisfy the certification requirement of Part III.E.2. (see page17). However, contractors and subcontractors who are not operators, as defined in this permit (see page 4), are not required to submit a NOI in addition to the NOI submitted by the operator.

3. **Deadlines for SWPPP Preparation and Compliance** - The SWPPP must be developed prior to the submittal of an NOI and provide for compliance with the terms and schedule of the SWPPP beginning with the initiation of construction activities. The operator shall also certify in the SWPPP that all appropriate stormwater control measures will be in place before commencement of construction of any segment of the project that requires such measures.

4. **Local Requirements** - Developing a SWPPP that complies with the requirements listed herein does not relieve an operator from the obligation of complying with stormwater management requirements of the local government having jurisdiction over the project.

5. **Activities Previously Covered Under GP-93-06** - For construction activities which are covered by GP-93-06 as of the effective date of this permit (GP-02-01), the continued implementation of their SWPPP that was developed and implemented in accordance with GP-93-06 is acceptable until such time as:

(a) an NOT is submitted;

(b) the Department notifies them otherwise in accordance with this permit, including Part V, subsection K (see page 21); or

(c) this permit expires.

B. Signature and SWPPP Review

1. The SWPPP shall be signed in accordance with Part V. H.(see page 19), and be retained at the site where the construction activity occurs in accordance with Part IV (see retention of records on page 17) of this permit.

2. The permittee shall submit a copy of the SWPPP and any amendments thereto to the local governing body and any other authorized agency having jurisdiction or regulatory control over the construction activity. The operator shall make SWPPPs available upon request to the Department and any local agency having jurisdiction; or in the case of a stormwater discharge associated with industrial activity which discharges through a municipal separate storm sewer system, to the municipal operator of the system.

3. The Department, or its authorized representative, may notify the permittee at any time that the SWPPP does not meet one or more of the minimum requirements of this permit. Such notification shall identify those provisions of the permit which are not being met by the SWPPP and identify which provisions of the SWPPP require modifications in order to meet the minimum requirements of this permit. Within seven (7) days of such notification, (or as otherwise provided by the Department) the permittee shall make the required changes to the SWPPP and shall submit to the Department a written certification that the requested changes have been made. Notwithstanding the foregoing, the Department reserves all rights to enforce the terms of the ECL.

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C. **Keeping SWPPPs Current** - The permittee shall amend the SWPPP whenever:

1. There is a significant change in design, construction, operation, or maintenance which may have a significant effect on the potential for the discharge of pollutants to the waters of the United States and which has not otherwise been addressed in the SWPPP; or

2. The SWPPP proves to be ineffective in:

a. Eliminating or significantly minimizing pollutants from sources identified in the SWPPP required by this permit, or

b. Achieving the general objectives of controlling pollutants in stormwater discharges from permitted construction activity.

3. Additionally, the SWPPP shall be amended to identify any new contractor or subcontractor that will implement any measure of the SWPPP (see Part III.E, page 17 below). Amendments to the SWPPP may be reviewed by the Department in the same manner as provided by Part III.B (see page 9 above).

D. **General Contents of SWPPPs** -

1. **Standards for construction activities covered under this permit** - The Department's technical standards for erosion and sediment controls are detailed in the "*New York Standards and Specifications for Erosion and Sediment Control*"[13] published by the Empire State Chapter of the Soil and Water Conservation Society. For the design of water quality and water quantity controls (post-construction stormwater control practices), the Department's technical standards are detailed in the "*New York State Stormwater Management Design Manual.*"

If an operator certifies that the SWPPP has been developed in conformance with the Department's technical standards referenced above, they may obtain coverage under this general permit in five (5) business days from the Department's receipt of the NOI, provided the construction activity does not meet Condition A in Part III.A.1.b. For SWPPPs which will not conform with the Department's technical standards, the SWPPP must be prepared by a licensed/certified professional and include a certification stating that the SWPPP has been developed in a manner which will assure compliance with the State's water quality standards and with the substantive intent of this permit. In addition, coverage under this general permit will not begin until sixty (60) business days from the receipt of a completed NOI.

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13 Previously, the "*New York Guidelines for UrbanErosion and Sediment Control,*" also commonly referred to as the "Blue Book."

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2. **Minimum SWPPP Components** SWPPPs prepared pursuant to this general permit shall present fully designed and engineered stormwater management practices with all necessary maps, plans and construction drawings. The SWPPP must, at a minimum, include the following:

a. For all construction activities subject to this general permit-

(1). provide background information about the scope of the project, including the location, type and size of project.

(2) provide a site map/construction drawing(s) for the project, including a general location map. At a minimum, the site map should show the total site area; all improvements; areas of disturbance; areas that will not be disturbed; existing vegetation; on-site and adjacent off-site surface water(s), wetlands and drainage patterns that could be affected by the construction activity; existing and final slopes; locations of off-site material, waste, borrow or equipment storage areas; and location(s) of the stormwater discharge(s);

(3) provide a description of the soil(s) present at the site;

(4) provide a construction phasing plan describing the intended sequence of construction activities, including clearing and grubbing, excavation and grading, utility and infrastructure installation and any other activity at the site that results in soil disturbance. Consistent with the New York Guidelines for Urban Erosion and Sediment Control, there shall not be more than five (5) acres of disturbed soil at any one time without prior written approval from the Department;

(5) provide a description of the pollution prevention measures that will be used to control litter, construction chemicals and construction debris from becoming a pollutant source in the storm water discharges;

(6) provide a description of construction and waste materials expected to be stored on-site with updates as appropriate, and a description of controls to reduce pollutants from these materials including storage practices to minimize exposure of the materials to storm water, and spill prevention and response;

(7) describe the temporary and permanent structural and vegetative measures to be used for soil stabilization, runoff control and sediment control for each stage of the project from initial land

clearing and grubbing to project close-out;

(8) identify and show on a site map/construction drawing(s) the specific location(s), size(s), and length(s) of each erosion and sediment control practice;

(9) provide the dimensions, material specifications and installation details for all erosion and sediment control practices, including the siting and sizing of any temporary sediment basins;

(10) identify temporary practices that will be converted to permanent control measures;

(11) provide an implementation schedule for staging temporary erosion and sediment control practices, including the timing of initial placement and the duration that each practice should remain in place;

(12) provide a maintenance schedule to ensure continuous and effective operation of the erosion and sediment control practices;

(13) provide the names(s) of the receiving water(s);

(14) provide a delineation of SWPPP implementation responsibilities for each part of the site;

(15) provide a description of structural practices to divert flows from exposed soils, store flows, or otherwise limit runoff and the discharge of pollutants from exposed areas of the site to the degree attainable; and

(16) provide any existing data that describes the stormwater runoff characteristics at the site.

b. For construction activities meeting Condition A, B or C in Part III.A.1.b.

(1) provide all the information required in Parts III.D.2.a.1 - 16 above;

(2) provide a description of each post-construction stormwater control practice;

(3) identify and show on a site map/construction drawing(s) the specific location(s) and size(s) of each post-construction stormwater control practice;

(4) provide a hydrologic and hydraulic analysis for all structural components of the stormwater control system for the applicable design storms;

(5) provide a comparison of post-development stormwater runoff conditions with pre-development conditions;

(6) provide the dimensions, material specifications and installation details for each post-construction stormwater control practice;

(7) provide a maintenance schedule to ensure continuous and effective operation of each post-construction stormwater control practice.

The following three subsections, Part III.D. 3. through Part III.D. 5., apply only to construction activities covered under this general permit which meet Conditions "A" , "B"[14] or "C" in Part III. A.1.b. Beginning with Part III.E. below (see page 17) the requirements set forth therein apply to all permittees covered under this permit.

3. <u>Site Assessment and Inspections</u> -

a. The operator shall have a qualified professional[15] conduct an assessment of the site prior to the commencement of construction and certify in an inspection report that the appropriate erosion and sediment controls described in the SWPPP and required by Part III.D. (see page 10) of this permit have been adequately installed or implemented to ensure overall preparedness of the site for the commencement of construction. Following the commencement of construction, site inspections shall be conducted by the qualified professional at least every 7 calendar days and within 24 hours of the end of a storm event of 0.5 inches or greater. During each inspection, the qualified professional shall record the following information:

(1) On a site map, indicate the extent of all disturbed site areas and drainage pathways. Indicate site areas that are expected to undergo initial disturbance or significant site work within the next 14-day period;

(2) Indicate on a site map all areas of the site that have undergone temporary or permanent stabilization;

(3) Indicate all disturbed site areas that have not undergone active site work during the previous 14-day period;

(4) Inspect all sediment control practices and record the approximate degree of sediment accumulation as a percentage of the sediment storage volume (for example, 10 percent, 20 percent, 50 percent);

(5) Inspect all erosion and sediment control practices and record all maintenance requirements such as verifying the integrity of barrier or diversion systems (earthen berms or silt fencing) and

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14 Condition "B" includes construction activities covered under GP-93-06 and, therefore, are subject to Part III.D.3 through Part III.D. 5.

15 "Qualified professional" means a person knowledgeable in the principles and practice of erosion and sediment controls, such as a licensed professional engineer, Certified Professional in Erosion and Sediment Control (CPESC), or soil scientist.

containment systems (sediment basins and sediment traps). Identify any evidence of rill or gully erosion occurring on slopes and any loss of stabilizing vegetation or seeding/mulching. Document any excessive deposition of sediment or ponding water along barrier or diversion systems. Record the depth of sediment within containment structures, any erosion near outlet and overflow structures, and verify the ability of rock filters around perforated riser pipes to pass water;
and

(6) All deficiencies that are identified with the implementation of the SWPPP.

b. The operator shall maintain a record of all inspection reports in a site log book. The site log book shall be maintained on site and be made available to the permitting authority upon request. Prior to the commencement of construction,[16] the operator shall certify in the site log book that the SWPPP, prepared in accordance with Part III.D. (see page 10) of this permit, meets all Federal, State and local erosion and sediment control requirements.

The operator shall post at the site, in a publicly-accessible location, a summary of the site inspection activities on a monthly basis.

c. Prior to filing of the Notice of Termination or the end of permit term, the operator shall have the qualified professional perform a final site inspection. The qualified professional shall certify that the site has undergone final stabilization[17] using either vegetative or structural stabilization methods and that all temporary erosion and sediment controls (such as silt fencing) not needed for long-term erosion control have been removed.

d. The operator shall certify that the requirements of Parts III.D.3., III.D.4. and III.D.5 of this permit have been satisfied within 48 hours of actually meeting such requirements.

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16 "Commencement of construction" means the initial removal of vegetation and disturbance of soils associated with clearing, grading or excavating activities or other constuction activities.

17 "Final stabilization" means that all soil-disturbing activities at the site have been completed and a uniform, perennial vegetative cover with a density of eighty (80) percent has been established or equivalent stabilizaton measures (such as the use of mulches or geotextiles) have been employed on all unpaved areas and areas not covered by permanent structures.

4. **Stabilization**[18] - The operator shall initiate stabilization measures as soon as practicable in portions of the site where construction activities have temporarily or permanently ceased, but in no case more than 14 days after the construction activity in that portion of the site has temporarily or permanently ceased. This requirement does not apply in the following instances:

a. Where the initiation of stabilization measures by the 14th day after construction activity temporarily or permanently ceased is precluded by snow cover or frozen ground conditions, stabilization measures shall be initiated as soon as practicable;

b. Where construction activity on a portion of the site is temporarily ceased, and earth-disturbing activities will be resumed within twenty-one (21) days, temporary stabilization measures need not be initiated on that portion of the site.

5. **Maintenance** - Sediment shall be removed from sediment traps or sediment ponds whenever their capacity has been reduced by fifty (50) percent from the design capacity.

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18 "Stabilization" means covering or maintaining an existing cover over soil. Cover can be vegetative (e.g. grass, trees, seed and mulch, shrubs, or turf) or non-vegetative (e.g. geotextiles, riprap, or gabions).

E. **Contractors**

1. The SWPPP must clearly identify for each measure identified in the SWPPP, the contractor(s) and subcontractor(s) that will implement the measure. All contractors and subcontractors identified in the SWPPP must sign a copy of the certification statement in Part III.E.2 (see below) of this permit in accordance with Part V.H.(see page 19) of this permit. All certifications must be included in the SWPPP. Additionally, new contractors and subcontractors (see subsection C.3. above) need to similarly certify.

2. **Certification Statement** - All contractors and subcontractors identified in a SWPPP in accordance with Part III.E.1 (see above) of this permit shall sign a copy of the following certification statement before undertaking any construction activity at the site identified in the SWPPP:

> "I certify under penalty of law that I understand and agree to comply with the terms and conditions of the SWPPP for the construction site identified in such SWPPP as a condition of authorization to discharge stormwater. I also understand that the operator must comply with the terms and conditions of the New York State Pollutant Discharge Elimination System ("SPDES") general permit for stormwater discharges from construction activities and that it is unlawful for any person to cause or contribute to a violation of water quality standards."

The certification must include the name and title of the person providing the signature in accordance with Part V.H.(see page 19) of this permit; the name, address and telephone number of the contracting firm; the address (or other identifying description) of the site; and the date the certification is made.

Part IV. MONITORING, REPORTING AND RETENTION OF RECORDS

A. The Department may, at its sole discretion, require monitoring of discharge(s) from the permitted construction activity after notifying the permittee in writing of the basis for such monitoring, the parameters and frequency at which monitoring shall occur and the associated reporting requirements, if any.

B. The operator shall retain copies of SWPPPs and any reports submitted in conjunction with this permit, and records of all data used to complete the NOI to be covered by this permit, for a period of at least three years from the date that the site is finally stabilized. This period may be extended by the Department, in its sole discretion, at any time upon written notification.

C. The operator shall retain a copy of the SWPPP required by this permit at the construction site from the date of initiation of construction activities to the date of final stabilization.

D. The operator shall also prepare a written summary of its status with respect to compliance with this general permit at a minimum frequency of every three months during which coverage under this permit exists. The summary should address the status of achieving each component of the SWPPP . This summary shall be handled in the same manner as prescribed for SWPPPs under Part III, subsection B (see Page 9)

E. **Addresses** - Except for the submittal of NOIs and NOTs, all written correspondence under this permit directed to the Department, including the submittal of individual permit applications, shall be sent to the address of the appropriate Department Office as listed in Appendix A (see page 23).

Part V. STANDARD PERMIT CONDITIONS

A. **Duty to Comply** - The operator must comply with all conditions of this permit. All contractors and subcontractors associated with the project must comply with the terms of the SWPPP. Any permit noncompliance constitutes a violation of the Clean Water Act (CWA) and the ECL and is grounds for an enforcement action against either the operator or the contractor/subcontractor; permit revocation or modification; or denial of a permit renewal application. Upon a finding of significant non-compliance with this permit or the applicable SWPPP, the Department may order an immediate stop to all construction activity at the site until the non-compliance is remedied. The stop work order shall be in writing, shall describe the non-compliance in detail, and shall be sent to the operator or the operator's on-site representative.

B. **Continuation of the Expired General Permit** - This permit expires five (5) years after issuance on January 8, 2008. However, coverage may be obtained under the expired general permit which will continue in force and effect until a new general permit is issued. After issuance of a new general permit, those with coverage under GP-02-01 will have six (6) months from the effective date of the new general permit to complete their project or obtain coverage under the new permit. Unless otherwise notified by the Department in writing, operators seeking authorization under a new general permit must submit a new NOI in accordance with the terms of such new general permit. See also Part I, subsection D.8. on page 6.

C. **Penalties for Violations of Permit Conditions** - There are substantial criminal, civil, and administrative penalties associated with violating the provisions of this permit. Fines of up to $25,000 per day for each violation and imprisonment for up to fifteen (15) years may be assessed depending upon the nature and degree of the offense.

D. **Need to halt or reduce activity not a defense** - It shall not be a defense for a permittee in an enforcement action that it would have been necessary to halt or reduce the construction activity in order to maintain compliance with the conditions of this permit.

E. **Duty to Mitigate** - The permittee and its contractors and subcontractors shall take all reasonable steps to minimize or prevent any discharge in violation of this permit which has a reasonable likelihood of adversely affecting human health or the environment.

F. **Duty to Provide Information** - The permittee shall furnish any information requested by any agency with regulatory or review authority over this project for the purpose of determining compliance with this permit or compliance with any other regulatory requirements placed on the project in conjunction with this permit. Failure to provide requested information shall be a violation of this permit. Such regulating agencies include but are not limited to the Department, SWCDs,[19] local planning, zoning, health, and building departments that review and approve erosion and sediment control plans, grading plans, and Stormwater Management Plans, as well as MS4s into whose system runoff from the permitted project or activity discharges. The SWPPP and inspection reports required by this general permit are public documents that the operator must make available for inspection, review and copying by any person within five (5) business days of the operator receiving a written request by any such person to review the SWPPP and/or the inspection reports. Copying of documents will be done at the requester's expense.

G. **Other Information** - When the permittee becomes aware that he or she failed to submit any relevant facts or submitted incorrect information in the NOI or in any other report to the Department, he or she shall promptly submit such facts or information.

H. **Signatory Requirements** - All NOIs, NOTs, SWPPPs, reports, certifications or information required by this permit or submitted pursuant to this permit, shall be signed as follows:

1. All NOIs and NOTs shall be signed as follows:

   a. For a corporation: by (1) a president, secretary, treasurer, or vice-president of the corporation in charge of a principal business function, or any other person authorized to and who performs similar policy or decision-making functions for the corporation; or (2) the manager of one or more manufacturing, production or operating facilities employing more than 250 persons or having gross annual sales or expenditures exceeding $25,000,000 (in second-quarter 1980 dollars) if authority to sign documents has been assigned or delegated to the manager in accordance with corporate procedures;

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19 "SWCD" means Soil and Water Conservation District

b. For a partnership or sole proprietorship: by a general partner or the proprietor, respectively; or

c. For a municipality, State, Federal, or other public agency: by either a principal executive officer or ranking elected official. For purposes of this section, a principal executive officer of a Federal agency includes (1) the chief executive officer of the agency, or (2) a senior executive officer having responsibility for the overall operations of a principal geographic unit of the agency (e.g., Regional Administrators of EPA).

2. The SWPPP and all reports required by the permit and other information requested by the Department or local agency shall be signed by a person described above or by a duly authorized representative of that person. A person is a duly authorized representative only if:

a. The authorization is made in writing by a person described above and submitted to the Department.

b. The authorization specifies either an individual or a position having responsibility for the overall operation of the regulated facility or activity, such as the position of manager, operator, superintendent, or position of equivalent responsibility or an individual or position having overall responsibility for environmental matters for the company. (A duly authorized representative may thus be either a named individual or any individual occupying a named position).

c. **Certification** - Except for NOIs and NOTs, any person signing documents in accordance with this Part shall make the following certification:

"I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that false statements made herein are punishable as a class A misdemeanor pursuant to Section 210.45 of the Penal Law."

I. **Property Rights** - The issuance of this permit does not convey any property rights of any sort, nor any exclusive privileges, nor does it authorize any injury to private property nor any invasion of personal rights, nor any infringement of Federal, State or local laws or regulations.

J. **Severability** - The provisions of this permit are severable, and if any provision of this permit, or the application of any provision of this permit to any circumstance, is held invalid, the application of such provision to other circumstances, and the remainder of this permit shall not be affected thereby.

K. **Denial of Coverage Under This Permit**

1. At its sole discretion, the Department may require any person authorized by this permit to apply for and/or obtain either an individual SPDES permit or an alternative SPDES general permit. Where the Department requires a discharger authorized to discharge under this permit to apply for an individual SPDES permit, the Department shall notify the discharger in writing that a permit application is required. This notification shall include a brief statement of the reasons for this decision, an application form, a statement setting a deadline for the discharger to file the application, and a statement that on the effective date of issuance or denial of the individual SPDES permit or the alternative general permit as it applies to the individual permittee, coverage under this general permit shall automatically terminate. Applications shall be submitted to the appropriate Department Office indicated in Appendix A of this permit. The Department may grant additional time to submit the application upon request of the applicant. If a discharger fails to submit in a timely manner an individual SPDES permit application as required by the Department under this paragraph, then the applicability of this permit to the individual SPDES permittee is automatically terminated at the end of the day specified by the Department for application submittal.

2. Any discharger authorized by this permit may request to be excluded from the coverage under this permit by applying for an individual permit. In such cases, the permittee shall submit an individual application in accordance with the requirements of 40 CFR 122.26(c)(1)(ii) and 6 NYCRR Part 621, with reasons supporting the request, to the Department at the address for the appropriate Department Office (see addresses in Appendix A on page 23 of this permit). The request may be granted by issuance of an individual permit or an alternative general permit at the discretion of the Department.

3. When an individual SPDES permit is issued to a discharger covered by this permit, or the discharger is authorized to discharge under an alternative SPDES general permit, the applicability of this permit to the individual SPDES permittee is automatically terminated on the effective date of the individual permit or the date of authorization of coverage under the alternative general permit, whichever the case may be. When an individual SPDES permit is denied to an operator otherwise subject to this permit, or the operator is denied for coverage under an alternative SPDES general permit, the applicability of this permit to the individual SPDES permittee is automatically terminated on the date of such denial, unless otherwise specified by the Department.

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L. **Proper Operation and Maintenance** - The permittee shall at all times properly operate and maintain all facilities and systems of treatment and control (and related appurtenances) which are installed or used by the permittee to achieve compliance with the conditions of this permit and with the requirements of SWPPPs. Proper operation and maintenance also includes adequate laboratory controls and appropriate quality assurance procedures. Proper operation and maintenance requires the operation of backup or auxiliary facilities or similar systems, installed by a permittee only when necessary to achieve compliance with the conditions of the permit.

M. **Inspection and Entry** - The permittee shall allow the Department or an authorized representative of EPA, the State, or, in the case of a construction site which discharges through an MS4, an authorized representative of the MS4 receiving the discharge, upon the presentation of credentials and other documents as may be required by law, to:

1. Enter upon the permittee's premises where a regulated facility or activity is located or conducted or where records must be kept under the conditions of this permit;

2. Have access to and copy at reasonable times, any records that must be kept under the conditions of this permit; and

3. Inspect at reasonable times any facilities or equipment (including monitoring and control equipment).

N. **Permit Actions** - At the Department's sole discretion, this permit may, at any time, be modified, revoked, or renewed. The filing of a request by the permittee for a permit modification, revocation and reissuance, termination, a notification of planned changes or anticipated noncompliance does not stay compliance with any terms of this permit.

APPENDIX A

List of NYS DEC Regional Offices

Region	Covering the following counties:	DIVISION OF ENVIRONMENTAL PERMITS (DEP) Permit Administrators	DIVISION OF WATER (DOW) Water (SPDES) Program
1	Nassau and Suffolk	Bldg 40 - SUNY @ Stony Brook Stony Brook, NY 11790-2356 Tel. (631) 444-0365	Bldg 40 - SUNY @ Stony Brook Stony Brook, NY 11790-2356 Tel. (631) 444-0405
2	Bronx, Kings, New York, Queens and Richmond	1 Hunters Point Plaza, 47-40 21st St. Long Island City, NY 11101-5407 Tel. (718) 482-4997	1 Hunters Point Plaza, 47-40 21st St. Long Island City, NY 11101-5407 Tel. (718) 482-4933
3	Dutchess, Orange, Putnam, Rockland, Sullivan, Ulster and Westchester	21 South Putt Corners Road New Paltz, NY 12561-1696 Tel. (845) 256-3059	200 White Plains Road, 5th Floor Tarrytown, NY 10591-5805 Tel. (845) 332-1835
4	Albany, Columbia, Delaware, Greene, Montgomery, Otsego, Rensselaer, Schenectady and Schoharie	1150 North Westcott Road Schenectady, NY 12306-2014 Tel. (518) 357-2069	1150 North Westcott Road Schenectady, NY 12306-2014 Tel. (518) 357-2045
5	Clinton, Essex, Franklin, Fulton, Hamilton, Saratoga, Warren and Washington	Route 86, PO Box 296 Ray Brook, NY 12977-0296 Tel. (518) 897-1234	232 Hudson Street Warrensburg, NY 12885-0220 Tel. (518) 623-1200
6	Herkimer, Jefferson, Lewis, Oneida and St. Lawrence	State Office Building 317 Washington Street Watertown, NY 13601-3787 Tel. (315) 785-2245	State Office Building 207 Genesee Street Utica, NY 13501-2885 Tel. (315) 793-2554
7	Broome, Cayuga, Chenango, Cortland, Madison, Onondaga, Oswego, Tioga and Tompkins	615 Erie Blvd. West Syracuse, NY 13204-2400 Tel. (315) 426-7438	615 Erie Blvd. West Syracuse, NY 13204-2400 Tel. (315) 426-7500
8	Chemung, Genesee, Livingston, Monroe, Ontario, Orleans, Schuyler, Seneca, Steuben, Wayne and Yates	6274 East Avon-Lima Road Avon, NY 14414-9519 Tel. (585) 226-2466	6274 East Avon-Lima Rd. Avon, NY 14414-9519 Tel. (585) 226-2466
9	Allegany, Cattaraugus, Chautauqua, Erie, Niagara and Wyoming	270 Michigan Avenue Buffalo, NY 14203-2999 Tel. (716) 851-7165	270 Michigan Ave. Buffalo, NY 14203-2999 Tel. (716) 851-7070

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APPENDIX B

Information Required of Construction Activities Which Are Identified Under Part I, subsection D.7. (see page 5)

A. The location (including a map) and the nature of the construction activity;

B. The total area of the site and the area of the site that is expected to undergo excavation during the life of the permit;

C. Proposed measures, including best management practices, to control pollutants in storm water discharges during construction, including a brief description of applicable State and local erosion and sediment control requirements;

D. Proposed measures to control pollutants in storm water discharges that will occur after construction operations have been completed, including a brief description of applicable State or local erosion and sediment control requirements;

E. An estimate of the runoff coefficient of the site and the increase in impervious area after the construction addressed in the permit application is completed, the nature of the fill material and existing data describing the soil or the quality of the discharge; and

F. The name of the receiving water(s).

Blank Federal, State or Local Notice of Intent (NOI) and Notice of Termination (NOT) or Other Applicable Forms

[INSERT BLANK NOI AND NOT FOR FEDERAL OR STATE NPDES GENERAL PERMIT
AND
BLANK NOI AND NOT FOR NON-STORM WATER DISCHARGE PERMITS
(If Required) HERE]

4286041005

NOTICE OF INTENT

New York State Department of Environmental Conservation
Division of Water
625 Broadway, 4th Floor
Albany, New York 12233-3505

NYR ☐☐☐☐☐☐ (for DEC use only)

Stormwater Discharges Associated with Construction Activity Under State Pollutant Discharge Elimination System (SPDES) General Permit # GP-02-01

All sections must be completed unless otherwise noted. Failure to complete all items may result in this form being returned to you, thereby delaying your coverage under this General Permit. Applicants must read and understand the conditions of the permit and prepare a Stormwater Pollution Prevention Plan prior to submitting this NOI. Applicants are responsible for identifying and obtaining other DEC permits that may be required. To properly complete this form, please refer to the Instruction Manual which can be accessed at http://www.dec.ny.gov/docs/water_pdf/instr_man.pdf

-IMPORTANT-
THIS FORM FOR HANDPRINT ONLY
RETURN THIS FORM TO THE ADDRESS ABOVE

PRINT CAPITAL LETTERS IN BLACK INK AND AVOID CONTACT WITH THE EDGE OF BOXES
FILL IN CIRCLES COMPLETELY AND DO NOT USE CHECKMARKS
OWNER/OPERATOR MUST SIGN FORM

Owner/Operator Information

Owner/Operator (Company Name/Private Owner Name/Municipality Name)

Owner/Operator Contact Person Last Name (NOT CONSULTANT)

Owner/Operator Contact Person First Name

Owner/Operator Mailing Address

City

State

Zip -

Phone (Owner/Operator) - -

Fax (Owner/Operator) - -

Email (Owner/Operator)

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Location Information

Project Site Information

Project/Site Name

Street Address (NOT P.O. BOX)

City/Town/Village (THAT ISSUES BUILDING PERMIT)

State: N Y

Zip: -

County

DEC Region (if known)

Name of Nearest Cross Street

Distance to Nearest Cross Street (Feet)

Direction to Nearest Cross Street

○ North ○ South ○ East ○ West

1. Provide the Geographic Coordinates for the project site in NYTM Units. To do this you **must** go to the NYSDEC Stormwater Interactive Map on the DEC website at:

www.dec.state.ny.us/website/imsmaps/stormwater/viewer.htm

Zoom into your Project Location such that you can accurately click on the centroid of your site. Once you have located your project site go to the dropdown menu on the left and choose "Get Coordinates". Click on the center of your site and a small window containing the X, Y coordinates in UTM will pop up. Transcribe these coordinates into the boxes below. For problems with the interactive map use the help function.

X Coordinates (Easting)	Y Coordinates (Northing)
	4

2. What is the nature of this construction project?

○ **New Construction**

○ **Redevelopment with increase in imperviousness**

○ **Redevelopment with no increase in imperviousness**

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Project Site Information

3. Select the predominant land use for both pre and post development conditions.
SELECT ONLY ONE CHOICE FOR EACH

Pre-Development Existing Land Use

- ○ FOREST
- ○ PASTURE/OPEN LAND
- ○ CULTIVATED LAND
- ○ SINGLE FAMILY HOME
- ○ SINGLE FAMILY SUBDIVISION
- ○ TOWN HOME RESIDENTIAL
- ○ MULTIFAMILY RESIDENTIAL
- ○ INSTITUTIONAL/SCHOOL
- ○ INDUSTRIAL
- ○ COMMERCIAL
- ○ ROAD/HIGHWAY
- ○ RECREATIONAL/SPORTS FIELD
- ○ BIKE PATH/TRAIL
- ○ SUBSURFACE UTILITY
- ○ PARKING LOT
- ○ OTHER

OTHER

Post-Development Future Land Use

- ○ SINGLE FAMILY HOME
- ○ SINGLE FAMILY SUBDIVISION
- ○ TOWN HOME RESIDENTIAL
- ○ MULTIFAMILY RESIDENTIAL
- ○ INSTITUTIONAL/SCHOOL
- ○ INDUSTRIAL
- ○ COMMERCIAL
- ○ ROAD/HIGHWAY
- ○ RECREATIONAL/SPORTS FIELD
- ○ BIKE PATH/TRAIL
- ○ LINEAR UTILITY (water, sewer, gas, etc.)
- ○ PARKING LOT
- ○ OTHER

Number of Lots

OTHER

4. Will future use of this site be an agricultural property as defined by the NYS Agriculture and Markets Law ? ○ **Yes** ○ **No**

5. Is this a project which does not require coverage under the General Permit (e.g. Project done under an Individual SPDES Permit, or department approved remediation)? ○ **Yes** ○ **No**

6. Is this property owned by a state authority, state agency or local government? ○ **Yes** ○ **No**

7. In accordance with the larger common plan of development or sale; enter the total project site acreage, the acreage to be disturbed and the future impervious area (acreage)within the disturbed area. Round to the nearest tenth of an acre.

Total Site Acreage	**Acreage To Be Disturbed**	**Existing Impervious Area Within Disturbed**	**Future Impervious Area Within Disturbed**
.	.	.	.

8. Will there be more than 5 acres disturbed at any given time? ○ **Yes** ○ **No**

9. Indicate the percentage of each Hydrologic Soil Group(HSG) at the site.

A	**B**	**C**	**D**
%	%	%	%

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10. Is this a phased project? (**if yes, The SWPPP must address all planned phases**)

○ Yes ○ No

11. Enter the planned start and end dates of the disturbance activities

Start Date __/__/____ - **End Date** __/__/____

Receiving System(s)

12. Provide the name of the nearest, natural, classified surface waterbody(ies) into which construction site runoff has the potential to discharge.

For Questions 13 and 14 refer to the Instruction Manual for a subset of 303(d) segments and TMDL watersheds subject to Condition A of the permit. These waterbodies and watersheds have been identified for regulation within the stormwater program due to some level of impairment by nutrients, silt or sediment. The Instruction Manual can be accessed at www.dec.state.ny.us/website/dow/toolbox/instr_man.pdf

13. Has the surface waterbody(ies) in question 12 been identified as a 303(d) segment?

○ Yes ○ No

14. Is this project located in a TMDL Watershed?

○ Yes ○ No

***NOTE: If you answered Yes to either question 13 or 14, Pursuant to Part I.D.3.(b) of the permit, you must have your SWPPP prepared and certified by a licensed/certified professional and the SWPPP is subject to a 60-business day review.**

15. Does the site runoff enter a separate storm sewer system- including roadside drains, swales, ditches, culverts, etc? **(if no, skip question 16)**

○ Yes ○ No ○ Unknown

16. What is the name of the municipality/entity that owns the separate storm sewer system?

17. Does any runoff from the site enter a sewer classified as a Combined Sewer?

○ Yes ○ No ○ Unknown

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Stormwater Pollution Prevention Plan (SWPPP)

18. Has the required Erosion and Sediment Control component of the SWPPP been developed in conformance with the current NYS Standards and Specifications for Erosion and Sediment Control (aka Blue Book) ?

○ Yes ○ No*

19. Does this construction activity require the development of a SWPPP that includes Water Quality and Quantity Control components (Post-Construction Stormwater Management Practices) **If no, Skip question 20**

○ Yes ○ No

20. Have the Water Quality and Quantity Control components of the SWPPP been developed in comformance with the current NYS Stormwater Management Design Manual ?

○ Yes ○ No*

NOTE: If you answered no to question 18 or 20, Pursuant to Part I.D.3.(b) of the permit, you must have your SWPPP prepared and certified by a licensed/certified professional and the SWPPP is subject to a 60-business day review. Please provide further details in the details/comment section on the last page of this form.

21. The Stormwater Pollution Prevention Plan (SWPPP) was prepared by:

○ **Professional Engineer (P.E.)**

○ **Soil and Water Conservation District (SWCD)**

○ **Registered Landscape Architect (R.L.A)**

○ **Certified Professional in Erosion and Sediment Control (CPESC)**

○ **Owner/Operator**

○ **Other**

SWPPP Preparer Information
(if different from Owner/Operator info)

SWPPP Preparer

Contact Name (Last, Space, First)

Mailing Address

City

State

Zip -

Phone - -

Fax - -

Email

*

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7402041008

Stormwater Pollution Prevention Plan (SWPPP)

Erosion and Sediment Control Practices

22. Has a construction sequence schedule for the planned management practices been prepared?

○ Yes ○ No

23. Select all of the erosion and sediment control practices that will be employed on the project site.

Temporary Structural

- ○ Check Dams
- ○ Construction Road Stabilization
- ○ Dust Control
- ○ Earth Dike
- ○ Level Spreader
- ○ Perimeter Dike/Swale
- ○ Pipe Slope Drain
- ○ Portable Sediment Tank
- ○ Rock Dam
- ○ Sediment Basin
- ○ Sediment Traps
- ○ Silt Fence
- ○ Stabilized Construction Entrance
- ○ Storm Drain Inlet Protection
- ○ Straw/Hay Bale Dike
- ○ Temporary Access Waterway Crossing
- ○ Temporary Stormdrain Diversion
- ○ Temporary Swale
- ○ Turbidity Curtain
- ○ Water bars

Biotechnical

- ○ Brush Matting
- ○ Wattling

Vegetative Measures

- ○ Brush Matting
- ○ Dune Stabilization
- ○ Grassed Waterway
- ○ Mulching
- ○ Protecting Vegetation
- ○ Recreation Area Improvement
- ○ Seeding
- ○ Sodding
- ○ Straw/Hay Bale Dike
- ○ Streambank Protection
- ○ Temporary Swale
- ○ Topsoiling
- ○ Vegetating Waterways

Permanent Structural

- ○ Debris Basin
- ○ Diversion
- ○ Grade Stabilization Structure
- ○ Land Grading
- ○ Lined Waterway (Rock)
- ○ Paved Channel (Concrete)
- ○ Paved Flume
- ○ Retaining Wall
- ○ Riprap Slope Protection
- ○ Rock Outlet Protection
- ○ Streambank Protection

Other

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Stormwater Pollution Prevention Plan (SWPPP)

Water Quality and Quantity Control

Important:Completion of Questions 24-30 is not required if the project:

Disturbs less than 5 acres and is planned for single-family residential homes(including subdivisions) or construction on agricultural property and does not have a discharge to a 303(d) water or is not located within a TMDL watershed.

Additionally, sites where there will be no future impervious area within the disturbed area and that do not have a change(pre to post development)in hydrology do not need to complete questions 24-30.

24. Indicate all the permanent Stormwater Management Practice(s) that will be installed on this site

Post Construction Stormwater Management Practices

Ponds

- ○ Micropool Extended Detention (P-1)
- ○ Wet Pond (P-2)
- ○ Wet Extended Detention (P-3)
- ○ Multiple Pond System (P-4)
- ○ Pocket Pond (P-5)

Filtering

- ○ Surface Sand Filter (F-1)
- ○ Underground Sand Filter (F-2)
- ○ Perimeter Sand Filter (F-3)
- ○ Organic Filter (F-4)
- ○ Bioretention (F-5)

Wetlands

- ○ Shallow Wetland (W-1)
- ○ Extended Detention Wetland (W-2)
- ○ Pond/Wetland System (W-3)
- ○ Pocket Wetland (W-4)

Infiltration

- ○ Infiltration Trench (I-1)
- ○ Infiltration Basin (I-2)
- ○ Dry Well (I-3)

Open Channels

- ○ Dry Swale (O-1)
- ○ Wet Swale (O-2)

○ Other

Describe other stormwater management practices not listed above or explain any deviations from the technicial standards. If the SWPPP does not conform to the technicial standards, the SWPPP must be prepared and certified by a licensed/certified professional and is subject to a 60-business day review.

Has a long term Operation and Maintenance plan for the post construction management practices been developed? ○ Yes ○ No

If Yes, Identify the entity responsible for the long term Operation and Maintenance

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Stormwater Pollution Prevention Plan (SWPPP)
Water Quality and Quantity Control

25. Provide the total water quality volume required and the total provided for the site.

Total Water Quality Volume (WQv)

WQv Required ___.___ acre-feet

WQv Provided ___.___ acre-feet

26. Provide the following Unified Stormwater Sizing Criteria for the site.

Total Channel Protection Storage Volume (CPv) - Extended detention of post-developed 1 year, 24 hour storm event

CPv Required ___.___ acre-feet

CPv Provided ___.___ acre-feet

The need to provide for channel protection has been waived because
○ Site discharges directly to fourth order stream or larger

Total Overbank Flood Control Criteria (Qp) - Peak discharge rate for the 10 year storm

Pre-Development ___.___ CFS

Post-development ___.___ CFS

Total Extreme Flood Control Criteria (Qf) - Peak discharge rate for the 100 year storm

Pre-Development ___.___ CFS

Post-development ___.___ CFS

The need to provide for flood control has been waived because
○ Site discharges directly to fourth order stream or larger
○ Downstream analysis reveals that flood control is not required

IMPORTANT: For questions 27 and 28 impervious area should be calculated considering the project site and all offsite areas that drain to the post-construction stormwater management practice(s) (Total Drainage Area = Project Site + Offsite areas)

27. Pre-Construction Impervious Area - As a percent of the Total Drainage Area enter the percentage of the existing impervious areas before construction begins. ___ %

28. Post-Construction Impervious Area - As a percent of the Total Drainage Area enter the percentage of the future impervious areas that will be created/remain on the site after completion of construction. ___ %

29. Indicate the total number of permanent stormwater management practices to be installed ___

30. Provide the total number of stormwater discharge points from the site (include discharges to either surface waters or to seperate storm sewer systems) ___

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2150041003

Other Permits

31. Select any other DEC permits that are required for this project or ○ None

DEC Permits

○ Air Pollution Control	○ Stream Protection/Article 15
○ Coastal Erosion	○ Water Quality Certificate
○ Hazardous Waste	○ Dam Safety
○ Long Island Wells	○ Water Supply
○ Mined Land Reclamation	○ Freshwater Wetlands
○ Other SPDES	○ Tidal Wetlands
○ Solid Waste	○ Wild, Scenic and Recreational Rivers

Other

32. If this NOI is being submitted for the purpose of continuing coverage under a general permit for stormwater runoff from construction activities, please indicate the former SPDES number assigned.

N Y R

Details/Comments

Certification

I have read or been advised of the permit conditions and believe that I understand them. I also understand that, under the terms of the permit, there may be reporting requirements. I also certify under penalty of law that this document and the corresponding documents were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person(s) who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations. I further understand that coverage under the general permit will be identified in the acknowledgment that I will receive as a result of submitting this NOI and can be as long as sixty (60) days as provided for in the general permit. I also understand that, by submitting this NOI, I am acknowledging that the SWPPP has been developed and will be implemented as the first element of construction. and agreeing to comply with all the terms and conditions of the general permit for which this NOI is being submitted.

Print First Name

MI

Print Last Name

Owner/Operator Signature

Date

/ /

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New York State Department of Environmental Conservation
Division of Water
625 Broadway, 4th Floor
Albany, New York 12233-3505

NOTICE OF TERMINATION for Storm Water Discharges Associated with Construction Activity UNDER SPDES GENERAL PERMIT: ☐ #GP-93-06 or ☐ #GP-02-01

Please indicate your permit identification number: NYR ___ ___ ___ ___ ___ ___

I. Permittee Information

1. Owner/Operator Name:

2a. Mailing Address:	2b. City/State/Zip:

3a. Contact Person:	3b. Phone:	3c. E-mail:

II. Site /Activity Information

4. Facility/Project Site Name:

5a. Street Address:	5b. City/State/Zip:

6. County:

III. Reason for Termination

7a. ☐ Site has been finally stabilized inaccordance with permit and SWPPP. Date site stabilization completed: ______________
month/year

7b. ☐ Permit coverage has been transferred to new owner/operator. Indicate new owner/operator's permit identification number: NYR _ _ _ _ _ _
(Note: Permit coverage can not be terminatedby permittee identified in I.1. above until new owner/operator obtains coverage under GP-02-01)

IV. Final Site Information:

8a. Are there permanent stormwater management practices remaining on the site? ☐ yes ☐ no
If the answer to question 8a. is no, go to question 8e.
If the answer to question 8a. is yes, answer the following questions 8b., 8c., and 8d.:

8b. Is the design and function of each permanent practice described in the final SWPPP? ☐ yes ☐ no

8c. Who will be responsible for long-term operation and mintenance of practice(s)?______________________________

8d. Has the individual(s) responsible forlong-term operation and maintenance been given a copy of the operation and maintenance requirements? ☐ yes ☐ no

8e. Provide the total acreage of impervious surface (i.e. roof, pavement, concrete, gravel, etc.) constructed within the disrbance area? ______________

V. Certification

I certify under penalty of law that this document was prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person(s) who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Printed Name:	Title/Position:
Signature:	Date:

Reset Button

08/16/04

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Signatory Authorization Designation Form (Form A-1)

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STORM WATER POLLUTION PREVENTION PLAN
SIGNATORY AUTHORIZATION DESIGNATION

FORM A-1

Construction Site **LOWE'S OF *HAMBURG, NEW YORK***
#4934,4940, 4946 & 4960* SOUTHWESTERN BOULEVARD *(NYS ROUTE 20)
TOWN OF HAMBURG, ERIE COUNTY, NEW YORK

STORMWATER POLLUTION PREVENTION PLAN DATED *June 2007*

LOWE'S OF *Hamburg, New York*

"In accordance with the terms and conditions of the ***New York State Pollution Discharge Elimination System (SPDES) Phase II General Permit (GP-02-01) for Storm Water Discharges From Construction Activities***, Part V.H, Lowe's Construction Manager or Engineering Manager is hereby duly authorized to sign on my behalf, all reports and certifications that are required under the Permit and as part of this Storm Water Pollution Prevention Plan.

"I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the persons or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including fines and imprisonment for knowing violations."

Signed: ____________________________________

Printed Name: ______________________________

Title: ______________________________________

Company Name: ___________________________

Address: __________________________________

Telephone Number: _________________________

Date: ______________________________________

Note: Multiple designation forms may be required
(i.e., one from the Operator and one from the General Contractor).

General Contractor's Certification (Form B-1)

STORM WATER POLLUTION PREVENTION PLAN
GENERAL CONTRACTOR'S CERTIFICATION
FORM B-1

Construction Site_**LOWE'S OF *HAMBURG, NEW YORK***
#4934,4940, 4946 & 4960* SOUTHWESTERN BOULEVARD *(NYS ROUTE 20)
TOWN OF HAMBURG, ERIE COUNTY, NEW YORK
STORM WATER POLLUTION PREVENTION PROGRAM
DATED June 2007

GENERAL CONTRACTOR'S CERTIFICATION:

"I certify under penalty of law that I understand the terms and conditions of the***New York State Pollution Discharge-Elimination System (SPDES) Phase II General Permit (GP-02-01) for Storm Water Discharges From Construction Activities*** that authorizes the storm water discharges associated with such activity from the construction site identified as part of this certification. Further, by my signature, I understand that I am fully responsible, along with all other contractors and subcontractors signing such certifications who are performing work activities under this contract, to comply with all provisions and requirementsof the ***SPDES Phase II General Permit for Storm Water Discharges from Construction Activities and this Storm Water Pollution Prevention Plan.*** I understand that I, and my company, are legally required under the Clean Water Act, to ensure compliance with the terms and conditions of ***SPDES storm water permit*** and ***Storm Water–Pollution Prevention Plan (SWPPP)*** developed under the SPDES stormwater permit.
I further certify that I and my company will provide all necessary training and continuing education to allapplicable personnel and subcontractors to ensure a complete understanding of all provisions and requirements of the SPDES General Permit for Storm Water Discharges from Construction Activities and this Storm Water Pollution Prevention Plan prior to each of these entities beginning any work activities on this site."I certify under penalty of law that I will coordinate, either through the Owner or directly with the Subcontractor(s) identified in the Pollution Prevention Plan having responsibility for implementing storm water measures to minimize any impact my actions may have on the effectiveness of these storm water control measures."

Name: ______________________________
(Print)

Signature: ______________________________

Title: ______________________________

Company Name: ______________________________

Address: ______________________________

Telephone Number: ______________________________

Date : ______________________________

Scope of Services: ______________________________

Date: ______________

Received by: ______________________________
[Name]

Where Contractor is also identified as an Operator it shall complete certification as Operator on Page 2 of this document. This form must be signed by a responsible corporate officer of the General Contractor or other party meeting the "Signatory Requirements" in Part III.E.2 of the New York State SPDES Phase II General Permit.

Subcontractor's Certification (Form B-2)

F-107

STORM WATER POLLUTION PREVENTION PLAN
SUBCONTRACTOR'S CERTIFICATION
FORM B-2

Construction Site **LOWE'S OF *HAMBURG, NEW YORK***
#4934,4940, 4946 & 4960* SOUTHWESTERN BOULEVARD *(NYS ROUTE 20)
TOWN OF HAMBURG, ERIE COUNTY, NEW YORK

STORMWATER POLLUTION PREVENTION PLAN DATED *June 2007*

LOWE'S OF *Hamburg, New York*

SUBCONTRACTOR'S CERTIFICATION:

"I certify under penalty of law that I understand the terms and conditions of the ***New York State Pollution DischargEliminationSystem (SPDES) Phase II General Permit (GP-02-01) for Storm Water Discharges From Construction Activities*** that authorizes the storm water discharges associated with such activity from the construction site identified as part of this certification. Further, by my signature, I understand that I am fully responsible, along with all other contractors and subcontractors signing such certifications who are performing work activities under this contract, to comply with all provisions and requirements of the ***SPDES Phase II General Permit for Storm Water Discharges from Construction Activities and this Storm Water Pollution Prevention Plan***. I understand that I, and my company, are legally required under the Clean Water Act, to ensure compliance with the terms and conditions of***SPDES storm water permit*** and ***Storm Water Pollution Prevention Plan (SWPPP)*** developed under the SPDES stormwater permit as it pertains to the **scope of my services."**

'I certify under penalty of law that I will coordinate, either through the General Contractor, Owner, or directly, with the Contractor(s) and/or Subcontractor(s) identified in the Pollution Prevention Plan having responsibility for implementing storm water measures to minimize any impact my actions may have on the effectiveness of these storm water control measures.'

Name: ______________________________
(Print)

Signature: ______________________________

Title: ______________________________

Company Name: ______________________________

Address: ______________________________

Telephone Number: ______________________________

Date: ______________________________

Scope of Services: ______________________________

Date: ______________________________

Received by: ______________________________
[Name]

This form must be signed by a responsible corporate officer of the Subcontractor or other party meeting the "Signatory Requirements" in Part III.E.2. of the New York State SPDES Phase II General Permit.

F-108

Inspection Report
(Form C-1)

STORM WATER POLLUTION PREVENTION PLAN
INSPECTION REPORT (Page 1 of 3)

FORM C-1

Lowe's Home Center
Construction Site **LOWE'S OF *HAMBURG, NEW YORK***
#4934,4940, 4946 & 4960* SOUTHWESTERN BOULEVARD *(NYS ROUTE 20)
TOWN OF HAMBURG, ERIE COUNTY, NEW YORK

STORMWATER POLLUTION PREVENTION PLAN DATED *June 2007*

LOWE'S OF *Hamburg, New York*

Inspections/reports must be completed every seven (7) days and within 24 hours of 0.5 inches of rain or greater

Inspection Type: ☐ **Routine (every 7 calendar days)** ☐ **During Storm** **Date:** ____________
☐ **Pre-Storm (where required)** ☐ **Post-Storm**

Weather information for period since last inspection:

Weather during inspection: ______________________

Storm Start Time: ________________________ ____

Storm Duration: __________________________

Description of any discharge during inspection: ________

Amount of Rainfall (from Form H-1 in inches): ______ ____

Based on the results of the inspection, necessary control modifications shall be initiated within 24 hours and completed within 48 hours. These reports shall be kept on file as part of the Storm Water Pollution Prevention Plan forat least five (5) years from the date of completion and submission of the Final Stabilization Certification/Termination Checklist and Notice of Termination. A copy of the SWPPP shall be kept at the site at all times during construction.

Certification Statement:
"I certify under penalty of perjury that I personally conducted this inspection and I personally prepared this inspection summary report noting the deficiencies in BMPs and the corrective actions taken. I certify that the information in this report is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including fines and imprisonment for knowing violations"

Name of Inspector: __________________________ Title of Inspector: ______________________

Qualifications of Inspector: ____
____

Inspector's Signature: ____

Construction phasing/sequencing is consistent with the SWPPP and Erosion Control Plans: ☐ Yes ☐ No

Compliance Certification
I certify that, based on no incidents of non-compliance identified during the inspection, the site is in compliance with the SWPPP and the Construction General Permit Part V.H.2.

Name of Lowe's Duly Authorized Representative (Printed):____

Signature of Lowe's Duly Authorized Representative:____

Signature of other Operator (Contractor or Owner): ___________________________ Date:____________________

***Note: This Compliance Certification is only to be signed by Lowe's Duly Authorized Representative (Project Manager) when there are no "unsatisfactory" conditions and the construction phasing/sequencing is consistent with the SWPPP, rendering the site in full compliance with the SWPPP and the Construction General Permit.**

F-110

Form C-1 Continued [*The inspection areas must be modified to be site specific.*] **Date:** ____________

Inspection Areas	Satisfactory			Location	Maintenance Needed Indicate if BMP is Inadequate For The Location	Implementation Date of Corrective Action
	Yes	No	N/A			
Points of Discharge (if inaccessible inspect nearby downstream locations)						
Construction Entrance/Exit						
Perimeter Control Measures						
Temporary Sediment Basins, Gravel and Rip-rap Basins and Sediment Traps						
Inlet Protection						
Outlet Stabilization						
Material Laydown and Staging Area						
Storm Drainage Culverts						
Curb and Gutter						
Stormwater Detention/Retention Facility						
Vehicle Service Area Berm						
Concrete Washout						
Slope Stabilization						
Stormwater channels						

Form C-1 Continued [*The inspection areas must be modified to be site specific.*] **Date:** ____________

Inspection Areas	Satisfactory			Location	Maintenance Needed Indicate if BMP is Inadequate For The Location	Implementation Date of Corrective Action
	Yes	No	N/A			
Temporary or Permanent Seeding, Sodding, Mulching or Landscaping						
Pipe Slope Drains						
Material Management and Storage						
Solid and Construction Waste						
Sanitary Wastes						
Non-Stormwater Discharges						
Location(s) Where Additional BMP is Needed That Was Not Shown On The Plan						

"I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the persons or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including fines and imprisonment for knowing violations."

Lowe's Project Manager: ____________

Other Operator (Owner or Contractor) ____________

STORM WATER POLLUTION PREVENTION PLAN

Stabilization Schedule for Major Grading Activities

FORM C-2

Lowe's of Hamburg, New York

			Note: If activities cease for more than 14 days these columns need to be completed.					
Major Site Construction Activity Areas	**Begin Date**	**Completion Date**	**Temporary Cease Date**	**Resume Date**	**Begin Date for Stabilization Temporary**	**Begin Date for Stabilization Permanent**	**Type of Stabilization (List measures used such as stone, seeding, mulch, landscaping, etc...)**	**Contractor Responsible for Work**
Temp. Gravel Const. Entrance								
Sediment Trap/Basin								
Mass Grading								
Entry Drive								
Parking Area								
Building Pad								
Stormwater Detention/Retention								
Pervious Areas								

Implementation Form (C-3)

STORM WATER POLLUTION PREVENTION PLAN
IMPLEMENTATION SCHEDULE

FORM C-3
Page 1 of 2
Lowe's Home Center
Construction Site **LOWE'S OF *HAMBURG, NEW YORK***
#4934,4940, 4946 & 4960* SOUTHWESTERN BOULEVARD *(NYS ROUTE 20)
TOWN OF HAMBURG, ERIE COUNTY, NEW YORK

STORMWATER POLLUTION PREVENTION PLAN DATED *June 2007*

LOWE'S OF *Hamburg, New York*

*To be completed prior to initiation of construction by the contractor.

The Contractor will be responsible for implementing all erosion control and storm water management control structures. The Contractor may designate these tasks to certain subcontractors as they see fit, but the ultimate responsibility for implementing these controls and ensuring their proper functioning remains with the Contractor.

Refer to Section 812.5 for Sequence of Major Construction Activities

Construction Activity	*Proposed Initiation Date	*Proposed Completion Date	Actual Initiation Date	Actual Completion Date	Contractor Responsible for Implementation
[Engineer to insert sequence of Construction Activities from Section 812.5 and from the Erosion and Sediment Control Plans]					
A pre-construction meeting shall be held by the Lowe's Project Manager and the Operator's Engineer prior to land disturbing activities.					
Construct temporary construction exits at locations shown on the SWPPP plan sheet.					
Install perimeter silt fences and temporary sediment basin in the locations shown on the SWPPP plan sheet.					
Begin clearing and grubbing operations. Clearing and grubbing shall be done only in areas where earthwork will be performed and only in areas where building is planned to commence with Commence site grading.in 14 days after clearing and grubbing.					
Commence site grading.					
Disturbed areas of the site where Construction Activity has ceased for more than 14 days shall be temporarily seeded and watered.					
Install inlet/outlet protection at the locations of all grate inlets, curb inlets, and at the ends of all exposed storm sewer pipes.					
Finalize pavement subgrade preparation.					
Construct all curb and gutter, gutter inlets, area inlets, and storm sewer manholes, as shown on the plans. Inlet protection may be removed temporarily for this construction.					

F-115

Place required riprap at locations shown on the plans.					
Remove inlet protection around inlets and manholes no more than 48 hours prior to placing stabilized base course.					
Install base material as required for pavement.					
Carry out final grading and seeding and planting					
Inspect and c Inspect and clean storm drainage system lean storm drainage system					
Remove silt fencing only after all paving is complete and exposed surfaces are stabilized.					
Remove temporary construction exits only prior to pavement construction in these areas (These areas are to be paved last).					

F-116

Modification Report
(Form D-1)

F-117

STORM WATER POLLUTION PREVENTION PLAN
MODIFICATION REPORT

FORM D-1

LOWE'S OF *HAMBURG, NEW YORK*

CHANGES REQUIRED FOR STORM WATER POLLUTION PREVENTION PLAN

The SWPPP must be amended whenever there is a change in design, construction, operation, or maintenance at the construction site that has a significant effect on the discharge of pollutants to the waters of the United States that has not been previously addressed in the SWPPP, if inspections or investigations by site staff, local, state or federal officials determine that discharges are causing water quality exceedances or the SWPPP is ineffective in eliminating or significantly minimizing pollutants in storm water discharges from the construction site, or based on the results of an inspection, or there is a release containing a Hazardous Substance or Oil in an amount equal to or in excess of a reportable quantity established under either 40 CFR Part 110, 40 CFR Part 117, or 40 CFR Part 302 occurs during a 24 hour period, the SWPPP must be modified to include additional or modified BMPs designed to correct identified problems. Revisions to the SWPPP must be completed within seven (7) calendar days following the inspection. Modifications that are the result of inspections shall be initialed within 24 hours and completed within 48 hours. All modifications are to be referenced on both Form D-1 and on Progress Drawing.

To:	**Project Manager**	**Date:**	
Address:	*[Project Manager's Address]*		
		Lowe's of:	*Hamburg, New York*
Telephone:	*[Project Manager's Phone #]*		
Facsimile:	*[Project Manager's Fax #]*		
Sent Via:	☐ **Facsimile**	☐ **Courier**	☐ **US Mail**

MODIFICATION DATE: ____________________ MODIFICATION NUMBER: __________

INSPECTOR: ____________________________ ____________________________
(Print Name) (Inspector Signature)

QUALIFICATIONS OF INSPECTOR: ____

CHANGES REQUIRED TO THE STORMWATER POLLUTION PREVENTION PLAN: ______________

____

____

REASONS FOR CHANGES: ____

____

____

TO BE PERFORMED BY: ______________ ON OR BEFORE: ______________

Lowe's Project Manager: ________________________

Other Operator: ________________________

F-118

Monthly Training Log (Form E-1)

STORM WATER POLLUTION PREVENTION PLAN
TRAINING LOG
(The Contractor shall provide training sessions at least every 30 days per Section 801(K))

FORM E-1

LOWE'S OF *HAMBURG, NEW YORK*

Storm Water Pollution Prevention Plan Topic: (Check as appropriate, and attach agenda)

☐ Temporary Soil Stabilization
☐ Temporary Sediment Control
☐ Wind Erosion Control
☐ Tracking Control
☐ Non-Storm Water Management
☐ Waste Management and Materials Pollution Control
☐ Erosion & Sediment Control Plan

Specific Training Objective: ______________________________

Date: ______________________________

Instructor: ______________________________
Location: ______________________________
Telephone: ______________________________

Attendance Roster

Name	Company	Telephone Number	Signature

Lowe's Project Manager ______________________________

Other Operator: ______________________________

Final Stabilization And Termination Checklist (Form F-1)

STORM WATER POLLUTION PREVENTION PLAN

FINAL STABILIZATION CERTIFICATION /NOTICE OF TERMINATION CHECKLIST

FORM F-1

LOWE'S OF *HAMBURG, NEW YORK*

1. ☐ **All soil disturbing activities are complete.**

2. ☐ **Temporary Erosion and Sediment Control Measures have been removed or will be removed at the appropriate time.**

3. ☐ **All areas of the Construction Site not otherwise covered by a permanent pavement or structure have been stabilized with a uniform perennial vegetative cover with a density of 85% or equivalent measures have been employed.**

CONTRACTOR'S CERTIFICATION: ***[modify the following statement to be consistent with that on the Notice of Termination for the permitting agency]***

> ***"I certify under penalty of law that all storm water discharges associated with Construction Activity from the identified project that are authorized by the NPDES Construction General Permit have been eliminated and that all disturbed areas and soils at the construction site have achieved Final Stabilization and all temporary erosion and sediment control measures have been removed or will be removed at the appropriate time."***

Company Name ______________________________

Name (Print) ______________________________

Signature ______________________________

Title ______________________________

Date ______________________________

Date: ____________________

Received by: ____________________
[Name]

If Operator other than Lowe's or in addition to Lowe's, the Operator must submit completed NOT to Lowe's for joint filing or notify Lowe's five (5) days prior to filing the NOT in order to coordinate the filing with Lowe's.

Reportable Quantity Release Form (Form G-1)

STORM WATER POLLUTION PREVENTION PLAN
REPORTABLE QUANTITY RELEASE FORM

FORM G-1

LOWE'S OF *HAMBURG, NEW YORK*

The discharges of Hazardous Substances or Oil in storm water discharges from construction sites must be prevented or minimized in accordance with the SWPPP. Where a release containing a Hazardous Substance or Oil in an amount equal to or in excess of a reportable quantity established under 40CFR Part 110, 40CFR Part 117 and 40CFR Part 302 occurs, the following steps must be taken:

1. All measures must be taken to contain and abate the spill and to prevent the discharge of Hazardous Substances or Oil to storm water or off-site.

2. **Contact Info Track at 1-888-429-6281 (1-888-HAZMAT 1) to determine whether the spill is reportable. Info Track has been contracted by Lowe's to provide this service to Lowe's facilities, including new construction. You must state that you are working on a Lowe's new construction site.**

3. Contact the Lowe's Project Manager or Operator's Engineer immediately upon knowledge of release.

4. If a release is equal to or in excess of a reportable quantity, the SWPPP must be modified within seven (7) calendar days of knowledge of the discharge to provide a description of the release, the circumstances leading to the release, and the date of the release. The plans must identify measures to prevent the recurrence of such releases and to respond to such releases.

Date of Spill	Material Spilled	Approximate Quantity of Spill (in gallons)	Agency(s) Notified	Date of Notification	SWPPP Revision Date

F-124

Project Rainfall Log
(Form H-1)

YEAR 20__

LOWE'S OF *HAMBURG, NEW YORK*
STORM WATER POLLUTION PREVENTION PLAN
PROJECT RAINFALL LOG

Month	Jan	Feb	Mar	Apr	May	June	July	Aug	Sep	Oct	Nov	Dec
Day												
1												
2												
3												
4												
5												
6												
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PM Initials												

F-126

Construction Site Notice (Form I-1)

F-127

CONSTRUCTION SITE NOTICE

Form I-1

The following information is posted in compliance with the Environmental Protection Agency (EPA) National Pollutant Discharge Elimination System (NPDES) Construction General Permit (CGP) and the State of NEW YORK SPDES Permit

Information must be typed

Contact Name and Phone Number:	
Brief Project Description:	**[Reference Section 804 of the SWPPP]:**
Location of Storm Water Pollution Prevention Plan (SWPPP):	

A Storm Water Pollution Prevention Plan (SWPPP) has been developed and implemented according to Permit requirements. A full copy of the SWPPP for this construction project can be found at the location identified above.

This permit does not provide the public with any right to trespass on a construction site for any reason, including inspection of a site; nor does this permit require that permittees allow members of the public access to a construction site.

***This notice must be posted conspicuously at the main entrance of the construction site and inside the job trailer and shall also include the NPDES Permit Number for the Project or a "completed" copy of the Notice of Intent (NOI) or other form of request required to obtain coverage under the applicable storm water permit if a number has not yet been assigned. The notice of Coverage (NOC) [or other State or local Jurisdiction approval notice] notifying the applicant that coverage under the applicable permit has been obtained must also be posted, once received. This notice must be updated whenever information related to the contact person has changed or the location of the SWPPP has changed.**

K-128

Pre-Construction Meeting Training Agenda (Form J-1)

STORM WATER POLLUTION PREVENTION PLAN
PRE-CONSTRUCTION MEETING TRAINING AGENDA

Form J-1

LOWE'S OF *HAMBURG, NEW YORK*

Topic	Discussed	Further action or Information Required (Yes or No)
Overview of NPDES Permit Program – Lowe's Expectations		
General Discussion of SWPPP and Records Retention Requirements		
Phasing of Project		
Review of Erosion and Sediment Control Plans (to include all temporary and permanent structural and stabilization measures)		
Locating waste containers, portable toilets, concrete washout areas, fueling areas and tank storage area on designated Erosion and Sediment Control Plans		
Posting Erosion and Sediment Control Plan(s) at job trailer		
Posting requirements for the Notice of Intent (NOI), Notice of Coverage (NOC) and Construction Site Notice (Form I-1)		
Allowable non-storm water discharges and handling procedures		
Materials management to include proper material storage, etc.		
Signatory Authorization Delegation Form A-1		
General Contractor's Certification Form B-1		
Subcontractor's Certification Form B-2		
Inspection form and required inspection timeframe (Form C-1)		
Stabilization schedule (Form C-2)		
Implementation schedule (Form C-3)		
Modification report and modifying plans (Form D-1)		
Contractor/Subcontractor training (Form E-1)		
Final stabilization (Form F-1)		
Reportable quantity release procedures (Form G-1)		
Rainfall logs (Form H-1)		
State specific requirements		
Import/Export – Fill and Spoil Materials		

Attendance Roster **Date:** ______________

Name	Company	Telephone Number	Signature

Name	**Company**	**Telephone Number**	**Signature**

Items which require further action or additional information: ______________________________
____
____

Additional items discussed (not addressed above): ______________________________
____
____

*This completed form is to be included in both the Project Manager's and Construction Site SWPPP Ledger.

Appendix A
Definitions

Appendix A

Best Management Practice (BMP). (1) A measure that is implemented to protect water quality and reduce the potential for pollution associated with storm water runoff. (2) Any program, technology, process, siting criteria, operating method, measure, or device that controls, prevents, removes, or reduces pollution.

Check Dam. A small dam generally placed in steep ditches for the purpose of reducing velocity in the ditch.

Clean Water Act (***CWA***). The Federal Water Pollution Prevention Control Act enacted in 1972 by Public Law 92-500 and amended by the Water Quality Act of 1987. The Clean Water Act prohibits the discharge of pollutants to Waters of the United States unless said discharge is in accordance with an NPDES permit. The 1987 amendments include guidelines for regulating municipal, industrial, and construction storm water discharges under the NPDES program.

Construction Activity. Includes clearing, grading, or excavation and contractor activities that result in soil disturbance.

Construction General Permit. A permit issued by EPA or a delegated state under the NPDES stormwater regulations to cover the discharge from the construction site of stormwater associated with construction activity. In order to be covered by a general permit, the operator must file a Notice of Intent (NOI). For general permits under EPA jurisdiction and many states, the project is validly covered by the general permit upon filing of the NOI provided EPA or the state agency does not request the operator to apply for an individual permit. In other states (e.g., North Carolina), the applicant must first receive a certificate of coverage which confirms coverage for the project under the General Permit. In some states (e.g., Georgia), General Permits are issued as regulations and are applicable to projects in accordance with the terms of the regulation.

Contractor. Shall be that person or entity identified as such in the construction contract with the Operator. The term "Contractor" shall also include the Contractor's authorized representative, as well as any and all subcontractors retained by the Contractor.

Contractor's Project Manager. The Contractor's employee or authorized representative identified by the Contractor as the project manager for the Project. In some instances, this individual may also serve as the Contractor's Superintendent.

Contractor's Superintendent. The Contractor's employee who has oversight and management of the construction process at the Project.

Detention. The process of temporarily collecting and holding back storm water for later release to receiving waters.

Detention Storage. Surface water moving over the land is in detention storage. Surface water allowed to temporarily accumulate in ponds, basins, reservoirs or other types of holding facility and that is ultimately returned to a watercourse or other drainage system as runoff is in detention storage.

Dike. (1) Usually an earthen bank alongside and parallel with a river or open channel to restrict overflow (See Levee). (2) An asphalt concrete berm along the edge of a shoulder.

Dissipate. Expend or scatter harmlessly, as of energy of moving water.

Disturbed Areas. Areas that have been purposefully cleared, grubbed, excavated, or graded by the contractor; ground surface that has been disrupted by Construction Activities, including construction access/roads, staging, and storage sites producing significant areas of exposed soil and soil piles.

Ditch. Small man-made channel, usually unlined.

Diversion. (1) The change in character, location, direction, or quantity of flow of a natural drainage course (a deflection of flood water is not a diversion). (2) Draft of water from one channel to another. (3) Interception of runoff by works that discharge it through man-made channels.

Drainage Area (Drainage Basin) (Basin). An area of the earth's surface upon which falling precipitation flows to a given point.

Energy Dissipator. A structure for the purpose of slowing the flow of water and reducing the erosive forces present in any rapidly flowing body of water.

Environmental Protection Agency (EPA). Agency that issued the regulations to control pollutants in storm water runoff discharges (The Clean Water Act and NPDES permit requirements).

Erosion Control. Vegetation, such as grasses and wildflowers, and other materials, such as straw, fiber, stabilizing emulsion, protective blankets, etc., placed to stabilize areas disturbed by grading, operations, reduce loss of soil due to the action of water or wind, and prevent water pollution.

Filter Fabric (RSP fabric). An engineering fabric (geotextile) placed between the backfill and supporting or underlying soil through which water will pass and soil particles will be retained.

General Permit. A general permit for storm water discharges associated with industrial or Construction Activity issued by EPA or a delegated state under the NPDES storm water regulations.

Hazardous Substances. For purposes of Section 311 of the Clean Water Act, the EPA identifies hazardous substances by specific listings in the federal implementing regulations (currently found at 40 C.F.R. part 116). There are approximately 300 chemicals currently identified as hazardous substances by the EPA.

Hazardous Waste. Wastes (which includes materials, products, and substances that have been discarded or disposed of) which are classified as hazardous wastes by the EPA or the appropriate state environmental agency, typically by being listed as a hazardous waste, or being shown to be hazardous by characteristic, pursuant to the Hazardous Waste Standards.

Hazardous Waste Standards. The federal Resource Conservation and Recovery Act, as amended (RCRA), which is codified as a part of the federal Solid Waste Disposal Act, 42 U.S.C. 6901 et seq., and rules promulgated by EPA pursuant to RCRA, and similar and comparable laws, rules and other standards regulating hazardous wastes and promulgated by state, regional, and local environmental authorities having jurisdiction over hazardous wastes.

Hydrology. The science dealing with the occurrence and movement of water upon and beneath the land areas of the earth. Overlaps and includes portions of the other sciences such as meteorology and geology. The particular branch of Hydrology that a design engineer is generally interested in is surface runoff that is the result of excessive precipitation.

Lowe's Project Manager. The Lowe's employee or authorized representative identified by Lowe's as the project manager for the Project.

Mulch. A natural or artificial layer of plant residue or other material that covers the land surface and conserves moisture, holds soil in place, aids in establishing vegetation, and reduces temperature fluctuations.

MS4 or **Municipal Separate Storm Sewer System.** Any conveyance or system of conveyances (including roads with drainage systems, municipal streets, catch basins, curbs, gutters, ditches, manmade channels, or storm drains) that (i) is owned and operated by a state or local government entity and (ii) is designed or used for collecting or conveying storm water, and (iii) is not used as a combined sewer (i.e., a system that combines municipal sewage with storm water runoff) and (iv) is not part of a publicly owned treatment works.

National Pollutant Discharge Elimination System (NPDES). EPA's program to control the discharge of pollutants to waters of United States. NPDES is a part of the federal CWA, which requires point and non-point source discharges to obtain permits. These permits are referred to as NPDES permits.

Notice of Intent (NOI). A formal notice to the EPA or a state agency having delegated NPDES authority that a construction project seeking coverage under a General Permit is about to begin. The NOI provides information on the owner, location, and type of project, and certifies that the permitee will comply with conditions of the construction General Permit. Unlike a permit application, the NOI is a notice provided to the regulatory agency within a specified time prior to initiation of construction activity and no approval is required. Some local permits may require submittal of a Notice of Registration or Authorization (NOR, NOA) or a plan approval application in lieu of filing a NOI with the state or EPA.

Notice of Termination (NOT). A formal notice to the EPA or delegated state agency for General Permit site terminating coverage under the permit.

Off-Site Drainage. Flow of water that originates outside the property.

On-Site Drainage. Flow of water that originates inside the property.

Oil. For purposes of Section 311 of the Clean Water Act, the EPA defines oil to include not only petroleum-based products (such as fuel oil, gasoline, motor oil, oil refuse, and sludge) but also mineral and vegetable oils.

Operator. Shall be any party (or parties) that have either (a) operational control over construction plans and specifications, including the ability to make modification to those plans and specifications or (b) day-to-day operational control of those activities at a project which are necessary to ensure compliance with the SWPPP for the site or other permit conditions. There may be occasions during the course of a project in which there are multiple Operators, all of which will need to file and maintain the appropriate SWPPP documents and plans, including without limitation, the NOI and NOT.

Operator's Engineer. Shall be that person or entity retained by an Operator to design and oversee the implementation of the SWPPP.

Operator's Project Manager. This project manager designation is intended to be a generic term that describes the role of (i) the Lowe's Project Manager, (ii) the Contractor's Project Manager, and/or (iii) any developer's project manager(s), as the context requires. Where a provision refers to an "Operator's Project Manager", the intent is to make the provision applicable to the project managers for all Operators associated with the Project

Project. Any construction site in the United States where Lowe's has a contract (as defined in the SDA Contract) for the construction of a retail store ,distribution facility, or corporate office..

Qualified Inspector. A person knowledgeable in the principles and practices of erosion and sediment controls who possesses the skills to assess conditions at the construction site that could impact storm water quality and to assess the effectiveness of any erosion and sediment control measures selected to control the quality of storm water discharges from the construction activity. An individual shall be deemed a Qualified Inspector if the individual is certified by one of the following: (i) CPSEC, Inc. under the Certified Professional in Erosion & Sediment Control program; (ii) any certification or training program approved, sponsored or identified in storm water program outreach materials provided by a state authorized to implement the storm water program pursuant to the NPDES program of Section 402 of the Clean Water Act; (iii) a storm water certification program provided by any other organization approved by the EPA; (iv) successful completion of Lowe's Stormwater Contractor training course; or (v) participating in the pre-construction storm water training conducted in connection with the Project.

Retention. The holding of runoff in a basin without release except by means of evaporation, infiltration, or emergency bypass.

Storm Water. Storm water runoff, snow melt runoff, surface runoff and drainage.

Storm Water Management. The recognition of adverse drainage resulting from altered runoff and the solutions resulting from the cooperative efforts of public agencies and the private sector t mitigate, abate or reverse those adverse results.

Storm Water Pollution Prevention Plan (SWPPP). A plan document prepared in accordance with good engineering practices that identifies all potential sources of pollution which may reasonably be expected to affect the quality of storm water discharges from the construction site, that describes practices used to reduce pollutants in storm water discharges, and that assures compliance with the terms and conditions of the Construction General Permit. The SWPPP must be implemented as written from commencement of the construction activity until final stabilization is complete.

Swale. A shallow, gentle depression in the earth's surface. This tends to collect the waters to some extent and is considered in a sense as a drainage course, although waters in a swale are not considered stream waters.

Terrace. Berm or bench-like earth embankment, with a nearly level plain bounded by rising and falling slopes.

Total Maximum Daily Load (TMDL). A process established by the Clean Water Act guide the application of state water quality standards to individual water bodies and watersheds where these water bodies have been previously established as impaired (303(d) impaired waterway) by defining the amount of a particular pollutant that a water body can absorb on a daily basis without violating applicable water quality standards. Once this load is determined, the regulatory agency allocates a portion to each source of that pollutant within a particular watershed.

Total Suspended Solids (TSS). Particles that are suspended in water. Suspended solids in water reduce light penetration in the water column, can clog the gills of fish and invertebrates, and are often associated with toxic contaminants because organics and metals tend to bind to particles.

Velocity. The rate of motion of objects or particles, or of a stream of particles.

Watercourse. A defined channel with bed and banks within which water flows, either continuously or in season. A watercourse is continuous in the direction of the flow and may extend laterally beyond the definite banks to include overflow channels contiguous to the ordinary channel. The term does not include artificial channels such as canals and drains, except natural channels trained or restrained by the works of man. Neither does it include depressions or swales through which surface nor errant waters pass.

Water of the United States. (a) All waters that are currently used, were used in the past, or may be susceptible to use in interstate or foreign commerce, including all waters that are subject to the ebb and flow of the tide; (b) All interstate waters, including interstate wetlands; (c) All other waters such as intrastate lakes, rivers, streams (including intermittent streams), mudflats, sandflats, wetlands, sloughs, prairie potholes, wet meadows, playa lakes, or natural ponds, the use, degradation, or destruction of which would affect or could affect interstate or foreign commerce including any such waters: (1) that are or could be used by interstate or foreign travelers for recreational or other purposes; (2) from which fish or shellfish are or could be taken and sold in interstate or foreign commerce, or (3) that are used or could be used for industrial purposes by industries in interstate commerce; (d) All impoundments of waters identified in paragraphs (a) through (d) of this definition; (f) The territorial sea; and (g) Wetlands adjacent to waters (other than waters that are themselves wetlands) identifies in paragraphs (a) through (f) of this definition. Waste treatment systems, including treatment ponds or lagoons designed to meet the requirements of CWA (other than cooling ponds as defined in 40 CFR 423.11 (m) that also meet the criteria of this definition) are not waters of the United States. This exclusion applies only to manmade bodies of water that neither were originally created in waters of the United States (such as disposal area in wetlands) nor resulted from the impoundment of waters of the Unites States.

Wetland. Wetlands are areas that may be inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted to saturated conditions. Functionally, a wetland must demonstrate the characteristics of wetland hydrology, hydric soils and hydrophytic vegetation, in accordance with the 1987 Corps of Engineers Wetlands Delineation Manual. In order to ensure compliance with federal and state requirements for disturbance of wetlands, it is advisable to have the site inspected by a wetlands expert to identify and delineate potential wetlands. Wetlands on a site should be delineated, surveyed and depicted on a map approved by staff of the Corps of Engineers. A signed map is called a jurisdictional determination and is valid for a period of time, typically 3 to 5 years. Wetlands do not all appear to be swampy or marshy all the time and, in many cases, will never appear swampy or marshy.

303(d) Impaired Waterway. A waterway listed by the state with the EPA under Section 303(d) of the Clean Water Act as a water failing to meet water quality standards in spite of full compliance by dischargers with all conditions and limitations in NPDES permits and all applicable non-point source controls.

Sample Forms A-1 Through I-1

LOWE'S NATIONAL STORM WATER POLLUTION PREVENTION PROGRAM

SECTION 800 SAMPLE FORMS

SIGNATORY AUTHORIZATION DESIGNATION

FORM A-1

Construction Site Lowe's Home Center, *[Site address, City, County, State]*

STORMWATER POLLUTION PREVENTION PLAN DATED ***[Month, year]***

LOWE'S OF ***[PROJECT NAME, STATE]***

[Modify the following statement to agree with that required by the permitting agency]

"In accordance with the ***NPDES General Permit for Storm Water Discharges from Construction Activities, Appendix G, 11. B (Signatory Requirements),*** and ***[identify the title of the State Permit and applicable section or paragraph], [Enter Name of Operator's Individual or Title of Operator's Designated Position]*** is hereby duly authorized to sign on my behalf, all reports and certifications that are required under the Permit and as part of this Storm Water Pollution Prevention Plan.

← Must indicate a Lowe's Project Manager by name or title.

Signed: ______________________

Printed Name: ______________________

Title: ______________________

Company Name: ______________________

Address: ______________________

Telephone Number: ______________________

Date: ______________________

← To be signed by a corporate officer of Lowe's with all appropriate information completed. Note: Any signatory on this form must meet the requirements in Appendix G of the Federal Permit.

Note: Multiple designation forms may be required (i.e., one from the Operator and one from the General Contractor).

STORM WATER POLLUTION PREVENTION PLAN
GENERAL CONTRACTOR'S CERTIFICATION
FORM B-1

Construction Site <u>Lowe's Home Center, *[Site Address, City, County, State]*</u>

STORM WATER POLLUTION PREVENTION PROGRAM
DATED [Month, Year]

LOWE'S OF <u>*[PROJECT NAME, STATE]*</u>

GENERAL CONTRACTOR'S CERTIFICATION: *[Modify the following statement to agree with that required by the permitting agency]*

"I certify under penalty of law that I understand the terms and conditions of the National Pollutant Discharge Elimination System (NPDES) General Permit for Storm Water Discharges From Construction Activities that authorizes the storm water discharges associated with industrial activity from the construction site identified as part of this certification. Further, by my signature, I understand that I am fully responsible, along with all other contractors and subcontractors signing such certifications who are performing work activities under this contract, to comply with all provisions and requirements of the NPDES General Permit for Storm Water Discharges from Construction Activities and this Storm Water Pollution Prevention Plan. I understand that I, and my company, are legally required under the Clean Water Act, to ensure compliance with the terms and conditions of NPDES storm water permit and Storm Water Pollution Prevention Plan (SWPPP) developed under the NPDES storm water permit. I further certify that I and my company will provide all necessary training and continuing education to all applicable personnel and subcontractors to ensure a complete understanding of all provisions and requirements of the NPDES General Permit for Storm Water Discharges from Construction Activities and this Storm Water Pollution Prevention Plan prior to each of these entities beginning any work activities on this site."

Name: ______________________________
(Print)

Signature: ______________________________

Title: ______________________________

Company Name: ______________________________

Address: ______________________________

Telephone Number: ______________________________

Date : ______________________________

Scope of Services: ______________________________

← To be signed and completed by an Officer of the Contractor's company (must meet the signatory requirements of the Federal Permit).

Lowe's Project Manager______________________

This form must be signed by a responsible corporate officer or other party meeting the "Signatory Requirements" in Appendix G, 11. of the Federal NPDES Permit or other applicable state permit.

STORM WATER POLLUTION PREVENTION PLAN
SUBCONTRACTOR'S CERTIFICATION
FORM B-2

←To be completed by all subcontractors that may contribute to storm water pollution.

Construction Site Lowe's Home Center, *[Site Address, City, County, State]*

STORM WATER POLLUTION PREVENTION PROGRAM
DATED [Month, Year]

LOWE'S OF ***[PROJECT NAME, STATE]***

SUBCONTRACTOR'S CERTIFICATION: *[Modify the following statement to agree with that required by the permitting agency]*

"I certify under penalty of law that I understand the terms and conditions of the ***National Pollutant Discharge Elimination System (NPDES) General Permit for Storm Water Discharges From Construction Activities*** that authorizes the storm water discharges associated with industrial activity from the construction site identified as part of this certification. Further, by my signature, I understand that I am fully responsible, along with all other contractors and subcontractors signing such certifications who are performing work activities under this contract, to comply with all provisions and requirements of the ***NPDES General Permit for Storm Water Discharges from Construction Activities*** and this ***Storm Water Pollution Prevention Plan***. I understand that I, and my company, are legally required under the Clean Water Act, to ensure compliance with the terms and conditions of ***NPDES storm water permit*** and ***Storm Water Pollution Prevention Plan (SWPPP)*** developed under the NPDES storm water permit as it pertains to the **scope of my services.**"

Name: ______________________________
(Print)

← To be signed and completed by an officer of the Subcontractor's company (must meet the signatory requirements of the Federal Permit).

Signature: ___________________________

Title: ______________________________

Company Name: ______________________

Address: ____________________________

Telephone Number: ____________________

Date: ______________________________

Scope of Services: ____

Lowe's Project Manager____________________

This form must be signed by a responsible corporate officer or other party meeting the "Signatory Requirements" in Appendix G, 11. of the Federal NPDES Permit or other applicable state permit.

STORM WATER POLLUTION PREVENTION PLAN
INSPECTION REPORT (Page 1 of 2)

FORM C-1

Lowe's Home Center
[Site address, City, County, State]

LOWE'S OF *[PROJECT NAME, STATE]*

Inspections/reports must be completed every [***frequency of inspections as required by the applicable permit***]

Inspection Type: ☐ **Routine (every 7 calendar days)** ☐ **Pre-Storm** ☐ **Storm** ☐ **Post-Storm**

↑ This box should be checked each inspection.

Date: ______________________ Week Ending: ______________________

Weather/Storm Event Information:

Storm Start Time: ______________________ Storm Duration: ______________________

Time Elapsed Since Last Storm: __________ Approximate Amount of Rainfall (inches): ______

←These items are self-explanatory.

Based on the results of the inspection, necessary control modifications shall be implemented within seven (7) calendar days. These reports shall be kept on file as part of the Storm Water Pollution Prevention Plan for at least five (5) years from the date of completion and submission of the Final Stabilization Certification/Termination Checklist and Notice of Termination. A copy of the SWPPP shall be kept at the site at all times during construction.

Certification Statement:
"I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations."

Name of Inspector: ______________________ Title of Inspector: ______________________

Qualifications of Inspector: ______________________

____

←Indicate training, not job title, unless inspector is Professional Engineer, Soil Scientist, etc.

Inspector's Signature: ______________________

Construction phasing/sequencing is consistent with the SWPPP and Erosion Control Plans: [ ] Yes [ ] No

↑ Check appropriate box each inspection.

Compliance Certification

I certify that, based on no incidents of non-compliance identified during the inspection, the site is in compliance with the SWPPP and the Construction General Permit.

Name of Lowe's Duly Authorized Representative (Printed): ______________________

Signature of Lowe's Duly Authorized Representative: ______________________

Date: ______________________

*Note: This Compliance Certification is only to be signed by Lowe's Duly Authorized Representative (Project Manager) when there are no **"unsatisfactory" conditions and the construction phasing/sequencing is consistent with the SWPPP, rendering the site in full compliance with** the SWPPP and the Construction General Permit.

To be signed by a Lowe's duly authorized representative when the inspection sheet indicates that all items are satisfactory and construction phasing is consistent with the SWPPP. If unsatisfactory items are indicated or observed, DO NOT SIGN the certification.

Form C-1 Continued [*The inspection areas must be modified to be site specific.*]

Inspection Areas (Structural)	Satisfactory	Unsatisfactory (provide location or numeric identification per plan sheet)	N/A	Corrective Action Required	Implementation Date of Corrective Action
Construction Entrance/Exit	x				
Perimeter Silt Fence		x Northeast corner of site		Repair and properly install fence.	01/30/04
Inlet Protection	x				
Outlet Protection		x Outfall #1 as indicated on plans		Rip rap outfall protection not sufficient for flow velocity – scouring apparent. Provide additional rip rap.	01/28/04
Temporary Sediment Basin			x		
Material Laydown/ Staging Area	x				
Underground Storm Sewer			x		
Curb/Curb & Gutter System			x		
Storm Water Detention/Retention	x				
Vehicle Service Area Berm	x				
Discharges of Sediments or Other Pollutants from Site		x Outfall #1 as indicated on plans		See outlet protection above. Install additional rip rap and immediately remove sediments from off-site.	01/28/04
Material Storage Areas	x				
Waste Storage Areas	x				

† All applicable boxes should be "checked" or otherwise marked. All unsatisfactory items must indicate corrective actions required and implementation dates.

Lowe's Project Manager: ______________________

STORM WATER POLLUTION PREVENTION PLAN

Stabilization Schedule for Major Grading Activities

FORM C-2

Lowe's of [Project Name, State]

←This form must be completed as major grading activities begin. Note that permanent stabilization measures can be initiated the day activity ceases or within 14 days of permanent cessation of the activity.

*This form should be updated as necessary

Major Grading Activity/Area to be Stabilized	Begin Date	Date Activity Temporarily Ceased	Date Activity Resumed	Date Temporary Stabilization Measures Initiated and Method of Stabilization (if activities cease for more than 14 days, this column must be completed)	Date Activity Permanently Ceased	Date Permanent Stabilization Measures Initiated	Permanent Stabilization Measure(s) Used (i.e., stone, seeded, rolled, tracked)	Name of Contractor Responsible for Implementing Stabilization Measures
Construction Entrance(s)/Exit(s)	12/15/03				12/17/03	12/19/03	Stone	XYZ Grading Co.
Building Pad	12/28/03	12/31/03	01/03/04	(N/A – Less than 14 days)				
		01/15/04	01/24/04	(N/A – Less than 14 days)				
					01/31/04	01/31/04	Stone	ABC Contracting
Utility Excavation Area	01/51/04	01/20/04	01/24/04	(N/A – Less than 14 days)				
		01/31/04	02/05/04	02/10/04 – Dirt Rolled/Compacted	02/12/04	02/20/04	Stone	GHI Utilities
Sediment Basin Detention/Retention Pond(s)	12/20/03	12/21/03	12/27/03	(N/A – Less than 14 days)				
		01/02/04	01/17/04	01/10/04 – Temporary Seeding	01/18/04	01/22/04	Hydroseed/Mulch	XYZ Grading

STORM WATER POLLUTION PREVENTION PLAN
IMPLEMENTATION SCHEDULE

FORM C-3

Lowe's Home Center
[Site address, City, County, State]

LOWE'S OF *[PROJECT NAME, STATE]*

*To be completed prior to initiation of construction by the contractor.

The Contractor will be responsible for implementing all erosion control and storm water management control structures. The Contractor may designate these tasks to certain subcontractors as they see fit, but the ultimate responsibility for implementing these controls and ensuring their proper functioning remains with the Contractor.

Refer to Section 812.5 for Sequence of Activities

Construction Activity	Proposed Initiation Date	Proposed Completion Date	Contractor Responsible for Implementation
[Engineer to insert sequence of construction activities from the Erosion and Sediment Control Plans]			

† The last three columns are to be completed by the Contractor at the Pre-Construction meeting or shortly thereafter. This form is to be completed one (1) time. Provide estimated dates only.

STORM WATER POLLUTION PREVENTION PLAN
MODIFICATION REPORT

FORM D-1

LOWE'S OF *[PROJECT NAME, STATE]*

CHANGES REQUIRED FOR STORM WATER POLLUTION PREVENTION PLAN

The SWPPP must be amended whenever there is a change in design, construction, operation, or maintenance at the construction site that has a significant effect on the discharge of pollutants to the waters of the United States that has not been previously addressed in the SWPPP, if inspections or investigations by site staff, local, state or federal officials determine that discharges are causing water quality exceedances or the SWPPP is ineffective in eliminating or significantly minimizing pollutants in storm water discharges from the construction site, or based on the results of an inspection, the SWPPP must be modified to include additional or modified BMPs designed to correct identified problems. Revisions must be completed within seven (7) calendar days following the inspection.

To:	**Project Manager**	**Date:**	
Address:	*[Project Manager's Address]*		
		Lowe's of:	*[Project Name, State]*
Telephone:	*[Project Manager's Phone #]*		
Facsimile:	*[Project Manager's Fax #]*		
Sent Via:	☐ **Facsimile**	☐ **Courier**	☐ **US Mail**

INSPECTOR: ____________________ DATE: ____________________
(Print)

____
(Signature)

QUALIFICATIONS OF INSPECTOR: ______________________

← Indicate training not job title unless the inspector is a Professional Engineer, Soil Scientist, etc.

CHANGES REQUIRED TO THE STORMWATER POLLUTION PREVENTION PLAN: ____________________

____

↑ Complete whenever there is a change to the SWPPP. Typical changes are the addition of silt fence, relocation of measures, alternate methods of erosion control, etc. Each change noted here, should also be identified on the appropriate Erosion Control Plan Drawing/Sheet.

REASONS FOR CHANGES: ____

↑ Provide a clear, concise reason. If modification involves the use of a lesser measure (i.e., SWPPP calls for reinforced silt fence, non-reinforced silt fence is used) reason should be in depth and it is recommended that the engineer who prepared the SWPPP provide approval of the change.

TO BE PERFORMED BY: ________________ ON OR BEFORE: ______________

Lowe's Project Manager: ____________________________

STORM WATER POLLUTION PREVENTION PLAN
MONTHLY TRAINING LOG

FORM E-1

LOWE'S OF *[PROJECT NAME, STATE]*

← Training must be conducted monthly. All topics do not have to be covered each month and should be applicable to the activities being conducted on site at the time of the training. This form represents on-going monthly training. Initial subcontractor training may be conducted separately.

Storm Water Pollution Prevention Plan Topic: (Check as appropriate)

- ☐ Temporary Soil Stabilization
- ☐ Temporary Sediment Control
- ☐ Wind Erosion Control
- ☐ Tracking Control
- ☐ Non-Storm Water Management
- ☐ Waste Management and Materials Pollution Control
- ☐ Erosion & Sediment Control Plan

Specific Training Objective: ______________________________

Date: ______________________________

← Ensure that all lines are completed.

Instructor: ______________________________
Location: ______________________________
Telephone: ______________________________

Attendance Roster

Name	Company	Telephone Number	Signature

† If a contractor or subcontractor has signed a certification form, a representative from that company should appear on at least one (1) training log.

Lowe's Project Manager ______________________________

STORM WATER POLLUTION PREVENTION PLAN

FINAL STABILIZATION CERTIFICATION /NOTICE OF TERMINATION CHECKLIST

FORM F-1

LOWE'S OF *[PROJECT NAME, STATE]*

1. ☐ **All soil disturbing activities are complete.**
2. ☐ **Temporary Erosion and Sediment Control Measures have been removed or will be removed at the appropriate time.**
3. ☐ **All areas of the Construction Site not otherwise covered by a permanent pavement or structure have been stabilized with a uniform perennial vegetative cover with a density of 85% or equivalent measures have been employed.**

CONTRACTOR'S CERTIFICATION: *[modify the following statement to be consistent with that on the Notice of Termination for the permitting agency]*

> ***"I certify under penalty of law that all storm water discharges associated with industrial activity from the identified project that are authorized by the NPDES Construction General Permit have been eliminated and that all disturbed areas and soils at the construction site have achieved Final Stabilization and all temporary erosion and sediment control measures have been removed or will be removed at the appropriate time."***

Company Name ______________________________

Name (Print) ______________________________

Signature ______________________________

Title ______________________________

Date ______________________________

This form is to be completed one (1) time upon completion and final stabilization of the project.

Lowe's Project Manager ______________________________

STORM WATER POLLUTION PREVENTION PLAN
REPORTABLE QUANTITY RELEASE FORM

FORM G-1

LOWE'S OF [PROJECT NAME, STATE]

The discharges of hazardous substances or oil in storm water discharges from construction sites must be prevented or minimized in accordance with the SWPPP. Where a release containing a hazardous substance or oil in an amount equal to or in excess of a reportable quantity established under 40CFR110, 40CFR117 and 40CFR302 occurs, the following steps must be taken:

1. All measures must be taken to contain and abate the spill and to prevent the discharge of the pollutant(s) to storm water or off-site.

2. Notice must be provided to the National Response Center (NRC) at 1-800-424-8802 [include other applicable agencies and phone numbers as required] in accordance with regulations referenced above as soon as site staff has knowledge of the discharge. **Contact Info Track at 1-888-429-6281 (1-888-HAZMAT 1) to determine whether the spill is reportable. Info Track has been contracted by Lowe's to provide this service to Lowe's facilities, including new construction. You must state that you are working on a Lowe's new construction site.**

3. Contact the Lowe's Project Manager or Engineer of Record immediately upon knowledge of release.

4. The SWPPP must be modified within seven (7) calendar days of knowledge of the discharge to provide a description of the release, the circumstances leading to the release, and the date of the release. The plans must identify measures to prevent the recurrence of such releases and to respond to such releases.

Date of Spill	Material Spilled	Approximate Quantity of Spill (in gallons)	Agency(s) Notified	Date of Notification	SWPPP Revision Date
12/27/03	Gasoline	~75 gallons	Info-Track/They notified NRC and State Agency	12/27/03	12/30/03

This form is only to be completed in the event of a spill.

LOWE'S OF [PROJECT NAME, STATE]
STORM WATER POLLUTION PREVENTION PLAN
PROJECT RAINFALL LOG

Month	Jan	Feb	Mar	Apr	May	June	July	Aug	Sep	Oct	Nov	Dec
Day												
1												
2												
3												
4												
5												
6												
7												
8												
9												
10												
11												
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21												
22												
23												
24												
25												
26												
27												
28												
29												
30												
31												
PM Initials												

Must have a rain gauge on site and record readings daily. No rain should be indicated by "0". Do not leave blanks. This form was designed for continuous use – use only one (1) sheet.

CONSTRUCTION SITE NOTICE

Form I-1

The following information is posted in compliance with the Environmental Protection Agency (EPA) National Pollutant Discharge Elimination System (NPDES) Construction General Permit (CGP) and the State of […….] NPDES Permit

Contact Name and Phone Number:	This is the site superintendent or other person available on or near the site, 24 hours a day.
Brief Project Description: [Reference Section 804 of the SWPPP]:	
Location of Storm Water Pollution Prevention Plan (SWPPP):	This should be "inside the construction trailer".

A Storm Water Pollution Prevention Plan (SWPPP) has been developed and implemented according to Permit requirements. A full copy of the SWPPP for this construction project can be found at the location identified above.

This permit does not provide the public with any right to trespass on a construction site for any reason, including inspection of a site; nor does this permit require that permittees allow members of the public access to a construction site.

*This notice must be posted conspicuously near the main entrance of the construction site and shall also include the NPDES Permit Number for the project or a "completed" copy of the Notice of Intent (NOI) or other form of request required to obtain coverage under the applicable storm water permit if a number has not yet been assigned. This notice must be updated whenever information related to the contact person has changed or the location of the SWPPP has changed.

Post this notice at the entrance to the construction site with all Notices of Intent and/or Notices of Coverage received for the project.

Appendix 1 – TMDL Documentation (303(d) Impaired Waterway)

The *Proposed* Final New York State **June 30, 2006**

2006 Section 303(d) List of Impaired Waters Requiring a TMDL/Other Strategy

Presented here is the PROPOSED *FINAL New York State 2006 Section 303(d) List of Impaired Waters*, pending review and approval by USEPA. The list identifies those waters that do not support appropriate uses and that require development of a Total Maximum Daily Load (TMDL) or other restoration strategy to attain quality standards. A Response Summary to public comments on the Draft list is also available.

The Federal Clean Water Act requires states to periodically assess and report on the quality of waters in their state. Section 303(d) of the Act also requires states to identify *Impaired Waters*, where specific designated uses are not fully supported. For these Impaired Waters, states must consider the development of a *Total Maximum Daily Load (TMDL)* or other strategy to reduce the input of the specific pollutant(s) that restrict waterbody uses, in order to restore and protect such uses. An outline of the process used to monitor and assess the quality of New York State waters is contained in the New York State *Consolidated Assessment and Listing Methodology (CALM)*. The CALM describes the water quality assessment and Section 303(d) listing process in order to improve the consistency of assessment and listing decisions.

The waterbody listings in the Section 303(d) List are segmented into a number of categories. The various categories, or Parts, of the list are outlined below.

Proposed Final 2006 Section 303(d) List of Impaired Waters Requiring a TMDL

Part 1 Individual Waterbody Segments with Impairments Requiring TMDL Development
These are waters with verified impairments that are expected to be addressed by a segment/pollutant-specific TMDL or other restoration strategy .

Part 2 Multiple Segment/Categorical Waterbody Impairments Requiring TMDL Development
These are groups of waters affected by similar causes/sources where a single TMDL may be able to address multiple waters with the same issue. Part 2 is subdivided into:

- Waters Impaired by Atmospheric Deposition (acid rain)
- Waters Impaired by Fish Consumption Advisories
- Waters Impaired by Shellfishing Restrictions

Part 3 Waterbody Segments for which TMDL Development May Be Deferred
These are waters where scheduling of TMDL development may be deferred pending verification of the suspected impairment, the cause/pollutant related to the impairment, or the effectiveness of other restoration measures in place. Part 3 is subdivided into:

a) Waterbody Segments Requiring Verification of Impairment
b) Waterbody Segments Requiring Verification of Cause/Pollutants
c) Waterbody Segments Being Address Through Other Restoration Measures

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Impaired/De-Listed Waters Not Included on the 2006 Section 303(d) List
Included with but separate from the 2006 Section 303(d) List is a supplemental listing of *Other Impaired Waterbody Segments Not Listed (on 303(d) List) Because Development of a TMDL is Not Necessary*. The purpose of this supplement is to provide a more comprehensive inventory of waters of the state that do not fully support designated uses and that are considered to be impaired.

Section 303(d) of the Clean Water Act stipulates that impaired waters that do not require a TMDL are not to be included on the Section 303(d) List. There are three (3) justifications for not listing an impaired water:

> Category 4a - TMDL development is not necessary because a TMDL has already been established for the segment/pollutant.
> Category 4b - TMDL is not necessary because other required control measures are expected to result in restoration in a reasonable period of time.
> Category 4c - TMDL is not appropriate because the impairment is the result of pollution, rather than a pollutant that can be allocated through a TMDL.

<u>De-Listed Waters</u>
A separate list of waters that were included on the previous (2004) Section 303(d) List, but that are NOT included on the 2006 List is also presented. This information provides some linkage and continuity between the previous and proposed new list. The specific reason that the waterbody no longer appears on the List (i.e., de-listing action, re-assessment, re-segmentation, etc.) is also presented. Some of these waters (those that remain *Impaired*) also appear on the list of *Other Impaired Waterbody Segments Not Listed Because Development of a TMDL is Not Necessary*.

2006 Section 303d List of Impaired Waters

Segments and/or pollutants listed in **Bold Type** are new listings; i.e., they were not included in the previous (2004) Section 303(d) List.
* Denotes High Priority Waters, scheduled for TMDL/restoration strategy development and submission for approval to USEPA within the next two years.

Part 1 - Individual Waterbody Segments with Impairment Requiring TMDL Development (or other strategy to attain water quality standards)

Water Index Number	Waterbody Name (WI/PWL ID)	County	Type	Class	Cause/Pollutant	Source	Year
	Niagara River/Lake Erie Drainage Basin						
Ont 158- 6	Gill Creek and tribs (0101-0002)	Niagara	River	C	Unknown	Urban Runoff, Contam. Sed	2004
Ont 158- 8-1	Bergholtz Creek and tribs (0101-0004)	Niagara	River	C	Phosphorus	Urban Runoff	2004
					Pathogens	Urban Runoff	2004
Ont 158-12- 6	Ransom Creek, Lower, and tribs (0102-0004)	Erie	River	C	D.O./Oxygen Demand	On-Site WTS	2004
					Pathogens	On-Site WTS	2004
Ont 158-12- 6	Ransom Creek, Upper, and tribs (0102-0027)	Erie	River	C(T)	D.O./Oxygen Demand	On-Site WTS	2004
					Pathogens	On-Site WTS	2004
Ont 158-13	Two Mile Creek and tribs (0101-0005)	Erie	River	B	Floatables	CSOs	2004
					D.O./Oxygen Demand	CSOs, Municipal	2004
					Pathogens	CSOs, Municipal	2004
Ont 158-15	Scajaquada Creek, Lower, and tribs (0101-0023)	Erie	River	B	Floatables	CSOs, Urban Runoff	2004
					D.O./Oxygen Demand	CSOs, Urban Runoff	2004
					Pathogens	CSOs, Urban Runoff	2004
Ont 158-E (portion 7a)	Lake Erie, Dunkirk Harbor (0105-0009)	Chautauqua	G.Lakes	B	Pathogens	Urban Runoff	2004
Ont 158..E- 3	Rush Creek and tribs (0104-0018)	Erie	River	C	Pathogens	CSOs, Urban Runoff, Munic	2004
					Phosphorus	CSOs, Urban Runoff, Munic	2004
Ont 158..E-23-P152	Java Lake (0104-0004)	Wyoming	Lake	B	Phosphorus	On-Site WTS	2004
	Genesee River Drainage Basin						
Ont 117 (portion 1)	Genesee River, Lower, Main Stem (0401-0001)	Monroe	River	B	Phosphorus	various, multiple sources	2004
					Pathogens	various, multiple sources	2004
					Silt/Sediment	various, multiple sources	2004
Ont 117 (portion 2)	Genesee River, Middle, Main Stem (0401-0003)	Monroe	River	B	D.O./Oxygen Demand	Agriculture	2004
					Phosphorus	Agriculture	2004
Ont 117- 19	Black Creek, Lower, and minor tribs (0402-0033)	Monroe	River	C	Phosphorus	Agric, Municipal	2004
Ont 117- 19	Black Creek, Upper, and minor tribs (0402-0048)	Genesee	River	C	Phosphorus	Agric, Municipal	2004
Ont 117- 27-P57	Honeoye Lake (0402-0032)	Ontario	Lake	AA	Phosphorus	Agric, On-Site WTS	2002
					D.O./Oxygen Demand	Agric, On-Site WTS	2002
Ont 117- 40-P67	Conesus Lake (0402-0004)	Livingston	Lake	AA	**Phosphorus**	Agriculture	2006
					D.O./Oxygen Demand	Agriculture	2002
Ont 117- 70-P115	Silver Lake (0403-0002)	Wyoming	Lake	A	Phosphorus	Agricultural	1998
	Chemung River Drainage Basin						
PA 3-58-20..P51	Lake Salubria (0502-0011)	Steuben	Lake	B	Phosphorus	On-site WTS	2002

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Part 1 - Individual Waterbody Segments with Impairment Requiring TMDL/Other Strategy (con't)

Water Index Number	Waterbody Name (WI/PWL ID)	County	Type	Class	Cause/Pollutant	Source	Year
	Susquehanna River Drainage Basin						
SR- 44-14-27-P35a	Whitney Point Lake/Reservoir (0602-0004)	Broome	Lake	C	Phosphorus	Agricultural	2002
SR- 52	Park Creek and tribs (0601-0031)	Broome	River	C	Pathogens	On-site WTS	2002
SR-146 (portion 2)	Unadilla River, Upper, Main Stem (0601-0037)	Herkimer	River	C(T)	Pathogens	On-site WTS, Agric	2002
	Oswego River (Finger Lakes) Drainage Basin						
Ont 66-12 (portion 1)	* Seneca River (0701-0001)	Onondaga	River	C	D.O./Oxygen Demand	Agricultural	1998
Ont 66-12-P296 (portion 4)	* Cayuga Lake, Southern End (0705-0040)	Tompkins	Lake	A	Phosphorus	Municipal, NPS	2002
					Silt/Sediment	Municipal, NPS	2002
	Saint Lawrence River Drainage Basin						
SL-25-50-P71	Moon Lake (0905-0093)	Jefferson	Lake	C	Phosphorus	On-site WTS	2002
	Lake Champlain Drainage Basin						
C	Cumberland Bay (1001-0001)	Clinton	Bay	B	D.O./Oxygen Demand	Industr, Contam.Sed.	2002
C- 3 (portion 2)	* Great Chazy River, Lower, Main Stem (1002-0001)	Clinton	River	A	Silt/Sediment	Agric, Erosion	2002
C-101-P367	* Lake George (1006-0016) and tribs [1]	Warren	Lake	AAspcl	Silt/Sediment	Urb/Storm, Erosion	2002
C-101-P367-1 thru 26	* Tribs to Lake George, East Shore (1006-0020) [1, 2]	Warren	River	AAspcl	Silt/Sediment	Urb/Storm, Erosion	2002
C-101-P367-32 thru 41	* Tribs to Lake George, Lk.George Village (1006-0008) [1, 3]	Warren	River	AAspcl	Silt/Sediment	Urb/Storm, Erosion	2002
C-101-P367-53,56	* Huddle/Finkle Brooks and tribs (1006-0003) [1, 4]	Warren	River	AAspcl	Silt/Sediment	Urb/Storm, Erosion	2002
C-101-P367-59	* Indian Brook and tribs (1006-0002) [1]	Warren	River	AAspcl	Silt/Sediment	Urb/Storm, Erosion	2002
C-101-P367-86	* Hague Brook and tribs (1006-0006) [1]	Warren	River	AAspcl	Silt/Sediment	Urb/Storm, Erosion	2002
	Upper Hudson River Basin						
H-260- 6	**Dwaas Kill and tribs (1101-0007)**	Saratoga	River	C(T)	**Phosphorus**	Urban Runoff, Constr.	2006
					Silt/Sediment	Urban Runoff, Constr.	2006
H-299-P27-13- 1-P30-	**Tribs to Lake Lonely (1101-0001)**	Saratoga	River	C	**Phosphorus**	Municipal, Urb/Storm	2006
					D.O./Oxygen Demand	Municipal, Urb/Storm	2006
					Pathogens	Municipal, Urb/Storm	2006

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1 The Restoration Strategy/TMDL effort to address silt/sediment loads to Lake George will be a comprehensive, lake-wide watershed effort and will consider additional lake tributaries that provide significant silt/sediment loads to the lake. The initial strategy focused on Finkle Brook and was public noticed for comment in 2005.

2 The specifically identified impaired water(s) in this segment include Foster Brook (-11).

3 The specifically identified impaired water(s) in this segments include East Brook (-37), West Brook (-38), Prospect Mountain Brook (-39), English Brook (-41).

4 The specifically identified impaired water(s) in this segment include Finkle Brook (-56).

Part 1 - Individual Waterbody Segments with Impairment Requiring TMDL/Other Strategy (con't)

Water Index Number	Waterbody Name (WI/PWL ID)	County	Type	Class	Cause/Pollutant	Source	Year
	Mohawk River Drainage Basin						
H-240 (portion 12)	Mohawk River, Main Stem (1201-0093) [5]	Herkimer	River	C	Floatables	CSOs, Urban, Ind/Munic	2004
					Pathogens	CSOs, Urban, Ind/Munic	2004
					D.O./Oxygen Demand	CSOs, Urban, Ind/Munic	2004
H-240 (portion 12b)	Utica Harbor (1201-0228)	Oneida	Bay	C	Floatables	CSOs, Urban, Ind/Munic	2004
					Pathogens	CSOs, Urban, Ind/Munic	2004
					D.O./Oxygen Demand	CSOs, Urban, Ind/Munic	2004
H-240 (portion 13)	**Mohawk River, Main Stem (1201-0010)**	**Oneida**	**River**	**B**	**Floatables**	CSOs, Urban, Ind/Munic	2004
					Pathogens	CSOs, Urban, Ind/Munic	2004
					D.O./Oxygen Demand	CSOs, Urban, Ind/Munic	2004
H-240- 11-P496/P498	Ann Lee (Shakers) Pond, Stump Pond (1201-0096)	Albany	Lake	C	Phosphorus	Urban Runoff	1998
H-240- 22-P519	Collins Lake (1201-0077)	Schenectady	Lake	B	Phosphorus	Urban Runoff	2004
H-240- 82- 63	Cobleskill Creek, Lower, and tribs (1202-0019)	Schoharie	River	C	Pathogens	On-Site WTS	2004
H-240- 82- 63-19-9-P589	Engleville Pond (1202-0009)	Schoharie	Lake	A	Phosphorus	Agriculture	2004
H-240- 82-104-P629	Summit Lake (1202-0014)	Schoharie	Lake	B	Phosphorus	On-Site WTS	2004
H-240- 82-P638a	Schoharie Reservoir (1202-0012)	Greene	Lake(R)	AA(TS)	Silt/Sediment	Erosion, Construction	1998
H-240-187-	Steele Creek tribs (1201-0197)	Herkimer	River	A(TS)	Phosphorus	Agric, Stream Erosion	2004
					Silt/Sediment	Agric, Stream Erosion	2004
H-240-211,214	Ballou, Nail Creeks (1201-0203)	Oneida	River	C	D.O./Oxygen Demand	CSOs, Urban Runoff	2004
					Phosphorus	CSOs, Urban Runoff	2004
H-240-227	Ninemile Creek, Lower, and tribs (1201-0014)	Oneida	River	B(T)	Pathogens	On-Site WTS	2004
	Lower Hudson River Drainage Basin						
H- 4	Saw Mill River (1301-0007)	Westchester	River	various	Floatables	Urban Runoff	1998
H- 31-P44-24-P89-10-P93	Peach Lake (1302-0004)	Westchester	Lake	B	Pathogens	On-site WTS	2002
					Phosphorus	On-site WTS	1998
H- 55- 8-P175	Oscawana Lake (1301-0035)	Putnam	Lake	A	Phosphorus	On-site WTS, Urban	2002
H- 95-10-P345g	Hillside Lake (1304-0001)	Dutchess	Lake	B	Phosphorus	On-site WTS	2002
H-171-P848	Ashokan Reservoir (1307-0004)	Ulster	Lake(R)	AA(T)	Silt/Sediment	Streambank Erosion	2002
H-171-P848-	Esopus Creek, Upp (1307-0007) [6]	Ulster	River	A(T)	Silt/Sediment	Streambank Erosion	1998
H-202-P8f	* Sleepy Hollow Lake (1301-0059)	Greene	Lake	A	Silt/Sediment	Streambank Erosion	2002
H-204- 2- 7-P24	Kinderhook Lake (1310-0002)	Columbia	Lake	B	Phosphorus	Agric, On-site WTS	2002
H-235-11-P377	Snyders Lake (1301-0043)	Rensselaer	Lake	B	Phosphorus	Oxygen Dem/Sed.	2002

5 For the purposes of Section 303(d) Listing, this segment includes the lower half-mile of Starch Factory Creek (1201-0067). Starch Factory Creek was assessed overall to have Minor Impacts but supporting uses based on sampling near the mouth. Below the sampling point a CSO is thought to impair uses in the lower half-mile (or 5%) of this 9.2 mile segment. A restoration strategy/TMDL for this portion of this segment will be addressed in the larger CSO strategy/TMDL for the Mohawk River (1201-0093)/Utica Harbor (1201-0228) segments.

6 A restoration strategy/TMDL for this segment will be developed in conjunction with the Schoharie Reservoir strategy/TMDL.

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Part 1 - Individual Waterbody Segments with Impairment Requiring TMDL/Other Strategy (con't)

Water Index Number	Waterbody Name (WI/PWL ID)	County	Type	Class	Cause/Pollutant	Source	Year
	Atlantic Ocean/Long Island Sound Drainage Basin						
(MW1.2) SI (portion 1)	* Arthur Kill, Class I, and minor tribs (1701-0010)	Richmond	Estuary	I	Floatables [7]	Urban/Storm/CSO	2002
(MW1.2) SI (portion 3)	* Newark Bay (1701-0183)	Richmond	Estuary	SD	Floatables [7]	Urban/Storm/CSO	2002
(MW1.2) SI (portion 4)	* Kill Van Kull (1701-0184)	Richmond	Estuary	SD	Floatables [7]	Urban/Storm/CSO	2002
(MW1.2) SI..P1039,P1051,P1053	Grassmere, Arbutus and Wolfes Lakes (1701-0357) [8]	Richmond	Lake	B	Phosphorus	On-site WTS, Urban	2002
(MW2.3) ER-1-5-P1043	Van Cortlandt Lake (1702-0008)	Bronx	Lake	B	Phosphorus	Urban Runoff	2002
(MW2.4) ER-3	Bronx River, Upper, and tribs (1702-0107)	Westchester	River	C	D.O./Oxygen Demand	Urb/Storm Runoff	2002
					Pathogens	Urb/Storm Runoff	2004
(MW3.1) LIS (portion 2a)	* Larchmont Harbor (1702-0116)	Westchester	Estuary	SB	Floatables	Urb/Storm, Municipl	2002
					Pathogens	Urb/Storm, Municipl	2002
(MW3.2) LIS- 2	Hutchinson River, Middle, and tribs (1702-0074)	Westchester	River	B	Oil/Grease	Urb/Storm, Industr	2002
					D.O./Oxygen Demand	Urb/Storm, Industr	2002
					Pathogens	Urb/Storm, Industr	2002
(MW3.3) LIS (portion 2b)	* Mamaroneck Harbor (1702-0125)	Westchester	Estuary	SB	Floatables	Urb/Storm, Municipl	2002
					Pathogens	Urb/Storm, Municipl	2002
(MW3.3) LIS- 8	Mamaroneck River, Lower (1702-0071)	Westchester	River	SC	D.O./Oxygen Demand	Urb/Storm Runoff	2002
					Silt/Sediment	Urb/Storm Runoff	2002
(MW3.3) LIS- 8	Mamaroneck River, Upp, & minor tribs (1702-0123)	Westchester	River	C	D.O./Oxygen Demand	Urb/Storm Runoff	2002
					Silt/Sediment	Urb/Storm Runoff	2002
(MW3.3) LIS- 8- 1	Sheldrake River (1702-0069)	Westchester	River	C	Phosphorus	Urb/Storm Runoff	2002
					Silt/Sedimnt	Urb/Storm Runoff	2002
(MW3.4) LIS (portion 2c)	* Milton Harbor (1702-0063)	Westchester	Estuary	SB	Floatables	Urb/Storm, Municipl	2002
					Pathogens	Urb/Storm, Municipl	2002
(MW3.4) LIS-11	Blind Brook, Lower (1702-0062)	Westchester	River	SC	Silt/Sediment	Urb/Storm Runoff	2002
(MW3.4) LIS-11	Blind Brook, Upper, and tribs (1702-0130)	Westchester	River	C	Silt/Sediment	Urb/Storm Runoff	2002
(MW3.6) LIS (portion 2d)	* Port Chester Harbor (1702-0260)	Westchester	Estuary	SB	Floatables	Urb/Storm, Municipl	2002
					Pathogens	Urb/Storm, Municipl	2002
(MW4.2b) LIS-MB (portion 2)	Manhasset Bay, and tidal tribs (1702-0141)	Nassau	Estuary	SB	Pathogens	Urb/Storm Runoff	2002
(MW4.3a) LIS-HH	Hempstead Harbor, south, & tidal tribs (1702-0263)	Nassau	Estuary	SB	Pathogens	Urb/Storm Runoff	2002
(MW4.3a) LIS-HH-38	Glen Cove Creek, Lower, and tribs (1702-0146)	Nassau	Estuary	SC	Pathogens	Urb/Storm, Mun/Ind	2002
					Silt/Sediment	Urb/Storm, Mun/Ind	2002
(MW5.3) LIS-62-P296	Millers Pond (1702-0013)	Suffolk	Lake	C	D.O./Oxygen Demand	Urban/Storm Runoff	2002
					Phosphorus	Urban/Storm Runoff	2002
(MW6.1d) GB..GPB-P495	Mattituck or Marratooka Pond (1701-0129)	Suffolk	Lake	A	Metals	Urb/Storm Runoff	2002
					D.O./Oxygen Demand	Urb/Storm Runoff	2002
					Pathogens	Urb/Storm Runoff	2002
					Phosphorus	Urb/Storm Runoff	2002

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7 A New York City CSO Abatement Program and NYCDEP Catch Basin Hooding Program are in place. Similar efforts to address floatables from New Jersey are necessary to restore water uses.

8 This segment was previously listed as Bradys Pond/Grassmere Lake (1701-0357).

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Part 1 - Individual Waterbody Segments with Impairment Requiring TMDL/Other Strategy (con't)

Water Index Number	Waterbody Name (WI/PWL ID)	County	Type	Class	Cause/Pollutant	Source	Year
	Atlantic Ocean/Long Island Sound Drainage Basin (con't)						
(MW6.1e) GB..FB,FB-111	* Flanders Bay, West/Lower Sawmill Cr (1701-0254)	Suffolk	Estuary	SC	D.O./Oxygen Demand	Urb/Storm Runoff	2002
(MW6.1e) GB..FB-110	* Meetinghouse/Terrys Creeks and tribs (1701-0256)	Suffolk	Estuary	SC	D.O./Oxygen Demand	Agric (sediment beds)	2002
(MW6.2) GB..FB-112 (portion 1)	* Peconic River, Lower, and tidal tribs (1701-0259)	Suffolk	Estuary	SC	D.O./Oxygen Demand	Urb/Storm Runoff	2002
(MW7.2a) AO-MB-168a thru 175	**Tidal Tribs to West Moriches Bay (1701-0312)** [9]	Suffolk	Estuary	SC	**Pathogens**	Urb/Storm, Agric,OWTS	2006
					Nitrogen	Urb/Storm, Agric,OWTS	2006
					D.O./Oxygen Demand	Urb/Storm, Agric,OWTS	2006
(MW7.5) AO-GSB-185-P889	Canaan Lake (1701-0018)	Suffolk	Lake	B(T)	Phosphorus	Urb/Storm Runoff	2002
					Silt/Sediment	Urb/Storm Runoff	2002
(MW7.7) AO-GSB-193..P304	Lake Ronkonkoma (1701-0020)	Suffolk	Lake	B	Pathogens	Urb/Storm Runoff	2002
					Phosphorus	Urb/Storm Runoff	2002
(MW7.8) AO-GSB-194	Champlin Creek, Upper, and tribs (1701-0019)	Suffolk	River	C(TS)	Thermal Changes	Urb/Storm Runoff	2002
(MW8.2a) EB-224 thru 227	LI Tribs, fresh to East Bay (1701-0204)	Nassau	River	C	Silt/Sediment	Urb/Storm Runoff	2002
					Phosphorus	Urb/Storm Runoff	2002
(MW8.3a) MDB-228	East Meadow Brook, Upper, and tribs (1701-0211)	Nassau	River	C	Silt/Sediment	Urb/Storm Runoff	2002
(MW8.4) HB	**Hempstead Bay (1701-0032)**	Nassau	Estuary	SA	**Nitrogen**	Municpl, Urb/Storm Runoff	2006
(MW8.4a) HB-233-P1005..P1012	Hempstead Lake (1701-0015)	Nassau	Lake	C	Phosphorus	Urban/Storm Runoff	2002
(MW8.4a) HB-235-P1017a	Grant Park Pond (1701-0054)	Nassau	Lake	C	Phosphorus	Urban/Storm Runoff	1998
(MW8.5b) JB	Jamaica Bay, Eastern, and tribs, Queens (1701-0005)	Queens	Estuary	SB	Nitrogen	Urban/CSO,Municipl	2002
					D.O./Oxygen Demand	Urban/CSO,Municipl	2002
(MW8.5b) JB-247	Bergen Basin (1701-0009)	Queens	Estuary	I	**Nitrogen**	Urban/CSO,Municipl	2006
					D.O./Oxygen Demand	Urban/CSO,Municipl	2002
(MW8.6) JB-249a	Hendrix Creek (1701-0006)	Kings	Estuary	I	Nitrogen	Urban/CSO/Municipl	1998
					D.O./Oxygen Demand	Urban/CSO/Municipl	1998

[9] Includes **Upper Forge River**, which is the trib of primary concern. The Lower Forge River is included in *Part 2c - Shellfishing Waters* portion of the list.

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Part 2a - Multiple Segment/Categorical Impaired Waterbody Segments (atmospheric deposition)

Might be addressed by a waterbody specific TMDL or a pollutant/source specific TMDL or other strategy to attain water quality standards.

Water Index Number	Waterbody Name (WI/PWL ID)	County	Type	Class	Cause/Pollutant	Source	Year
	Black River Drainage Basin						
Ont 19-40-10-4-P419	Goose Pond (0801-0099)	Lewis	Lake	C(T)	Acid/Base (pH)	Atmospheric Dep.	1998
Ont 19-40-13-P431	Soft Maple Dam Pond (0801-0056)	Lewis	Lake	C(T)	Acid/Base (pH)	Atmospheric Dep.	1998
Ont 19-40-13-P432	Unnamed P #4-432 (0801-0100)	Lewis	Lake	C(T)	Acid/Base (pH)	Atmospheric Dep.	1998
Ont 19-40-15-4-P436	Sand Pond (0801-0055)	Lewis	Lake	C(T)	Acid/Base (pH)	Atmospheric Dep.	1998
Ont 19-40-18-2-1-P438	Ikeis Pond (0801-0101)	Herkimer	Lake	D	Acid/Base (pH)	Atmospheric Dep.	1998
Ont 19-40-18-5-P443	Pepperbox Pond (0801-0076)	Herkimer	Lake	D	Acid/Basc (pH)	Atmospheric Dep.	1998
Ont 19-40-18-7-P444	Lower Spring Pond (0801-0145)	Hamilton	Lake	C	Acid/Base (pH)	Atmospheric Dep.	1998
Ont 19-40-18-7-P444a	* Unnamed P #4-444a (0801-0103)	Herkimer	Lake	FP	Acid/Base (pH)	Atmospheric Dep.	1998
Ont 19-40-19-P456	* Unnamed P #4-456 (0801-0088)	Herkimer	Lake	FP	Acid/Base (pH)	Atmospheric Dep.	1998
Ont 19-40-19-P456a	Unnamed P #4-456a (0801-0089)	Herkimer	Lake	D	Acid/Base (pH)	Atmospheric Dep.	1998
Ont 19-40-20	Sunday Creek (0801-0210)	Herkimer	River	C(T)	Acid/Base (pH)	Atmospheric Dep.	2002
Ont 19-40-22-3-P484a	Unnamed P #4-484a (0801-0091)	Herkimer	Lake	C	Acid/Base (pH)	Atmospheric Dep.	1998
Ont 19-40-22-3-P485	Deer Pond (0801-0148)	Hamilton	Lake	D	Acid/Base (pH)	Atmospheric Dep.	1998
Ont 19-40-22-3-P487	* Sunshine Pond (0801-0058)	Herkimer	Lake	FP	Acid/Base (pH)	Atmospheric Dep.	1998
Ont 19-40-22-P489	* Lower Moshier Pond (0801-0049)	Herkimer	Lake	FP	Acid/Base (pH)	Atmospheric Dep.	1998
Ont 19-40-22-P491	Upper Moshier Pd (0801-0097)	Herkimer	Lake	C	Acid/Base (pH)	Atmospheric Dep.	1998
Ont 19-40-22-P492	* Duck Pond (0801-0040)	Herkimer	Lake	FP	Acid/Base (pH)	Atmospheric Dep.	1998
Ont 19-40-P493-2-3-P497	Unnamed P #4-497 (0801-0108)	Herkimer	Lake	C	Acid/Base (pH)	Atmospheric Dep.	1998
Ont 19-40-P493-2-P496	Raven Lake (0801-0107)	Herkimer	Lake	D	Acid/Base (pH)	Atmospheric Dep.	1998
Ont 19-40-P493-2-P498	Lyon Lake (0801-0109)	Herkimer	Lake	C	Acid/Base (pH)	Atmospheric Dep.	1998
Ont 19-40-P493-3-P499	Slim Pond (0801-0125)	Herkimer	Lake	C(T)	Acid/Base (pH)	Atmospheric Dep.	1998
Ont 19-40-P493-4-P500	Evergreen Lake (0801-0110)	Herkimer	Lake	C(T)	Acid/Base (pH)	Atmospheric Dep.	1998
Ont 19-40-P493-5-P502	Peaked Mtn. Lake (0801-0111)	Herkimer	Lake	C(T)	Acid/Base (pH)	Atmospheric Dep.	1998
Ont 19-40-P493-6-1-P504	* Hawk Pond (0801-0044)	Herkimer	Lake	FP	Acid/Base (pH)	Atmospheric Dep.	1998
Ont 19-40-P493-6-2-P505	Hidden Lake (0801-0114)	Herkimer	Lake	C(T)	Acid/Base (pH)	Atmospheric Dep.	1998
Ont 19-40-P493-6-3-P508	Ginger Pond (0801-0126)	Herkimer	Lake	D	Acid/Base (pH)	Atmospheric Dep.	1998
Ont 19-40-P493-6-3-P510	Unnamed P #4-510 (0801-0115)	Herkimer	Lake	C	Acid/Base (pH)	Atmospheric Dep.	1998
Ont 19-40-P493-6-3-P511	Soda Pond (0801-0113)	Herkimer	Lake	D	Acid/Base (pH)	Atmospheric Dep.	1998
Ont 19-40-P493-6-5-P513	Unnamed P #4-513 (0801-0116)	Herkimer	Lake	C	Acid/Base (pH)	Atmospheric Dep.	1998
Ont 19-40-P493-6-P515	Dismal Pond (0801-0065)	Herkimer	Lake	D	Acid/Base (pH)	Atmospheric Dep.	1998
Ont 19-40-P493-7-7-P522	Higby Twins E. Pond (0801-0068)	Herkimer	Lake	C(T)	Acid/Base (pH)	Atmospheric Dep.	1998
Ont 19-40-P493-7-7-P523	Higby Twins W. Pond (0801-0069)	Herkimer	Lake	C(T)	Acid/Base (pH)	Atmospheric Dep.	1998
Ont 19-40-P493-7-P517	* Salmon Lake (0801-0054)	Herkimer	Lake	FP	Acid/Base (pH)	Atmospheric Dep.	1998
Ont 19-40-P493-7-P528	* Witchopple Lake (0801-0062)	Herkimer	Lake	FP	Acid/Base (pH)	Atmospheric Dep.	1998
Ont 19-40-P493-7-P528..P531	* Wilder Pond (0801-0061)	Herkimer	Lake	FP	Acid/Base (pH)	Atmospheric Dep.	1998
Ont 19-40-P493-7..P525..P527	Summit Pond (0801-0084)	Herkimer	Lake	C(T)	Acid/Base (pH)	Atmospheric Dep.	1998

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Part 2a - Multiple Segment/Categorical Impaired Waterbody Segments (atmospheric deposition) (con't)

Water Index Number	Waterbody Name (WI/PWL ID)	County	Type	Class	Cause/Pollutant	Source	Year
	Black River Drainage Basin (con't)						
Ont 19- 40-P493-21-1-P570	Terror Lake (0801-0018)	Hamilton	Lake	C(T)	Acid/Base (pH)	Atmospheric Dep.	1998
Ont 19- 40-P493-21-P571	East Pond (0801-0066)	Herkimer	Lake	C(T)	Acid/Base (pH)	Atmospheric Dep.	1998
Ont 19- 40-P493-32	Twitchell Creek (0801-0211)	Herkimer	River	C(T)	Acid/Base (pH)	Atmospheric Dep.	2002
Ont 19- 40-P493-32-15-P580	Silver Lake (0801-0150)	Hamilton	Lake	C(T)	Acid/Base (pH)	Atmospheric Dep.	1998
Ont 19- 40-P493-32-P584	Twitchell Lake (0801-0165)	Herkimer	Lake	A(T)	Acid/Base (pH)	Atmospheric Dep.	1998
Ont 19- 40-P493-32-P584..P587	* Lower Lilypad Pond (0801-0048)	Herkimer	Lake	FP	Acid/Base (pH)	Atmospheric Dep.	1998
Ont 19- 57- 7-P630	Bill's Pond (0801-0128)	Lewis	Lake	D	Acid/Base (pH)	Atmospheric Dep.	1998
Ont 19- 57- 9-2-P632	Panther Pond (0801-0075)	Lewis	Lake	C(T)	Acid/Base (pH)	Atmospheric Dep.	1998
Ont 19- 57-10-3-P635	* Fifth Creek Pond (0801-0042)	Herkimer	Lake	FP	Acid/Base (pH)	Atmospheric Dep.	1998
Ont 19- 57-10-5-P638	Unnamed P #4-638 (0801-0094)	Herkimer	Lake	C(T)	Acid/Base (pH)	Atmospheric Dep.	1998
Ont 19- 57-23-P646	Unnamed P #4-646 (0801-0122)	Herkimer	Lake	C(T)	Acid/Base (pH)	Atmospheric Dep.	1998
Ont 19- 57-P651	Little Diamond Pond (0801-0153)	Hamilton	Lake	C(T)	Acid/Base (pH)	Atmospheric Dep.	1998
Ont 19- 60-P676-2-2-P678	* East Pond (0801-0041)	Herkimer	Lake	FP	Acid/Base (pH)	Atmospheric Dep.	1998
Ont 19- 60-P676-2-P679	Unnamed P #4-679 (0801-0123)	Herkimer	Lake	C(T)	Acid/Base (pH)	Atmospheric Dep.	1998
Ont 19- 60-P676-4-3-P681	Black Foot Pond (0801-0064)	Herkimer	Lake	C(T)	Acid/Base (pH)	Atmospheric Dep.	1998
Ont 19- 81- 3- 8-P880	Bear Pond (0801-0029)	Hamilton	Lake	C(T)	Acid/Base (pH)	Atmospheric Dep.	1998
Ont 19- 81-18-17	North Branch Moose River (0801-0212)	Herkimer	River	C(T)	Acid/Base (pH)	Atmospheric Dep.	2002
Ont 19- 81-18-17-14-P736..P737	Unnamed P #4-737 (0801-0154)	Hamilton	Lake	C(T)	Acid/Base (pH)	Atmospheric Dep.	1998
Ont 19- 81-18-17-P739-3-P743-1	Bald Mountain Brook (0801-0209)	Herkimer	River	C(T)	Acid/Base (pH)	Atmospheric Dep.	2002
Ont 19- 81-18-17-P752	Big Moose Lake (0801-0035)	Herkimer	Lake	A(T)	Acid/Base (pH)	Atmospheric Dep.	2002
Ont 19- 81-18-17-P752-2-P754	Squash Pond (0801-0155)	Hamilton	Lake	AA	Acid/Base (pH)	Atmospheric Dep.	1998
Ont 19- 81-18-17-P752-4-P756	* Merriam Lake (0801-0050)	Herkimer	Lake	FP	Acid/Base (pH)	Atmospheric Dep.	1998
Ont 19- 81-18-17-P752-6-P758	Gull Lake South (0801-0013)	Hamilton	Lake	C	Acid/Base (pH)	Atmospheric Dep.	1998
Ont 19- 81-18-17-P752-7-P768	Lower Sister Lake (0801-0004)	Hamilton	Lake	C(T)	Acid/Base (pH)	Atmospheric Dep.	1998
Ont 19- 81-18-17-P752-7-P769	* Upper Sister Lake (0801-0008)	Hamilton	Lake	FP	Acid/Base (pH)	Atmospheric Dep.	1998
Ont 19- 81-18-17-P752-7..P759	Unnamed P #4-759 (0801-0022)	Hamilton	Lake	C(T)	Acid/Base (pH)	Atmospheric Dep.	1998
Ont 19- 81-18-17-P752-7..P760	Otter Pond (0801-0016)	Hamilton	Lake	C(T)	Acid/Base (pH)	Atmospheric Dep.	1998
Ont 19- 81-18-17-P752-7..P762	North Gull Lake (0801-0005)	Hamilton	Lake	C	Acid/Base (pH)	Atmospheric Dep.	1998
Ont 19- 81-18-17-P752-8-P774	* Russian Lake (0801-0006)	Hamilton	Lake	FP	Acid/Base (pH)	Atmospheric Dep.	1998
Ont 19- 81-18-17-P752-9	Constable Creek (0801-0213)	Herkimer	River	C(T)	Acid/Base (pH)	Atmospheric Dep.	2002
Ont 19- 81-18-17-P752-9-P777	Constable Pond (0801-0214)	Herkimer	River	C(T)	Acid/Base (pH)	Atmospheric Dep.	2002
Ont 19- 81-18-17-P752-9-P779	Pigeon Lake (0801-0017)	Hamilton	Lake	C(T)	Acid/Base (pH)	Atmospheric Dep.	1998
Ont 19- 81-18-17-P752-9..P775	Pug Hole Pond (0801-0033)	Hamilton	Lake	?	Acid/Base (pH)	Atmospheric Dep.	1998
Ont 19- 81-18-17-P752..P772	* South Pond (0801-0057)	Herkimer	Lake	FP	Acid/Base (pH)	Atmospheric Dep.	1998
Ont 19- 81-18-17-P752..P773	Unnamed P #4-773 (0801-0032)	Hamilton	Lake	C(T)	Acid/Base (pH)	Atmospheric Dep.	1998

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Part 2a - Multiple Segment/Categorical Impaired Waterbody Segments (atmospheric deposition) (con't)

Water Index Number	Waterbody Name (WI/PWL ID)	County	Type	Class	Cause/Pollutant	Source	Year
	Black River Drainage Basin (con't)						
Ont 19- 81-18-P782d...P788	Eagles Nest Lake (0801-0011)	Hamilton	Lake	C(T)	Acid/Base (pH)	Atmospheric Dep.	1998
Ont 19- 81-18-P792d..P787a-2	Seventh Lake Inlet (0801-0207)	Hamilton	River	C(T)	Acid/Base (pH)	Atmospheric Dep.	2002
Ont 19- 81-18-P792d..P787a-4	Buck Creek (0801-0215)	Hamilton	River	C(T)	Acid/Base (pH)	Atmospheric Dep.	2002
Ont 19- 81-18-P792d..P787a-6	Wheeler Creek (0801-0216)	Hamilton	River	C(T)	Acid/Base (pH)	Atmospheric Dep.	2002
Ont 19- 81-51- 2-P837	Balsam Lake (0801-0034)	Herkimer	Lake	C(T)	Acid/Base (pH)	Atmospheric Dep.	1998
Ont 19- 81-52-P841	Unnamed P #4-841 (0801-0131)	Herkimer	Lake	C(T)	Acid/Base (pH)	Atmospheric Dep.	1998
Ont 19- 81-58-12-P855	* Mountain Lake (0801-0052)	Herkimer	Lake	FP	Acid/Base (pH)	Atmospheric Dep.	1998
Ont 19- 81-58-16-P863	Unnamed P #4-863 (0801-0158)	Hamilton	Lake	C(T)	Acid/Base (pH)	Atmospheric Dep.	1998
Ont 19- 81-58-22-2-3-P866	Deep Lake (0801-0010)	Hamilton	Lake	C(T)	Acid/Base (pH)	Atmospheric Dep.	1998
Ont 19- 81-58-22-P873	Wolf Lake (0801-0025)	Hamilton	Lake	C(T)	Acid/Base (pH)	Atmospheric Dep.	1998
Ont 19- 81-58-25-P874	Brook Trout Lake (0801-0009)	Hamilton	Lake	C(T)	Acid/Base (pH)	Atmospheric Dep.	1998
Ont 19- 81-58-5-P852	* Indian Lake (0801-0002)	Hamilton	Lake	FP	Acid/Base (pH)	Atmospheric Dep.	1998
Ont 19- 81-58-P869	Twin Lake West (0801-0020)	Hamilton	Lake	C(T)	Acid/Base (pH)	Atmospheric Dep.	1998
Ont 19- 81-58-P870	Twin Lake East (0801-0019)	Hamilton	Lake	C(T)	Acid/Base (pH)	Atmospheric Dep.	1998
Ont 19- 81-58-P875	Northrup Lake (0801-0160)	Hamilton	Lake	C(T)	Acid/Base (pH)	Atmospheric Dep.	1998
Ont 19- 81-69-P888	Sly Pond (0801-0007)	Hamilton	Lake	C	Acid/Base (pH)	Atmospheric Dep.	1998
Ont 19- 81-71	Bradley Brook (0801-0208)	Hamilton	River	C(T)	Acid/Base (pH)	Atmospheric Dep.	2002
Ont 19- 81-71-2-1	Cellar Brook (0801-0217)	Hamilton	River	C(T)	Acid/Base (pH)	Atmospheric Dep.	2002
Ont 19- 88-P905	Barnes Lake (0801-0134)	Lewis	Lake	C(T)	Acid/Base (pH)	Atmospheric Dep.	1998
Ont 19-104-2-P951-1-P952	Lily Lake (0801-0070)	Herkimer	Lake	C(T)	Acid/Base (pH)	Atmospheric Dep.	1998
Ont 19-104-P981-1-P982..P984	Bloodsucker Pond (0801-0135)	Herkimer	Lake	C	Acid/Base (pH)	Atmospheric Dep.	1998
Ont 19-114-P996	Burp Lake (0801-0139)	Herkimer	Lake	C(T)	Acid/Base (pH)	Atmospheric Dep.	1998
Ont 19-128-6-P1003	Little Salmon Lk. (0801-0140)	Herkimer	Lake	C(T)	Acid/Base (pH)	Atmospheric Dep.	1998
Ont 19-P1007-10-3-P1011	Snyder Lake (0801-0080)	Herkimer	Lake	C(T)	Acid/Base (pH)	Atmospheric Dep.	1998
Ont 19-P1007-10..P1011..P1012	* Monument Lake (0801-0051)	Herkimer	Lake	FP	Acid/Base (pH)	Atmospheric Dep.	1998
	Saint Lawrence River Drainage Basin						
SL- 1-046-P031	Joe Indian Lake (0903-0060)	St.Lawrence	Lake	C(T)	Acid/Base (pH)	Atmospheric Dep.	1998
SL- 1-162-P233-01-P234	* Black Pond (0903-0007)	Essex	Lake	FP	Acid/Base (pH)	Atmospheric Dep.	1998
SL- 1-172-P293-13-4-P322	* Upper Haymarsh Pond (0903-0017)	Hamilton	Lake	FP	Acid/Base (pH)	Atmospheric Dep.	1998
SL- 1-P085- 1-P87	Gull Pond (0903-0061)	Franklin	Lake	C	Acid/Base (pH)	Atmospheric Dep.	1998
SL- 1-P109-11-2-4-1-2-P116	Lost Pond (0903-0057)	Hamilton	Lake	D	Acid/Base (pH)	Atmospheric Dep.	1998
SL- 1-P109-11-2-P118...P129	Rock Pond, P-129 (0903-0003)	Hamilton	Lake	B(T)	Acid/Base (pH)	Atmospheric Dep.	1998
SL- 1-P109-11-P144...P147	High Pond (0903-0001)	Hamilton	Lake	C(T)	Acid/Base (pH)	Atmospheric Dep.	1998

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Part 2a - Multiple Segment/Categorical Impaired Waterbody Segments (atmospheric deposition) (con't)

Water Index Number	Waterbody Name (WI/PWL ID)	County	Type	Class	Cause/Pollutant	Source	Year
	Saint Lawrence River Drainage Basin (con't)						
SL- 1-P109-11-P144...P148	Little Pine Pond (0903-0028)	St.Lawrence	Lake	D	Acid/Base (pH)	Atmospheric Dep.	1998
SL- 1-P109-11-P156-4-1-P161	Spring Pond (0903-0041)	St.Lawrence	Lake	C(T)	Acid/Base (pH)	Atmospheric Dep.	1998
SL- 1-P109-11-P170	Halfmoon Pond (0903-0032)	St.Lawrence	Lake	C(T)	Acid/Base (pH)	Atmospheric Dep.	1998
SL- 1-P109-11...P172	* High Pond (0903-0025)	St.Lawrence	Lake	FP	Acid/Base (pH)	Atmospheric Dep.	1998
SL- 1-P109-15-P178-1-P179	* Black Pond (0903-0027)	St.Lawrence	Lake	FP	Acid/Base (pH)	Atmospheric Dep.	1998
SL- 1-P241-22-P245	South Pond (0903-0005)	Hamilton	Lake	C(T)	Acid/Base (pH)	Atmospheric Dep.	1998
SL- 1-P241-22-P245-2-P247	Salmon Pond (0903-0004)	Hamilton	Lake	C(T)	Acid/Base (pH)	Atmospheric Dep.	1998
SL- 1-P276-1-P277...P278	Pilgrim Pond (0903-0043)	Hamilton	Lake	D	Acid/Base (pH)	Atmospheric Dep.	1998
SL- 1-P293-13-4-P325	* Pelcher Pond (0903-0002)	Hamilton	Lake	FP	Acid/Base (pH)	Atmospheric Dep.	1998
SL- 1-P293-13-8-P327	* Middle Chain Pond (0903-0011)	Hamilton	Lake	FP	Acid/Base (pH)	Atmospheric Dep.	1998
SL- 1-P293-13-8-P330	* Unnamed P #6-330 (0903-0015)	Hamilton	Lake	FP	Acid/Base (pH)	Atmospheric Dep.	1998
SL- 1-P293...P315	* Aluminum Pond (0903-0006)	Hamilton	Lake	FP	Acid/Base (pH)	Atmospheric Dep.	1998
SL- 2-59-32-6-1-P361	Wolf Pond (0904-0002)	St.Lawrence	Lake	C(T)	Acid/Base (pH)	Atmospheric Dep.	1998
SL-25-073	* W.Br.Oswegatchie (0905-0003)	Lewis	River	FP	Acid/Base (pH)	Atmospheric Dep.	1998
SL-25-073-19-5-3-P136	Dry Timber Lake (0905-0032)	St.Lawrence	Lake	C(T)	Acid/Base (pH)	Atmospheric Dep.	1998
SL-25-073-26-38-5-P184	Green Pond (0905-0035)	Herkimer	Lake	D	Acid/Base (pH)	Atmospheric Dep.	1998
SL-25-073-26-38-P183-P185	* Twin Ponds (0905-0059)	Herkimer	Lake	FP	Acid/Base (pH)	Atmospheric Dep.	1998
SL-25-073-26-38-5-P186	Loon Hollow Pond (0905-0105)	Herkimer	Lake	C(T)	Acid/Base (pH)	Atmospheric Dep.	1998
SL-25-073-26-40-...P189	* Rock Lake (0905-0015)	Herkimer	Lake	FP	Acid/Base (pH)	Atmospheric Dep.	1998
SL-25-073-26-40-...P190	* Emerald Lake (0905-0008)	Herkimer	Lake	FP	Acid/Base (pH)	Atmospheric Dep.	1998
SL-25-073-26-40-P191	* Sand Lake (0905-0016)	Herkimer	Lake	FP	Acid/Base (pH)	Atmospheric Dep.	1998
SL-25-073-26-40...P192	* Sitz Pond (0905-0017)	Herkimer	Lake	FP	Acid/Base (pH)	Atmospheric Dep.	1998
SL-25-073-26-42-1-P195	Muskrat Pond (0905-0061)	Herkimer	Lake	D	Acid/Base (pH)	Atmospheric Dep.	1998
SL-25-073-26-42-P196	Bear Pond (0905-0062)	Herkimer	Lake	D	Acid/Base (pH)	Atmospheric Dep.	1998
SL-25-073-26-42-P196-1-P197	Diana Pond (0905-0063)	Herkimer	Lake	D	Acid/Base (pH)	Atmospheric Dep.	1998
SL-25-073-26-43-P198	* Lower South Pond (0905-0012)	Herkimer	Lake	FP	Acid/Base (pH)	Atmospheric Dep.	1998
SL-25-073-26-43-P199	* Middle South Pond (0905-0013)	Herkimer	Lake	FP	Acid/Base (pH)	Atmospheric Dep.	1998
SL-25-073-26-43-P200	Upper South Pond (0905-0057)	Herkimer	Lake	D	Acid/Base (pH)	Atmospheric Dep.	1998
SL-25-073-26-44-P201	* N.Beechridge Pond (0905-0019)	Herkimer	Lake	FP	Acid/Base (pH)	Atmospheric Dep.	1998
SL-25-073-26-44-P201	* Unnamed P #4-201 (0905-0047)	Herkimer	Lake	FP	Acid/Base (pH)	Atmospheric Dep.	1998
SL-25-073-26-44-P203	* E.Beechridge Pond (0905-0020)	Herkimer	Lake	FP	Acid/Base (pH)	Atmospheric Dep.	1998
SL-25-073-26-46-P203	* Unnamed P #4-203 (0905-0049)	Herkimer	Lake	FP	Acid/Base (pH)	Atmospheric Dep.	1998

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Part 2a - Multiple Segment/Categorical Impaired Waterbody Segments (atmospheric deposition) (con't)

Water Index Number	Waterbody Name (WI/PWL ID)	County	Type	Class	Cause/Pollutant	Source	Year
	Saint Lawrence River Drainage Basin (con't)						
SL-25-073-26-47-P205	* Unnamed P #4-205 (0905-0021)	Herkimer	Lake	FP	Acid/Base (pH)	Atmospheric Dep.	1998
SL-25-073-26-48-1-P208	* Unnamed P #4-208 (0905-0022)	Herkimer	Lake	FP	Acid/Base (pH)	Atmospheric Dep.	1998
SL-25-073-26-49-P210	* Willys Lake (0905-0026)	Herkimer	Lake	FP	Acid/Base (pH)	Atmospheric Dep.	1998
SL-25-073-26-P193-...P194	Unnamed P #4-194 (0905-0060)	Herkimer	Lake	?	Acid/Base (pH)	Atmospheric Dep.	1998
SL-25-073-26-P204	* Unnamed P #4-204 (0905-0050)	Herkimer	Lake	FP	Acid/Base (pH)	Atmospheric Dep.	1998
SL-25-073-26-P214	* Walker Lake (0905-0024)	Herkimer	Lake	FP	Acid/Base (pH)	Atmospheric Dep.	1998
SL-25-073-43-P244-P245	Jakes Pond (0905-0038)	Herkimer	Lake	C(T)	Acid/Base (pH)	Atmospheric Dep.	1998
SL-25-073-P228e	Unnamed P #4-288e (0905-0078)	St.Lawrence	Lake	C(T)	Acid/Base (pH)	Atmospheric Dep.	1998
SL-25-101-24-8-P289	Crystal Lake (0905-0030)	St.Lawrence	Lake	C(T)	Acid/Base (pH)	Atmospheric Dep.	1998
SL-25-118-1-P340	* Otter Pond (0905-0014)	St.Lawrence	Lake	FP	Acid/Base (pH)	Atmospheric Dep.	1998
SL-25-126-4-P350	* Lone Duck Pond (0905-0088)	Hamilton	Lake	FP	Acid/Base (pH)	Atmospheric Dep.	1998
SL-25-126-5-P351	* Muir Pond (0905-0041)	Herkimer	Lake	FP	Acid/Base (pH)	Atmospheric Dep.	1998
SL-25-126-7-1-P354	* Lower Riley Pond (0905-0011)	Herkimer	Lake	FP	Acid/Base (pH)	Atmospheric Dep.	1998
SL-25-126-7-1-P355	* Upper Riley Pond (0905-0023)	Herkimer	Lake	FP	Acid/Base (pH)	Atmospheric Dep.	1998
SL-25-126-P352	* Wolf Pond (0905-0027)	Herkimer	Lake	FP	Acid/Base (pH)	Atmospheric Dep.	1998
SL-25-126-P352-1-P353	* Streeter Fishpond (0905-0067)	Herkimer	Lake	FP	Acid/Base (pH)	Atmospheric Dep.	1998
SL-25-131-P363	* Slender Pond (0905-0074)	St.Lawrence	Lake	FP	Acid/Base (pH)	Atmospheric Dep.	1998
SL-25-132-1-P365	Oven Lake (0905-0042)	Herkimer	Lake	D	Acid/Base (pH)	Atmospheric Dep.	1998
SL-25-132-1-P366	Grassy Pond (0905-0034)	Herkimer	Lake	C	Acid/Base (pH)	Atmospheric Dep.	1998
SL-25-132-1-P366-P367	Hyde Pond (0905-0071)	Herkimer	Lake	C	Acid/Base (pH)	Atmospheric Dep.	1998
SL-25-132-6-P371	* Unnamed P #4-371 (0905-0056)	St.Lawrence	Lake	FP	Acid/Base (pH)	Atmospheric Dep.	1998
SL-25-132-7-P372	* Little Crooked Lk (0905-0010)	Herkimer	Lake	FP	Acid/Base (pH)	Atmospheric Dep.	1998
SL-25-132-P366-P368	Hitchens Pond (0905-0036)	Herkimer	Lake	C	Acid/Base (pH)	Atmospheric Dep.	1998
SL-25-132-P369	* Toad Pond (0905-0046)	Herkimer	Lake	FP	Acid/Base (pH)	Atmospheric Dep.	1998
SL-25-132-P373	* Crooked Lake (0905-0006)	Herkimer	Lake	FP	Acid/Base (pH)	Atmospheric Dep.	1998
SL-25-133-1-P376	* Gal Pond (0905-0009)	Herkimer	Lake	FP	Acid/Base (pH)	Atmospheric Dep.	1998
SL-25-133...P375	* Cracker Pond (0905-0005)	Herkimer	Lake	FP	Acid/Base (pH)	Atmospheric Dep.	1998
SL-25-140-1-P377	Gull Lake (0905-0072)	Herkimer	Lake	C(T)	Acid/Base (pH)	Atmospheric Dep.	1998
SL-25-P309	Cranberry Lake (0905-0007)	St.Lawrence	Lake	A(T)	Acid/Base (pH)	Atmospheric Dep.	1998
SL-25-P309- 9-2-P313	* Curtis Pond (0905-0004)	St.Lawrence	Lake	FP	Acid/Base (pH)	Atmospheric Dep.	1998
SL-25-P309- 9-5-P314	* Unnamed P #4-314 (0905-0080)	St.Lawrence	Lake	FP	Acid/Base (pH)	Atmospheric Dep.	1998
SL-25-P309- 9-5-P315	* Donut Pond (0905-0081)	St.Lawrence	Lake	FP	Acid/Base (pH)	Atmospheric Dep.	1998
SL-25-P309- 9-P316	* Dog Pond (0905-0031)	St.Lawrence	Lake	FP	Acid/Base (pH)	Atmospheric Dep.	1998
SL-25-P309-12-1-2-P325	* Indian Mountain P (0905-0037)	St.Lawrence	Lake	FP	Acid/Base (pH)	Atmospheric Dep.	1998
SL-25-P309..124-P343,P344	* Buck Pond, Cage Lake (0905-0001)	St.Lawrence	Lake	FP	Acid/Base (pH)	Atmospheric Dep.	1998

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Part 2a - Multiple Segment/Categorical Impaired Waterbody Segments (atmospheric deposition) (con't)

Water Index Number	Waterbody Name (WI/PWL ID)	County	Type	Class	Cause/Pollutant	Source	Year
	Saint Lawrence River Drainage Basin (con't)						
SLC-29-P065	Wolf Pond (0902-0006)	Franklin	Lake	B	Acid/Base (pH)	Atmospheric Dep.	1998
SLC-32- 6-26-P079	Diamond Pond (0902-0011)	Franklin	Lake	D	Acid/Base (pH)	Atmospheric Dep.	1998
SLC-32-20-41-P101	Lower Twin Pond (0902-0045)	Essex	Lake	C(T)	Acid/Base (pH)	Atmospheric Dep.	1998
SLC-32-20-95-P141	* Little Long Pond (0902-0004)	Franklin	Lake	FP	Acid/Base (pH)	Atmospheric Dep.	1998
SLC-32-20-95-P142	* Kitfox Pond (0902-0003)	Franklin	Lake	FP	Acid/Base (pH)	Atmospheric Dep.	1998
SLC-32-67- 2-P221	Benz Pond (0902-0021)	Essex	Lake	D	Acid/Base (pH)	Atmospheric Dep.	1998
SLC-32-81-P238-2-P244	* Toad Pond (0902-0008)	Franklin	Lake	FP	Acid/Base (pH)	Atmospheric Dep.	1998
SLC-32-P170	* Long Pond, P-170 (0902-0005)	Franklin	Lake	FP	Acid/Base (pH)	Atmospheric Dep.	1998
SLC-32-P257a-P264-P265..P271	* Bear Pond (0902-0007)	Franklin	Lake	FP	Acid/Base (pH)	Atmospheric Dep.	1998
	Lake Champlain Drainage Basin						
C-15-P114..P201	St. Germain Pond (included in 1003-0086)	Franklin	Lake	AA	Acid/Base (pH)	Atmospheric Dep.	1998
C-25-26..P234	East Copperas Pond, (included in 1004-0065)	Essex	Lake	C(T)	Acid/Base (pH)	Atmospheric Dep.	1998
	Upper Hudson River Drainage Basin						
H-363-P119	Bullhead Pond (1101-0033) [10]	Saratoga	Lake	C	Acid/Base (pH)	Atmospheric Dep.	1998
H-369-P127-46-12-P168	* Holmes Lake (1104-0006)	Fulton	Lake	FP	Acid/Base (pH)	Atmospheric Dep.	1998
H-369..20-23-4-P225	* Sand Lake (1104-0015)	Hamilton	Lake	FP	Acid/Base (pH)	Atmospheric Dep.	1998
H-369..20-P222 thru P276	* Minor Lakes Trib to Upp.W.Br Sacandaga (1104-0013) [11]	Hamilton	Lake	FP	Acid/Base (pH)	Atmospheric Dep.	1998
H-369..20-43-P270	* Silver Lake (1104-0016)	Hamilton	Lake	FP	Acid/Base (pH)	Atmospheric Dep.	1998
H-438-20-2a-P557	* Stoney Pond (1104-0018)	Essex	Lake	FP	Acid/Base (pH)	Atmospheric Dep.	1998
H-461..P582 thru P612	* Minor Lakes Trib to Indian River/Lake (1104-0008) [12]	Hamilton	Lake	FP	Acid/Base (pH)	Atmospheric Dep.	1998
H-503-P680/P682- 6..P687	* Round Pond (1104-0073)	Hamilton	Lake	FP	Acid/Base (pH)	Atmospheric Dep.	1998
H-469..P624 thru P669	* Minor Lakes Trib to Cedar River (1104-0003) [13]	Hamilton	Lake	FP	Acid/Base (pH)	Atmospheric Dep.	1998
H-508 thru 546..P695 thru P719	* Minor Lakes Trib to Upper Hudson (1104-0007) [14]	Essex	Lake	FP	Acid/Base (pH)	Atmospheric Dep.	1998

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10 This waterbody was previously listed in Appendix A - *Other/Smaller Waters Impaired by Atmospheric Deposition*. Re-assessment found the lake to be of sufficient size to list in Part 2a.

11 The specifically identified water(s) in this segment include Clockmill Pond (P228), Rock Lake (P229), Lower Loomis Pond (P256), Upper Loomis Pond (P257), Trout Lake (P260), Chub Lake (P264), Rock Lake (P275) and Meco Lake (P276).

12 The specifically identified water(s) in this segment include Little Moose Pond (P607).

13 The specifically identified water(s) in this segment include South Pine Lake and Carry Pond (P669).

14 The specifically identified water(s) in this segment include Lake Colden (P706), Upper Wallface Pond (P719).

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Part 2a - Multiple Segment/Categorical Impaired Waterbody Segments (atmospheric deposition) (con't)

Water Index Number	Waterbody Name (WI/PWL ID)	County	Type	Class	Cause/Pollutant	Source	Year
	Mohawk River Drainage Basin						
H-240-144-13..P727,P729,P730	* Green, Otter, Stewart Lakes (1201-0009)	Fulton	Lake	B/FP	Acid/Base (pH)	Atmospheric Dep.	1998
H-240-144-13..P732	Irving Pond (1201-0230, formerly 1201-0004)	Fulton	Lake	B	Acid/Base (pH)	Atmospheric Dep.	1998
H-240-144-28-P750..P753.P755	* Knapps Long Lk, Long Pd (1201-0007)	Fulton	Lake	FP	Acid/Base (pH)	Atmospheric Dep.	1998
H-240-144-29-P768	* Little Metcalf Lake (1201-0227)	Herkimer	Lake	FP	Acid/Base (pH)	Atmospheric Dep.	1998
H-240-144-34-P771	* Redlouse Lake (1201-0008)	Hamilton	Lake	FP	Acid/Base (pH)	Atmospheric Dep.	1998
H-240-144-38-P777	* Ferris Lake (1201-0003)	Hamilton	Lake	FP	Acid/Base (pH)	Atmospheric Dep.	1998
H-240-144-43-P786	Morehouse Lake (1201-0080)	Hamilton	Lake	B(T)	Acid/Base (pH)	Atmospheric Dep.	1998
H-240-144-44-P790,P790a	Big Alderbed Pd, Blind Mans Vly (1201-0002)	Hamilton	Lake	C(T)	Acid/Base (pH)	Atmospheric Dep.	1998
H-240-180 (portion 5)	* West Canada Creek, Upp, and tribs (1203-0008)	Herkimer	River	A(T)/FP	Acid/Base (pH)	Atmospheric Dep.	1998
H-240-180 (portion 6)	* West Canada Creek, Upp, and tribs (1203-0025)	Herkimer	River	C(T)/FP	Acid/Base (pH)	Atmospheric Dep.	2004
H-240-180- P799-19..P818 to P822	Lakes Trib to Jerseyfield Lake (1203-0002)	Herkimer	Lake	C	Acid/Base (pH)	Atmospheric Dep.	1998
H-240-180-74-16-1-P856	* Twin Lake, south (1203-0005)	Hamilton	Lake	FP	Acid/Base (pH)	Atmospheric Dep.	1998
H-240-180-74-21-P862	* T Lake (1203-0004)	Hamilton	Lake	FP	Acid/Base (pH)	Atmospheric Dep.	1998
H-240-180-74..P864 thru P867	* Buck Ponds, White Birch Lake (1203-0001)	Hamilton	Lake	FP	Acid/Base (pH)	Atmospheric Dep.	1998
H-240-180-87-P908,P909	* Spruce, Balsam Lakes (1203-0007)	Hamilton	Lake	FP	Acid/Base (pH)	Atmospheric Dep.	1998
H-240-180-91-P915,P919	* Beaver Pd, Poor Lake (1203-0003)	Hamilton	Lake	FP	Acid/Base (pH)	Atmospheric Dep.	1998
	Delaware River Drainage Basin						
D- 1-P58b-82	East Branch Neversink River and tribs (1402-0007)	Ulster	River	C(T)	Acid/Base (pH)	Atmospheric Dep.	2004
D- 1-33-P37	Wolf Reservoir (1402-0045)	Sullivan	Lake(R)	B	Acid/Base (pH)	Atmospheric Dep.	2004

Other/Smaller Lakes Impaired by Atmospheric Deposition (Acid Rain)...See Appendix A

Previous Section 303(d) Lists included additional small lake waterbodies impacted by atmospheric deposition. Because development of a comprehensive monitoring strategy required limiting the WI/PWL database to lakes 6.4 acres or larger, these smaller lakes are no longer tracked as individual waterbodies in the database. Additionally, some other lakes within a watershed may have been joined together as a single segment, and are no longer tracked individually. In order to accommodate these changes regarding the tracking of waterbodies within the WI/PWL database and to provide continuity between this listing and previous lists that included tracking of the smaller lake waterbodies, a list of *Other/Smaller Lakes Impaired by Atmospheric Deposition* (currently representing 184 lakes/ponds) is included in the 2006 Section 303(d) List and is attached as Appendix A.

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Part 2b - Multiple Segment/Categorical Impaired Waterbody Segments (fish consumption)

Might be addressed by a waterbody specific TMDL or a pollutant/source specific TMDL or other strategy to attain water quality standards.

NOTE: Fish consumption advisories/impairments for all waters extend into tributary waters up to the first impassable barrier.

Water Index Number	Waterbody Name (WI/PWL ID)	County	Type	Class	Cause/Pollutant	Source	Year
	Niagara River/Lake Erie Drainage Basin						
Ont 158 (portion 1)	Niagara River, Lower, Main Stem (0101-0027)	Niagara	River	A-Spcl	Dioxin	Cont.Sed, Land.Disp.	1998
					Mirex	Cont.Sed, Land.Disp.	1998
					PCBs	Cont.Sed, Land.Disp.	1998
Ont 158 (portion 2)	Niagara River, Upper, Main Stem (0101-0006)	Niagara	River	A-Spcl	PCBs	Cont.Sed, Land.Disp.	1998
Ont 158 (portion 3)	**Chippewa (West) Channel (0101-0028)** [15]	Niagara	River	A-Spcl	**PCBs**	Cont.Sed, Land.Disp.	1998
Ont 158 (portion 4)	**Black Rock Channel (0101-0025)** [15]	Niagara	River	A-Spcl	**PCBs**	Cont.Sed, Land.Disp.	1998
Ont 158- 8	Cayuga Creek and minor tribs (0101-0001)	Niagara	River	C	Dioxin	Contaminated Sed.	1998
Ont 158- 8-1	Bergholtz Creek and tribs (0101-0004) [16]	Niagara	River	C	PCBs	Tox/Contam. Sediment	2004
Ont 158-12 (portion 1)	Tonawanda Creek, Lower, Main Stem (0102-0022)	Niagara	River	C	PCBs	Contaminated Sed.	1998
Ont 158-15-P25	Delaware Park Lake (0101-0026)	Erie	Lake	B	PCBs	Cont.Sed, Land.Disp.	1998
Ont 158-E (portion 1)	Lake Erie, Erie Basin (0104-0032)	Erie	G.Lakes	C	PCBs	Contaminated Sed. [17]	2002
Ont 158-E (portion 2)	Lake Erie, Outer Harbor North (0104-0033)	Erie	G.Lakes	B	PCBs	Contaminated Sed. [17]	2002
Ont 158-E (portion 3)	Lake Erie, Outer Harbor South (0104-0034)	Erie	G.Lakes	C	PCBs	Contaminated Sed. [17]	2002
Ont 158-E (portion 4)	Lake Erie, Northeast Shoreline (0104-0035)	Erie	G.Lakes	C	PCBs	Contaminated Sed. [17]	2002
Ont 158-E (portion 5)	Lake Erie, Northeast Shoreline (0104-0036)	Erie	G.Lakes	B	PCBs	Contaminated Sed. [17]	2002
Ont 158-E (portion 6)	Lake Erie, Main Lake, North (0104-0037)	Erie	G.Lakes	A-Spcl	PCBs	Contaminated Sed. [17]	2002
Ont 158-E (portion 7)	Lake Erie, Main Lake, South (0105-0033)	Chautauqua	G.Lakes	A-Spcl	PCBs	Contaminated Sed. [17]	2002
Ont 158-E (portion 7a)	Lake Erie, Dunkirk Harbor (0105-0009)	Chautauqua	G.Lakes	B	PCBs	Contaminated Sed. [17]	2002
Ont 158-E (portion 7b)	Lake Erie, Barcelona Harbor (0105-0011)	Chautauqua	G.Lakes	B	PCBs	Contaminated Sed. [17]	2002
Ont 158..E- 1	Buffalo River (0103-0001)	Erie	River	C	PCBs	Contaminated Sed. [17]	1998
	Lake Ontario (Minor Tribs) Drainage Basin						
Ont (portion 1)	Lake Ontario Shoreline, Eastern (0303-0023)	Jefferson	G.Lakes	A	PCBs	Contaminated Sed. [17]	1998
					Mirex	Contaminated Sed. [17]	1998
					Dioxin	Contaminated Sed. [17]	1998
Ont (portion 2)	Lake Ontario Shoreline, Eastern (0303-0011)	Jefferson	G.Lakes	A	PCBs	Contaminated Sed. [17]	1998
					Mirex	Contaminated Sed. [17]	1998
					Dioxin	Contaminated Sed. [17]	1998

15 These two segments have been split out and are listed separately from the Niagara River, Upper, Main Stem (0101-0006) segment.

16 Fish consumption advisory for Cayuga Creek includes lower Bergholtz Creek to the first impassible barrier.

17 For Lake Erie and Lake Ontario Shoreline segments included on the Section 303(d) List due to fish consumption restrictions, the primary source of contamination is the open lake rather than the near-shore waters. Due to fish migration, the advisories apply to tributary waters up to the first impassable barrier.

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Water Index Number	Waterbody Name (WI/PWL ID)	County	Type	Class	Cause/Pollutant	Source	Year

Part 2b - Multiple Segment/Categorical Impaired Waterbody Segments (fish consumption) (con't)

Water Index Number	Waterbody Name (WI/PWL ID)	County	Type	Class	Cause/Pollutant	Source	Year
	Lake Ontario (Minor Tribs) Drainage Basin						
Ont (portion 2a)	Chaumont Bay (0303-0024)	Jefferson	G.Lakes	A	PCBs	Contaminated Sed. [17]	1998
					Mirex	Contaminated Sed. [17]	1998
					Dioxin	Contaminated Sed. [17]	1998
Ont (portion 2b)	Guffin Bay (0303-0025)	Jefferson	G.Lakes	A	PCBs	Contaminated Sed. [17]	1998
					Mirex	Contaminated Sed. [17]	1998
					Dioxin	Contaminated Sed. [17]	1998
Ont (portion 3)	Lake Ontario Shoreline, Eastern (0303-0026)	Jefferson	G.Lakes	A	PCBs	Contaminated Sed. [17]	1998
					Mirex	Contaminated Sed. [17]	1998
					Dioxin	Contaminated Sed. [17]	1998
Ont (portion 4)	Lake Ontario Shoreline, Eastern (0303-0027)	Jefferson	G.Lakes	A	PCBs	Contaminated Sed. [17]	1998
					Mirex	Contaminated Sed. [17]	1998
					Dioxin	Contaminated Sed. [17]	1998
Ont (portion 4a)	Henderson Bay (0303-0022)	Jefferson	G.Lakes	A	PCBs	Contaminated Sed. [17]	1998
					Mirex	Contaminated Sed. [17]	1998
					Dioxin	Contaminated Sed. [17]	1998
Ont (portion 5)	Lake Ontario Shoreline, Eastern (0303-0028)	Jefferson	G.Lakes	A	PCBs	Contaminated Sed. [17]	1998
					Mirex	Contaminated Sed. [17]	1998
					Dioxin	Contaminated Sed. [17]	1998
Ont (portion 6)	Lake Ontario Shoreline, Eastern (0303-0029)	Jefferson	G.Lakes	A	PCBs	Contaminated Sed. [17]	1998
					Mirex	Contaminated Sed. [17]	1998
					Dioxin	Contaminated Sed. [17]	1998
Ont (portion 7)	Lake Ontario Shoreline, Eastern (0303-0030)	Oswego	G.Lakes	A	PCBs	Contaminated Sed. [17]	1998
					Mirex	Contaminated Sed. [17]	1998
					Dioxin	Contaminated Sed. [17]	1998
Ont (portion 8)	Lake Ontario Shoreline, Eastern (0303-0031)	Oswego	G.Lakes	A	PCBs	Contaminated Sed. [17]	1998
					Mirex	Contaminated Sed. [17]	1998
					Dioxin	Contaminated Sed. [17]	1998
Ont (portion 9)	Lake Ontario Shoreline, Eastern (0303-0032)	Oswego	G.Lakes	A	PCBs	Contaminated Sed. [17]	1998
					Mirex	Contaminated Sed. [17]	1998
					Dioxin	Contaminated Sed. [17]	1998
Ont (portion 10)	Lake Ontario Shoreline, Oswego (0302-0040)	Oswego	G.Lakes	A	PCBs	Contaminated Sed. [17]	1998
					Mirex	Contaminated Sed. [17]	1998
					Dioxin	Contaminated Sed. [17]	1998
Ont (portion 11)	Lake Ontario Shoreline, Central (0302-0041)	Oswego	G.Lakes	A	PCBs	Contaminated Sed. [17]	1998
					Mirex	Contaminated Sed. [17]	1998
					Dioxin	Contaminated Sed. [17]	1998
Ont (portion 12)	Lake Ontario Shoreline, Central (0302-0042)	Cayuga	G.Lakes	A	PCBs	Contaminated Sed. [17]	1998
					Mirex	Contaminated Sed. [17]	1998
					Dioxin	Contaminated Sed. [17]	1998
Ont (portion 13)	Lake Ontario Shoreline, Central (0302-0043)	Wayne	G.Lakes	A	PCBs	Contaminated Sed. [17]	1998
					Mirex	Contaminated Sed. [17]	1998
					Dioxin	Contaminated Sed. [17]	1998

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Part 2b - Multiple Segment/Categorical Impaired Waterbody Segments (fish consumption) (con't)

Water Index Number	Waterbody Name (WI/PWL ID)	County	Type	Class	Cause/Pollutant	Source	Year
	<u>Lake Ontario (Minor Tribs) Drainage Basin</u>						
Ont (portion 14)	Lake Ontario Shoreline, Central (0302-0044)	Wayne	G.Lakes	A	PCBs	Contaminated Sed. [17]	1998
					Mirex	Contaminated Sed. [17]	1998
					Dioxin	Contaminated Sed. [17]	1998
Ont (portion 15)	Lake Ontario Shoreline, Central (0302-0045)	Wayne	G.Lakes	A	PCBs	Contaminated Sed. [17]	1998
					Mirex	Contaminated Sed. [17]	1998
					Dioxin	Contaminated Sed. [17]	1998
Ont (portion 16)	Rochester Embayment - East (0302-0002)	Monroe	G.Lakes	A	PCBs	Contaminated Sed. [17]	1998
					Mirex	Contaminated Sed. [17]	1998
					Dioxin	Contaminated Sed. [17]	1998
Ont (portion 17)	Rochester Embayment - West (0301-0068)	Monroe	G.Lakes	A	PCBs	Contaminated Sed. [17]	1998
					Mirex	Contaminated Sed. [17]	1998
					Dioxin	Contaminated Sed. [17]	1998
Ont (portion 18)	Lake Ontario Shoreline, Western (0301-0069)	Monroe	G.Lakes	A	PCBs	Contaminated Sed. [17]	1998
					Mirex	Contaminated Sed. [17]	1998
					Dioxin	Contaminated Sed. [17]	1998
Ont (portion 19)	Lake Ontario Shoreline, Western (0301-0070)	Orleans	G.Lakes	A	PCBs	Contaminated Sed. [17]	1998
					Mirex	Contaminated Sed. [17]	1998
					Dioxin	Contaminated Sed. [17]	1998
Ont (portion 20)	Lake Ontario Shoreline, Western (0301-0071)	Orleans	G.Lakes	A	PCBs	Contaminated Sed. [17]	1998
					Mirex	Contaminated Sed. [17]	1998
					Dioxin	Contaminated Sed. [17]	1998
Ont (portion 21)	Lake Ontario Shoreline, Western (0301-0072)	Niagara	G.Lakes	A	PCBs	Contaminated Sed. [17]	1998
					Mirex	Contaminated Sed. [17]	1998
					Dioxin	Contaminated Sed. [17]	1998
Ont (portion 22)	Lake Ontario Shoreline, Western (2301-0053)	Niagara	G.Lakes	A	PCBs	Contaminated Sed. [17]	1998
					Mirex	Contaminated Sed. [17]	1998
					Dioxin	Contaminated Sed. [17]	1998
Ont 53 (portion 1)	Salmon River (0303-0016)	Oswego	River	C(T)	Mirex	Contaminated Sed.	1998
					PCBs	Contaminated Sed.	1998
Ont 53 (portion 4)/P19a	**Salmon River Reservoir (0303-0069)**	Oswego	Lake(R)	C(T)	**Mercury**	Atmospheric Dep.	2006
Ont 108/P113	Irondequoit Bay (0302-0001)	Monroe	Lake	B	Mirex	Contaminated Sed.	1998
					PCBs	Contaminated Sed.	1998
Ont 148	Eighteenmile Ck (0301-0002)	Niagara	River	B,C,D	PCBs	Contaminated Sed.	1998
	<u>Genesee River Drainage Basin</u>						
Ont 117 (portion 1)	Genesee River, Lower, Main Stem (0401-0001)	Monroe	River	B	PCBs	Contam.Sed.	2004
					Mirex	Contam.Sed.	2004
					Dioxin	Contam.Sed.	2004
Ont 117- 27-34-11-P43	* Canadice Lake (0402-0002)	Ontario	Lake	AA(TS)	PCBs	Cont.Sed, Land.Disp.	1998
	<u>Chemung River Drainage Basin</u>						
PA 3-28- 6- 1- 3-13a	* Koppers Pond (0501-0012)	Chemung	Lake	C	PCBs	Cont.Sed, Land.Disp.	1998

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Part 2b - Multiple Segment/Categorical Impaired Waterbody Segments (fish consumption) (con't)

Water Index Number	Waterbody Name (WI/PWL ID)	County	Type	Class	Cause/Pollutant	Source	Year
	Susquehanna River Drainage Basin						
SR (portion 1)	Susquehanna River, Lower, Main Stem (0603-0016)	Tioga	River	B	Mercury	Atmospheric Dep.	2002
SR (portion 2)	Susquehanna River, Lower, Main Stem (0603-0015)	Tioga	River	C	Mercury	Atmospheric Dep.	2002
SR (portion 3)	Susquehanna River, Lower, Main Stem (0603-0013)	Tioga	River	B	Mercury	Atmospheric Dep.	2002
SR (portion 4)	Susquehanna River, Lower, Main Stem (0603-0002)	Broome	River	A	Mercury	Atmospheric Dep.	2002
SR (portion 5)	Susquehanna River, Main Stem (0601-0182)	Broome	River	A	Mercury	Atmospheric Dep.	2002
SR (portion 6)	Susquehanna River, Main Stem (0601-0040)	Broome	River	B	Mercury	Atmospheric Dep.	2002
SR (portion 7)	Susquehanna River, Main Stem (0601-0020)	Otsego	River	B	Mercury	Atmospheric Dep.	2002
SR (portion 8)/P360	Goodyear Lake (0601-0015)	Otsego	Lake	B	Mercury	Atmospheric Dep.	2002
SR (portion 9)	Susquehanna River, Upper, Main Stem (0601-0041)	Otsego	River	B	Mercury	Atmospheric Dep.	2002
SR- 44 (portion 1)	Chenango River, Lower, Main Stem (0602-0033)	Broome	River	B	Mercury	Atmospheric Dep.	2002
SR- 44 (portion 2)	Chenango River, Middle, Main Stem (0602-0009)	Chenango	River	B/C	Mercury	Atmospheric Dep.	2002
SR- 44 (portion 3)	Chenango River, Upper, Main Stem (0602-0069)	Chenango	River	B/C	Mercury	Atmospheric Dep.	2002
SR-146 (portion 1)	Unadilla River, Lower, Main Stem (0601-0003)	Chenango	River	B	Mercury	Atmospheric Dep.	2002
	Oswego River (Finger Lakes) Drainage Basin						
Ont 66 (portion 2)	Oswego River (0701-0006)	Oswego	River	B	PCBs	Contaminated Sed.	1998
Ont 66-12-12-P154 (portion 1)	Onondaga Lake, northern end (0702-0003) [18]	Onondaga	Lake	B	Dioxin	Contaminated Sed.	1998
					Mercury	Contaminated Sed.	1998
					PCBs	Contaminated Sed.	1998
Ont 66-12-12-P154 (portion 2)	Onondaga Lake, southern end (0702-0021) [18]	Onondaga	Lake	B	Dioxin	Contaminated Sed.	1998
					Mercury	Contaminated Sed.	1998
					PCBs	Contaminated Sed.	1998
Ont 66-12-29	* Skaneateles Creek (0707-0003)	Onondaga	River	C(T)	PCBs	Unknown	1998
Ont 66-12-P369-115-P388	Keuka Lake (0705-0003)	Yates	Lake	AA(TS)	DDT	Contaminated Sed.	1998
	Black River Drainage Basin						
Ont 19- 40 (portion 3)/P418	**High Falls Pond (0801-0274)**	Lewis	Lake	C(T)	**Mercury**	Atmospheric Dep.	2006
Ont 19- 40 (portion 4a)	**Taylorville, Elmer Falls Ponds (0801-0276)**	Lewis	Lake	C(T)	**Mercury**	Atmospheric Dep.	2006
Ont 19- 40 (portion 5)/P426	**Effley Falls Reservoir (0801-0172)**	Lewis	Lake(R)	C(T)	**Mercury**	Atmospheric Dep.	2006
Ont 19- 40 (portion 7)/P434,P431	Soft Maple Reservoir, Soft Maple Pond (0801-0173)	Lewis	Lake	C(T)	Mercury	Atmospheric Dep.	2002
Ont 19- 40 (portion 9)/P449	Beaver Lake, Beaver Meadow Pond (0801-0174)	Lewis	Lake	C(T)	Mercury	Atmospheric Dep.	2002
Ont 19- 40 (portion 11)/P478	Moshier Reservoir (0801-0194)	Herkimer	Lake(R)	C(T)	Mercury	Atmospheric Dep.	1998
Ont 19- 40-20-P473	Sunday Lake (0801-0195)	Herkimer	Lake	C(T)	Mercury	Atmospheric Dep.	1998
Ont 19- 40-P449-2-P450-2-P451	Francis Lake (0801-0192)	Lewis	Lake	C(T)	Mercury	Atmospheric Dep.	1998
Ont 19- 40-P493	Stillwater Reservoir (0801-0184)	Herkimer	Lake(R)	C(T)	Mercury	Atmospheric Dep.	1998
Ont 19- 57- 7-P625	Halfmoon Lake (0801-0193)	Lewis	Lake	C	Mercury	Atmospheric Dep.	1998

18 These segments were listed previously as Onondaga Lake and Outlet (0702-0003).

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Part 2b - Multiple Segment/Categorical Impaired Waterbody Segments (fish consumption) (con't)

Water Index Number	Waterbody Name (WI/PWL ID)	County	Type	Class	Cause/Pollutant	Source	Year
	Black River Drainage Basin						
Ont 19- 81-18-17-P750	Dart Lake (0801-0242)	Herkimer	Lake	A	Mercury	Atmospheric Dep.	2002
Ont 19- 81-18-17-P752	Big Moose Lake (0801-0035)	Herkimer	Lake	A(T)	Mercury	Atmospheric Dep.	1998
Ont 19- 81-18-17-P752..P768	Lower Sister Lake (0801-0004)	Hamilton	Lake	C(T)	Mercury	Atmospheric Dep.	2002
Ont 19- 81-18-17-P752..P769	Upper Sister Lake (0801-0008)	Hamilton	Lake	FP	Mercury	Atmospheric Dep.	2002
Ont 19- 81-18-17-P752- 8-P774	**Russian Lake (0801-0006)**	Hamilton	Lake	C	**Mercury**	Atmospheric Dep.	2006
Ont 19- 81-18-P782d	* Fourth Lake (0801-0098) [19]	Herkimer	Lake	A	DDT	Cont.Sed., Land Disp	1998
Ont 19-P1007	**North Lake (0801-0451)**	Herkimer	Lake	A(T)	**Mercury**	Atmospheric Dep.	2006
	Saint Lawrence Drainage Basin						
SL	St.Lawrence River (0901-0001)	St.Lawrence	River	A	Dioxin	Contaminated Sed.	1998
					Mirex	Contaminated Sed.	1998
					PCBs	Contaminated Sed.	1998
SL	St.Lawrence River (0901-0002)	St.Lawrence	River	A	Dioxin	Industr, Contam.Sed.	1998
					Mirex	Industr, Contam.Sed.	1998
					PCBs	Industr, Contam.Sed.	1998
SL(C)-32-52-15-P179a	Meacham Lake (0902-0039)	Franklin	Lake	FP	Mercury	Atmospheric Dep.	1998
SL- 1-P035c	Carry Falls Reservoir (0903-0055)	St.Lawrence	Lake(R)	B	Mercury	Atmospheric Dep.	1998
SL- 1 (portion 9)/P109	Tupper Lake (0903-0062)	Franklin	Lake	A	Mercury	Atmospheric Dep.	2004
SL- 1 (portion 13)/P276	**Forked Lake (0903-0080)**	Hamilton	Lake	B	**Mercury**	Atmospheric Dep.	2006
SL- 1-P109..P241-22-P245	**South Pond (0903-0005)**	Hamilton	Lake	C	**Mercury**	Atmospheric Dep.	2006
SL- 1-P109..P241-26-P248	**Lake Eaton (0903-0056)**	Hamilton	Lake	AA(T)	**Mercury**	Atmospheric Dep.	2006
SL- 2	Grass River (0904-0009)	St.Lawrence	River	B	PCBs	Industr, Contam.Sed.	1998
SL- 2-	Massena Power Canal (0904-0012)	St.Lawrence	River	D	PCBs	Industr, Contam.Sed.	1998
SL-25- 7/P1- 3-19-P10	**Red Lake (0906-0039)**	Jefferson	Lake	C	**Mercury**	Atmospheric Dep.	2006
SL-25- 7- 3-P038	Indian Lake (0906-0003)	Lewis	Lake	C	Mercury	Atmospheric Dep.	1998
SL-25- 73-P237	Long Pond (0905-0058)	Lewis	Lake	C(T)	Mercury	Atmospheric Dep.	1998
SL-25-P309	Cranberry Lake (0905-0007)	St.Lawrence	Lake	A(T)	Mercury	Atmospheric Dep.	1998
	Lake Champlain Drainage Basin						
C (portion 1)	Lake Champlain, Main Lake, North (1000-0001)	Clinton	Lake	A	Mercury	Contam. Sed., Atm.	1998
					PCBs	Contam. Sed., Atm.	1998
C (portion 2)	Lake Champlain, Main Lake, Middle (1000-0002)	Clinton	Lake	A	Mercury	Contam. Sed., Atm.	1998
					PCBs	Contam. Sed., Atm.	1998
C (portion 3)	Lake Champlain, Main Lake, South (1000-0003)	Essex	Lake	A	Mercury	Contam. Sed., Atm.	1998
					PCBs	Contam. Sed., Atm.	1998
C (portion 4)	Lake Champlain, South Lake (1000-0004)	Essex	Lake	B	Mercury	Contam. Sed., Atm.	1998
					PCBs	Contam. Sed., Atm.	1998
C (portion x)	Cumberland Bay (1001-0001)	Clinton	Bay	B	Mercury	Contam. Sed., Atm.	1998
					PCBs	Contam. Sed., Atm.	1998

[19] Includes Gray Lake Outlet, which is suspected source of DDT contamination and is currently being remediated.

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Part 2b - Multiple Segment/Categorical Impaired Waterbody Segments (fish consumption) (con't)

Water Index Number	Waterbody Name (WI/PWL ID)	County	Type	Class	Cause/Pollutant	Source	Year
	Lake Champlain Drainage Basin (con't)						
C- 15 (portion 5)-P76	**Saranac River, Franklin Falls Pond (1003-0045)**	Essex	Lake(R)	C	**Mercury**	Atmospheric Dep.	2006
C- 15-P110, P207 thru P209	**Middle Saranac Lake/Weller Pond (1003-0083)** [20]	Franklin	Lake	AA	**Mercury**	Atmospheric Dep.	2006
C- 15-P114..P120	**Polliwog Pond (1003-0090)**	Franklin	Lake	AA	**Mercury**	Atmospheric Dep.	2006
C-138	Poultney River, Lower, and tribs (1005-0053) [21]	Washington	River	C	Mercury	Atmospheric Dep.	2002
	Upper Hudson River Drainage Basin						
H (portion 6)	Hudson River (1104-0005)	Saratoga	River	C	Mercury	Contaminated Sed,	2002
H-264 (portion 1)	Hoosic River, Lower, Main Stem (1102-0002) [22]	Rensselaer	River	C	PCBs	Contaminated Sed.	1998
H-264 (portion 1b)/P1115	**Schaghticoke Reservoir (1102-00015)** [22]	Rensselaer	Lake (R)	C	**PCBs**	Contaminated Sed.	2006
H-264 (portion 2)	Hoosic River, Middle, Main Stem (1102-0003) [23]	Rensselaer	River	B	PCBs	Contaminated Sed.	1998
H-369-P127-46- 9-P164,P165	**Chase Lake, Mud Lake (1104-0135)**	Fulton	Lake	C	**Mercury**	Atmospheric Dep.	2006
H-369..20-23-4-P225	**Sand Lake (1104-0015)**	Hamilton	Lake	N	**Mercury**	Atmospheric Dep.	2006
H-369..20-23-6-P232	**Spy Lake (1104-0160)**	Hamilton	Lake	C	**Mercury**	Atmospheric Dep.	2006
H-391 (portion 3)/P374	Schroon Lake (1104-0002)	Essex	Lake	AA	Mercury	Atmosph, Unknown	1998
					PCBs	Atmosph, Unknown	1998
H-391..37-P420,P421	**Alder, Crane Ponds (1104-0229)**	Essex	Lake	N	**Mercury**	Atmospheric Dep.	2006
H-461-17- 1-P588a	**Kings Flow (1104-0271)**	Hamilton	Lake	C(T)	**Mercury**	Atmospheric Dep.	2006
H-461-17- 1-P588a- 5-P590	Round Pond (1104-0073) [24]	Hamilton	Lake	FP	Mercury	Atmospheric Dep.	1998
H-469- 9-P645	**Rock Pond (1104-0285)**	Hamilton	Lake	C	**Mercury**	Atmospheric Dep.	2006
H-469- 9-P645a	**Lake Durant (1104-0059)**	Hamilton	Lake	C	**Mercury**	Atmospheric Dep.	2006
	Mohawk River Drainage Basin						
H-240 (portion 11)	Mohawk R/NYS Barge Canal, Main Stem (1201-0092)	Herkimer	River	B	PCBs	Contam. Sediment	1998
H-240 (portion 12)	Mohawk River, Main Stem (1201-0093)	Herkimer	River	C	PCBs	Contam. Sediment	1998
H-240 (portion 12b)	Utica Harbor (1201-0228)	Oneida	Bay	C	PCBs	Contam. Sediment	1998
H-240 (portion 13)	Mohawk River, Main Stem (1201-0010)	Oneida	River	B	PCBs	Unknown	1998
H-240- 82-P638a	Schoharie Reservoir (1202-0012)	Schoharie	Lake(R)	AA(TS)	Mercury	Atmospheric Dep.	1998
H-240-144-13-P716,P717,P718	**Lily, Canada, Stewarts Land, West Lakes (1201-0050)**	Fulton	Lake	B(T)	**Mercury**	Atmospheric Dep.	2006
H-240-144-13..P721,P722,P723	**Stoner Lakes (1201-0169)**	Fulton	Lake	N	**Mercury**	Atmospheric Dep.	2006
H-240-144-38-P777	Ferris Lake (1201-0003)	Hamilton	Lake	FP	Mercury	Atmospheric Dep.	1998
H-240-219	Sauquoit Creek, Lower, and tribs (1201-0069)	Oneida	River	C(T)	PCBs	Industrial, Leak/Spill	2002
H-240-219	Sauquoit Creek, Middle, and tribs (1201-0207)	Oneida	River	C(T)	PCBs	Contam. Sediment	2002
H-240-234	Threemile Creek and tribs (1201-0223)	Oneida	River	C	PCBs	Contam. Sediment	1998

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[20] The current NYS DOH fish consumption advisory is listed for Weller Pond; however there is no barrier between the lakes and Middle Saranac Lake may also be affected.

[21] Vermont has issued a fish consumption advisory in the Poultney River based on mercury contamination.

[22] These segments were combined and previously listed as Hoosic River (1102-0002).

[23] This segment was previously listed as Johnsonville Reservoir (1102-0003).

[24] This segment was previously mis-identified as having water index number H-503-P680/P682-6..P687.

Part 2b - Multiple Segment/Categorical Impaired Waterbody Segments (fish consumption) (con't)

Water Index Number	Waterbody Name (WI/PWL ID)	County	Type	Class	Cause/Pollutant	Source	Year
	Lower Hudson River Drainage Basin						
H (portion 1)	Hudson River, Class I, (1301-0006)	New York	Estuary	I	Cadmium	Contaminated Sed.	1998
					PCBs	Contaminated Sed.	1998
H (portion 2a)	Hudson River, Class SB, portion (1301-0005)	Bronx	Estuary	SB	Cadmium	Contaminated Sed.	1998
					PCBs	Contaminated Sed.	1998
H (portion 2b)	Hudson River, Class SB, portion (1301-0094)	Westchester	Estuary	SB	Cadmium	Contaminated Sed.	1998
					PCBs	Contaminated Sed.	1998
H (portion 3)	Hudson River, Class B, (1301-0003)	Orange	Estuary	B	Cadmium	Contaminated Sed.	1998
					PCBs	Contaminated Sed.	1998
H (portion 4)	Hudson River, Class A, (1301-0001)	Ulster	Estuary	A	Cadmium	Contaminated Sed.	1998
					PCBs	Contaminated Sed.	1998
H (portion 5)	Hudson River, Class C, (1301-0002)	Albany	Estuary	C	PCBs	Contaminated Sed.	1998
H- 4	Saw Mill River (1301-0007)	Westchester	River	various	Chlordane	Contaminated Sed.	1998
H- 31-P44-14-P50	Amawalk Reservoir (1302-0044)	Westchester	Lake(R)	A	Mercury	Atmospheric Dep.	2004
H- 31-P44-23-P67	West Branch Reservoir (1302-0022)	Putnam	Lake(R)	AA	Mercury	Atmospheric Dep.	2004
H- 31-P44-23-P76	Boyd Corners Reservoir (1302-0045)	Putnam	Lake(R)	AA	Mercury	Atmospheric Dep.	1998
H- 31-P44-24-P83	Diverting Reservoir (1302-0046)	Putnam	Lake(R)	AA	Mercury	Atmospheric Dep.	2004
H- 31-P44-24-P86	Bog Brook Reservoir (1302-0041)	Putnam	Lake(R)	AA	Mercury	Atmospheric Dep.	2004
H- 31-P44-24-P89	East Branch Reservoir (1302-0040)	Putnam	Lake(R)	AA	Mercury	Atmospheric Dep.	2004
H- 31-P44-26-P103	Titicus Reservoir (1302-0035)	Westchester	Lake(R)	AA	Mercury	Atmospheric Dep.	2004
H- 31-P44-35-P109	Cross River Reservoir (1302-0005)	Westchester	Lake(R)	AA(T)	Mercury	Atmospheric Dep.	1998
H- 43- 1-11- 9-P150d	**Breakneck Pond (1301-0123)**	Rockland	Lake	AA	**Mercury**	Atmospheric Dep.	2006
H-128-P437	**Chodikes Pond (1301-0208)**	Ulster	Lake	A	**Mercury**	Atmospheric Dep.	2006
H-139-14-P815a	Rondout Reservoir (1306-0003)	Ulster	Lake(R)	AA	Mercury	Atmospheric Dep.	1998
H-171-P848	Ashokan Reservoir (1307-0004)	Ulster	Lake(R)	AA(T)	Mercury	Atmospheric Dep.	1998
H-193- 2-P921	**South Lake, North Lake (1309-0017)**	Greene	Lake	B	**Mercury**	Atmospheric Dep.	2006
H-204- 2- 7	Valatie Kill (1310-0003)	Rensselaer	River	C(T)	PCBs	Cont.Sed. ,Land Disp	1998
H-204- 2- 7-P24	Kinderhook Lake (1310-0002)	Columbia	Lake	B	PCBs	Cont.Sed., Land Disp	1998
H-204- 2- 7-P34	Nassau Lake (1310-0001)	Rensselaer	Lake	B	PCBs	Cont.Sed., Land Disp	1998
H-236-13-P425	**Dunham Reservoir (1301-0262)**	Rensselaer	Lake(R)	A	**Mercury**	Atmospheric Dep.	2006
	Delaware River Drainage Basin						
D-1-P58b	Neversink Reservoir (1402-0009)	Sullivan	Lake(R)	AA(T)	Mercury	Atmospheric Dep.	2002
D- 1-38-P51	**Loch Sheldrake/Sheldrake Pond (1402-0057)**	Sullivan	Lake	B	**Mercury**	Atmospheric Dep.	2006
D-10 (portion 2)/P79a	**Rio Reservoir (1401-0074)**	Sullivan	Lake(R)	B(T)	**Mercury**	Atmospheric Dep.	2006
D-10 (portion 5)/P108a	**Swinging Bridge Reservoir (1401-0002)**	Sullivan	Lake(R)	B	**Mercury**	Atmospheric Dep.	2006
D-70-P358a	Pepacton Reservoir (1403-0002)	Delaware	Lake (R	AA(T)	Mercury	Atmospheric Dep.	2002
D-71- P402a	Cannonsville Reservoir (1404-0001)	Delaware	Lake(R)	AA(T)	Mercury	Atmospheric Dep.	2002
D-71-20-	Trout Creek, Upper, and tribs (1404-0050) [25]	Delaware	River	C(TS)	PCBs	Cont.Sed, Land.Disp.	2002

[25] Includes Herrick Hollow Creek for which a fish consumption advisory is in place.

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Part 2b - Multiple Segment/Categorical Impaired Waterbody Segments (fish consumption) (con't)

Water Index Number	Waterbody Name (WI/PWL ID)	County	Type	Class	Cause/Pollutant	Source	Year
	Atlantic Ocean/Long Island Sound Drainage Basin						
(MW1.1) LB	Lower New York Bay (1701-0004)	Kings	Estuary	SB	PCBs	Migratory Species [26]	1998
(MW1.1) LB/GB	Lower New York Bay/Gravesend Bay (1701-0179)	Kings	Estuary	I	PCBs	Migratory Species [26]	2002
(MW1.2) RB (portion 1)	Raritan Bay, Class SA (1701-0002)	Richmond	Estuary	SA	PCBs	Migratory Species [26]	2002
(MW1.2) RB (portion 2)	Raritan Bay, Class SB (1701-0180)	Richmond	Estuary	SB	PCBs	Migratory Species [26]	2002
(MW1.2) RB (portion 3)	Raritan Bay, Class I (1701-0181)	Richmond	Estuary	I	PCBs	Migratory Species [26]	2002
(MW1.2) SI (portion 1)	Arthur Kill, Class I and minor tribs (1701-0010)	Richmond	Estuary	I	PCBs	Contaminated Sed.	1998
					Cadmium	Contaminated Sed.	2002
					Dioxin [27]	Contaminated Sed.	2002
(MW1.2) SI (portion 2)	Arthur Kill, Class SD and minor tribs (1701-0182)	Richmond	Estuary	SD	PCBs	Contaminated Sed.	2002
					Cadmium	Contaminated Sed.	2002
					Dioxin [27]	Contaminated Sed.	2002
(MW1.2) SI (portion 3)	Newark Bay (1701-0183)	Richmond	Estuary	SD	PCBs	Contaminated Sed.	2002
					Cadmium	Contaminated Sed.	2002
					Dioxin [27]	Contaminated Sed.	2002
(MW1.2) SI (portion 4)	Kill Van Kull (1701-0184)	Richmond	Estuary	SD	PCBs	Contaminated Sed.	2002
					Cadmium	Contaminated Sed.	2002
					Dioxin [27]	Contaminated Sed.	2002
(MW1.3) UB	Upper New York Bay (1701-0022)	Kings	Estuary	I	PCBs	Contaminated Sed.	1998
					Cadmium	Contaminated Sed.	2002
(MW1.3) UB-EB	Erie Basin (1701-0185)	Kings	Estuary	SD	Cadmium	Contaminated Sed.	2002
					PCBs	Contaminated Sed.	2002
(MW2.1) ER (portion 1)	East River, Lower (1702-0011)	New York	Estuary	I	PCBs	Contaminated Sed.	1998
(MW2.3) ER-1	Harlem River (1702-0004)	New York	Estuary	I	PCBs	Contaminated Sed.	2002
(MW2.5) ER (portion 2)	East River, Upper (1702-0010)	Queens	Estuary	I	PCBs	Contaminated Sed.	1998
(MW2.5) ER (portion 3)	East River, Upper (1702-0032)	Queens	Estuary	SB	PCBs	Contaminated Sed.	1998
(MW3.3) LIS- 8- 1	Sheldrake River (1702-0069)	Westchester	River	C	Chlordane	Contaminated Sed.	1998
					Dieldrin	Contaminated Sed.	1998
- - -	Ridders Pond (1701-0176) [28]	Nassau	Lake	C	Chlordane	Contaminated Sed.	1998
(MW4.2b) LIS-MB-25-P122	Whitney Lake (1702-0101)	Nassau	Lake	C	Chlordane	Contaminated Sed.	1998
- - -	Saint James Pond (1702-0049) [28]	Suffolk	Lake	C	Chlordane/DDT	Contaminated Sed.	1998
- - -	Spring Pond/Lake (1701-0022) [28]	Suffolk	Lake	B	Chlordane	Contaminated Sed.	1998

26 These waters are listed due to a precautionary fish consumption advisory for striped bass (a migratory species). Because of the wide geographic range of this species, which includes much of the eastern seaboard of North America, the specific source of the pollutant cannot be identified. A number of Long Island Sound waters similarly affected have been de-listed. However these waters remain listed due to an on-going effort to develop a New York Harbor TMDL for toxics that includes Lower New York and Raritan Bays.

27 New Jersey has issued a fish consumption advisory in The Kills due to dioxin contamination.

28 Because development of a comprehensive monitoring strategy required limiting the WI/PWL database to lakes 6.4 acres or larger, these smaller lakes are no longer tracked as individual waterbodies in the WI/PWL database.

Part 2b - Multiple Segment/Categorical Impaired Waterbody Segments (fish consumption) (con't)

Water Index Number	Waterbody Name (WI/PWL ID)	County	Type	Class	Cause/Pollutant	Source	Year
	Atlantic Ocean/Long Island Sound Drainage Basin (con't)						
(MW7.8) AO-GSB-205-P934	Lake Capri (1701-0175)	Suffolk	Lake	C	Cadmium	Cont.Sed, Land.Disp.	1998
					Chlordane	Cont.Sed, Land.Disp.	2002
(MW8.1a) SOB-220-P969	Massapequa Reservoir (1701-0157)	Nassau	Lake(R)	A	Chlordane	Contaminated Sed.	1998
(MW8.3a) MDB-228-P989	Freeport Reservoir/East Meadow Pond (1701-0025)	Nassau	Lake(R)	A	Chlordane	Contaminated Sed.	2002
(MW8.3a) MDB-228-P989-P991	Smith Pond/Roosevelt Pond (1701-0136)	Nassau	Lake	C	Chlordane	Contaminated Sed.	1998
(MW8.3a) MDB-231-P996	Lofts Pond (1701-0029)	Nassau	Lake	C	Chlordane	Contaminated Sed.	1998
(MW8.4a) HB-233-P1005	Smith Pond (1701-0028)	Nassau	Lake	C	Chlordane	Contaminated Sed.	2002
(MW8.4a) HB-233-P1005..P1008	Halls Pond (1701-0027)	Nassau	Lake	C	Chlordane	Contaminated Sed.	1998
(MW8.4a) HB-235-P1017a	Grant Park Pond (1701-0054)	Nassau	Lake	C	PCBs	Contaminated Sed.	1998

More Information Regarding Fish Consumption

Waters impaired for fish consumption are based on New York State Department of Health advisories contained in its annual *Chemicals in Sportfish and Game* publications. Because the specific extent and conditions of the advisories are reported more precisely and more frequently than can be reported through the Section 303(d) List, this advisory information regarding the support of fish consumption in New York is more timely and the extent of the advisory more precisely delineated than the information provided in the Section 303(d) List. For the most up-to-date fish consumption advisory information, refer to http://www.nyhealth.gov/nysdoh/fish/fish.htm.

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Part 2c - Multiple Segment/Categorical Impaired Waterbody Segments (shellfishing)

(Might be addressed by a waterbody specific TMDL or a pollutant/source specific TMDL or other strategy to attain water quality standards)

Water Index Number	Waterbody Name (WI/PWL ID)	County	Type	Class	Cause/Pollutant	Source	Year
	Atlantic Ocean/Long Island Sound Drainage Basin						
(MW1.2) RB (portion 1)	Raritan Bay, Class SA (1701-0002)	Richmond	Estuary	SA	Pathogens	Urban/Storm/CSO	1998
(MW3.1) LIS (portion 1b)	New Rochelle Harbor (1702-0259)	Westchester	Estuary	SA	Pathogens	Urb/Storm, Municipal	2002
(MW3.1) LIS (portion 2)	Long Island Sound, Westchester Co Waters(1702-0001)	Westchester	Estuary	SA	Pathogens	Urban/CSO, Municipl	1998
(MW4.1) LIS (portion 3)	Long Island Sound, Nassau County Waters (1702-0028)	Nassau	Estuary	SA	Pathogens	Urban/CSO, Municipl	1998
(MW4.2b) LIS-MB (portion 1)	* Manhasset Bay, and tidal tribs (1702-0021)	Nassau	Estuary	SA	Pathogens	Urban/Storm Runoff	1998
(MW4.3a) LIS-HH	* Hempstead Harbor, north, and tidal tribs (1702-0022)	Nassau	Estuary	SA	Pathogens	Urban/Storm Runoff	1998
(MW4.3b) LIS-41-P145	Dosoris Pond (1702-0024)	Nassau	Estuary	SA	Pathogens	Urban/Storm Runoff	2002
(MW4.4b) LIS-CSH	* Cold Spring Harbor, and tidal tribs (1702-0018)	Nassau	Estuary	SA	Pathogens	Urban/Storm Runoff	1998
(MW5.2a) LIS-HB-HH	* Huntington Harbor (1702-0228)	Suffolk	Estuary	SA	Pathogens	Urb/Storm, Municipl	2002
(MW5.2a) LIS-HB-NB-CH	* Centerport Harbor (1702-0229)	Suffolk	Estuary	SA	Pathogens	Urb/Storm, Municipl	2002
(MW5.2a) LIS-HB-NB-NH	* Northport Harbor (1702-0230)	Suffolk	Estuary	SA	Pathogens	Urb/Storm, Municipl	2002
(MW5.4a) LIS-SB-SBH	* Stony Brook Harbor and West Meadow Cr (1702-0047)	Suffolk	Estuary	SA	Pathogens	Urban/Storm Runoff	1998
(MW5.4c) LIS-PJH (portion 1)	* Port Jefferson Harbor, North, and tribs (1702-0015)	Suffolk	Estuary	SA	Pathogens	Urb/Storm, Municipl	1998
(MW5.4c) LIS-PJH-CB	* Conscience Bay and tidal tribs (1702-0091)	Suffolk	Estuary	SA	Pathogens	Urb/Storm, Municipl	2002
(MW5.4c) LIS-PJH-SH	* Setauket Harbor (1702-0242)	Suffolk	Estuary	SA	Pathogens	Urb/Storm, Municipl	2002
(MW5.4d) LIB-MSH	* Mt Sinai Harbor and tidal tribs (1702-0019)	Suffolk	Estuary	SA	Pathogens	Urban/Storm Runoff	1998
(MW5.4e) LIS- 71	* Mattituck Inlet/Cr, Low, and tidal tribs (1702-0020)	Suffolk	Estuary	SA	Pathogens	Urban/Storm Runoff	1998
(MW5.4e) LIS- 72	* Goldsmith Inlet (1702-0026)	Suffolk	Estuary	SA	Pathogens	Urban/Storm Runoff	1998
(MW5.4g) LIS-FI-P1101,P1102	Beach/Island Ponds, Fishers Island (1701-0283)	Suffolk	Estuary	SA	Pathogens	Urban/Storm Runoff	2002
(MW5.4g) LIS-FI-WH	* West Harbor, Fishers Island (1702-0046)	Suffolk	Estuary	SA	Pathogens	Urban/Storm Runoff	1998
(MW6.1b) GB-SIS(-DH)	* Dering Harbor (1701-0050)	Suffolk	Estuary	SA	Pathogens	Urban/Storm Runoff	1998
(MW6.1b) GB-SIS- 78	* Stirling Creek and Basin (1701-0049)	Suffolk	Estuary	SA	Pathogens	Urban/Storm Runoff	1998
(MW6.1b) GB-SIS- 80c-P418a	* Budds Pond (1701-0234)	Suffolk	Estuary	SA	Pathogens	Urban/Storm Runoff	2002
(MW6.1b) GB-SIS- 83a,83b	* Town/Jockey Creeks and tidal tribs (1701-0235)	Suffolk	Estuary	SA	Pathogens	Urban/Storm Runoff	2002
(MW6.1b) GB-SIS- 84-P423	* Goose Creek (1701-0236)	Suffolk	Estuary	SA	Pathogens	Urban/Storm Runoff	2002
(MW6.1b) GB-SIS-P420	* Hashamomuck Pond (1701-0162)	Suffolk	Estuary	SA	Pathogens	Urban/Storm Runoff	1998
(MW6.1c) GB..LPB- 90	* Richmond Creek and tidal tribs (1701-0245)	Suffolk	Estuary	SA	Pathogens	Urban/Storm Runoff	2002
(MW6.1d) GB..GPB- 97 thru 104	* Tidal Tribs, Gr Peconic Bay, Northshr (1701-0247)	Suffolk	Estuary	SA	Pathogens	Urban/Storm Runoff	2002
(MW6.1e) FB	* Flanders Bay, east/center, and tribs (1701-0030)	Suffolk	Estuary	SA	Pathogens	Urb/Storm, Municipl	1998
(MW6.3a) GB..FB-RB	* Reeves Bay and tidal tribs (1701-0272)	Suffolk	Estuary	SA	Pathogens	Urb/Storm, Municipl	2002
(MW6.3b) GB..GPB-122-P648	* Sebonac Cr/Bullhead Bay and tidal tribs (1701-0051)	Suffolk	Estuary	SA	Pathogens	Urban/Storm Runoff	1998
(MW6.3b) GB..GPB-122a-P651	* Little Sebonac Creek (1701-0253)	Suffolk	Estuary	SA	Pathogens	Urban/Storm Runoff	2002
(MW6.3b) GB..GPB-122a-P652	* Scallop Pond (1701-0354)	Suffolk	Estuary	SA	Pathogens	Urban/Storm Runoff	2002
(MW6.3c) GB..LPB-123-P659	* North Sea Harbor and tribs (1701-0037)	Suffolk	Estuary	SA	Pathogens	Urban/Storm Runoff	1998
(MW6.3c) GB..LPB-124-P665	* Wooley Pond (1701-0048)	Suffolk	Estuary	SA	Pathogens	Urban/Storm Runoff	1998

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Part 2c - Multiple Segment/Categorical Impaired Waterbody Segments (shellfishing) (con't)

Water Index Number	Waterbody Name (WI/PWL ID)	County	Type	Class	Cause/Pollutant	Source	Year
	Atlantic Ocean/Long Island Sound Drainage Basin (con't)						
(MW6.3d) GB-SIS-126	* Noyack Creek and tidal tribs (1701-0237)	Suffolk	Estuary	SA	Pathogens	Urban/Storm Runoff	2002
(MW6.3d) GB-SIS-SHB,SHC	* Sag Harbor and Sag Harbor Cove (1701-0035)	Suffolk	Estuary	SA	Pathogens	Urban/Storm Runoff	1998
(MW6.3e) GB-SIS-NH-136	* Northwest Creek and tidal tribs (1701-0046)	Suffolk	Estuary	SA	Pathogens	Urban/Storm Runoff	1998
(MW6.3f) GB-AH	* Acabonack Harbor (1701-0047)	Suffolk	Estuary	SA	Pathogens	Urban/Storm Runoff	1998
(MW6.3g) BIS..P761	* Lake Montauk (1701-0031)	Suffolk	Estuary	SA	Pathogens	Urban/Storm Runoff	1998
(MW6.3g) BIS..P764	* Oyster Pond/Lake Munchogue (1701-0169)	Suffolk	Estuary	SA	Pathogens	Urban/Storm Runoff	1998
(MW6.3h) AO-P780	* Georgica Pond (1701-0145)	Suffolk	Estuary	SA	Pathogens	Agricultural	1998
(MW6.3h) AO-P786	* Sagaponack Pond (1701-0146)	Suffolk	Estuary	SA	Pathogens	Agricultural	1998
(MW6.3i) AO-P790	* Mecox Bay and tribs (1701-0034)	Suffolk	Estuary	SA	Pathogens	Agricultural	1998
(MW6.3i) AO-SB-143,144	* Heady and Taylor Creeks and tribs (1701-0294)	Suffolk	Estuary	SA	Pathogens	Urban/Storm Runoff	2002
(MW6.3i) AO-SB-148,150	Penny Pond and Smith Creek (1701-0298)	Suffolk	Estuary	SA	Pathogens	Urban/Storm Runoff	2002
(MW6.3i) AO-SB-153	* Weesuck Creek and tidal tribs (1701-0111)	Suffolk	Estuary	SA	Pathogens	Urban/Storm Runoff	1998
(MW6.3i) AO-SB-155	Phillips Creek, Lower, and tidal tribs (1701-0299)	Suffolk	Estuary	SA	Pathogens	Urban/Storm Runoff	2002
(MW6.3i) AO-SB-156	Penniman Creek and tidal tribs (1701-0300)	Suffolk	Estuary	SA	Pathogens	Urban/Storm Runoff	2002
(MW6.3i) AO-SB-QgC	* Quogue Canal (1701-0301)	Suffolk	Estuary	SA	Pathogens	Urban/Storm Runoff	2002
(MW6.3i) AO-SB-QgC-P834	* Ogden Pond (1701-0302)	Suffolk	Estuary	SA	Pathogens	Urban/Storm Runoff	2002
(MW6.3j) AO-QB	* Quantuck Bay (1701-0042)	Suffolk	Estuary	SA	Pathogens	Urban/Storm Runoff	2002
(MW6.3j) AO-SB-QB-QtC	* Quantuck Canal/Moneybogue Bay (1701-0371)	Suffolk	Estuary	SA	Pathogens	Urban/Storm Runoff	2002
(MW7.2a) AO-MB (portion 3)	* Tuthill, Harts, Seatuck Coves (1701-0309)	Suffolk	Estuary	SA	Pathogens	Urban/Storm, Agric.	2002
(MW7.2a) AO-MB (portion 4)	* Forge River, Lower and Cove (1701-0316)	Suffolk	Estuary	SA	Pathogens	Urban/Storm, Agric.	2002
(MW7.2b) AO-MB-NB	* Narrow Bay (1701-0318)	Suffolk	Estuary	SA	Pathogens	Urban/Storm, Agric.	2002
(MW7.3) AO-GSB (portion 4)	* Bellport Bay (1701-0320)	Suffolk	Estuary	SA	Pathogens	Urban/Storm Runoff	2002
(MW7.3) AO-GSB (portion 5)	* Patchogue Bay (1701-0326)	Suffolk	Estuary	SA	Pathogens	Urban/Storm Runoff	2002
(MW7.6) AO-GSB (portion 6)	* Nicoll Bay (1701-0375)	Suffolk	Estuary	SA	Pathogens	Urban/Storm Runoff	2002
(MW7.8) AO-GSB (portion 7)	* Great Cove (1701-0376)	Suffolk	Estuary	SA	Pathogens	Urban/Storm Runoff	2002
(MW8.1) SOB	* South Oyster Bay (1701-0041)	Nassau	Estuary	SA	Pathogens	Urban/Storm Runoff	1998
(MW8.2) EB	* East Bay (1701-0202)	Nassau	Estuary	SA	Pathogens	Urban/Storm Runoff	2002
(MW8.3) MDB	* Middle Bay (1701-0208)	Nassau	Estuary	SA	Pathogens	Urban/Storm Runoff	2002
(MW8.3) MDB-ERI	* East Rockaway Inlet (1701-0217)	Nassau	Estuary	SA	Pathogens	Urban/Storm Runoff	2002
(MW8.3) MDB-RC	Reynolds Channel, east (1701-0215)	Nassau	Estuary	SA	Pathogens	Urban/Storm Runoff	2002
(MW8.4) HB	* Hempstead Bay (1701-0032)	Nassau	Estuary	SA	Pathogens	Urban/Storm Runoff	1998
(MW8.4a) HB-236	Woodmere Channel (1701-0219)	Nassau	Estuary	SA	Pathogens	Urban/Storm Runoff	2002

More Information Regarding Shellfishing

Waters impaired for shellfishing use are based on shellfishing closures issues by New York State Department of Environmental Conservation Shellfisheries Program and the National Shellfish Sanitation Program. Because the specific extent and conditions of the closures are reported more precisely and more frequently through these programs than through the Section 303(d) List, this shellfish closure information provides better delineated and more timely information regarding the support of shellfishing use in the waters of New York than does the Section 303(d) List. For the most current shellfishing closure information, refer to http://www.dec.state.ny.us/website/dfwmr/marine/shellfish/sfntsh/index.htm.

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Part 3a - Waterbody Segments for which TMDL Development May be Deferred (Requiring Verification of Impairment)

Water Index Number	Waterbody Name (WI/PWL ID)	County	Type	Class	Cause/Pollutant	Source	Year
	Niagara River/Lake Erie Drainage Basin						
Ont 158 (portion 1)	Niagara River, Lower, Main Stem (0101-0027) [29]	Niagara	River	A(S)	**Org.Chlor.Pest/HCB**	Cont.Sed, Land Disposal	2006
					PAHs	Cont.Sed, Land Disposal	2002
Ont 158 (portion 2)	Niagara River, Upper, Main Stem (0101-0006) [29]	Niagara	River	A(S)	**Org.Chlor.Pest/HCB**	Cont.Sed, Land Disposal	2006
					PAHs	Cont.Sed, Land Disposal	2002
Ont 158-12 (portion 3)	Tonawanda Cr, Middle, Main Stem (0102-0002)	Genesee	River	C	Phosphorus	Urban/Storm, Str Erosion	2004
					Silt/Sediment	Urban/Storm, Str Erosion	2004
Ont 158-12 (portion 4)	Tonawanda Cr, Upp, & minor tribs (0102-0003)	Genesee	River	A	Silt/Sediment	Agric, Streambank Erosion	2004
Ont 158-12- 1	Ellicott Creek, Lower, and tribs (0102-0018)	Erie	River	B	Phosphorus	Urban Runoff	2004
					Silt/Sediment	Urban Runoff	2004
Ont 158-12-32	Little Tonawanda Cr, Low, and tribs (0102-0001)	Genesee	River	A	Silt/Sediment	Agric, Streambank Erosion	2004
	Allegheny River Drainage Basin						
Pa-63-13- 4-P122	Chautauqua Lake, South (0202-0020) [30]	Chautauqua	Lake	A	Phosphorus	Agriculture	2004
Pa-63-13- 4-P122	Chautauqua Lake, North (0202-0072) [30]	Chautauqua	Lake	A	Phosphorus	Agriculture	2004
Pa-63-13-23-P131	Bear Lake (0201-0003)	Chautauqua	Lake	A	Nutrients (phosphorus)	Agricultural	1998
Pa-63-13-P133	Lower Cassadaga Lake (0202-0003)	Chautauqua	Lake	B	Nutrients (phosphorus)	Agricultural	1998
Pa-63-13-P133-3-P134	Middle Cassadaga Lake (0202-0002)	Chautauqua	Lake	C	Nutrients (phosphorus)	Agricultural	1998
Pa-84- 2-P153	Findley Lake (0202-0004)	Chautauqua	Lake	B	Nutrients (phosphorus)	Agricultural	1998
	Lake Ontario (Minor Tribs) Drainage Basin						
Ont 74/P76	Little Sodus Bay (0302-0017)	Cayuga	Lake	B	Nutrients (phosphorus)	On-site WTS, Agric	2002
Ont 75/P77	Blind Sodus Bay (0302-0021)	Wayne	Lake	B	Nutrients (phosphorus)	On-site WTS	2002
Ont 80/P89	Port Bay (0302-0012)	Wayne	Lake	B	Nutrients (phosphorus)	Agric, Municipal	2002
Ont 122-P153	Buck Pond (0301-0017)	Monroe	Lake	B	Phosphorus	Urban/Storm Runoff	2002
Ont 123-P154	Long Pond (0301-0015)	Monroe	Lake	B	Phosphorus	Urban/Storm Runoff	2002
Ont 123-P154- 2-P155	Cranberry Pond (0301-0016)	Monroe	Lake	B	Phosphorus	Urban/Storm Runoff	2002
Ont 138	Oak Orchard Creek (0301-0014)	Genesee	River	C	Nutrients (phosphorus)	Agricultural	1998
	Genesee River Drainage Basin						
Ont 117- 27-34	Hemlock Lake Outlet and minor tribs (0402-0013)	Ontario	River	C	Phosphorus	On-Site WTS	2004
					Pathogens	On-Site WTS	2004

29 Due to analytic limitations, the treatment of non-detect results in the data evaluation, and other data evaluation and quality assurance/quality control issues, additional monitoring and verification of PAHs and some Organochlorine Pesticides loadings in the river are necessary to develop a TMDL.

30 The previously listed Chautauqua Lake segment (0202-0020) has been split into two separate segments in order to recognize the different character of the north and south basins of the lake.

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Part 3a - Waterbody Segments for which TMDL Development May be Deferred (Requiring Verification of Impairment) (con't)

Water Index Number	Waterbody Name (WI/PWL ID)	County	Type	Class	Cause/Pollutant	Source	Year
	Chemung River Basin						
	PHENOLIC COMPOUNDS [31]						
	Susquehanna River Drainage Basin						
SR- 44-14-59-34-P56	DeRuyter Res. (0602-0086)	Madison	Lake	B	Nutrients (phosphorus)	Agricultural	1998
SR- 99-P174	Beaver Lake (0601-0066)	Broome	Lake	C	Phosphorus	On-site WTS	2002
SR-100-P174a	White Birch Lake (0601-0068)	Broome	Lake	?	Phosphorus	On-site WTS	2002
	Oswego River (Finger Lakes) Drainage Basin						
Ont 66- 3-P9	Lake Neatahwanta (0701-0018)	Oswego	Lake	B	Nutrients (phosphorus)	Urban/Storm Runoff	1998
Ont 66-11-P26	Oneida Lake (0703-0001)	Oswego	Lake	B	Nutrients (phosphorus)	Agricultural	1998
Ont 66-11-P26-37	Chittenango Creek (0703-0005)	Madison	River	C	Nutrients (phosphorus)	Agricultural	1998
Ont 66-12 (portion 2)	Seneca River (0701-0008)	Onondaga	River	C	Pathogens	On-site WTS	1998
Ont 66-12-43-P212	Owasco Lake (0706-0009)	Cayuga	Lake	AA(T)	Pathogens	On-site WTS	1998
Ont 66-12-52-18	Pond Brook and tribs (0704-0004)	Seneca	River	C	D.O./Oxygen Demand	Agricultural	1998
Ont 66-12-52-23- 1	Marbletown Creek (0704-0003)	Wayne	River	C(T)	Pesticides	Agricultural	1998
	PHENOLIC COMPOUNDS [31]						
	Black River Drainage Basin						
Ont 19- 6 (-1)	Kelsey Creek (0801-0191)	Jefferson	River	C	PCBs	Industr, Contam.Sed.	1998
	Saint Lawrence River Drainage Basin						
SL-25- 7- P1	Black Lake (0906-0001)	St.Lawrence	Lake	B	Nutrients (phosphorus)	Agricultural	1998
	Upper Hudson River Drainage Basin						
H-299-P27-13- 1-P30	* Lake Lonely (1101-0034)	Saratoga	Lake	B	Phosphorus	Urban/Storm Runoff	2002
H-301-17-P79	Cossayuna Lake (1103-0002)	Washington	Lake	A	Phosphorus	On-site WTS, Agric	2002
	PHENOLIC COMPOUNDS [31]						
	Mohawk River Drainage Basin						
	PHENOLIC COMPOUNDS [31]						

[31] Ambient monitoring concentrations of phenolic compounds in some waters of this basin occasionally exceed the current 1.0 µg/l standard for aesthetics (taste, fish tainting). However the reliability of these results is limited for much of the data set by a minimum reporting level equal to the standard of 1.0 µg/l. In addition, the frequency and/or magnitude by which this standard is exceeded was not considered in the previous (1998) Section 303(d) Listing. As a result, waters in the basin will be re-evaluated for impacts due to phenolic compounds in light of analytic capabilities and the new *Consolidated Assessment and Listing Methodology* during the next scheduled basin monitoring and assessment effort.

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Part 3a - Waterbody Segments for which TMDL Development May be Deferred (Requiring Verification of Impairment) (con't)

Water Index Number	Waterbody Name (WI/PWL ID)	County	Type	Class	Cause/Pollutant	Source	Year
	Lower Hudson River Drainage Basin						
H- 31-P44-17-5-P57a	Lake Lincolndale (1302-0089, formerly 1302-0063)	Westchester	Lake	B	Phosphorus	On-site WTS, Urban	2002
H- 31-P44-23-P59- 6-P62a	Lake Carmel (1302-0006)	Putnam	Lake	B	Phosphorus	On-site WTS	2002
H- 49a-P160	Lake Meahagh (1301-0053)	Westchester	Lake	C	Phosphorus	On-site WTS, Urban	2002
H- 94	Quassaic Creek (1301-0079)	Orange	River	D	Unknown Toxic	Urban Runoff/CSOs	2002
H-101-P365	Wappingers Lake (1305-0001)	Dutchess	Lake	B	Phosphorus	Urban/Storm Runoff	1998
					Silt/Sediment	Urban/Storm Runoff	2002
H-114	Fallkill Creek (1301-0087)	Dutchess	River	C	Phosphorus	Urban/Storm Runoff	2002
H-188-P902	Robinson Pond (1308-0003)	Columbia	Lake	B(T)	Phosphorus	Agricultural	1998
H-193-20	Shingle Kill (1309-0008)	Greene	River	C(TS)	Pathogens	Private/On-Site WTS	2002
H-193-29-P950a	* Basic Creek Reservoir (1309-0001)	Albany	Lake(R)	A	Aesthetics (algal blooms)	Hydro/Habitat Mod	2002
H-221- 4- 3	Krumkill Creek (1311-0004)	Albany	River	C(T)	Unknown Toxic	Urban Runoff/CSOs	2002
H-226	Patroon Creek (1301-0030)	Albany	River	C	D.O./Oxygen Demand	Urban/Storm/CSOs	2002
H-234	Kromma Kill (1301-0027)	Albany	River	D>C	Unknown Toxic	Industrial	2002
	PHENOLIC COMPOUNDS[31]						
	Housatonic River Drainage Basin						
	Rudd Pond (1601-0001)	Dutchess	Lake	C	Nutrients (phosphorus)	Agricultural	1998

Other (Selected) Statewide Waters

Waters with Iron concentrations greater than the 300 μg/l standard for protection of aquatic life.

A recent review of the scientific basis for the 300 μg/l aquatic life standard found it to be insufficient to support the standard. The upcoming standards review is expected to propose deletion of the 300 μg/l standard to be replaced by a 1,000 μg/l guidance value (based on 1976 USEPA Criteria for Iron). The inclusion of specific waters on the Section 303(d) list due to iron will be re-evaluated based on the iron concentration relative to the proposed guidance value for iron.

Waters with areas of Dissolved Oxygen less than 5.0 (trout) or 4.0 (non-trout) mg/l.

Significant numbers of thermally stratified lakes experience periods of oxygen depletion in the hypolimnion due to morphology and other natural conditions. However deep water conditions are not always representative of the lake as a whole and aquatic life and other uses are often fully supported in these waters. In its next water quality standards rule-making effort (scheduled to be complete in 2008), NYSDEC will collaborate with USEPA and other Northeast states to evaluate the current D.O. standards for freshwater and their application and adopt a criterion that might better reflect the natural occurrence of low D.O. in deeper lake waters and impact on use support. Should such a criterion not be proposed and/or adopted prior to the 2008 Section 303(d) listing cycle, waterbodies exceeding the then applicable dissolved oxygen criteria would be listed on the 2008 303(d) list, in accordance with the applicable assessment and listing guidance at that time.

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Water Index Number	Waterbody Name (WI/PWL ID)	County	Type	Class	Cause/Pollutant	Source	Year

Part 3a - Waterbody Segments for which TMDL Development May be Deferred (Requiring Verification of Impairment) (con't)

Other (Selected) Statewide Waters (con't)

Waters with pH between 6.0 and 6.5 or between 8.5 and 9.0.

Although New York State water quality standards state that pH shall not be less than 6.5 nor more than 8.5, there is considerable evidence that a wider range of pH is supportive of aquatic life and other uses. The NYSDEC Assessment Methodology reflects this fact by indicating that for waters with pH between 6.0 and 6.5 or between 8.5 and 9.0, waters are considered to be "stressed" but supporting of uses (i.e., not "impaired") unless there are other indications of biological impact. In its next water quality standards rule-making effort (scheduled to be complete in 2008), NYSDEC will collaborate with USEPA and other states to evaluate the current pH standards for freshwater and their application and adopt a criterion that better reflects the natural range of pH in freshwaters and impacts on use support. The resulting criterion will be incorporated into an updated Assessment Methodology in order to achieve consistency. Should such a criterion not be proposed and/or adopted prior to the 2008 Section 303(d) listing cycle, waterbodies exceeding the then applicable pH criteria would be listed on the 2008 303(d) list, in accordance with the applicable assessment and listing guidance at that time.

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Water Index Number	Waterbody Name (WI/PWL ID)	County	Type	Class	Cause/Pollutant	Source	Year

Part 3b - Waterbody Segments for which TMDL Development May be Deferred (Requiring Verification of Cause/Pollutant)

Water Index Number	Waterbody Name (WI/PWL ID)	County	Type	Class	Cause/Pollutant	Source	Year
	Niagara River/Lake Erie Drainage Basin						
Ont 158-12- 9	Beeman Creek and tribs (0102-0030)	Erie	River	C	D.O./Oxygen Demand	On-Site WTS	2004
					Phosphorus	On-Site WTS	2004
					Pathogens	On-Site WTS	2004
Ont 158-12-11-1	Murder Creek, Lower, and tribs (0102-0031)	Erie	River	C	D.O./Oxygen Demand	On-Site WTS	2004
					Phosphorus	On-Site WTS	2004
					Pathogens	On-Site WTS	2004
Ont 158-12-28	Bowen Brook and tribs (0102-0036)	Genesee	River	C	D.O./Oxygen Demand	On-Site WTS	2004
					Phosphorus	On-Site WTS	2004
Ont 158..E- 2- 1	South Branch, Lower, and tribs (0101-0036)	Erie	River	C	Phosphorus	Urban Runoff	2004
					Silt/Sediment	Urban Runoff, Erosion	2004
Ont 158..E-19	Little Sister Creek, Lower, and tribs (0104-0045)	Erie	River	B	Phosphorus	On-Site WTS	2004
					Pathogens	On-Site WTS	2004
Ont 158..E-22	**Muddy Creek, Lower, and tribs (0104-0051)**	Erie	River	B	`	Unknown	2006
	Lake Ontario (Minor Tribs) Drainage Basin						
Ont 120	Slater Creek and tribs (0301-0020)	Monroe	River	C	D.O./Oxygen Demand	On-Site WTS	2004
	Genesee River Drainage Basin						
Ont 117- 18	Little Black Creek, Lower, and tribs (0402-0047)	Monroe	River	C	Unknown Toxicity	Urban Runoff	2004
Ont 117- 19-30	Bigelow Creek and tribs (0402-0016)	Genesee	River	C	Phosphorus	Agriculture	2004
Ont 117- 57	Jaycox Creek and tribs (0402-0064)	Livingston	River	C	Phosphorus	Agriculture	2004
					Silt/Sediment	Agriculture	2004
Ont 117- 66-22	Mill Creek and minor tribs (0404-0011)	Livingston	River	C(TS)	Silt/Sediment	Streambank Erosion	2004
Ont 117- 70	Silver Lake Outlet, Upper, and tribs (0403-0034)	Wyoming	River	C	Unknown	Unknown	2004
	Mohawk River Drainage Basin						
H-240 (portion 14)	Mohawk River, Main Stem (1201-0094)	Oneida	River	C	Floatables	Urban Runoff	2004
					Copper	Urban Runoff	2004
					D.O./Oxygen Demand	Urban Runoff	2004
					Pathogens	Urban Runoff	2004
	Lower Hudson River Drainage Basin						
H-139-13-59	Quaker Creek (1306-0025)	Orange	River	D>C	D.O./Oxygen Demand	Agriculture	2004
	Atlantic Ocean/Long Island Sound Drainage Basin						
(MW3.6) LIS-13	Byram River, Lower (1702-0132)	Westchester	Estuary	SC	Pathogens	On-site WTS, Urban	2004

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Part 3c - Waterbody Segments for which TMDL Development may be Deferred (Addressing Through Other Restoration Measures)

Water Index Number	Waterbody Name (WI/PWL ID)	County	Type	Class	Cause/Pollutant	Source	Year
	Upper Hudson River Basin						
H	Hudson River (1101-0002) [32]	Saratoga	River	C	PCBs	Contaminated Sed.	1998
H	Hudson River (1101-0040) [32]	Saratoga	River	A	PCBs	Contaminated Sed.	1998
H	Hudson River (1101-0041) [32]	Saratoga	River	B	PCBs	Contaminated Sed.	1998
	Atlantic Ocean/Long Island Sound Drainage Basin						
(MW1.1) LB/GB-253	Coney Island Creek (1701-0008) [33]	Kings	Estuary	I	D.O./Oxygen Demand	Urban/CSO, OWTS	1998
					Pathogens	Urban/CSO, OWTS	2002
(MW1.3) UB-EB- 1	Gowanus Canal (1701-0011) [33]	Kings	Estuary	SD	D.O./Oxygen Demand	Urban/Storm/CSO	1998
(MW2.1) ER-LI- 4	Newtown Creek and tidal tribs (1702-0002) [33]	Queens	Estuary	SD	D.O./Oxygen Demand	Urban/Storm/CSO	2004
(MW2.4) ER-3	Bronx River, Lower (1702-0006) [33]	Bronx	Estuary	I	Pathogens	Urban/Storm/CSO	1998
					Oxygen Demand	Urban/Storm/CSO	2004
(MW2.4) ER-3	Bronx River, Middle, and tribs (1702-0106) [33]	Bronx	River	B	Pathogens	Urban/Storm/CSO	2002
(MW2.4) ER-4	Westchester Creek (1702-0012) [33]	Bronx	Estuary	I	D.O./Oxygen Demand	Urban/Storm/CSO	2004
(MW2.5) ER/LIS-LNB	Little Neck Bay (1702-0029) [33]	Queens	Estuary	SB	Pathogens	Urban/Storm/CSO	1998
(MW2.5) ER-LI-12	Flushing Creek/Bay (1702-0005) [33]	Queens	Estuary	I	D.O./Oxygen Demand	Urban/Storm/CSO	2004
(MW2.5) ER/LIS-LNB-19 thru 20	Alley Creek/Little Neck Bay Trib (1702-0009) [33]	Queens	Estuary	I>SC	Oxygen Demand	Urban/Storm/CSO	2004
(MW3.2) LIS- 2	Hutchinson River, Lower, and tribs (1702-0003) [33]	Bronx	Estuary	SB	D.O./Oxygen Demand	Urban/Storm/CSO	2004
(MW8.5b) JB	Jamaica Bay, Eastern, and tribs, Queens (1701-0005) [33]	Queens	Estuary	SB	Pathogens	Urban/CSO,Municipl	1998
(MW8.5b) JB-241a	Thurston Basin (1701-0152) [33]	Queens	Estuary	I	D.O./Oxygen Demand	Urban/Storm/CSO	2002
(MW8.5b) JB-247	Bergen Basin (1701-0009) [33]	Queens	Estuary	I	Pathogens	Urban/CSO,Municipl	1998
(MW8.5b) JB-248a	Shellbank Basin (1701-0001) [33]	Queens	Estuary	I	Nitrogen	Urban/Storm/CSO	1998
					D.O./Oxygen Demand	Urban/Storm/CSO	2002
(MW8.5b) JB-249	Spring Creek (1701-0361) [33]	Queens	Estuary	I	D.O./Oxygen Demand	Urban/CSO,Municipl	2002
					Pathogens	Urban/CSO,Municipl	2002
(MW8.6) JB-249a	Hendrix Creek (1701-0006) [33]	Kings	Estuary	I	Pathogens	Urban/Storm/CSO	2002
(MW8.6) JB-250a	Paerdegat Basin (1701-0363) [33]	Kings	Estuary	I	D.O./Oxygen Demand	Urban/Storm/CSO	1998
(MW8.6) JB-250b	Mill Basin and tidal tribs (1701-0178) [33]	Kings	Estuary	SB	D.O./Oxygen Demand	Urb/Storm Runoff	1998

[32] Impairments to these waters are being addressed by a Record of Decision and the on-going plan for remediation of the River.

[33] Impairments to these waters are being addressed by a 2005 Order on Consent with NYC directing the city to develop and implement watershed and facility plans to address CSO discharges and bring New York City waters into compliance with the Clean Water Act. This may include a revision of water quality standards based on a Use Attainability Analysis if fishable/swimmable goals of the CWA are not attainable. NYSDEC remains committed to the development of harbor-wide TMDLs for nutrients, pathogens and toxics. However, it is appropriate to defer development of separate TMDLs for these individual CSO-impacted waterbodies in light of the enforceable requirements of the NYC CSO Consent Order.

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Appendix A - Smaller Lakes Impaired by Atmospheric Deposition (Acid Rain)

NOTE: Waters listed here ARE included in the 2006 Section 303(d) List

Water Index Number	Waterbody Name (WI/PWL ID)	County	Type	Size	Class	Cause/Pollutant	Source	Year
	Black River Drainage Basin							
Ont 19- 40-19-P459	Bear Pond (0801-0105)	Herkimer	Lake	2.0 A	D	pH	Acid Rain	1998
Ont 19- 57-10...P640	Blue Pond (0801-0151)	Hamilton	Lake	3.0 A	C	pH	Acid Rain	1998
	Cat Pond (0801-0036)	Herkimer	Lake	6.0 A	C(T)	pH	Acid Rain	1998
Ont 19- 81-71- 2-1-P889	Cellar Pond (0801-0001)	Hamilton	Lake	6.0 A	C(T)	pH	Acid Rain	1998
Ont 19- 57- 5-P607	Cork Pond (0801-0119)	Lewis	Lake	3.0 A	C	pH	Acid Rain	1998
Ont 19-114-13-P994	Cotton Lake (0801-0138)	Herkimer	Lake	3.0 A	C(T)	pH	Acid Rain	1998
Ont 19- 40-18-3-P441	Crooked Lake (Sadie Pond) (0801-0144)	Lewis	Lake	1.0 A	D	pH	Acid Rain	1998
Ont 19- 40-22-1-1-P480	* Cropsey Pond (0801-0039)	Herkimer	Lake	6.0 A	FP	pH	Acid Rain	1998
Ont 19- 94-1-P918	Doe Pond (0801-0161)	Herkimer	Lake	3.0 A	D	pH	Acid Rain	1998
Ont 19- 60-5-P664-P664a	* Florence Pond (0801-0067)	Lewis	Lake	4.0 A	FP	pH	Acid Rain	1998
Ont 19- 40-P493-19-P539..P558	Fly Pond West (0801-0149)	Hamilton	Lake	3.0 A	C(T)	pH	Acid Rain	1998
Ont 19-P1007-10-3-P1010	* Gooseneck Lake (0801-0043)	Herkimer	Lake	6.0 A	FP	pH	Acid Rain	1998
Ont 19- 81-61-14-P886	Jimmy Pond (0801-0014)	Hamilton	Lake	4.0 A	C(T)	pH	Acid Rain	1998
Ont 19- 40-P493-32-16-P583	* Jock Pond (0801-0045)	Herkimer	Lake	6.0 A	FP	pH	Acid Rain	1998
Ont 19- 81-58-16-5-P861	Little Deer Lake (0801-0071)	Herkimer	Lake	5.0 A	C(T)	pH	Acid Rain	1998
Ont 19- 81- 7- 1-P701-1-2-P702	Lost Lake (0801-0072)	Lewis	Lake	6.0 A	C(T)	pH	Acid Rain	1998
Ont 19- 40-18-3-P442	Maccabe Pond (0801-0102)	Lewis	Lake	3.0 A	C	pH	Acid Rain	1998
Ont 19- 57- 5-P613	Mahan Pond (0801-0073)	Lewis	Lake	3.0 A	C	pH	Acid Rain	1998
Ont 19- 57- 9-P631	Mikes Pond (0801-0120)	Lewis	Lake	2.0 A	C	pH	Acid Rain	1998
Ont 19- 40-P449-2-P450..P453	Mirror Pond (0801-0146)	Lewis	Lake	1.0 A	C	pH	Acid Rain	1998
Ont 19- 40-P493- 7-8-P524	Mud Pond (0801-0074)	Herkimer	Lake	3.0 A	C(T)	pH	Acid Rain	1998
Ont 19- 81-58-5-P852-3-P853	Muskrat Pond (0801-0015)	Hamilton	Lake	6.0 A	C(T)	pH	Acid Rain	1998
Ont 19- 40-P493-32-P584..P585	* Oswego Pond (0801-0053)	Herkimer	Lake	6.0 A	FP	pH	Acid Rain	1998
Ont 19- 40-P493-32-16-1-2-P581	Pocket Pond (0801-0077)	Herkimer	Lake	5.0 A	C(T)	pH	Acid Rain	1998
Ont 19- 90-5-P909	Poplar Pond (0801-0078)	Herkimer	Lake	3.0 A	C	pH	Acid Rain	1998
Ont 19- 81-18-17-P752-2..P755	Silver Dollar Pd. (0801-0079)	Herkimer	Lake	2.0 A	AA	pH	Acid Rain	1998
Ont 19- 57- 5-P612	Spectacle Pond, East (0801-0081)	Lewis	Lake	2.0 A	C	pH	Acid Rain	1998
Ont 19- 57- 5-P611	Spectacle Pond, West (0801-0082)	Lewis	Lake	2.0 A	C	pH	Acid Rain	1998
Ont 19- 57- 7-3-P627	Stewart Pond (0801-0083)	Lewis	Lake	3.0 A	C	pH	Acid Rain	1998
Ont 19- 57- 7-7-P628	Trout Pond (0801-0127)	Lewis	Lake	2.0 A	C(T)	pH	Acid Rain	1998
Ont 19- 81-58-16-5-5-P858	Twin Lake Lower (0801-0133)	Herkimer	Lake	3.0 A	C(T)	pH	Acid Rain	1998
Ont 19- 81-58-16-5-5-P860	Twin Lake Upper (0801-0085)	Herkimer	Lake	6.0 A	C(T)	pH	Acid Rain	1998
Ont 19- 81-58-P868	Twin Lakes West (0801-0030)	Hamilton	Lake	1.0 A	C(T)	pH	Acid Rain	1998
Ont 19-P1007-11-4-P1016	Unnamed P #3-1016 (0801-0129)	Herkimer	Lake	6.0 A	C(T)	pH	Acid Rain	1998
Ont 19- 40- 3-P409	Unnamed P #4-409 (0801-0142)	Lewis	Lake	2.0 A	C	pH	Acid Rain	1998

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Appendix A - Smaller Lakes Impaired by Atmospheric Deposition (Acid Rain) (con't)

Water Index Number	Waterbody Name (WI/PWL ID)	County	Type	Size	Class	Cause/Pollutant	Source	Year
	Black River Drainage Basin (con't)							
Ont 19- 40-17-P437	Unnamed P #4-437 (0801-0143)	Lewis	Lake	4.0 A	C(T)	pH	Acid Rain	1998
Ont 19- 40-18-2-2-P439	* Unnamed P #4-439 (0801-0086)	Herkimer	Lake	3.0 A	FP	pH	Acid Rain	1998
Ont 19- 40-18-2-P440	* Unnamed P #4-440 (0801-0087)	Herkimer	Lake	6.0 A	FP	pH	Acid Rain	1998
Ont 19- 40-19-P457	Unnamed P #4-457 (0801-0104)	Herkimer	Lake	5.0 A	C(T)	pH	Acid Rain	1998
Ont 19- 40-20-P473-1-P474	Unnamed P #4-474b (0801-0147)	Hamilton	Lake	5.0 A	C(T)	pH	Acid Rain	1998
Ont 19- 40-20-P473-1-P474..P476	Unnamed P #4-476 (0801-0090)	Herkimer	Lake	4.0 A	C(T)	pH	Acid Rain	1998
Ont 19- 40-22-3-P488	Unnamed P #4-488 (0801-0106)	Herkimer	Lake	2.0 A	C	pH	Acid Rain	1998
Ont 19- 40-22-P489-1-P490	Unnamed P #4-490 (0801-0092)	Herkimer	Lake	2.0 A	C	pH	Acid Rain	1998
Ont 19- 40-P493- 4-P500-P501	Unnamed P #4-501 (0801-0124)	Herkimer	Lake	4.0 A	C	pH	Acid Rain	1998
Ont 19- 40-P493- 6-3-1-P506	Unnamed P #4-506 (0801-0112)	Herkimer	Lake	2.0 A	C	pH	Acid Rain	1998
Ont 19- 40-P493- 6-4-P512	Unnamed P #4-512 (0801-0093)	Herkimer	Lake	6.0 A	C(T)	pH	Acid Rain	1998
Ont 19- 40-P493- 6-P516	Unnamed P #4-516 (0801-0117)	Herkimer	Lake	5.0 A	C	pH	Acid Rain	1998
Ont 19- 40-P493- 7-8-P525..P526	Unnamed P #4-526 (0801-0118)	Herkimer	Lake	5.0 A	C(T)	pH	Acid Rain	1998
Ont 19- 40-P493-21-1-4-2-P569	Unnamed P #4-569 (0801-0021)	Hamilton	Lake	2.0 A	C(T)	pH	Acid Rain	1998
Ont 19- 57-10-5-P636	Unnamed P #4-636 (0801-0121)	Herkimer	Lake	1.0 A	C(T)	pH	Acid Rain	1998
Ont 19- 57-22-P645	Unnamed P #4-645 (0801-0152)	Hamilton	Lake	2.0 A	C(T)	pH	Acid Rain	1998
Ont 19- 81-18-17-P752-7-2-P765	Unnamed P #4-765 (0801-0023)	Hamilton	Lake	4.0 A	C(T)	pH	Acid Rain	1998
Ont 19- 81-18-17-P752-7-2-P766	Unnamed P #4-766 (0801-0024)	Hamilton	Lake	3.0 A	C(T)	pH	Acid Rain	1998
Ont 19- 81-18-17-P752-7..P771	Unnamed P #4-771 (0801-0156)	Hamilton	Lake	1.0 A	C(T)	pH	Acid Rain	1998
Ont 19- 81-18-P782d-10..P792	Unnamed P #4-792 (0801-0031)	Hamilton	Lake	2.0 A	C(T)	pH	Acid Rain	1998
Ont 19- 81-52-P840	Unnamed P #4-840 (0801-0130)	Herkimer	Lake	4.0 A	C(T)	pH	Acid Rain	1998
Ont 19- 81-52-P846	Unnamed P #4-846 (0801-0095)	Herkimer	Lake	4.0 A	C(T)	pH	Acid Rain	1998
Ont 19- 81-58-P865-5-2-P851	Unnamed P #4-851 (0801-0141)	Hamilton	Lake	2.0 A	C(T)	pH	Acid Rain	1998
Ont 19- 81-58-14-P856	Unnamed P #4-856 (0801-0026)	Hamilton	Lake	2.0 A	C(T)	pH	Acid Rain	1998
Ont 19- 81-58-16-5-P857A	Unnamed P #4-857a (0801-0132)	Herkimer	Lake	6.0 A	C(T)	pH	Acid Rain	1998
Ont 19- 81-58-16-5-P858	Unnamed P #4-858 (0801-0096)	Herkimer	Lake	6.0 A	C(T)	pH	Acid Rain	1998
Ont 19- 81-58-P864A	Unnamed P #4-864a (0801-0027)	Hamilton	Lake	3.0 A	C(T)	pH	Acid Rain	1998
Ont 19- 81-58-22-3-P871	Unnamed P #4-871 (0801-0159)	Hamilton	Lake	2.0 A	C(T)	pH	Acid Rain	1998
Ont 19- 81-58-22-P872	Unnamed P #4-872 (0801-0028)	Hamilton	Lake	5.0 A	C(T)	pH	Acid Rain	1998
Ont 19- 88-P906	Unnamed P #4-906 (0801-0137)	Herkimer	Lake	2.0 A	C	pH	Acid Rain	1998
Ont 19-104-2-4-P946	Unnamed P #4-946 (0801-0162)	Herkimer	Lake	2.0 A	C	pH	Acid Rain	1998
Ont 19-119-P1000	* Upper Twin Lake (0801-0060)	Herkimer	Lake	6.0 A	FP	pH	Acid Rain	1998
Ont 19- 40- 7-P417	Upper West Pond (0801-0163)	Lewis	Lake	3.0 A	C(T)	pH	Acid Rain	1998
Ont 19- 60-15-P675	West Pond (0801-0136)	Herkimer	Lake	3.0 A	C(T)	pH	Acid Rain	1998

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Appendix A - Smaller Lakes Impaired by Atmospheric Deposition (Acid Rain) (con't)

Water Index Number	Waterbody Name (WI/PWL ID)	County	Type	Size	Class	Cause/Pollutant	Source	Year
	Saint Lawrence River Drainage Basin							
SL-25-P309-12-12-P326	* Ash Pond (0905-0028)	St.Lawrence	Lake	5.0 A	FP	pH	Acid Rain	1998
SL- 1-P109- 4-1-P80-2-P81	Buck Pond (0903-0037)	St.Lawrence	Lake	2.0 A	D	pH	Acid Rain	1998
SL- 2-59-32-2-1-P355	Cartridge Hills P (0904-0004)	St.Lawrence	Lake	1.0 A	C(T)	pH	Acid Rain	1998
SLC-29-18?...P032	Childs Pond (0902-0013)	Franklin	Lake	2.0 A	?	pH	Acid Rain	1998
SL-25-132-P373...P374	* Covey Pond (0905-0029)	Herkimer	Lake	4.0 A	FP	pH	Acid Rain	1998
SLC-32-20-96-P148	* Douglas Pond (0902-0012)	Franklin	Lake	3.0 A	FP	pH	Acid Rain	1998
SL- 2-59-32-1-P353	Egg Pond (0904-0003)	St.Lawrence	Lake	1.0 A	D	pH	Acid Rain	1998
SLC-32-P171	* Grass Pond (0902-0002)	Franklin	Lake	2.0 A	FP	pH	Acid Rain	1998
SL-25-131-P362	* Grassy Pond (0905-0033)	St.Lawrence	Lake	3.0 A	FP	pH	Acid Rain	1998
SL- 1-P109-11-2-P118-3-P121	Hedgehog Pond (0903-0020)	Hamilton	Lake	5.0 A	?	pH	Acid Rain	1998
SLC-32-69- 6-P226	Hidden Pond (0902-0022)	Essex	Lake	5.0 A	D	pH	Acid Rain	1998
SL- 1-162-P235-02-P238..P240	Hunter Pond (0903-0042)	Essex	Lake	1.0 A	C(T)	pH	Acid Rain	1998
SL-25-143-P381	Jenkins Pond (0905-0069)	Herkimer	Lake	2.0 A	C	pH	Acid Rain	1998
SL-25-073-26-37-P179	Kelly Pond (0905-0073)	Herkimer	Lake	4.0 A	D	pH	Acid Rain	1998
SL-25-P309- 9-P317	Little Dog Pond (0905-0039)	St.Lawrence	Lake	6.0 A	C	pH	Acid Rain	1998
SL-25-140-2-P378	Little Duck Pond (0905-0089)	Hamilton	Lake	2.0 A	C(T)	pH	Acid Rain	1998
SL-25-P309-11-P319-P320	* Little Fish Pond (0905-0082)	St.Lawrence	Lake	5.0 A	FP	pH	Acid Rain	1998
SL- 1-P293-14-1-P331	Lone Pond (0903-0008)	Hamilton	Lake	5.0 A	D	pH	Acid Rain	1998
SL- 1-162-P235-01-P237	* Lost Pond (0903-0009)	Essex	Lake	5.0 A	FP	pH	Acid Rain	1998
SL-25-115-P307	Lost Pond (0905-0040)	St.Lawrence	Lake	6.0 A	C(T)	pH	Acid Rain	1998
SL- 1-P293-13-8-P326	* Lower Chain Pond (0903-0010)	Hamilton	Lake	6.0 A	FP	pH	Acid Rain	1998
SL- 1-P293...P298	* Lower Helms Pond (0903-0024)	Hamilton	Lake	4.0 A	FP	pH	Acid Rain	1998
SLC-29-22-...P045	* Middle Notch Pond (0902-0015)	Franklin	Lake	4.0 A	FP	pH	Acid Rain	1998
SLC-32-P257a-P264-P265..P268a	Mikes Pond (0902-0024)	Essex	Lake	1.0 A	D	pH	Acid Rain	1998
SLC-32- 6-31-P087	Mountain Pond (0902-0019)	Essex	Lake	4.0 A	B	pH	Acid Rain	1998
SLC-29-22-P047	Owlshead Pond (0902-0016)	Essex	Lake	1.0 A	AA	pH	Acid Rain	1998
SL- 1-P293-04-P304-P306...P309	* Pine Pond (0903-0022)	Hamilton	Lake	5.0 A	FP	pH	Acid Rain	1998
SL- 1-P293-04-P304-P305	* Potter Pond (0903-0012)	Hamilton	Lake	6.0 A	FP	pH	Acid Rain	1998
SL- 1-074-1-P063-P064	Preston Pond (0903-0031)	St.Lawrence	Lake	4.0 A	D	pH	Acid Rain	1998
SLC-29-21-7-...P040a	Razorback Pond (0902-0017)	Essex	Lake	1.0 A	D	pH	Acid Rain	1998
SL-25-101-P279	Readway Pond (0905-0043)	St.Lawrence	Lake	2.0 A	D	pH	Acid Rain	1998
SL- 1-065-P060	Roberts Pond (0903-0030)	St.Lawrence	Lake	1.0 A	D	pH	Acid Rain	1998
SL- 1-162-28-P231	Rock Pond (0903-0013)	Essex	Lake	5.0 A	C	pH	Acid Rain	1998
SLC-29-P050-3-1-P057	South Duck Pond (0902-0018)	Essex	Lake	2.0 A	D	pH	Acid Rain	1998
SL- 1-065-26-2-P052	Spring Pond (0903-0035)	Essex	Lake	3.0 A	D	pH	Acid Rain	1998
SLC-32-P170a	Unnamed P #3-170 (0902-0009)	Franklin	Lake	3.0 A	AA(T)	pH	Acid Rain	1998

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Water Index Number	Waterbody Name (WI/PWL ID)	County	Type	Size	Class	Cause/Pollutant	Source	Year
	Saint Lawrence River Drainage Basin (con't)							
SLC-32-52-15-P179a-5-8..P189	* Unnamed P #3-189 (0902-0010)	Franklin	Lake	1.0 A	FP	pH	Acid Rain	1998
SLC-32-86-P252	Unnamed P #3-252 (0902-0023)	Essex	Lake	2.0 A	C	pH	Acid Rain	1998
SL-25-073-26-38-2-P180	Unnamed P #4-180 (0905-0075)	Hamilton	Lake	3.0 A	D	pH	Acid Rain	1998
SL-25-073-26-45-P202	* Unnamed P #4-202 (0905-0048)	Herkimer	Lake	4.0 A	FP	pH	Acid Rain	1998
SL-25-073-26?...P206	* Unnamed P #4-206 (0905-0052)	Herkimer	Lake	3.0 A	FP	pH	Acid Rain	1998
SL-25-073-26-47-P207	* Unnamed P #4-207 (0905-0053)	Herkimer	Lake	1.0 A	FP	pH	Acid Rain	1998
SL-25-073-26-48-P209	* Unnamed P #4-209 (0905-0055)	Herkimer	Lake	6.0 A	FP	pH	Acid Rain	1998
SL-25-073-26-49-P211	* Unnamed P #4-211 (0905-0064)	Herkimer	Lake	1.0 A	FP	pH	Acid Rain	1998
SL-25-073-26-51-P212	* Unnamed P #4-212 (0905-0065)	Herkimer	Lake	2.0 A	FP	pH	Acid Rain	1998
SL-25-073-26-51-P213	* Unnamed P #4-213 (0905-0066)	Herkimer	Lake	5.0 A	FP	pH	Acid Rain	1998
SL-25-073-40-P235	Unnamed P #4-235 (0905-0076)	Jefferson	Lake	2.0 A	C(T)	pH	Acid Rain	1998
SL-25-101-24-P282	Unnamed P #4-282 (0905-0077)	St.Lawrence	Lake	1.0 A	D	pH	Acid Rain	1998
SL-25-101-34-2-P297	Unnamed P #4-297 (0905-0079)	St.Lawrence	Lake	3.0 A	C(T)	pH	Acid Rain	1998
SL-25-P309-11...P320a	* Unnamed P #4-320a (0905-0083)	St.Lawrence	Lake	4.0 A	FP	pH	Acid Rain	1998
SL-25-P309-11...P320b	* Unnamed P #4-320b (0905-0084)	St.Lawrence	Lake	6.0 A	FP	pH	Acid Rain	1998
SL-25-P309-11...P321a	* Unnamed P #4-321a (0905-0085)	St.Lawrence	Lake	2.0 A	FP	pH	Acid Rain	1998
SL-25-P309-11...P322b	* Unnamed P #4-322b (0905-0086)	St.Lawrence	Lake	5.0 A	FP	pH	Acid Rain	1998
SL-25-P309-11...P324	Unnamed P #4-324 (0905-0070)	St.Lawrence	Lake	4.0 A	C(T)	pH	Acid Rain	1998
SL-25-128-1-P356	* Unnamed P #4-356 (0905-0068)	St.Lawrence	Lake	4.0 A	FP	pH	Acid Rain	1998
SL-25-132-5-P370	* Unnamed P #4-370 (0905-0104)	Herkimer	Lake	2.0 A	FP	pH	Acid Rain	1998
SL- 1-058-1-P037	Unnamed P #6-037 (0903-0034)	St.Lawrence	Lake	1.0 A	D	pH	Acid Rain	1998
SL- 1-065-26-3-P055	Unnamed P #6-055 (0903-0036)	Essex	Lake	3.0 A	D	pH	Acid Rain	1998
	Unnamed P #6-060 (0903-0029)	St.Lawrence	Lake	4.0 A	D	pH	Acid Rain	1998
SL- 1-077-P067	Unnamed P #6-067 (0903-0026)	St.Lawrence	Lake	1.0 A	C(T)	pH	Acid Rain	1998
SL- 1-P089- 1-2-P094	Unnamed P #6-094 (0903-0023)	Franklin	Lake	5.0 A	D	pH	Acid Rain	1998
SL- 1-P089- 1...P107	Unnamed P #6-107 (0903-0038)	Essex	Lake	1.0 A	D	pH	Acid Rain	1998
SL- 1-P109-11-2-P118-3-P119	* Unnamed P #6-119 (0903-0021)	Hamilton	Lake	2.0 A	FP	pH	Acid Rain	1998
SL- 1-P109-11-2-P118-P122	Unnamed P #6-122 (0903-0039)	Hamilton	Lake	2.0 A	D	pH	Acid Rain	1998
SL- 1-P109-11-2-P118-P124	* Unnamed P #6-124 (0903-0019)	Hamilton	Lake	1.0 A	FP	pH	Acid Rain	1998
SL- 1-P109-11-2-P118-P125a	Unnamed P #6-125a (0903-0040)	Hamilton	Lake	1.0 A	D	pH	Acid Rain	1998
SL- 1-P109-11-2...P141	Unnamed P #6-141 (0903-0018)	Hamilton	Lake	4.0 A	D	pH	Acid Rain	1998
SL- 1-P293-13-4-P323	Unnamed P #6-323 (0903-0014)	Hamilton	Lake	5.0 A	D	pH	Acid Rain	1998
SL- 1-P293-13-8-P328	* Upper Chain Pond (0903-0016)	Hamilton	Lake	3.0 A	FP	pH	Acid Rain	1998
SLC-29-22-...P046	* Upper Notch Pond (0902-0014)	Franklin	Lake	3.0 A	FP	pH	Acid Rain	1998
SLC-32-52-15-P179a-5-7-P186	Ward Pond (0902-0020)	Essex	Lake	3.0 A	D	pH	Acid Rain	1998
SL-25-126...P346	* Washbowl Pond (0905-0087)	Hamilton	Lake	4.0 A	FP	pH	Acid Rain	1998
SL-25-132-1-P364	* West Pond (0905-0025)	Herkimer	Lake	6.0 A	FP	pH	Acid Rain	1998

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Appendix A - Smaller Lakes Impaired by Atmospheric Deposition (Acid Rain) (con't)

Water Index Number	Waterbody Name (WI/PWL ID)	County	Type	Size	Class	Cause/Pollutant	Source	Year
	Lake Champlain Drainage Basin							
	* AMPHITH.P#2-131 (1003-0018)	Franklin	Lake	3.0 A	FP	pH	Acid Rain	1998
	* BARTLETT POND (1003-0012)	Essex	Lake	3.0 A	FP	pH	Acid Rain	1998
	BARTLETT POND (1003-0030)	Essex	Lake	1.0 A	AA	pH	Acid Rain	1998
	BASS LAKE (1003-0011)	Franklin	Lake	6.0 A	B	pH	Acid Rain	1998
	BULLET POND (1004-0017)	Essex	Lake	1.0 A	C(T)	pH	Acid Rain	1998
	CATAMOUNT POND (1003-0002)	Franklin	Lake	6.0 A	C(T)	pH	Acid Rain	1998
	* CONLEY LINE POND (1003-0003)	Franklin	Lake	1.0 A	FP	pH	Acid Rain	1998
	CRANBERRY POND (1004-0006)	Essex	Lake	2.0 A	D	pH	Acid Rain	1998
	DOW POND (1003-0022)	Franklin	Lake	1.0 A	C(T)	pH	Acid Rain	1998
	LINDSEY POND (1003-0036)	Essex	Lake	6.0 A	AA	pH	Acid Rain	1998
	LINE POND (1003-0025)	Essex	Lake	5.0 A	C(T)	pH	Acid Rain	1998
	* LITTLE ECHO POND (1003-0006)	Franklin	Lake	2.0 A	FP	pH	Acid Rain	1998
	LITTLE EGG POND (1003-0031)	Essex	Lake	1.0 A	AA	pH	Acid Rain	1998
	* LITTLE NORTH WHEY (1003-0007)	Franklin	Lake	3.0 A	FP	pH	Acid Rain	1998
	LOST POND (1004-0007)	Essex	Lake	3.0 A	AA(T)	pH	Acid Rain	1998
	* LOWER WALLFACE PD (1004-0004)	Essex	Lake	6.0 A	FP	pH	Acid Rain	1998
	MARSH POND (1003-0020)	Franklin	Lake	4.0 A	AA	pH	Acid Rain	1998
	MARSH POND (1003-0029)	Essex	Lake	4.0 A	C(T)	pH	Acid Rain	1998
	MCCAFFERY POND (1003-0034)	Essex	Lake	2.0 A	AA	pH	Acid Rain	1998
	MOUNTAIN POND (1003-0024)	Essex	Lake	5.0 A	C(T)	pH	Acid Rain	1998
	MUD POND (1004-0016)	Essex	Lake	3.0 A	AA	pH	Acid Rain	1998
	NORTH WHEY POND (1003-0013)	Franklin	Lake	3.0 A	AA	pH	Acid Rain	1998
	SCOTT POND (1004-0008)	Essex	Lake	3.0 A	C(T)	pH	Acid Rain	1998
	SNAKE POND (1005-0001)	Essex	Lake	4.0 A	C(T)	pH	Acid Rain	1998
	SOCHIA POND (1003-0014)	Franklin	Lake	4.0 A	AA(T)	pH	Acid Rain	1998
	SW AMPHITHEATRE P (1003-0015)	Franklin	Lake	1.0 A	AA	pH	Acid Rain	1998
	* TWELFTH TEE POND (1003-0010)	Franklin	Lake	5.0 A	FP	pH	Acid Rain	1998
	UNNAMED P #2-036 (1003-0023)	Franklin	Lake	3.0 A	C(T)	pH	Acid Rain	1998
	UNNAMED P #2-067 (1003-0026)	Essex	Lake	2.0 A	B(T)	pH	Acid Rain	1998
	UNNAMED P #2-068 (1003-0017)	Franklin	Lake	3.0 A	B(T)	pH	Acid Rain	1998
	UNNAMED P #2-079 (1003-0027)	Essex	Lake	1.0 A	C(T)	pH	Acid Rain	1998
	UNNAMED P #2-080 (1003-0028)	Essex	Lake	2.5 A	C(T)	pH	Acid Rain	1998
	* UNNAMED P #2-133 (1003-0019)	Franklin	Lake	2.0 A	FP	pH	Acid Rain	1998
	UNNAMED P #2-166 (1003-0032)	Essex	Lake	2.0 A	AA	pH	Acid Rain	1998
	UNNAMED P #2-189 (1003-0033)	Essex	Lake	3.0 A	AA	pH	Acid Rain	1998
	UNNAMED P #2-196 (1003-0035)	Essex	Lake	1.0 A	AA	pH	Acid Rain	1998

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Appendix A - Smaller Lakes Impaired by Atmospheric Deposition (Acid Rain) (con't)

Water Index Number	Waterbody Name (WI/PWL ID)	County	Type	Size	Class	Cause/Pollutant	Source	Year
	Lake Champlain Drainage Basin (con't)							
	UNNAMED P #2-223 (1004-0011)	Essex	Lake	5.0 A	C(T)	pH	Acid Rain	1998
	UNNAMED P #2-263 (1004-0009)	Essex	Lake	2.0 A	C(T)	pH	Acid Rain	1998
	UNNAMED P #2-269 (1004-0010)	Essex	Lake	2.0 A	AA(T)	pH	Acid Rain	1998
	WEST POLLIWOG PD (1003-0016)	Essex	Lake	3.0 A	AA	pH	Acid Rain	1998
	Upper Hudson River Drainage Basin							
H-391-P374..P398	* Marion Pond (1104-0020)	Essex	Lake	6.0 A	FP	pH	Acid Rain	1998
	Other/Small Lakes Previously Listed [34]							

[34] The 2004 *Smaller Lakes Impaired by Atmospheric Deposition* list included five additional lakes in the Upper Hudson River Basin. Three of these segments (Lower and Middle Loomis Ponds and Rock Lake) have been included in Part 2a of the 2006 list with Minor Lake Tribs to Upper West Branch Sacandaga River (1104-0013). One other segment (Carry Pond) has been included in Part 2a of the 2006 list with Minor Lake Tribs to Cedar River (1104-0003). The other segment (Bullhead Pond) was determined to be greater than 6.4 acres and is also included in Part 2a of the list.

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Impaired/DeListed Waters Not Included on the 2006 Section 303(d) List

Other Impaired Waterbody Segments Not Listed Because Development of a TMDL is Not Necessary

The following waters are NOT included on the 2006 Section 303(d) List. The purpose of this supplemental list is to provide a comprehensive inventory of all waters of the state that do not fully support uses and that are considered impaired. Section 303(d) of the Clean Water Act stipulates that impaired waters that do not require a TMDL are not included on the Section 303(d) List. There are three (3) categories/justifications for not including an impaired water of the List.

Category 4a - TMDL development is not necessary because a TMDL has already been established for the segment/pollutant.
Category 4b - TMDL is not necessary because other required control measures are expected to result in restoration in a reasonable period of time.
Category 4c - TMDL is not appropriate because the impairment is the result of pollution, rather than a pollutant that can be allocated through a TMDL.

Water Index Number	Waterbody Name (WI/PWL ID)	County	Type	Class	Cause/Pollutant	Source	Justification
	Susquehanna River Drainage Basin						
SR (portion 4)	Susquehanna River, Lower, Main Stem (0603-0002)	Broome	River	A	Pathogens	Municipal, CSOs	4b/2002
	Oswego River (Finger Lakes) Drainage Basin						
Ont 66-12-12-P154 (portion 1)	Onondaga Lake, northern end (0702-0003)	Onondaga	Lake	B	Ammonia/Phosphorus	Municipal	4a/1998
Ont 66-12-12-P154 (portion 2)	Onondaga Lake, southern end (0702-0021)	Onondaga	Lake	C	Ammonia/Phosphorus	Municipal	4a/1998
Ont 66-12-12-P154-	Minor Tribs to Onondaga Lake (0702-0022)	Onondaga	River	C	Pathogens, Phos, Other	CSOs,Municpl,Urb	4a,4b/2006
Ont 66-12-12-P154- 2	Bloody Brook and tribs (0702-0006)	Onondaga	River	B	Pathogens, Phos, Other	CSOs,Municpl,Urb	4a,4b/2006
Ont 66-12-12-P154- 3	Ley Creek and tribs (0702-0001)	Onondaga	River	C*	Pathogen, Phos, Other	CSOs,Municpl,Urb	4a,4b/1998
Ont 66-12-12-P154- 4	Onondaga Creek, Lower (0702-0023)	Onondaga	River	C	Pathogen, Phos, Other	CSOs,Municpl,Urb	4a,4b/1998
Ont 66-12-12-P154- 5	Harbor Brook, Lower, and tribs (0702-0002)	Onondaga	River	B	Pathogen, Phos, Other	CSOs,Municpl,Urb	4a,4b/1998
Ont 66-12-12-P154- 6	Ninemile Creek, Lower, and tribs (0702-0005)	Onondaga	River	C	Pathogen, Phos, Other	CSOs,Municpl,Urb	4a,4b/1998
Ont 66-12-12-P154- 6- 2	Geddes Brook and tribs (0702-0007)	Onondaga	River	C	Pathogen, Phos, Other	CSOs,Municpl,Urb	4a,4b/1998
	Lake Champlain Drainage Basin						
C (portion 1)	Lake Champlain, Main Lake, North (1000-0001)	Clinton	Lake	A	Phosphorus	Municipal, Ag, other	4a/2002
C (portion 2)	Lake Champlain, Main Lake, Middle (1000-0002)	Clinton	Lake	A	Phosphorus	Municipal, Ag, other	4a/2002
C (portion 3)	Lake Champlain, Main Lake, South (1000-0003)	Essex	Lake	A	Phosphorus	Municipal, Ag, other	4a/2002
C (portion 4)	Lake Champlain, South Lake (1000-0004)	Essex	Lake	B	Phosphorus	Municipal, Ag, other	4a/2002
C (portion 5)	Lake Champlain, South Bay (1005-0014)	Washington	Lake	B	Phosphorus	Municipal, Ag, other	4a/2002
C- 25	Ausable River, Lower, and minor tribs (1004-0015)	Clinton	River	C(T)	Water Level/Flow	Hydro Modification	4c/2002
C- 48-26-P315	Lincoln Pond (1004-0090)	Essex	Lake	B(T)	Problem Species	Habitat Modification	4c/2002
C- 86-3-P338,P339,P340	Bartlett, Mud, North Ponds (1001-0027)	Essex	Lake	AA(T)	Problem Species	Habitat Modification	4c/2002
C-101-P367	Lake George (1006-0016)	Warren	Lake	AAspcl	Problem Species	Habitat Modification	4c/2002
C-134- 4-17	Winchell Creek and tribs (1005-0061)	Washington	River	C	D.O./Oxygen Demand	Agriculture	4b/2002
	Upper Hudson River Drainage Basin						
H-264-11	Minor Tribs to Middle Hoosic River (1102-0004) [35]	Washington	River	C(T)	D.O./Oxygen Demand	Agricultural	4b/2002
H-301	Battenkill, Middle, and minor tribs (1103-0011)	Washington	River	B(T)	Other/Habitat	Habitat Modification	4c/2006
H-369	Lower Sacandaga River (1104-0025)	Saratoga	River	C	Water Level/Flow	Hydro Modification	4c/2006
H-369-P127	Great Sacandaga Lake (1104-0024)	Saratoga	Lake	B	Water Level/Flow	Hydro Modification	4c/2006

[35] This waterbody includes and was previously listed as Whipple Brook.

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Impaired/DeListed Waters Not Included on the 2006 Section 303(d) List

Other Impaired Waterbody Segments Not Listed Because Development of a TMDL is Not Necessary (con't)

Water Index Number	Waterbody Name (WI/PWL ID)	County	Type	Class	Cause/Pollutant	Source	Justification
	Mohawk River Drainage Basin						
H-240 (portion 16)/P1059	Delta Reservoir (1201-0019)	Oneida	Lake(R)	A(T)	Water Level/Flow	Hydro Modification	4c/2006
H-240-180 (portion 1)	West Canada Creek, Lower, Main Stem (1203-0023)	Herkimer	River	C(T)	Water Level/Flow	Hydro Modification	4c/2006
H-240-180 (portion 2)	West Canada Creek, Lower, Main Stem (1203-0011)	Herkimer	River	C(T)	Water Level/Flow	Hydro Modification	4c/2006
H-240-180 (portion 3)	West Canada Creek, Middle, Main Stem (1203-0024)	Herkimer	River	B(T)	Water Level/Flow	Hydro Modification	4c/2006
H-240-180- 1 thru 35 (selected)	Minor Tribs to Lower West Canada Cr (1203-0082)	Herkimer	River	C	Aesthetics	Landfill/Land Disp.	4c/2006
H-240-180- 59	Steuben Creek and tribs (1203-0013)	Oneida	River	C	Other/Habitat	Habitat Modification	4c/2006
H-240-227	Ninemile Creek, Lower, and tribs (1201-0014)	Oneida	River	B(T)	Silt/Sediment	Habitat Modification	4c/2004
	Lower Hudson River Drainage Basin						
H- 31-P44	New Croton Reservoir (1302-0010)	Westchester	Lake(R)	AA	Phosphorus	Urban Runoff	4a/2002
H- 31-P44	Upper New Croton/Muscoot Reservoir (1302-0042)	Westchester	Lake(R)		Phosphorus	Urban Runoff	4a/2002
H- 31-P44-14-P50	Amawalk Reservoir (1302-0044)	Westchester	Lake(R)	A	Phosphorus	Urban Runoff	4a/2002
H- 31-P44-14- 1	Hallocks Mill Brook, Lower (1302-0051)	Westchester	River	A(T)	Ammonia	Municipal	4b/2006
H- 31-P44-23 (portion 2)/P59	Croton Falls Reservoir (1302-0026)	Putnam	Lake(R)	A(T)	Phosphorus	Urban Runoff	4a/2002
H- 31-P44-23 (portion 4)/P67	West Branch Reservoir (1302-0022)	Putnam	Lake(R)	AA	Phosphorus	Urban Runoff	4a/2002
H- 31-P44-23-P59- 6 (port 2)/P62	Middle Branch Reservoir (1302-0009)	Putnam	Lake(R)	A	Phosphorus	Urban Runoff	4a/2002
H- 31-P44-24 (portion 2)/P83	Diverting Reservoir (1302-0046)	Putnam	Lake(R)	AA	Phosphorus	Urban Runoff	4a/2002
H- 31-P44-24 (portion 4)/P89	East Branch Reservoir (1302-0040)	Putnam	Lake(R)	AA	Phosphorus	Urban Runoff	4a/2002
H- 31-P44-24- 9-P86	Bog Brook Reservoir (1302-0041)	Putnam	Lake(R)	AA	Phosphorus	Urban Runoff	4a/2002
H- 31-P44-26/P103	Titicus Reservoir (1302-0035)	Westchester	Lake(R)	AA	Phosphorus	Urban Runoff	4a/2002
H-212	Hanacrois Creek (1301-0020)	Albany	River	A(TS)	Water Level/Flow	Hydro Modification	4c/2006
H-221- 4 (portion 2)	Normans Kill, Reserv to Hunger Kill (1311-0002)	Albany	River	B	Water Level/Flow	Hydro Modification	4c/2006
	Delaware River Drainage Basin						
D-71 (portion 3)/P402a	Cannonsville Reservoir (1404-0001)	Delaware	Lake(R)	AA(T)	Phosphorus	Agriculture, Municpl	4a/2002
	Hackensack/Ramapo River Drainage Basin						
NJ-P1026	Greenwood Lake (1501-0001)	Orange	Lake	B	Phosphorus	On-site WTS, Urban	4a/2006
	Atlantic Ocean/Long Island Sound Drainage Basin						
(MW2.4) ER-4	Westchester Creek (1702-0012)	Bronx	Estuary	I	Aesthetics	CSOs	4b/2002
(MW4.4a) LIS-OBH	Oyster Bay Harbor (1702-0016)	Nassau	Estuary	SA	Pathogens	Urban/Storm Runoff	4a/2004
(MW4.4a) LIS-OBH-MNC	Mill Neck Creek and tidal tribs (1702-0151)	Nassau	Estuary	SA	Pathogens	Urb/Storm, Municipl	4a/2004
(MW7.7) AO-GSB-193..P304	Lake Ronkonkoma (1701-0020)	Suffolk	Lake	B	Algal/Weed Growth	Habitat Modification	4c/2006

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Impaired/DeListed Waters Not Included on the 2006 Section 303(d) List

Water Index Number	Waterbody Name (WI/PWL ID)	County	Type	Class	Cause/Pollutant	Source	Justification
2006 De-listed Waters (Waters listed in 2004, but that are NOT included in the 2006 Section 303(d) List)							
	The following waters were included on the previous (2004) Section 303(d) List, but are NOT included on the 2006 List. This list is presented in order to provide some continuity and ease of tracking waters across Section 303(d) listing cycles. The explanation for why these waters no longer appear in the List (e.g., de-listing action, re-segmentation of the segment, etc.) is also presented below. Note: Some of these waters (those that are *Impaired*) also appear on the preceding list of *Other Impaired Waterbody Segments Not Listed Because Development of a TMDL is Not Necessary.*						
	Allegheny River Drainage Basin						
Pa-63-13- 4-P122	Chautauqua Lake (0202-0020)	Chautauqua	Lake	A	Phosphorus	Agriculture	re-segmented
	This segment has been re-segmented and appears on the list as Chautauqua Lk, south (0202-0020) and Chautauqua Lk, north (0202-0072).						
	Oswego River (Finger Lakes) Basin						
Ont 66-12-12-P154	Onondaga L.& Out. (0702-0003)	Onondaga	Lake	B	Dioxin, Hg, PCBs	Contaminated Sed.	re-segmented
	This segment has been re-segmented and appears on the list as Onondaga Lk, north end (0702-0003) and Onondaga Lk, south end (0702-0003).						
Ont 66-12-12-P154- 6	Ninemile Creek (0702-0005)	Onondaga	River	C	Nutrients (phosphorus)	Urban/Storm Runoff	1998
Ont 66-12-12-P154- 6- 2	Geddes Brook (0702-0019)	Onondaga	River		Ammonia	Urban/Storm Runoff	1998
	De-listed due to Onondaga Lake TMDL for phosphorus and ammonia (4a) and other required control measures contained in ACJ (4b).						
Ont 66-12-52..P286	Canandaigua Lake (0704-0001)	Ontario	Lake	AA(T)	PCBs	Contaminated Sed.	re-assessed
	De-listed due to lifting of the fish consumption advisory in 2004-05. THIS WATER IS NO LONGER CATEGORIZED AS IMPAIRED.						
	Lake Champlain Drainage Basin						
C-101-P367-11	Foster Brook (1006-0020), portion	Warren	River	AAspcl	Silt/Sediment	Urb/Storm, Erosion	re-segmented
	This water has been consolidated into the Tribs to Lake George, East Shore (1006-0020) segment.						
C-101-P367-37	East Brook (1006-0008)	Warren	River	AAspcl	Silt/Sediment	Urb/Storm, Erosion	re-segmented
C-101-P367-38	West Brook (1006-0008)	Warren	River	AAspcl	Silt/Sediment	Urb/Storm, Erosion	re-segmented
C-101-P367-39	Prospect Mountain Brook (1006-0008)	Warren	River	AAspcl	Silt/Sediment	Urb/Storm, Erosion	re-segmented
C-101-P367-41	English Brook (1006-0008)	Warren	River	AAspcl	Silt/Sediment	Urb/Storm, Erosion	re-segmented
	These waters have been consolidated into the Tribs to Lake George, Lk. George Village (1006-0008) segment.						
	Upper Hudson River Basin						
H-264-11	Whipple Brook (1102-0004) [36]	Washington	River	C(T)	D.O./Oxygen Demand	Agricultural	4b
	De-Listed due to compliance actions (the source of problem having ceased operation)						
H-369..20-P228	Clockmill Pond (1104-0005)	Hamilton	Lake	FP	Acid/Base (pH)	Atmospheric Dep.	re-segmented
H-369..20-P229	Rock Lake, P-229 (1104-0013)	Hamilton	Lake	FP	Acid/Base (pH)	Atmospheric Dep.	re-segmented
H-369..20-P260	Trout Lake (1104-0019)	Hamilton	Lake	FP	Acid/Base (pH)	Atmospheric Dep.	re-segmented
H-369..20-P264	Chub Lake (1104-0004)	Hamilton	Lake	FP	Acid/Base (pH)	Atmospheric Dep.	re-segmented
H-369..20-P276	Meco Lake (1104-0011)	Hamilton	Lake	FP	Acid/Base (pH)	Atmospheric Dep.	re-segmented
	These waters have been consolidated into the Minor Lakes Trib to Upp.W.Br Sacandaga (1104-0013) segment.						

36 This water has been consolidated into the Minor Tribs to Middle Hoosic River (1102-0004) segment.

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Impaired/DeListed Waters Not Included on the 2006 Section 303(d) List

Water Index Number	Waterbody Name (WI/PWL ID)	County	Type	Class	Cause/Pollutant	Source	Justification
2006 De-listed Waters (Waters listed in 2004, but that are NOT included in the 2006 Section 303(d) List) (con't)							
	Upper Hudson River Drainage Basin (con't)						
H-461..P607	Little Moose Pond (1104-0008)	Hamilton	Lake	C(T)	Acid/Base (pH)	Atmospheric Dep.	re-segmented
	This water has been consolidated into the Minor Lakes Trib to Indian River/Lake (1104-0008) segment.						
H..P???	South Pine Lake (1104-0017)	Hamilton	Lake	C(T)	Acid/Base (pH)	Atmospheric Dep.	re-segmented
	This water has been consolidated into the Minor Lakes Trib to Cedar River (1104-0003) segment.						
H-543-P706	* Lake Colden (1104-0007)	Essex	Lake	FP	Acid/Base (pH)	Atmospheric Dep.	re-segmented
H-P710..P719	* Upper Wallface Pd (1104-0076)	Essex	Lake	FP	Acid/Base (pH)	Atmospheric Dep.	re-segmented
	These waters have been consolidated into the Minor Lakes Trib to Upper Hudson (1104-0007) segment.						
	Mohawk River Drainage Basin						
H-240-207	Starch Factory Creek and tribs (1201-0067)	Oneida	River	B	D.O./Oxygen Demand	CSOs, Urban Runoff	re-segmented
	The portion of this water impacted by CSOs has been consolidated into the Mohawk River, Main Stem (1201-0093) segment.						
	Lower Hudson River Basin						
H- 31-P44-14- 1	Hallocks Mill Brook, Lower (1302-0051)	Westchester	River	A(T)	Ammonia	Municipal	4b
	De-Listed (4b) due to Consent Order issued in 2005.				D.O./Oxygen Demand	Municipal	4b
	Consent Order requires plans for treatment improvements by March 2006 and construction to begin by September 2006.						
	Hackensack/Ramapo River Drainage Basin						
NJ-P1026	Greenwood Lake (1501-0001)	Orange	Lake	B	Phosphorus	On-site WTS, Urban	4a
	De-Listed (4a) due to approval of TMDL in 2005						
	Atlantic Ocean/Long Island Sound Drainage Basin						
(MW7.8) AO-GSB-208-P949	Belmont Lake (1701-0021)	Suffolk	Lake	C	Chlordane	Contaminated Sed.	Re-Assessed
					PCBs	Contaminated Sed.	Re-Assessed
	De-listed due to lifting of the fish consumption advisory in 2004-05. THIS WATER IS NO LONGER CATEGORIZED AS IMPAIRED.						
(MW2.5) ER-LI-12	Flushing Creek/Bay (1702-0005)	Queens	Estuary	I	PCBs	Migratory Species	Re-Assessed
(MW2.5) ER/LIS-LNB	Little Neck Bay (1702-0029)	Queens	Estuary	SB	PCBs	Migratory Species	Re-Assessed
(MW3.1) LIS (portion 1)	Long Island Sound, Western Portion (1702-0027)	Bronx	Estuary	SB	PCBs	Migratory Species	Re-Assessed
(MW3.1) LIS (portion 1a)	Eastchester Bay (1702-0007)	Bronx	Estuary	SB	PCBs	Migratory Species	Re-Assessed
(MW3.1) LIS (portion 1b)	New Rochelle Harbor (1702-0259)	Westchester	Estuary	SA	PCBs	Migratory Species	Re-Assessed
(MW3.1) LIS (portion 2)	Long Isl Sound, Westchester Co Waters (1702-0001)	Westchester	Estuary	SA*	PCBs	Migratory Species	Re-Assessed
(MW3.1) LIS (portion 2a)	Larchmont Harbor (1702-0116)	Westchester	Estuary	SB	PCBs	Migratory Species	Re-Assessed
(MW3.3) LIS (portion 2b)	Mamaroneck Harbor (1702-0125)	Westchester	Estuary	SB	PCBs	Migratory Species	Re-Assessed
(MW3.4) LIS (portion 2c)	Milton Harbor (1702-0063)	Westchester	Estuary	SB	PCBs	Migratory Species	Re-Assessed
(MW3.6) LIS (portion 2d)	Port Chester Harbor (1702-0260)	Westchester	Estuary	SB	PCBs	Migratory Species	Re-Assessed
(MW4.1) LIS (portion 3)	Long Isl Sound, Nassau County Waters (1702-0028)	Nassau	Estuary	SA	PCBs	Migratory Species	Re-Assessed
(MW4.2b) LIS-MB (portion 1)	Manhasset Bay, and tidal tribs (1702-0021)	Nassau	Estuary	SA	PCBs	Migratory Species	Re-Assessed
(MW4.2b) LIS-MB (portion 2)	Manhasset Bay, and tidal tribs (1702-0141)	Nassau	Estuary	SB	PCBs	Migratory Species	Re-Assessed
(MW4.2b) LIS-MB (portion 3)	Manhasset Bay, and tidal tribs (1702-0142)	Nassau	Estuary	SC	PCBs	Migratory Species	Re-Assessed

Impaired/DeListed Waters Not Included on the 2006 Section 303(d) List

Water Index Number	Waterbody Name (WI/PWL ID)	County	Type	Class	Cause/Pollutant	Source	Justification

2006 De-listed Waters (Waters listed in 2004, but that are NOT included in the 2006 Section 303(d) List) (con't)

Water Index Number	Waterbody Name (WI/PWL ID)	County	Type	Class	Cause/Pollutant	Source	Justification
	Atlantic Ocean/Long Island Sound Drainage Basin (con't)						
(MW4.3a) LIS-HH	Hempstead Harbor, north, & tidal tribs (1702-0022)	Nassau	Estuary	SA	PCBs	Migratory Species	Re-Assessed
(MW4.3a) LIS-HH	Hempstead Harbor, south, & tidal tribs (1702-0263)	Nassau	Estuary	SB	PCBs	Migratory Species	Re-Assessed
(MW4.3a) LIS-HH-38	Glen Cove Creek, Lower, and tribs (1702-0146)	Nassau	Estuary	SC	PCBs	Migratory Species	Re-Assessed
(MW4.4a) LIS-OBH	Oyster Bay Harbor (1702-0016)	Nassau	Estuary	SA	PCBs	Migratory Species	Re-Assessed
(MW4.4a) LIS-OBH-MNC	Mill Neck Creek and tidal tribs (1702-0151)	Nassau	Estuary	SA	PCBs	Migratory Species	Re-Assessed
(MW4.4b) LIS-CSH	Cold Spring Harbor, and tidal tribs (1702-0018)	Nassau	Estuary	SA	PCBs	Migratory Species	Re-Assessed
(MW5.1) LIS (portion 4)	Long Isl Sound, Suffolk County, West (1702-0098)	Suffolk	Estuary	SA	PCBs	Migratory Species	Re-Assessed
(MW5.2a) LIS-HB	Huntington Bay (1702-0014)	Suffolk	Estuary	SA	PCBs	Migratory Species	Re-Assessed
(MW5.2a) LIS-HB-HH	Huntington Harbor (1702-0228)	Suffolk	Estuary	SA	PCBs	Migratory Species	Re-Assessed
(MW5.2a) LIS-HB-LH	Lloyd Harbor (1702-0227)	Suffolk	Estuary	SA	PCBs	Migratory Species	Re-Assessed
(MW5.2a) LIS-HB-NB	Northport Bay (1702-0256)	Suffolk	Estuary	SA	PCBs	Migratory Species	Re-Assessed
(MW5.2a) LIS-HB-NB-CH	Centerport Harbor (1702-0229)	Suffolk	Estuary	SA	PCBs	Migratory Species	Re-Assessed
(MW5.2a) LIS-HB-NB-DIH	Duck Island Harbor (1702-0262)	Suffolk	Estuary	SA	PCBs	Migratory Species	Re-Assessed
(MW5.2a) LIS-HB-NB-NH	Northport Harbor (1702-0230)	Suffolk	Estuary	SA	PCBs	Migratory Species	Re-Assessed
(MW5.4a) LIS-SB-SBH	Stony Brook Harbor/West Meadow Cr (1702-0047)	Suffolk	Estuary	SA	PCBs	Migratory Species	Re-Assessed
(MW5.4c) LIS (portion 5)	Long Isl Sound, Suffolk County, Central (1701-0265)	Suffolk	Estuary	C	PCBs	Migratory Species	Re-Assessed
(MW5.4c) LIS-PJH (portion 1)	Port Jefferson Harbor, North, and tribs (1702-0015)	Suffolk	Estuary	SA	PCBs	Migratory Species	Re-Assessed
(MW5.4c) LIS-PJH (portion 2)	Port Jefferson Harbor, South, and tribs (1702-0241)	Suffolk	Estuary	SC	PCBs	Migratory Species	Re-Assessed
(MW5.4c) LIS-PJH-CB	Conscience Bay and tidal tribs (1702-0091)	Suffolk	Estuary	SA	PCBs	Migratory Species	Re-Assessed
(MW5.4c) LIS-PJH-SH	Setauket Harbor (1702-0242)	Suffolk	Estuary	SA	PCBs	Migratory Species	Re-Assessed
(MW5.4d) LIB-MSH	Mt Sinai Harbor and tidal tribs (1702-0019)	Suffolk	Estuary	SA	PCBs	Migratory Species	Re-Assessed

De-Listed because consumption advisory is largely precautionary due to susceptibility to contamination and wide migratory range.

The 35 segments above are listed as impaired as a result of a fish consumption advisory (eat no more than one meal per month) for certain marine waters species (striped bass) that is largely precautionary and is related to specific habits or characteristics of these species. Ocean fish, although tested less often, are generally less contaminated than freshwater species. However striped bass in particular have habits (wide migratory range, predatory nature) and characteristics (high lipid/fat content) that make them more likely to have contaminants than other species. In addition, because of the wide geographic range of this species, which includes much of the eastern seaboard of North America, the source of any possible contamination cannot be specifically identified. For these reasons, developing a TMDL for these waters/contaminant is impractical and unnecessary. **THESE WATERS ARE NO LONGER CATEGORIZED AS IMPAIRED.**

Appendix 2 – Endangered Species Act Documentation

FAX TRANSMITTAL RE: LISTED SPECIES REQUEST
U.S. FISH AND WILDLIFE SERVICE
New York Field Office
3817 Luker Road, Cortland, NY 13045
Phone: (607) 753-9334 Fax: (607) 753-9699

January 19, 2006

To: Kristie Brachmann

This responds to your December 22, 2005, request for listed species information in the vicinity of the site at 4934, 4940, 4946, and 4960 Southwestern Boulevard in the Town of Hamburg, Erie County, New York.

Except for occasional transient individuals, no Federally-listed or proposed endangered or threatened species under our jurisdiction are known to exist within the project impact area. In addition, no habitat in the project impact area is currently designated or proposed "critical habitat" in accordance with provisions of the Endangered Species Act (ESA) (87 Stat. 884, as amended; 16 U.S.C. 1531 *et seq.*). Therefore, no further ESA coordination or consultation with the U.S. Fish and Wildlife Service (Service) is required. Should project plans change, or if additional information on listed or proposed species or critical habitat becomes available, this determination may be reconsidered. The most recent compilation of Federally-listed and proposed endangered and threatened species in New York* is available for your information. If the proposed project is not completed within one year from the date of this FAX, we recommend that you contact us to ensure that the listed species presence/absence information for the proposed project is current. Should our determination change and any part of the proposed project be authorized, funded, or carried out, in whole or in part, by a Federal agency, further consultation between the Service and that Federal agency pursuant to the ESA may be necessary.

The above comments pertaining to endangered species under our jurisdiction are provided as technical assistance pursuant to the ESA. This response does not preclude additional Service comments under other legislation.

For additional information on fish and wildlife resources or State-listed species, we suggest you contact the appropriate New York State Department of Environmental Conservation regional office(s)* and New York Natural Heritage Program Information Services.*

Thank you for your time. If you require additional information please contact me at (607) 753-9334. Future correspondence with us on this project should reference project file 60413.

Sincerely,

Robyn A. Niver

Robyn A. Niver
Endangered Species Biologist

*Additional information referred to above may be found on our website at: http://www.fws.gov/northeast/nyfo/es/section7.htm

New York State Department of Environmental Conservation
Division of Fish, Wildlife & Marine Resources
New York Natural Heritage Program
625 Broadway, 5th floor, Albany, New York 12233-4757
Phone: (518) 402-8935 • **FAX:** (518) 402-8925

Denise M. Sheehan
Commissioner

February 1, 2006

RECEIVED
PC # W12L05

FEB 3 2006

EARTH DIMENSIONS INC.

Kristie Brachmann
Earth Dimensions
1091 Jamison Rd
Elma, NY 14059

Dear Ms. Brachmann:

In response to your recent request, we have reviewed the New York Natural Heritage Program databases with respect to an Environmental Assessment for a 36-acre Commercial Development, # W 12 L 05, site as indicated on the map you provided, located in the Town of Hamburg, Erie County.

> We have no records of <u>known</u> occurrences of rare or state-listed animals or plants, significant natural communities, or other significant habitats, on or in the immediate vicinity of your site.

The absence of data does not necessarily mean that rare or state-listed species, natural communities or other significant habitats do not exist on or adjacent to the proposed site. Rather, our files currently do not contain any information which indicates their presence. For most sites, comprehensive field surveys have not been conducted. For these reasons, we cannot provide a definitive statement on the presence or absence of rare or state-listed species, or of significant natural communities. This information should not be substituted for on-site surveys that may be required for environmental assessment.

Our databases are continually growing as records are added and updated. If this proposed project is still under development one year from now, we recommend that you contact us again so that we may update this response with the most current information.

This response applies only to known occurrences of rare or state-listed animals and plants, significant natural communities and other significant habitats maintained in the Natural Heritage Data bases. Your project may require additional review or permits; for information regarding other permits that may be required under state law for regulated areas or activities (e.g., regulated wetlands), please contact the appropriate NYS DEC Regional Office, Division of Environmental Permits, at the enclosed address.

Sincerely,
Betty Ketcham
Betty A. Ketcham, Information Services
New York Natural Heritage Program

Enc.
cc: Reg. 9, Wildlife Mgr.

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Appendix 3 – Critical Habitat Documentation

EARTH DIMENSIONS, INC.

Soil and Hydrogeologic Investigations • Wetland Delineations
1091 Jamison Road • Elma, NY 14059
(716) 655-1717 • FAX (716) 655-2915

November 6, 2006

W12L05e

Mr. Don Abrams
Evergreen Testing & Environmental Services
6799 Gowanda State Road
Hamburg, New York 14075

**RE: Endangered or Protected Flora/Fauna and Critical Habitats
Proposed Hamburg Retail Development
4934, 4940, 4946, 4960 Southwestern Boulevard
Town of Hamburg, Erie County, New York**

Dear Mr. Abrams:

As per your request, Earth Dimensions, Inc. (EDI) has performed a site investigation within the above mentioned parcel for protected species and designated critical habitats as listed by the New York State Natural Heritage Program and the U.S. Fish and Wildlife Service. This study and report have been conducted and prepared as per Subsection 1.4.2 of Section 700 of Lowe's Development Criteria.

Agency Correspondence:

Prior to conducting the field investigation, EDI contacted the New York Natural Heritage Program and the U.S. Fish and Wildlife Service to determine the potential presence of endangered or protected flora and fauna species and critical habitats on the site. Response letters from these agencies are included in this report as Attachment 1. The response letter from the New York Natural Heritage Program, dated February 1, 2006, indicates that there are "*no records of known occurrences of rare or state-listed animals or plants, significant natural communities, or other significant habitats, on or in the immediate vicinity of [the] site.*" The response letter from the U.S. Fish and Wildlife Service, dated January 19, 2006, indicates that, "*[e]xcept for occasional transient individuals, no Federally-listed or proposed endangered or threatened species under [their] jurisdiction are known to exist within the project impact area.*"

Federal Threatened and Endangered Species List for Erie County

Attachment 2 includes a copy of the Federal Threatened and Endangered Species found in New York as listed at
http://ecos.fws.gov/tess_public/servlet/gov.doi.tess_public.servlets.UsaLists?state=NY .
As shown, there are a total of twenty-six (26) Federally listed species found in New York, including twenty animal species and six plant species. Although not included as an attachment to this report, the state list was also referenced and scanned for the purposes of the investigation. The state listed plant list can be found at

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http://www.dec.state.ny.us/website/dlf/privland/forprot/pnp/protected.pdf. The state list for Molluscs, Insects, Fishes, Amphibians, Reptiles, Birds and Mammals is found at http://www.dec.state.ny.us/website/dfwmr/wildlife/endspec/etsclist.html.

Designated Critical Habitats

Prior to conducting the field investigation, EDI referenced state and federal resources regarding Critical Habitats in Erie County and the State of New York. The presence or absence of critical habitat was determined based on the individual species habitat requirements of the species listed in Attachment 2 as well as for the species listed on the state list, found at the above referenced web sites.

Field Inspection Procedures

A field inspection of the Proposed Hamburg Retail Development Site was conducted on October 31st, 2006. The entire site was visually inspected by an ecologist from EDI in order to confirm the presence or absence of endangered or protected flora and fauna species and critical habitats. In addition to this visual inspection, detailed data was taken at 200-foot intervals across the site on May 25th and 31st, 2006. These data sheets are included as Attachment A of the report entitled Wetland Delineation Report for Proposed Hamburg Retail Development, dated July 20th, 2006. Figure 1 depicts the location of the project site which was investigated, and is included in Attachment 3. Attachment 3 also includes photographs of the site and a copy of the wetland delineation map showing the locations of photos taken on May 25th and 31st, 2006.

Results of Field Investigation

Based on the field investigation it is the professional opinion of EDI that there are no protected species or any critical habitats located within or adjacent to the Proposed Hamburg Retail Development site which would be affected by the proposed development. No further investigations are recommended.

If you have any questions pertaining to the results of this study, please contact me at (716) 655-1717 ext. 102 or by e-mail at Earthdimensions@aol.com.

Very truly yours,
Earth Dimensions, Inc.

W. Travis Morse

W. Travis Morse
Ecologist

Appendix 4 – Historic Resource Documentation

F-203

New York State Office of Parks, Recreation and Historic Preservation
Historic Preservation Field Services Bureau
Peebles Island, PO Box 189, Waterford, New York 12188-0189 518-237-8643

April 13, 2007

Ronald Bronstein
Moradi Bay Associates
1941 D vis Road
West F lls, New York 14170
(faxe this day to 716-625-1212)

Re: <u>CORPS PERMITS, DEC</u>
Lowes Project
Town of Hamburg, Erie County
07PR01972

Dear M . Bronstein:

Thank you for requesting the comments of the State Historic Preservation Office (SHPO). The SHPO l as reviewed the Phase I Report, prepared by NEA and dated February 2007, in accordance with Section 106 of the National Historic Preservation Act of 1966, as amended.

Based upon this review, it is the SHPO's opinion that your project will have No Effect upon historic properties in or eligible for inclusion in the State and National Registers of Historic Places.

The SHPO appreciates the opportunity to comment on this information. It should be noted that further consultation with the SHPO will be necessary if there are any changes to the project. Please telepho e me at ext. 3280 with any questions you may have. Please also refer to the PR# above in any future c rrespondence for this project.

Sincerely,

Nancy Herter

Nancy Herter
Historic Preservation Program Analyst,
Archaeology

cc. Bo nie Locking, NEA

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Appendix 5 – Wetlands and/or Surface Water Impact Authorization Documentation

Appendix 6 -Joint Permit Application

95-19-3 (6/00) pfp

JOINT APPLICATION FOR PERMIT

New York State
United States Army Corps of Engineers

Applicable to agencies and permit categories listed in Item 1. Please read all instructions on back. Attach additional information as needed. Please print legibly or type.

1. Check permits applied for:

NYS Dept. of Environmental Conservation

- [ ] Stream Disturbance (Bed and Banks)
- [ ] Navigable Waters (Excavation and Fill)
- [ ] Docks, Moorings or Platforms (Construct or Place)
- [ ] Dams and Impoundment Structures (Construct, Reconstruct or Repair)
- [ ] Freshwater Wetlands
- [ ] Tidal Wetlands
- [ ] Coastal Erosion Control
- [ ] Wild, Scenic and Recreational Rivers
- [X] 401 Water Quality Certification
- [ ] Potable Water Supply
- [ ] Long Island Wells
- [ ] Aquatic Vegetation Control
- [ ] Aquatic Insect Control
- [ ] Fish Control

NYS Office of General Services (State Owned Lands Under Water)

- [ ] Lease, License, Easement or other Real Property Interest Utility Easement (pipelines, conduits, cables, etc.)
- [ ] Docks, Moorings or Platforms (Construct or Place)

Adirondack Park Agency

- [ ] Freshwater Wetlands Permit
- [ ] Wild, Scenic and Recreational Rivers

Lake George Park Commission

- [ ] Docks (Construct or Place)
- [ ] Moorings (Establish)

US Army Corps of Engineers

- [X] Section 404 (Waters of the United States)
- [ ] Section 10 (Rivers and Harbors Act)
- [ ] Nationwide Permit (s) Identify Number(s)

For Agency Use Only:
DEC APPLICATION NUMBER

US ARMY CORPS OF ENGINEERS

2. Name of Applicant (Use full name): Paradigm Development, Inc. (Att: Ronald Brunstein)
Telephone Number (daytime): (716) 655-2727

Mailing Address: 1941 Davis Road

Post Office: West Falls | State: NY | Zip Code: 14170

3. Taxpayer ID (If applicant is not an individual): *********

4. Applicant is a/an: (check as many as apply)
[ ] Owner [X] Operator [ ] Lessee [ ] Municipality / Governmental Agency

5. If applicant is not the owner, identify owner here - otherwise, you may provide Agent/Contact Person information.
Owner or Agent/Contact Person [ ] Owner [ ] Agent /Contact Person
See attached for list of owners
Telephone Number (daytime):
Mailing Address:
Post Office: | State: | Zip Code:

6. Project / Facility Location (mark location on map, see instruction 1a.)
County: Erie County | Town/City/Village: Hamburg | Tax Map Section/ Block /Lot Number:

Location (including Street or Road): 4934, 4940, 4946 & 4960 Southwestern Boulevard
Telephone Number (daytime): ---------------

Post Office: Hamburg | State: NY | Zip Code: 14075

7. Name of Stream or Waterbody (on or near project site): Unnamed tributary to Lake Erie

8. Name of USGS Quad Map: Buffalo Southeast
Location Coordinates: 42.7549°N NYTM-E | 78.8504°W NYTM-N 4

9. Project Description and Purpose: (Category of Activity e.g. new construction/installation, maintenance or replacement; Type of Structure or Activity e.g. bulkhead, dredging, filling, dam, dock, taking of water; Type of Materials and Quantities; Structure and Work Area Dimensions; Need or Purpose Served)

The proposed project entails the construction of a Lowes Home Center on a 33.16± acre site. The project will impact 1.205± acres of delineated wetland. A jurisdictional determination has not been made on this project and it is anticipated that at least a portion of the impacted wetland may be isolated and non-jurisdictional in nature.

10. Proposed Use: [ ] Private [ ] Public [X] Commercial

11. Will Project Occupy State Land? [ ] Yes [X] No

12. Proposed Start Date:

13. Estimated Completion Date:

14. Has Work Begun on Project? (If yes, attach explanation of why work was started without permit.) [ ] Yes [X] No

15. List Previous Permit / Application Numbers and Dates: (If Any)
NA

16. Will this Project Require Additional Federal, State, or Local Permits? [X] Yes [ ] No
If Yes, Please List: *Town of Hamburg Approval*

17. If applicant is not the owner, both must sign the application
I hereby affirm that information provided on this form and all attachments submitted herewith is true to the best of my knowledge and belief. False statements made herein are punishable as a Class A misdemeanor pursuant to Section 210.45 of the Penal Law. Further, the applicant accepts full responsibility for all damage, direct or indirect, of whatever nature, and by whomever suffered, arising out of the project described herein and agrees to indemnify and save harmless the State from suits, actions, damages and costs of every name and description resulting from said project. In addition, Federal Law, 18 U.S.C., Section 1001 provides for a fine of not more than $10,000 or imprisonment for not more than 5 years, or both where an applicant knowingly and willingly falsifies, conceals, or covers up a material fact; or knowingly makes or uses a false, fictitious or fraudulent statement.

Date __________ Signature of Applicant ______________________________ Title ______________

Date __________ Signature of Owner ______________________________ Title ______________

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Appendix 7 – Request Letter to the NYS DEC to Disturb Greater than 5 acres at one time

Appendix 8 – Operations and Maintenance Manual

Stormwater Pond/Wetland Operation, Maintenance and Management Inspection Checklist

Project Location: ____________________
Site Status: ____________________

Date: ____________________
Time: ____________________

Inspector: ____________________

Maintenance Item	Satisfactory/ Unsatisfactory	Comments
1. Embankment and emergency spillway (Annual, After Major Storms)		
1. Vegetation and ground cover adequate		
2. Embankment erosion		
3. Animal burrows		
4. Unauthorized planting		
5. Cracking, bulging, or sliding of dam		
a. Upstream face		
b. Downstream face		
c. At or beyond toe		
downstream		
upstream		
d. Emergency spillway		
6.Pond, toe & chimney drains clear and functioning		
7.Seeps/leaks on downstream face		
8.Slope protection or riprap failure		
9. Vertical/horizontal alignment of top of dam "As-Built"		

Maintenance Item	Satisfactory/ Unsatisfactory	Comments
10. Emergency spillway clear of obstructions and debris		
11. Other (specify)		
2. Riser and principal spillway (Annual)		
Type: Reinforced concrete ______ Corrugated pipe ______ Masonry ______ 1. Low flow orifice obstructed		
2. Low flow trash rack. a. Debris removal necessary		
b. Corrosion control		
3. Weir trash rack maintenance a. Debris removal necessary		
b. corrosion control		
4. Excessive sediment accumulation insider riser		
5. Concrete/masonry condition riser and barrels a. cracks or displacement		
b. Minor spalling (<1")		
c. Major spalling (rebars exposed)		
d. Joint failures		
e. Water tightness		
6. Metal pipe condition		
7. Control valve a. Operational/exercised		
b. Chained and locked		
8. Pond drain valve a. Operational/exercised		
b. Chained and locked		
9. Outfall channels functioning		
10. Other (specify)		

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Maintenance Item	Satisfactory/ Unsatisfactory	Comments
3. Permanent Pool (Wet Ponds) (monthly)		
1. Undesirable vegetative growth		
2. Floating or floatable debris removal required		
3. Visible pollution		
4. Shoreline problem		
5. Other (specify)		
4. Sediment Forebays		
1.Sedimentation noted		
2. Sediment cleanout when depth < 50% design depth		
5. Dry Pond Areas		
1. Vegetation adequate		
2. Undesirable vegetative growth		
3. Undesirable woody vegetation		
4. Low flow channels clear of obstructions		
5. Standing water or wet spots		
6. Sediment and / or trash accumulation		
7. Other (specify)		
6. Condition of Outfalls (Annual , After Major Storms)		
1. Riprap failures		
2. Slope erosion		
3. Storm drain pipes		
4.Endwalls / Headwalls		
5. Other (specify)		
7. Other (Monthly)		
1. Encroachment on pond, wetland or easement area		

Maintenance Item	**Satisfactory/ Unsatisfactory**	**Comments**
2. Complaints from residents		
3.Aesthetics a. Grass growing required		
b. Graffiti removal needed		
c. Other (specify)		
4. Conditions of maintenance access routes.		
5. Signs of hydrocarbon build-up		
6. Any public hazards (specify)		
8. Wetland Vegetation (Annual)		
1. Vegetation healthy and growing Wetland maintaining 50% surface area coverage of wetland plants after the second growing season. (If unsatisfactory, reinforcement plantings needed)		
2. Dominant wetland plants: Survival of desired wetland plant species Distribution according to landscaping plan?		
3. Evidence of invasive species		
4. Maintenance of adequate water depths for desired wetland plant species		
5. Harvesting of emergent plantings needed		
6. Have sediment accumulations reduced pool volume significantly or are plants “choked” with sediment		
7. Eutrophication level of the wetland.		
8. Other (specify)		

Comments:

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Actions to be Taken:

DRAINAGE REPORT

LOWE'S HOME IMPROVEMENT WAREHOUSE
TOWN OF HAMBURG
COUNTY OF ERIE, STATE OF NEW YORK

PREPARED FOR:

LOWE'S

LOWE'S HOMES CENTERS, INC.
P.O. BOX 1111
NORTH WILKESBORO, NC 28656

PREPARED BY:

COSTICH
ENGINEERING

217 LAKE AVENUE
ROCHESTER, NEW YORK 14608

PROJECT NO. 3717

OCTOBER 2006
Revised: January 2007

F-215

I. INTRODUCTION

The proposed development is located on a 36.85-acre parcel on the north side of Southwestern Boulevard in the Town of Hamburg, New York. The project consists of a 139,410 square foot Home Improvement Center and two 7,500 square foot out parcels with associated improvements. The portion of the site designated for the Home Improvement Center is currently vacant, while the portion of the site chosen for the out parcels occupies two small commercial businesses and two residential homes. The purpose of this report is to provide a detailed analysis of existing and developed drainage conditions.

II. DRAINAGE

The design criteria used for this analysis is based on the "New York State Department of Environmental Conservation's Phase II Stormwater Rules" and the "New York State Stormwater Management Design Manual", dated October 2001 in association with "SPDES General Permit for Stormwater Discharges from Construction Activity", dated February 2003 (GP-02-01). Existing and developed drainage sheds will be modeled using the SCS method to determine volume and peak rates of stormwater runoff. Developed peak rates will be reduced below existing peak rates at all discharge points through the use of stormwater management facilities and the reduction of the contributing area to a point. The detention facilities will also provide for water quality and channel protection volume requirements in accordance with the Phase II SPDES permit. This analysis is only for areas that will be affected by the proposed development from increases in impervious area or changes in drainage patterns.

III. EXISTING CONDITIONS

The rear portion of the site currently drains in a westerly direction via overland flow where it enters a series of storm sewer systems located along the northern and western boundaries of the site. The remaining portion of the site currently drains overland to an existing drainage ditch. The existing drainage areas affected by the development are shown on drawing number 3717-ED entitled, "*Existing Drainage Area Map*" and are labeled "E-1", "E-2", "E-3" and "E-4" (See Appendix One). As previously mentioned, area E-1 drains overland and eventually discharges to a storm sewer system located on the westerly side of the site (Discharge Point 1). Area E-2 also drains overland to a swale, which ultimately discharges to a storm sewer system located on the northerly side of the site (Discharge Point 2). Area E-3 drains overland to an existing storm sewer system at the end of Heatherwood Drive (Discharge Point 3). Area E-4 drains southerly towards the existing drainage ditch, which flows from east to west (Discharge Point 4).

Table one provides a summary of existing peak flow rates to each of the four discharge points.

TABLE 1
EXISTING PEAK FLOW RATES

Discharge Point	Area Designation	Q_1 *(cfs)*	Q_2 *(cfs)*	Q_5 *(cfs)*	Q_{10} *(cfs)*	Q_{25} *(cfs)*	Q_{50} *(cfs)*	Q_{100} *(cfs)*
1	E-1	2.92	4.35	6.72	8.83	10.59	12.84	14.67
2	E-2	0.46	0.69	1.07	1.40	1.68	2.04	2.33
3	E-3	1.09	1.62	2.51	3.30	3.96	4.80	5.49
4	E-4	4.18	6.63	10.78	14.55	17.72	21.85	25.23

All supporting data and calculations used to derive these results can be found in appendix one.

IV. DEVELOPED CONDITIONS

The developed drainage areas are shown on drawing number 3717-DD entitled, *"Developed Drainage Area Map"* (See Appendix Two). Under developed conditions, new impervious surfaces will be conveyed to (2) new detention facilities.

Areas D-1, D-2, and D-3 will continue to drain overland to each of their respective existing discharge points with a reduction of flows for points one and three due to a reduction in area of each due to the building and parking lot area which will be redirected to a new detention area. Flows to discharge point two will remain the same.

Area D-4 will be partially occupied by Lowe's to the north and the proposed out parcels to the south of the existing drainage ditch. As a result, two detention facilities are needed to reduce peak runoff rates to discharge point four. The portion of this area (D-4A) which has been proposed for the out parcels will drain into the southerly stormwater management facility, which has been designed to provide water quality and channel protection volumes while limiting outflow for the over bank flood and extreme storm events prior to being released to discharge point four.

Area D-4B is comprised of 14.30 acres containing the proposed Lowe's building as well as the proposed parking area and the northerly stormwater management facility. This area will drain into the northerly stormwater management facility, which has been designed to provide water quality and channel protection volumes while limiting outflow for the over bank flood and extreme storm events.

Table two summarizes the developed peak flow rates to each of the four discharge points.

TABLE 2
DEVELOPED PEAK FLOW RATES

Discharge Point	Area Designation	Q_1 *(cfs)*	Q_2 *(cfs)*	Q_5 *(cfs)*	Q_{10} *(cfs)*	Q_{25} *(cfs)*	Q_{50} *(cfs)*	Q_{100} *(cfs)*
1	D-1	2.13	3.18	4.92	6.46	7.73	9.37	10.70
2	D-2	0.46	0.69	1.07	1.40	1.68	2.04	2.33
3	D-3	0.72	1.07	1.64	2.15	2.57	3.11	3.55
4	D-4A	4.86	6.17	8.13	9.77	11.08	12.70	14.00
4	D-4B	29.56	36.42	46.64	55.11	61.85	70.24	76.93
4	D-4C	2.41	3.78	6.19	8.37	10.20	12.57	14.51

All supporting data and calculations used to derive the developed peak flow rates can be found in appendix two.

V. POND ROUTED OUTFLOWS

Two proposed stormwater management facilities will be constructed with the proposed development in order to reduce the developed peak flow rates to Discharge Point 4 to less than the existing rates. Table 3 summarizes the results of routing the developed hydrographs through each of the respective facilities using an inflow-storage outflow scenario.

TABLE 3
HYDROGRAPH RESERVOIR ROUTINGS

Detention Facility	Storm Frequency (yrs)	Inflow Hydrograph Peak (cfs)	Storage Provided (Acre-Ft)	Max. Water Elevation (ft.)	Peak Outflow (cfs)
Basin 1 (North)	1	29.56	1.274	706.88	0.99
	2	36.42	1.508	707.19	1.74
	5	46.64	1.978	707.79	2.04
	10	55.11	2.382	708.28	2.26
	25	61.85	2.710	708.67	2.42
	50	70.24	3.125	709.13	2.61
	100	76.93	3.460	709.50	2.74
Basin 2 (South)	1	4.86	0.183	704.29	0.18
	2	6.17	0.211	704.44	0.61
	5	8.13	0.277	704.79	0.77
	10	9.77	0.339	705.09	0.86
	25	11.08	0.390	705.33	0.93
	50	12.70	0.455	705.62	1.01
	100	14.00	0.508	705.85	1.06

All supporting data and calculations used to derive the pond-routed outflows can be found in appendix three.

VI. WATER QUALITY TREATMENT

The Phase II SPDES regulations require storage volumes to be provided for the water quality volume and channel protection volume. The northerly detention facility will have a permanent water pool where the water quality volume of 48,090 ft^3 of storage will be provided where the southerly detention facility will have a permanent water pool where the water quality volume of 6,523 ft^3 of storage will be provided, both at static water elevation.

Both detention facilities are also required to detain the "Channel Protection Volume" for a period of 24 to 48 hours. A 6-inch low-flow discharge pipe from the Northerly detention facility will provide 24 hours of extended detention. A 3-inch low-flow discharge pipe from the Southerly detention facility will provide 24 hours of extended detention. All supporting data and calculations used to derive these results may be found in Appendix 4.

V. SUMMARY

Table 4 compares the existing vs. developed peak flow rates to the four discharge points.

TABLE 4
EXISTING VS. DEVELOPED PEAK FLOW RATES

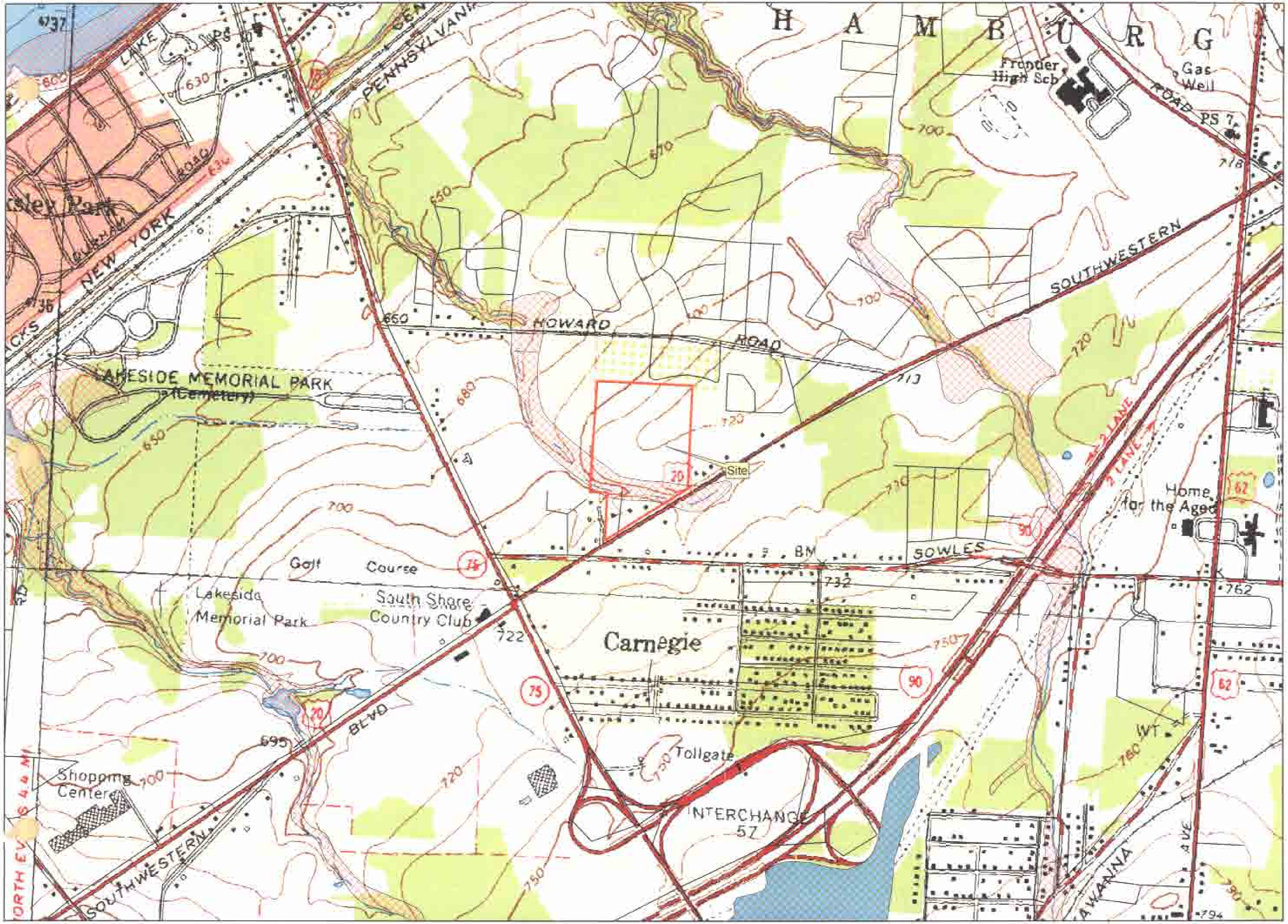
Discharge Point 1 Storm Frequency	$Q_{EXISTING}$ *(cfs)*	$Q_{PROPOSED}$ *(cfs)*	% Reduction	% Area Reduction
1	2.92	2.13	27	29%
2	4.35	3.18	27	
5	6.72	4.92	27	
10	8.83	6.46	27	
25	10.59	7.73	27	
50	12.84	9.37	27	
100	14.67	10.70	27	
Discharge Point 2 Storm Frequency	**$Q_{EXISTING}$ *(cfs)***	**$Q_{PROPOSED}$ *(cfs)***	**% Reduction/Increase**	**% Area Reduction**
1	0.46	0.46	0.00	0%
2	0.69	0.69	0.00	
5	1.07	1.07	0.00	
10	1.40	1.40	0.00	
25	1.68	1.68	0.00	
50	2.04	2.04	0.00	
100	2.33	2.33	0.00	
Discharge Point 3 Storm Frequency	**$Q_{EXISTING}$ *(cfs)***	**$Q_{PROPOSED}$ *(cfs)***	**% Reduction**	**% Area Reduction**
1	1.09	0.72	34	70%
2	1.62	1.07	34	
5	2.51	1.64	35	
10	3.30	2.15	35	
25	3.96	2.57	35	
50	4.80	3.11	35	
100	5.49	3.55	35	

Discharge Point 4 Storm Frequency	$Q_{EXISTING}$ *(cfs)*	$Q_{PROPOSED}$ *(cfs)*	% Reduction
1	4.18	3.43	18
2	6.63	6.06	9
5	10.78	8.91	17
10	14.55	11.40	22
25	17.72	13.45	24
50	21.85	16.07	26
100	25.23	18.19	28

These results show that the proposed stormwater management systems meet the required design criteria for peak rate control for all areas of the project.

APPENDIX 1

COSTICH ENGINEERING

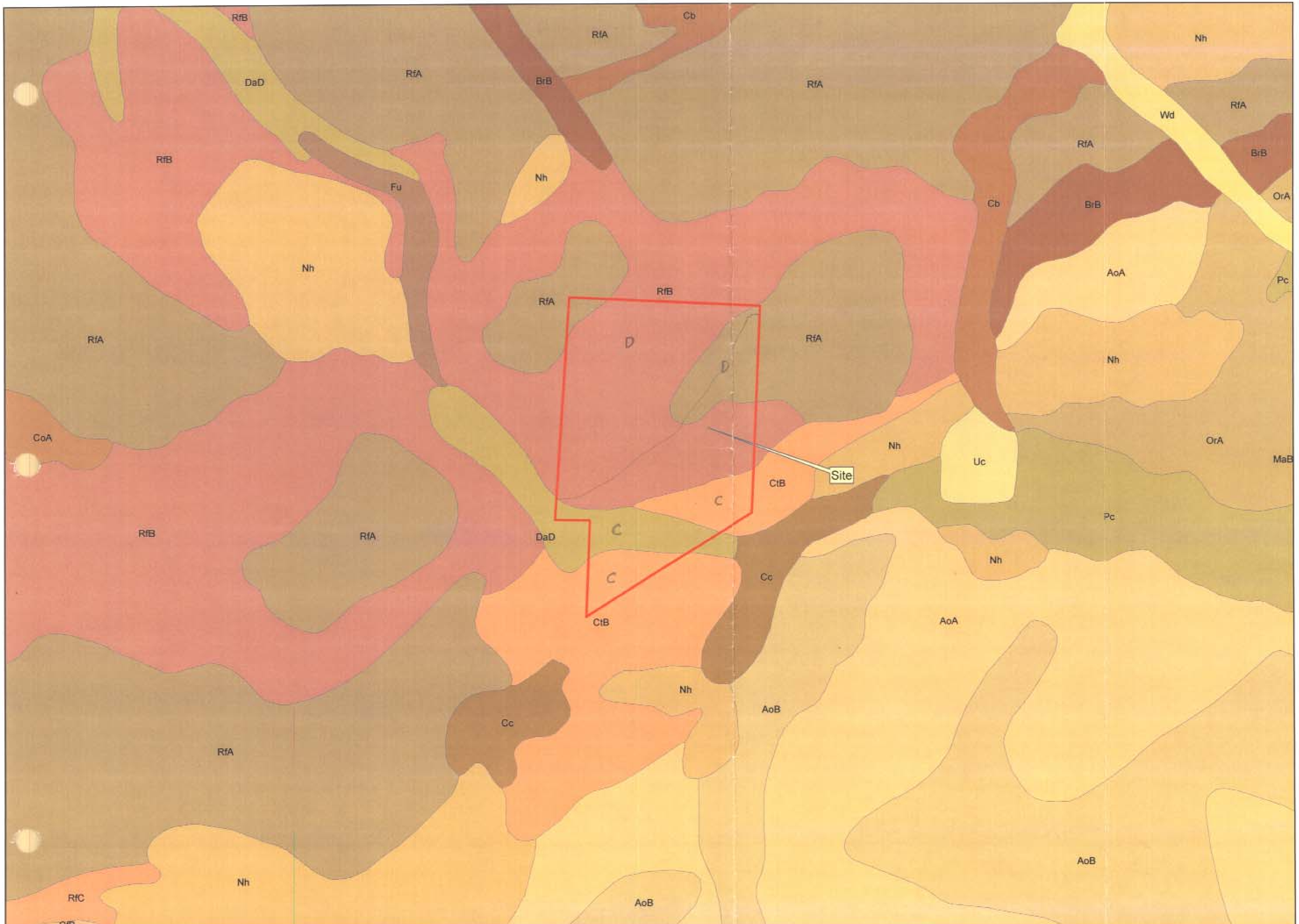


Lowe's Hamburg
CE# 3717

Legend

- 100 Yr. Floods
- Federal Wetlands
- DEC Wetlands

1 inch equals 1,000 feet



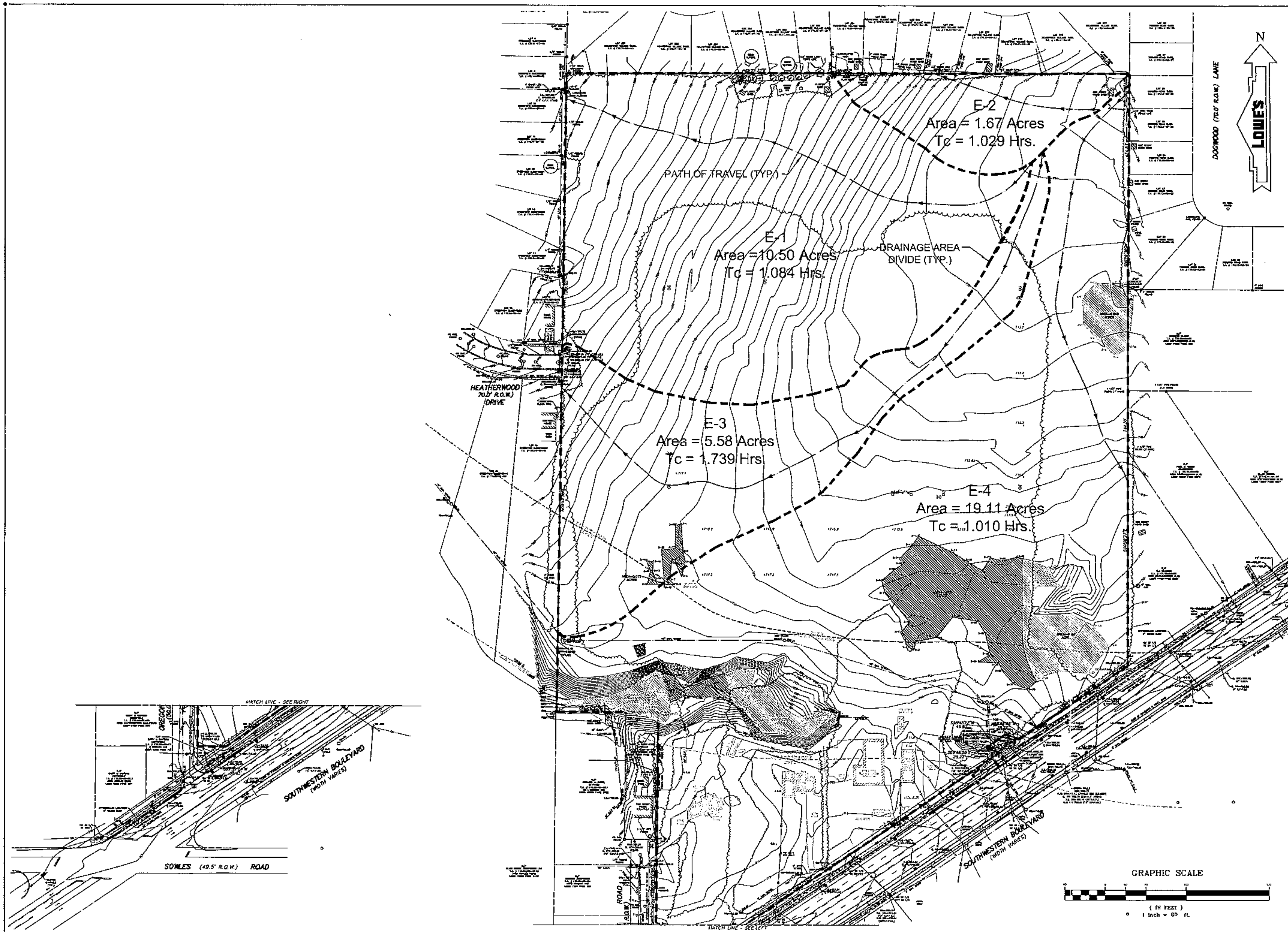
Costich Engineering

Lowe's Hamburg
CE# 3717

Legend
100 Yr Floods
Federal Wetlands
DEC Wetlands

1 inch equals 500 feet

F 222.2



REVISIONS

DATE	DESCRIPTION

STATE OF NEW YORK
MARK R. COSTICH
Licensed Professional Engineer

COSTICH ENGINEERING
· CIVIL ENGINEERING
· LAND PLANNING
· SURVEYING

LOWE'S HOME CENTERS, INC.
HWY. 268 EAST, EAST DOCK
N. WILKESBORO, NC 28659
336.658.4000 (V) 336.658.3257 (F)

LOWE'S

EXISTING DRAINAGE AREA MAP

LOWES
SOUTHWESTERN BOULEVARD
HAMBURG, NEW YORK

PROJECT No. 3717 | DRAWN BY: DJL | CHECKED BY: GW

ORIGINAL ISSUE DATE: 10/13/2006
PERMIT SET ISSUE DATE:
CONSTRUCTION SET ISSUE DATE:
DRAWING NUMBER:
3717-ED
(SHEET 1 of 1)

Job File: F:\jobs\3717\Pond Pack\EXISTING CONDITIONS.PPW
Rain Dir: F:\jobs\3717\Pond Pack\

JOB TITLE
==========================

Project Date: 1/12/2007
Project Engineer: Garth Winterkorn
Project Title: Lowe's Hamburg
Project Comments:
Hamburg, New York (Erie County)

********************** MASTER SUMMARY **********************

******************** RUNOFF HYDROGRAPHS ********************

MASTER DESIGN STORM SUMMARY

Network Storm Collection: Erie County

Return Event	Total Depth in	Rainfall Type	RNF ID
1	2.1000	Synthetic Curve	TypeII 24hr
2	2.5000	Synthetic Curve	TypeII 24hr
5	3.1000	Synthetic Curve	TypeII 24hr
10	3.6000	Synthetic Curve	TypeII 24hr
25	4.0000	Synthetic Curve	TypeII 24hr
50	4.5000	Synthetic Curve	TypeII 24hr
100	4.9000	Synthetic Curve	TypeII 24hr

MASTER NETWORK SUMMARY
SCS Unit Hydrograph Method

(*Node=Outfall; +Node=Diversion;)
(Trun= HYG Truncation: Blank=None; L=Left; R=Rt; LR=Left&Rt)

Node ID	Type	Return Event	HYG Vol ac-ft	Trun	Qpeak hrs	Qpeak cfs	Max WSEL ft	Max Pond Storage ac-ft
E-1	AREA	1	.546		12.6000	2.92		
E-1	AREA	2	.778		12.6000	4.35		
E-1	AREA	5	1.160		12.5500	6.72		
E-1	AREA	10	1.501		12.5500	8.83		
E-1	AREA	25	1.786		12.5500	10.59		
E-1	AREA	50	2.153		12.5500	12.84		
E-1	AREA	100	2.455		12.5500	14.67		
E-2	AREA	1	.087		12.6000	.48		
E-2	AREA	2	.124		12.5000	.72		
E-2	AREA	5	.184		12.5000	1.11		
E-2	AREA	10	.239		12.5000	1.46		
E-2	AREA	25	.284		12.5000	1.75		
E-2	AREA	50	.343		12.5000	2.12		
E-2	AREA	100	.390		12.5000	2.43		

MASTER NETWORK SUMMARY
SCS Unit Hydrograph Method

(*Node=Outfall; +Node=Diversion;)
(Trun= HYG Truncation: Blank=None; L=Left; R=Rt; LR=Left&Rt)

Node ID	Type	Return Event	HYG Vol ac-ft	Trun	Qpeak hrs	Qpeak cfs	Max WSEL ft	Max Pond Storage ac-ft
E-3	AREA	1	.290		13.0000	1.09		
E-3	AREA	2	.413		13.0000	1.62		
E-3	AREA	5	.616		13.0000	2.51		
E-3	AREA	10	.798		13.0000	3.30		
E-3	AREA	25	.949		13.0000	3.96		
E-3	AREA	50	1.145		13.0000	4.80		
E-3	AREA	100	1.305		13.0000	5.49		
E-4	AREA	1	.801		12.5500	4.18		
E-4	AREA	2	1.179		12.5500	6.63		
E-4	AREA	5	1.817		12.5500	10.78		
E-4	AREA	10	2.397		12.5500	14.55		
E-4	AREA	25	2.885		12.5000	17.72		
E-4	AREA	50	3.520		12.5000	21.85		
E-4	AREA	100	4.044		12.5000	25.23		
*OUT 1	JCT	1	.546		12.6000	2.92		
*OUT 1	JCT	2	.778		12.6000	4.35		
*OUT 1	JCT	5	1.160		12.5500	6.72		
*OUT 1	JCT	10	1.501		12.5500	8.83		
*OUT 1	JCT	25	1.786		12.5500	10.59		
*OUT 1	JCT	50	2.153		12.5500	12.84		
*OUT 1	JCT	100	2.455		12.5500	14.67		
*OUT 2	JCT	1	.087		12.6000	.48		
*OUT 2	JCT	2	.124		12.5000	.72		
*OUT 2	JCT	5	.184		12.5000	1.11		
*OUT 2	JCT	10	.239		12.5000	1.46		
*OUT 2	JCT	25	.284		12.5000	1.75		
*OUT 2	JCT	50	.343		12.5000	2.12		
*OUT 2	JCT	100	.390		12.5000	2.43		

MASTER NETWORK SUMMARY
SCS Unit Hydrograph Method

(*Node=Outfall; +Node=Diversion;)
(Trun= HYG Truncation: Blank=None; L=Left; R=Rt; LR=Left&Rt)

Node ID	Type	Return Event	HYG Vol ac-ft	Trun	Qpeak hrs	Qpeak cfs	Max WSEL ft	Max Pond Storage ac-ft
*OUT 3	JCT	1	.290		13.0000	1.09		
*OUT 3	JCT	2	.413		13.0000	1.62		
*OUT 3	JCT	5	.616		13.0000	2.51		
*OUT 3	JCT	10	.798		13.0000	3.30		
*OUT 3	JCT	25	.949		13.0000	3.96		
*OUT 3	JCT	50	1.145		13.0000	4.80		
*OUT 3	JCT	100	1.305		13.0000	5.49		
*OUT 4	JCT	1	.801		12.5500	4.18		
*OUT 4	JCT	2	1.179		12.5500	6.63		
*OUT 4	JCT	5	1.817		12.5500	10.78		
*OUT 4	JCT	10	2.397		12.5500	14.55		
*OUT 4	JCT	25	2.885		12.5000	17.72		
*OUT 4	JCT	50	3.520		12.5000	21.85		
*OUT 4	JCT	100	4.044		12.5000	25.23		

```
SCS UNIT HYDROGRAPH METHOD

STORM EVENT: 1 year storm
Duration       = 24.0000 hrs     Rain Depth = 2.1000 in
Rain Dir       = F:\jobs\3717\Pond Pack\
Rain File -ID =  - TypeII  24hr
Unit Hyd Type = Default Curvilinear
HYG Dir        = F:\jobs\3717\Pond Pack\
HYG File - ID = work_pad.hyg - E-1 1
Tc             = 1.0840 hrs
Drainage Area = 10.500 acres  Runoff CN= 80

============================================
Computational Time Increment    =   .14453 hrs
Computed Peak Time              =  12.5744 hrs
Computed Peak Flow              =     2.93 cfs

Time Increment for HYG File     =    .0500 hrs
Peak Time, Interpolated Output =  12.6000 hrs
Peak Flow, Interpolated Output =     2.92 cfs
============================================

                DRAINAGE AREA
              -------------------
              ID:E-1
              CN    =   80
              Area =      10.500 acres
              S     =   2.5000 in
              0.2S =    .5000 in

               Cumulative Runoff
              -------------------
                       .6244 in
                        .546 ac-ft

HYG Volume...           .546 ac-ft (area under HYG curve)

***** SCS UNIT HYDROGRAPH PARAMETERS *****

Time Concentration, Tc =  1.08400 hrs (ID: E-1)
Computational Incr, Tm =   .14453 hrs = 0.20000 Tp

Unit Hyd. Shape Factor =  483.432 (37.46% under rising limb)
K =  483.43/645.333,  K =    .7491 (also, K = 2/(1+(Tr/Tp))
Receding/Rising, Tr/Tp =   1.6698 (solved from K =   .7491)

Unit peak,            qp =    10.98 cfs
Unit peak time        Tp =   .72267 hrs
Unit receding limb, Tr =  2.89067 hrs
Total unit time,     Tb =  3.61333 hrs
```

```
SCS UNIT HYDROGRAPH METHOD

STORM EVENT: 2 year storm
Duration      = 24.0000 hrs     Rain Depth = 2.5000 in
Rain Dir      = F:\jobs\3717\Pond Pack\
Rain File -ID =  - TypeII  24hr
Unit Hyd Type = Default Curvilinear
HYG Dir       = F:\jobs\3717\Pond Pack\
HYG File - ID = work_pad.hyg - E-1 2
Tc            = 1.0840 hrs
Drainage Area = 10.500 acres  Runoff CN= 80

============================================
Computational Time Increment   =   .14453 hrs
Computed Peak Time             =  12.5744 hrs
Computed Peak Flow             =     4.38 cfs

Time Increment for HYG File    =    .0500 hrs
Peak Time, Interpolated Output =  12.6000 hrs
Peak Flow, Interpolated Output =     4.35 cfs
============================================

                 DRAINAGE AREA
              -------------------
              ID:E-1
              CN    =   80
              Area =      10.500 acres
              S     =   2.5000 in
              0.2S =     .5000 in

               Cumulative Runoff
              -------------------
                       .8889 in
                        .778 ac-ft

HYG Volume...           .778 ac-ft (area under HYG curve)

***** SCS UNIT HYDROGRAPH PARAMETERS *****

Time Concentration, Tc =  1.08400 hrs (ID: E-1)
Computational Incr, Tm =   .14453 hrs = 0.20000 Tp

Unit Hyd. Shape Factor =  483.432 (37.46% under rising limb)
K =  483.43/645.333,  K =    .7491 (also, K = 2/(1+(Tr/Tp))
Receding/Rising, Tr/Tp =   1.6698 (solved from K =   .7491)

Unit peak,          qp =    10.98 cfs
Unit peak time      Tp =   .72267 hrs
Unit receding limb, Tr =  2.89067 hrs
Total unit time,    Tb =  3.61333 hrs
```

```
SCS UNIT HYDROGRAPH METHOD

STORM EVENT: 10 year storm
Duration       = 24.0000 hrs     Rain Depth = 3.6000 in
Rain Dir       = F:\jobs\3717\Pond Pack\
Rain File -ID  =  - TypeII  24hr
Unit Hyd Type  = Default Curvilinear
HYG Dir        = F:\jobs\3717\Pond Pack\
HYG File - ID  = work_pad.hyg - E-1 10
Tc             = 1.0840 hrs
Drainage Area  = 10.500 acres  Runoff CN= 80

============================================
Computational Time Increment   =   .14453 hrs
Computed Peak Time             =  12.5744 hrs
Computed Peak Flow             =     8.89 cfs

Time Increment for HYG File    =    .0500 hrs
Peak Time, Interpolated Output =  12.5500 hrs
Peak Flow, Interpolated Output =     8.83 cfs
============================================

              DRAINAGE AREA
              -------------------
              ID:E-1
              CN   =   80
              Area =      10.500 acres
              S    =   2.5000 in
              0.2S =    .5000 in

               Cumulative Runoff
              -------------------
                      1.7161 in
                       1.502 ac-ft

HYG Volume...          1.501 ac-ft (area under HYG curve)

***** SCS UNIT HYDROGRAPH PARAMETERS *****

Time Concentration, Tc =  1.08400 hrs (ID: E-1)
Computational Incr, Tm =   .14453 hrs = 0.20000 Tp

Unit Hyd. Shape Factor =  483.432 (37.46% under rising limb)
K =  483.43/645.333,  K =     .7491 (also, K = 2/(1+(Tr/Tp))
Receding/Rising, Tr/Tp =   1.6698 (solved from K =   .7491)

Unit peak,          qp =    10.98 cfs
Unit peak time      Tp =   .72267 hrs
Unit receding limb, Tr =  2.89067 hrs
Total unit time,    Tb =  3.61333 hrs
```


F-232

```
SCS UNIT HYDROGRAPH METHOD

STORM EVENT: 25 year storm
Duration       = 24.0000 hrs     Rain Depth = 4.0000 in
Rain Dir       = F:\jobs\3717\Pond Pack\
Rain File -ID  =  - TypeII  24hr
Unit Hyd Type  = Default Curvilinear
HYG Dir        = F:\jobs\3717\Pond Pack\
HYG File - ID  = work_pad.hyg - E-1 25
Tc             = 1.0840 hrs
Drainage Area  = 10.500 acres  Runoff CN= 80

============================================
Computational Time Increment   =   .14453 hrs
Computed Peak Time             =  12.5744 hrs
Computed Peak Flow             =    10.65 cfs

Time Increment for HYG File    =    .0500 hrs
Peak Time, Interpolated Output =  12.5500 hrs
Peak Flow, Interpolated Output =    10.59 cfs
============================================

                 DRAINAGE AREA
              -------------------
              ID:E-1
              CN   =   80
              Area =      10.500 acres
              S    =   2.5000 in
              0.2S =    .5000 in

               Cumulative Runoff
              -------------------
                      2.0417 in
                       1.786 ac-ft

HYG Volume...          1.786 ac-ft (area under HYG curve)

***** SCS UNIT HYDROGRAPH PARAMETERS *****

Time Concentration, Tc =  1.08400 hrs (ID: E-1)
Computational Incr, Tm =   .14453 hrs = 0.20000 Tp

Unit Hyd. Shape Factor =  483.432 (37.46% under rising limb)
K =  483.43/645.333,  K =    .7491 (also, K = 2/(1+(Tr/Tp))
Receding/Rising, Tr/Tp =   1.6698 (solved from K =   .7491)

Unit peak,          qp =    10.98 cfs
Unit peak time      Tp =   .72267 hrs
Unit receding limb, Tr =  2.89067 hrs
Total unit time,    Tb =  3.61333 hrs
```


F-233

```
SCS UNIT HYDROGRAPH METHOD

STORM EVENT: 100 year storm
Duration       = 24.0000 hrs     Rain Depth = 4.9000 in
Rain Dir       = F:\jobs\3717\Pond Pack\
Rain File -ID  =  - TypeII  24hr
Unit Hyd Type  = Default Curvilinear
HYG Dir        = F:\jobs\3717\Pond Pack\
HYG File - ID  = work_pad.hyg - E-1 100
Tc             = 1.0840 hrs
Drainage Area  = 10.500 acres  Runoff CN= 80

============================================
Computational Time Increment   =   .14453 hrs
Computed Peak Time             =  12.5744 hrs
Computed Peak Flow             =    14.74 cfs

Time Increment for HYG File    =    .0500 hrs
Peak Time, Interpolated Output =  12.5500 hrs
Peak Flow, Interpolated Output =    14.67 cfs
============================================

                DRAINAGE AREA
              -------------------
              ID:E-1
              CN   =   80
              Area =      10.500 acres
              S    =   2.5000 in
              0.2S =    .5000 in

               Cumulative Runoff
              -------------------
                      2.8058 in
                       2.455 ac-ft

HYG Volume...          2.455 ac-ft (area under HYG curve)

***** SCS UNIT HYDROGRAPH PARAMETERS *****

Time Concentration, Tc =  1.08400 hrs (ID: E-1)
Computational Incr, Tm =   .14453 hrs = 0.20000 Tp

Unit Hyd. Shape Factor =  483.432 (37.46% under rising limb)
K =  483.43/645.333,  K =    .7491 (also, K = 2/(1+(Tr/Tp))
Receding/Rising, Tr/Tp =   1.6698 (solved from K =   .7491)

Unit peak,          qp =    10.98 cfs
Unit peak time      Tp =   .72267 hrs
Unit receding limb, Tr =  2.89067 hrs
Total unit time,    Tb =  3.61333 hrs
```

```
SCS UNIT HYDROGRAPH METHOD

STORM EVENT: 1 year storm
Duration       = 24.0000 hrs     Rain Depth = 2.1000 in
Rain Dir       = F:\jobs\3717\Pond Pack\
Rain File -ID  =  - TypeII  24hr
Unit Hyd Type  = Default Curvilinear
HYG Dir        = F:\jobs\3717\Pond Pack\
HYG File - ID  = work_pad.hyg - E-2 1
Tc             = 1.0290 hrs
Drainage Area  = 1.670 acres  Runoff CN= 80

============================================
Computational Time Increment   =   .13720 hrs
Computed Peak Time             =  12.6224 hrs
Computed Peak Flow             =      .48 cfs

Time Increment for HYG File    =    .0500 hrs
Peak Time, Interpolated Output =  12.6000 hrs
Peak Flow, Interpolated Output =      .48 cfs
============================================

                 DRAINAGE AREA
              -------------------
              ID:E-2
              CN   =   80
              Area =       1.670 acres
              S    =   2.5000 in
              0.2S =    .5000 in

               Cumulative Runoff
              -------------------
                       .6244 in
                        .087 ac-ft

HYG Volume...           .087 ac-ft (area under HYG curve)

***** SCS UNIT HYDROGRAPH PARAMETERS *****

Time Concentration, Tc =  1.02900 hrs (ID: E-2)
Computational Incr, Tm =   .13720 hrs = 0.20000 Tp

Unit Hyd. Shape Factor =  483.432 (37.46% under rising limb)
K =  483.43/645.333,  K =    .7491 (also, K = 2/(1+(Tr/Tp))
Receding/Rising, Tr/Tp =   1.6698 (solved from K =   .7491)

Unit peak,          qp =     1.84 cfs
Unit peak time      Tp =   .68600 hrs
Unit receding limb, Tr =  2.74400 hrs
Total unit time,    Tb =  3.43000 hrs
```


F-235

```
SCS UNIT HYDROGRAPH METHOD

STORM EVENT: 2 year storm
Duration       = 24.0000 hrs     Rain Depth = 2.5000 in
Rain Dir       = F:\jobs\3717\Pond Pack\
Rain File -ID  =  - TypeII  24hr
Unit Hyd Type  = Default Curvilinear
HYG Dir        = F:\jobs\3717\Pond Pack\
HYG File - ID  = work_pad.hyg - E-2 2
Tc             = 1.0290 hrs
Drainage Area  = 1.670 acres  Runoff CN= 80

============================================
Computational Time Increment   =   .13720 hrs
Computed Peak Time             =  12.6224 hrs
Computed Peak Flow             =      .72 cfs

Time Increment for HYG File    =    .0500 hrs
Peak Time, Interpolated Output =  12.6000 hrs
Peak Flow, Interpolated Output =      .72 cfs
============================================

                 DRAINAGE AREA
              -------------------
              ID:E-2
              CN   =   80
              Area =       1.670 acres
              S    =   2.5000 in
              0.2S =    .5000 in

               Cumulative Runoff
              -------------------
                       .8889 in
                        .124 ac-ft

HYG Volume...           .124 ac-ft (area under HYG curve)

***** SCS UNIT HYDROGRAPH PARAMETERS *****

Time Concentration, Tc =  1.02900 hrs (ID: E-2)
Computational Incr, Tm =   .13720 hrs = 0.20000 Tp

Unit Hyd. Shape Factor =  483.432 (37.46% under rising limb)
K =  483.43/645.333,  K =    .7491 (also, K = 2/(1+(Tr/Tp))
Receding/Rising, Tr/Tp =   1.6698 (solved from K =   .7491)

Unit peak,          qp =     1.84 cfs
Unit peak time      Tp =   .68600 hrs
Unit receding limb, Tr =  2.74400 hrs
Total unit time,    Tb =  3.43000 hrs
```

```
SCS UNIT HYDROGRAPH METHOD

STORM EVENT: 10 year storm
Duration       = 24.0000 hrs     Rain Depth = 3.6000 in
Rain Dir       = F:\jobs\3717\Pond Pack\
Rain File -ID =  - TypeII  24hr
Unit Hyd Type = Default Curvilinear
HYG Dir        = F:\jobs\3717\Pond Pack\
HYG File - ID = work_pad.hyg - E-2 10
Tc             = 1.0290 hrs
Drainage Area = 1.670 acres  Runoff CN= 80

============================================
Computational Time Increment   =   .13720 hrs
Computed Peak Time             =  12.4852 hrs
Computed Peak Flow             =     1.46 cfs

Time Increment for HYG File    =    .0500 hrs
Peak Time, Interpolated Output =  12.5000 hrs
Peak Flow, Interpolated Output =     1.46 cfs
============================================

                 DRAINAGE AREA
              -------------------
              ID:E-2
              CN    =   80
              Area =        1.670 acres
              S     =   2.5000 in
              0.2S =    .5000 in

               Cumulative Runoff
              -------------------
                      1.7161 in
                        .239 ac-ft

HYG Volume...           .239 ac-ft (area under HYG curve)

***** SCS UNIT HYDROGRAPH PARAMETERS *****

Time Concentration, Tc =  1.02900 hrs (ID: E-2)
Computational Incr, Tm =   .13720 hrs = 0.20000 Tp

Unit Hyd. Shape Factor =  483.432 (37.46% under rising limb)
K =  483.43/645.333,  K =    .7491 (also, K = 2/(1+(Tr/Tp))
Receding/Rising, Tr/Tp =   1.6698 (solved from K =   .7491)

Unit peak,          qp =     1.84 cfs
Unit peak time      Tp =   .68600 hrs
Unit receding limb, Tr =  2.74400 hrs
Total unit time,    Tb =  3.43000 hrs
```

```
SCS UNIT HYDROGRAPH METHOD

STORM EVENT: 25 year storm
Duration      = 24.0000 hrs     Rain Depth = 4.0000 in
Rain Dir      = F:\jobs\3717\Pond Pack\
Rain File -ID =  - TypeII  24hr
Unit Hyd Type = Default Curvilinear
HYG Dir       = F:\jobs\3717\Pond Pack\
HYG File - ID = work_pad.hyg - E-2 25
Tc            = 1.0290 hrs
Drainage Area = 1.670 acres  Runoff CN= 80

============================================
Computational Time Increment   =    .13720 hrs
Computed Peak Time             =   12.4852 hrs
Computed Peak Flow             =      1.75 cfs

Time Increment for HYG File    =     .0500 hrs
Peak Time, Interpolated Output =   12.5000 hrs
Peak Flow, Interpolated Output =      1.75 cfs
============================================

                 DRAINAGE AREA
              -------------------
              ID:E-2
              CN   =   80
              Area =       1.670 acres
              S    =   2.5000 in
              0.2S =    .5000 in

               Cumulative Runoff
              -------------------
                      2.0417 in
                        .284 ac-ft

HYG Volume...             .284 ac-ft (area under HYG curve)

***** SCS UNIT HYDROGRAPH PARAMETERS *****

Time Concentration, Tc =  1.02900 hrs (ID: E-2)
Computational Incr, Tm =   .13720 hrs = 0.20000 Tp

Unit Hyd. Shape Factor =  483.432 (37.46% under rising limb)
K =  483.43/645.333,  K =    .7491 (also, K = 2/(1+(Tr/Tp))
Receding/Rising, Tr/Tp =   1.6698 (solved from K =   .7491)

Unit peak,          qp =     1.84 cfs
Unit peak time      Tp =   .68600 hrs
Unit receding limb, Tr =  2.74400 hrs
Total unit time,    Tb =  3.43000 hrs
```

```
SCS UNIT HYDROGRAPH METHOD

STORM EVENT: 100 year storm
Duration      = 24.0000 hrs     Rain Depth = 4.9000 in
Rain Dir      = F:\jobs\3717\Pond Pack\
Rain File -ID =  - TypeII  24hr
Unit Hyd Type = Default Curvilinear
HYG Dir       = F:\jobs\3717\Pond Pack\
HYG File - ID = work_pad.hyg - E-2 100
Tc            = 1.0290 hrs
Drainage Area = 1.670 acres  Runoff CN= 80

============================================
Computational Time Increment   =   .13720 hrs
Computed Peak Time             =  12.4852 hrs
Computed Peak Flow             =     2.43 cfs

Time Increment for HYG File    =    .0500 hrs
Peak Time, Interpolated Output =  12.5000 hrs
Peak Flow, Interpolated Output =     2.43 cfs
============================================

                 DRAINAGE AREA
              -------------------
              ID:E-2
              CN    =   80
              Area =        1.670 acres
              S     =   2.5000 in
              0.2S =    .5000 in

               Cumulative Runoff
              -------------------
                      2.8058 in
                        .390 ac-ft

HYG Volume...           .390 ac-ft (area under HYG curve)

***** SCS UNIT HYDROGRAPH PARAMETERS *****

Time Concentration, Tc =  1.02900 hrs (ID: E-2)
Computational Incr, Tm =   .13720 hrs = 0.20000 Tp

Unit Hyd. Shape Factor =  483.432 (37.46% under rising limb)
K =  483.43/645.333,  K =    .7491 (also, K = 2/(1+(Tr/Tp))
Receding/Rising, Tr/Tp =   1.6698 (solved from K =   .7491)

Unit peak,          qp =     1.84 cfs
Unit peak time      Tp =   .68600 hrs
Unit receding limb, Tr =  2.74400 hrs
Total unit time,    Tb =  3.43000 hrs
```

```
SCS UNIT HYDROGRAPH METHOD

STORM EVENT: 1 year storm
Duration       = 24.0000 hrs     Rain Depth = 2.1000 in
Rain Dir       = F:\jobs\3717\Pond Pack\
Rain File -ID  =  - TypeII  24hr
Unit Hyd Type = Default Curvilinear
HYG Dir        = F:\jobs\3717\Pond Pack\
HYG File - ID = work_pad.hyg - E-3 1
Tc             = 1.7390 hrs
Drainage Area = 5.580 acres  Runoff CN= 80

===========================================
Computational Time Increment   =   .23187 hrs
Computed Peak Time             =  12.9845 hrs
Computed Peak Flow             =     1.09 cfs

Time Increment for HYG File    =    .0500 hrs
Peak Time, Interpolated Output =  13.0000 hrs
Peak Flow, Interpolated Output =     1.09 cfs
===========================================

                 DRAINAGE AREA
              -------------------
              ID:E-3
              CN   =   80
              Area =       5.580 acres
              S    =   2.5000 in
              0.2S =    .5000 in

               Cumulative Runoff
              -------------------
                       .6244 in
                        .290 ac-ft

HYG Volume...           .290 ac-ft (area under HYG curve)

***** SCS UNIT HYDROGRAPH PARAMETERS *****

Time Concentration, Tc =  1.73900 hrs (ID: E-3)
Computational Incr, Tm =   .23187 hrs = 0.20000 Tp

Unit Hyd. Shape Factor =  483.432 (37.46% under rising limb)
K =  483.43/645.333,  K =    .7491 (also, K = 2/(1+(Tr/Tp))
Receding/Rising, Tr/Tp =   1.6698 (solved from K =   .7491)

Unit peak,          qp =     3.64 cfs
Unit peak time      Tp =  1.15933 hrs
Unit receding limb, Tr =  4.63733 hrs
Total unit time,    Tb =  5.79667 hrs
```

```
SCS UNIT HYDROGRAPH METHOD

STORM EVENT: 2 year storm
Duration       = 24.0000 hrs     Rain Depth = 2.5000 in
Rain Dir       = F:\jobs\3717\Pond Pack\
Rain File -ID  =  - TypeII  24hr
Unit Hyd Type  = Default Curvilinear
HYG Dir        = F:\jobs\3717\Pond Pack\
HYG File - ID  = work_pad.hyg - E-3 2
Tc             = 1.7390 hrs
Drainage Area  = 5.580 acres  Runoff CN= 80

============================================
Computational Time Increment   =   .23187 hrs
Computed Peak Time             =  12.9845 hrs
Computed Peak Flow             =     1.62 cfs

Time Increment for HYG File    =    .0500 hrs
Peak Time, Interpolated Output =  13.0000 hrs
Peak Flow, Interpolated Output =     1.62 cfs
============================================

                DRAINAGE AREA
              -------------------
              ID:E-3
              CN    =   80
              Area  =       5.580 acres
              S     =   2.5000 in
              0.2S  =    .5000 in

               Cumulative Runoff
              -------------------
                       .8889 in
                        .413 ac-ft

HYG Volume...           .413 ac-ft (area under HYG curve)

***** SCS UNIT HYDROGRAPH PARAMETERS *****

Time Concentration, Tc =  1.73900 hrs (ID: E-3)
Computational Incr, Tm =   .23187 hrs = 0.20000 Tp

Unit Hyd. Shape Factor =  483.432 (37.46% under rising limb)
K =  483.43/645.333,  K =    .7491 (also, K = 2/(1+(Tr/Tp))
Receding/Rising, Tr/Tp =   1.6698 (solved from K =   .7491)

Unit peak,          qp =     3.64 cfs
Unit peak time      Tp =  1.15933 hrs
Unit receding limb, Tr =  4.63733 hrs
Total unit time,    Tb =  5.79667 hrs
```

```
SCS UNIT HYDROGRAPH METHOD

STORM EVENT: 10 year storm
Duration       = 24.0000 hrs     Rain Depth = 3.6000 in
Rain Dir       = F:\jobs\3717\Pond Pack\
Rain File -ID  =  - TypeII  24hr
Unit Hyd Type  = Default Curvilinear
HYG Dir        = F:\jobs\3717\Pond Pack\
HYG File - ID  = work_pad.hyg - E-3 10
Tc             = 1.7390 hrs
Drainage Area  = 5.580 acres  Runoff CN= 80

============================================
Computational Time Increment   =    .23187 hrs
Computed Peak Time             =   12.9845 hrs
Computed Peak Flow             =      3.31 cfs

Time Increment for HYG File    =     .0500 hrs
Peak Time, Interpolated Output =   13.0000 hrs
Peak Flow, Interpolated Output =      3.30 cfs
============================================

              DRAINAGE AREA
             -------------------
             ID:E-3
             CN    =   80
             Area  =       5.580 acres
             S     =   2.5000 in
             0.2S  =    .5000 in

              Cumulative Runoff
             -------------------
                     1.7161 in
                       .798 ac-ft

HYG Volume...            .798 ac-ft (area under HYG curve)

***** SCS UNIT HYDROGRAPH PARAMETERS *****

Time Concentration, Tc =  1.73900 hrs (ID: E-3)
Computational Incr, Tm =   .23187 hrs = 0.20000 Tp

Unit Hyd. Shape Factor =  483.432 (37.46% under rising limb)
K =  483.43/645.333,  K =    .7491 (also, K = 2/(1+(Tr/Tp))
Receding/Rising, Tr/Tp =   1.6698 (solved from K =   .7491)

Unit peak,          qp =     3.64 cfs
Unit peak time      Tp =  1.15933 hrs
Unit receding limb, Tr =  4.63733 hrs
Total unit time,    Tb =  5.79667 hrs
```


F-242

```
SCS UNIT HYDROGRAPH METHOD

STORM EVENT: 25 year storm
Duration       = 24.0000 hrs     Rain Depth = 4.0000 in
Rain Dir       = F:\jobs\3717\Pond Pack\
Rain File -ID  =  - TypeII  24hr
Unit Hyd Type  = Default Curvilinear
HYG Dir        = F:\jobs\3717\Pond Pack\
HYG File - ID  = work_pad.hyg - E-3 25
Tc             = 1.7390 hrs
Drainage Area  = 5.580 acres  Runoff CN= 80

============================================
Computational Time Increment   =    .23187 hrs
Computed Peak Time             =   12.9845 hrs
Computed Peak Flow             =      3.97 cfs

Time Increment for HYG File    =    .0500 hrs
Peak Time, Interpolated Output =  13.0000 hrs
Peak Flow, Interpolated Output =     3.96 cfs
============================================

              DRAINAGE AREA
              -------------------
              ID:E-3
              CN    =   80
              Area  =       5.580 acres
              S     =   2.5000 in
              0.2S  =    .5000 in

               Cumulative Runoff
              -------------------
                      2.0417 in
                        .949 ac-ft

HYG Volume...           .949 ac-ft (area under HYG curve)

***** SCS UNIT HYDROGRAPH PARAMETERS *****

Time Concentration, Tc =  1.73900 hrs (ID: E-3)
Computational Incr, Tm =   .23187 hrs = 0.20000 Tp

Unit Hyd. Shape Factor =  483.432 (37.46% under rising limb)
K =  483.43/645.333,  K =    .7491 (also, K = 2/(1+(Tr/Tp))
Receding/Rising, Tr/Tp =   1.6698 (solved from K =   .7491)

Unit peak,          qp =     3.64 cfs
Unit peak time      Tp =  1.15933 hrs
Unit receding limb, Tr =  4.63733 hrs
Total unit time,    Tb =  5.79667 hrs
```

```
SCS UNIT HYDROGRAPH METHOD

STORM EVENT: 100 year storm
Duration       = 24.0000 hrs     Rain Depth = 4.9000 in
Rain Dir       = F:\jobs\3717\Pond Pack\
Rain File -ID  =  - TypeII  24hr
Unit Hyd Type = Default Curvilinear
HYG Dir        = F:\jobs\3717\Pond Pack\
HYG File - ID = work_pad.hyg - E-3 100
Tc             = 1.7390 hrs
Drainage Area = 5.580 acres  Runoff CN= 80

============================================
Computational Time Increment    =    .23187 hrs
Computed Peak Time              =   12.9845 hrs
Computed Peak Flow              =      5.51 cfs

Time Increment for HYG File     =     .0500 hrs
Peak Time, Interpolated Output =   13.0000 hrs
Peak Flow, Interpolated Output =      5.49 cfs
============================================

                 DRAINAGE AREA
              -------------------
              ID:E-3
              CN    =   80
              Area =        5.580 acres
              S     =   2.5000 in
              0.2S =    .5000 in

               Cumulative Runoff
              -------------------
                      2.8058 in
                       1.305 ac-ft

HYG Volume...          1.305 ac-ft (area under HYG curve)

***** SCS UNIT HYDROGRAPH PARAMETERS *****

Time Concentration, Tc =  1.73900 hrs (ID: E-3)
Computational Incr, Tm =   .23187 hrs = 0.20000 Tp

Unit Hyd. Shape Factor =  483.432 (37.46% under rising limb)
K =  483.43/645.333,  K =    .7491 (also, K = 2/(1+(Tr/Tp))
Receding/Rising, Tr/Tp =   1.6698 (solved from K =   .7491)

Unit peak,           qp =     3.64 cfs
Unit peak time       Tp =  1.15933 hrs
Unit receding limb, Tr =  4.63733 hrs
Total unit time,     Tb =  5.79667 hrs
```

SCS UNIT HYDROGRAPH METHOD

```
STORM EVENT: 1 year storm
Duration      = 24.0000 hrs     Rain Depth = 2.1000 in
Rain Dir      = F:\jobs\3717\Pond Pack\
Rain File -ID =  - TypeII  24hr
Unit Hyd Type = Default Curvilinear
HYG Dir       = F:\jobs\3717\Pond Pack\
HYG File - ID = work_pad.hyg - E-4 1
Tc            = 1.0100 hrs
Drainage Area = 19.110 acres  Runoff CN= 77

============================================
Computational Time Increment   =   .13467 hrs
Computed Peak Time             =  12.5240 hrs
Computed Peak Flow             =     4.18 cfs

Time Increment for HYG File    =    .0500 hrs
Peak Time, Interpolated Output =  12.5500 hrs
Peak Flow, Interpolated Output =     4.18 cfs
============================================

              DRAINAGE AREA
             -------------------
             ID:E-4
             CN   =   77
             Area =      19.110 acres
             S    =   2.9870 in
             0.2S =    .5974 in

             Cumulative Runoff
             -------------------
                      .5029 in
                       .801 ac-ft

HYG Volume...           .801 ac-ft (area under HYG curve)

***** SCS UNIT HYDROGRAPH PARAMETERS *****

Time Concentration, Tc =  1.01000 hrs (ID: E-4)
Computational Incr, Tm =   .13467 hrs = 0.20000 Tp

Unit Hyd. Shape Factor =  483.432 (37.46% under rising limb)
K =  483.43/645.333,  K =    .7491 (also, K = 2/(1+(Tr/Tp))
Receding/Rising, Tr/Tp =   1.6698 (solved from K =   .7491)

Unit peak,          qp =    21.44 cfs
Unit peak time      Tp =   .67333 hrs
Unit receding limb, Tr =  2.69333 hrs
Total unit time,    Tb =  3.36667 hrs
```

```
SCS UNIT HYDROGRAPH METHOD

STORM EVENT: 2 year storm
Duration       = 24.0000 hrs     Rain Depth = 2.5000 in
Rain Dir       = F:\jobs\3717\Pond Pack\
Rain File -ID  =  - TypeII  24hr
Unit Hyd Type = Default Curvilinear
HYG Dir        = F:\jobs\3717\Pond Pack\
HYG File - ID = work_pad.hyg - E-4 2
Tc             = 1.0100 hrs
Drainage Area = 19.110 acres  Runoff CN= 77

============================================
Computational Time Increment   =    .13467 hrs
Computed Peak Time             =  12.5240 hrs
Computed Peak Flow             =     6.66 cfs

Time Increment for HYG File    =    .0500 hrs
Peak Time, Interpolated Output =  12.5500 hrs
Peak Flow, Interpolated Output =     6.63 cfs
============================================

                DRAINAGE AREA
             -------------------
             ID:E-4
             CN    =   77
             Area =      19.110 acres
             S     =   2.9870 in
             0.2S =    .5974 in

              Cumulative Runoff
             -------------------
                      .7403 in
                      1.179 ac-ft

HYG Volume...         1.179 ac-ft (area under HYG curve)

***** SCS UNIT HYDROGRAPH PARAMETERS *****

Time Concentration, Tc =  1.01000 hrs (ID: E-4)
Computational Incr, Tm =   .13467 hrs = 0.20000 Tp

Unit Hyd. Shape Factor =  483.432 (37.46% under rising limb)
K =  483.43/645.333,  K =    .7491 (also, K = 2/(1+(Tr/Tp))
Receding/Rising, Tr/Tp =   1.6698 (solved from K =   .7491)

Unit peak,           qp =    21.44 cfs
Unit peak time       Tp =   .67333 hrs
Unit receding limb, Tr =  2.69333 hrs
Total unit time,     Tb =  3.36667 hrs
```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```
SCS UNIT HYDROGRAPH METHOD

STORM EVENT: 10 year storm
Duration      = 24.0000 hrs     Rain Depth = 3.6000 in
Rain Dir      = F:\jobs\3717\Pond Pack\
Rain File -ID =  - TypeII  24hr
Unit Hyd Type = Default Curvilinear
HYG Dir       = F:\jobs\3717\Pond Pack\
HYG File - ID = work_pad.hyg - E-4 10
Tc            = 1.0100 hrs
Drainage Area = 19.110 acres  Runoff CN= 77

============================================
Computational Time Increment   =    .13467 hrs
Computed Peak Time             =   12.5240 hrs
Computed Peak Flow             =     14.68 cfs

Time Increment for HYG File    =     .0500 hrs
Peak Time, Interpolated Output =   12.5500 hrs
Peak Flow, Interpolated Output =     14.55 cfs
============================================

                DRAINAGE AREA
              -------------------
              ID:E-4
              CN   =   77
              Area =      19.110 acres
              S    =   2.9870 in
              0.2S =    .5974 in

               Cumulative Runoff
              -------------------
                      1.5052 in
                       2.397 ac-ft

HYG Volume...          2.397 ac-ft (area under HYG curve)

***** SCS UNIT HYDROGRAPH PARAMETERS *****

Time Concentration, Tc =  1.01000 hrs (ID: E-4)
Computational Incr, Tm =   .13467 hrs = 0.20000 Tp

Unit Hyd. Shape Factor =  483.432 (37.46% under rising limb)
K =  483.43/645.333,  K =    .7491 (also, K = 2/(1+(Tr/Tp))
Receding/Rising, Tr/Tp =   1.6698 (solved from K =   .7491)

Unit peak,          qp =    21.44 cfs
Unit peak time      Tp =   .67333 hrs
Unit receding limb, Tr =  2.69333 hrs
Total unit time,    Tb =  3.36667 hrs
```

```
SCS UNIT HYDROGRAPH METHOD

STORM EVENT: 25 year storm
Duration       = 24.0000 hrs     Rain Depth = 4.0000 in
Rain Dir       = F:\jobs\3717\Pond Pack\
Rain File -ID  =  - TypeII  24hr
Unit Hyd Type  = Default Curvilinear
HYG Dir        = F:\jobs\3717\Pond Pack\
HYG File - ID  = work_pad.hyg - E-4 25
Tc             = 1.0100 hrs
Drainage Area  = 19.110 acres  Runoff CN= 77

============================================
Computational Time Increment    =    .13467 hrs
Computed Peak Time              =   12.5240 hrs
Computed Peak Flow              =     17.88 cfs

Time Increment for HYG File     =     .0500 hrs
Peak Time, Interpolated Output  =   12.5000 hrs
Peak Flow, Interpolated Output  =     17.72 cfs
============================================

                DRAINAGE AREA
              -------------------
              ID:E-4
              CN    =   77
              Area  =      19.110 acres
              S     =   2.9870 in
              0.2S  =    .5974 in

               Cumulative Runoff
              -------------------
                      1.8120 in
                       2.886 ac-ft

HYG Volume...          2.885 ac-ft (area under HYG curve)

***** SCS UNIT HYDROGRAPH PARAMETERS *****

Time Concentration, Tc =  1.01000 hrs (ID: E-4)
Computational Incr, Tm =   .13467 hrs = 0.20000 Tp

Unit Hyd. Shape Factor =  483.432 (37.46% under rising limb)
K =  483.43/645.333,  K =    .7491 (also, K = 2/(1+(Tr/Tp))
Receding/Rising, Tr/Tp =   1.6698 (solved from K =   .7491)

Unit peak,           qp =    21.44 cfs
Unit peak time       Tp =   .67333 hrs
Unit receding limb,  Tr =  2.69333 hrs
Total unit time,     Tb =  3.36667 hrs
```

```
SCS UNIT HYDROGRAPH METHOD

STORM EVENT: 100 year storm
Duration       = 24.0000 hrs     Rain Depth = 4.9000 in
Rain Dir       = F:\jobs\3717\Pond Pack\
Rain File -ID  =  - TypeII  24hr
Unit Hyd Type  = Default Curvilinear
HYG Dir        = F:\jobs\3717\Pond Pack\
HYG File - ID  = work_pad.hyg - E-4 100
Tc             = 1.0100 hrs
Drainage Area  = 19.110 acres  Runoff CN= 77

============================================
Computational Time Increment   =   .13467 hrs
Computed Peak Time             =  12.5240 hrs
Computed Peak Flow             =    25.41 cfs

Time Increment for HYG File    =    .0500 hrs
Peak Time, Interpolated Output =  12.5000 hrs
Peak Flow, Interpolated Output =    25.23 cfs
============================================

                 DRAINAGE AREA
              -------------------
              ID:E-4
              CN    =   77
              Area  =      19.110 acres
              S     =   2.9870 in
              0.2S  =    .5974 in

               Cumulative Runoff
              -------------------
                      2.5396 in
                       4.044 ac-ft

HYG Volume...          4.044 ac-ft (area under HYG curve)

***** SCS UNIT HYDROGRAPH PARAMETERS *****

Time Concentration, Tc =  1.01000 hrs (ID: E-4)
Computational Incr, Tm =   .13467 hrs = 0.20000 Tp

Unit Hyd. Shape Factor =  483.432 (37.46% under rising limb)
K =  483.43/645.333,  K =    .7491 (also, K = 2/(1+(Tr/Tp))
Receding/Rising, Tr/Tp =   1.6698 (solved from K =   .7491)

Unit peak,          qp =    21.44 cfs
Unit peak time      Tp =   .67333 hrs
Unit receding limb, Tr =  2.69333 hrs
Total unit time,    Tb =  3.36667 hrs
```

2.06, 2.07, 2.08, 2.09, 2.10,
2.11, 2.12, 2.13, 2.14, 2.15,
2.16, 2.17, 2.18, 2.19, 2.20

----- W -----
Watershed... 1.01

PROJECT NAME: LOWE'S HAMBURG — PROJECT NUMBER: 3717

CURVE NUMBER DETERMINATION:
80

DESCRIPTION:

CALCULATIONS/NOTES: EXISTING DRAINAGE AREA "E-1"

SOILS PRESENT:
RFA (R[illegible] Silty [illegible] 0-3% [illegible]) GROUP "D"
RFB (R[illegible] [illegible] 3-8% [illegible]) GROUP "D"

LAND USE DESCRIPTION	%	A	PRODUCT	%	B	PRODUCT	%	C	PRODUCT	%	D	PRODUCT
CULTIVATED LAND: • WITHOUT CONSERVATION TREATMENT • WITH CONSERVATION TREATMENT		x72 x62			x81 x71			x88 x78			x91 x81	
PASTURE OR RANGE LAND: • POOR CONDITION • FAIR CONDITION • GOOD CONDITION		x68 x54 x39			x79 x70 x61	—		x86 x80 x74			x89 x85 x80	
MEADOW: • GOOD CONDITION		x30			x58			x71			x78	
WOOD OR FOREST LAND: • THIN STAND, POOR COVER, NO MULCH • FAIR CONDITION		x45 x25			x66 x55			x77 x70		50 50	x83 x77	4150 3850
OPEN SPACES SUCH AS: (LAWNS, PARKS, GOLF COURSES, CEMETERIES, ETC.) • GOOD CONDITION... GRASS COVER ON 75% OR MORE OF THE AREA • FAIR CONDITION... GRASS COVER ON 50% TO 75% OF THE AREA		x39 x49			x61 x69			x74 x79			x80 x84	
COMMERCIAL & BUSINESS AREAS (85% IMPERV.)		x89			x92			x94			x95	
INDUSTRIAL DISTRICTS (72% IMPERVIOUS)		x81			x88			x91			x93	
RESIDENTIAL: AVERAGE LOT SIZE — AVERAGE % IMPERVIOUS 1/8 ACRE OR LESS — 65% 1/4 ACRE — 38% 1/3 ACRE — 30% 1/2 ACRE — 25% 1 ACRE — 20%		x77 x61 x57 x54 x51			x85 x75 x72 x70 x68			x90 x83 x81 x80 x79			x92 x87 x86 x85 x84	
PAVED PARKING LOTS, ROFFS, DRIVEWAYS, ETC.		x98			x98			x98			x98	
STREETS AND ROADS: • PAVED WITH CURBS & STORM SEWERS • GRAVEL • DIRT		x98 x76 x72			x98 x85 x82			x98 x89 x87			x98 x91 x89	
TOTALS:										100		8000

$$\text{WEIGHTED CURVE NUMBER} = \frac{\text{TOTAL (A)} + \text{TOTAL (B)} + \text{TOTAL (C)} + \text{TOTAL (D)}}{100} = \frac{8000}{100} = 80$$

CALCULATIONS/NOTES:

F-241

Worksheet 3: Time of Concentration (T_c) or travel time (T_t)

Project: LOWE'S HAMBURG (3717)	By: EKR	Date
Location: HAMBURG, NY	Checked	Date

Check one: [X] Present [ ] Developed

Check one: [X] T_c [ ] T_t through subarea

Notes: Space for as many as two segments per flow type can be used for each worksheet.
Include a map, schematic, or description of flow segments.

PRE 150
POST 100

Sheet flow (Applicable to Tc only)

		Segment ID	A - B		
1.	Surface description (table 3-1)		Woods - Dense Underbrush		
2.	Manning's roughness coefficient, n (table 3-1)		0.80		
3.	Flow length, L (total L † 300 ft)	ft	150		
4.	Two-year 24-hour rainfall, P_2	in	2.5		
5.	Land slope, s	ft/ft	0.0167		
6.	$T_t = \frac{0.007\ (nL)^{0.8}}{P_2^{\ 0.5}\ s^{0.4}}$ 0.2451	Compute T_t .... hr	1.048	+	= 1.048

Shallow concentrated flow

		Segment ID	B - C		
7.	Surface description (paved or unpaved)		unpaved		
8.	Flow length, L	ft	280		
9.	Watercourse slope, s	ft/ft	0.0328		
10.	Average velocity, V (figure 3-1)	ft/s	2.1		
11.	$T_t = \frac{L}{3600\ V}$	Compute T_t .... hr	0.036	+	= 0.036

Channel flow

		Segment ID			
12.	Cross sectional flow area, a	ft^2			
13.	Wetted perimeter, p_w	ft			
14.	Hydraulic radius, $r = \frac{a}{p_w}$ Compute r	ft			
15	Channel slope, s	ft/ft			
16.	Manning's roughness coefficient, n				
17.	$V = \frac{1.49\ r^{2/3}\ s^{1/2}}{n}$	Compute V .... ft/s			
18.	Flow length, L	ft			
19.	$T_t = \frac{L}{3600\ V}$	Compute T_t .... hr		+	=
20.	Watershed or subarea T_c or T_t (add T_t in steps 6, 11, and 19)	Hr			1.084

PROJECT NAME: Lowe's Hamburg **PROJECT NUMBER:** 3717

CURVE NUMBER DETERMINATION: 80 DESCRIPTION:	CALCULATIONS/NOTES: EXISTING DRAINAGE AREA "E-2" [illegible] [illegible] [illegible]

LAND USE DESCRIPTION	%	A	PRODUCT	%	B	PRODUCT	%	C	PRODUCT	%	D	PRODUCT
CULTIVATED LAND: • WITHOUT CONSERVATION TREATMENT • WITH CONSERVATION TREATMENT		x72 x62			x81 x71			x88 x78			x91 x81	
PASTURE OR RANGE LAND: • POOR CONDITION • FAIR CONDITION • GOOD CONDITION		x68 x54 x39			x79 x70 x61	—		x86 x80 x74			x89 x85 x80	
MEADOW: • GOOD CONDITION		x30			x58			x71			x78	
WOOD OR FOREST LAND: • THIN STAND, POOR COVER, NO MULCH • FAIR CONDITION		x45 x25			x66 x55			x77 x70		46 46	x83 x77	3818 3542
OPEN SPACES SUCH AS: (LAWNS, PARKS, GOLF COURSES, CEMETERIES, ETC.) • GOOD CONDITION... GRASS COVER ON 75% OR MORE OF THE AREA • FAIR CONDITION... GRASS COVER ON 50% TO 75% OF THE AREA		x39 x49			x61 x69			x74 x79		8	x80 x84	640
COMMERCIAL & BUSINESS AREAS (85% IMPERV.)		x89			x92			x94			x95	
INDUSTRIAL DISTRICTS (72% IMPERVIOUS)		x81			x88			x91			x93	
RESIDENTIAL: AVERAGE LOT SIZE — AVERAGE % IMPERVIOUS 1/8 ACRE OR LESS — 65% 1/4 ACRE — 38% 1/3 ACRE — 30% 1/2 ACRE — 25% 1 ACRE — 20%		x77 x61 x57 x54 x51			x85 x75 x72 x70 x68			x90 x83 x81 x80 x79			x92 x87 x86 x85 x84	
PAVED PARKING LOTS, ROFFS, DRIVEWAYS, ETC.		x98			x98			x98			x98	
STREETS AND ROADS: • PAVED WITH CURBS & STORM SEWERS • GRAVEL • DIRT		x98 x76 x72			x98 x85 x82			x98 x89 x87			x98 x91 x89	
TOTALS:										100		8000

$$\text{WEIGHTED CURVE NUMBER} = \frac{\text{TOTAL (A)} + \text{TOTAL (B)} + \text{TOTAL (C)} + \text{TOTAL (D)}}{100} = \frac{8000}{100} = 80$$

K-243

CALCULATIONS/NOTES:

Worksheet 3: Time of Concentration (T_c) or travel time (T_t)

Project	By	Date
LOWE'S HAMBURG	SMK	9-29-09
Location	**Checked**	**Date**
HAMBURG		

Check one: [X] Present [ ] Developed

Check one: [X] T_c [ ] T_t through subarea

Notes: Space for as many as two segments per flow type can be used for each worksheet. Include a map, schematic, or description of flow segments.

Sheet flow (Applicable to Tc only)

		Segment ID	A-B	
1.	Surface description (table 3-1)		Woods - Dense Underbrush	
2.	Manning's roughness coefficient, n (table 3-1)		0.8	
3.	Flow length, L (total L † 300 ft)	ft	150	
4.	Two-year 24-hour rainfall, P_2	in	2.9	
5.	Land slope, s	ft/ft	0.018	
6.	$T_t = \frac{0.007\ (nL)^{0.8}}{P_2^{\ 0.5}\ s^{0.4}}$ Compute T_t	hr	1.017 +	= 1.017

Shallow concentrated flow

		Segment ID	B-C	
7.	Surface description (paved or unpaved)		unpaved	
8.	Flow length, L	ft	196	
9.	Watercourse slope, s	ft/ft	0.080	
10.	Average velocity, V (figure 3-1)	ft/s	4.4	
11.	$T_t = \frac{L}{3600\ V}$ Compute T_t	hr	0.0124 +	= 0.0124

Channel flow

		Segment ID		
12.	Cross sectional flow area, a	ft^2		
13.	Wetted perimeter, p_w	ft		
14.	Hydraulic radius, $r = \frac{a}{p_w}$ Compute r	ft		
15	Channel slope, s	ft/ft		
16.	Manning's roughness coefficient, n			
17.	$V = \frac{1.49\ r^{2/3}\ s^{1/2}}{n}$ Compute V	ft/s		
18.	Flow length, L	ft		
19.	$T_t = \frac{L}{3600\ V}$ Compute T_t	hr	+	=

20. Watershed or subarea T_c or T_t (add T_t in steps 6, 11, and 19) ... Hr 1.029

PROJECT NAME: [illegible] PROJECT NUMBER: [illegible]

CURVE NUMBER DETERMINATION: 80

DESCRIPTION:

CALCULATIONS/NOTES: [illegible] area E-2
[illegible]
[illegible]
[illegible]

LAND USE DESCRIPTION	%	A	PRODUCT	%	A	PRODUCT	%	A	PRODUCT	%	A	PRODUCT
CULTIVATED LAND: •WITHOUT CONSERVATION TREATMENT •WITH CONSERVATION TREATMENT		x72 x62			x81 x71			x88 x78			x91 x81	
PASTURE OR RANGE LAND: •POOR CONDITION •FAIR CONDITION •GOOD CONDITION		x68 x54 x39			x79 x70 x61	—		x86 x80 x74			x89 x85 x80	
MEADOW: •GOOD CONDITION		x30			x58			x71			x78	
WOOD OR FOREST LAND: •THIN STAND, POOR COVER, NO MULCH •FAIR CONDITION		x45 x25			x66 x55			x77 x70		[illegible] [illegible]	x83 x77	[illegible] [illegible]
OPEN SPACES SUCH AS: (LAWNS, PARKS, GOLF COURSES, CEMETERIES, ETC.) •GOOD CONDITION... GRASS COVER ON 75% OR MORE OF THE AREA •FAIR CONDITION... GRASS COVER ON 50% TO 75% OF THE AREA		x39 x49			x61 x69			x74 x79			x80 x84	
COMMERCIAL & BUSINESS AREAS (85% IMPERV.)		x89			x92			x94			x95	
INDUSTRIAL DISTRICTS (72% IMPERVIOUS)		x81			x88			x91			x93	
RESIDENTIAL: AVERAGE LOT SIZE / AVERAGE % IMPERVIOUS: 1/8 ACRE OR LESS 65%; 1/4 ACRE 38%; 1/3 ACRE 30%; 1/2 ACRE 25%; 1 ACRE 20%		x77 x61 x57 x54 x51			x85 x75 x72 x70 x68			x90 x83 x81 x80 x79			x92 x87 x86 x85 x84	
PAVED PARKING LOTS, ROFFS, DRIVEWAYS, ETC.		x98			x98			x98			x98	
STREETS AND ROADS: •PAVED WITH CURBS & STORM SEWERS •GRAVEL •DIRT		x98 x76 x72			x98 x85 x82			x98 x89 x87			x98 x91 x89	
TOTALS:										100		[illegible]

$$\text{WEIGHTED CURVE NUMBER} = \frac{\text{TOTAL (A)} + \text{TOTAL (B)} + \text{TOTAL (C)} + \text{TOTAL (D)}}{100} = \frac{[illegible]}{100} = [illegible]$$

CALCULATIONS/NOTES:

F-245

Worksheet 3: Time of Concentration (T_c) or travel time (T_t)

Project: Lowe's Hamburg (3717)	By: EKR	Date: 12-3-06
Location: Hamburg, NY	Checked	Date

Check one: [X] Present [ ] Developed   Existing Area E-3

Check one: [X] T_c [ ] T_t through subarea

Notes: Space for as many as two segments per flow type can be used for each worksheet. Include a map, schematic, or description of flow segments.

Sheet flow (Applicable to Tc only)

		Segment ID	A-B		
1.	Surface description (table 3-1)		Woods - Dense Underbrush		
2.	Manning's roughness coefficient, n (table 3-1)		0.8		
3.	Flow length, L (total L † 300 ft)	ft	150		
4.	Two-year 24-hour rainfall, P_2	in	2.5		
5.	Land slope, s	ft/ft	0.006		
6.	$T_t = \frac{0.007\ (nL)^{0.8}}{P_2^{\ 0.5}\ s^{0.4}}$	Compute T_t ... hr	1.580	+	= 1.580

Shallow concentrated flow

		Segment ID	B-C		
7.	Surface description (paved or unpaved)		unpaved		
8.	Flow length, L	ft	1262		
9.	Watercourse slope, s	ft/ft	0.0170		
10.	Average velocity, V (figure 3-1)	ft/s	2.2		
11.	$T_t = \frac{L}{3600\ V}$	Compute T_t ... hr	0.159	+	= 0.159

Channel flow

		Segment ID			
12.	Cross sectional flow area, a	ft^2			
13.	Wetted perimeter, p_w	ft			
14.	Hydraulic radius, $r = \frac{a}{p_w}$ Compute r	ft			
15	Channel slope, s	ft/ft			
16.	Manning's roughness coefficient, n				
17.	$V = \frac{1.49\ r^{2/3}\ s^{1/2}}{n}$	Compute V ... ft/s			
18.	Flow length, L	ft			
19.	$T_t = \frac{L}{3600\ V}$	Compute T_t ... hr		+	=
20.	Watershed or subarea T_c or T_t (add T_t in steps 6, 11, and 19)	Hr			1.739

PROJECT NAME: [illegible] PROJECT NUMBER: 3117

CURVE NUMBER DETERMINATION:
77

DESCRIPTION:

CALCULATIONS/NOTES:
Existing [illegible] Area "E-4"

Soils [illegible]
[illegible] - Group D [illegible] - Group C
[illegible] - Group D [illegible] - Group C

LAND USE DESCRIPTION	%	A	PRODUCT	%	B	PRODUCT	%	C	PRODUCT	%	D	PRODUCT
CULTIVATED LAND: • WITHOUT CONSERVATION TREATMENT • WITH CONSERVATION TREATMENT		x72 x62			x81 x71			x88 x78			x91 x81	
PASTURE OR RANGE LAND: • POOR CONDITION • FAIR CONDITION • GOOD CONDITION		x68 x54 x39			x79 x70 x61	—		x86 x80 x74			x89 x85 x80	
MEADOW: • GOOD CONDITION		x30			x58			x71			x78	
WOOD OR FOREST LAND: • THIN STAND, POOR COVER, NO MULCH • FAIR CONDITION		x45 x25			x66 x55		25	x77 x70	1750	27.5 [illegible]	x83 x77	[illegible] [illegible]
OPEN SPACES SUCH AS: (LAWNS, PARKS, GOLF COURSES, CEMETERIES, ETC.) • GOOD CONDITION... GRASS COVER ON 75% OR MORE OF THE AREA • FAIR CONDITION... GRASS COVER ON 50% TO 75% OF THE AREA		x39 x49			x61 x69		10	x74 x79	740		x80 x84	
COMMERCIAL & BUSINESS AREAS (85% IMPERV.)		x89			x92		2	x94	188		x95	
INDUSTRIAL DISTRICTS (72% IMPERVIOUS)		x81			x88			x91			x93	
RESIDENTIAL: AVERAGE LOT SIZE / AVERAGE % IMPERVIOUS 1/8 ACRE OR LESS 65% 1/4 ACRE 38% 1/3 ACRE 30% 1/2 ACRE 25% 1 ACRE 20%		x77 x61 x57 x54 x51			x85 x75 x72 x70 x68		8	x90 x83 x81 x80 x79	640		x92 x87 x86 x85 x84	
PAVED PARKING LOTS, ROOFS, DRIVEWAYS, ETC.		x98			x98			x98			x98	
STREETS AND ROADS: • PAVED WITH CURBS & STORM SEWERS • GRAVEL • DIRT		x98 x76 x72			x98 x85 x82			x98 x89 x87			x98 x91 x89	
TOTALS:							45		[illegible]	55		[illegible]

$$\text{WEIGHTED CURVE NUMBER} = \frac{\text{TOTAL (A)} + \text{TOTAL (B)} + \text{TOTAL (C)} + \text{TOTAL (D)}}{100} = \frac{[illegible]}{100} = 77$$

F-247

CALCULATIONS/NOTES:

Worksheet 3: Time of Concentration (T_c) or travel time (T_t)

Project [illegible] (3117)	By [illegible]	Date 10-2-06
Location [illegible], NY	Checked	Date

Check one: ☒ Present ☐ Developed Existing Drainage Area [illegible]

Check one: ☒ T_c ☐ T_t through subarea

Notes: Space for as many as two segments per flow type can be used for each worksheet. Include a map, schematic, or description of flow segments.

Sheet flow (Applicable to T_c only)

	Segment ID	A-B	
1.	Surface description (table 3-1)	[illegible]	
2.	Manning's roughness coefficient, n (table 3-1)	0.3	
3.	Flow length, L (total L † 300 ft) ... ft	150	
4.	Two-year 24-hour rainfall, P_2 ... in	2.[illegible]	
5.	Land slope, s ... ft/ft	0.0213	
6.	$T_t = \frac{0.007\,(nL)^{0.8}}{P_2^{\,0.5}\,s^{0.4}}$ Compute T_t ... hr	0.3[illegible]7	+ = 0.[illegible]7

Shallow concentrated flow

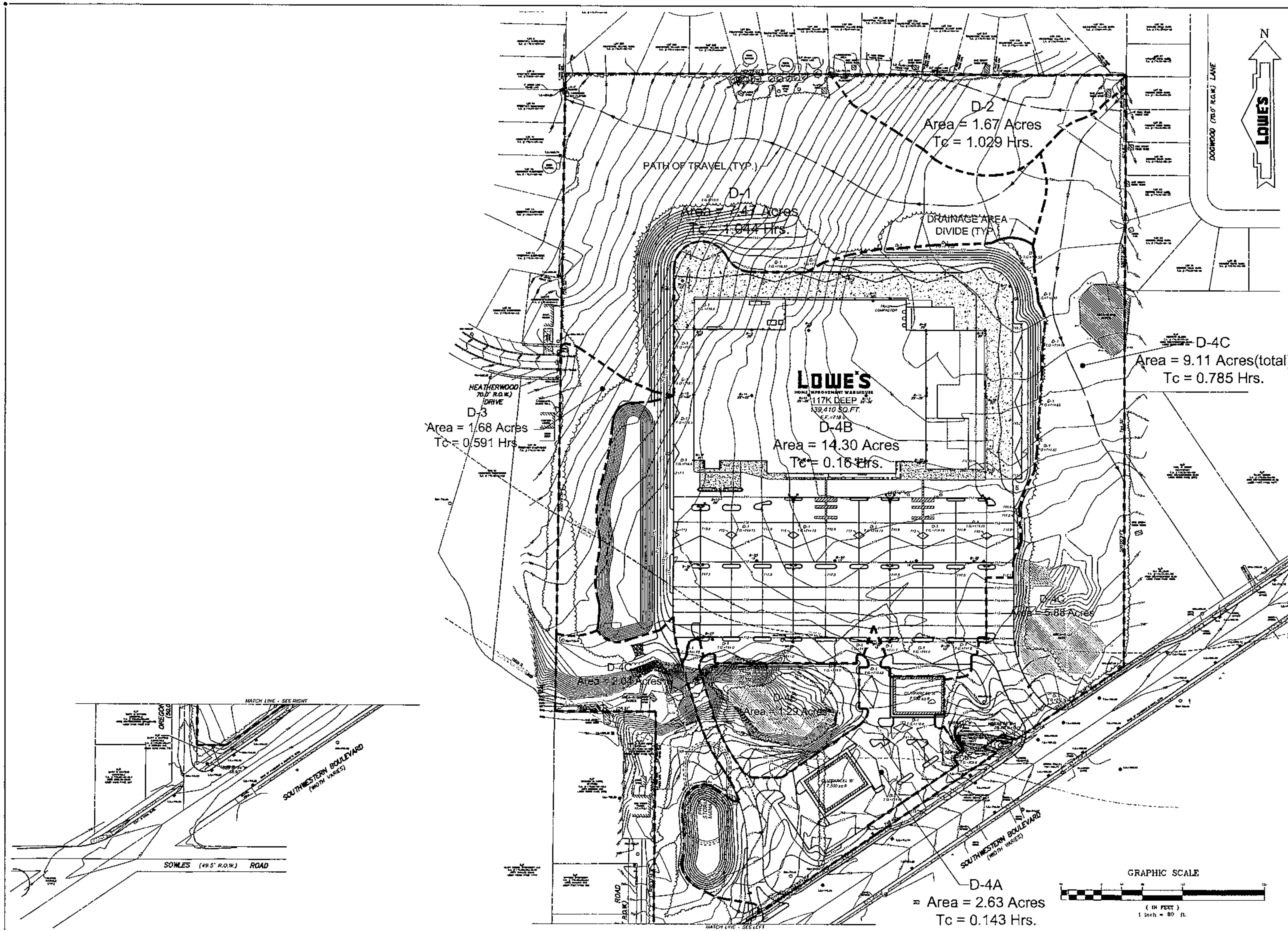
	Segment ID	B-C	
7.	Surface description (paved or unpaved)	unpaved	
8.	Flow length, L ... ft	1007	
9.	Watercourse slope, s ... ft/ft	0.015%	
10.	Average velocity, V (figure 3-1) ... ft/s	2.0	
11.	$T_t = \frac{L}{3600\,V}$ Compute T_t ... hr	0.140	+ = 0.140

Channel flow

	Segment ID	C-D	
12.	Cross sectional flow area, a ... ft^2		
13.	Wetted perimeter, p_w ... ft		
14.	Hydraulic radius, $r = \frac{a}{p_w}$ Compute r ... ft		
15	Channel slope, s ... ft/ft		
16.	Manning's roughness coefficient, n ...		
17.	$V = \frac{1.49\, r^{2/3}\, s^{1/2}}{n}$ Compute V ... ft/s	3	
18.	Flow length, L ... ft	558	
19.	$T_t = \frac{L}{3600\,V}$ Compute T_t ... hr	0.0331	+ = 0.0551
20.	Watershed or subarea T_c or T_t (add T_t in steps 6, 11, and 19) ... Hr		1.010

F-248

APPENDIX 2



REVISIONS

DATE	DESCRIPTION

LOWE'S HOME CENTERS, INC.
HWY. 268 EAST, EAST DOCK
N. WILKESBORO, NC 28659
336.658.4000 (V) 336.658.3257 (F)

COSTICH ENGINEERING

DEVELOPED DRAINAGE AREA MAP

LOWES
SOUTHWESTERN BOULEVARD
HAMBURG, NEW YORK

PROJECT No: 3717 | DRAWN BY: DJL | CHECKED BY: GW

ORIGINAL ISSUE DATE: 10/13/06
PERMIT SET ISSUE DATE:
CONSTRUCTION SET ISSUE DATE:
DRAWING NUMBER:
3717-DD
(SHEET 1 of 1)

JOB TITLE
==========================

Project Date: 1/12/2007
Project Engineer: Garth Winterkorn
Project Title: Lowe's Hamburg
Project Comments:

Table of Contents (continued)

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MASTER DESIGN STORM SUMMARY

Network Storm Collection: Erie County

Return Event	Total Depth in	Rainfall Type	RNF ID
1	2.1000	Synthetic Curve	TypeII 24hr
2	2.5000	Synthetic Curve	TypeII 24hr
5	3.1000	Synthetic Curve	TypeII 24hr
10	3.6000	Synthetic Curve	TypeII 24hr
25	4.0000	Synthetic Curve	TypeII 24hr
50	4.5000	Synthetic Curve	TypeII 24hr
100	4.9000	Synthetic Curve	TypeII 24hr

MASTER NETWORK SUMMARY
SCS Unit Hydrograph Method

(*Node=Outfall; +Node=Diversion;)
(Trun= HYG Truncation: Blank=None; L=Left; R=Rt; LR=Left&Rt)

Node ID	Type	Return Event	HYG Vol ac-ft	Trun	Qpeak hrs	Qpeak cfs	Max WSEL ft	Max Pond Storage ac-ft
BASIN 1 IN	POND	1	1.881		11.9500	29.56		
BASIN 1 IN	POND	2	2.340		11.9500	36.42		
BASIN 1 IN	POND	5	3.036		11.9500	46.64		
BASIN 1 IN	POND	10	3.620		11.9500	55.11		
BASIN 1 IN	POND	25	4.089		11.9500	61.85		
BASIN 1 IN	POND	50	4.678		11.9500	70.24		
BASIN 1 IN	POND	100	5.149		11.9500	76.93		
BASIN 1 OUT	POND	1	1.820		14.3500	.99	706.88	1.274
BASIN 1 OUT	POND	2	2.278		13.2500	1.74	707.19	1.508
BASIN 1 OUT	POND	5	2.972		13.3000	2.04	707.79	1.978
BASIN 1 OUT	POND	10	3.554	R	13.5500	2.26	708.28	2.382
BASIN 1 OUT	POND	25	4.021	R	13.6000	2.42	708.67	2.710
BASIN 1 OUT	POND	50	4.607	R	13.8500	2.61	709.13	3.125
BASIN 1 OUT	POND	100	5.077	R	13.8500	2.74	709.50	3.460

MASTER NETWORK SUMMARY
SCS Unit Hydrograph Method

(*Node=Outfall; +Node=Diversion;)
(Trun= HYG Truncation: Blank=None; L=Left; R=Rt; LR=Left&Rt)

Node ID	Type	Return Event	HYG Vol ac-ft	Trun	Qpeak hrs	Qpeak cfs	Max WSEL ft	Max Pond Storage ac-ft
BASIN 2 IN	POND	1	.291		11.9500	4.86		
BASIN 2 IN	POND	2	.371		11.9500	6.17		
BASIN 2 IN	POND	5	.494		11.9500	8.13		
BASIN 2 IN	POND	10	.599		11.9500	9.77		
BASIN 2 IN	POND	25	.683		11.9500	11.08		
BASIN 2 IN	POND	50	.790		11.9500	12.70		
BASIN 2 IN	POND	100	.875		11.9500	14.00		
BASIN 2 OUT	POND	1	.285		13.7500	.18	704.29	.183
BASIN 2 OUT	POND	2	.365		12.5000	.61	704.44	.211
BASIN 2 OUT	POND	5	.488		12.4500	.77	704.79	.277
BASIN 2 OUT	POND	10	.593		12.4500	.86	705.09	.339
BASIN 2 OUT	POND	25	.677		12.4500	.93	705.33	.390
BASIN 2 OUT	POND	50	.783		12.6000	1.01	705.62	.455
BASIN 2 OUT	POND	100	.869		12.5000	1.06	705.85	.508
D-1	AREA	1	.389		12.5500	2.13		
D-1	AREA	2	.553		12.5500	3.18		
D-1	AREA	5	.825		12.5500	4.92		
D-1	AREA	10	1.068		12.5500	6.46		
D-1	AREA	25	1.271		12.5500	7.73		
D-1	AREA	50	1.532		12.5500	9.37		
D-1	AREA	100	1.747		12.5500	10.70		
D-2	AREA	1	.087		12.6000	.46		
D-2	AREA	2	.124		12.5500	.69		
D-2	AREA	5	.184		12.5500	1.07		
D-2	AREA	10	.239		12.5500	1.40		
D-2	AREA	25	.284		12.5500	1.68		
D-2	AREA	50	.342		12.5500	2.04		
D-2	AREA	100	.390		12.5500	2.33		

MASTER NETWORK SUMMARY
SCS Unit Hydrograph Method

(*Node=Outfall; +Node=Diversion;)
(Trun= HYG Truncation: Blank=None; L=Left; R=Rt; LR=Left&Rt)

Node ID	Type	Return Event	HYG Vol ac-ft	Trun	Qpeak hrs	Qpeak cfs	Max WSEL ft	Max Pond Storage ac-ft
D-3	AREA	1	.087		12.3000	.72		
D-3	AREA	2	.124		12.2500	1.07		
D-3	AREA	5	.186		12.2500	1.64		
D-3	AREA	10	.240		12.2500	2.15		
D-3	AREA	25	.286		12.2500	2.57		
D-3	AREA	50	.345		12.2500	3.11		
D-3	AREA	100	.393		12.2500	3.55		
D-4B	AREA	1	1.881		11.9500	29.56		
D-4B	AREA	2	2.340		11.9500	36.42		
D-4B	AREA	5	3.036		11.9500	46.64		
D-4B	AREA	10	3.620		11.9500	55.11		
D-4B	AREA	25	4.089		11.9500	61.85		
D-4B	AREA	50	4.678		11.9500	70.24		
D-4B	AREA	100	5.149		11.9500	76.93		
D-4C	AREA	1	.382		12.4500	2.41		
D-4C	AREA	2	.562		12.3500	3.78		
D-4C	AREA	5	.866		12.3500	6.19		
D-4C	AREA	10	1.143		12.3500	8.37		
D-4C	AREA	25	1.376		12.3500	10.20		
D-4C	AREA	50	1.679		12.3500	12.57		
D-4C	AREA	100	1.929		12.3500	14.51		
D4-A	AREA	1	.291		11.9500	4.86		
D4-A	AREA	2	.371		11.9500	6.17		
D4-A	AREA	5	.494		11.9500	8.13		
D4-A	AREA	10	.599		11.9500	9.77		
D4-A	AREA	25	.683		11.9500	11.08		
D4-A	AREA	50	.790		11.9500	12.70		
D4-A	AREA	100	.875		11.9500	14.00		

MASTER NETWORK SUMMARY
SCS Unit Hydrograph Method

(*Node=Outfall; +Node=Diversion;)
(Trun= HYG Truncation: Blank=None; L=Left; R=Rt; LR=Left&Rt)

Node ID	Type	Return Event	HYG Vol ac-ft	Trun	Qpeak hrs	Qpeak cfs	Max WSEL ft	Max Pond Storage ac-ft
*DISCHARGE PT. 1	JCT	1	.389		12.5500	2.13		
*DISCHARGE PT. 1	JCT	2	.553		12.5500	3.18		
*DISCHARGE PT. 1	JCT	5	.825		12.5500	4.92		
*DISCHARGE PT. 1	JCT	10	1.068		12.5500	6.46		
*DISCHARGE PT. 1	JCT	25	1.271		12.5500	7.73		
*DISCHARGE PT. 1	JCT	50	1.532		12.5500	9.37		
*DISCHARGE PT. 1	JCT	100	1.747		12.5500	10.70		
*DISCHARGE PT. 2	JCT	1	.087		12.6000	.46		
*DISCHARGE PT. 2	JCT	2	.124		12.5500	.69		
*DISCHARGE PT. 2	JCT	5	.184		12.5500	1.07		
*DISCHARGE PT. 2	JCT	10	.239		12.5500	1.40		
*DISCHARGE PT. 2	JCT	25	.284		12.5500	1.68		
*DISCHARGE PT. 2	JCT	50	.342		12.5500	2.04		
*DISCHARGE PT. 2	JCT	100	.390		12.5500	2.33		
*DISCHARGE PT. 3	JCT	1	.087		12.3000	.72		
*DISCHARGE PT. 3	JCT	2	.124		12.2500	1.07		
*DISCHARGE PT. 3	JCT	5	.186		12.2500	1.64		
*DISCHARGE PT. 3	JCT	10	.240		12.2500	2.15		
*DISCHARGE PT. 3	JCT	25	.286		12.2500	2.57		
*DISCHARGE PT. 3	JCT	50	.345		12.2500	3.11		
*DISCHARGE PT. 3	JCT	100	.393		12.2500	3.55		
*DISCHARGE PT. 4	JCT	1	2.487		12.4500	3.43		
*DISCHARGE PT. 4	JCT	2	3.205		12.4500	6.06		
*DISCHARGE PT. 4	JCT	5	4.326		12.3500	8.91		
*DISCHARGE PT. 4	JCT	10	5.290	R	12.3500	11.40		
*DISCHARGE PT. 4	JCT	25	6.074	R	12.3500	13.45		
*DISCHARGE PT. 4	JCT	50	7.069	R	12.3500	16.07		
*DISCHARGE PT. 4	JCT	100	7.874	R	12.3500	18.19		

```
SCS UNIT HYDROGRAPH METHOD

STORM EVENT: 1 year storm
Duration       = 24.0000 hrs     Rain Depth = 2.1000 in
Rain Dir       = F:\jobs\3717\Pond Pack\
Rain File -ID =  - TypeII  24hr
Unit Hyd Type = Default Curvilinear
HYG Dir        = F:\jobs\3717\Pond Pack\
HYG File - ID = work_pad.hyg - D-1 1
Tc             = 1.0440 hrs
Drainage Area = 7.470 acres  Runoff CN= 80

============================================
Computational Time Increment   =   .13920 hrs
Computed Peak Time             =  12.5280 hrs
Computed Peak Flow             =     2.13 cfs

Time Increment for HYG File    =    .0500 hrs
Peak Time, Interpolated Output =  12.5500 hrs
Peak Flow, Interpolated Output =     2.13 cfs
============================================

                DRAINAGE AREA
              -------------------
              ID:D-1
              CN   =   80
              Area =        7.470 acres
              S    =   2.5000 in
              0.2S =    .5000 in

               Cumulative Runoff
              -------------------
                       .6244 in
                        .389 ac-ft

HYG Volume...           .389 ac-ft (area under HYG curve)

***** SCS UNIT HYDROGRAPH PARAMETERS *****

Time Concentration, Tc =  1.04400 hrs (ID: D-1)
Computational Incr, Tm =   .13920 hrs = 0.20000 Tp

Unit Hyd. Shape Factor =  483.432 (37.46% under rising limb)
K =  483.43/645.333,  K =    .7491 (also, K = 2/(1+(Tr/Tp))
Receding/Rising, Tr/Tp =   1.6698 (solved from K =   .7491)

Unit peak,          qp =     8.11 cfs
Unit peak time      Tp =   .69600 hrs
Unit receding limb, Tr =  2.78400 hrs
Total unit time,    Tb =  3.48000 hrs
```


F-260

```
SCS UNIT HYDROGRAPH METHOD

STORM EVENT: 2 year storm
Duration       = 24.0000 hrs     Rain Depth = 2.5000 in
Rain Dir       = F:\jobs\3717\Pond Pack\
Rain File -ID =  - TypeII  24hr
Unit Hyd Type = Default Curvilinear
HYG Dir        = F:\jobs\3717\Pond Pack\
HYG File - ID = work_pad.hyg - D-1 2
Tc             = 1.0440 hrs
Drainage Area = 7.470 acres  Runoff CN= 80

============================================
Computational Time Increment   =   .13920 hrs
Computed Peak Time             =  12.5280 hrs
Computed Peak Flow             =     3.19 cfs

Time Increment for HYG File    =    .0500 hrs
Peak Time, Interpolated Output =  12.5500 hrs
Peak Flow, Interpolated Output =     3.18 cfs
============================================

                 DRAINAGE AREA
               -------------------
               ID:D-1
               CN    =   80
               Area =        7.470 acres
               S     =   2.5000 in
               0.2S =    .5000 in

                Cumulative Runoff
               -------------------
                        .8889 in
                         .553 ac-ft

HYG Volume...            .553 ac-ft (area under HYG curve)

***** SCS UNIT HYDROGRAPH PARAMETERS *****

Time Concentration, Tc =  1.04400 hrs (ID: D-1)
Computational Incr, Tm =   .13920 hrs = 0.20000 Tp

Unit Hyd. Shape Factor =  483.432 (37.46% under rising limb)
K =  483.43/645.333,  K =    .7491 (also, K = 2/(1+(Tr/Tp))
Receding/Rising, Tr/Tp =   1.6698 (solved from K =   .7491)

Unit peak,           qp =     8.11 cfs
Unit peak time       Tp =   .69600 hrs
Unit receding limb, Tr =  2.78400 hrs
Total unit time,     Tb =  3.48000 hrs
```

```
SCS UNIT HYDROGRAPH METHOD

STORM EVENT: 10 year storm
Duration       = 24.0000 hrs     Rain Depth = 3.6000 in
Rain Dir       = F:\jobs\3717\Pond Pack\
Rain File -ID =  - TypeII  24hr
Unit Hyd Type = Default Curvilinear
HYG Dir        = F:\jobs\3717\Pond Pack\
HYG File - ID = work_pad.hyg - D-1 10
Tc             = 1.0440 hrs
Drainage Area = 7.470 acres  Runoff CN= 80

============================================
Computational Time Increment   =   .13920 hrs
Computed Peak Time             =  12.5280 hrs
Computed Peak Flow             =     6.50 cfs

Time Increment for HYG File    =    .0500 hrs
Peak Time, Interpolated Output =  12.5500 hrs
Peak Flow, Interpolated Output =     6.46 cfs
============================================

               DRAINAGE AREA
              -------------------
              ID:D-1
              CN   =   80
              Area =        7.470 acres
              S    =   2.5000 in
              0.2S =    .5000 in

               Cumulative Runoff
              -------------------
                      1.7161 in
                       1.068 ac-ft

HYG Volume...          1.068 ac-ft (area under HYG curve)

***** SCS UNIT HYDROGRAPH PARAMETERS *****

Time Concentration, Tc =  1.04400 hrs (ID: D-1)
Computational Incr, Tm =   .13920 hrs = 0.20000 Tp

Unit Hyd. Shape Factor =  483.432 (37.46% under rising limb)
K =  483.43/645.333,  K =    .7491 (also, K = 2/(1+(Tr/Tp))
Receding/Rising, Tr/Tp =   1.6698 (solved from K =   .7491)

Unit peak,          qp =     8.11 cfs
Unit peak time      Tp =   .69600 hrs
Unit receding limb, Tr =  2.78400 hrs
Total unit time,    Tb =  3.48000 hrs
```

```
SCS UNIT HYDROGRAPH METHOD

STORM EVENT: 25 year storm
Duration       = 24.0000 hrs     Rain Depth = 4.0000 in
Rain Dir       = F:\jobs\3717\Pond Pack\
Rain File -ID  =  - TypeII  24hr
Unit Hyd Type = Default Curvilinear
HYG Dir        = F:\jobs\3717\Pond Pack\
HYG File - ID = work_pad.hyg - D-1 25
Tc             = 1.0440 hrs
Drainage Area = 7.470 acres  Runoff CN= 80

============================================
Computational Time Increment   =   .13920 hrs
Computed Peak Time             =  12.5280 hrs
Computed Peak Flow             =     7.79 cfs

Time Increment for HYG File    =    .0500 hrs
Peak Time, Interpolated Output =  12.5500 hrs
Peak Flow, Interpolated Output =     7.73 cfs
============================================

                DRAINAGE AREA
              -------------------
              ID:D-1
              CN    =   80
              Area =        7.470 acres
              S     =   2.5000 in
              0.2S =    .5000 in

               Cumulative Runoff
              -------------------
                     2.0417 in
                      1.271 ac-ft

HYG Volume...           1.271 ac-ft (area under HYG curve)

***** SCS UNIT HYDROGRAPH PARAMETERS *****

Time Concentration, Tc =  1.04400 hrs (ID: D-1)
Computational Incr, Tm =   .13920 hrs = 0.20000 Tp

Unit Hyd. Shape Factor =  483.432 (37.46% under rising limb)
K =  483.43/645.333,  K =    .7491 (also, K = 2/(1+(Tr/Tp))
Receding/Rising, Tr/Tp =   1.6698 (solved from K =   .7491)

Unit peak,          qp =     8.11 cfs
Unit peak time      Tp =   .69600 hrs
Unit receding limb, Tr =  2.78400 hrs
Total unit time,    Tb =  3.48000 hrs
```


F-253

```
SCS UNIT HYDROGRAPH METHOD

STORM EVENT: 100 year storm
Duration       = 24.0000 hrs     Rain Depth = 4.9000 in
Rain Dir       = F:\jobs\3717\Pond Pack\
Rain File -ID =  - TypeII  24hr
Unit Hyd Type = Default Curvilinear
HYG Dir        = F:\jobs\3717\Pond Pack\
HYG File - ID = work_pad.hyg - D-1 100
Tc             = 1.0440 hrs
Drainage Area = 7.470 acres  Runoff CN= 80

============================================
Computational Time Increment   =   .13920 hrs
Computed Peak Time             =  12.5280 hrs
Computed Peak Flow             =    10.79 cfs

Time Increment for HYG File    =    .0500 hrs
Peak Time, Interpolated Output =  12.5500 hrs
Peak Flow, Interpolated Output =    10.70 cfs
============================================

                DRAINAGE AREA
              -------------------
              ID:D-1
              CN   =   80
              Area =        7.470 acres
              S    =   2.5000 in
              0.2S =    .5000 in

               Cumulative Runoff
              -------------------
                      2.8058 in
                       1.747 ac-ft

HYG Volume...           1.747 ac-ft (area under HYG curve)

***** SCS UNIT HYDROGRAPH PARAMETERS *****

Time Concentration, Tc =  1.04400 hrs (ID: D-1)
Computational Incr, Tm =   .13920 hrs = 0.20000 Tp

Unit Hyd. Shape Factor =  483.432 (37.46% under rising limb)
K =  483.43/645.333,  K =    .7491 (also, K = 2/(1+(Tr/Tp))
Receding/Rising, Tr/Tp =   1.6698 (solved from K =   .7491)

Unit peak,          qp =     8.11 cfs
Unit peak time      Tp =   .69600 hrs
Unit receding limb, Tr =  2.78400 hrs
Total unit time,    Tb =  3.48000 hrs
```


F-254

```
SCS UNIT HYDROGRAPH METHOD

STORM EVENT: 1 year storm
Duration       = 24.0000 hrs     Rain Depth = 2.1000 in
Rain Dir       = F:\jobs\3717\Pond Pack\
Rain File -ID  =  - TypeII  24hr
Unit Hyd Type  = Default Curvilinear
HYG Dir        = F:\jobs\3717\Pond Pack\
HYG File - ID  = work_pad.hyg - D-2 1
Tc             = 1.0840 hrs
Drainage Area  = 1.670 acres  Runoff CN= 80

============================================
Computational Time Increment   =   .14453 hrs
Computed Peak Time             =  12.5744 hrs
Computed Peak Flow             =      .47 cfs

Time Increment for HYG File    =    .0500 hrs
Peak Time, Interpolated Output =  12.6000 hrs
Peak Flow, Interpolated Output =      .46 cfs
============================================

               DRAINAGE AREA
              -------------------
              ID:D-2
              CN    =   80
              Area  =        1.670 acres
              S     =   2.5000 in
              0.2S  =    .5000 in

               Cumulative Runoff
              -------------------
                       .6244 in
                        .087 ac-ft

HYG Volume...           .087 ac-ft (area under HYG curve)

***** SCS UNIT HYDROGRAPH PARAMETERS *****

Time Concentration, Tc =  1.08400 hrs (ID: D-2)
Computational Incr, Tm =   .14453 hrs = 0.20000 Tp

Unit Hyd. Shape Factor =  483.432 (37.46% under rising limb)
K =  483.43/645.333,  K =    .7491 (also, K = 2/(1+(Tr/Tp))
Receding/Rising, Tr/Tp =   1.6698 (solved from K =   .7491)

Unit peak,          qp =     1.75 cfs
Unit peak time      Tp =   .72267 hrs
Unit receding limb, Tr =  2.89067 hrs
Total unit time,    Tb =  3.61333 hrs
```

```
SCS UNIT HYDROGRAPH METHOD

STORM EVENT: 2 year storm
Duration       = 24.0000 hrs     Rain Depth = 2.5000 in
Rain Dir       = F:\jobs\3717\Pond Pack\
Rain File -ID =  - TypeII  24hr
Unit Hyd Type = Default Curvilinear
HYG Dir        = F:\jobs\3717\Pond Pack\
HYG File - ID = work_pad.hyg - D-2 2
Tc             = 1.0840 hrs
Drainage Area = 1.670 acres  Runoff CN= 80

============================================
Computational Time Increment   =   .14453 hrs
Computed Peak Time             =  12.5744 hrs
Computed Peak Flow             =      .70 cfs

Time Increment for HYG File    =    .0500 hrs
Peak Time, Interpolated Output =  12.6000 hrs
Peak Flow, Interpolated Output =      .69 cfs
============================================

              DRAINAGE AREA
              -------------------
              ID:D-2
              CN   =   80
              Area =        1.670 acres
              S    =   2.5000 in
              0.2S =    .5000 in

              Cumulative Runoff
              -------------------
                       .8889 in
                        .124 ac-ft

HYG Volume...           .124 ac-ft (area under HYG curve)

***** SCS UNIT HYDROGRAPH PARAMETERS *****

Time Concentration, Tc =  1.08400 hrs (ID: D-2)
Computational Incr, Tm =   .14453 hrs = 0.20000 Tp

Unit Hyd. Shape Factor =  483.432 (37.46% under rising limb)
K =  483.43/645.333,  K =    .7491 (also, K = 2/(1+(Tr/Tp))
Receding/Rising, Tr/Tp =   1.6698 (solved from K =   .7491)

Unit peak,          qp =     1.75 cfs
Unit peak time      Tp =   .72267 hrs
Unit receding limb, Tr =  2.89067 hrs
Total unit time,    Tb =  3.61333 hrs
```


F-256

```
SCS UNIT HYDROGRAPH METHOD

STORM EVENT: 10 year storm
Duration       = 24.0000 hrs     Rain Depth = 3.6000 in
Rain Dir       = F:\jobs\3717\Pond Pack\
Rain File -ID =  - TypeII  24hr
Unit Hyd Type = Default Curvilinear
HYG Dir        = F:\jobs\3717\Pond Pack\
HYG File - ID = work_pad.hyg - D-2 10
Tc             = 1.0840 hrs
Drainage Area = 1.670 acres  Runoff CN= 80

============================================
Computational Time Increment   =    .14453 hrs
Computed Peak Time             =   12.5744 hrs
Computed Peak Flow             =      1.41 cfs

Time Increment for HYG File    =     .0500 hrs
Peak Time, Interpolated Output =   12.5500 hrs
Peak Flow, Interpolated Output =      1.40 cfs
============================================

                 DRAINAGE AREA
              -------------------
              ID:D-2
              CN   =   80
              Area =        1.670 acres
              S    =   2.5000 in
              0.2S =    .5000 in

               Cumulative Runoff
              -------------------
                     1.7161 in
                      .239 ac-ft

HYG Volume...           .239 ac-ft (area under HYG curve)

***** SCS UNIT HYDROGRAPH PARAMETERS *****

Time Concentration, Tc =  1.08400 hrs (ID: D-2)
Computational Incr, Tm =   .14453 hrs = 0.20000 Tp

Unit Hyd. Shape Factor =  483.432 (37.46% under rising limb)
K =  483.43/645.333,  K =    .7491 (also, K = 2/(1+(Tr/Tp))
Receding/Rising, Tr/Tp =   1.6698 (solved from K =   .7491)

Unit peak,          qp =     1.75 cfs
Unit peak time      Tp =   .72267 hrs
Unit receding limb, Tr =  2.89067 hrs
Total unit time,    Tb =  3.61333 hrs
```

```
SCS UNIT HYDROGRAPH METHOD

STORM EVENT: 25 year storm
Duration        = 24.0000 hrs     Rain Depth = 4.0000 in
Rain Dir        = F:\jobs\3717\Pond Pack\
Rain File -ID =  - TypeII  24hr
Unit Hyd Type = Default Curvilinear
HYG Dir         = F:\jobs\3717\Pond Pack\
HYG File - ID = work_pad.hyg - D-2 25
Tc              = 1.0840 hrs
Drainage Area = 1.670 acres  Runoff CN= 80

============================================
Computational Time Increment   =   .14453 hrs
Computed Peak Time             =  12.5744 hrs
Computed Peak Flow             =     1.69 cfs

Time Increment for HYG File    =    .0500 hrs
Peak Time, Interpolated Output =  12.5500 hrs
Peak Flow, Interpolated Output =     1.68 cfs
============================================

                DRAINAGE AREA
              -------------------
              ID:D-2
              CN    =   80
              Area =        1.670 acres
              S     =   2.5000 in
              0.2S =    .5000 in

               Cumulative Runoff
              -------------------
                      2.0417 in
                        .284 ac-ft

HYG Volume...            .284 ac-ft (area under HYG curve)

***** SCS UNIT HYDROGRAPH PARAMETERS *****

Time Concentration, Tc =  1.08400 hrs (ID: D-2)
Computational Incr, Tm =   .14453 hrs = 0.20000 Tp

Unit Hyd. Shape Factor =  483.432 (37.46% under rising limb)
K =  483.43/645.333,  K =    .7491 (also, K = 2/(1+(Tr/Tp))
Receding/Rising, Tr/Tp =   1.6698 (solved from K =   .7491)

Unit peak,           qp =     1.75 cfs
Unit peak time       Tp =   .72267 hrs
Unit receding limb, Tr =  2.89067 hrs
Total unit time,     Tb =  3.61333 hrs
```

```
SCS UNIT HYDROGRAPH METHOD

STORM EVENT: 100 year storm
Duration      = 24.0000 hrs     Rain Depth = 4.9000 in
Rain Dir      = F:\jobs\3717\Pond Pack\
Rain File -ID =  - TypeII  24hr
Unit Hyd Type = Default Curvilinear
HYG Dir       = F:\jobs\3717\Pond Pack\
HYG File - ID = work_pad.hyg - D-2 100
Tc            = 1.0840 hrs
Drainage Area = 1.670 acres  Runoff CN= 80

============================================
Computational Time Increment   =   .14453 hrs
Computed Peak Time             =  12.5744 hrs
Computed Peak Flow             =     2.35 cfs

Time Increment for HYG File    =    .0500 hrs
Peak Time, Interpolated Output =  12.5500 hrs
Peak Flow, Interpolated Output =     2.33 cfs
============================================

                 DRAINAGE AREA
               -------------------
               ID:D-2
               CN   =   80
               Area =        1.670 acres
               S    =   2.5000 in
               0.2S =    .5000 in

                Cumulative Runoff
               -------------------
                       2.8058 in
                         .390 ac-ft

HYG Volume...            .390 ac-ft (area under HYG curve)

***** SCS UNIT HYDROGRAPH PARAMETERS *****

Time Concentration, Tc =  1.08400 hrs (ID: D-2)
Computational Incr, Tm =   .14453 hrs = 0.20000 Tp

Unit Hyd. Shape Factor =  483.432 (37.46% under rising limb)
K =  483.43/645.333,  K =    .7491 (also, K = 2/(1+(Tr/Tp))
Receding/Rising, Tr/Tp =   1.6698 (solved from K =   .7491)

Unit peak,          qp =     1.75 cfs
Unit peak time      Tp =   .72267 hrs
Unit receding limb, Tr =  2.89067 hrs
Total unit time,    Tb =  3.61333 hrs
```

```
SCS UNIT HYDROGRAPH METHOD

STORM EVENT: 1 year storm
Duration       = 24.0000 hrs     Rain Depth = 2.1000 in
Rain Dir       = F:\jobs\3717\Pond Pack\
Rain File -ID =  - TypeII  24hr
Unit Hyd Type = Default Curvilinear
HYG Dir        = F:\jobs\3717\Pond Pack\
HYG File - ID = work_pad.hyg - D-3 1
Tc             = .5910 hrs
Drainage Area = 1.680 acres  Runoff CN= 80

============================================
Computational Time Increment   =   .07880 hrs
Computed Peak Time             =  12.2928 hrs
Computed Peak Flow             =      .72 cfs

Time Increment for HYG File    =    .0500 hrs
Peak Time, Interpolated Output =  12.3000 hrs
Peak Flow, Interpolated Output =      .72 cfs
============================================

                DRAINAGE AREA
              -------------------
              ID:D-3
              CN    =   80
              Area =        1.680 acres
              S     =   2.5000 in
              0.2S =    .5000 in

               Cumulative Runoff
              -------------------
                       .6244 in
                        .087 ac-ft

HYG Volume...           .087 ac-ft (area under HYG curve)

***** SCS UNIT HYDROGRAPH PARAMETERS *****

Time Concentration, Tc =   .59100 hrs (ID: D-3)
Computational Incr, Tm =   .07880 hrs = 0.20000 Tp

Unit Hyd. Shape Factor =  483.432 (37.46% under rising limb)
K =  483.43/645.333,  K =    .7491 (also, K = 2/(1+(Tr/Tp))
Receding/Rising, Tr/Tp =   1.6698 (solved from K =   .7491)

Unit peak,          qp =     3.22 cfs
Unit peak time      Tp =   .39400 hrs
Unit receding limb, Tr =  1.57600 hrs
Total unit time,    Tb =  1.97000 hrs
```

```
SCS UNIT HYDROGRAPH METHOD

STORM EVENT: 2 year storm
Duration       = 24.0000 hrs     Rain Depth = 2.5000 in
Rain Dir       = F:\jobs\3717\Pond Pack\
Rain File -ID =  - TypeII  24hr
Unit Hyd Type = Default Curvilinear
HYG Dir        = F:\jobs\3717\Pond Pack\
HYG File - ID = work_pad.hyg - D-3 2
Tc             = .5910 hrs
Drainage Area = 1.680 acres  Runoff CN= 80

============================================
Computational Time Increment   =   .07880 hrs
Computed Peak Time             =  12.2928 hrs
Computed Peak Flow             =     1.07 cfs

Time Increment for HYG File    =    .0500 hrs
Peak Time, Interpolated Output =  12.2500 hrs
Peak Flow, Interpolated Output =     1.07 cfs
============================================

                 DRAINAGE AREA
              -------------------
              ID:D-3
              CN    =   80
              Area =        1.680 acres
              S     =   2.5000 in
              0.2S =    .5000 in

               Cumulative Runoff
              -------------------
                       .8889 in
                        .124 ac-ft

HYG Volume...           .124 ac-ft (area under HYG curve)

***** SCS UNIT HYDROGRAPH PARAMETERS *****

Time Concentration, Tc =   .59100 hrs (ID: D-3)
Computational Incr, Tm =   .07880 hrs = 0.20000 Tp

Unit Hyd. Shape Factor =  483.432 (37.46% under rising limb)
K =  483.43/645.333,  K =    .7491 (also, K = 2/(1+(Tr/Tp))
Receding/Rising, Tr/Tp =   1.6698 (solved from K =   .7491)

Unit peak,          qp =     3.22 cfs
Unit peak time      Tp =   .39400 hrs
Unit receding limb, Tr =  1.57600 hrs
Total unit time,    Tb =  1.97000 hrs
```

```
SCS UNIT HYDROGRAPH METHOD

STORM EVENT: 10 year storm
Duration       = 24.0000 hrs     Rain Depth = 3.6000 in
Rain Dir       = F:\jobs\3717\Pond Pack\
Rain File -ID  =  - TypeII  24hr
Unit Hyd Type  = Default Curvilinear
HYG Dir        = F:\jobs\3717\Pond Pack\
HYG File - ID  = work_pad.hyg - D-3 10
Tc             = .5910 hrs
Drainage Area  = 1.680 acres  Runoff CN= 80

============================================
Computational Time Increment   =   .07880 hrs
Computed Peak Time             =  12.2140 hrs
Computed Peak Flow             =     2.17 cfs

Time Increment for HYG File    =    .0500 hrs
Peak Time, Interpolated Output =  12.2500 hrs
Peak Flow, Interpolated Output =     2.15 cfs
============================================

              DRAINAGE AREA
              -------------------
              ID:D-3
              CN   =   80
              Area =       1.680 acres
              S    =   2.5000 in
              0.2S =    .5000 in

               Cumulative Runoff
              -------------------
                     1.7161 in
                       .240 ac-ft

HYG Volume...            .240 ac-ft (area under HYG curve)

***** SCS UNIT HYDROGRAPH PARAMETERS *****

Time Concentration, Tc =   .59100 hrs (ID: D-3)
Computational Incr, Tm =   .07880 hrs = 0.20000 Tp

Unit Hyd. Shape Factor =  483.432 (37.46% under rising limb)
K =  483.43/645.333,  K =    .7491 (also, K = 2/(1+(Tr/Tp))
Receding/Rising, Tr/Tp =   1.6698 (solved from K =   .7491)

Unit peak,          qp =     3.22 cfs
Unit peak time      Tp =   .39400 hrs
Unit receding limb, Tr =  1.57600 hrs
Total unit time,    Tb =  1.97000 hrs
```

```
SCS UNIT HYDROGRAPH METHOD

STORM EVENT: 25 year storm
Duration       = 24.0000 hrs     Rain Depth = 4.0000 in
Rain Dir       = F:\jobs\3717\Pond Pack\
Rain File -ID =  - TypeII  24hr
Unit Hyd Type = Default Curvilinear
HYG Dir        = F:\jobs\3717\Pond Pack\
HYG File - ID = work_pad.hyg - D-3 25
Tc             = .5910 hrs
Drainage Area = 1.680 acres  Runoff CN= 80

=============================================
Computational Time Increment   =   .07880 hrs
Computed Peak Time             =  12.2140 hrs
Computed Peak Flow             =     2.59 cfs

Time Increment for HYG File    =    .0500 hrs
Peak Time, Interpolated Output =  12.2500 hrs
Peak Flow, Interpolated Output =     2.57 cfs
=============================================

               DRAINAGE AREA
              -------------------
              ID:D-3
              CN    =   80
              Area =        1.680 acres
              S     =   2.5000 in
              0.2S =    .5000 in

               Cumulative Runoff
              -------------------
                     2.0417 in
                       .286 ac-ft

HYG Volume...            .286 ac-ft (area under HYG curve)

***** SCS UNIT HYDROGRAPH PARAMETERS *****

Time Concentration, Tc =   .59100 hrs (ID: D-3)
Computational Incr, Tm =   .07880 hrs = 0.20000 Tp

Unit Hyd. Shape Factor =  483.432 (37.46% under rising limb)
K =  483.43/645.333,  K =    .7491 (also, K = 2/(1+(Tr/Tp))
Receding/Rising, Tr/Tp =   1.6698 (solved from K =   .7491)

Unit peak,          qp =     3.22 cfs
Unit peak time      Tp =   .39400 hrs
Unit receding limb, Tr =  1.57600 hrs
Total unit time,    Tb =  1.97000 hrs
```

```
SCS UNIT HYDROGRAPH METHOD

STORM EVENT: 100 year storm
Duration       = 24.0000 hrs     Rain Depth = 4.9000 in
Rain Dir       = F:\jobs\3717\Pond Pack\
Rain File -ID =  - TypeII  24hr
Unit Hyd Type = Default Curvilinear
HYG Dir        = F:\jobs\3717\Pond Pack\
HYG File - ID = work_pad.hyg - D-3 100
Tc             = .5910 hrs
Drainage Area = 1.680 acres  Runoff CN= 80

============================================
Computational Time Increment   =   .07880 hrs
Computed Peak Time             =  12.2140 hrs
Computed Peak Flow             =     3.59 cfs

Time Increment for HYG File    =    .0500 hrs
Peak Time, Interpolated Output =  12.2500 hrs
Peak Flow, Interpolated Output =     3.55 cfs
============================================

                DRAINAGE AREA
               -------------------
               ID:D-3
               CN    =   80
               Area =        1.680 acres
               S     =   2.5000 in
               0.2S =    .5000 in

                Cumulative Runoff
               -------------------
                       2.8058 in
                         .393 ac-ft

HYG Volume...            .393 ac-ft (area under HYG curve)

***** SCS UNIT HYDROGRAPH PARAMETERS *****

Time Concentration, Tc =   .59100 hrs (ID: D-3)
Computational Incr, Tm =   .07880 hrs = 0.20000 Tp

Unit Hyd. Shape Factor =  483.432 (37.46% under rising limb)
K =  483.43/645.333,  K =    .7491 (also, K = 2/(1+(Tr/Tp))
Receding/Rising, Tr/Tp =   1.6698 (solved from K =   .7491)

Unit peak,          qp =     3.22 cfs
Unit peak time      Tp =   .39400 hrs
Unit receding limb, Tr =  1.57600 hrs
Total unit time,    Tb =  1.97000 hrs
```

```
SCS UNIT HYDROGRAPH METHOD

STORM EVENT: 1 year storm
Duration       = 24.0000 hrs     Rain Depth = 2.1000 in
Rain Dir       = F:\jobs\3717\Pond Pack\
Rain File -ID =  - TypeII  24hr
Unit Hyd Type = Default Curvilinear
HYG Dir        = F:\jobs\3717\Pond Pack\
HYG File - ID = work_pad.hyg - D-4B 1
Tc             = .1600 hrs
Drainage Area = 14.300 acres  Runoff CN= 95

============================================
Computational Time Increment   =   .02133 hrs
Computed Peak Time             =  11.9680 hrs
Computed Peak Flow             =    30.10 cfs

Time Increment for HYG File    =    .0500 hrs
Peak Time, Interpolated Output =  11.9500 hrs
Peak Flow, Interpolated Output =    29.56 cfs
WARNING: The difference between calculated peak flow
and interpolated peak flow is greater than 1.50%
============================================

                DRAINAGE AREA
              -------------------
              ID:D-4B
              CN   =   95
              Area =      14.300 acres
              S    =    .5263 in
              0.2S =    .1053 in

               Cumulative Runoff
              -------------------
                     1.5783 in
                      1.881 ac-ft

HYG Volume...           1.881 ac-ft (area under HYG curve)

***** SCS UNIT HYDROGRAPH PARAMETERS *****

Time Concentration, Tc =   .16000 hrs (ID: D-4B)
Computational Incr, Tm =   .02133 hrs = 0.20000 Tp

Unit Hyd. Shape Factor =  483.432 (37.46% under rising limb)
K =  483.43/645.333,  K =    .7491 (also, K = 2/(1+(Tr/Tp))
Receding/Rising, Tr/Tp =   1.6698 (solved from K =   .7491)

Unit peak,          qp =   101.27 cfs
Unit peak time      Tp =   .10667 hrs
Unit receding limb, Tr =   .42667 hrs
Total unit time,    Tb =   .53333 hrs
```


F-265

```
SCS UNIT HYDROGRAPH METHOD

STORM EVENT: 2 year storm
Duration       = 24.0000 hrs     Rain Depth = 2.5000 in
Rain Dir       = F:\jobs\3717\Pond Pack\
Rain File -ID =  - TypeII  24hr
Unit Hyd Type = Default Curvilinear
HYG Dir        = F:\jobs\3717\Pond Pack\
HYG File - ID = work_pad.hyg - D-4B 2
Tc             = .1600 hrs
Drainage Area = 14.300 acres  Runoff CN= 95

============================================
Computational Time Increment   =   .02133 hrs
Computed Peak Time             =  11.9680 hrs
Computed Peak Flow             =    37.04 cfs

Time Increment for HYG File    =    .0500 hrs
Peak Time, Interpolated Output =  11.9500 hrs
Peak Flow, Interpolated Output =    36.42 cfs
WARNING: The difference between calculated peak flow
and interpolated peak flow is greater than 1.50%
============================================

              DRAINAGE AREA
              -------------------
              ID:D-4B
              CN   =   95
              Area =      14.300 acres
              S    =    .5263 in
              0.2S =    .1053 in

               Cumulative Runoff
              -------------------
                      1.9633 in
                       2.340 ac-ft

HYG Volume...          2.340 ac-ft (area under HYG curve)

***** SCS UNIT HYDROGRAPH PARAMETERS *****

Time Concentration, Tc =   .16000 hrs (ID: D-4B)
Computational Incr, Tm =   .02133 hrs = 0.20000 Tp

Unit Hyd. Shape Factor =  483.432 (37.46% under rising limb)
K =  483.43/645.333,  K =    .7491 (also, K = 2/(1+(Tr/Tp))
Receding/Rising, Tr/Tp =   1.6698 (solved from K =   .7491)

Unit peak,          qp =   101.27 cfs
Unit peak time      Tp =   .10667 hrs
Unit receding limb, Tr =   .42667 hrs
Total unit time,    Tb =   .53333 hrs
```

```
SCS UNIT HYDROGRAPH METHOD

STORM EVENT: 10 year storm
Duration       = 24.0000 hrs     Rain Depth = 3.6000 in
Rain Dir       = F:\jobs\3717\Pond Pack\
Rain File -ID =  - TypeII  24hr
Unit Hyd Type = Default Curvilinear
HYG Dir        = F:\jobs\3717\Pond Pack\
HYG File - ID = work_pad.hyg - D-4B 10
Tc             = .1600 hrs
Drainage Area = 14.300 acres  Runoff CN= 95

============================================
Computational Time Increment   =   .02133 hrs
Computed Peak Time             =  11.9680 hrs
Computed Peak Flow             =    55.92 cfs

Time Increment for HYG File    =    .0500 hrs
Peak Time, Interpolated Output =  11.9500 hrs
Peak Flow, Interpolated Output =    55.11 cfs
============================================

              DRAINAGE AREA
             -------------------
             ID:D-4B
             CN   =   95
             Area =      14.300 acres
             S    =    .5263 in
             0.2S =    .1053 in

              Cumulative Runoff
             -------------------
                    3.0373 in
                     3.619 ac-ft

HYG Volume...           3.620 ac-ft (area under HYG curve)

***** SCS UNIT HYDROGRAPH PARAMETERS *****

Time Concentration, Tc =   .16000 hrs (ID: D-4B)
Computational Incr, Tm =   .02133 hrs = 0.20000 Tp

Unit Hyd. Shape Factor =  483.432 (37.46% under rising limb)
K =  483.43/645.333,  K =    .7491 (also, K = 2/(1+(Tr/Tp))
Receding/Rising, Tr/Tp =   1.6698 (solved from K =   .7491)

Unit peak,          qp =   101.27 cfs
Unit peak time      Tp =   .10667 hrs
Unit receding limb, Tr =   .42667 hrs
Total unit time,    Tb =   .53333 hrs
```


F-267

```
SCS UNIT HYDROGRAPH METHOD

STORM EVENT: 25 year storm
Duration      = 24.0000 hrs     Rain Depth = 4.0000 in
Rain Dir      = F:\jobs\3717\Pond Pack\
Rain File -ID =  - TypeII  24hr
Unit Hyd Type = Default Curvilinear
HYG Dir       = F:\jobs\3717\Pond Pack\
HYG File - ID = work_pad.hyg - D-4B 25
Tc            = .1600 hrs
Drainage Area = 14.300 acres  Runoff CN= 95

============================================
Computational Time Increment   =   .02133 hrs
Computed Peak Time             =  11.9680 hrs
Computed Peak Flow             =    62.73 cfs

Time Increment for HYG File    =    .0500 hrs
Peak Time, Interpolated Output =  11.9500 hrs
Peak Flow, Interpolated Output =    61.85 cfs
============================================

                DRAINAGE AREA
              -------------------
              ID:D-4B
              CN   =   95
              Area =      14.300 acres
              S    =    .5263 in
              0.2S =    .1053 in

               Cumulative Runoff
              -------------------
                     3.4311 in
                      4.089 ac-ft

HYG Volume...           4.089 ac-ft (area under HYG curve)

***** SCS UNIT HYDROGRAPH PARAMETERS *****

Time Concentration, Tc =   .16000 hrs (ID: D-4B)
Computational Incr, Tm =   .02133 hrs = 0.20000 Tp

Unit Hyd. Shape Factor =  483.432 (37.46% under rising limb)
K =  483.43/645.333,  K =    .7491 (also, K = 2/(1+(Tr/Tp))
Receding/Rising, Tr/Tp =   1.6698 (solved from K =   .7491)

Unit peak,          qp =   101.27 cfs
Unit peak time      Tp =   .10667 hrs
Unit receding limb, Tr =   .42667 hrs
Total unit time,    Tb =   .53333 hrs
```


F-268

```
SCS UNIT HYDROGRAPH METHOD

STORM EVENT: 100 year storm
Duration       = 24.0000 hrs     Rain Depth = 4.9000 in
Rain Dir       = F:\jobs\3717\Pond Pack\
Rain File -ID =  - TypeII  24hr
Unit Hyd Type = Default Curvilinear
HYG Dir        = F:\jobs\3717\Pond Pack\
HYG File - ID = work_pad.hyg - D-4B 100
Tc             = .1600 hrs
Drainage Area = 14.300 acres  Runoff CN= 95

============================================
Computational Time Increment   =   .02133 hrs
Computed Peak Time             =  11.9680 hrs
Computed Peak Flow             =    77.97 cfs

Time Increment for HYG File    =    .0500 hrs
Peak Time, Interpolated Output =  11.9500 hrs
Peak Flow, Interpolated Output =    76.93 cfs
============================================

                DRAINAGE AREA
              -------------------
              ID:D-4B
              CN   =   95
              Area =      14.300 acres
              S    =    .5263 in
              0.2S =    .1053 in

               Cumulative Runoff
              -------------------
                      4.3205 in
                       5.149 ac-ft

HYG Volume...          5.149 ac-ft (area under HYG curve)

***** SCS UNIT HYDROGRAPH PARAMETERS *****

Time Concentration, Tc =   .16000 hrs (ID: D-4B)
Computational Incr, Tm =   .02133 hrs = 0.20000 Tp

Unit Hyd. Shape Factor =  483.432 (37.46% under rising limb)
K =  483.43/645.333,  K =    .7491 (also, K = 2/(1+(Tr/Tp))
Receding/Rising, Tr/Tp =   1.6698 (solved from K =   .7491)

Unit peak,          qp =   101.27 cfs
Unit peak time      Tp =   .10667 hrs
Unit receding limb, Tr =   .42667 hrs
Total unit time,    Tb =   .53333 hrs
```

```
SCS UNIT HYDROGRAPH METHOD

STORM EVENT: 1 year storm
Duration       = 24.0000 hrs     Rain Depth = 2.1000 in
Rain Dir       = F:\jobs\3717\Pond Pack\
Rain File -ID =  - TypeII  24hr
Unit Hyd Type = Default Curvilinear
HYG Dir        = F:\jobs\3717\Pond Pack\
HYG File - ID = work_pad.hyg - D-4C 1
Tc             = .7850 hrs
Drainage Area = 9.110 acres  Runoff CN= 77

============================================
Computational Time Increment   =   .10467 hrs
Computed Peak Time             =  12.4553 hrs
Computed Peak Flow             =     2.41 cfs

Time Increment for HYG File    =    .0500 hrs
Peak Time, Interpolated Output =  12.4500 hrs
Peak Flow, Interpolated Output =     2.41 cfs
============================================

                DRAINAGE AREA
              -------------------
              ID:D-4C
              CN   =   77
              Area =        9.110 acres
              S    =   2.9870 in
              0.2S =    .5974 in

               Cumulative Runoff
              -------------------
                       .5029 in
                        .382 ac-ft

HYG Volume...            .382 ac-ft (area under HYG curve)

***** SCS UNIT HYDROGRAPH PARAMETERS *****

Time Concentration, Tc =   .78500 hrs (ID: D-4C)
Computational Incr, Tm =   .10467 hrs = 0.20000 Tp

Unit Hyd. Shape Factor =  483.432 (37.46% under rising limb)
K =  483.43/645.333,  K =    .7491 (also, K = 2/(1+(Tr/Tp))
Receding/Rising, Tr/Tp =   1.6698 (solved from K =   .7491)

Unit peak,          qp =    13.15 cfs
Unit peak time      Tp =   .52333 hrs
Unit receding limb, Tr =  2.09333 hrs
Total unit time,    Tb =  2.61667 hrs
```


F-270

```
SCS UNIT HYDROGRAPH METHOD

STORM EVENT: 2 year storm
Duration       = 24.0000 hrs     Rain Depth = 2.5000 in
Rain Dir       = F:\jobs\3717\Pond Pack\
Rain File -ID =  - TypeII  24hr
Unit Hyd Type = Default Curvilinear
HYG Dir        = F:\jobs\3717\Pond Pack\
HYG File - ID = work_pad.hyg - D-4C 2
Tc             = .7850 hrs
Drainage Area = 9.110 acres  Runoff CN= 77

=============================================
Computational Time Increment   =   .10467 hrs
Computed Peak Time             =  12.3507 hrs
Computed Peak Flow             =     3.78 cfs

Time Increment for HYG File    =    .0500 hrs
Peak Time, Interpolated Output =  12.4000 hrs
Peak Flow, Interpolated Output =     3.78 cfs
=============================================

                DRAINAGE AREA
               -------------------
               ID:D-4C
               CN   =    77
               Area =        9.110 acres
               S    =   2.9870 in
               0.2S =    .5974 in

                Cumulative Runoff
               -------------------
                         .7403 in
                          .562 ac-ft

HYG Volume...             .562 ac-ft (area under HYG curve)

***** SCS UNIT HYDROGRAPH PARAMETERS *****

Time Concentration, Tc =   .78500 hrs (ID: D-4C)
Computational Incr, Tm =   .10467 hrs = 0.20000 Tp

Unit Hyd. Shape Factor =  483.432 (37.46% under rising limb)
K =  483.43/645.333,  K =    .7491 (also, K = 2/(1+(Tr/Tp))
Receding/Rising, Tr/Tp =   1.6698 (solved from K =   .7491)

Unit peak,          qp =    13.15 cfs
Unit peak time      Tp =   .52333 hrs
Unit receding limb, Tr =  2.09333 hrs
Total unit time,    Tb =  2.61667 hrs
```

```
SCS UNIT HYDROGRAPH METHOD

STORM EVENT: 10 year storm
Duration      = 24.0000 hrs     Rain Depth = 3.6000 in
Rain Dir      = F:\jobs\3717\Pond Pack\
Rain File -ID =  - TypeII  24hr
Unit Hyd Type = Default Curvilinear
HYG Dir       = F:\jobs\3717\Pond Pack\
HYG File - ID = work_pad.hyg - D-4C 10
Tc            = .7850 hrs
Drainage Area = 9.110 acres  Runoff CN= 77

============================================
Computational Time Increment   =   .10467 hrs
Computed Peak Time             =  12.3507 hrs
Computed Peak Flow             =     8.37 cfs

Time Increment for HYG File    =    .0500 hrs
Peak Time, Interpolated Output =  12.3500 hrs
Peak Flow, Interpolated Output =     8.37 cfs
============================================

                DRAINAGE AREA
              -------------------
              ID:D-4C
              CN    =   77
              Area =        9.110 acres
              S     =   2.9870 in
              0.2S =    .5974 in

               Cumulative Runoff
              -------------------
                      1.5052 in
                       1.143 ac-ft

HYG Volume...          1.143 ac-ft (area under HYG curve)

***** SCS UNIT HYDROGRAPH PARAMETERS *****

Time Concentration, Tc =   .78500 hrs (ID: D-4C)
Computational Incr, Tm =   .10467 hrs = 0.20000 Tp

Unit Hyd. Shape Factor =  483.432 (37.46% under rising limb)
K =  483.43/645.333,  K =    .7491 (also, K = 2/(1+(Tr/Tp))
Receding/Rising, Tr/Tp =   1.6698 (solved from K =   .7491)

Unit peak,          qp =    13.15 cfs
Unit peak time      Tp =   .52333 hrs
Unit receding limb, Tr =  2.09333 hrs
Total unit time,    Tb =  2.61667 hrs
```

```
SCS UNIT HYDROGRAPH METHOD

STORM EVENT: 25 year storm
Duration       = 24.0000 hrs     Rain Depth = 4.0000 in
Rain Dir       = F:\jobs\3717\Pond Pack\
Rain File -ID  =  - TypeII  24hr
Unit Hyd Type = Default Curvilinear
HYG Dir        = F:\jobs\3717\Pond Pack\
HYG File - ID = work_pad.hyg - D-4C 25
Tc             = .7850 hrs
Drainage Area = 9.110 acres  Runoff CN= 77

============================================
Computational Time Increment   =   .10467 hrs
Computed Peak Time             =  12.3507 hrs
Computed Peak Flow             =    10.20 cfs

Time Increment for HYG File    =    .0500 hrs
Peak Time, Interpolated Output =  12.3500 hrs
Peak Flow, Interpolated Output =    10.20 cfs
============================================

                DRAINAGE AREA
              -------------------
              ID:D-4C
              CN   =   77
              Area =        9.110 acres
              S    =   2.9870 in
              0.2S =    .5974 in

               Cumulative Runoff
              -------------------
                      1.8120 in
                       1.376 ac-ft

HYG Volume...          1.376 ac-ft (area under HYG curve)

***** SCS UNIT HYDROGRAPH PARAMETERS *****

Time Concentration, Tc =   .78500 hrs (ID: D-4C)
Computational Incr, Tm =   .10467 hrs = 0.20000 Tp

Unit Hyd. Shape Factor =  483.432 (37.46% under rising limb)
K =  483.43/645.333,  K =    .7491 (also, K = 2/(1+(Tr/Tp))
Receding/Rising, Tr/Tp =   1.6698 (solved from K =   .7491)

Unit peak,          qp =    13.15 cfs
Unit peak time      Tp =   .52333 hrs
Unit receding limb, Tr =  2.09333 hrs
Total unit time,    Tb =  2.61667 hrs
```

```
SCS UNIT HYDROGRAPH METHOD

STORM EVENT: 100 year storm
Duration       = 24.0000 hrs     Rain Depth = 4.9000 in
Rain Dir       = F:\jobs\3717\Pond Pack\
Rain File -ID  =  - TypeII  24hr
Unit Hyd Type  = Default Curvilinear
HYG Dir        = F:\jobs\3717\Pond Pack\
HYG File - ID  = work_pad.hyg - D-4C 100
Tc             = .7850 hrs
Drainage Area  = 9.110 acres  Runoff CN= 77

============================================
Computational Time Increment   =   .10467 hrs
Computed Peak Time             =  12.3507 hrs
Computed Peak Flow             =    14.52 cfs

Time Increment for HYG File    =    .0500 hrs
Peak Time, Interpolated Output =  12.3500 hrs
Peak Flow, Interpolated Output =    14.51 cfs
============================================

              DRAINAGE AREA
             -------------------
             ID:D-4C
             CN   =   77
             Area =        9.110 acres
             S    =   2.9870 in
             0.2S =    .5974 in

              Cumulative Runoff
             -------------------
                    2.5396 in
                     1.928 ac-ft

HYG Volume...           1.929 ac-ft (area under HYG curve)

***** SCS UNIT HYDROGRAPH PARAMETERS *****

Time Concentration, Tc =   .78500 hrs (ID: D-4C)
Computational Incr, Tm =   .10467 hrs = 0.20000 Tp

Unit Hyd. Shape Factor =  483.432 (37.46% under rising limb)
K =  483.43/645.333,  K =    .7491 (also, K = 2/(1+(Tr/Tp))
Receding/Rising, Tr/Tp =   1.6698 (solved from K =   .7491)

Unit peak,          qp =    13.15 cfs
Unit peak time      Tp =   .52333 hrs
Unit receding limb, Tr =  2.09333 hrs
Total unit time,    Tb =  2.61667 hrs
```

```
SCS UNIT HYDROGRAPH METHOD

STORM EVENT: 1 year storm
Duration      = 24.0000 hrs     Rain Depth = 2.1000 in
Rain Dir      = F:\jobs\3717\Pond Pack\
Rain File -ID =  - TypeII  24hr
Unit Hyd Type = Default Curvilinear
HYG Dir       = F:\jobs\3717\Pond Pack\
HYG File - ID = work_pad.hyg - D4-A 1
Tc            = .1430 hrs
Drainage Area = 2.630 acres  Runoff CN= 92

============================================
Computational Time Increment   =   .01907 hrs
Computed Peak Time             =  11.9548 hrs
Computed Peak Flow             =     4.90 cfs

Time Increment for HYG File    =    .0500 hrs
Peak Time, Interpolated Output =  11.9500 hrs
Peak Flow, Interpolated Output =     4.86 cfs
============================================

              DRAINAGE AREA
           -------------------
           ID:D4-A
           CN   =   92
           Area =       2.630 acres
           S    =    .8696 in
           0.2S =    .1739 in

            Cumulative Runoff
           -------------------
                   1.3270 in
                     .291 ac-ft

HYG Volume...            .291 ac-ft (area under HYG curve)

***** SCS UNIT HYDROGRAPH PARAMETERS *****

Time Concentration, Tc =   .14300 hrs (ID: D4-A)
Computational Incr, Tm =   .01907 hrs = 0.20000 Tp

Unit Hyd. Shape Factor =  483.432 (37.46% under rising limb)
K =  483.43/645.333,  K =    .7491 (also, K = 2/(1+(Tr/Tp))
Receding/Rising, Tr/Tp =   1.6698 (solved from K =   .7491)

Unit peak,          qp =    20.84 cfs
Unit peak time      Tp =   .09533 hrs
Unit receding limb, Tr =   .38133 hrs
Total unit time,    Tb =   .47667 hrs
```

```
SCS UNIT HYDROGRAPH METHOD

STORM EVENT: 2 year storm
Duration       = 24.0000 hrs     Rain Depth = 2.5000 in
Rain Dir       = F:\jobs\3717\Pond Pack\
Rain File -ID =  - TypeII  24hr
Unit Hyd Type = Default Curvilinear
HYG Dir        = F:\jobs\3717\Pond Pack\
HYG File - ID = work_pad.hyg - D4-A 2
Tc             = .1430 hrs
Drainage Area = 2.630 acres  Runoff CN= 92

============================================
Computational Time Increment   =   .01907 hrs
Computed Peak Time             =  11.9548 hrs
Computed Peak Flow             =     6.21 cfs

Time Increment for HYG File    =    .0500 hrs
Peak Time, Interpolated Output =  11.9500 hrs
Peak Flow, Interpolated Output =     6.17 cfs
============================================

                DRAINAGE AREA
              -------------------
              ID:D4-A
              CN   =   92
              Area =        2.630 acres
              S    =    .8696 in
              0.2S =    .1739 in

               Cumulative Runoff
              -------------------
                      1.6931 in
                        .371 ac-ft

HYG Volume...            .371 ac-ft (area under HYG curve)

***** SCS UNIT HYDROGRAPH PARAMETERS *****

Time Concentration, Tc =   .14300 hrs (ID: D4-A)
Computational Incr, Tm =   .01907 hrs = 0.20000 Tp

Unit Hyd. Shape Factor =  483.432 (37.46% under rising limb)
K =  483.43/645.333,  K =    .7491 (also, K = 2/(1+(Tr/Tp))
Receding/Rising, Tr/Tp =   1.6698 (solved from K =   .7491)

Unit peak,          qp =    20.84 cfs
Unit peak time      Tp =   .09533 hrs
Unit receding limb, Tr =   .38133 hrs
Total unit time,    Tb =   .47667 hrs
```

```
SCS UNIT HYDROGRAPH METHOD

STORM EVENT: 10 year storm
Duration      = 24.0000 hrs     Rain Depth = 3.6000 in
Rain Dir      = F:\jobs\3717\Pond Pack\
Rain File -ID =  - TypeII  24hr
Unit Hyd Type = Default Curvilinear
HYG Dir       = F:\jobs\3717\Pond Pack\
HYG File - ID = work_pad.hyg - D4-A 10
Tc            = .1430 hrs
Drainage Area = 2.630 acres  Runoff CN= 92

============================================
Computational Time Increment   =   .01907 hrs
Computed Peak Time             =  11.9548 hrs
Computed Peak Flow             =     9.82 cfs

Time Increment for HYG File    =    .0500 hrs
Peak Time, Interpolated Output =  11.9500 hrs
Peak Flow, Interpolated Output =     9.77 cfs
============================================

                 DRAINAGE AREA
              -------------------
              ID:D4-A
              CN    =   92
              Area =        2.630 acres
              S     =    .8696 in
              0.2S =    .1739 in

               Cumulative Runoff
              -------------------
                      2.7325 in
                        .599 ac-ft

HYG Volume...           .599 ac-ft (area under HYG curve)

***** SCS UNIT HYDROGRAPH PARAMETERS *****

Time Concentration, Tc =   .14300 hrs (ID: D4-A)
Computational Incr, Tm =   .01907 hrs = 0.20000 Tp

Unit Hyd. Shape Factor =  483.432 (37.46% under rising limb)
K =  483.43/645.333,  K =    .7491 (also, K = 2/(1+(Tr/Tp))
Receding/Rising, Tr/Tp =   1.6698 (solved from K =   .7491)

Unit peak,          qp =    20.84 cfs
Unit peak time      Tp =   .09533 hrs
Unit receding limb, Tr =   .38133 hrs
Total unit time,    Tb =   .47667 hrs
```


F-277

```
SCS UNIT HYDROGRAPH METHOD

STORM EVENT: 25 year storm
Duration      = 24.0000 hrs     Rain Depth = 4.0000 in
Rain Dir      = F:\jobs\3717\Pond Pack\
Rain File -ID =  - TypeII  24hr
Unit Hyd Type = Default Curvilinear
HYG Dir       = F:\jobs\3717\Pond Pack\
HYG File - ID = work_pad.hyg - D4-A 25
Tc            = .1430 hrs
Drainage Area = 2.630 acres  Runoff CN= 92

============================================
Computational Time Increment   =   .01907 hrs
Computed Peak Time             =  11.9548 hrs
Computed Peak Flow             =    11.13 cfs

Time Increment for HYG File    =    .0500 hrs
Peak Time, Interpolated Output =  11.9500 hrs
Peak Flow, Interpolated Output =    11.08 cfs
============================================

               DRAINAGE AREA
              -------------------
              ID:D4-A
              CN   =   92
              Area =        2.630 acres
              S    =    .8696 in
              0.2S =    .1739 in

               Cumulative Runoff
              -------------------
                      3.1176 in
                        .683 ac-ft

HYG Volume...            .683 ac-ft (area under HYG curve)

***** SCS UNIT HYDROGRAPH PARAMETERS *****

Time Concentration, Tc =   .14300 hrs (ID: D4-A)
Computational Incr, Tm =   .01907 hrs = 0.20000 Tp

Unit Hyd. Shape Factor =  483.432 (37.46% under rising limb)
K =  483.43/645.333,  K =     .7491 (also, K = 2/(1+(Tr/Tp))
Receding/Rising, Tr/Tp =   1.6698 (solved from K =    .7491)

Unit peak,          qp =    20.84 cfs
Unit peak time      Tp =   .09533 hrs
Unit receding limb, Tr =   .38133 hrs
Total unit time,    Tb =   .47667 hrs
```


F-278

```
SCS UNIT HYDROGRAPH METHOD

STORM EVENT: 100 year storm
Duration      = 24.0000 hrs     Rain Depth = 4.9000 in
Rain Dir      = F:\jobs\3717\Pond Pack\
Rain File -ID =  - TypeII  24hr
Unit Hyd Type = Default Curvilinear
HYG Dir       = F:\jobs\3717\Pond Pack\
HYG File - ID = work_pad.hyg - D4-A 100
Tc            = .1430 hrs
Drainage Area = 2.630 acres  Runoff CN= 92

============================================
Computational Time Increment   =   .01907 hrs
Computed Peak Time             =  11.9548 hrs
Computed Peak Flow             =    14.06 cfs

Time Increment for HYG File    =    .0500 hrs
Peak Time, Interpolated Output =  11.9500 hrs
Peak Flow, Interpolated Output =    14.00 cfs
============================================

               DRAINAGE AREA
              -------------------
              ID:D4-A
              CN    =   92
              Area =        2.630 acres
              S     =    .8696 in
              0.2S =    .1739 in

               Cumulative Runoff
              -------------------
                      3.9917 in
                        .875 ac-ft

HYG Volume...           .875 ac-ft (area under HYG curve)

***** SCS UNIT HYDROGRAPH PARAMETERS *****

Time Concentration, Tc =   .14300 hrs (ID: D4-A)
Computational Incr, Tm =   .01907 hrs = 0.20000 Tp

Unit Hyd. Shape Factor =  483.432 (37.46% under rising limb)
K =  483.43/645.333,  K =    .7491 (also, K = 2/(1+(Tr/Tp))
Receding/Rising, Tr/Tp =   1.6698 (solved from K =   .7491)

Unit peak,          qp =    20.84 cfs
Unit peak time      Tp =   .09533 hrs
Unit receding limb, Tr =   .38133 hrs
Total unit time,    Tb =   .47667 hrs
```


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Elevation (ft)	Planimeter (sq.in)	Area (acres)	A1+A2+sqr(A1*A2) (acres)	Volume (ac-ft)	Volume Sum (ac-ft)
705.00	-----	.6200	.0000	.000	.000
706.00	-----	.6800	1.9493	.650	.650
707.00	-----	.7500	2.1441	.715	1.364
708.00	-----	.8200	2.3542	.785	2.149
709.00	-----	.8900	2.5643	.855	3.004
710.00	-----	.9600	2.7743	.925	3.929
711.00	-----	1.0300	2.9844	.995	4.924
712.00	-----	1.1100	3.2093	1.070	5.993

POND VOLUME EQUATIONS

* Incremental volume computed by the Conic Method for Reservoir Volumes.

Volume = (1/3) * (EL2-EL1) * (Area1 + Area2 + sq.rt.(Area1*Area2))

where: EL1, EL2 = Lower and upper elevations of the increment
Area1,Area2 = Areas computed for EL1, EL2, respectively
Volume = Incremental volume between EL1 and EL2

F-280

Elevation (ft)	Planimeter (sq.in)	Area (acres)	A1+A2+sqr(A1*A2) (acres)	Volume (ac-ft)	Volume Sum (ac-ft)
703.15	-----	.1420	.0000	.000	.000
704.00	-----	.1700	.4674	.132	.132
705.00	-----	.2060	.5631	.188	.320
706.00	-----	.2430	.6727	.224	.544
707.00	-----	.2830	.7882	.263	.807
708.00	-----	.3480	.9448	.315	1.122

POND VOLUME EQUATIONS

* Incremental volume computed by the Conic Method for Reservoir Volumes.

Volume = (1/3) * (EL2-EL1) * (Area1 + Area2 + sq.rt.(Area1*Area2))

where: EL1, EL2 = Lower and upper elevations of the increment
Area1,Area2 = Areas computed for EL1, EL2, respectively
Volume = Incremental volume between EL1 and EL2

LEVEL POOL ROUTING SUMMARY

```
HYG Dir            = F:\jobs\3717\Pond Pack\
Inflow  HYG file = work_pad.hyg - BASIN 1       IN  1
Outflow HYG file = work_pad.hyg - BASIN 1       OUT 1

Pond Node   Data = BASIN 1
Pond Volume Data = BASIN 1
Pond Outlet Data = Structure 1

No Infiltration

INITIAL CONDITIONS
----------------------------------
Starting WS Elev    =   705.00 ft
Starting Volume     =     .000 ac-ft
Starting Outflow    =      .00 cfs
Starting Infiltr.   =      .00 cfs
Starting Total Qout=       .00 cfs
Time Increment      =    .0500 hrs


INFLOW/OUTFLOW HYDROGRAPH SUMMARY
=====================================================
Peak Inflow       =     29.56 cfs    at   11.9500 hrs
Peak Outflow      =       .99 cfs    at   14.3500 hrs
-----------------------------------------------------
Peak Elevation    =    706.88 ft
Peak Storage =          1.274 ac-ft
=====================================================


MASS BALANCE (ac-ft)
--------------------------
+ Initial Vol   =        .000
+ HYG Vol IN    =       1.881
- Infiltration =         .000
- HYG Vol OUT   =       1.820
- Retained Vol =         .061
                  ----------
  Unrouted Vol =        -.000 ac-ft   (.000% of Inflow Volume)
```

LEVEL POOL ROUTING SUMMARY

```
HYG Dir            = F:\jobs\3717\Pond Pack\
Inflow  HYG file = work_pad.hyg - BASIN 1      IN  2
Outflow HYG file = work_pad.hyg - BASIN 1      OUT 2

Pond Node   Data = BASIN 1
Pond Volume Data = BASIN 1
Pond Outlet Data = Structure 1

No Infiltration

INITIAL CONDITIONS
----------------------------------
Starting WS Elev    =   705.00 ft
Starting Volume     =     .000 ac-ft
Starting Outflow    =      .00 cfs
Starting Infiltr.   =      .00 cfs
Starting Total Qout=       .00 cfs
Time Increment      =    .0500 hrs


INFLOW/OUTFLOW HYDROGRAPH SUMMARY
=====================================================
Peak Inflow      =     36.42 cfs    at    11.9500 hrs
Peak Outflow     =      1.74 cfs    at    13.2500 hrs
-----------------------------------------------------
Peak Elevation   =    707.19 ft
Peak Storage =         1.508 ac-ft
=====================================================


MASS BALANCE (ac-ft)
--------------------------
+ Initial Vol  =         .000
+ HYG Vol IN   =        2.340
- Infiltration =         .000
- HYG Vol OUT  =        2.278
- Retained Vol =         .062
                   ----------
  Unrouted Vol =        -.000 ac-ft  (.000% of Inflow Volume)
```


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LEVEL POOL ROUTING SUMMARY

```
HYG Dir            = F:\jobs\3717\Pond Pack\
Inflow  HYG file = work_pad.hyg - BASIN 1      IN  10
Outflow HYG file = work_pad.hyg - BASIN 1      OUT 10

Pond Node   Data = BASIN 1
Pond Volume Data = BASIN 1
Pond Outlet Data = Structure 1

No Infiltration

INITIAL CONDITIONS
---------------------------------
Starting WS Elev    =   705.00 ft
Starting Volume     =     .000 ac-ft
Starting Outflow    =      .00 cfs
Starting Infiltr.   =      .00 cfs
Starting Total Qout=       .00 cfs
Time Increment      =    .0500 hrs


INFLOW/OUTFLOW HYDROGRAPH SUMMARY
====================================================
Peak Inflow     =     55.11 cfs    at    11.9500 hrs
Peak Outflow    =      2.26 cfs    at    13.5500 hrs
----------------------------------------------------
Peak Elevation    =   708.28 ft
Peak Storage =         2.382 ac-ft
====================================================


MASS BALANCE (ac-ft)
--------------------------
+ Initial Vol   =        .000
+ HYG Vol IN    =       3.620
- Infiltration  =        .000
- HYG Vol OUT   =       3.554
- Retained Vol  =        .066
                   ----------
  Unrouted Vol  =       -.000 ac-ft  (.001% of Inflow Volume)


WARNING: Outflow hydrograph truncated on right side.
```

```
                    LEVEL POOL ROUTING SUMMARY

 HYG Dir             = F:\jobs\3717\Pond Pack\
 Inflow  HYG file = work_pad.hyg - BASIN 1      IN  25
 Outflow HYG file = work_pad.hyg - BASIN 1      OUT 25

 Pond Node    Data = BASIN 1
 Pond Volume Data = BASIN 1
 Pond Outlet Data = Structure 1

 No Infiltration

 INITIAL CONDITIONS
 ----------------------------------
 Starting WS Elev    =   705.00 ft
 Starting Volume     =     .000 ac-ft
 Starting Outflow    =      .00 cfs
 Starting Infiltr.   =      .00 cfs
 Starting Total Qout=      .00 cfs
 Time Increment      =    .0500 hrs


 INFLOW/OUTFLOW HYDROGRAPH SUMMARY
 =====================================================
 Peak Inflow        =     61.85 cfs    at    11.9500 hrs
 Peak Outflow       =      2.42 cfs    at    13.6000 hrs
 -----------------------------------------------------
 Peak Elevation     =    708.67 ft
 Peak Storage =          2.710 ac-ft
 =====================================================


 MASS BALANCE (ac-ft)
 --------------------------
+ Initial Vol   =        .000
+ HYG Vol IN    =       4.089
- Infiltration =        .000
- HYG Vol OUT   =       4.021
- Retained Vol =        .068
                    ----------
 Unrouted Vol =         .000 ac-ft   (.000% of Inflow Volume)


 WARNING: Outflow hydrograph truncated on right side.
```

LEVEL POOL ROUTING SUMMARY

```
HYG Dir              = F:\jobs\3717\Pond Pack\
Inflow  HYG file = work_pad.hyg - BASIN 1      IN  100
Outflow HYG file = work_pad.hyg - BASIN 1      OUT 100

Pond Node    Data = BASIN 1
Pond Volume Data = BASIN 1
Pond Outlet Data = Structure 1

No Infiltration

INITIAL CONDITIONS
----------------------------------
Starting WS Elev    =    705.00 ft
Starting Volume     =      .000 ac-ft
Starting Outflow    =       .00 cfs
Starting Infiltr.   =       .00 cfs
Starting Total Qout=        .00 cfs
Time Increment      =     .0500 hrs


INFLOW/OUTFLOW HYDROGRAPH SUMMARY
=====================================================
Peak Inflow       =     76.93 cfs    at    11.9500 hrs
Peak Outflow      =      2.74 cfs    at    13.8500 hrs
-----------------------------------------------------
Peak Elevation    =    709.50 ft
Peak Storage =          3.460 ac-ft
=====================================================


MASS BALANCE (ac-ft)
--------------------------
+ Initial Vol   =          .000
+ HYG Vol IN    =         5.149
- Infiltration =           .000
- HYG Vol OUT   =         5.077
- Retained Vol =           .072
                    ----------
  Unrouted Vol =        -.000 ac-ft   (.001% of Inflow Volume)


WARNING: Outflow hydrograph truncated on right side.
```

```
                    LEVEL POOL ROUTING SUMMARY

HYG Dir           = F:\jobs\3717\Pond Pack\
Inflow  HYG file = work_pad.hyg - BASIN 2      IN  1
Outflow HYG file = work_pad.hyg - BASIN 2      OUT 1

Pond Node   Data = BASIN 2
Pond Volume Data = BASIN 2
Pond Outlet Data = Structure 2

No Infiltration

INITIAL CONDITIONS
----------------------------------
Starting WS Elev    =   703.15 ft
Starting Volume     =     .000 ac-ft
Starting Outflow    =      .00 cfs
Starting Infiltr.   =      .00 cfs
Starting Total Qout=       .00 cfs
Time Increment      =    .0500 hrs


INFLOW/OUTFLOW HYDROGRAPH SUMMARY
=====================================================
Peak Inflow       =      4.86 cfs    at   11.9500 hrs
Peak Outflow      =       .18 cfs    at   13.7500 hrs
-----------------------------------------------------
Peak Elevation    =    704.29 ft
Peak Storage =           .183 ac-ft
=====================================================


MASS BALANCE (ac-ft)
--------------------------
+ Initial Vol  =        .000
+ HYG Vol IN   =        .291
- Infiltration =        .000
- HYG Vol OUT  =        .285
- Retained Vol =        .006
                 ----------
  Unrouted Vol =       -.000 ac-ft  (.012% of Inflow Volume)
```

LEVEL POOL ROUTING SUMMARY

```
HYG Dir           = F:\jobs\3717\Pond Pack\
Inflow  HYG file = work_pad.hyg - BASIN 2      IN  2
Outflow HYG file = work_pad.hyg - BASIN 2      OUT 2

Pond Node   Data = BASIN 2
Pond Volume Data = BASIN 2
Pond Outlet Data = Structure 2

No Infiltration

INITIAL CONDITIONS
----------------------------------
Starting WS Elev    =   703.15 ft
Starting Volume     =     .000 ac-ft
Starting Outflow    =      .00 cfs
Starting Infiltr.   =      .00 cfs
Starting Total Qout=       .00 cfs
Time Increment      =    .0500 hrs


INFLOW/OUTFLOW HYDROGRAPH SUMMARY
=====================================================
Peak Inflow       =       6.17 cfs    at   11.9500 hrs
Peak Outflow      =        .61 cfs    at   12.5000 hrs
-----------------------------------------------------
Peak Elevation    =    704.44 ft
Peak Storage =             .211 ac-ft
=====================================================


MASS BALANCE (ac-ft)
--------------------------
+ Initial Vol  =        .000
+ HYG Vol IN   =        .371
- Infiltration =        .000
- HYG Vol OUT  =        .365
- Retained Vol =        .006
                  ----------
  Unrouted Vol =       -.000 ac-ft   (.011% of Inflow Volume)
```

LEVEL POOL ROUTING SUMMARY

```
HYG Dir           = F:\jobs\3717\Pond Pack\
Inflow  HYG file = work_pad.hyg - BASIN 2      IN  10
Outflow HYG file = work_pad.hyg - BASIN 2      OUT 10

Pond Node   Data = BASIN 2
Pond Volume Data = BASIN 2
Pond Outlet Data = Structure 2

No Infiltration

INITIAL CONDITIONS
----------------------------------
Starting WS Elev    =   703.15 ft
Starting Volume     =     .000 ac-ft
Starting Outflow    =      .00 cfs
Starting Infiltr.   =      .00 cfs
Starting Total Qout=       .00 cfs
Time Increment      =    .0500 hrs


INFLOW/OUTFLOW HYDROGRAPH SUMMARY
=====================================================
Peak Inflow       =      9.77 cfs    at   11.9500 hrs
Peak Outflow      =       .86 cfs    at   12.4500 hrs
-----------------------------------------------------
Peak Elevation    =    705.09 ft
Peak Storage =            .339 ac-ft
=====================================================


MASS BALANCE (ac-ft)
-------------------------
+ Initial Vol  =        .000
+ HYG Vol IN   =        .599
- Infiltration =        .000
- HYG Vol OUT  =        .593
- Retained Vol =        .006
                  ----------
  Unrouted Vol =       -.000 ac-ft  (.006% of Inflow Volume)
```

```
                   LEVEL POOL ROUTING SUMMARY

 HYG Dir           = F:\jobs\3717\Pond Pack\
 Inflow  HYG file = work_pad.hyg - BASIN 2      IN  25
 Outflow HYG file = work_pad.hyg - BASIN 2      OUT 25

 Pond Node   Data = BASIN 2
 Pond Volume Data = BASIN 2
 Pond Outlet Data = Structure 2

 No Infiltration

 INITIAL CONDITIONS
 ----------------------------------
 Starting WS Elev    =    703.15 ft
 Starting Volume     =      .000 ac-ft
 Starting Outflow    =       .00 cfs
 Starting Infiltr.   =       .00 cfs
 Starting Total Qout=        .00 cfs
 Time Increment      =     .0500 hrs


 INFLOW/OUTFLOW HYDROGRAPH SUMMARY
 =====================================================
 Peak Inflow        =     11.08 cfs    at   11.9500 hrs
 Peak Outflow       =       .93 cfs    at   12.4500 hrs
 -----------------------------------------------------
 Peak Elevation     =    705.33 ft
 Peak Storage =            .390 ac-ft
 =====================================================


 MASS BALANCE (ac-ft)
 --------------------------
+ Initial Vol   =        .000
+ HYG Vol IN    =        .683
- Infiltration  =        .000
- HYG Vol OUT   =        .677
- Retained Vol  =        .006
                ----------
 Unrouted Vol =        -.000 ac-ft  (.005% of Inflow Volume)
```

LEVEL POOL ROUTING SUMMARY

```
HYG Dir           = F:\jobs\3717\Pond Pack\
Inflow  HYG file = work_pad.hyg - BASIN 2      IN  100
Outflow HYG file = work_pad.hyg - BASIN 2      OUT 100

Pond Node   Data = BASIN 2
Pond Volume Data = BASIN 2
Pond Outlet Data = Structure 2

No Infiltration

INITIAL CONDITIONS
-----------------------------------
Starting WS Elev    =   703.15 ft
Starting Volume     =     .000 ac-ft
Starting Outflow    =      .00 cfs
Starting Infiltr.   =      .00 cfs
Starting Total Qout=      .00 cfs
Time Increment      =    .0500 hrs


INFLOW/OUTFLOW HYDROGRAPH SUMMARY
======================================================
Peak Inflow       =     14.00 cfs    at   11.9500 hrs
Peak Outflow      =      1.06 cfs    at   12.5000 hrs
------------------------------------------------------
Peak Elevation    =    705.85 ft
Peak Storage =            .508 ac-ft
======================================================


MASS BALANCE (ac-ft)
--------------------------
+ Initial Vol   =        .000
+ HYG Vol IN    =        .875
- Infiltration =        .000
- HYG Vol OUT   =        .869
- Retained Vol =        .006
                 ----------
  Unrouted Vol =       -.000 ac-ft   (.004% of Inflow Volume)
```


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----- B -----
BASIN 1... 3.01, 4.01, 4.02, 4.03,
4.04, 4.05
BASIN 2... 3.02, 4.06, 4.07, 4.08,
4.09, 4.10, 2.01, 2.02, 2.03,
2.04, 2.05, 2.06, 2.07, 2.08,
2.09, 2.10, 2.11, 2.12, 2.13,
2.14, 2.15, 2.16, 2.17, 2.18,
2.19, 2.20, 2.21, 2.22, 2.23,
2.24, 2.25, 2.26, 2.27, 2.28,
2.29, 2.30

----- W -----
Watershed... 1.01

PROJECT NAME: Lowe's Hamburg

PROJECT NUMBER: [illegible]

CURVE NUMBER DETERMINATION:
80

DESCRIPTION:

CALCULATIONS/NOTES:
Developed Drainage Area D-1

LAND USE DESCRIPTION	%	A	PRODUCT	%	B	PRODUCT	%	C	PRODUCT	%	D	PRODUCT
CULTIVATED LAND: • WITHOUT CONSERVATION TREATMENT • WITH CONSERVATION TREATMENT		x72 x62			x81 x71			x88 x78			x91 x81	
PASTURE OR RANGE LAND: • POOR CONDITION • FAIR CONDITION • GOOD CONDITION		x68 x54 x39			x79 x70 x61	—		x86 x80 x74			x89 x85 x80	
MEADOW: • GOOD CONDITION		x30			x58			x71			x78	
WOOD OR FOREST LAND: • THIN STAND, POOR COVER, NO MULCH • FAIR CONDITION		x45 x25			x66 x55			x77 x70		42 42	x83 x77	3486 3234
OPEN SPACES SUCH AS: (LAWNS, PARKS, GOLF COURSES, CEMETERIES, ETC.) • GOOD CONDITION... GRASS COVER ON 75% OR MORE OF THE AREA • FAIR CONDITION... GRASS COVER ON 50% TO 75% OF THE AREA		x39 x49			x61 x69			x74 x79		16	x80 x84	1280
COMMERCIAL & BUSINESS AREAS (85% IMPERV.)		x89			x92			x94			x95	
INDUSTRIAL DISTRICTS (72% IMPERVIOUS)		x81			x88			x91			x93	
RESIDENTIAL: AVERAGE LOT SIZE — AVERAGE % IMPERVIOUS 1/8 ACRE OR LESS — 65% 1/4 ACRE — 38% 1/3 ACRE — 30% 1/2 ACRE — 25% 1 ACRE — 20%		x77 x61 x57 x54 x51			x85 x75 x72 x70 x68			x90 x83 x81 x80 x79			x92 x87 x86 x85 x84	
PAVED PARKING LOTS, ROFFS, DRIVEWAYS, ETC.		x98			x98			x98			x98	
STREETS AND ROADS: • PAVED WITH CURBS & STORM SEWERS • GRAVEL • DIRT		x98 x76 x72			x98 x85 x82			x98 x89 x87			x98 x91 x89	
TOTALS:										100		8000

$$\text{WEIGHTED CURVE NUMBER} = \frac{\text{TOTAL (A)} + \text{TOTAL (B)} + \text{TOTAL (C)} + \text{TOTAL (D)}}{100} = \frac{8000}{100} = 80$$

CN = 80
Tc = 1,044
A = 7.47 Ac

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CALCULATIONS/NOTES:

Worksheet 3: Time of Concentration (T_c) or travel time (T_t)

Project	By	Date
Lowe's Hamburg	BKK	10-2-06
Location	**Checked**	**Date**
Hamburg, New York		

Check one: ☐ Present ☒ Developed   Drainage Area D-1

Check one: ☒ T_c ☐ T_t through subarea

Notes: Space for as many as two segments per flow type can be used for each worksheet.
Include a map, schematic, or description of flow segments.

Sheet flow (Applicable to Tc only)

	Segment ID	A-B		
1.	Surface description (table 3-1)	Woods - Dense Underbrush		
2.	Manning's roughness coefficient, n (table 3-1)	0.8		
3.	Flow length, L (total L ≤ 300 ft) ... ft	100		
4.	Two-year 24-hour rainfall, P_2 ... in	2.5		
5.	Land slope, s ... ft/ft	0.0313		
6.	$T_t = \dfrac{0.007\ (nL)^{0.8}}{P_2^{\,0.5}\ s^{0.4}}$ Compute T_t ... hr	0.959	+	= 0.959

0.348

Shallow concentrated flow

	Segment ID	B-C		
7.	Surface description (paved or unpaved)	unpaved		
8.	Flow length, L ... ft	383		
9.	Watercourse slope, s ... ft/ft	0.0323		
10.	Average velocity, V (figure 3-1) ... ft/s	2.9		
11.	$T_t = \dfrac{L}{3600\ V}$ Compute T_t ... hr	0.0846	+	= 0.0846

Channel flow

	Segment ID			
12.	Cross sectional flow area, a ... ft^2			
13.	Wetted perimeter, p_w ... ft			
14.	Hydraulic radius, $r = \dfrac{a}{p_w}$ Compute r ... ft			
15	Channel slope, s ... ft/ft			
16.	Manning's roughness coefficient, n ...			
17.	$V = \dfrac{1.49\ r^{2/3}\ s^{1/2}}{n}$ Compute V ... ft/s			
18.	Flow length, L ... ft			
19.	$T_t = \dfrac{L}{3600\ V}$ Compute T_t ... hr		+	=
20.	Watershed or subarea T_c or T_t (add T_t in steps 6, 11, and 19) ... Hr			1.044

PROJECT NAME: Lowe's Hamburg PROJECT NUMBER: 3717

CURVE NUMBER DETERMINATION: 80

DESCRIPTION:

CALCULATIONS/NOTES: Developed drainage area D-3

LAND USE DESCRIPTION	%	A	PRODUCT	%	B	PRODUCT	%	C	PRODUCT	%	D	PRODUCT
CULTIVATED LAND:												
• WITHOUT CONSERVATION TREATMENT		x72			x81			x88			x91	
• WITH CONSERVATION TREATMENT		x62			x71			x78			x81	
PASTURE OR RANGE LAND: • POOR CONDITION		x68			x79			x86			x89	
• FAIR CONDITION		x54			x70	—		x80			x85	
• GOOD CONDITION		x39			x61			x74			x80	
MEADOW: • GOOD CONDITION		x30			x58			x71			x78	
WOOD OR FOREST LAND:												
• THIN STAND, POOR COVER, NO MULCH		x45			x66			x77		50	x83	4150
• FAIR CONDITION		x25			x55			x70		50	x77	3850
OPEN SPACES SUCH AS: (LAWNS, PARKS, GOLF COURSES, CEMETERIES, ETC.)												
• GOOD CONDITION... GRASS COVER ON 75% OR MORE OF THE AREA		x39			x61			x74			x80	
• FAIR CONDITION... GRASS COVER ON 50% TO 75% OF THE AREA		x49			x69			x79			x84	
COMMERCIAL & BUSINESS AREAS (85% IMPERV.)		x89			x92			x94			x95	
INDUSTRIAL DISTRICTS (72% IMPERVIOUS)		x81			x88			x91			x93	
RESIDENTIAL:												
AVERAGE LOT SIZE / AVERAGE % IMPERVIOUS												
1/8 ACRE OR LESS — 65%		x77			x85			x90			x92	
1/4 ACRE — 38%		x61			x75			x83			x87	
1/3 ACRE — 30%		x57			x72			x81			x86	
1/2 ACRE — 25%		x54			x70			x80			x85	
1 ACRE — 20%		x51			x68			x79			x84	
PAVED PARKING LOTS, ROOFS, DRIVEWAYS, ETC.		x98			x98			x98			x98	
STREETS AND ROADS:												
• PAVED WITH CURBS & STORM SEWERS		x98			x98			x98			x98	
• GRAVEL		x76			x85			x89			x91	
• DIRT		x72			x82			x87			x89	
TOTALS:										100		8000

$$\text{WEIGHTED CURVE NUMBER} = \frac{\text{TOTAL (A)} + \text{TOTAL (B)} + \text{TOTAL (C)} + \text{TOTAL (D)}}{100} = \frac{8000}{100} = 80$$

CN = 80

Tc = 0.591

A = 1.22 Ac

F-295

CALCULATIONS/NOTES:

Worksheet 3: Time of Concentration (T_c) or travel time (T_t)

Project	By	Date
Lane's Hamburg (3117)	EKK	
Location	**Checked**	**Date**
Hamburg, New York		

Check one: ☐ Present ☒ Developed   Developed Drainage Area D-3

Check one: ☒ T_c ☐ T_t through subarea

Notes: Space for as many as two segments per flow type can be used for each worksheet.
Include a map, schematic, or description of flow segments.

Sheet flow (Applicable to Tc only)

Segment ID	A-B		
1. Surface description (table 3-1)	Woods-Dense Underbrush		
2. Manning's roughness coefficient, n (table 3-1)	.8		
3. Flow length, L (total L † 300 ft) ... ft	100		
4. Two-year 24-hour rainfall, P_2 ... in	2.5		
5. Land slope, s ... ft/ft ([illegible] − 793.5 / 100)	0.032		
6. $T_t = \frac{0.007\,(nL)^{0.8}}{P_2^{0.5}\,s^{0.4}}$ Compute T_t ... hr	0.577	+	= 0.577

[illegible] / 0.404

Shallow concentrated flow

Segment ID	B-C		
7. Surface description (paved or unpaved)	unpaved		
8. Flow length, L ... ft	165		
9. Watercourse slope, s ... ft/ft ([illegible] / 165)	0.046		
10. Average velocity, V (figure 3-1) ... ft/s	3.4		
11. $T_t = \frac{L}{3600\,V}$ Compute T_t ... hr	0.0135	+	= 0.0135

Channel flow

Segment ID			
12. Cross sectional flow area, a ... ft^2			
13. Wetted perimeter, p_w ... ft			
14. Hydraulic radius, $r = \frac{a}{p_w}$ Compute r ... ft			
15 Channel slope, s ... ft/ft			
16. Manning's roughness coefficient, n ...			
17. $V = \frac{1.49\,r^{2/3}\,s^{1/2}}{n}$ Compute V ... ft/s			
18. Flow length, L ... ft			
19. $T_t = \frac{L}{3600\,V}$ Compute T_t ... hr		+	=
20. Watershed or subarea T_c or T_t (add T_t in steps 6, 11, and 19) ... Hr			0.591

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PROJECT NAME: Lowe's Hamburg PROJECT NUMBER: 3717

CURVE NUMBER DETERMINATION:

DESCRIPTION: 1/12/07

CALCULATIONS/NOTES:

Developed Drainage Area D-4A

LAND USE DESCRIPTION	%	A	PRODUCT	%	B	PRODUCT	%	C	PRODUCT	%	D	PRODUCT
CULTIVATED LAND: • WITHOUT CONSERVATION TREATMENT • WITH CONSERVATION TREATMENT		x72 x62			x81 x71			x88 x78			x91 x81	
PASTURE OR RANGE LAND: • POOR CONDITION • FAIR CONDITION • GOOD CONDITION		x68 x54 x39			x79 x70 x61			x86 x80 x74			x89 x85 x80	
MEADOW: • GOOD CONDITION		x30			x58			x71			x78	
WOOD OR FOREST LAND: • THIN STAND, POOR COVER, NO MULCH • FAIR CONDITION		x45 x25			x66 x55			x77 x70			x83 x77	
OPEN SPACES SUCH AS: (LAWNS, PARKS, GOLF COURSES, CEMETERIES, ETC.) • GOOD CONDITION... GRASS COVER ON 75% OR MORE OF THE AREA • FAIR CONDITION... GRASS COVER ON 50% TO 75% OF THE AREA		x39 x49			x61 x69		24.3	x74 x79	1798		x80 x84	
COMMERCIAL & BUSINESS AREAS (85% IMPERV.)		x89			x92			x94			x95	
INDUSTRIAL DISTRICTS (72% IMPERVIOUS)		x81			x88			x91			x93	
RESIDENTIAL: AVERAGE LOT SIZE — AVERAGE % IMPERVIOUS 1/8 ACRE OR LESS — 65% 1/4 ACRE — 38% 1/3 ACRE — 30% 1/2 ACRE — 25% 1 ACRE — 20%		x77 x61 x57 x54 x51			x85 x75 x72 x70 x68			x90 x83 x81 x80 x79			x92 x87 x86 x85 x84	
PAVED PARKING LOTS, ROFFS, DRIVEWAYS, ETC.		x98			x98		75.7	x98	7419		x98	
STREETS AND ROADS: • PAVED WITH CURBS & STORM SEWERS • GRAVEL • DIRT		x98 x76 x72			x98 x85 x82			x98 x89 x87			x98 x91 x89	
TOTALS:							100.0		9217			

$$\text{WEIGHTED CURVE NUMBER} = \frac{\text{TOTAL (A) + TOTAL (B) + TOTAL (C) + TOTAL (D)}}{100} = \frac{9217}{100} = 92.2$$

CN=92

Tc = 0,143 hrs

A = 2.63 Ac

F-297

CALCULATIONS/NOTES

Worksheet 3: Time of Concentration (T_c) or travel time (T_t)

Project Lowe's Hamburg (3717)	By LAP	Date 1/12/06
Location Hamburg, NY	Checked	Date

Check one: ☐ Present ☒ Developed

Developed Drainage Area D-4A

Check one: ☒ T_c ☐ T_t through subarea

Notes: Space for as many as two segments per flow type can be used for each worksheet.
Include a map, schematic, or description of flow segments.

Sheet flow (Applicable to T_c only)

PREDEV 150

POSTDEV 100

	Segment ID		
1.	Surface description (table 3-1)		
2.	Manning's roughness coefficient, n (table 3-1)		
3.	Flow length, L (total L † 300 ft) ... ft		
4.	Two-year 24-hour rainfall, P_2 ... in		
5.	Land slope, s ... ft/ft		
6.	$T_t = \frac{0.007\ (nL)^{0.8}}{P_2^{0.5}\ s^{0.4}}$ Compute T_t ... hr	+	=

Shallow concentrated flow

	Segment ID		
7.	Surface description (paved or unpaved)		
8.	Flow length, L ... ft		
9.	Watercourse slope, s ... ft/ft		
10.	Average velocity, V (figure 3-1) ... ft/s		
11.	$T_t = \frac{L}{3600\ V}$ Compute T_t ... hr	+	=

Channel flow

	Segment ID		
12.	Cross sectional flow area, a ... ft^2		
13.	Wetted perimeter, p_w ... ft		
14.	Hydraulic radius, $r = \frac{a}{p_w}$ Compute r ... ft		
15	Channel slope, s ... ft/ft		
16.	Manning's roughness coefficient, n		
17.	$V = \frac{1.49\ r^{2/3}\ s^{1/2}}{n}$ Compute V ... ft/s		
18.	Flow length, L ... ft		
19.	$T_t = \frac{L}{3600\ V}$ Compute T_t ... hr	+	=

T_c = 8.6 min per storm sewer calcs

20. Watershed or subarea T_c or T_t (add T_t in steps 6, 11, and 19) ... Hr 0.143

F-298

PROJECT NAME: Lowe's Hamburg

PROJECT NUMBER: 3717

CURVE NUMBER DETERMINATION:

DESCRIPTION: 1/12/07

CALCULATIONS/NOTES:

Developed Drainage Area D-4B

LAND USE DESCRIPTION	%	A	PRODUCT	%	B	PRODUCT	%	C	PRODUCT	%	D	PRODUCT
CULTIVATED LAND: • WITHOUT CONSERVATION TREATMENT • WITH CONSERVATION TREATMENT		x72 x62			x81 x71			x88 x78			x91 x81	
PASTURE OR RANGE LAND: • POOR CONDITION • FAIR CONDITION • GOOD CONDITION		x68 x54 x39			x79 x70 x61	—		x86 x80 x74			x89 x85 x80	
MEADOW: • GOOD CONDITION		x30			x58			x71			x78	
WOOD OR FOREST LAND: • THIN STAND, POOR COVER, NO MULCH • FAIR CONDITION		x45 x25			x66 x55			x77 x70			x83 x77	
OPEN SPACES SUCH AS: (LAWNS, PARKS, GOLF COURSES, CEMETERIES, ETC.) • GOOD CONDITION... GRASS COVER ON 75% OR MORE OF THE AREA • FAIR CONDITION... GRASS COVER ON 50% TO 75% OF THE AREA		x39 x49			x61 x69			x74 x79		19,0	x80 x84	1520
COMMERCIAL & BUSINESS AREAS (85% IMPERV.)		x89			x92			x94			x95	
INDUSTRIAL DISTRICTS (72% IMPERVIOUS)		x81			x88			x91			x93	
RESIDENTIAL: AVERAGE LOT SIZE / AVERAGE % IMPERVIOUS 1/8 ACRE OR LESS 65% 1/4 ACRE 38% 1/3 ACRE 30% 1/2 ACRE 25% 1 ACRE 20%		x77 x61 x57 x54 x51			x85 x75 x72 x70 x68			x90 x83 x81 x80 x79			x92 x87 x86 x85 x84	
PAVED PARKING LOTS, ROFFS, DRIVEWAYS, ETC.		x98			x98			x98		81,0	x98	7938
STREETS AND ROADS: • PAVED WITH CURBS & STORM SEWERS • GRAVEL • DIRT		x98 x76 x72			x98 x85 x82			x98 x89 x87			x98 x91 x89	
TOTALS:										[illegible]		9458

$$\text{WEIGHTED CURVE NUMBER} = \frac{\text{TOTAL (A)} + \text{TOTAL (B)} + \text{TOTAL (C)} + \text{TOTAL (D)}}{100} = \frac{9458}{100} = 94.6$$

CN = 95

Tc = 0,16 hrs

A = 14,3 Ac

F-299

CALCULATIONS/NOTES

Worksheet 3: Time of Concentration (T_c) or travel time (T_t)

Project: Lowe's Hamburg (3?1?)	By: LAP	Date: 10-2-06
Location: Hamburg, NY	Checked	Date

Check one: ☐ Present ☒ Developed — Developed Drainage Area ID 4B

Check one: ☒ T_c ☐ T_t through subarea

Notes: Space for as many as two segments per flow type can be used for each worksheet. Include a map, schematic, or description of flow segments.

Sheet flow (Applicable to Tc only)

Segment ID			
1. Surface description (table 3-1)			
2. Manning's roughness coefficient, n (table 3-1)			
3. Flow length, L (total L † 300 ft)	ft		
4. Two-year 24-hour rainfall, P_2	in		
5. Land slope, s	ft/ft		
6. $T_t = \frac{0.007 (nL)^{0.8}}{P_2^{0.5} s^{0.4}}$ Compute T_t	hr	+	=

Shallow concentrated flow

Segment ID			
7. Surface description (paved or unpaved)			
8. Flow length, L	ft		
9. Watercourse slope, s	ft/ft		
10. Average velocity, V (figure 3-1)	ft/s		
11. $T_t = \frac{L}{3600 V}$ Compute T_t	hr	+	=

Channel flow

Segment ID			
12. Cross sectional flow area, a	ft^2		
13. Wetted perimeter, p_w	ft		
14. Hydraulic radius, $r = \frac{a}{p_w}$ Compute r	ft		
15 Channel slope, s	ft/ft		
16. Manning's roughness coefficient, n			
17. $V = \frac{1.49 r^{2/3} s^{1/2}}{n}$ Compute V	ft/s		
18. Flow length, L	ft		
19. $T_t = \frac{L}{3600 V}$ Compute T_t	hr	+	=
20. Watershed or subarea T_c or T_t (add T_t in steps 6, 11, and 19)	Hr		0.16

Tc = 9.6 min for storm sewer to pond

F-300

PROJECT NAME: Lowe's Hamburg

PROJECT NUMBER: 3717

CURVE NUMBER DETERMINATION:

DESCRIPTION:

CALCULATIONS/NOTES:

Developed Drainage Area D-4C (Bypass)

LAND USE DESCRIPTION	%	A	PRODUCT	%	B	PRODUCT	%	C	PRODUCT	%	D	PRODUCT
CULTIVATED LAND: • WITHOUT CONSERVATION TREATMENT • WITH CONSERVATION TREATMENT		x72 x62			x81 x71			x88 x78			x91 x81	
PASTURE OR RANGE LAND: • POOR CONDITION • FAIR CONDITION • GOOD CONDITION		x68 x54 x39			x79 x70 x61	—		x86 x80 x74			x89 x85 x80	
MEADOW: • GOOD CONDITION		x30			x58			x71			x78	
WOOD OR FOREST LAND: • THIN STAND, POOR COVER, NO MULCH • FAIR CONDITION		x45 x25			x66 x55		9.6	x77 x70	672	43.5	x83 x77	3350
OPEN SPACES SUCH AS: (LAWNS, PARKS, GOLF COURSES, CEMETERIES, ETC.) • GOOD CONDITION... GRASS COVER ON 75% OR MORE OF THE AREA • FAIR CONDITION... GRASS COVER ON 50% TO 75% OF THE AREA		x39 x49			x61 x69		32.0	x74 x79	2368	8.1	x80 x84	648
COMMERCIAL & BUSINESS AREAS (85% IMPERV.)		x89			x92			x94			x95	
INDUSTRIAL DISTRICTS (72% IMPERVIOUS)		x81			x88			x91			x93	
RESIDENTIAL: AVERAGE LOT SIZE / AVERAGE % IMPERVIOUS: 1/8 ACRE OR LESS 65%; 1/4 ACRE 38%; 1/3 ACRE 30%; 1/2 ACRE 25%; 1 ACRE 20%		x77 x61 x57 x54 x51			x85 x75 x72 x70 x68			x90 x83 x81 x80 x79			x92 x87 x86 x85 x84	
PAVED PARKING LOTS, ROFFS, DRIVEWAYS, ETC.		x98			x98		6.8	x98	666		x98	
STREETS AND ROADS: • PAVED WITH CURBS & STORM SEWERS • GRAVEL • DIRT		x98 x76 x72			x98 x85 x82			x98 x89 x87			x98 x91 x89	
TOTALS:							48.4		3706	51.6		3998

$$\text{WEIGHTED CURVE NUMBER} = \frac{\text{TOTAL (A)} + \text{TOTAL (B)} + \text{TOTAL (C)} + \text{TOTAL (D)}}{100} = \frac{7704}{100} = 77$$

CN = 77

$T_c = 0.785$ hrs

A = 5.78 Ac

CALCULATIONS/NOTES:

Worksheet 3: Time of Concentration (T_c) or travel time (T_t)

Project	By	Date
LOWE'S HAMBURG (3717)	EKR	10-3-06
Location	**Checked**	**Date**
HAMBURG, NY		

Check one: ☐ Present ☒ Developed — Developed Drainage Area D-4C (Bypass)

Check one: ☒ T_c ☐ T_t through subarea

Notes: Space for as many as two segments per flow type can be used for each worksheet. Include a map, schematic, or description of flow segments.

Sheet flow (Applicable to Tc only)

	Segment ID	A-B		
1.	Surface description (table 3-1)	Woods-Dense Underbrush		
2.	Manning's roughness coefficient, n (table 3-1)	0.8		
3.	Flow length, L (total L † 300 ft) ... ft	100		
4.	Two-year 24-hour rainfall, P_2 ... in	2.5		
5.	Land slope, s ... ft/ft	0.0293		
6.	$T_t = \frac{0.007\ (nL)^{0.8}}{P_2^{0.5}\ s^{0.4}}$ Compute T_t ... hr	0.605	+	= 0.605

0.385

Shallow concentrated flow

	Segment ID	B-C		
7.	Surface description (paved or unpaved)	unpaved		
8.	Flow length, L ... ft	1059		
9.	Watercourse slope, s ... ft/ft	0.0156		
10.	Average velocity, V (figure 3-1) ... ft/s	2.0		
11.	$T_t = \frac{L}{3600\ V}$ Compute T_t ... hr	0.147	+	= 0.147

Channel flow

	Segment ID	C-D		
12.	Cross sectional flow area, a ... ft^2			
13.	Wetted perimeter, p_w ... ft			
14.	Hydraulic radius, $r = \frac{a}{p_w}$ Compute r ... ft			
15	Channel slope, s ... ft/ft			
16	Manning's roughness coefficient, n ...			
17.	$V = \frac{1.49\ r^{2/3}\ s^{1/2}}{n}$ Compute V ... ft/s	3		
18.	Flow length, L ... ft	358		
19.	$T_t = \frac{L}{3600\ V}$ Compute T_t ... hr	0.0331	+	= 0.033
20	Watershed or subarea T_c or T_t (add T_t in steps 6, 11, and 19) ... Hr			0.785

APPENDIX 3

COSTICH ENGINEERING
217 Lake Avenue
ROCHESTER, NEW YORK 14608
(585) 458-3020
Fax (585) 458-2731

JOB #3717 - Lowes Hamburg
SHEET NO. ______ OF ______
CALCULATED BY LAP DATE 1/17/07
CHECKED BY ______ DATE ______
SCALE ______

Basin #1 (North)

$$WQv = \frac{(P)(Rv)(A)}{12}$$

$Rv = 0.05 + 0.009(I)$
$= 0.05 + 0.009(81.0)$
$= 0.779$
$P = 0.9$
$A = 14.30$

$$WQv = \frac{(0.9)(0.779)(14.3)}{12} = 0.835 \text{ Ac-ft}$$

$\boxed{WQv = 36,393 \text{ ft}^3}$

$$Cpv = \frac{Vr\left(\frac{Vs}{Vr}\right)A}{12}$$

Initial Abstraction $= \frac{Ia}{P}$ $Ia = 0.105$ (CN=95)
$P = 2.1$
$= 0.050 \rightarrow$ Exhibit 4-II q_u = 920

$\frac{q_o}{q_i} = 0.019$

$$\frac{Vs}{Vr} = 0.683 - 1.43\left(\frac{q_o}{q_i}\right) + 1.64\left(\frac{q_o}{q_i}\right)^2 - 0.804\left(\frac{q_o}{q_i}\right)^3$$

$\frac{Vs}{Vr} = 0.683 - 0.027 + 0.001 - 0.000$

$\frac{Vs}{Vr} = 0.657$

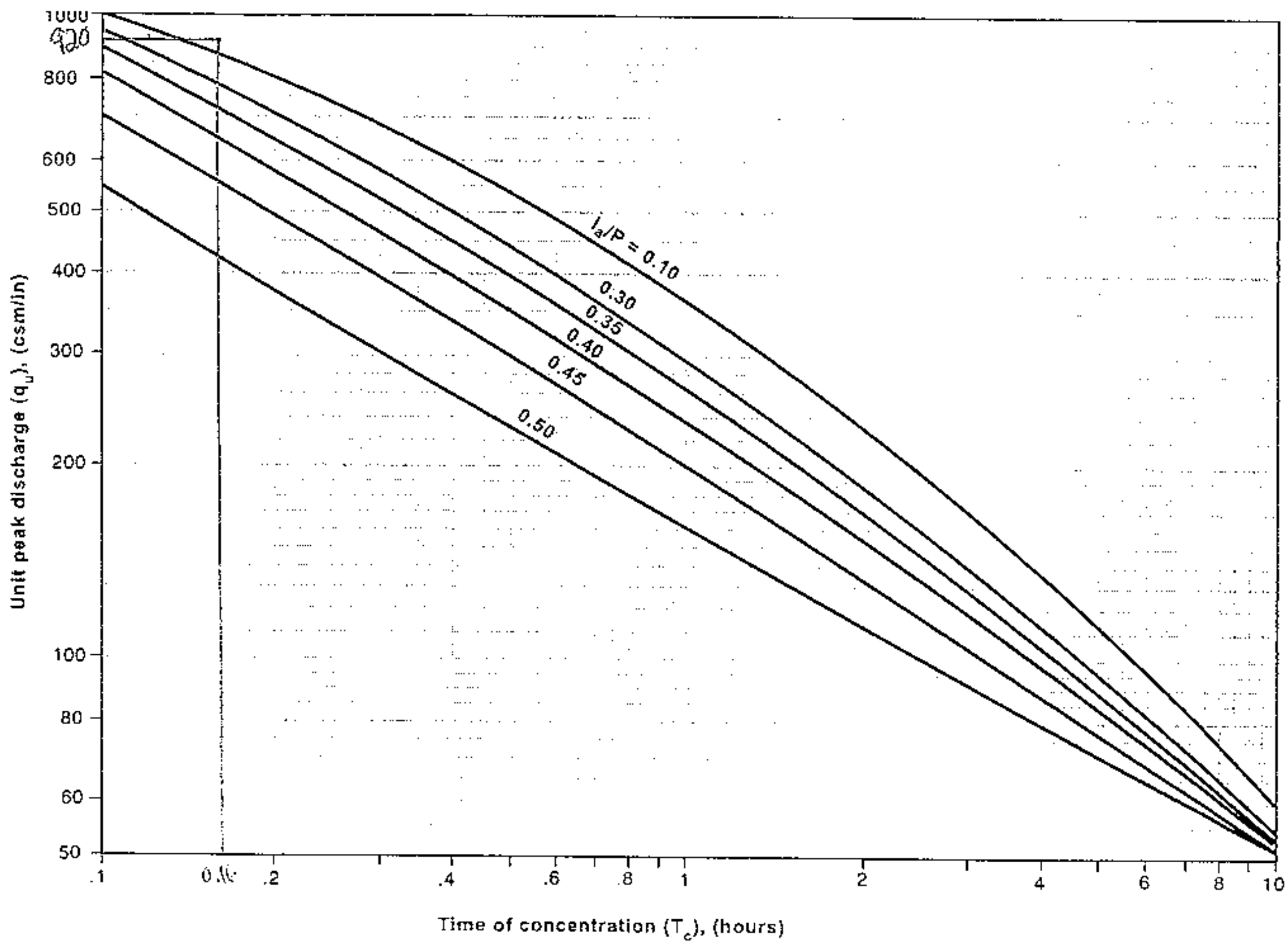
$Vr = 1.5783$

$$Cpv = \frac{1.5783(0.657)(14.3)}{12} = 1.24 \text{ ac-ft}$$

$\boxed{Cpv = 54,014 \text{ ft}^3}$

Basin 1 (North)

Exhibit 4-II Unit peal discharge (q_u) for NRCS (SCS) type II rainfall distribution



F-305

While the TR-55 short-cut method reports to incorporate multiple stage structures, experience has shown that an additional 10-15% storage is required when multiple levels of extended detention are provided.

Figure B.1 Detention Time vs. Discharge Ratios (Source: MDE, 2000)

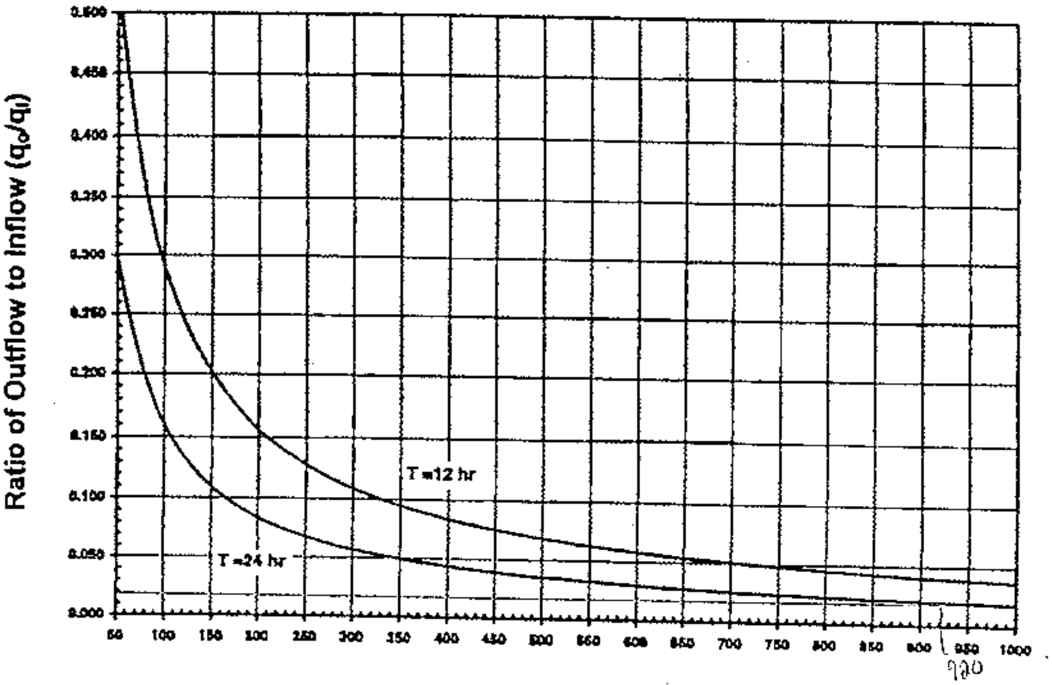
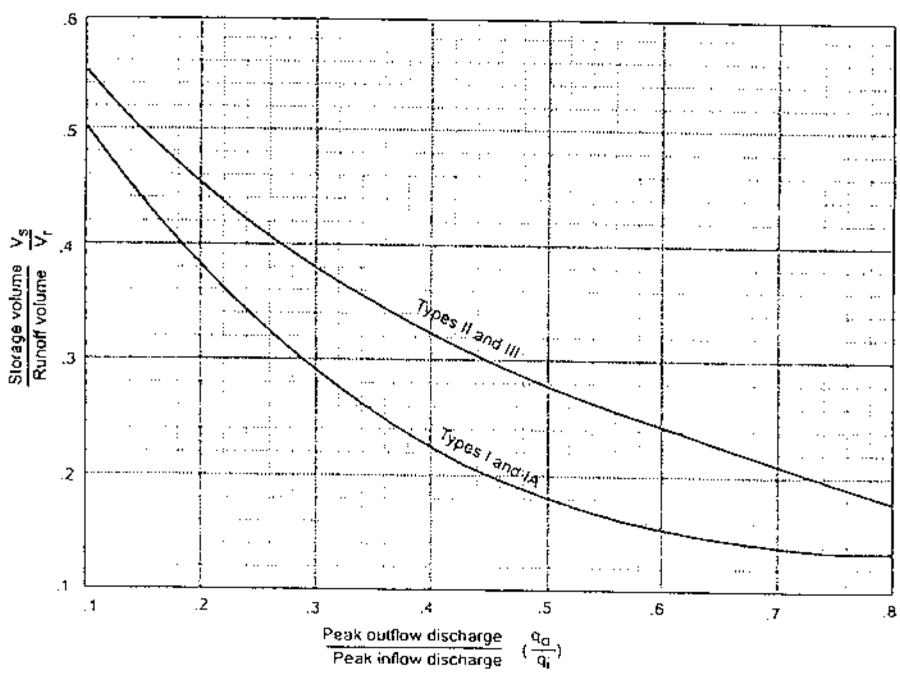


Figure B.2 Approximate Detention Basin Routing For Rainfall Types I, IA, II, and III (Source: NRCS, 1986)



File.... F:\jobs\3717\Pond Pack\Developed Conditions.ppw

Elevation (ft)	Planimeter (sq.in)	Area (acres)	A1+A2+sqr(A1*A2) (acres)	Volume (ac-ft)	Volume Sum (ac-ft)
703.00	-----	.4900	.0000	.000	.000
704.00	-----	.5500	1.5591	.520	.520
705.00	-----	.6200	1.7540	.585	1.104
706.00	-----	.6800	1.9493	.650	1.754
707.00	-----	.7500	2.1441	.715	2.469
708.00	-----	.8200	2.3542	.785	3.254
709.00	-----	.8900	2.5643	.855	4.108
710.00	-----	.9600	2.7743	.925	5.033
711.00	-----	1.0300	2.9844	.995	6.028
712.00	-----	1.1100	3.2093	1.070	7.098

POND VOLUME EQUATIONS

* Incremental volume computed by the Conic Method for Reservoir Volumes.

Volume = (1/3) * (EL2-EL1) * (Area1 + Area2 + sq.rt.(Area1*Area2))

where: EL1, EL2 = Lower and upper elevations of the increment
Area1,Area2 = Areas computed for EL1, EL2, respectively
Volume = Incremental volume between EL1 and EL2

WQv required = 36,393 ft^3

set orifice @ 705.0

this provides 48,090 ft^3 for water quality

F-307

Name.... BASIN 1

File.... F:\jobs\3717\Pond Pack\Developed Conditions.ppw

Elevation (ft)	Planimeter (sq.in)	Area (acres)	A1+A2+sqr(A1*A2) (acres)	Volume (ac-ft)	Volume Sum (ac-ft)	
705.00	-----	.6200	.0000	.000	.000	
706.00	-----	.6800	1.9493	.650	.650	28314
707.00	-----	.7500	2.1441	.715	1.364	59416
708.00	-----	.8200	2.3542	.785	2.149	
709.00	-----	.8900	2.5643	.855	3.004	
710.00	-----	.9600	2.7743	.925	3.929	
711.00	-----	1.0300	2.9844	.995	4.924	
712.00	-----	1.1100	3.2093	1.070	5.993	

POND VOLUME EQUATIONS

* Incremental volume computed by the Conic Method for Reservoir Volumes.

Volume = (1/3) * (EL2-EL1) * (Area1 + Area2 + sq.rt.(Area1*Area2))

where: EL1, EL2 = Lower and upper elevations of the increment
Area1,Area2 = Areas computed for EL1, EL2, respectively
Volume = Incremental volume between EL1 and EL2

Cpv required = 54,014 ft^3

$\boxed{\text{Set top of grade @ 706.85}}$

this provides 54,120 ft^3

$\frac{59416 - 54,014}{59416 - 28314}$ $\frac{5402}{31102}$ = 0.17

707 - 0.17 = 706.83

F-308

STANDARD WORKSHEET #15
Sediment Basin Dewatering Discharge Data

PROJECT NAME: Lower Hamburg
LOCATION:
PREPARED BY: LAP DATE: 1/12/07
CHECKED BY: DATE:

PERFORATION DISCHARGE (TOP OF RISER TO SEDIMENT CLEAN-OUT ELEVATION)

WATER SURFACE ELEVATION*	RISER ORIFICE ROW ELEVATION**									TOTAL DISCHARGE (CFS) ***
	ROW 1	ROW 2	ROW 3	ROW 4	ROW 5	ROW 6	ROW 7	ROW 8	ROW 9	
705.0	5 in 0		6 in 0							0
705.5	0.464		0.669							0.669
706.0	0.657		0.945							0.945
706.5	0.804		1.158							1.158
706.85	0.893		1.286							1.286

* From Worksheet #14

** All perforations should be the same size. One inch diameter perforations are preferred. Specify size of perforations 6 inch diameter. Each orifice row should have approximately the same number of perforations and the orifice rows should be equally spaced vertically. Specify the number of perforations in each orifice row 1.

*** Insert value into column 4 of Standard Worksheet #16

F-309

STANDARD WORKSHEET #16
Sediment Basin Dewatering Time Data

PROJECT NAME: #3717 - Lowes Hamburg
LOCATION: Basin 1
PREPARED BY: LAP DATE: 1/12/07
CHECKED BY: DATE:

*WATER SURFACE ELEVATION (FT)	STORAGE VOLUME (CU. FT.)	INCREMENTAL STORAGE VOLUME (CU. FT.)	** DISCHARGE (CFS)	AVERAGE DISCHARGE (CFS)	TIME (HRS)	ACCUMULATED TIME (HRS)
706.85	54,100		1.286			0
		10455		1.222	2.4	
706.5	43,865		1.158			2.4
		15389		1.051	4.2	
706.0	28,314		0.945			6.6
		14675		0.807	5.1	
705.5	14,550		0.669			11.7
		14550		0.334	12.1	
705.0	0		0			23.8

* From Worksheet #15, first column

** From Worksheet #15, last column

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COSTICH ENGINEERING
217 Lake Avenue
ROCHESTER, NEW YORK 14608
(585) 458-3020
Fax (585) 458-2731

JOB #3717 - Lower Hamburg
SHEET NO. ______ OF ______
CALCULATED BY LAP DATE 1/17/06
CHECKED BY ______ DATE ______
SCALE ______

Basin #2 (South)

$WQv = \frac{(P)(Rv)(A)}{12}$

$Rv = 0.05 + 0.009(I)$
$0.05 + 0.009(75.7)$

$Rv = 0.731$
$P = 0.9$
$A = 2.63$ Acres

$WQv = 0.144$ Ac-ft

$\boxed{WQv = 6,273\ ft^3}$

$Cpv = \frac{Vr\left(\frac{Vs}{Vr}\right)A}{12}$

Initial Abstraction $= \frac{Ia}{P}$ $Ia = 0.174$ (CN=92)
$P = 2.1$
$= 0.083 \rightarrow$ Exhibit 4-II $q_u = 940$

$\frac{Vs}{Vr} = 0.683 - 1.43\left(\frac{q_o}{q_i}\right) + 1.64\left(\frac{q_o}{q_i}\right)^2 - 0.804\left(\frac{q_o}{q_i}\right)^3$ $\frac{q_o}{q_i} = 0.19$

$\frac{Vs}{Vr} = 0.657$

$Vr = 1.327$

$Cpv = \frac{(1.327)(0.657)(2.63)}{12}$

$Cpv = 0.191$ Ac-ft

$\boxed{8,3\_\_\ ft^3}$

Basin 2

While the TR-55 short-cut method reports to incorporate multiple stage structures, experience has shown that an additional 10-15% storage is required when multiple levels of extended detention are provided.

Figure B.1 Detention Time vs. Discharge Ratios (Source: MDE, 2000)

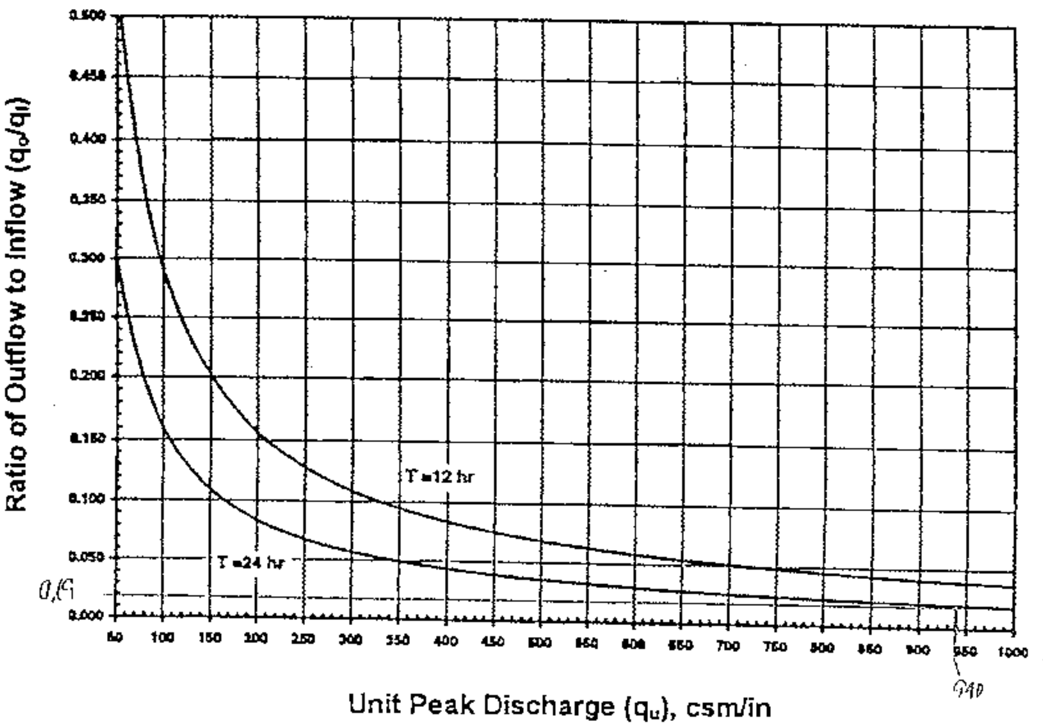
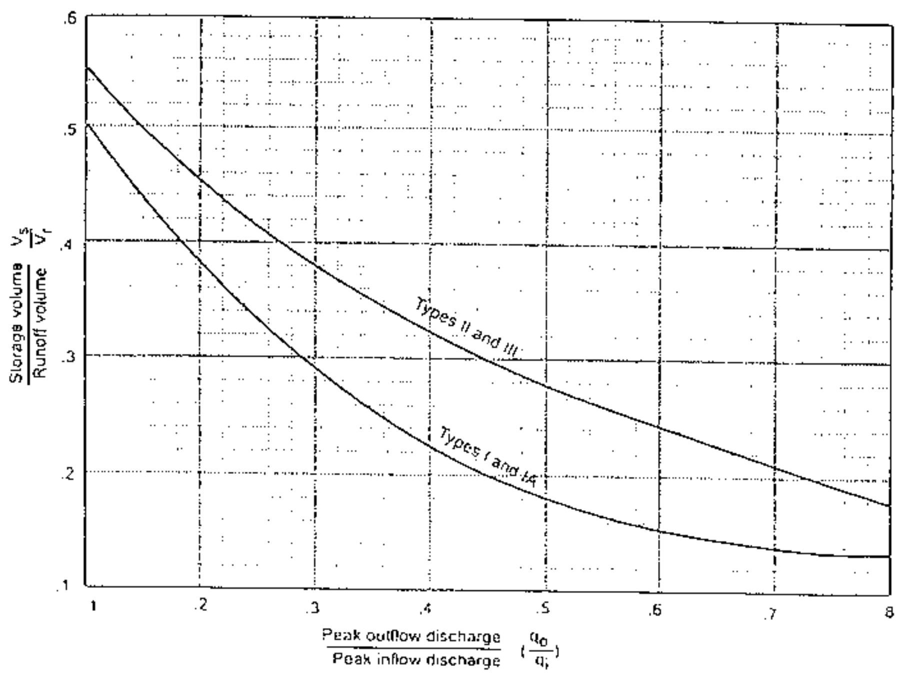
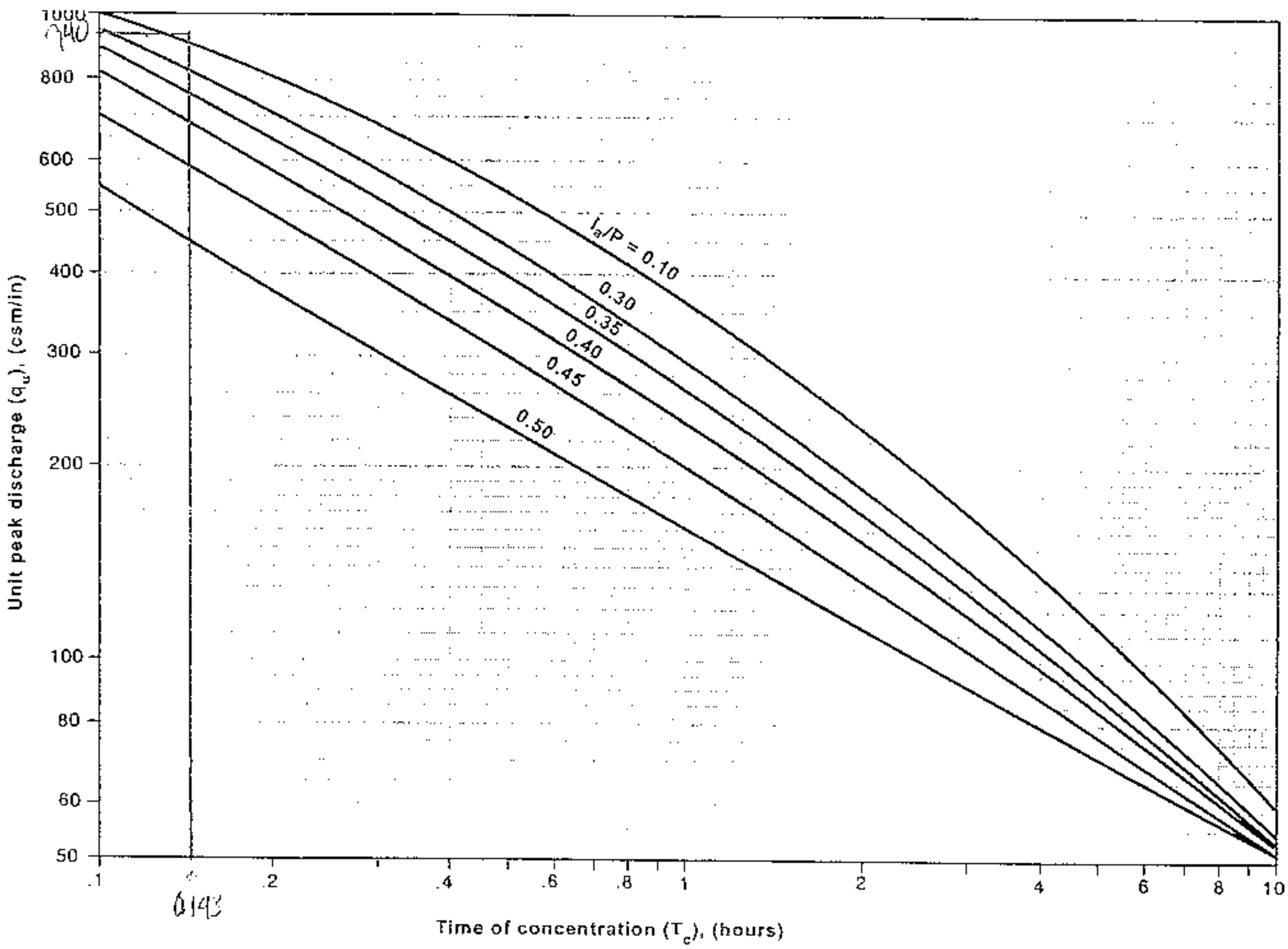


Figure B.2 Approximate Detention Basin Routing For Rainfall Types I, IA, II, and III (Source: NRCS, 1986)



Basin 2

Exhibit 4-II Unit peal discharge (q_u) for NRCS (SCS) type II rainfall distribution



F-313

Type.... Vol: Elev-Area
Name.... BASIN 2

File.... F:\jobs\3717\Pond Pack\Developed Conditions.ppw

Elevation (ft)	Planimeter (sq.in)	Area (acres)	A1+A2+sqr(A1*A2) (acres)	Volume (ac-ft)	Volume Sum (ac-ft)
702.00	-----	.1070	.0000	.000	.000
703.00	-----	.1370	.3651	.122	.122 5314
704.00	-----	.1700	.4596	.153	.275 11979
705.00	-----	.2060	.5631	.188	.463
706.00	-----	.2430	.6727	.224	.687
707.00	-----	.2830	.7882	.263	.950
708.00	-----	.3480	.9448	.315	1.265

POND VOLUME EQUATIONS

* Incremental volume computed by the Conic Method for Reservoir Volumes.

Volume = (1/3) * (EL2-EL1) * (Area1 + Area2 + sq.rt.(Area1*Area2))

where: EL1, EL2 = Lower and upper elevations of the increment
Area1,Area2 = Areas computed for EL1, EL2, respectively
Volume = Incremental volume between EL1 and EL2

WQv required = 6,273 ft^3

$$\frac{11979 - 6273}{11979 - 5314} = 0.86$$

704.0 - 0.86 = 703.14

$\boxed{\text{Set orifice @ 703.15}}$

[illegible] provides 6,503 ft^3 WQV

File.... F:\jobs\3717\Pond Pack\Developed Conditions.ppw

Elevation (ft)	Planimeter (sq.in)	Area (acres)	A1+A2+sqr(A1*A2) (acres)	Volume (ac-ft)	Volume Sum (ac-ft)	
703.15	-----	.1420	.0000	.000	.000	
704.00	-----	.1700	.4674	.132	.132	5750
705.00	-----	.2060	.5631	.188	.320	13932
706.00	-----	.2430	.6727	.224	.544	
707.00	-----	.2830	.7882	.263	.807	
708.00	-----	.3480	.9448	.315	1.122	

POND VOLUME EQUATIONS

* Incremental volume computed by the Conic Method for Reservoir Volumes.

Volume = (1/3) * (EL2-EL1) * (Area1 + Area2 + sq.rt.(Area1*Area2))

where: EL1, EL2 = Lower and upper elevations of the increment
Area1,Area2 = Areas computed for EL1, EL2, respectively
Volume = Incremental volume between EL1 and EL2

Cpv required = 8,323 ft³

$$\frac{13932-8323}{13932-5750} = 0.69$$

705 - 0.69 = 704.31

$\boxed{\text{Set grade @ 704.35}}$

provides 8,576 ft³

F.315

STANDARD WORKSHEET #15
Sediment Basin Dewatering Discharge Data

PROJECT NAME: #3717 Lower Hamburg
LOCATION:
PREPARED BY: LAP DATE: 1/12/07
CHECKED BY: DATE:

PERFORATION DISCHARGE (TOP OF RISER TO SEDIMENT CLEAN-OUT ELEVATION)

WATER SURFACE ELEVATION*	RISER ORIFICE ROW ELEVATION**									TOTAL DISCHARGE (CFS) ***
	ROW 1	ROW 2	ROW 3	ROW 4	ROW 5	ROW 6	ROW 7	ROW 8	ROW 9	
703.15	0	0								0
703.5	0.062	0.062								0.124
704.0	0.097	0.097								0.194
704.35	0.115	0.115								0.230

* From Worksheet #14

** All perforations should be the same size. One inch diameter perforations are preferred. Specify size of perforations 3 inch diameter. Each orifice row should have approximately the same number of perforations and the orifice rows should be equally spaced vertically. Specify the number of perforations in each orifice row 1.

*** Insert value into column 4 of Standard Worksheet #16

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STANDARD WORKSHEET #16
Sediment Basin Dewatering Time Data

PROJECT NAME: #3717 Lower Hamburg
LOCATION:
PREPARED BY: LAP DATE: 1/12/07
CHECKED BY: DATE:

*WATER SURFACE ELEVATION (FT)	STORAGE VOLUME (CU. FT.)	INCREMENTAL STORAGE VOLUME (CU. FT.)	** DISCHARGE (CFS)	AVERAGE DISCHARGE (CFS)	TIME (HRS)	ACCUMULATED TIME (HRS)
704.35	8576		0.230			0
		2826		0.212	3.9	
704.0	5750		0.194			3.9
		2924		0.159	5.3	
703.5	2826		0.124			9.2
		2826		0.062	12.9	
703.15	0		0			22.1

* From Worksheet #15, first column

** From Worksheet #15, last column

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Water Features

3717 Lowe's Hamburg

Erie County, New York

[Depths of layers are in feet. See text for definitions of terms used in this table. Estimates of the frequency of ponding and flooding apply to the whole year rather than to individual months. Absence of an entry indicates that the feature is not a concern or that data were not estimated. This report shows only the major soils in each map unit]

Map symbol and soil name	Hydrologic group	Surface runoff	Months	Water table		Ponding			Flooding	
				Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
				Ft	Ft	Ft				
CtB:										
Collamer, till substratum	C	---	March	1.5-2.0	>6.0	---	---	None	---	None
			April	1.5-2.0	>6.0	---	---	None	---	None
			May	1.5-2.0	>6.0	---	---	None	---	None
DaD:										
Danley	C	---	March	1.5-2.0	2.5-4.1	---	---	None	---	None
			April	1.5-2.0	2.5-4.1	---	---	None	---	None
			May	1.5-2.0	2.5-4.1	---	---	None	---	None
RfA:										
Remsen	D	---	January	0.5-1.5	1.7-4.0	---	---	None	---	None
			February	0.5-1.5	1.7-4.0	---	---	None	---	None
			March	0.5-1.5	1.7-4.0	---	---	None	---	None
			April	0.5-1.5	1.7-4.0	---	---	None	---	None
			May	0.5-1.5	1.7-4.0	---	---	None	---	None
			December	0.5-1.5	1.7-4.0	---	---	None	---	None
RfB:										
Remsen	D	---	January	0.5-1.5	1.7-4.0	---	---	None	---	None
			February	0.5-1.5	1.7-4.0	---	---	None	---	None
			March	0.5-1.5	1.7-4.0	---	---	None	---	None
			April	0.5-1.5	1.7-4.0	---	---	None	---	None
			May	0.5-1.5	1.7-4.0	---	---	None	---	None
			December	0.5-1.5	1.7-4.0	---	---	None	---	None

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Physical Soil Properties

Erie County, New York

[Entries under "Erosion Factors--T" apply to the entire profile. Entries under "Wind Erodibility Group" and "Wind Erodibility Index" apply only to the surface layer. Absence of an entry indicates that data were not estimated. This report shows only the major soils in each map unit]

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensi-bility	Organic matter	Erosion factors			Wind erodi-bility group	Wind erodi-bility index
										Kw	Kf	T		
	In	*Pct*	*Pct*	*Pct*	*g/cc*	*micro m/sec*	*In/In*	*Pct*	*Pct*					
CtB:														
Collamer, till substratum	0-8	0-50	50-80	0-27	1.20-1.50	4.00-14.00	0.14-0.21	0.0-2.9	2.0-5.0	.49	.49	4	8	0
	8-15	0-85	0-80	18-27	1.20-1.50	4.00-14.00	0.14-0.20	0.0-2.9	0.0-2.0	.49	---			
	15-48	0-80	0-80	18-35	1.20-1.50	0.42-4.00	0.16-0.20	0.0-2.9	0.0-2.0	.49	---			
	48-60	0-51	28-80	0-35	1.70-1.95	0.42-4.00	0.08-0.13	0.0-2.9	0.0-1.0	.28	---			
DaD:														
Danley	0-10	0-50	50-80	0-27	1.10-1.40	4.00-14.00	0.15-0.20	0.0-2.9	3.0-8.0	.28	.32	3	8	0
	10-36	15-45	20-73	27-35	1.20-1.50	1.40-4.00	0.09-0.16	3.0-5.9	0.0-2.0	.28	---			
	36-60	15-51	15-73	7-40	1.60-1.80	0.42-1.40	0.08-0.12	0.0-2.9	0.0-1.0	.28	---			
RfA:														
Remsen	0-9	0-20	40-73	27-40	1.10-1.40	4.00-14.00	0.16-0.21	3.0-5.9	3.0-6.0	.43	.43	3	8	0
	9-36	0-45	0-60	40-60	1.60-1.85	0.00	0.12-0.14	3.0-5.9	0.0-2.0	.28	---			
	36-60	0-45	0-60	40-60	1.60-1.85	0.00	0.10-0.14	3.0-5.9	0.0-1.0	.28	---			
RfB:														
Remsen	0-9	0-20	40-73	27-40	1.10-1.40	4.00-14.00	0.16-0.21	3.0-5.9	3.0-6.0	.43	.43	3	8	0
	9-36	0-45	0-60	40-60	1.60-1.85	0.00	0.12-0.14	3.0-5.9	0.0-2.0	.28	---			
	36-60	0-45	0-60	40-60	1.60-1.85	0.00	0.10-0.14	3.0-5.9	0.0-1.0	.28	---			

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Engineering Properties

Erie County, New York

[Absence of an entry indicates that the data were not estimated. This report shows only the major soils in each map unit]

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percent passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 Inches	3-10 Inches	4	10	40	200		
	In				Pct	Pct					Pct	
CtB:												
Collamer, till substratum	0-8	Silt loam	CL, CL-ML, ML, SC-SM, SM	A-4	0	0	95-100	92-100	65-100	40-90	25-35	5-10
	8-15	Fine sandy loam, silt loam, very fine sandy loam	CL, CL-ML, ML, SC-SM	A-4	0	0	95-100	92-100	65-100	40-95	20-30	3-10
	15-48	Sandy clay loam, silty clay loam, silt loam	CL, CL-ML	A-4, A-6	0	0	95-100	92-100	80-100	70-95	20-35	5-15
	48-60	Channery silty clay loam, gravelly loam, gravelly silt loam	CL, CL-ML, GM, ML, SM	A-2, A-4	0	0-10	65-92	50-85	40-80	30-70	25-35	5-10
DaD:												
Danley	0-10	Silt loam	ML, SM	A-4, A-7	0	0	85-96	75-95	60-90	40-85	35-45	5-15
	10-36	Channery clay loam, silty clay loam	CL, CL-ML, GC, SC	A-4, A-6	0	0-5	65-96	50-95	45-90	35-85	20-35	5-15
	36-60	Channery clay loam, channery silty clay loam, loam	CL, CL-ML, GC, SC	A-1, A-2, A-4, A-6	0	0-15	40-96	30-95	25-90	20-80	20-35	5-15

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Engineering Properties

Erie County, New York

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percent passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 Inches	3-10 Inches	4	10	40	200		
	In				Pct	Pct					Pct	
RfA:												
Remsen	0-9	Silty clay loam	CH, CL	A-7	0	0-2	92-100	85-100	70-100	55-95	45-55	20-30
	9-36	Clay, silty clay	CH, CL	A-7	0	0-5	92-100	85-100	70-100	60-95	45-55	20-30
	36-60	Clay, silty clay	CL, ML, SC, SM	A-6, A-7	0	0-8	70-100	55-100	45-100	40-95	35-45	10-20
RfB:												
Remsen	0-9	Silty clay loam	CH, CL	A-7	0	0-2	92-100	85-100	70-100	55-95	45-55	20-30
	9-36	Clay, silty clay	CH, CL	A-7	0	0-5	92-100	85-100	70-100	60-95	45-55	20-30
	36-60	Clay, silty clay	CL, ML, SC, SM	A-6, A-7	0	0-8	70-100	55-100	45-100	40-95	35-45	10-20

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Ponds and Embankments

Erie County, New York

[The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the potential limitation. The columns that identify the rating class and limiting features show no more than five limitations for any given soil. The soil may have additional limitations. This report shows only the major soils in each map unit]

Map symbol and soil name	Pct. of map unit	Pond reservoir areas		Embankments, dikes, and levees		Aquifer-fed excavated ponds	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
CtB:							
Collamer, till substratum	75	Somewhat limited		Very limited		Very limited	
		Seepage	0.02	Depth to saturated zone	1.00	Cutbanks cave	1.00
						Slow refill	0.98
				Piping	1.00		
DaD:							
Danley	80	Somewhat limited		Very limited		Very limited	
		Slope	0.13	Depth to saturated zone	1.00	Depth to water	1.00
		Seepage	0.03				
				Piping	1.00		
RfA:							
Remsen	75	Not limited		Very limited		Very limited	
				Depth to saturated zone	1.00	Depth to water	1.00
RfB:							
Remsen	75	Not limited		Very limited		Very limited	
				Depth to saturated zone	1.00	Depth to water	1.00

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APPENDIX G

Appendix G

By: SRF Associates
3495 Winton Place
Building E, Suite 110
Rochester, New York 14623

Dated: Revised April 2007

Traffic Impact Study
for the proposed

LOWE'S
Improving Home Improvement

Town of Hamburg, New York

September 2006
Revised October 2006
Revised April 2007

Project No. 26029.1

Prepared For:

Paradigm Development
1941 Davis Road
West Falls, New York 14170

Prepared By:

SRF ASSOCIATES
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3495 Winton Place
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Rochester, New York 14623

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A4. Level of Service Calculations: Background Conditions

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A6. Level of Service Calculations: Full Development Conditions with Mitigation

LIST OF REFERENCES

1. Special Report 209: Highway Capacity Manual. Transportation Research Board. National Research Council, Washington, DC: 2000.

2. Trip Generation, Seventh Edition. Institute of Transportation Engineers. Washington, DC: 2003.

3. Trip Generation Handbook: An ITE Proposed Recommended Practice. Institute of Transportation Engineers. Washington, DC: 2001.

4. A Policy on Geometric Design of Highways and Streets. The American Association of State Highway Transportations Officials (AASHTO). Washington, DC: 2001.

5. Traffic Volume Report. NYSDOT. Albany, New York: 2005.

6. Highway Sufficiency Ratings. NYSDOT. Albany, New York: 2005.

7. New York State Manual of Uniform Traffic Control Devices (MUTCD), aka Official Compilation: Codes, Rules, and Regulations of the State of New York 17 Transportation (B). Secretary of State, State of New York. The West Group: 2005.

EXECUTIVE SUMMARY

OVERVIEW

The purpose of this report is to identify the potential traffic impact associated with the construction of a Lowe's Home Improvement Store and two out parcels on the north side of Southwestern Blvd (NY Route 20), just east of Sowles Road in the Town of Hamburg, Erie County, New York. This report investigates the existing and projects the future weekday PM and Saturday midday peak hour travel conditions at the proposed site access drives and adjacent intersections affected by the development. The operating characteristics of the proposed access points and impacts to the adjacent roadway network are identified.

The proposed site is bounded by NYS Route 20 to the south and primarily residential lands to the east, north and west. The site is currently undeveloped. Access to the proposed Lowe's store is proposed via two access points onto Route 20, one full access and one right-in right-out only access. Both access points will be designed to conform to NYSDOT standards and provide necessary pedestrian accommodations.

The study area consists of six existing intersections. A comprehensive inventory of the existing roadway network operations was developed and peak period traffic volume data were collected by SRF & Associates (SRF).

The Town of Hamburg was contacted to discuss current projects within the project study area that are currently under construction and/or approved planned developments. The New York State Department of Transportation (NYSDOT) was also contacted to discuss planned/future highway improvements on the roadways within the project study area. To account for normal increases in background traffic growth, and the previously mentioned developments, a growth rate of 1.0% per year was applied to the existing traffic volumes for the duration of the study (1 year).

Site generated traffic volumes for the proposed development, based on local and national data, are projected and distributed to the network based on existing travel patterns, population centers, and existing highway conditions.

The operating characteristics of the proposed access points and impacts to the adjacent roadway network are identified and mitigating measures are provided to minimize any capacity or safety concerns.

An additional analysis was also prepared to determine and compare the potential traffic related impacts resulting from development of the site based on the current zoning.

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CONCLUSIONS AND RECOMMENDATIONS

This report addresses the traffic impact that can be expected from the proposed Lowe's store and two out parcels in the Town of Hamburg as described in this report. It has been shown that the transportation network can adequately accommodate the projected traffic volumes and resulting impacts to study area intersections, without significant adverse impacts to traffic operations, upon completion of the New York State Department of Transportation highway improvement project and with the recommended mitigation measures in place.

The following list details specific recommendations to be considered as a result of the Lowe's site development:

1. Signal timing adjustments may be needed at the Route 20 / Route 75 intersection as a result of the proposed development.
2. Construct the easterly site drive to provide one lane entering and two lanes exiting.
3. Provide 275' of storage for an exclusive eastbound left turn lane on Route 20 at the easterly site driveway.
4. Construct a new multi-phase, 3-color traffic signal at the easterly site driveway intersection with Route 20. Appropriate pedestrian amenities shall be installed as required by NYSDOT.
5. Construct a westbound right turn lane on Route 20 at the easterly site drive to provide 350' storage and a 75' taper.
6. Construct westerly site drive to allow right turn entering and right turn exiting maneuvers only. Appropriate curbing and signage should be installed to provide positive direction and guidance to motorists. Appropriate pedestrian amenities shall be installed as required by NYSDOT.
7. All recommended roadway and intersection improvements on Southwestern Boulevard are subject to review and approval by NYSDOT.

I. INTRODUCTION

The purpose of this report is to identify the potential traffic impact associated with the construction of a 139,410± square foot Lowe's Home Improvement Store, and two out parcels on the north side of Southwestern Blvd (NY Route 20), just east of Sowles Road in the Town of Hamburg, Erie County, New York. The operating characteristics of the proposed access points and impacts to the adjacent roadway network are identified.

The objectives of this report are as follows:

- To adequately assess the traffic impacts associated with the proposed development and identify the level of off-site access and traffic control improvements required to service the project;
- To provide public agencies a comprehensive study which evaluates and documents the traffic impacts and off-site improvements, where warranted;
- To provide a technically sound basis to identify impacts and related mitigation requirements in response to off-site traffic impacts;

In an effort to define traffic impact, this analysis determines the extent of existing traffic conditions, projects background traffic flow including area growth and nearby developments, and projects changes in traffic flow due to operation of the proposed facility.

This report also contains an analysis to determine and compare the potential traffic related impacts resulting from development of the site based on the current zoning.

II. PROJECT LOCATION AND STUDY AREA

The proposed site is bounded by NYS Route 20 to the south and primarily residential lands to the east, north and west. The site is currently undeveloped. The site location is illustrated in **Figure 1 – Site Location and Study Area** (all figures are included in Section XI. at the end of this report).

The study area consists of six existing intersections around the proposed development site. The lands adjacent to the proposed development consist primarily of commercial and residential type uses. Major traffic generators along Route 20 consist of retail stores, banks, and offices.

III. STUDY AREA HIGHWAY SYSTEM

A. Existing Transportation Facilities

The study area roadway system identified for investigation includes the portion of Route 20 between Route 75 (Camp Road) to the west and Howard Road to the east. Six (6) existing intersections are studied in detail in this report and are as follows:

1. NYS Route 20/Route 75 (signalized)
2. NYS Route 20/Sowles Road (signalized)
3. NYS Route 20/Howard Road (signalized)
4. NYS Route 75/Sowles Road (Unsignalized)
5. NYS Route 75/Howard Road (Unsignalized)
6. NYS Route 20/Oregon Avenue (Unsignalized)

The lane geometry at each of the study intersections, including the NYSDOT improvements currently under construction, is depicted in **Figure 2**.

Southwestern Blvd (NYS Route 20) is owned and maintained by NYSDOT within the vicinity of the project. The highway is functionally classified as an east/west urban principal arterial highway with a posted speed limit of 45 mph in the vicinity of the site. According to the most recent traffic volume data collected by NYSDOT in 2005, the annual average daily traffic (AADT) along Route 20 between Route 75 and Route 62 is approximately 24,900 vehicles per day (vpd).

Camp Road (NYS Route 75) is owned and maintained by NYSDOT within the vicinity of the project. The highway is functionally classified as an north/south urban minor arterial highway with a posted speed limit of 45 mph in the vicinity of the site. According to the most recent traffic volume data collected by NYSDOT in 2005, the annual average daily traffic (AADT) along Route 75 north of Route 20 is approximately 21,600 vehicles per day (vpd).

Oregon Avenue and Howard Road are both local roadways under the jurisdiction of the Town of Hamburg. Sowles Road, also known as County Road 162, is under the jurisdiction of Erie County Highway Department.

B. Planned/Programmed Highway Improvements

NYSDOT is currently constructing the Capital Improvement Project (PIN 5111.82) which involves the widening of NYS Route 20 to provide a fifth lane (two-way left-turn lane) and various intersection improvements. The improvements include all of the intersections on Route 20 studied in this

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report. This project is currently under construction with completion anticipated in the fall of 2006 or early 2007.

IV. *EXISTING TRAFFIC CONDITIONS*

A. *Peak Intervals for Analysis*

Given the functional characteristics of the corridor and the land use proposed for the site (retail development), the peak hours selected for analysis are the weekday PM and Saturday midday peaks. The combination of site traffic and adjacent through traffic produces the greatest demand during these time periods.

B. *Existing Traffic Volume Data*

Weekday PM (4:00-6:00pm) and Saturday midday (11:30am-1:30pm) peak traffic counts were collected by SRF & Associates (SRF) at the Route 75 / Sowles Road intersection only on Friday June 9 and Saturday June 10, 2006. Additional traffic counts at the Route 20/Oregon Avenue and Route 75/Howard Road intersections were obtained by SRF & Associates on Friday March 9 and 10, 2007.

Traffic volumes along Route 20 are lower than recent traffic data supplied by NYSDOT (prior to the highway improvement project) due to construction. As directed by NYSDOT, adjustments were made to data collected by SRF to more closely represent traffic volumes prior to construction on Route 20. The existing adjusted peak hour volumes are depicted in **Figure 3**.

C. *Field Observations at Study Area Intersections*

The Camp Road / Sowles Road, Camp Road / Howard Road, and Southwestern Blvd. / Oregon Avenue intersections were observed during both peak intervals to assess existing traffic operating conditions. Signal timing information was not collected at the intersections along Route 20 due to the ongoing construction project.

D. *Existing Operational Analysis*

Based on discussions with NYSDOT an analysis of existing conditions is not provided given the capital improvement project in progress and disruption to existing traffic volumes and distribution patterns.

E. *Existing Accident Investigation*

Based on discussions with NYSDOT and the on-going Southwestern Blvd. construction project, an investigation of existing accidents is not required at any intersections along Southwestern Blvd. The NYSDOT construction project will change the operational and safety characteristics rendering historical accident information not meaningful. However, accidents along

Camp Road (Route 75) from Southwestern Blvd. to Howard Road were investigated to assess the safety history. The accidents for the Camp Road / Sowles Road included in the current review collectively covered a 3 year time period from January 2000 through December 2002. The data was provided by the NYSDOT Region 5 Records Access Officer. The most recent 3 year accident data from March 2004 to March 2007 for the Camp Road / Howard Road intersection was obtained from the Town of Hamburg Police Department

The collision diagram for accidents at the NYS Route 75/Sowles Road intersection and the segment along Route 75 between Route 20 and Sowles Road are shown in **Figure A** in the appendix. Five (5) of the 19 accidents were non-reportable, meaning information about the type, location or cause was unknown, and were therefore not included in the Figure A. The collision diagram for the Camp Road / Howard Road intersection is shown in **Figure B** in the appendix. Roadway segment accidents from Sowles Road to Howard Road on Camp Road were not included in this analysis.

Table I summarizes the actual accident rates compared to the statewide average for similar intersections and roadway segments. Accident rate calculations are included in the Appendix. Intersection rates are listed as accidents per million entering vehicles (Acc/MEV) and roadway segment rates are listed in accidents per million vehicle miles traveled (Acc/MVM).

TABLE I
SUMMARY OF ACCIDENTS AND COMPARISON OF RATES

INTERSECTION	Total No. of Accidents	Actual Project Rate	State Wide Average Rate
NYS Route 75 / Sowles Road	7	0.27	0.16
NYS Route 75 / Howard Road	5	0.23	0.27
Segment on NYS Route 75 between Route 20 and Sowles Rd	12	4.46	2.94

A total of twenty four (24) accidents were documented during the investigation period (3 years) of which seven occurred at the Route 75/Sowles Road intersection and 12 occurred on Route 75 between Route 20 and Sowles Road. The severity of the twenty four documented accidents is broken down as follows:

- 7 – Injury accidents
- 12 – Property Damage
- 5 – Non Reportable

Property damage type accidents are defined as damage to one person's property in the amount of $1,001 or more. The Non Reportable type accidents are $1,000 or less of damage. Of the seven injury type accidents there were no fatalities.

The calculated accident rates, as shown in the table above, are greater than the state wide average accident rates for other similar facilities, with the exception of the Route 75 / Howard Road intersection. Therefore, further investigation was performed at intersections with higher actual rates than state averages to determine if there are any groups or clusters of accidents within the study area. An accident cluster is defined as a group of three or more of the same type of accident, i.e. left turn, right angle, rear end, etc. A review of the accident diagram (Figure A) indicates there are no identifiable accident clusters.

Additional investigation was performed to determine apparent contributing factors to the accidents. The accidents can be grouped into three categories:

- 3 – Wet, slippery pavement conditions
- 7 – Driver inattention, failure to yield right-of-way
- 9 – Unknown

The pavement condition accidents are unavoidable at times due to inclement weather conditions in Western New York. The NYSDOT Route 20 reconstruction project is repaving this section of Route 75 which will provide an improved riding surface that may prevent further pavement condition type accidents. The seven accidents related to driver behavior are difficult to prevent due to the human factor that is associated with the operation of a motor vehicle.

V. FUTURE AREA DEVELOPMENT AND LOCAL GROWTH

Construction of the proposed Lowe's Store and two outparcels in Hamburg is anticipated within one year. The Town of Hamburg was contacted to discuss current projects within the project study area that are currently under construction and/or approved. The following developments are approved/under construction in the study area:

- Wellington Woods Subdivision that consists of 54 single family residential units near the Lakeview Road/Lakeshore Road intersection,
- Treehaven Subdivision that consists of 90 single family residential units and 43 patio homes near the Route 5/Lakeshore Road intersection,

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- Woodstream Estates Subdivision that consists of 85 single family residential units to the north of the site along Rogers Road (south of Cloverbank Road).
- A new Wal★Mart store has been proposed along Route 20, west of the proposed Lowe's site.

Therefore, traffic volumes related to all four of these developments were included in the background traffic conditions.

To account for normal increases in background traffic growth, including any unforeseen developments in the project study area, a growth rate of 1.0% per year has been applied to the existing traffic volumes in the study area for the one year build-out period. The background traffic volumes are depicted in **Figure 4**.

VI. PROPOSED DEVELOPMENT

A. Description

The proposed development will erect a new 139,410± square foot Lowe's Home Improvement Store and two (2) 7,500± square foot outparcels on the north side of Southwestern Boulevard (Route 20) between the intersections of Sowles and Howard Roads. The site is currently undeveloped.

For purposes of this analysis, it has been assumed that one of the two out parcels would be occupied by a high-turnover type sit down restaurant (Applebee's, Chili's, etc.) and the other by a retail type use, such as a video store.

Access to the proposed Lowe's store is proposed via two access points onto Route 20, one full access and one right-in right-out only access. Semi-trucks making deliveries to the store will utilize the easterly Route 20 access and designated truck routes.

Appropriate pedestrian amenities will be provided on-site for access to the parking areas. Additionally pedestrian and bicyclist amenities will be provided at the two proposed access drive intersections with Southwestern Blvd. as required by NYSDOT.

Currently, there are no transit routes that travel along Route 20 in front of the proposed site. The closest transit route is to the west of the project site along Route 75 (Camp Road). Based on the location of the existing transit route in proximity to the project site, and the fact that most people will not use transit service when patronizing a home improvement store because of the size of items bought there, it is unlikely that the existing transit service will be impacted by the proposed development.

B. *Site Traffic Generation*

The next step in the evaluation is to determine the additional traffic attributable to the development as defined, vehicle trips entering and exiting the site. Trip Generation, 7th Edition is used as a reference for this information. The trip rate for the peak hour of the generator may or may not coincide in time or volume with the trip rate for the peak hour of adjacent street traffic. Volumes generated during the peak hour of adjacent street traffic, in this case, the PM and Saturday peaks, represent a more critical volume when analyzing the capacity of the system; those intervals will provide the basis of this analysis.

The volume of traffic generated by a site is dependent on the intended land use and size of the development. Trip generation can be defined as an estimate of the number of trips generated by a specific building or land use. These trips represent the volume of new traffic added to the roadways due to the proposed development as well as traffic diverted from the existing traffic stream and other on-site land uses.

Data for similar local and national Lowe's stores was used to develop trip generation estimates for the proposed site. The ITE Trip Generation manual was used for trip generation estimates for the two proposed out parcel uses. Table II summarizes the site generated trips projected for the proposed Lowe's development. All trip generation calculations are included in Appendix A2 of this report.

TABLE II
SITE GENERATED TRAFFIC VOLUMES

Land Use	PM PEAK		SAT PEAK	
	ENTER	EXIT	ENTER	EXIT
Lowe's Store (139,410 ± s.f.)	199	203	339	339
Restaurant (7,500 ± s.f.)	50	32	95	56
Retail Use (7,500 ± s.f.)	47	55	93	109
Total	**296**	**290**	**527**	**504**

C. *Determination of Multi-use and Pass-by Trips*

Inherent in the trip generation estimate for the proposed development, is the "multi-use" traffic component of traffic entering and exiting the site. According to the Institute of Transportation Engineers, Trip Generation Handbook, 1998, "...a multi-use development is typically a single real-estate project that consists of two or more ITE land use classifications between which trips can be made without using the off-site road system. Because of the nature of these land uses, the trip-making characteristics are interrelated, and some trips are made among the on-site uses. This capture of trips

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internal to the site has the net effect of reducing vehicle trip generation between the overall development site and the external street system (compared to the total number of trips generated by comparable, stand alone sites)." "In some multi-use developments, these internal trips can be made by walking or by vehicle entirely on internal pathways or internal roadways without using streets external to the site."

The ITE Trip Generation Handbook indicates internal capture rates for trips within a multi-use development to be 20% between two retail uses. Given the adjacency of the proposed Lowe's and two out parcels and shared internal access roadways, multi-use (or multiple purpose) trips are likely to occur. Therefore, a 10% multi-use trip credit reduction was used in the trip generation calculations.

For certain types of developments, the total number of trips generated is different from the amount of new traffic added to the adjacent highway network by the generator. Retail-oriented developments (such as shopping centers, discount stores, restaurants, banks, service stations, and convenience markets) often locate adjacent to busy streets in order to attract the motorists already passing the site on the adjacent street. These sites attract a portion of their trips from traffic passing the site.

Trips generated by a retail-type use, such as the proposed Lowe's development, can be broken down into two categories: pass-by trips, and primary trips. The "pass-by" traffic refers to the amount of existing traffic already on the roadway adjacent to the site (in this case Southwestern Blvd) that, as it "passes by" the site, will enter the site driveways to patronize the Lowe's development. That portion of the generated traffic attracted to the site would pass on the adjacent street system (Southwestern Blvd) whether or not the site is developed and thus produces no new traffic at study area intersections other than the site driveways.

ITE data indicates that pass-by rates for shopping centers can vary from 10% to as high as 80% during the PM peak hour. Given the nature of the surrounding area and considering the location of the site on Route 20, pass-by rates of 30% and 20% were used during the PM and Saturday peak periods, respectively, for analysis purposes in this report.

The percentage reduction for multi-use trips was applied to the total site generated traffic calculated using ITE and local data resulting in the total driveway traffic (i.e. traffic that will actually enter and exit the site). Pass-by trip reductions were then applied to the driveway trips. Table III shows the total site generated trips, multi-use, pass-by trips, and resulting primary trips that will be added to the existing highway system.

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TABLE III
SITE GENERATED TRAFFIC VOLUMES AND ADJUSTMENTS

DESCRIPTION	PM PEAK		SAT PEAK	
	ENTER	EXIT	ENTER	EXIT
Total Trips	296	290	527	504
Multi Use Trips -10%	-30	-29	-53	-50
Driveway Trips	266	261	474	454
Pass-by Trips – 30% (20%)	-80	-78	-95	-91
Resulting Primary Trips	**186**	**183**	**379**	**363**

D. Site Traffic Distribution

The cumulative effect of site traffic on the transportation network is dependent on the origins and destinations of that traffic and the location of the access drives serving the site.

The proposed arrival/departure distribution of traffic to be generated at this site is considered a function of several parameters, including the following:

- Population centers in the area
- Existing highway network
- Existing traffic conditions and controls
- Existing travel patterns at the existing site
- Site access drive locations

It is anticipated that newly generated traffic volumes will follow travel patterns similar to those of traffic volumes on Route 20. **Figure 5** shows the anticipated trip distribution pattern percentages for the proposed Lowe's development. **Figure 6** shows the resulting total site generated traffic (including pass-by trips) as assigned to the site driveways and study area intersections for both the weekday PM and Saturday midday peak hour periods.

E. Projected Full Development Traffic Volumes

The projected full development design hour traffic volumes were developed for each peak by combining the future background traffic conditions (Figure 4), and projected site generated volumes (Figure 6) to yield the total traffic conditions expected at full development. **Figure 7** shows the total weekday PM and Saturday midday peak hour volumes anticipated for the proposed development.

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VII. OPERATIONAL ANALYSES

A. Capacity Analyses of Background and Full Development Conditions

The measure of effectiveness used for capacity analysis is referred to as a Level of Service (LOS). Levels of Service are calculated to provide an indication of the amount of delay that a motorist experiences while traveling along a roadway or through an intersection. Levels of Service are assigned letter designations from "A" to "F", with LOS "A" representing operating conditions with the least time delay. LOS "F" is the least desirable operating condition where longer delays are experienced by motorists. A description of capacity analysis, explanation of Levels of Service, and suggested ranges of service capacity are included in the Appendix.

Traffic analysis software, Synchro, which is based on procedures and methodologies contained in the HCM 2000, was used to analyze operating conditions at study area intersections. The procedure yields an LOS based on the HCM 2000 as an indicator of how well intersections operate. The following tables depict the results of the intersection analysis. All capacity analysis calculations are included in the Appendices. The discussion following the tables summarizes the background and proposed capacity conditions.

TABLE IV
INTERSECTION CAPACITY ANALYSIS RESULTS
BACKGROUND & FULL DEVELOPMENT CONDITIONS

Intersection	Background		Full Development		Full Development w/ mitigation	
	PM	SAT	PM	SAT	PM	SAT
Sowles Road/Route 75						
Westbound-Sowles	D(30.5)	C(23.9)	D(32.3)	D(26.3)	NA	NA
Southbound-Route 75	B(10.6)	B(10.1)	B(10.7)	B(10.3)		
Route 20/Route 75						
Eastbound Left	F	E(56.3)	F	E(61.6)	F	E(71.5)
Eastbound Thru	F	C(34.2)	F	D(40.0)	F	D(40.0)
Eastbound Right	B(14.9)	B(14.3)	B(14.7)	B(14.9)	B(14.2)	B(14.9)
Westbound Left	F	D(53.2)	F	D(53.5)	F	D(53.5)
Westbound Thru	F	D(46.7)	F	E(56.4)	F	D(50.2)
Westbound Right	A(7.1)	A(5.5)	A(6.6)	A(5.4)	A(6.3)	A(5.1)
Northbound Left	F	E(57.4)	F	E(68.8)	F	E(68.8)
Northbound Thru	C(21.9)	C(28.1)	C(22.5)	C(29.3)	C(23.2)	C(29.3)
Northbound Right	A(7.8)	A(8.4)	A(8.2)	B(11.0)	A(8.6)	B(11.0)
Southbound Left	E(68.4)	D(53.8)	E(68.4)	D(53.8)	E(68.4)	D(53.8)
Southbound Thru	E(78.1)	D(50.8)	F(87.7)	D(52.7)	F	D(52.7)
Southbound Right	C(23.7)	D(35.6)	C(24.8)	D(38.3)	C(25.8)	D(40.1)
Overall	**E(73.5)**	**D(40.7)**	**E(79.9)**	**D(45.8)**	**E(77.8)**	**D(45.1)**

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Route 20/Howard Road						
Eastbound Left	A(6.7)	A(6.1)	A(7.1)	A(6.7)	NA	NA
Eastbound Thru	A(7.1)	A(5.7)	A(7.5)	A(8.7)		
Westbound Left	A(5.5)	A(5.4)	A(5.5)	A(6.6)		
Westbound Thru	B(11.3)	A(9.8)	B(12.1)	B(16.0)		
Northbound Thru	B(14.0)	B(13.7)	B(14.0)	A(7.6)		
Southbound Left	C(33.4)	C(30.4)	C(33.5)	B(18.1)		
Southbound Thru	A(9.9)	A(0.1)	A(9.1)	A(0.3)		
Overall	**B(10.7)**	**A(9.3)**	**B(11.1)**	**B(12.6)**		
Sowles Road/Route 20						
Eastbound Left	C(20.7)	B(15.8)	C(21.5)	B(16.8)	NA	NA
Eastbound Thru	B(18.2)	B(13.8)	B(18.3)	B(13.8)		
Westbound Left	C(31.1)	C(21.9)	C(31.1)	C(21.9)		
Westbound Thru	B(14.7)	B(11.8)	B(14.2)	B(11.5)		
Northeast Left	A(3.2)	A(7.0)	A(2.8)	A(6.3)		
Northeast Thru	A(9.2)	A(8.3)	B(11.0)	A(8.2)		
Southwest Left	B(10.9)	A(7.8)	B(13.2)	A(10.0)		
Southwest Thru	A(8.6)	A(8.8)	A(9.1)	B(11.0)		
Overall	**B(11.2)**	**A(9.8)**	**B(12.2)**	**B(10.7)**		
Lowe's Main Drive/Route 20						
Eastbound Left	NA	NA	B(15.0)	C(21.6)	A(7.9)	B(14.8)
Eastbound Thru			-	-	A(7.0)	A(6.4)
Westbound Right			-	-	B(19.6)	C(33.1)
Westbound Thru			-	-	A(0.9)	A(1.3)
Southbound Left			F	F	C(27.1)	C(33.1)
Southbound Right			C(16.7)	C(20.3)	A(10.0)	A(8.7)
Overall			-	-	**B(13.2)**	**B(19.6)**
Lowe's RIRO / Route 20						
Southbound-Lowe's Drive	NA	NA	C(16.5)	C(20.7)	NA	NA
Route 75/ Howard Road						
Eastbound Left	F	F	F	F	NA	NA
Eastbound Thru/Right	B(14.9)	C(16.0)	B(14.9)	C(16.4)		
Westbound Left	F	F(88.4)	F	F		
Westbound Thru/Right	C(22.6)	C(16.1)	C(23.1)	C(16.5)		
Northbound Left	B(12.7)	A(9.1)	B(12.8)	A(9.1)		
Southbound Left	B(11.5)	A(9.4)	B(11.6)	A(9.5)		
Route 20 / Oregon Avenue						
Eastbound Left	A(0.1)	A(0.1)	A(0.1)	A(0.1)	A(0.1)	A(0.2)
Southbound Left	C(18.2)	D(33.2)	F(52.1)	F(61.2)	C(15.4)	C(21.0)

NA = Not Applicable

The following intersections experienced relatively minor decreases in levels of service as a result of the proposed Lowe's store that are related to borderline conditions (i.e. the delay was approaching thresholds that define differences in the letter designations for level of service) and all movements are projected to operate at LOS "C" or better either without any mitigation:

- Route 20/Howard Road,
- Route 20/Sowles Road,

The remaining intersections are discussed in detail below.

Route 20 / Route 75 (Camp Road)

This intersection is forecasted to operate at overall levels of service "E" and "D" during the background PM and Saturday peak period conditions. This analysis is based on anticipated lane geometry, signal phasing and operations when the NYSDOT Route 20 Capital Improvement Project is completed. Although the exact signal phasing after construction is completed is unknown at this time. It is anticipated that the signal phasing and timings will be optimized once traffic volumes have stabilized. Although there are decreases in letter grade LOS from background to full development conditions on the eastbound thru, westbound thru, and southbound thru movements the actual increases are generally less than 10 seconds. Therefore, traffic signal timings may need adjustment as a result of this development to accommodate the proposed volumes.

Sowles Road / Route 75

The westbound approach is shown to operate at LOS "D" and "C" during the PM and Saturday peaks, respectively, under background conditions. With the additional traffic from the proposed development the westbound approach is shown to operate at LOS "D" during full development conditions. The actual increase in delay is less than three (3) seconds. Delays of this magnitude are characteristic of unsignalized minor side street approaches to a main roadway such as Route 75. Therefore, no mitigation is recommended at this location as a result of this development.

Howard Road / Route 75

The eastbound and westbound left turns at this intersection are shown to experience delays indicative of LOS "F" during both PM and Saturday peak hour periods. Because of the existing delay condition for these movements at this intersection, NYSDOT performed a traffic signal warrant analysis and determined that a traffic signal was not warranted at this intersection. It is unlikely that the additional north and southbound traffic attributable to this development (less than 20 vehicles in either peak) will increase volumes enough to warrant the need for a signal at this intersection.

Route 20 / Oregon Avenue

The southbound left turn exiting Oregon Avenue is shown to operate at LOS "C" and "D" during peak hour periods under background conditions. The capacity analysis indicates LOS "F" during Full Development conditions, and LOS "C" under mitigation conditions. The capacity analysis results for mitigation conditions reflect some improvement in operations, primarily due to the installation of a traffic signal at the proposed Lowes driveway on Route 20 to the east of Oregon Avenue. Based on existing operations at this intersection, the delays motorists experience at this intersection are primarily influenced by the adjacent traffic signal at the Sowles Road intersection. The operations at the intersection are discussed further in detail in Section VIII of this report.

Route 20 /Lowe's Main Site Drive

The capacity analysis results indicates that the southbound left turn movement exiting the site drive to Route 20 will operate at LOS "F" at full development conditions with long delays during both peak periods. The NYSDOT construction project will provide a two-way left turn lane on Route 20 in front of the proposed site. The failing levels of service and high turning volumes indicate a potential need for a traffic signal at this location. NYSDOT warrants for installation of a traffic signal were evaluated (see section B. below) and all of the volume related warrants are projected to be met at full development of the site as proposed. Therefore, the following mitigation is proposed at this location:

- Provide an eastbound left-turn lane with pavement re-striping,
- Construct a westbound right turn lane on Southwestern Blvd.,
- Install a new three-color traffic signal,
- Provide two exiting and one entering lane at the site drive
- Provide pedestrian amenities, as required by NYSDOT

With the recommended mitigation in place, the intersection is projected to operate at LOS "C" or better on all approaches during both peak periods.

Route 20 / Lowe's Right-In Right-Out Drive

The southbound right turn exiting Lowe's store is shown to operate at LOS "C" during both PM and Saturday peak hour periods. The proposed access should be constructed with appropriate curbing and signage to discourage illegal maneuvers entering and exiting the site drive. The access should also provide for safe pedestrian crossings.

B. ***Traffic Signal Warrant Investigation***

A potential capacity deficiency has been identified on the southbound Lowe's driveway (easterly site driveway) approach to Route 20 during both peak hours under full development conditions as noted in the previous section of the report. A traffic signal could mitigate the deficiency; a detailed signal warrant investigation was performed to confirm if threshold values are met.

The need for a traffic signal is determined by comprehensive investigation of existing and projected traffic conditions and physical characteristics at the location. The New York State Manual of Uniform Traffic Control Devices (MUTCD) has set forth warrants to investigate the need for a traffic control signal. The warrants are as follows:

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Warrant 1:	Minimum vehicular volume
Warrant 2:	Interruption of continuous traffic
Warrant 3:	Minimum pedestrian volume
Warrant 4:	School crossing
Warrant 5:	Progressive movement
Warrant 6:	Accident experience
Warrant 7:	Systems warrant
Warrant 8:	Combination of warrants
Warrant 9:	Four hour volumes
Warrant 10:	Peak hour delay
Warrant 11:	Peak hour volume

These warrants and their criteria are fully explained in the MUTCD. The investigation will first focus on all warrants that are based exclusively on traffic volumes.

Warrants 1 and 2 are satisfied when, for each of any eight hours of an average day, anticipated volumes on the artery and side road are in excess of the minimum values presented in the MUTCD. Hourly traffic volumes expected under full development conditions along Route 20 at the site drive intersection were projected based on the hourly traffic distribution measured by NYSDOT along Route 20 in 2005. Hourly traffic volumes expected to exit the site drive were projected based on the typical hourly distribution of Lowe's stores based on actual data from other nation wide sites. Based upon these calculations, Warrants 1 is met to satisfy the 80% volumes and warrant 2 is met. Detailed signal warrant calculations are attached.

Warrant 9 stipulates that for any four hours of a day, minimum threshold volumes are met on the artery and side road. Based on the projected hourly traffic volumes, this warrant will be met under full development conditions.

Warrant 10 is intended for application where minor street traffic suffers undue delay in entering or crossing the major street for one hour of the day. This warrant is satisfied when the following conditions exist for one hour of an average week day with a two-lane side road approach: 1) Total delay on the side road approach equals or exceeds five vehicle hours, 2) The volume on the same side road approach equals or exceeds 150 vph, and 3) The total entering volume serviced during the hour equals or exceeds 800 vph. It is impossible to predict delay at the intersection in question as the volumes are projected.

Warrant 11 is also intended for application where minor street traffic suffers undue delay in entering or crossing the major street for one hour of the day. It stipulates that for one hour of a day, minimum threshold volumes are met

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on the artery and side road. Both conditions are satisfied during the P.M. peak interval.

The results of the traffic signal warrant investigation are summarized in Table V below, and detailed signal warrant analyses are included in the appendix.

TABLE V
TRAFFIC SIGNAL WARRANT SUMMARY

WARRANT #	DESCRIPTION	RESULT
1	Minimum vehicular volume	MET
2	Interruption of continuous flow	MET
9	Four hour volumes	MET
10	Peak hour delay	Unknown
11	Peak hour volumes	MET

Based on the traffic signal warrant investigation, four of the five traffic signal warrants that deal strictly with vehicular volumes are met. Given the projected level of service on the site driveway, traffic volumes along Route 20, and adequate spacing from existing traffic signal at Sowles Road, signalization of this intersection is recommended.

C. *Summary of Identified Roadway/Intersection Improvements*

The following table summarizes the identified roadway/intersection improvements as described in the previous sections of this report.

TABLE VI
IDENTIFIED IMPROVEMENTS

Intersection	Mitigation
Route 20/Route 75	• Signal timing adjustments to accommodate the projected demand
Route 20 / East site drive	• Construct drive with 1 lane entering and 2 lanes exiting (one left-turn lane, one right-turn lane) • Provide an eastbound exclusive left-turn lane onto Route 20 with 275' storage • Construct a westbound right turn lanes on Route 20 with 350' storage and a 75' taper • Install new three-color traffic signal • Provide pedestrian amenities as required by NYSDOT
Route 20 / West site drive	• Provide one lane entering and one lane exiting • Construct right-in right-out access with appropriate curbing and signage to discourage illegal maneuvers • Provide pedestrian amenities as required by NYSDOT

VIII. OREGON AVENUE

The unsignalized intersection of Oregon Avenue with Southwestern Boulevard was observed during peak hour periods to understand local residents concerns regarding traffic operations. Due to the close proximity of Oregon Avenue to the Southwestern Blvd. / Sowles Road intersection, westbound vehicle queues were observed to extend east of Oregon Avenue during a red traffic signal indication on Southwestern Blvd. at Sowles Road. Left turning motorists entering and exiting Oregon Avenue often times waited for "courtesy gaps" in traffic to execute their movement. Right turning motorists entering and exiting Oregon Avenue experienced little to no delay.

In situations, such as this, where vehicle queues at a signalized intersection regularly extend beyond an adjacent street or driveway, a sign can be installed that reads, "STATE LAW – DO NOT BLOCK SIDE ROAD". One of these signs is already in place, and was installed as part of the recent Southwestern Blvd. reconstruction project. A traffic signal can provide controlled ingress and egress from a side street where longer delays exist; however, because of the adjacency to the Sowles Road intersection and low traffic volumes on Oregon Avenue, a traffic signal would not be warranted.

A connection from Oregon Avenue to the internal roadways at the proposed Lowes site would provide residents along Oregon Avenue access to the proposed traffic signal on Southwestern Blvd. Residents along Oregon Avenue would most likely only use such a connection with destinations to the east. However, such a connection could result in a circuitous route through the Lowes site to get to the proposed signal at Southwestern Blvd, and may result in longer delays than turning left out of Oregon Avenue.

IX. POTENTIAL ALTERNATIVE DEVELOPMENT SCENARIO

An investigation was performed to determine the possible mix of uses that could be constructed on the subject parcel based on the existing zoning districts and boundaries. It was estimated that 80 single family units, 3 multi-family type dwellings, and 25,000± square feet of retail building space could be constructed to comply with the existing zoning of the subject parcel. A trip generation analysis was prepared to illustrate the difference between the current proposal and allowable zoning uses. The table below indicates the results of the analysis.

TABLE VII
TRAFFIC VOLUME GENERATION COMPARISON

DESCRIPTION	PM PEAK		SAT PEAK	
	ENTER	EXIT	ENTER	EXIT
Proposed Dev't - Total Trips	296	290	527	504
Proposed Dev't – New Trips	186	183	379	363
Existing Zoning – Total Trips	175	162	227	206
Existing Zoning – New Trips	145	133	186	168
Net Difference - New Trips	**-41**	**-50**	**-193**	**-195**

The table above indicates that a development constructed based on existing zoning would likely generate less traffic than the current proposed Lowes store and two outparcels. The primary difference in mitigation between the current proposal and the existing zoning development scenario is that a traffic signal would not likely be needed on Route 20 for the existing zoning development.

X. CONCLUSIONS AND RECOMMENDATIONS

This report addresses the traffic impact that can be expected from the proposed Lowe's store and two-out parcels in the Town of Hamburg as described in this report. It has been shown that the transportation network can adequately accommodate the projected traffic volumes and resulting impacts to study area intersections, without significant adverse impacts to traffic operations, upon completion of the New York State Department of Transportation highway improvement project and with the recommended mitigation measures in place.

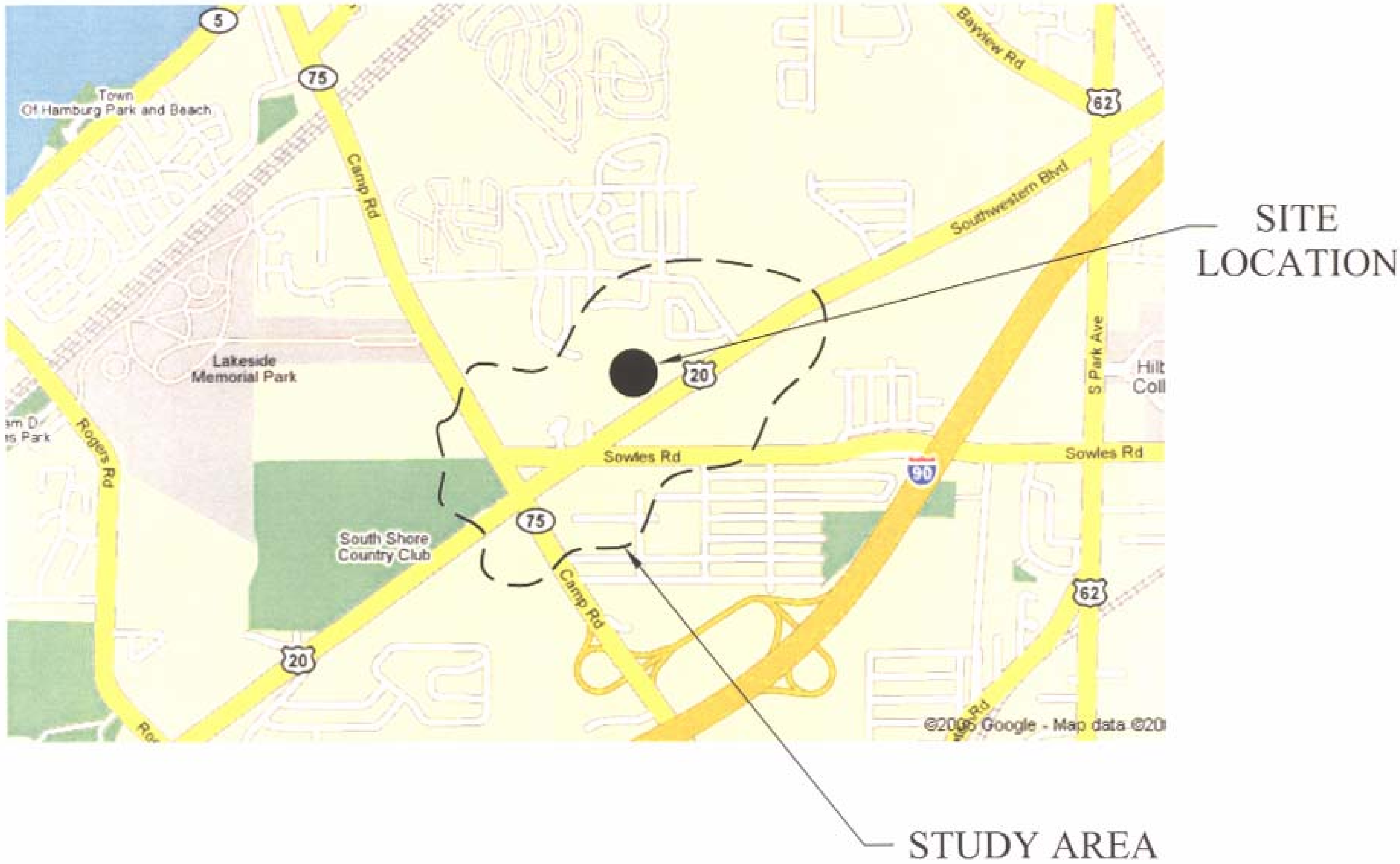
The following list details specific recommendations to be considered as a result of the Lowe's site development:

1. Signal timing adjustments may be needed at the Route 20 / Route 75 intersection as a result of the proposed development.
2. Construct the easterly site drive to provide one lane entering and two lanes exiting.
3. Provide 275' of storage for an exclusive eastbound left turn lane on Route 20 at the easterly site driveway.
4. Construct a new multi-phase, 3-color traffic signal at the easterly site driveway intersection with Route 20. Appropriate pedestrian amenities shall be installed as required by NYSDOT.
5. Construct a westbound right turn lane on Route 20 at the easterly site drive to provide 350' storage and a 75' taper.

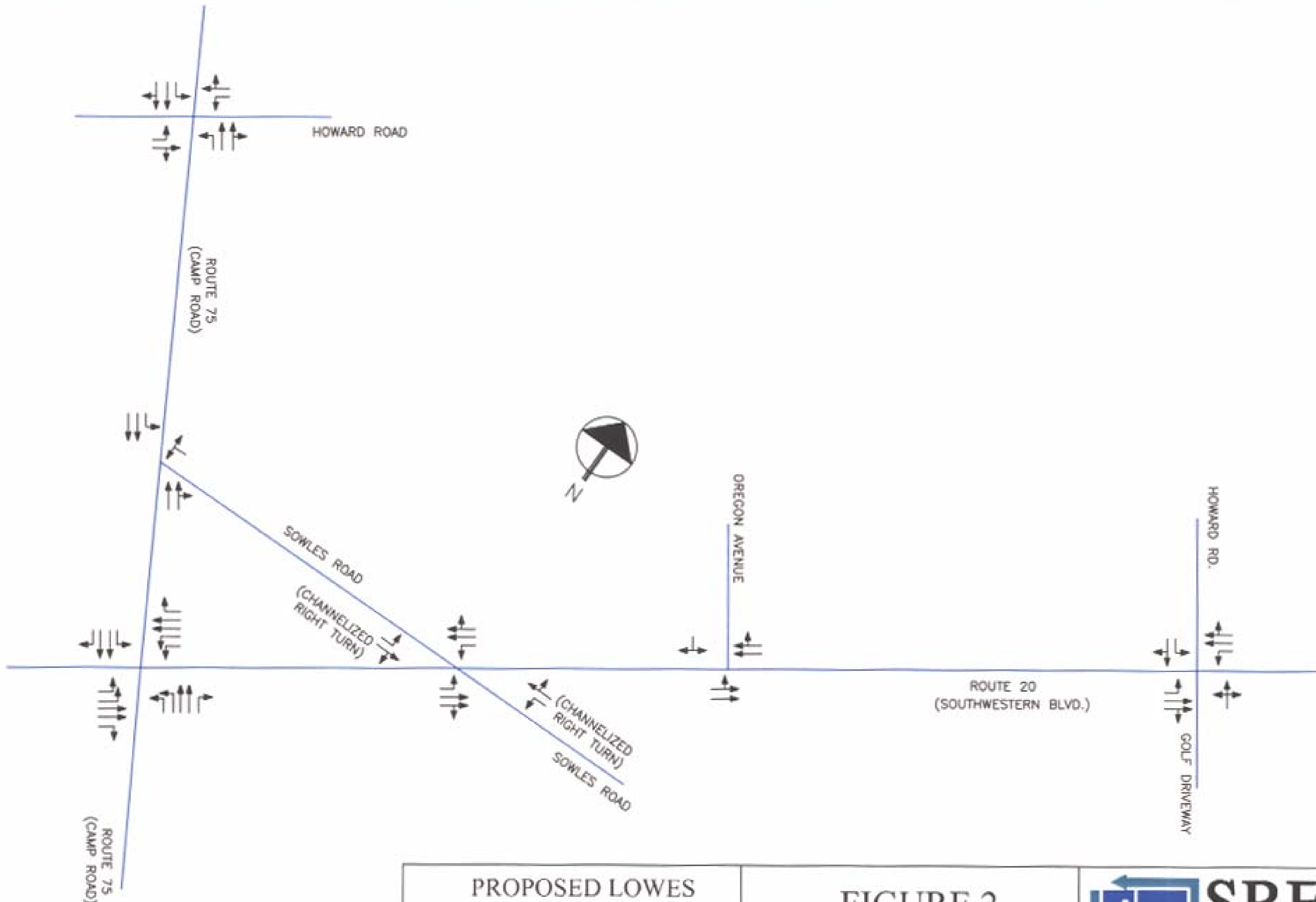
6. Construct westerly site drive to allow right turn entering and right turn exiting maneuvers only. Appropriate curbing and signage should be installed to provide positive direction and guidance to motorists. Appropriate pedestrian amenities shall be installed as required by NYSDOT.
7. All recommended roadway and intersection improvements on Southwestern Boulevard are subject to review and approval by NYSDOT.

XI. ***FIGURES***

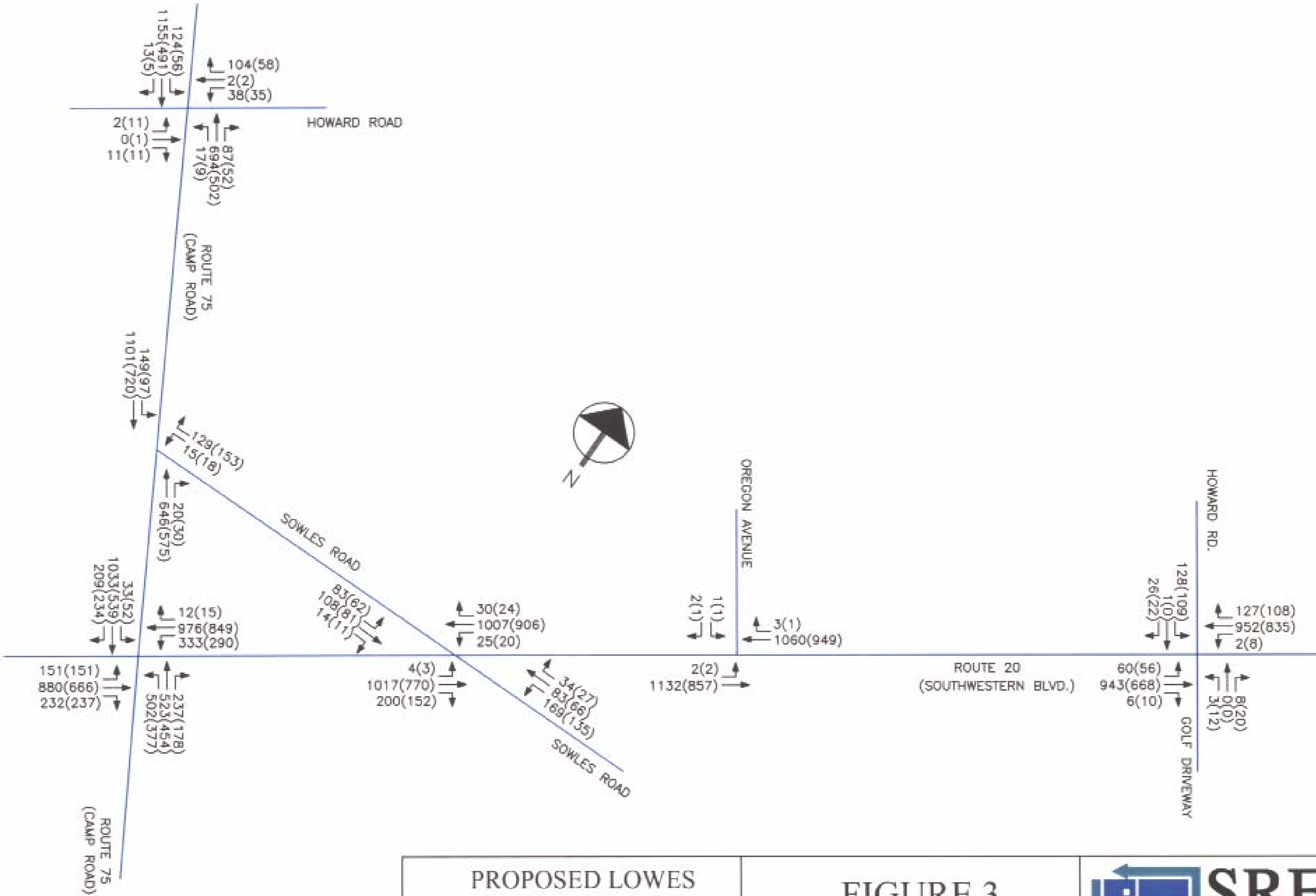
Figures 1 through 7 are included on the following pages.



PROPOSED LOWES STORE	FIGURE 1	SRF ASSOCIATES WWW.SRFA.NET
TOWN OF HAMBURG, ERIE COUNTY, NEW YORK	SITE LOCATION AND STUDY AREA	



PROPOSED LOWES STORE	FIGURE 2	SRF ASSOCIATES WWW.SRFA.NET
TOWN OF HAMBURG, ERIE COUNTY, NEW YORK	BACKGROUND LANE GEOMETRY	



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PROPOSED LOWES STORE	FIGURE 3	SRF ASSOCIATES WWW.SRFA.NET
TOWN OF HAMBURG, ERIE COUNTY, NEW YORK	PEAK HOUR VOLUMES EXISTING CONDITIONS	

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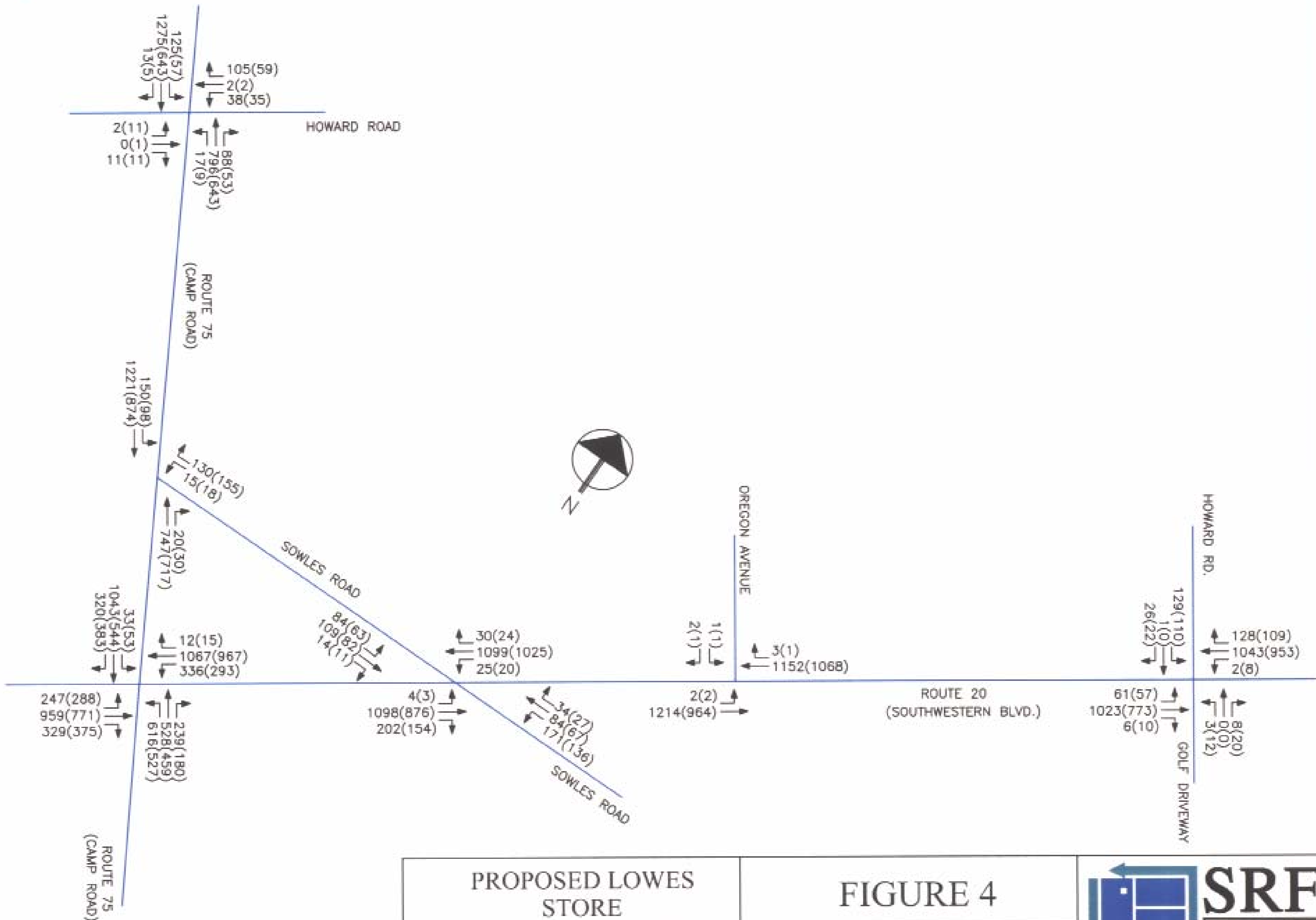

PROPOSED LOWES STORE	FIGURE 4	SRF ASSOCIATES WWW.SRFA.NET
TOWN OF HAMBURG, ERIE COUNTY, NEW YORK	PEAK HOUR VOLUMES BACKGROUND CONDITIONS	

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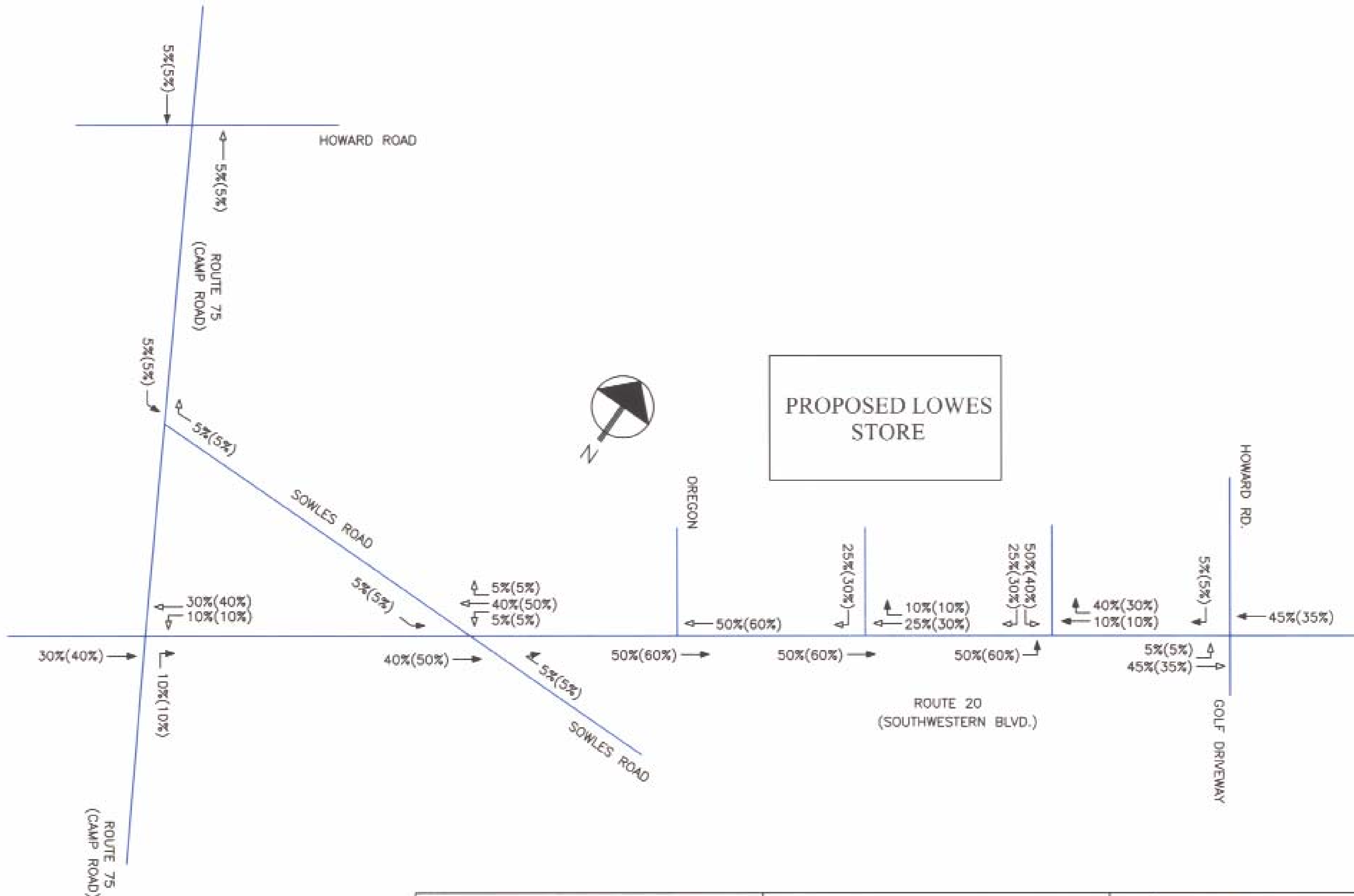

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PROPOSED LOWES STORE

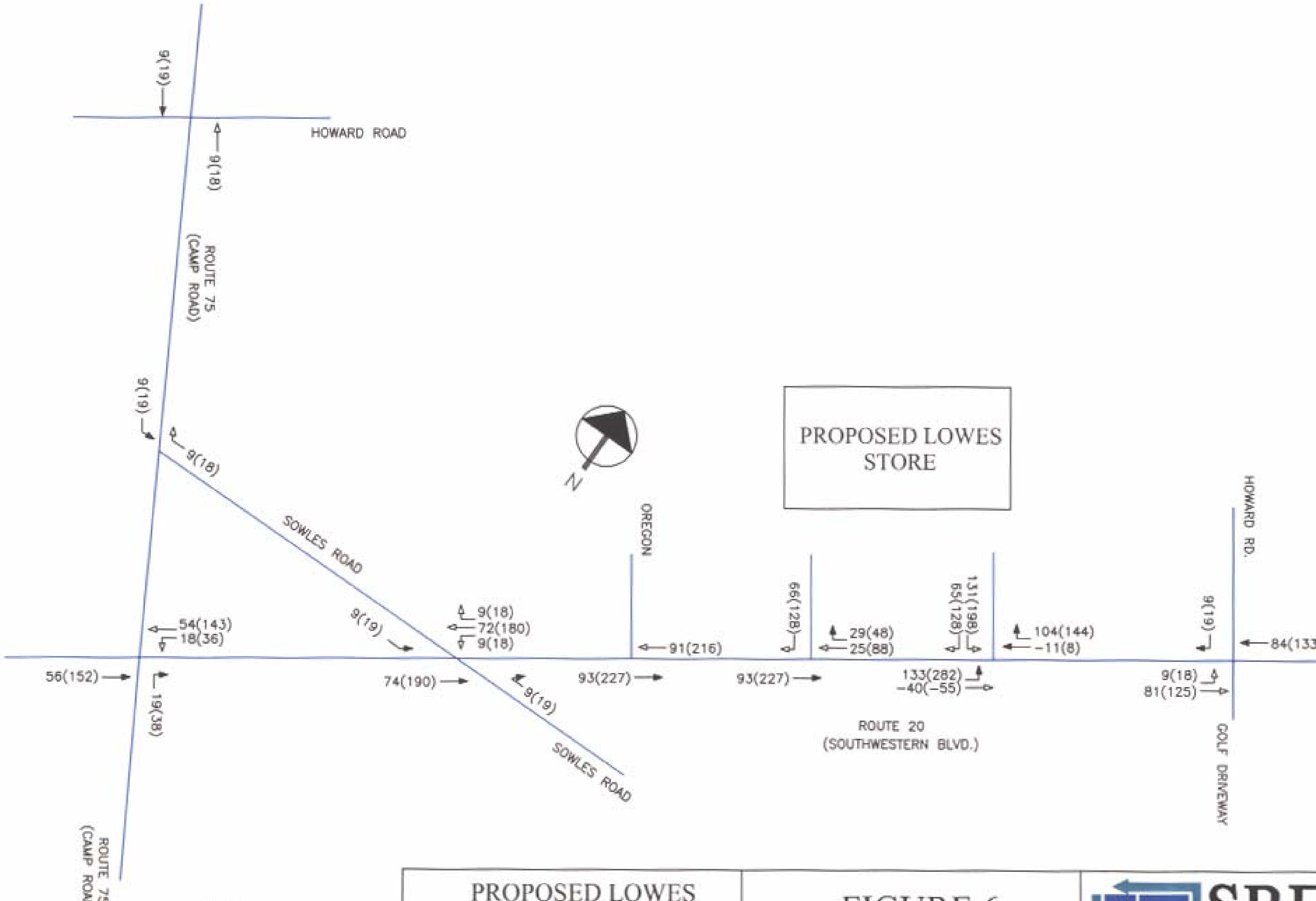
TOWN OF HAMBURG, ERIE COUNTY, NEW YORK

FIGURE 5

PROPOSED PEAK HOUR TRIP DISTRIBUTION

SRF ASSOCIATES

WWW.SRFA.NET



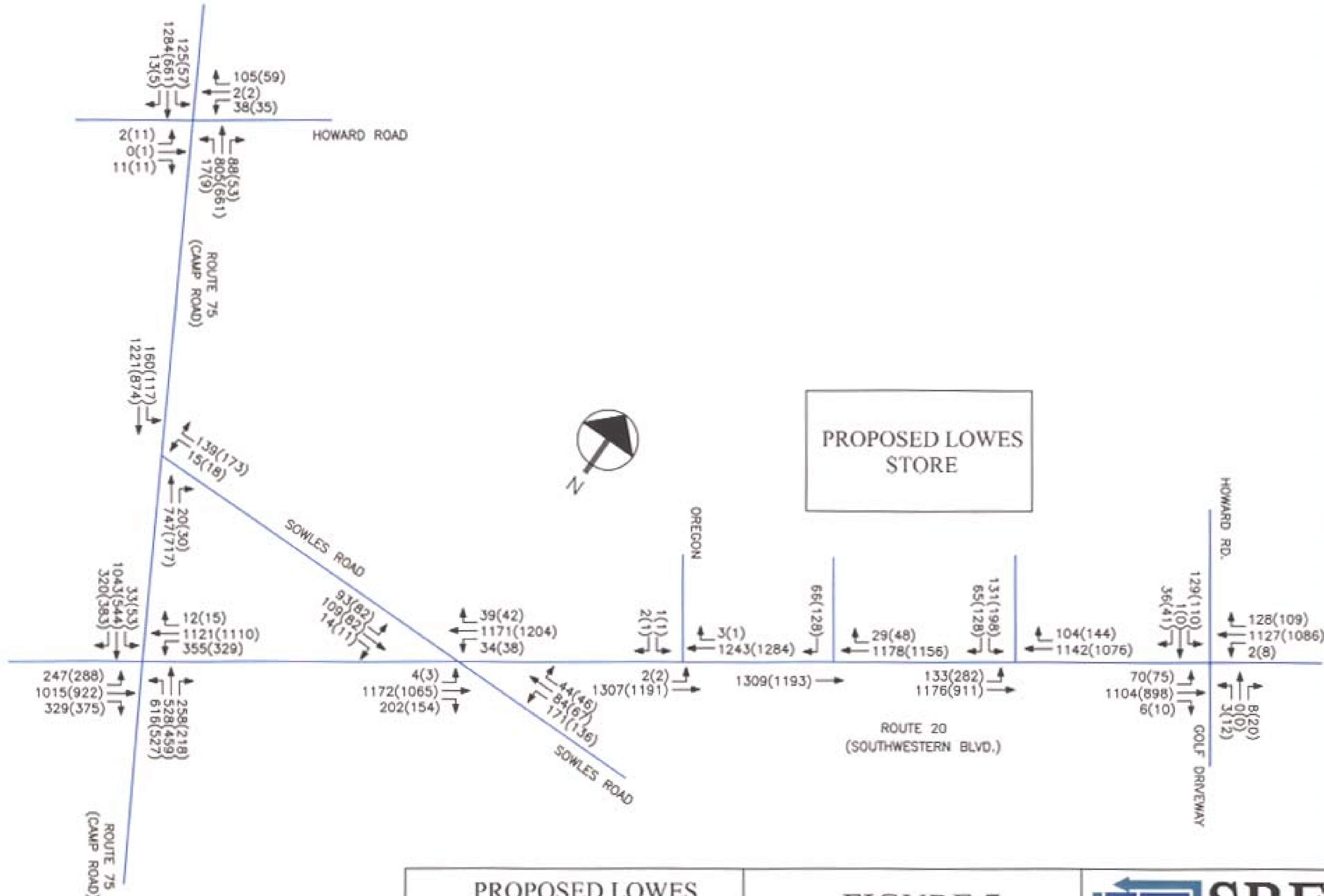
KEY
ENTERING TRIPS →
EXITING TRIPS →
xx%(xx%) = PM(SAT)

REV. 03/07

PROPOSED LOWES STORE	FIGURE 6
TOWN OF HAMBURG, ERIE COUNTY, NEW YORK	PEAK HOUR SITE GENERATED TRIPS

SRF ASSOCIATES
WWW.SRFA.NET

6-30



PROPOSED LOWES STORE	FIGURE 7	SRF ASSOCIATES WWW.SRFA.NET
TOWN OF HAMBURG, ERIE COUNTY, NEW YORK	PEAK HOUR VOLUMES - FULL DEVELOPMENT CONDITIONS	

REV. 03/07

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APPENDICES

A1

Collected Traffic Volume Data

SRF & Associates
3495 Winton Place, Building E, Suite 110
Rochester, New York 14623
www.SRFA.net

File Name : howard20.PM
Site Code : 00000000
Start Date : 4/29/1998
Page No : 1

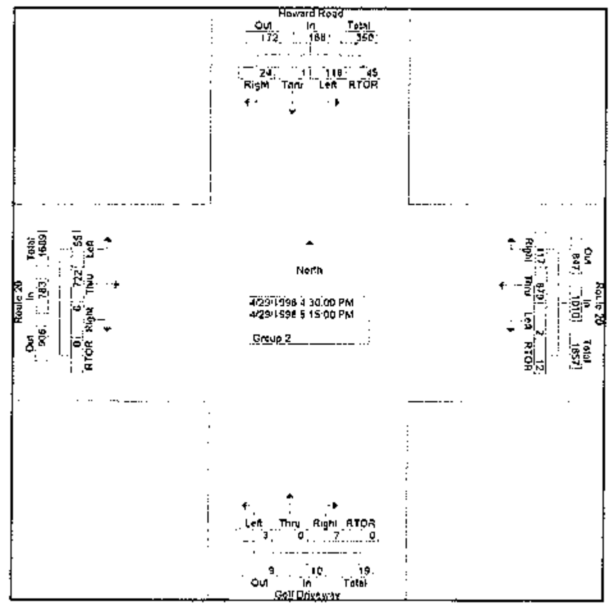
Groups Printed- Group 2

	Howard Road Southbound				Route 20 Westbound				Golf Driveway Northbound				Route 20 Eastbound				
Start Time	Right	Thru	Left	RTOR	Right	Thru	Left	RTOR	Right	Thru	Left	RTOR	Right	Thru	Left	RTOR	Int. Total
Factor	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	
*** BREAK ***																	
03:30 PM	8	1	16	12	29	182	5	4	2	0	0	0	2	177	16	0	454
03:45 PM	8	0	35	12	25	166	1	7	3	1	1	0	2	166	8	0	435
Total	16	1	51	24	54	348	6	11	5	1	1	0	4	343	24	0	889
04:00 PM	1	0	19	9	26	209	3	3	2	0	0	0	0	191	17	0	480
04:15 PM	8	0	26	7	18	204	1	3	1	1	2	0	1	184	9	0	465
04:30 PM	3	1	32	8	33	211	0	2	2	0	2	0	3	197	9	0	503
04:45 PM	7	0	30	10	22	233	2	4	1	0	0	0	1	163	14	0	487
Total	19	1	107	34	99	857	6	12	6	1	4	0	5	735	49	0	1935
05:00 PM	8	0	33	13	31	205	0	6	3	0	1	0	0	150	15	0	465
05:15 PM	6	0	23	14	31	230	0	0	1	0	0	0	2	212	17	0	536
*** BREAK ***																	
Total	14	0	56	27	62	435	0	6	4	0	1	0	2	362	32	0	1001
Grand Total	49	2	214	85	215	1640	12	29	15	2	6	0	11	1440	105	0	3825
Apprch %	14.0	0.6	61.1	24.3	11.3	86.5	0.6	1.5	65.2	8.7	26.1	0.0	0.7	92.5	6.7	0.0	
Total %	1.3	0.1	5.6	2.2	5.6	42.9	0.3	0.8	0.4	0.1	0.2	0.0	0.3	37.6	2.7	0.0	

SRF & Associates
3495 Winton Place, Building E, Suite 110
Rochester, New York 14623
www.SRFA.net

File Name : howard20.PM
Site Code : 00000000
Start Date : 4/29/1998
Page No : 2

	Howard Road Southbound					Route 20 Westbound					Golf Driveway Northbound					Route 20 Eastbound					
Start Time	Right	Thru	Left	RTOR	App. Total	Right	Thru	Left	RTOR	App. Total	Right	Thru	Left	RTOR	App. Total	Right	Thru	Left	RTOR	App. Total	Int. Total
Peak Hour From 03:00 PM to 05:45 PM - Peak 1 of 1																					
Intersection	04:30 PM																				
Volume	24	1	118	45	188	117	879	2	12	1010	7	0	3	0	10	6	722	55	0	783	1991
Percent	12.8	0.5	62.8	23.9		11.6	87.0	0.2	1.2		70.0	0.0	30.0	0.0		0.8	92.2	7.0	0.0		
05:15 Volume	6	0	23	14	43	31	230	0	0	261	1	0	0	0	1	2	212	17	0	231	536
Peak Factor																					0.929
High Int.	05:00 PM					04:45 PM					04:30 PM					05:15 PM					
Volume	8	0	33	13	54	22	233	2	4	261	2	0	2	0	4	2	212	17	0	231	
Peak Factor					0.870					0.967					0.625					0.847	



G-34

SRF & Associates
3495 Winton Place, Building E, Suite 110
Rochester, New York 14623
www.SRFA.net

File Name : CAMPSO~1
Site Code : 00026029
Start Date : 6/10/2006
Page No : 1

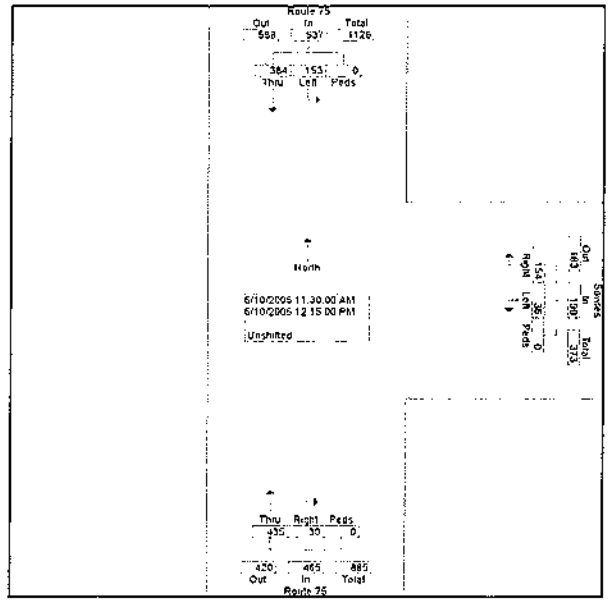
Groups Printed- Unshifted

	Route 75 Southbound				Sowles Westbound				Route 75 Northbound				
Start Time	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Int. Total
Factor	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	
11:30 AM	0	104	46	0	41	0	4	0	6	95	0	0	296
11:45 AM	0	98	46	0	38	0	11	0	12	111	0	0	316
Total	0	202	92	0	79	0	15	0	18	206	0	0	612
12:00 PM	0	90	29	0	35	0	7	0	5	108	0	0	274
12:15 PM	0	92	32	0	40	1	14	0	7	121	0	0	307
12:30 PM	0	91	35	0	37	0	9	0	5	97	0	0	274
12:45 PM	0	87	33	0	41	0	5	0	6	90	0	0	262
Total	0	360	129	0	153	1	35	0	23	416	0	0	1117
01:00 PM	0	90	33	0	35	0	3	0	4	98	0	0	263
01:15 PM	0	91	27	0	36	0	5	0	3	90	0	0	252
Grand Total	0	743	281	0	303	1	58	0	48	810	0	0	2244
Apprch %	0.0	72.6	27.4	0.0	83.7	0.3	16.0	0.0	5.6	94.4	0.0	0.0	
Total %	0.0	33.1	12.5	0.0	13.5	0.0	2.6	0.0	2.1	36.1	0.0	0.0	

SRF & Associates
3495 Winton Place, Building E, Suite 110
Rochester, New York 14623
www.SRFA.net

File Name : CAMPSO~1
Site Code : 00026029
Start Date : 6/10/2006
Page No : 2

	Route 75 Southbound					Sowles Westbound					Route 75 Northbound					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Peak Hour From 11:30 AM to 01:15 PM - Peak 1 of 1																
Intersection	11:30 AM															
Volume	0	384	153	0	537	154	1	36	0	191	30	435	0	0	465	1193
Percent	0.0	71.5	28.5	0.0		80.6	0.5	18.8	0.0		6.5	93.5	0.0	0.0		
11:45 Volume	0	98	46	0	144	38	0	11	0	49	12	111	0	0	123	316
Peak Factor																0.944
High Int.	11:30 AM					12:15 PM					12:15 PM					
Volume	0	104	46	0	150	40	1	14	0	55	7	121	0	0	128	
Peak Factor					0.895					0.868					0.908	



6-35

SRF & Associates
3495 Winton Place, Building E, Suite 110
Rochester, New York 14623
www.SRFA.net

File Name : sowles.camp.PM
Site Code : 00242424
Start Date : 6/9/2006
Page No : 1

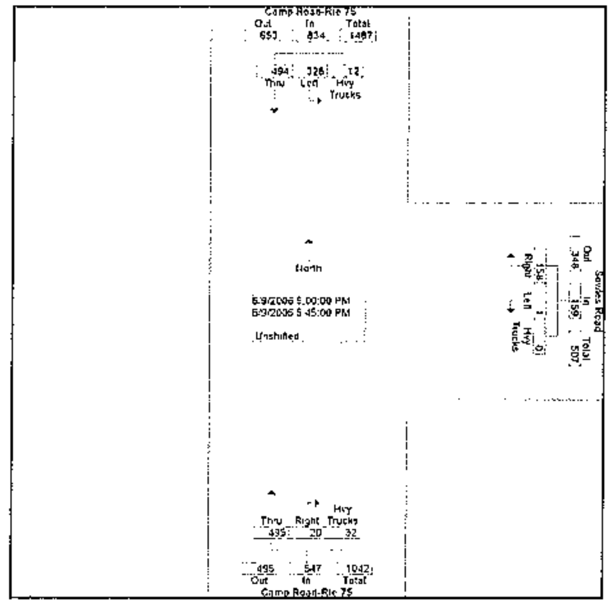
Groups Printed- Unshifted

	Camp Road-Rte 75 Southbound				Sowles Road Westbound				Camp Road-Rte 75 Northbound				
Start Time	Right	Thru	Left	Hvy Trucks	Right	Thru	Left	Hvy Trucks	Right	Thru	Left	Hvy Trucks	Int. Total
Factor	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	
04:00 PM	0	117	83	6	58	0	2	1	5	101	0	6	379
04:15 PM	0	112	83	2	41	0	1	0	9	101	0	4	353
04:30 PM	0	111	74	2	49	1	1	0	3	106	0	2	349
04:45 PM	0	119	81	1	58	0	2	0	2	100	0	6	369
Total	0	459	321	11	206	1	6	1	19	408	0	18	1450
05:00 PM	0	128	84	2	48	0	1	0	6	138	0	6	413
05:15 PM	0	128	76	2	35	1	0	0	3	130	0	10	385
05:30 PM	0	115	80	2	41	0	0	0	5	118	0	8	369
05:45 PM	0	123	88	6	34	0	0	0	6	109	0	8	374
Total	0	494	328	12	158	1	1	0	20	495	0	32	1541
Grand Total	0	953	649	23	364	2	7	1	39	903	0	50	2991
Apprch %	0.0	58.6	39.9	1.4	97.3	0.5	1.9	0.3	3.9	91.0	0.0	5.0	
Total %	0.0	31.9	21.7	0.8	12.2	0.1	0.2	0.0	1.3	30.2	0.0	1.7	

SRF & Associates
3495 Winton Place, Building E, Suite 110
Rochester, New York 14623
www.SRFA.net

File Name : sowles.camp.PM
Site Code : 00242424
Start Date : 6/9/2006
Page No : 2

	Camp Road-Rte 75 Southbound					Sowles Road Westbound					Camp Road-Rte 75 Northbound					
Start Time	Right	Thru	Left	Hvy Trucks	App. Total	Right	Thru	Left	Hvy Trucks	App. Total	Right	Thru	Left	Hvy Trucks	App. Total	Int. Total
Peak Hour From 04:00 PM to 05:45 PM - Peak 1 of 1																
Intersection	05:00 PM															
Volume	0	494	328	12	834	158	1	1	0	160	20	495	0	32	547	1541
Percent	0.0	59.2	39.3	1.4		98.8	0.6	0.6	0.0		3.7	90.5	0.0	5.9		
05:00 Volume	0	128	84	2	214	48	0	1	0	49	6	138	0	6	150	413
Peak Factor																0.933
High Int.	05:45 PM					05:00 PM					05:00 PM					
Volume	0	123	88	6	217	48	0	1	0	49	6	138	0	6	150	
Peak Factor					0.961					0.816					0.912	



6-36

SRF & Associates
3495 Winton Place, Building E, Suite 110
Rochester, New York 14623
www.SRFA.net

File Name : sowles20.PM
Site Code : 00000000
Start Date : 9/12/2002
Page No : 1

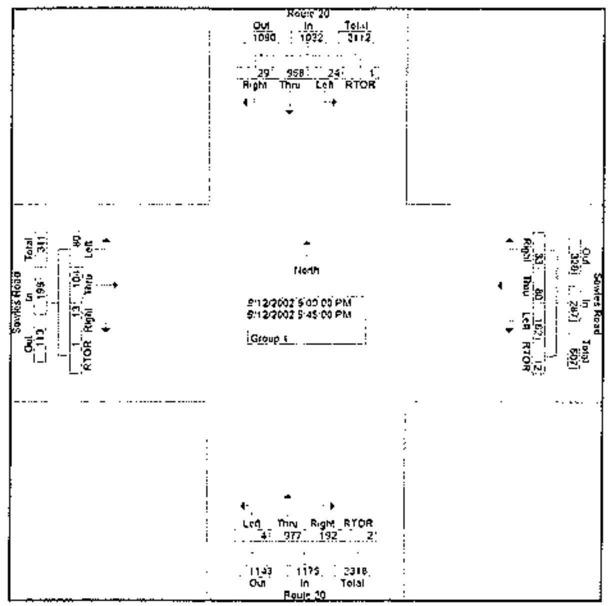
Groups Printed- Group 1

	Route 20 Southbound				Sowles Road Westbound				Route 20 Northbound				Sowles Road Eastbound				
Start Time	Right	Thru	Left	RTOR	Right	Thru	Left	RTOR	Right	Thru	Left	RTOR	Right	Thru	Left	RTOR	Int. Total
Factor	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	
04:00 PM	3	252	4	0	5	29	35	7	38	226	2	4	4	21	17	2	649
04:15 PM	4	170	5	1	4	29	29	2	29	160	2	1	1	18	15	2	472
04:30 PM	6	260	7	0	5	20	59	0	43	247	2	0	5	31	29	0	714
04:45 PM	10	240	6	0	10	28	43	0	54	204	4	0	2	34	14	0	649
Total	23	922	22	1	24	106	166	9	164	837	10	5	12	104	75	4	2484
05:00 PM	14	261	5	0	6	28	40	7	46	252	1	1	2	18	16	1	698
05:15 PM	8	210	3	1	2	22	47	4	43	223	1	1	0	25	26	0	616
05:30 PM	1	242	9	0	15	14	41	1	42	258	2	0	6	30	15	0	676
05:45 PM	6	255	7	0	10	16	34	0	61	244	0	0	5	31	23	0	692
Total	29	968	24	1	33	80	162	12	192	977	4	2	13	104	80	1	2682
*** BREAK ***																	
Grand Total	52	1890	46	2	57	186	328	21	356	1814	14	7	25	208	155	5	5166
Apprch %	2.6	95.0	2.3	0.1	9.6	31.4	55.4	3.5	16.2	82.8	0.6	0.3	6.4	52.9	39.4	1.3	
Total %	1.0	36.6	0.9	0.0	1.1	3.6	6.3	0.4	6.9	35.1	0.3	0.1	0.5	4.0	3.0	0.1	

SRF & Associates
3495 Winton Place, Building E, Suite 110
Rochester, New York 14623
www.SRFA.net

File Name : sowles20.PM
Site Code : 00000000
Start Date : 9/12/2002
Page No : 2

	Route 20 Southbound					Sowles Road Westbound					Route 20 Northbound					Sowles Road Eastbound					
Start Time	Right	Thru	Left	RTOR	App. Total	Right	Thru	Left	RTOR	App. Total	Right	Thru	Left	RTOR	App. Total	Right	Thru	Left	RTOR	App. Total	Int. Total
Peak Hour From 04:00 PM to 06:45 PM - Peak 1 of 1																					
Intersection	05:00 PM																				
Volume	29	968	24	1	1022	33	80	162	12	287	192	977	4	2	1175	13	104	80	1	198	2682
Percent	2.8	94.7	2.3	0.1		11.5	27.9	56.4	4.2		16.3	83.1	0.3	0.2		6.6	52.5	40.4	0.5		
05:00 Volume	14	261	5	0	280	6	28	40	7	81	46	252	1	1	300	2	18	16	1	37	698
Peak Factor																					0.961
High Int.	05:00 PM					05:00 PM					05:45 PM					05:45 PM					
Volume	14	261	5	0	280	6	28	40	7	81	61	244	0	0	305	5	31	23	0	59	
Peak Factor					0.913					0.886					0.983					0.839	



6-37

NYSDOT Region 5 Planning
Data Services Group
(716) 847-3247

Town: Hamburg County Erie
Counted By: R Jablonski, A Osswald
Count Hrs: 7 - 9 AM, 4 - 6 PM
ROR's on diagrams not totaled to legs.

File Name 09120202
Site Code 09120202
Start Date 09/12/2002
Page No 1

1 Pedestrian during count

Groups Printed- Autos (F1 - F3) - Heavy Veh (F4 - F13)

	Rt 20 Southbound				Sowles Rd Westbound				Rt 20 Northbound				Sowles Rd Eastbound				
Start Time	Left	Thru	Right	ROR	Left	Thru	Right	ROR	Left	Thru	Right	ROR	Left	Thru	Right	ROR	Int. Total
07:00 AM	2	88	6	1	28	26	3	3	4	162	21	2	9	8	0	0	363
07:15 AM	4	100	7	1	34	29	3	0	8	176	16	0	6	7	1	1	393
07:30 AM	3	125	8	0	32	29	10	0	3	267	40	1	6	19	2	0	545
07:45 AM	1	154	14	0	35	31	3	0	4	243	38	0	13	20	2	0	558
Total	10	467	35	2	129	115	19	3	19	848	115	3	34	54	5	1	1859
08:00 AM	2	104	10	1	33	26	2	1	2	174	30	1	8	9	1	1	405
08:15 AM	0	111	6	0	33	31	1	3	5	154	25	1	5	6	0	2	383
08:30 AM	0	125	10	0	43	26	6	0	2	211	27	0	10	6	3	0	469
08:45 AM	3	125	8	0	25	17	4	0	4	234	30	0	12	9	2	0	473
Total	5	465	34	1	134	100	13	4	13	773	112	2	[illegible]	30	6	3	1730
BREAK																	
04:00 PM	4	252	3	0	35	29	[illegible]	7	2	226	38	4	17	21	4	2	644
04:15 PM	5	170	4	1	29	29	4	2	2	160	29	1	15	18	1	2	472
04:30 PM	7	260	6	0	59	20	5	0	2	247	43	0	29	31	5	0	714
04:45 PM	6	240	10	0	43	28	10	0	4	204	54	0	14	34	2	0	649
Total	22	922	23	1	166	106	19	9	10	837	164	5	75	104	12	4	2479
05:00 PM	5	261	14	0	40	28	6	7	1	252	46	1	16	18	2	1	698
05:15 PM	3	210	8	1	47	22	2	4	1	223	43	1	26	25	0	0	616
05:30 PM	9	242	1	0	41	14	15	1	2	258	42	0	15	30	6	0	676
05:45 PM	7	255	6	0	34	16	10	0	0	244	61	0	23	31	5	0	692
Total	24	968	29	1	162	80	33	12	4	977	192	2	80	104	13	1	2682
Grand Total	61	2822	121	5	591	401	84	28	46	3435	583	12	224	292	36	9	8750
Apprch %	2.0	93.8	4.0	0.2	53.5	36.3	7.6	2.5	1.1	84.3	14.3	0.3	39.9	52.0	6.4	1.6	
Total %	0.7	32.3	1.4	0.1	6.8	4.6	1.0	0.3	0.5	39.3	6.7	0.1	2.6	3.3	0.4	0.1	

6-33

Town: Hamburg
County: Erie
Count Date: 04/29/98
Counted by: R.Jablonski

JAMAR Technologies, Inc.
Traffic Counting Equipment & Supplies
2031 Stout Drive, Suite 4
Ivyland, PA 18974

Site Code : 04299803
Start Date: 04/29/98
File I.D. : TURN)036
Page : 1

All Vehicles

	Howard Rd. Southbound				Rt.20 (Southwestern Blvd.) Westbound				Sweet Spot Golf Drwy. Northbound				Rt.20 (Southwestern Blvd.) Eastbound				
Date 04/29/98	Left	Thru	Right	RDR	Left	Thru	Right	RDR	Left	Thru	Right	RDR	Left	Thru	Right	RDR	Total
07:00	35	0	3	5	0	109	10	1	0	0	0	0	4	139	0	0	306
07:15	47	0	2	4	0	111	11	4	0	0	0	0	6	136	0	0	323
07:30	38	0	6	15	0	116	17	7	0	0	0	0	8	174	0	0	381
07:45	47	0	9	14	0	149	13	2	0	0	0	0	13	157	0	0	404
Hr Total	167	0	20	38	0	485	51	14	0	0	0	0	31	608	0	0	1414
08:00	29	0	5	15	0	119	13	3	0	0	0	0	4	110	0	0	396
08:15	33	0	4	4	0	138	4	0	0	0	0	0	5	141	0	0	329
08:30	33	0	8	6	1	109	7	2	1	0	0	0	4	125	0	0	296
08:45	33	0	1	6	0	105	9	0	0	0	0	0	10	148	0	0	312
Hr Total	128	0	18	31	1	471	33	5	1	0	0	0	23	532	0	0	1243
* BREAK *																	
15:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15:30	16	1	8	12	5	182	29	4	0	0	2	0	16	177	2	0	454
15:45	35	0	8	12	1	166	25	7	1	1	3	0	8	166	2	0	435
Hr Total	51	1	16	24	6	348	54	11	1	1	5	0	24	343	4	0	889
16:00	19	0	1	9	3	209	26	3	0	0	2	0	17	191	0	0	400
16:15	28	0	8	7	1	204	18	3	2	1	1	0	9	184	1	0	467
16:30	32	1	3	8	0	211	33	2	2	0	2	0	9	197	3	0	493
16:45	30	0	7	10	2	233	22	4	0	0	1	0	14	163	1	0	507
Hr Total	109	1	19	34	6	857	99	12	4	1	6	0	49	745	5	0	1947
17:00	33	0	8	13	0	205	31	6	1	0	3	0	15	150	0	0	465
17:15	23	0	6	14	0	230	31	0	0	0	1	0	17	212	2	0	536
Hr Total	56	0	14	27	0	435	62	6	1	0	4	0	32	362	2	0	1001
TOTAL	511	2	87	154	13	2596	299	48	7	2	15	0	159	2590	11	0	6494

G-39

NYSDOT Region 5 Planning
Data Services Group
(716) 847-3247

Town: Hamburg County Erie
Counted By: R Jablonski, A Osswald
Count Hrs: 7 - 9 AM, 4 - 6 PM
ROR's on diagrams not totaled to legs.

File Name : 08280202
Site Code : 08280202
Start Date : 08/28/2002
Page No : 1

2 Pedestrians during count

Groups Printed- Autos (F1 - F3) - Heavy Veh (F4 - F13)

	Rt 75 Camp Rd Southbound				Rt 20 Southwestern Blvd Westbound				Rt 75 Camp Rd Northbound				Rt 20 Southwestern Blvd Eastbound				
Start Time	Left	Thru	Right	ROR	Left	Thru	Right	ROR	Left	Thru	Right	ROR	Left	Thru	Right	ROR	Int. Total
07:00 AM	7	50	5	14	28	51	4	5	28	161	15	19	[illegible]	105	44	20	607
07:15 AM	9	57	3	16	48	82	3	6	29	172	23	22	48	146	59	28	751
07:30 AM	9	97	15	1	67	112	10	1	61	290	62	1	63	149	81	4	1023
07:45 AM	22	88	26	0	101	113	10	0	67	218	71	0	92	200	112	0	1120
Total	47	292	49	31	244	358	27	12	185	841	171	42	254	600	296	52	3501
08:00 AM	8	63	6	11	65	85	5	4	33	168	26	29	38	129	48	28	746
08:15 AM	7	74	5	15	55	93	1	6	65	164	18	18	54	106	54	15	750
08:30 AM	18	72	19	0	78	87	8	0	65	192	77	0	55	140	70	4	885
08:45 AM	6	98	33	0	91	109	6	0	69	163	61	0	82	160	83	0	961
Total	39	307	63	26	289	374	20	10	232	687	182	47	229	535	255	47	3342
BREAK																	
04:00 PM	9	206	31	32	83	157	3	4	100	131	48	16	37	167	33	7	1064
04:15 PM	16	200	32	25	63	197	3	0	107	122	42	17	36	141	30	11	1042
04:30 PM	8	207	84	0	85	190	0	0	139	139	86	0	49	92	64	0	1143
04:45 PM	3	222	65	0	91	246	3	0	138	112	86	0	21	162	73	4	1226
Total	36	835	212	57	322	790	9	4	484	504	262	33	143	562	200	22	4475
05:00 PM	8	237	39	19	66	187	1	2	87	111	39	11	42	170	39	18	1076
05:15 PM	8	247	29	21	79	232	7	4	101	145	37	24	32	153	53	18	1190
05:30 PM	13	287	68	0	84	273	1	1	156	135	64	0	50	143	58	2	1335
05:45 PM	15	248	69	0	65	230	3	0	140	162	81	0	26	93	64	0	1196
Total	44	1019	205	40	294	922	12	7	[illegible]	553	221	35	150	559	214	38	4797
Grand Total	166	2453	529	154	1149	2444	68	33	1385	2585	836	157	776	2256	965	159	16115
Apprch %	5.0	74.3	16.0	4.7	31.1	66.2	1.8	0.9	27.9	52.1	16.8	3.2	18.7	54.3	23.2	3.8	
Total %	1.0	15.2	3.3	1.0	7.1	15.2	0.4	0.2	8.6	16.0	5.2	1.0	4.8	14.0	6.0	1.0	

6-40

NYSDOT Region 5 Planning
Data Services
(716) 847-3247
Joseph D Buffamonte - Supervising

File Name : untitled1
Site Code : 12089803
Start Date : 12/08/1998
Page : 1

Groups Printed: All Vehicles

	Rt.75 (Camp Rd.) Southbound				Sowles Rd. Westbound				Rt.75 (Camp Rd.) Northbound				Eastbound				
Start Time	Left	Through	Right	Other	Left	Through	Right	Other	Left	Through	Right	Other	Left	Through	Right	Peds	Int. Total
Factor	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	
07:00 AM	16	77	0	0	2	0	22	0	0	209	5	0	0	0	0	0	331
07:15 AM	13	55	0	0	0	0	28	0	0	278	2	0	0	0	0	0	376
07:30 AM	21	67	0	0	0	0	37	0	0	284	3	0	0	0	0	0	412
07:45 AM	27	114	0	0	1	0	31	0	0	245	8	0	0	0	0	0	426
Total	77	313	0	0	3	0	118	0	0	1016	18	0	0	0	0	0	1545
08:00 AM	10	91	0	0	4	0	35	0	0	182	3	0	0	0	0	0	325
08:15 AM	12	87	0	0	2	0	27	0	0	190	2	0	0	0	0	0	320
08:30 AM	22	63	0	0	2	0	30	0	0	186	7	0	0	0	0	0	310
08:45 AM	6	98	0	0	2	0	10	0	0	158	9	0	0	0	0	0	283
Total	50	339	0	0	10	0	102	0	0	716	21	0	0	0	0	0	1238
03:30 PM	34	223	0	0	1	0	25	0	0	143	6	0	0	0	0	0	432
03:45 PM	35	238	0	0	6	0	28	0	0	117	5	0	0	0	0	0	430
Total	69	461	0	0	7	0	54	0	0	260	11	0	0	0	0	0	862
04:00 PM	40	203	0	0	4	0	35	1	0	131	2	0	0	0	0	0	417
04:15 PM	29	228	0	0	3	0	29	0	0	116	3	0	0	0	0	0	408
04:30 PM	34	207	0	0	0	0	29	0	0	124	5	0	0	0	0	0	399
04:45 PM	28	244	0	0	5	0	26	0	0	109	9	0	0	0	0	0	421
Total	131	882	0	0	12	0	120	1	0	480	19	0	0	0	0	0	1645
05:00 PM	38	228	0	0	6	0	28	0	0	120	5	0	0	0	0	0	424
05:15 PM	26	190	0	0	3	0	24	0	0	98	6	0	0	0	0	0	348
Grand Total	388	2414	0	0	41	0	448	1	0	2690	80	0	0	0	0	0	6060
Apprch %	13.8	86.2	0.0	0.0	8.4	0.0	91.4	0.2	0.0	97.1	2.9	0.0	0.0	0.0	0.0	0.0	
Total %	6.4	39.8	0.0	0.0	0.7	0.0	7.4	0.0	0.0	44.4	1.3	0.0	0.0	0.0	0.0	0.0	

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3495 Winton Place
Building E, Suite 110
Rochester, New York 14623

File Name : camphoward.PM
Site Code : 11111111
Start Date : 3/9/2007
Page No : 1

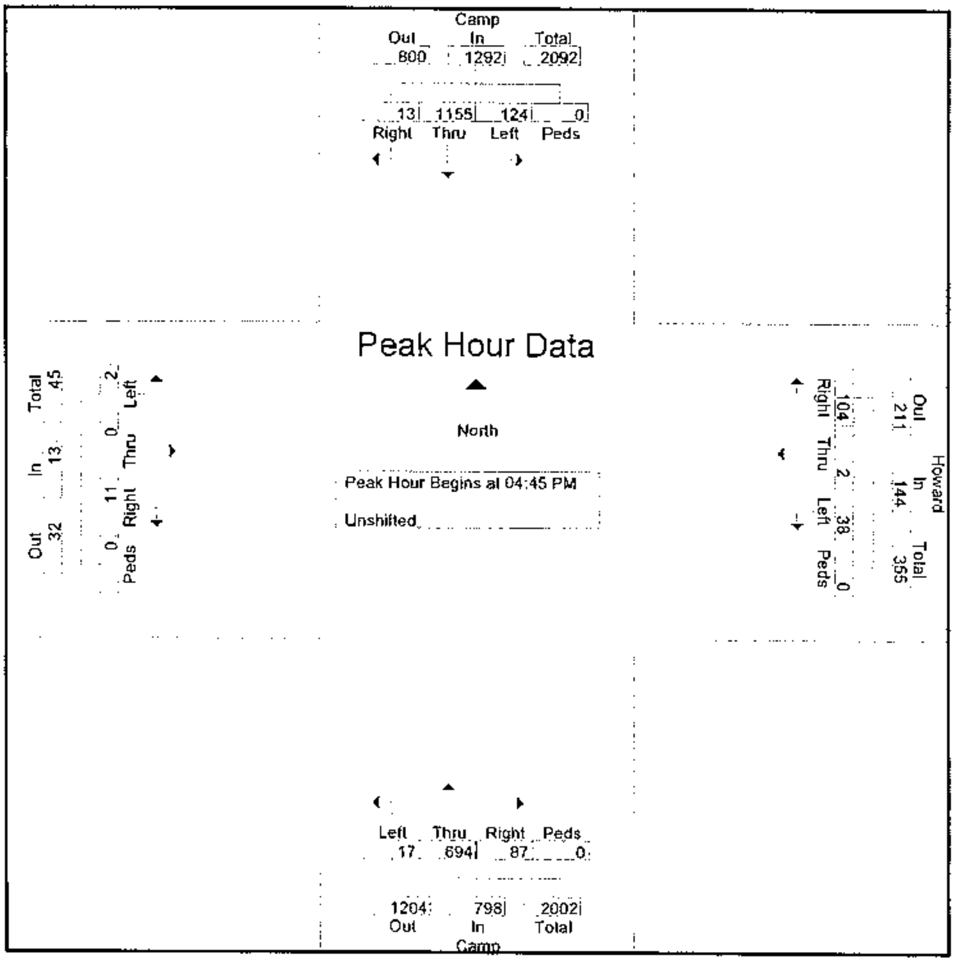
Groups Printed- Unshifted

	Camp Southbound				Howard Westbound				Camp Northbound				Eastbound				
Start Time	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Int. Total
04:00 PM	3	243	30	0	18	1	5	0	13	151	2	0	1	0	1	0	468
04:15 PM	0	278	26	0	15	1	7	0	15	155	5	0	2	1	2	0	507
04:30 PM	1	285	20	0	21	0	7	0	15	183	4	0	1	0	0	0	537
04:45 PM	1	319	21	0	26	1	4	0	24	151	2	0	3	0	0	0	552
Total	5	1125	97	0	80	3	23	0	67	640	13	0	7	1	3	0	2064
05:00 PM	5	282	28	0	18	1	6	0	15	177	9	0	5	0	0	0	546
05:15 PM	5	307	40	0	31	0	13	0	17	175	2	0	2	0	1	0	593
05:30 PM	2	247	35	0	29	0	15	0	31	191	4	0	1	0	1	0	556
05:45 PM	2	278	39	0	15	0	6	0	19	157	8	0	3	0	0	0	527
Total	14	1114	142	0	93	1	40	0	82	700	23	0	11	0	2	0	2222
Grand Total	19	2239	239	0	173	4	63	0	149	1340	36	0	18	1	5	0	4286
Apprch %	0.8	89.7	9.6	0	72.1	1.7	26.2	0	9.8	87.9	2.4	0	75	4.2	20.8	0	
Total %	0.4	52.2	5.6	0	4	0.1	1.5	0	3.5	31.3	0.8	0	0.4	0	0.1	0	

3495 Winton Place
Building E, Suite 110
Rochester, New York 14623

File Name : camphoward.PM
Site Code : 11111111
Start Date : 3/9/2007
Page No : 2

	Camp					Howard					Camp										
	Southbound					Westbound					Northbound					Eastbound					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 04:45 PM																					
04:45 PM	1	319	21	0	341	26	1	4	0	31	24	151	2	0	177	3	0	0	0	3	552
05:00 PM	5	282	28	0	315	18	1	6	0	25	15	177	9	0	201	5	0	0	0	5	546
05:15 PM	5	307	40	0	352	31	0	13	0	44	17	175	2	0	194	2	0	1	0	3	593
05:30 PM	2	247	35	0	284	29	0	15	0	44	31	191	4	0	226	1	0	1	0	2	556
Total Volume	13	1155	124	0	1292	104	2	38	0	144	87	694	17	0	798	11	0	2	0	13	2247
% App. Total	1	89.4	9.6	0		72.2	1.4	26.4	0		10.9	87	2.1	0		84.6	0	15.4	0		
PHF	.650	.905	.775	.000	.918	.839	.500	.633	.000	.818	.702	.908	.472	.000	.883	.550	.000	.500	.000	.650	.947



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3495 Winton Place
Building E, Suite 110
Rochester, New York 14623

File Name : camphoward.SAT
Site Code : 22222222
Start Date : 3/10/2007
Page No : 1

Groups Printed- Unshifted

	Camp Road Southbound				Howard Road Westbound				Camp Road Northbound				Eastbound				
Start Time	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Int. Total
11:30 AM	2	124	15	0	15	0	14	0	12	126	2	0	3	0	3	0	316
11:45 AM	1	133	16	0	12	1	10	0	11	124	2	0	5	1	2	0	318
Total	3	257	31	0	27	1	24	0	23	250	4	0	8	1	5	0	634
12:00 PM	0	113	13	0	16	1	5	0	14	130	2	0	1	0	4	0	299
12:15 PM	2	121	12	0	15	0	6	0	15	122	3	0	2	0	2	0	300
12:30 PM	1	122	7	0	11	0	13	0	14	132	1	0	1	0	0	0	302
12:45 PM	0	124	12	0	8	0	11	0	14	122	2	0	2	0	0	0	295
Total	3	480	44	0	50	1	35	0	57	506	8	0	6	0	6	0	1196
01:00 PM	2	102	12	0	20	0	13	0	23	122	3	0	2	0	2	0	301
01:15 PM	1	126	12	0	16	0	12	0	10	110	2	0	3	0	1	0	293
Grand Total	9	965	99	0	113	2	84	0	113	988	17	0	19	1	14	0	2424
Apprch %	0.8	89.9	9.2	0	56.8	1	42.2	0	10.1	88.4	1.5	0	55.9	2.9	41.2	0	
Total %	0.4	39.8	4.1	0	4.7	0.1	3.5	0	4.7	40.8	0.7	0	0.8	0	0.6	0	

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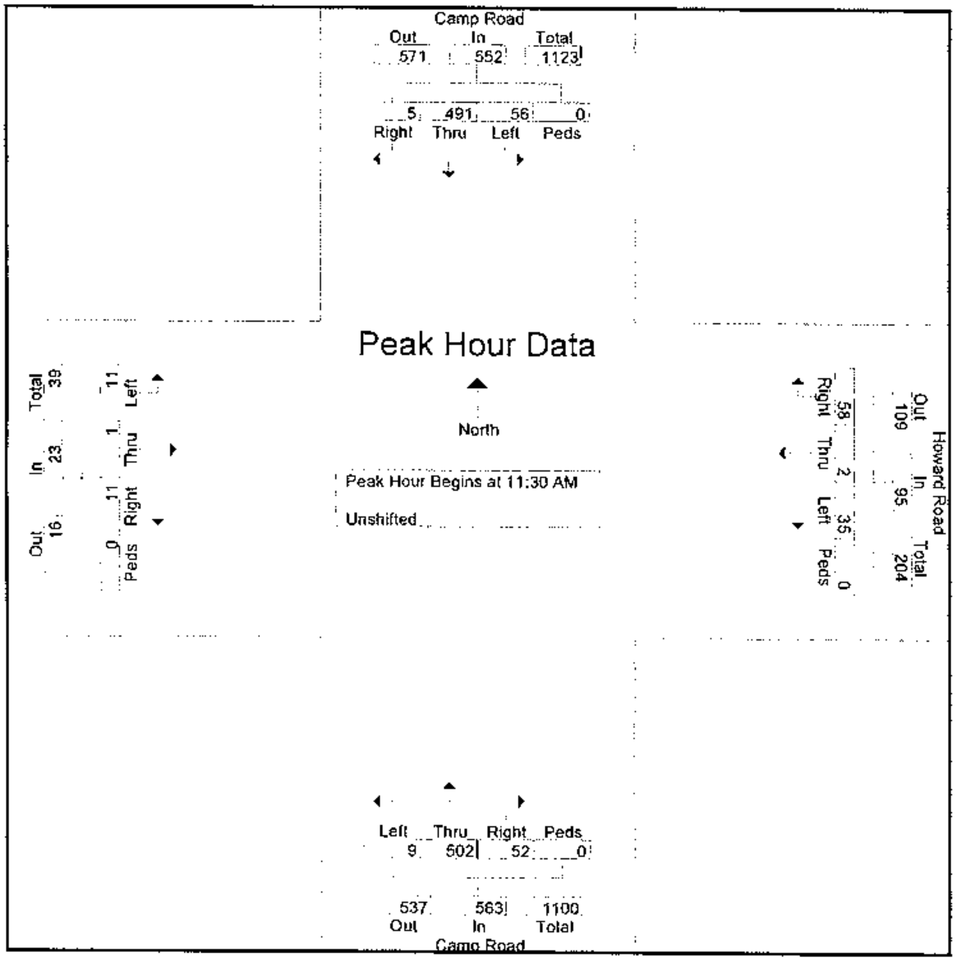
3495 Winton Place
Building E, Suite 110
Rochester, New York 14623

File Name : camphoward.SAT
Site Code : 22222222
Start Date : 3/10/2007
Page No : 2

	Camp Road Southbound					Howard Road Westbound					Camp Road Northbound					Eastbound					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 11:30 AM to 01:15 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 11:30 AM																					
11:30 AM	2	124	15	0	141	15	0	14	0	29	12	126	2	0	140	3	0	3	0	6	316
11:45 AM	1	133	16	0	150	12	1	10	0	23	11	124	2	0	137	5	1	2	0	8	318
12:00 PM	0	113	13	0	126	16	1	5	0	22	14	130	2	0	146	1	0	4	0	5	299
12:15 PM	2	121	12	0	135	15	0	6	0	21	15	122	3	0	140	2	0	2	0	4	300
Total Volume	5	491	56	0	552	58	2	35	0	95	52	502	9	0	563	11	1	11	0	23	1233
% App. Total	0.9	88.9	10.1	0		61.1	2.1	36.8	0		9.2	89.2	1.6	0		47.8	4.3	47.8	0		
PHF	.625	.923	.875	.000	.920	.906	.500	.625	.000	.819	.867	.965	.750	.000	.964	.550	.250	.688	.000	.719	.969



6-45

3495 Winton Place
Building E, Suite 110
Rochester, New York 14623

File Name : 20Oregon.SAT
Site Code : 00000301
Start Date : 3/10/2007
Page No : 1

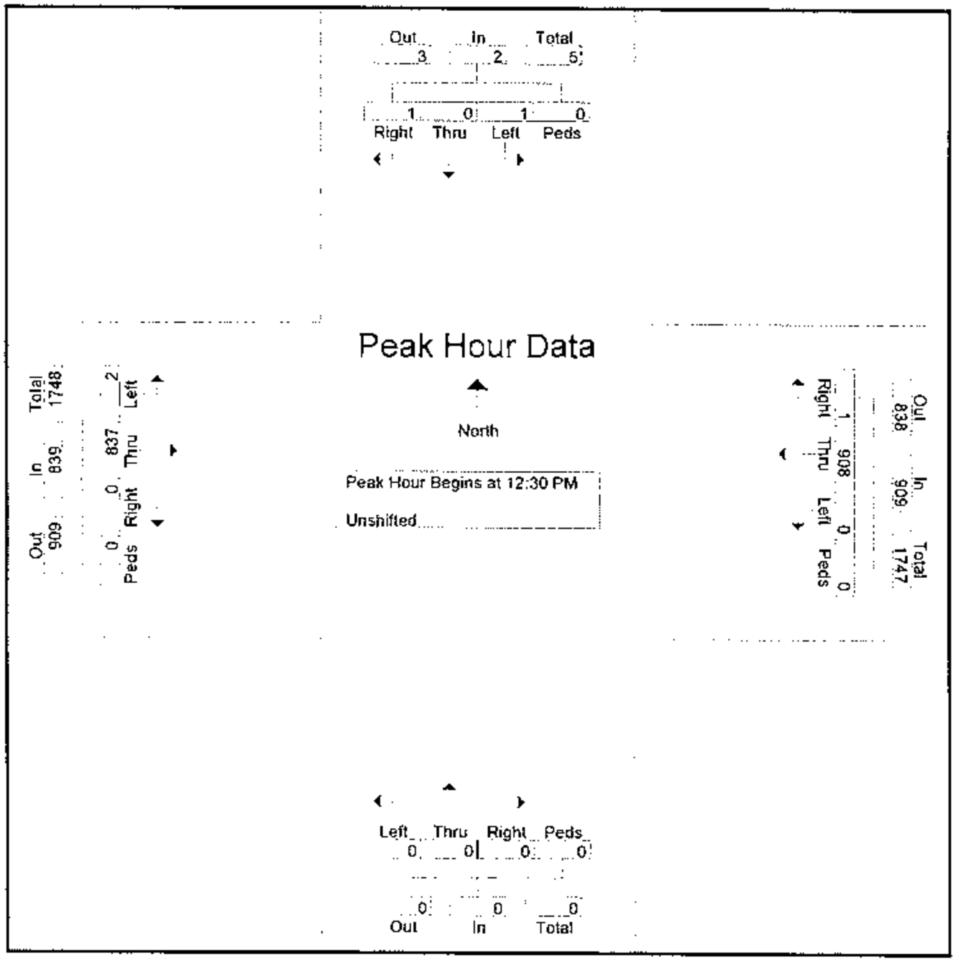
Groups Printed- Unshifted

	Southbound				Westbound				Northbound				Eastbound				
Start Time	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Int. Total
11:30 AM	0	0	1	0	0	157	0	0	0	0	0	0	0	217	0	0	375
11:45 AM	1	0	0	0	0	145	0	0	0	0	0	0	0	207	0	0	353
Total	1	0	1	0	0	302	0	0	0	0	0	0	0	424	0	0	728
12:00 PM	1	0	0	0	0	154	0	0	0	0	0	0	0	195	0	0	350
12:15 PM	0	0	1	0	0	154	0	0	0	0	0	0	0	213	0	0	368
12:30 PM	0	0	0	0	0	214	0	0	0	0	0	0	0	209	1	0	424
12:45 PM	0	0	1	0	0	208	0	0	0	0	0	0	0	232	0	0	441
Total	1	0	2	0	0	730	0	0	0	0	0	0	0	849	1	0	1583
01:00 PM	1	0	0	0	1	245	0	0	0	0	0	0	0	189	1	0	437
01:15 PM	0	0	0	0	0	241	0	0	0	0	0	0	0	207	0	0	448
Grand Total	3	0	3	0	1	1518	0	0	0	0	0	0	0	1669	2	0	3196
Apprch %	50	0	50	0	0.1	99.9	0	0	0	0	0	0	0	99.9	0.1	0	
Total %	0.1	0	0.1	0	0	47.5	0	0	0	0	0	0	0	52.2	0.1	0	

3495 Winton Place
Building E, Suite 110
Rochester, New York 14623

File Name : 20Oregon.SAT
Site Code : 00000301
Start Date : 3/10/2007
Page No : 2

	Southbound					Westbound					Northbound					Eastbound					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 11:30 AM to 01:15 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 12:30 PM																					
12:30 PM	0	0	0	0	0	0	214	0	0	214	0	0	0	0	0	0	209	1	0	210	424
12:45 PM	0	0	1	0	1	0	208	0	0	208	0	0	0	0	0	0	232	0	0	232	441
01:00 PM	1	0	0	0	1	1	245	0	0	246	0	0	0	0	0	0	189	1	0	190	437
01:15 PM	0	0	0	0	0	0	241	0	0	241	0	0	0	0	0	0	207	0	0	207	448
Total Volume	1	0	1	0	2	1	908	0	0	909	0	0	0	0	0	0	837	2	0	839	1750
% App. Total	50	0	50	0		0.1	99.9	0	0		0	0	0	0		0	99.8	0.2	0		
PHF	.250	.000	.250	.000	.500	.250	.927	.000	.000	.924	.000	.000	.000	.000	.000	.000	.902	.500	.000	.904	.977



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A2

Miscellaneous Traffic Data and Calculations

ROUTE NUMBER	END MILE POINT	COUNT LOC REFERENCE MARKER	SECTION LENGTH	SECTION ENDS AT	LATEST COUNT EST AADT	YR	-------PREVIOUS COUNTS------ EST AADT	YR	EST AADT	YR	EST AADT	YR	COUNT STATION NUMBER
				REGION 5 COUNTY 2 CHAUTAUQUA									
20	0111101	20 52011091	7.90	RT 394 WESTFIELD	3350	**	3250	03	3300	00	2900	97	0095
20	0112465	20 52011243	13.64	FREDONIA W VILLAGE LN	4800	04	5400	01	5150	98	4600	97	0097
20	0112617	20 52011254	1.52	TEMPLE ST	6050	04	6300	01	5650	98	5600	94	0098
20	0112759	20 52011266	1.42	RT 60	13800	**	13700	02	14900	99	15500	98	0222
20	0112966	20S52011279	2.07	RT 39	11200	**	11200	03	10400	01	10500	97	0099
20	0113209	20 52011306	2.43	CR 79 CENTER RD	6350	04	6750	03	6000	01	5950	97	0148
20	0113759	20 52011358	5.50	RT 952H CENTRAL AVE SILVER	4950	**	4850	02	5050	99	4050	98	0028
20	0113863	20 52011384	1.04	START 5 OLAP	6350	04	5850	01	6300	98	4950	93	0221
20	0114058	5 52013105	1.95	ACC RT 90I IRVING	12700	04	12900	03	12900	02	11800	01	0010 CC
20	0114133	5 52013116	0.75	ERIE CO LINE	17300	**	16600	02	14900	99	14200	97	0011
				REGION 5 COUNTY 3 ERIE									
20	0210014	5 53021000	0.14	END 5 OLAP	16600	**	16200	03	13700	02	15800	00	0093
20	0210018	20 53021003	0.04	RT 438 FLAT RD	8700	**	8500	03	6050	98	9000	97	0249
20	0210269	20 53021023	2.51	RT 249	7100	**	6950	03	5950	00	6200	99	0103
20	0210575	20 53021038	3.06	CR 9B S MAIN ST	6700	**	6550	03	5800	00	4950	97	0104
20	0210868	20 53021082	2.93	CR 221 ACC RT 90I	9850	**	9650	03	6000	00	6150	97	0105
20	0211241	20 53021095	3.73	CR 63 S CREEK RD	8050	**	7850	03	6650	00	7800	97	0107
20	0211644	20 53021132	4.03	CR 122 AMSDELL RD	13000	04	10600	01	13500	95	12200	91	0109
20	0211803	20 53021173	1.59	RT 75 ACC RT 90I	23700	**	23300	02	20900	99	20300	98	0110
20	0211985	20 53021192	1.82	RT 62 SO PARK AVE	24900	**	24800	03	21200	01	20400	98	0072
20	0212063	20 53021205	0.78	RT 20A BIG TREE	23200	**	23100	03	20600	01	20700	98	0111
20	0212363	20 53021234	3.00	RT 179 MILESTRIP RD	21200	**	21100	03	17200	00	17600	98	0601
20	0212432	20 53021241	0.69	RTS 240 277 OR. PARK RD	19000	04	30300	03	22100	02	22000	01	0112
20	0212530	20 53021249	0.98	MICHAEL RD	17600	**	17200	01	15200	97	16500	96	0113
20	0212752	20 53021271	2.22	RT 187 TRANSIT RD TN OF WE	15700	**	15200	99					0447
20	0212847	20 53021280	0.95	RT 16 START 78 OLAP	21900	04	15800	02	13800	96	14200	93	0114
20	0212894	20 53021287	0.47	RT 400 AURORA EXPWY	24600	04	18300	01	21800	99	19100	97	0115
20	0212933	205 53023080	0.39	CR 330 BULLIS ROAD	29000	**	28800	03	27300	99	23300	97	0098
20	0213073		1.40	RT 354 CLINTON ST	22000	**	21800	03	23300	97	17300	93	0446
20	0213128	20 53021312	0.55	FRENCH RD	26500	**	26300	03	25200	00	23900	99	0197
20	0213361	20 53021333	2.33	RT 130 END 78 OLAP	30900	**	30700	03	25300	00	20600	96	0374
20	0213497	20 53021345	1.36	CR 57B LANCASTER	15700	04	13300	03	14900	99	13800	96	0116
20	0213667	20 53021360	1.70	CR 105B CEMETERY RD	12200	04	14200	01	12500	99	12000	96	0206
20	0213977	20 53021390	3.10	CR 335 TOWNLINE RD TN LAN	11200	04	11600	99	10800	96	11000	93	0120
20	0214428	20 53021425	4.51	ALDEN-CRITTENDON RD	12000	**	11500	02	11500	99	10900	96	0445
20	0214571	20 53021449	1.43	GENESEE CO LINE	7850	04	3950	01	4050	98	5250	96	0121
				REGION 4 COUNTY 1 GENESEE									
20	0310150	20 41031002	1.50	HARLOW RD CR 4	5300	04	4500	02	4850	01	4050	98	0025
20	0310381	20 41031027	2.31	RT 77 DARIEN CTR	4950	**	4800	02	5000	01	6250	99	0070
20	0310576	20 41031049	1.95	RT 238	7800	**	7650	03	7200	02	8450	99	0071
20	0311073	20 41030824	4.97	RT 98 UNDER ALEXANDER	4850	**	4700	02	5300	01	4100	98	0292
20	0311700	20 41031139	6.27	CR 15 BETHANY CTR	3950	**	3850	02	4150	00	2950	98	0012
20	0312049	20 41031187	3.49	RT 63	4850	**	4700	02	3850	01	5100	98	0072
20	0312276	20 41031213	2.27	RT 19 PAVILION CTR	2300	**	2200	02	2100	96	2100	93	0282
20	0312710	20 41031253	4.34	LIVINGSTON CO LINE	2850	**	2750	02	2450	97	2250	93	0016

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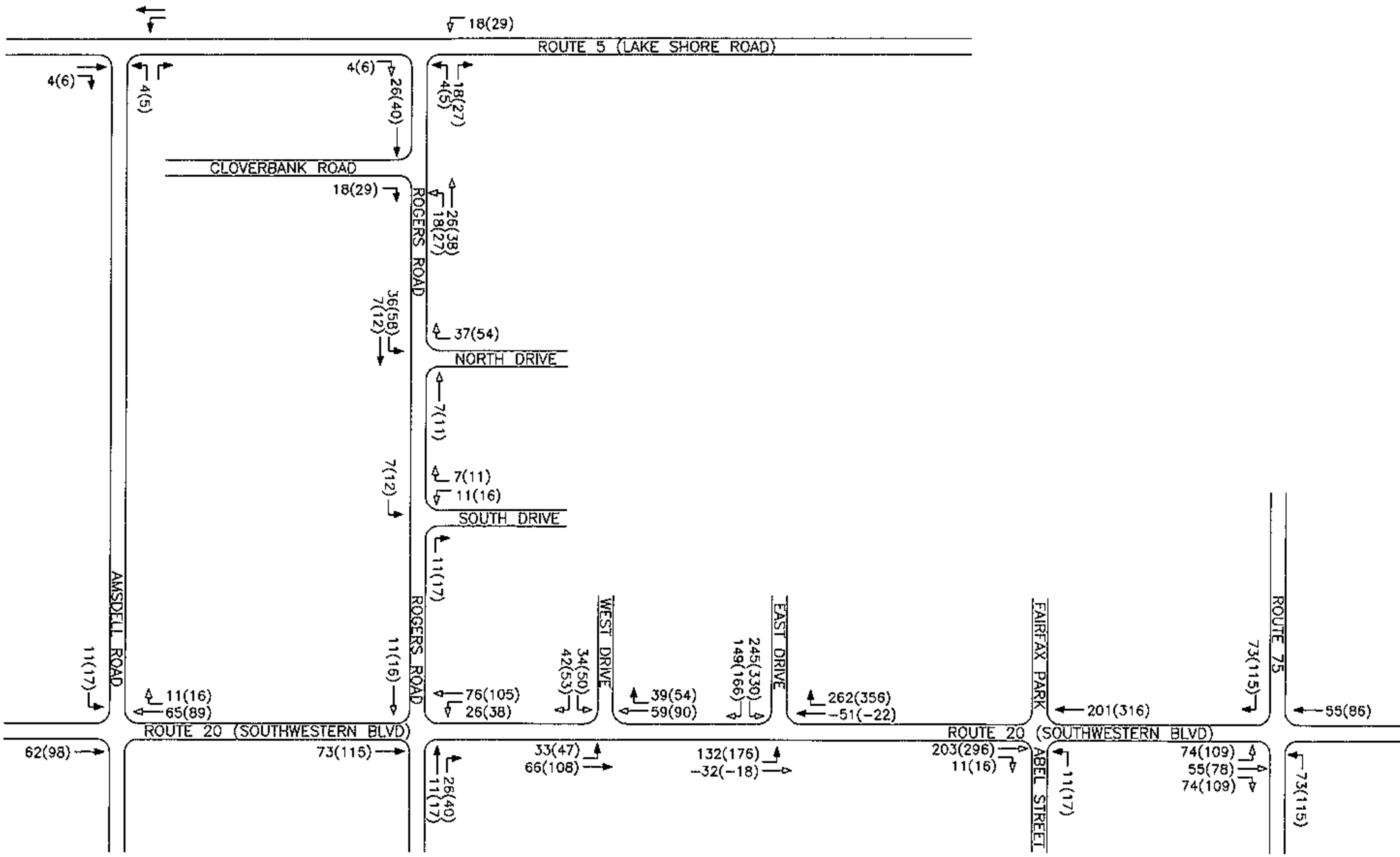

KEY
ENTERING TRIPS
EXITING TRIPS
00(00) = PM(SAT)

N
NOT TO SCALE

PROPOSED WALMART SUPERCENTER

TOWN OF HAMBURG, ERIE COUNTY, NEW YORK

FIGURE 7

PEAK HOUR SITE GENERATED TRIPS

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TRIP GENERATION CALCULATIONS - PROPOSED LOWES DEVELOPMENT, HAMBURG, NY
October 9, 2006

LOWE'S HOME IMPROVEMENT STORE - TRIP GENERATION							
Location	**Size (sq. ft.)**	**PM Peak Hour**			**Saturday Peak Hour**		
		Enter	**Exit**	**Total**	**Enter**	**Exit**	**Total**
Glen Burnie, MD	128,993	332	317	649	583	572	1155
Federick, MD	135,197	181	216	397	251	267	518
Baltimore, MD	129,000	196	176	372	439	436	875
Dover, DE	90,255	212	266	478	466	515	981
Martinsburg, WV	135,197	248	278	526	371	390	761
Chesterfield, VA	130,316	315	247	562	438	471	909
Chester, VA	129,044	223	262	485	334	317	651
Winchester, VA	135,197	271	304	575	378	407	785
Williamsburg, VA	135,197	192	201	393	322	332	654
Charlottesville, VA	120,059	297	305	602	424	388	812
Pottsville, PA	164,558	106	100	206	221	227	448
Wilkes-Barre, PA	178,207	112	100	212	201	155	356
Lebanon, PA	105,700	127	136	263	310	309	619
Poughkeepsie, NY	164,775	137	154	291	242	263	505
Kingston, NY	164,775	197	183	380	302	292	594
Dickson City, PA	168,044	215	202	417	442	406	848
Christiana, DE	123,173	126	116	242	165	149	314
New Haven, CT	165,129	117	125	242	197	193	390
Horseheads, NY	130,019	167	161	328			
Average:	**139,045**	**198**	**203**	**401**	**338**	**338**	**676**
ITE :	**139,045**	**158**	**177**	**335**	**334**	**296**	**630**

Average Rate	1.43	1.46	2.88	2.43	2.43	4.86
ITE Rate	1.35	1.52	2.87	2.86	2.54	5.40

		PM Peak Hour			**Saturday Peak Hour**		
		(vph)			(vph)		
	Hamburg, NY	**Enter**	**Exit**	**Total**	**Enter**	**Exit**	**Total**
Lowe's	139,410	199	203	402	339	339	678
Restaurant	7,500	50	32	82	95	56	151
Retail	7,500	47	55	102	93	109	202
Subtotal:	154,410	**296**	**290**	**586**	**527**	**504**	**1031**
Multi-use credit 5%		10%	10%		10%	10%	
Multi-use credit trips		-30	-29	-59	-53	-50	-103
Driveway Volumes:		**266**	**261**	**527**	**474**	**454**	**928**
Pass-by reduction %:		30%	30%		20%	20%	
Pass-by reduction trips:		-80	-78	-158	-95	-91	-186
Total Primary Trips:		**186**	**183**	**369**	**379**	**363**	**742**

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Summary of Multi-Use Trip Generation
Average Weekday Driveway Volumes
12-Sep-06

Land Use	Size	24 Hour Two-Way Volume	PM Pk Hour Enter	PM Pk Hour Exit	Sat Pk Hour Enter	Sat Pk Hour Exit
High Turnover (Sit-Down) Restaurant	7.5 Th.Gr.Sq.Ft.	954	50	32	95	56
Video Rental Store	7.5 Th.Gr.Sq.Ft.	0	47	55	93	109
Total			97	87	188	165

Note: A zero indicates no data available.

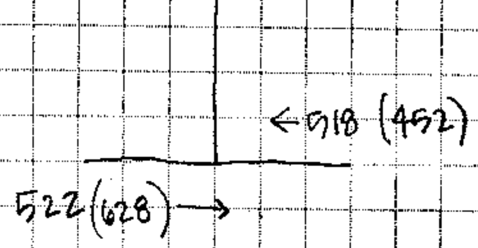
TRIP GENERATION BY MICROTRANS

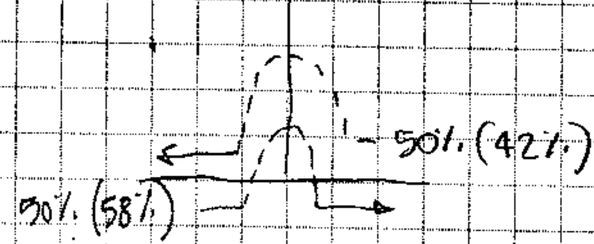
SRF & Associates
Traffic Engineering & Planning Consultants
3495 Winton Place, Bldg. E-110
Rochester, NY 14623
Phone 585-272-4660 Fax 585-272-4662

JOB 26029.1 LOWES
SHEET NO. ONE OF ONE
CALCULATED BY dlg DATE 10.9.06
CHECKED BY DATE
SCALE

• PASS BY TRIPS

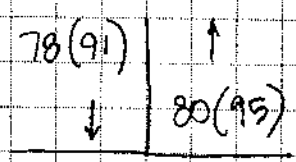
-REV'D 10.9.06 FOR 2 OUTPARCELS

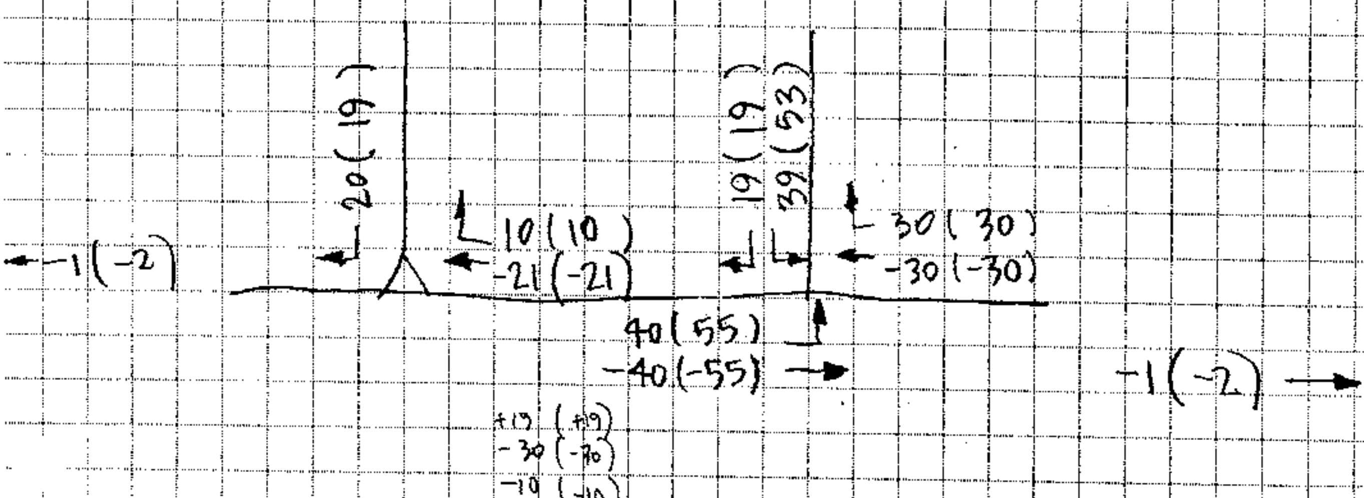




TRIPS:

	IN	OUT
PM	80	78
SAT	95	91





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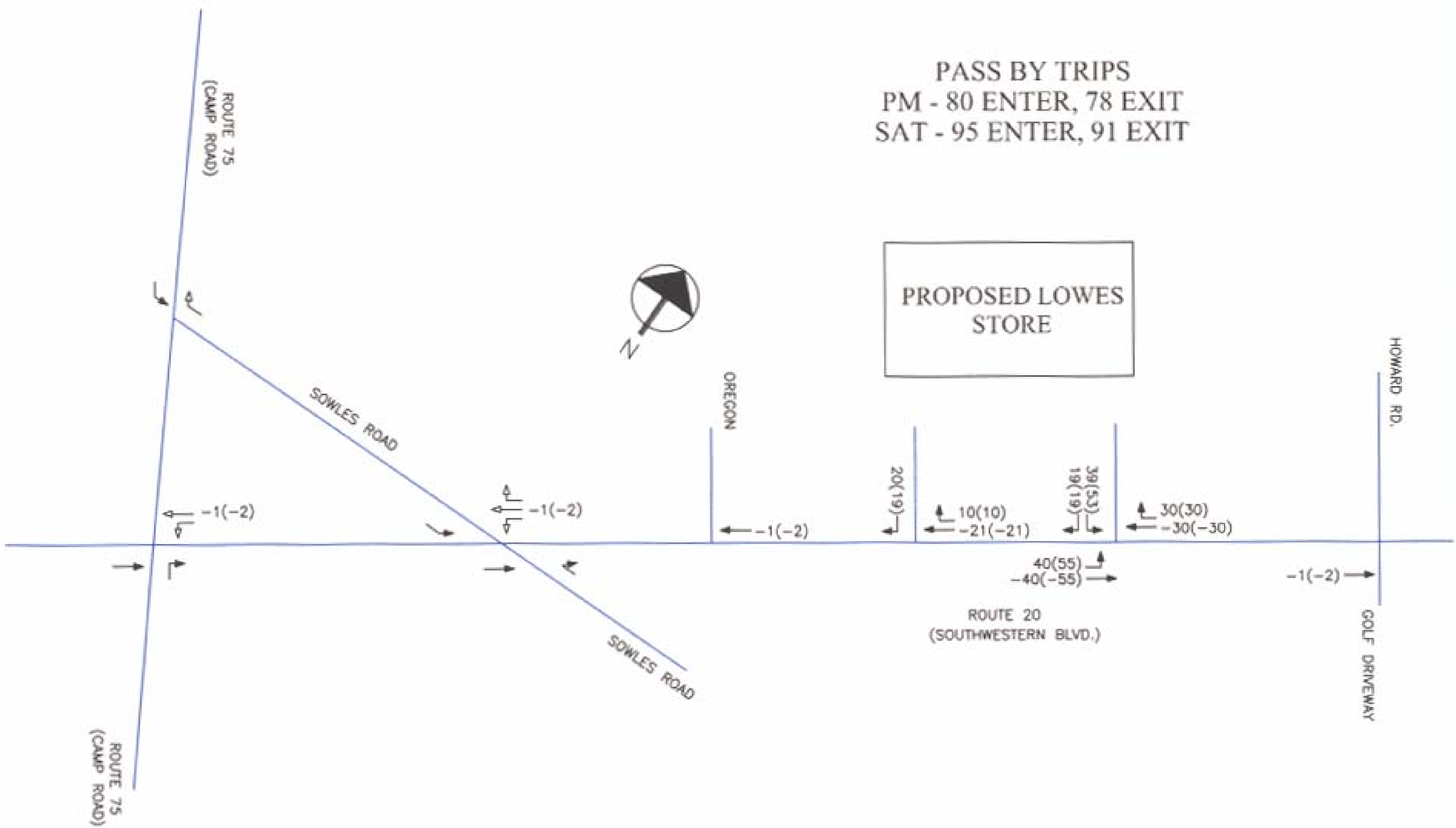

KEY

XX(XX) = PM(SAT)

REV. 03/07

PROPOSED LOWES STORE	APPENDIX
TOWN OF HAMBURG, ERIE COUNTY, NEW YORK	PASS BY TRIPS

SRF ASSOCIATES
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PROPOSED LOWES
TOWN OF HAMBURG, ERIE COUNTY, NY
PM PEAK
REVISED 03/14/07

LOCATION NUMBER	INTERSECTION DESCRIPTION		[redacted]	Back Growth 1.01	Wellington Woods & Treehaven Enter Dist %	Wellington Woods & Treehaven Exit Dist %	Wellington Woods & Treehaven Trips IN 120	Wellington Woods & Treehaven Trips OUT 69	Woodstream Subdivision Enter Dist %	Woodstream Subdivision Exit Dist %	Woodstream Subdivision Trips IN 58	Woodstream Subdivision Trips OUT 34	WalMart Trips	Total Trips	[redacted]	Proposed Lowes Enter Dist. %	Proposed Lowes Exit Dist. %	Proposed Lowes Trips IN 166	Proposed Lowes Trips OUT 183	Pass By Trips	Total Site Trips	Full Build Volumes
1	Route 75 / Sowles Road																					
		SR																				
		ST	1101	1112	20%		24		20%		12		73	109	1221							1221
		SL	149	150											150	5%		9			9	160
		WR	129	130											130		5%		9		9	139
		WT																				
		WL	15	15											15							15
		NR	20	20											20							20
		NT	646	652		20%		14		20%		7	74	95	747							747
		NL																				
		ER																				
		ET																				
		EL																				
2	Route 20(Southwestern Blvd)/Route 75(Camp Road)																					
		SR	209	211	20%		24		20%		12		73	109	320							320
		ST	1033	1043											1043							1043
		SL	33	33											33							33
		WR	12	12											12							12
		WT	976	986	15%		18		15%		9		55	82	1067		30%		55	-1	54	1121
		WL	333	336											336		10%		18		18	355
		NR	237	239											239	10%		19			19	258
		NT	523	528											528							528
		NL	502	507	20%		24		20%		12		73	109	616							616
		ER	232	234		20%		14		20%		7	74	95	329							329
		ET	880	889		15%		10		15%		5	55	70	959	30%		56			56	1015
		EL	151	153		20%		14		20%		7	74	95	247							247
3	Route 20(Southwestern Blvd) / Sowles Road																					
		SR	14	14											14							14
		ST	108	109											109							109
		SL	83	84											84	5%		9			9	93
		WR	30	30											30		5%		9		9	39
		WT	1007	1017	15%		18		15%		9		55	82	1099		40%		73	-1	72	1171
		WL	25	25											25		5%		9		9	34
		NR	34	34											34	5%		9			9	44
		NT	83	84											84							84
		NL	169	171											171							171
		ER	200	202											202							202
		ET	1017	1027		15%		10		15%		5	55	70	1098	40%		74			74	1172
		EL	4	4											4							4
4	Route 20(Southwestern Blvd) / Howard Road																					
		SR	26	26											26	5%		9			9	36
		ST	1	1											1							1
		SL	128	129											129							129
		WR	127	128											128							128
		WT	952	962	15%		18		15%		9		55	82	1043	45%		84			84	1127
		WL	2	2											2							2
		NR	8	8											8							8
		NT																				
		NL	3	3											3							3
		ER	6	6											6							6
		ET	943	952		15%		10		15%		5	55	70	1023		45%		82	-1	81	1104
		EL	60	61											61		5%		9		9	70

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PROPOSED LOWES
TOWN OF HAMBURG, ERIE COUNTY, NY
PM PEAK

REVISED 03/14/07

LOCATION NUMBER	INTERSECTION DESCRIPTION	[redacted]	Back Growth 1.01	Wellington Woods & Treehaven Enter Dist %	Wellington Woods & Treehaven Exit Dist %	Wellington Woods & Treehaven Trips IN 120	Wellington Woods & Treehaven Trips OUT 69	Woodstream Subdivision Enter Dist %	Woodstream Subdivision Exit Dist %	Woodstream Subdivision Trips IN 58	Woodstream Subdivision Trips OUT 34	WalMart Trips	Total Trips	[redacted]	Proposed Lowes Enter Dist. %	Proposed Lowes Exit Dist. %	Proposed Lowes Trips IN 186	Proposed Lowes Trips OUT 183	Pass By Trips	Total Site Trips	Full Build Volumes
5	Route 20(Southwestern Blvd) / Main Lowes Drive																				
	SR															25%		46	19	65	65
	ST																				
	SL															50%		92	39	131	131
	WR														40%		74		30	104	104
	WT			15%		18		15%		9		55	82	82	10%		19		-30	-11	70
	WL																				
	NR																				
	NT																				
	NL																				
	ER																				
	ET				15%		10		15%		5	55	70	70					-40	-40	30
	EL														50%		93		40	133	133
6	Route 20(Southwestern Blvd) / RIRO Lowes Drive																				
	SR															25%		46	20	66	66
	ST																				
	SL																				
	WR														10%		19		10	29	29
	WT			15%		18		15%		9		55	82	82		25%		46	-21	25	106
	WL																				
	NR																				
	NT																				
	NL																				
	ER																				
	ET				15%		10		15%		5	55	70	70	50%		93			93	163
	EL																				
7	Route 20(Southwestern Blvd)/Oregon Street																				
	SR	2	2											2							2
	ST																				
	SL	1	1											1							1
	WR	3	3											3							3
	WT	1060	1071	15%		18		15%		9		55	82	1152		50%		92	-1	91	1243
	WL																				
	NR																				
	NT																				
	NL																				
	ER																				
	ET	1132	1143		15%		10		15%		5	55	70	1214	50%		93			93	1307
	EL	2	2											2							2
8	Route 75 (camp road) / Howard Road																				
	SR	13	13											13							13
	ST	1155	1167	20%		24		20%		12		73	109	1275	5%		9			9	1284
	SL	124	125											125							125
	WR	104	105											105							105
	WT	2	2											2							2
	WL	38	38											38							38
	NR	87	88											88							88
	NT	694	701		20%		14		20%		7	74	95	796		5%		9		9	805
	NL	17	17											17							17
	ER	11	11											11							11
	ET																				
	EL	2	2											2							2

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PROPOSED LOWES
TOWN OF HAMBURG, ERIE COUNTY, NY
SAT PEAK

REVISED 03/14/07

LOCATION NUMBER	INTERSECTION DESCRIPTION	[illegible]	Back growth 1.01	Wellington Woods & Treehaven Enter Dist %	Wellington Woods & Treehaven Exit Dist %	Wellington Woods & Treehaven Trips IN 111	Wellington Woods & Treehaven out 94	Woodstream Subdivision Enter Dist %	Woodstream Subdivision Exit Dist %	Woodstream Subdivision Trips IN 47	Woodstream Subdivision out 40	WalMart Trips	Total Trips	[illegible]	Proposed Lowes Enter Dist. %	Proposed Lowes Exit Dist. %	Proposed Lowes Trips IN 379	Proposed Lowes Trips OUT 363	Pass By Trips	Total Site Trips	Full Build Volumes
1	**Route 75 / Sowles Road**																				
	SR																				
	ST	720	727	20%		22		20%		9		115	147	874							874
	SL	97	98											98	5%		19			19	117
	WR	153	155											155		5%		18		18	173
	WT																				
	WL	18	18											18							18
	NR	30	30											30							30
	NT	575	581		20%		19		20%		8	109	136	717							717
	NL																				
	ER																				
	ET																				
	EL																				
2	**Route 20(Southwestern Blvd)/Route 75(Camp Road)**																				
	SR	234	236	20%		22		20%		9		115	147	383							383
	ST	539	544											544							544
	SL	52	53											53							53
	WR	15	15											15							15
	WT	849	857	15%		17		15%		7		86	110	967		40%		145	-2	143	1110
	WL	290	293											293		10%		36		36	329
	NR	178	180											180	10%		38			38	218
	NT	454	459											459							459
	NL	377	381	20%		22		20%		9		115	147	527							527
	ER	237	239		20%		19		20%		8	109	136	375							375
	ET	666	673		15%		14		15%		6	78	98	771	40%		152			152	922
	EL	151	153		20%		19		20%		8	109	136	288							288
3	**Route 20(Southwestern Blvd) / Sowles Road**																				
	SR	11	11											11							11
	ST	81	82											82							82
	SL	62	63											63	5%		19			19	82
	WR	24	24											24		5%		18		18	42
	WT	906	915	15%		17		15%		7		86	110	1025		50%		182	-2	180	1204
	WL	20	20											20		5%		18		18	38
	NR	27	27											27	5%		19			19	46
	NT	66	67											67							67
	NL	135	136											136							136
	ER	152	154											154							154
	ET	770	778		15%		14		15%		6	78	98	876	50%		190			190	1065
	EL	3	3											3							3
4	**Route 20(Southwestern Blvd) / Howard Road**																				
	SR	22	22											22	5%		19			19	41
	ST																				
	SL	109	110											110							110
	WR	108	109											109							109
	WT	835	843	15%		17		15%		7		86	110	953	35%		133			133	1086
	WL	8	8											8							8
	NR	20	20											20							20
	NT																				
	NL	12	12											12							12
	ER	10	10											10							10
	ET	668	675		15%		14		15%		6	78	98	773		35%		127	-2	125	898
	EL	56	57											57		5%		18		18	75

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PROPOSED LOWES
TOWN OF HAMBURG, ERIE COUNTY, NY
SAT PEAK

REVISED 03/14/07

LOCATION NUMBER	INTERSECTION DESCRIPTION	[illegible]	Back growth 1.01	Wellington Woods & Treehaven Enter Dist %	Wellington Woods & Treehaven Exit Dist %	Wellington Woods & Treehaven Trips IN 111	Wellington Woods & Treehaven out 94	Woodstream Subdivision Enter Dist %	Woodstream Subdivision Exit Dist %	Woodstream Subdivision Trips IN 47	Woodstream Subdivision out 40	WalMart Trips	Total Trips	[illegible]	Proposed Lowes Enter Dist. %	Proposed Lowes Exit Dist. %	Proposed Lowes Trips IN 379	Proposed Lowes Trips OUT 363	Pass By Trips	Total Site Trips	Full Build Volumes
5	Route 20(Southwestern Blvd) / Lowes Main Drive																				
	SR															30%		109	19	128	128
	ST																				
	SL															40%		145	53	198	198
	WR														30%		114		30	144	144
	WT			15%		17		15%		7		86	110	110	10%		38		-30	8	118
	WL																				
	NR																				
	NT																				
	NL																				
	ER																				
	ET				15%		14		15%		6	78	98	98					-55	-55	43
	EL														60%		227		55	282	282
6	Route 20(Southwestern Blvd) / LOWES RIRO Drive																				
	SR															30%		109	19	128	128
	ST																				
	SL																				
	WR														10%		38		10	48	48
	WT			15%		17		15%		7		86	110	110		30%		109	-21	88	198
	WL																				
	NR																				
	NT																				
	NL																				
	ER																				
	ET				15%		14		15%		6	78	98	98	60%		227			227	326
	EL																				
7	Route 20(Southwestern Blvd) / Oregon																				
	SR	1	1											1							1
	ST																				
	SL	1	1											1							1
	WR	1	1											1							1
	WT	949	958	15%		17		15%		7		86	110	1068		60%		218	-2	216	1284
	WL																				
	NR																				
	NT																				
	NL																				
	ER																				
	ET	857	866		15%		14		15%		6	78	98	964	60%		227			227	1191
	EL	2	2											2							2
8	Route 75 (Camp Road) / Howard Road																				
	SR	5	5											5							5
	ST	491	496	20%		22		20%		9		115	147	643	5%		19			19	661
	SL	56	57											57							57
	WR	58	59											59							59
	WT	2	2											2							2
	WL	35	35											35							35
	NR	52	53											53							53
	NT	502	507		20%		19		20%		8	109	136	643		5%		18		18	661
	NL	9	9											9							9
	ER	11	11											11							11
	ET	1	1											1							1
	EL	11	11											11							11

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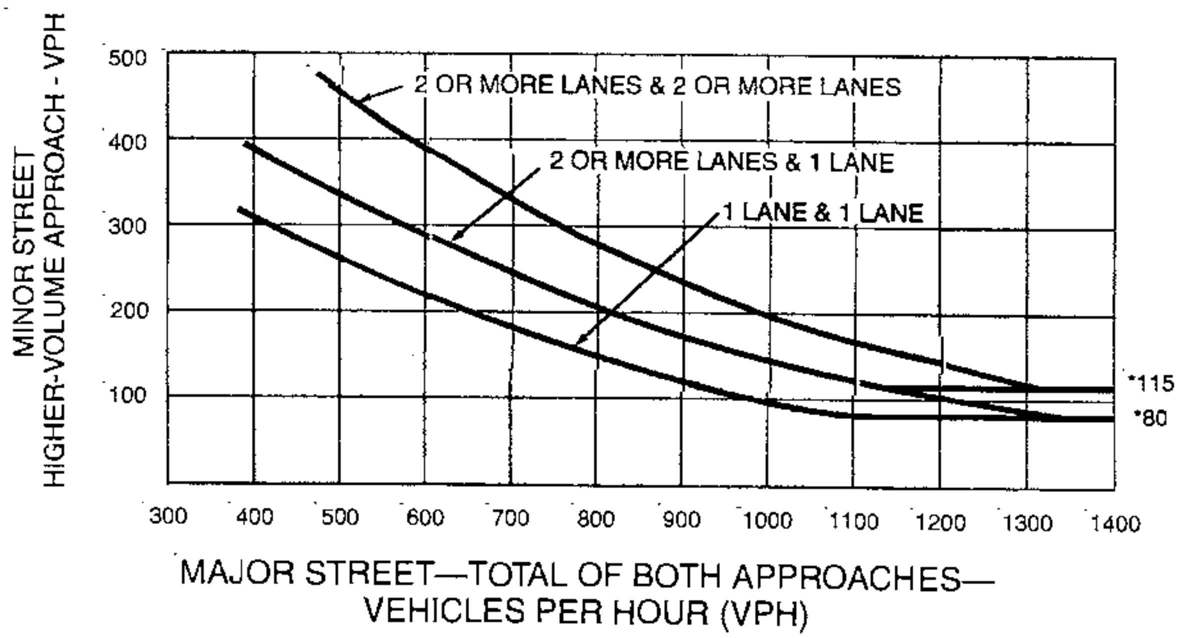
Table 4C-1. Warrant 1, Eight-Hour Vehicular Volume

Condition A—Minimum Vehicular Volume									
Number of lanes for moving traffic on each approach		Vehicles per hour on major street (total of both approaches)				Vehicles per hour on higher-volume minor-street approach (one direction only)			
Major Street	Minor Street	100%[a]	80%[b]	70%[c]	56%[d]	100%[a]	80%[b]	70%[c]	56%[d]
1................	1................	500	400	350	280	150	120	105	84
2 or more...	1................	600	480	420	336	150	120	105	84
2 or more...	2 or more...	600	480	420	336	200	160	140	112
1................	2 or more....	500	400	350	280	200	160	140	112

Condition B—Interruption of Continuous Traffic									
Number of lanes for moving traffic on each approach		Vehicles per hour on major street (total of both approaches)				Vehicles per hour on higher-volume minor-street approach (one direction only)			
Major Street	Minor Street	100%[a]	80%[b]	70%[c]	56%[d]	100%[a]	80%[b]	70%[c]	56%[d]
1................	1................	750	600	525	420	75	60	53	42
2 or more...	1................	900	720	630	504	75	60	53	42
2 or more...	2 or more...	900	720	630	504	100	80	70	56
1................	2 or more....	750	600	525	420	100	80	70	56

[a] Basic minimum hourly volume.
[b] Used for combination of Conditions A and B after adequate trial of other remedial measures.
[c] May be used when the major-street speed exceeds 70 km/h or exceeds 40 mph or in an isolated community with a population of less than 10,000.
[d] May be used for combination of Conditions A and B after adequate trial of other remedial measures when the major-street speed exceeds 70 km/h or exceeds 40 mph or in an isolated community with a population of less than 10,000.

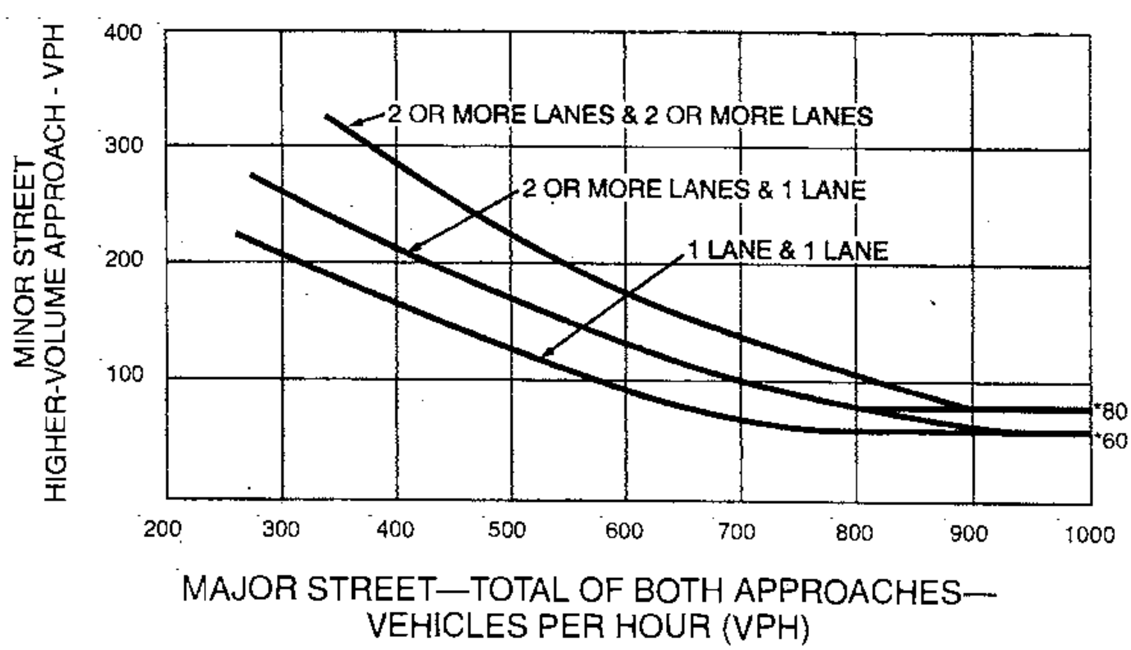
Figure 4C-1. Warrant 2, Four-Hour Vehicular Volume



*Note: 115 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 80 vph applies as the lower threshold volume for a minor-street approach with one lane.

Figure 4C-2. Warrant 2, Four-Hour Vehicular Volume (70% Factor)

(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 70 km/h OR ABOVE 40 mph ON MAJOR STREET)



*Note: 80 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 60 vph applies as the lower threshold volume for a minor-street approach with one lane.

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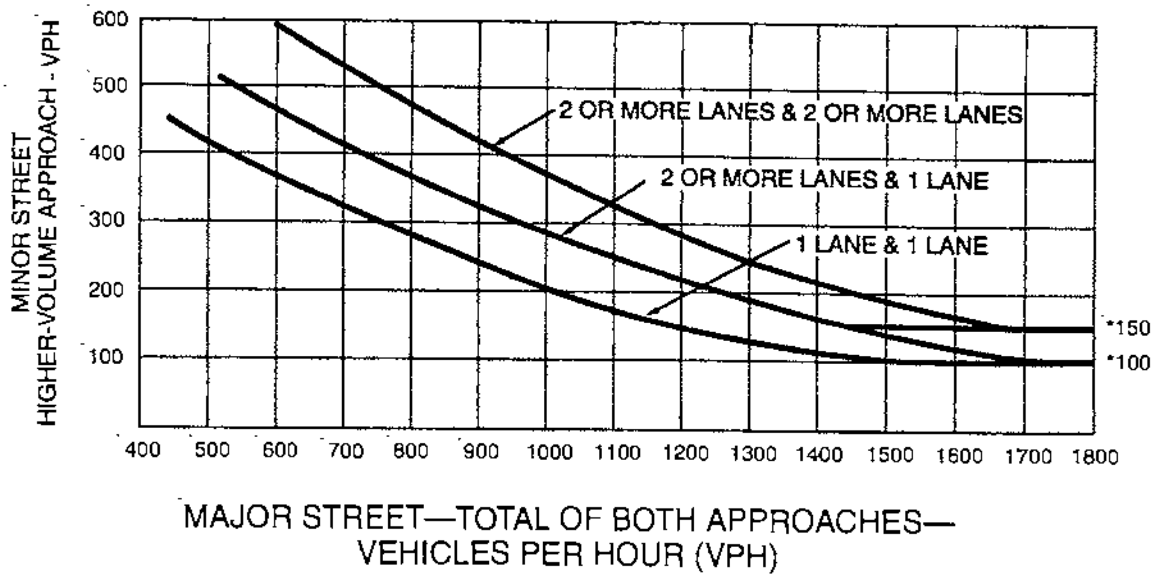
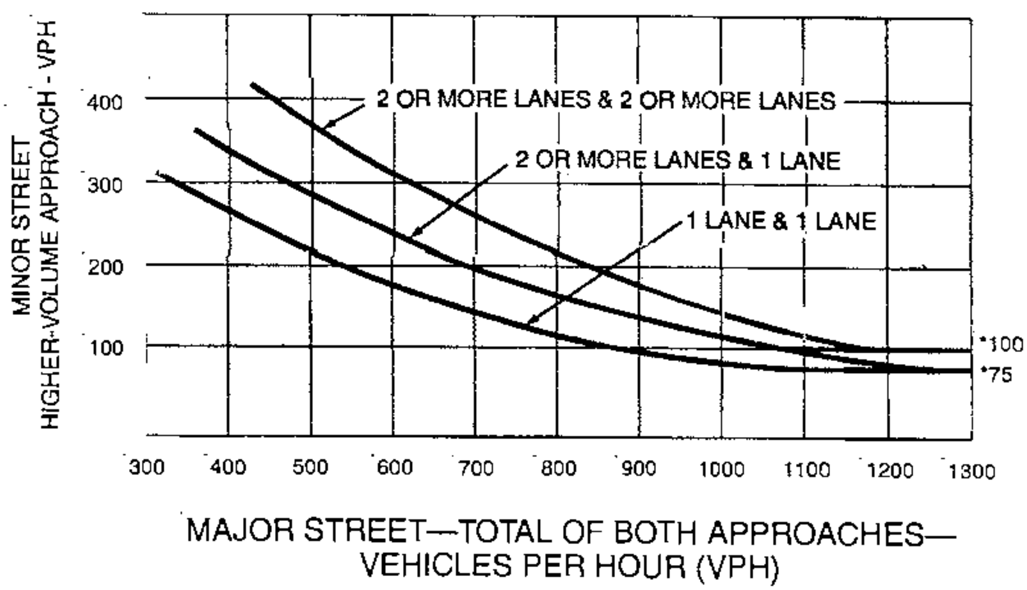
Figure 4C-3. Warrant 3, Peak Hour



*Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

Figure 4C-4. Warrant 3, Peak Hour (70% Factor)

(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 70 km/h OR ABOVE 40 mph ON MAJOR STREET)



*Note: 100 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold volume for a minor-street approach with one lane.

PROPOSED LOWE'S

Traffic Signal Warrant Analysis - NYS Route 20
Town of Hamburg, Erie County

Hour			Existing Fluctuation in Artery Volumes				Projected Full Development Artery Volume on NYS Route 20	Hourly Fluctuation of Retail Facility Driveway Traffic	Total Hourly Volumes Exiting Proposed Lowes
			EB	WB	per NYSDOT count on Route 20	Hourly Fluctuation			
			One-Way	One-Way	Two-Way	Two-Way	Total	Exiting	
10:00 AM	to	11:00 AM	651	558	1209	5.30%	**1756**	7.59%	**197**
11:00 AM	to	12:00 PM	715	658	1373	6.02%	**1994**	8.99%	**233**
12:00 PM	to	1:00 PM	679	682	1361	5.97%	**1976**	9.66%	**251**
1:00 PM	to	2:00 PM	637	659	1296	5.68%	**1882**	9.64%	**250**
2:00 PM	to	3:00 PM	646	806	1452	6.37%	**2109**	9.12%	**237**
3:00 PM	to	4:00 PM	698	1041	1739	7.62%	**2525**	8.60%	**223**
4:00 PM	to	5:00 PM	645	1124	1769	7.76%	**2569**	8.08%	**210**
5:00 PM	to	6:00 PM	639	1088	1727	7.57%	**2508**	7.55%	**196**
6:00 PM	to	7:00 PM	554	767	1321	5.79%	**1918**	6.77%	**176**
7:00 PM	to	8:00 PM	454	656	1110	4.87%	**1612**	6.56%	**170**
8:00 PM	to	9:00 PM	294	512	806	3.53%	**1170**	4.73%	**123**
					22808		33122		**2596**

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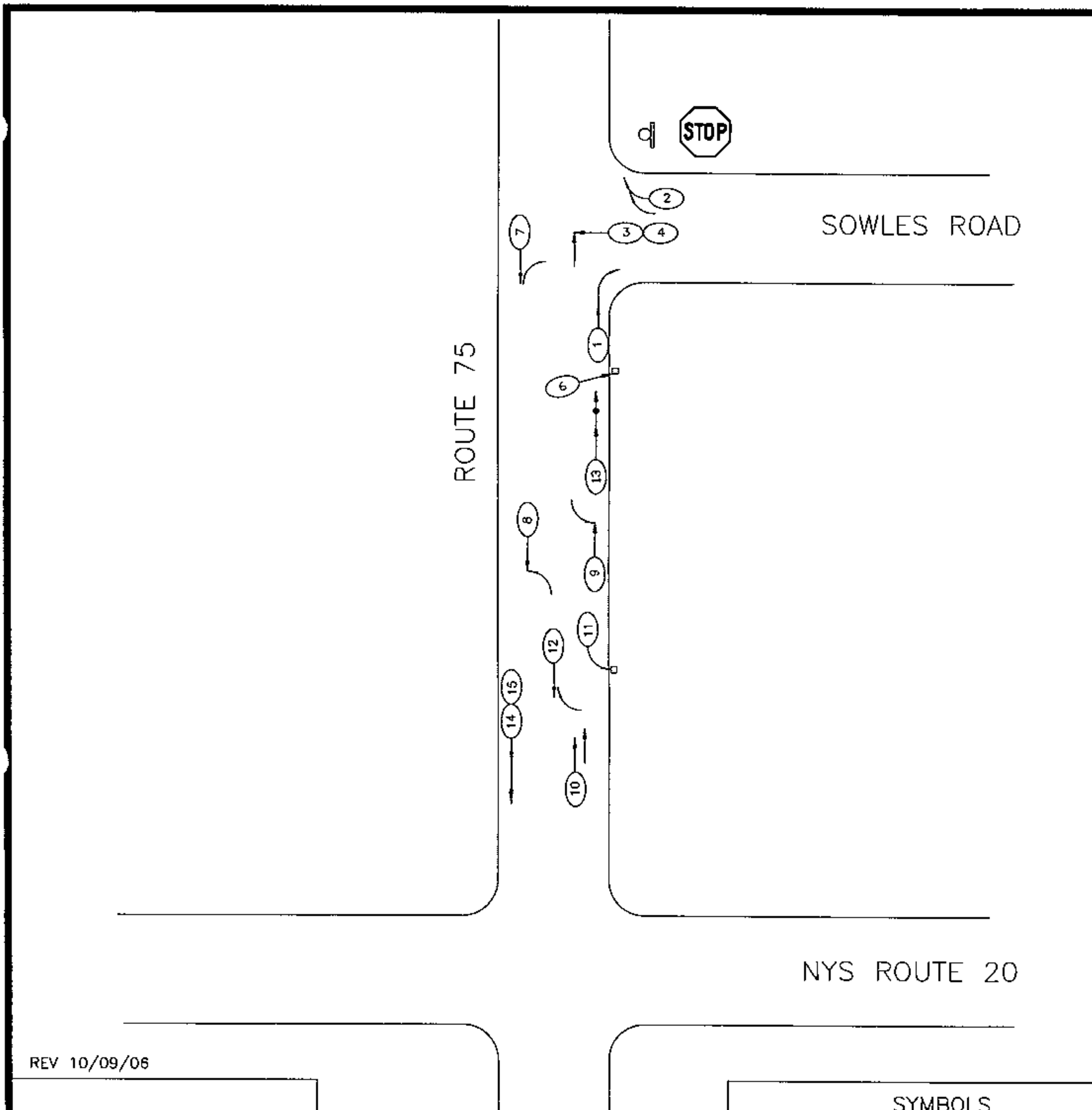

REV 10/09/06

ACCIDENT DETAIL

TYPE OF ACCIDENT
(SEE LEGEND)

KEY NUMBER

FIGURE A
ACCIDENT DIAGRAM

SYMBOLS

MOVING VEHICLE
STOPPED VEHICLE
FIXED OBJECT
RIGHT ANGLE
REAR END
RIGHT TURN
HEAD ON
PEDESTRIAN
BICYCLE
MOTORCYCLE
DEER HIT
OVERTAKING
LEFT TURN
SIDESWIPE

KEY

N

PROPOSED LOWES STORE

TOWN OF HAMBURG,
ERIE COUNTY, NEW YORK

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INTERSECTION ACCIDENT RATE CALCULATIONS

$$\text{Rate per MEV} = \frac{\text{\# of Accidents} \times 1{,}000{,}000}{\text{Total No. of Entering Vehicles}} =$$

$$\text{Rate} = \frac{\text{\# of Accidents} \times 1{,}000{,}000}{\text{Veh./Day} \times \text{Duration of Study}} =$$

Accidents per million entering vehicles (Acc / MEV)

* Acccident data is from January 2000 to December 2002

1 NYS Route 75 / Sowles Road

ADT = Peak hour entering volume / k factor

ADT = 2060 VPH / 0.10 = 20600 VPD

$$\text{Rate} = \frac{6 \text{ Acc.} \times 1{,}000{,}000}{20600 \text{ VPD} \times 365 \text{ Days} \times 3 \text{ Yrs.*}} = 0.27 \text{ Acc / MEV}$$

ROADWAY SEGMENT (MID-BLOCK) ACCIDENT RATE CALCULATIONS

$$\text{Rate per MVM} \frac{\text{\# of Accidents} \times 1{,}000{,}000}{\text{Total Vehicle Miles of Travel}}$$

$$\text{Rate} = \frac{\text{\# of Accidents} \times 1{,}000{,}000}{\text{Sectional Length} \times \text{AADT} \times \text{Duration of Study}}$$

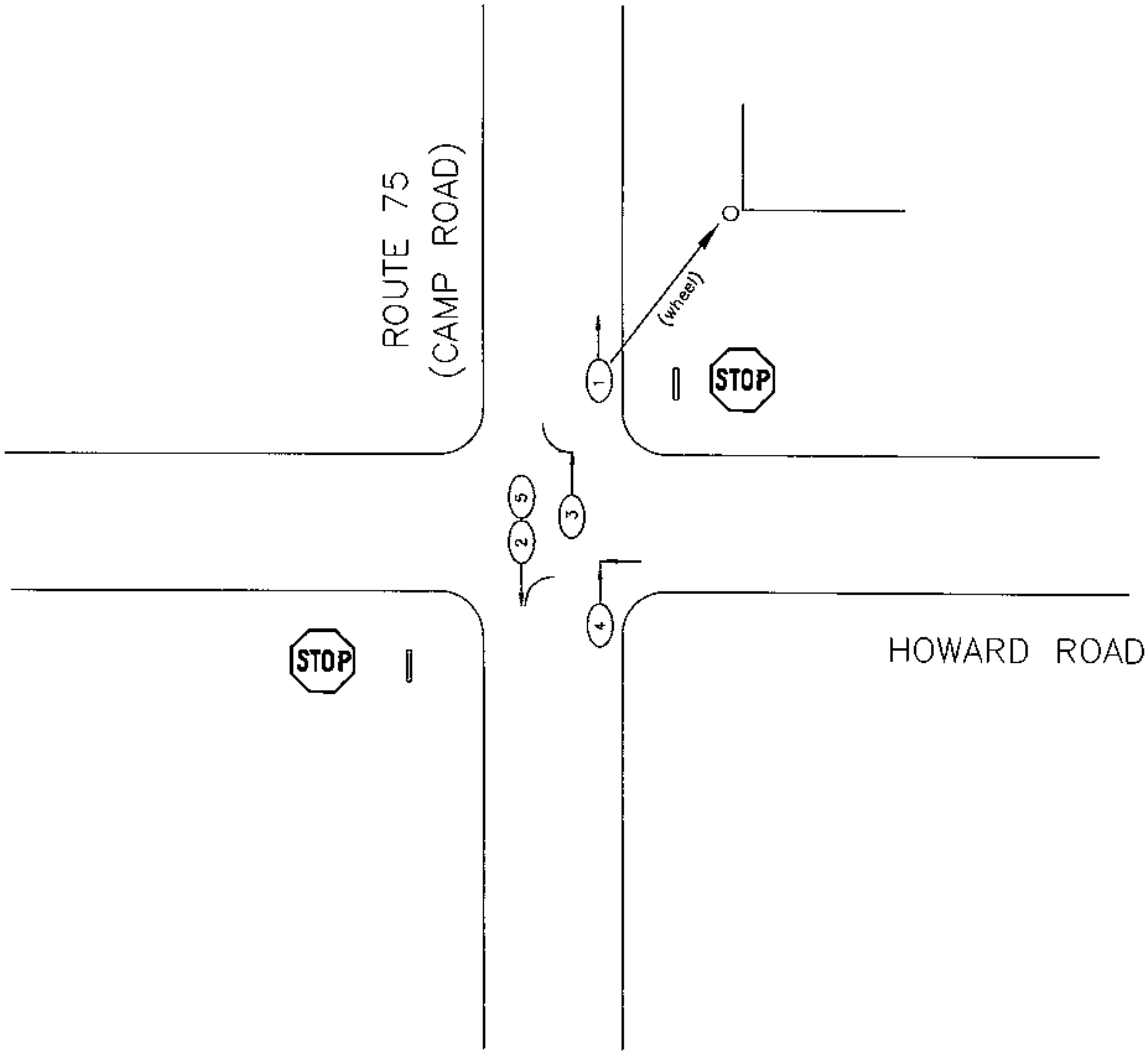
Accidents per million vehicle miles (Acc / MVM)

1. Route 20-Sowles

Section length = 0.092 miles

2 - way ADT = 17820

$$\text{Rate} = \frac{8 \text{ Acc.} \times 1{,}000{,}000}{0.092 \text{ mi} \times 17820 \text{ VPD} \times 365 \text{ Days} \times 3.00 \text{ Yrs.}} = 4.46 \text{ Acc / MVM}$$



ACCIDENT DETAIL

TYPE OF ACCIDENT
(SEE LEGEND)

KEY NUMBER

FIGURE B
ACCIDENT DIAGRAM

SYMBOLS

MOVING VEHICLE	PEDESTRIAN
BACKING VEHICLE	BICYCLE
FIXED OBJECT	MOTORCYCLE
RIGHT ANGLE	DEER HIT
REAR END	OVERTAKING
RIGHT TURN	LEFT TURN
HEAD ON	SIDESWIPE

KEY

N

PROPOSED LOWES STORE

TOWN OF HAMBURG,
ERIE COUNTY, NEW YORK

SRF ASSOCIATES
WWW.SRFA.NET
Traffic Engineering & Planning Consultants

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INTERSECTION ACCIDENT RATE CALCULATIONS

$$\text{Rate per MEV} = \frac{\text{\# of Accidents} \times 1{,}000{,}000}{\text{Total No. of Entering Vehicles}} =$$

$$\text{Rate} = \frac{\text{\# of Accidents} \times 1{,}000{,}000}{\text{Veh./Day} \times \text{Duration of Study}} =$$

Accidents per million entering vehicles (Acc / MEV)

* Acccident data is from March 2004 to March 2007

---

1 NYS Route 75 / Howard Road

ADT = Peak hour entering volume / k factor
ADT = 2002 VPH / 0.10 = 20020 VPD

$$\text{Rate} = \frac{5 \text{ Acc.} \times 1{,}000{,}000}{20020 \text{ VPD} \times 365 \text{ Days} \times 3 \text{ Yrs.*}} = 0.23 \text{ Acc / MEV}$$

TE 213 (9/79)

DETAILS OF ACCIDENT HISTORY FOR LOCATION (AS SHOWN ON COLLISION DIAGRAM)

DIAGRAM NO. A SHEET 1/2

COUNTY ERIE P.I.N. OR IDENT.

☒ TOWN
☐ CITY
☐ VILLAGE OF HAMBURG

ROUTE NO. OR STREET NAME: 75 / SOWLES

AT INTERSECTION WITH/OR BETWEEN: SOWLES CR 162

CASE NO.
FILE
BY
DATE

TIME PERIOD
NUMBER OF MONTHS:
FROM 01/01/2000 TO 12/31/2002

ENVIRONMENTAL
Use codes from MV 104 (shown at right) for these categories

LIGHT CONDITIONS
1. Daylight
2. Dawn
3. Dusk
4. Dark Road Lighted
5. Dark Road Unlighted

ROADWAY CHARACTER
1. Straight and Level
2. Straight and Grade
3. Straight at Hillcrest
4. Curve and Level
5. Curve and Grade
6. Curve at Hillcrest

ROADWAY SURFACE CONDITION
1. Dry
2. Wet
3. Muddy
4. Snow/Ice
5. Slush
10. Other

WEATHER
1. Clear
2. Cloudy
3. Rain
4. Snow
5. Sleet/Hail/Freezing Rain
6. Fog/Smog/Smoke
10. Other

Use Codes from MV 104 Police Report see back of this form for codes

① NO	② DATE	③ TIME	④ NO. OF VEH.	⑤ SEVERITY	⑥ LIGHT CONDITIONS	⑦ ROADWAY CHARACTER	⑧ ROADWAY SURFACE CONDITION	⑨ WEATHER	⑩ APPARENT CONTRIBUTING FACTORS	⑪ DESCRIPTION
1	02/02/2000	8:00 am	2	C	1	2	2	1	Pavement slippery	Rear End
2	05/12/2000	4:00 pm	2	PDO	-	1	1	1	-	Right turn
3	09/07/2000	3:00 pm	2	C	1	2	1	1	Failure to yield Row	Right angle
4	09/22/2000	4:00 pm	2	C	1	2	1	2	Failure to yield ROW	Right Angle
5	09/04/2001	1:45 pm	2	-	-	-	-	-	-	-
6	12/30/2001	8:33 am	1	PDO	1	2	4	2	Pavement slippery	collision with snow embankment.
7.	10/12/2002	6:49 pm	2	BC	3	2	1	1	failure to yield ROW	Left turn.

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TE 213 (9/79)

DETAILS OF ACCIDENT HISTORY FOR LOCATION (AS SHOWN ON COLLISION DIAGRAM)

DIAGRAM NO. A. SHEET 1/2

COUNTY ERIE P.I.N. OR IDENT.

☒ TOWN
☐ CITY
☐ VILLAGE OF HAMBURG

ROUTE NO. OR STREET NAME: 75 / SOWLES

AT INTERSECTION WITH/OR BETWEEN: SOWLES CR 162

CASE NO.
FILE
BY
DATE

TIME PERIOD
NUMBER OF MONTHS
FROM 01/01/2000
TO 12/31/2002

ENVIRONMENTAL
Use codes from MV 104 (shown at right) for these categories

LIGHT CONDITIONS
1. Daylight
2. Dawn
3. Dusk
4. Dark Road Lighted
5. Dark Road Unlighted

ROADWAY CHARACTER
1. Straight and Level
2. Straight and Grade
3. Straight at Hillcrest
4. Curve and Level
5. Curve and Grade
6. Curve at Hillcrest

ROADWAY SURFACE CONDITION
1. Dry
2. Wet
3. Muddy
4. Snow/Ice
5. Slush
10. Other

WEATHER
1. Clear
2. Cloudy
3. Rain
4. Snow
5. Sleet/Hail/Freezing Rain
6. Fog/Smog/Smoke
10. Other

Use Codes from MV 104 Police Report — see back of this form for codes

① NO	② DATE	③ TIME	④ NO. OF VEH.	⑤ SEVERITY	⑥ LIGHT CONDITIONS	⑦ ROADWAY CHARACTER	⑧ ROADWAY SURFACE CONDITION	⑨ WEATHER	⑩ APPARENT CONTRIBUTING FACTORS	⑪ DESCRIPTION
1	02/02/2000	8:00 am	2	C	1	2	2	1	Pavement slippery	Rear End
2	05/12/2000	4:00 pm	2	PDO	-	1	1	1	-	Right turn
3	09/07/2000	3:00 pm	2	C	1	2	1	1	Failure to yield ROW	Right angle
4	09/22/2000	4:00 pm	2	C	1	2	1	2	Failure to yield ROW	Right Angle
5	09/04/2001	1:45 pm	2	–	–	–	–	–	–	–
6	12/30/2001	8:33 am	1	PDO	1	2	4	2	Pavement slippery	Collision with snow embankment
7	10/12/2002	6:49 pm	2	BC	3	2	1	1	Failure to yield ROW	Left turn

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TE 213 (9/79)

DETAILS OF ACCIDENT HISTORY FOR LOCATION (AS SHOWN ON COLLISION DIAGRAM)

DIAGRAM NO. ______ SHEET 1/1

COUNTY ERIE P.I.N. OR IDENT. ______

☒ TOWN
☐ CITY
☐ VILLAGE OF HAMBURG

ROUTE NO. OR STREET NAME: ROUTE 75 (CAMP ROAD)

AT INTERSECTION WITH/OR BETWEEN: HOWARD ROAD

CASE NO. ______
FILE ______
BY chg
DATE 4.26.07

TIME PERIOD
NUMBER OF MONTHS: 1 (?)
FROM 3/14/04
TO 3/14/07

ENVIRONMENTAL — Use codes from MV 104 (shown at right) for these categories

LIGHT CONDITIONS
1. Daylight
2. Dawn
3. Dusk
4. Dark Road Lighted
5. Dark Road Unlighted

ROADWAY CHARACTER
1. Straight and Level
2. Straight and Grade
3. Straight at Hillcrest
4. Curve and Level
5. Curve and Grade
6. Curve at Hillcrest

ROADWAY SURFACE CONDITION
1. Dry
2. Wet
3. Muddy
4. Snow/Ice
5. Slush
10. Other

WEATHER
1. Clear
2. Cloudy
3. Rain
4. Snow
5. Sleet/Hail/Freezing Rain
6. Fog/Smog/Smoke
10. Other

Use Codes from MV 104 Police Report — see back of this form for codes

① NO	② DATE	③ TIME	④ NO. OF VEH.	⑤ SEVERITY	⑥ LIGHT CONDITIONS	⑦ ROADWAY CHARACTER	⑧ ROADWAY SURFACE CONDITION	⑨ WEATHER	⑩ APPARENT CONTRIBUTING FACTORS	⑪ DESCRIPTION
1	6.12.05	3:30	1		4	1	1	2	TIRE FAILURE	WHEEL CAME OFF, STRUCK BUILDING
2	6.24.05	11:37	2		1	1	1	1	FAIL. R.O.W. / INATTENTION	LEFT TURN EXITING HOWARD, STRUCK SB VEHICLE
3	9.6.05	16:01	2		1	2	1	1	FAIL YIELD R.O.W.	SOUTHBOUND LEFT HIT NORTHBOUND THROUGH ON CAMP ROAD.
4	6.8.06	15:15	2		1	1	1	1	FAIL YIELD R.O.W.	NORTHBOUND RIGHT ANGLE COLLISION W/ WESTBOUND HOWARD ROAD.
5	11.7.06	16:35	2		3	1	2	3	FAIL. YIELD R.O.W.	WESTBOUND LEFT FROM HOWARD HIT SOUTHBOUND THROUGH ON CAMP ROAD.

G-69

Lowes, Hamburg, NY
Alternative Site use Trip Generation Comparison

Summary of Multi-Use Trip Generation
Average Weekday Driveway Volumes
20-Mar-07

Land Use	Size		PM Pk Hour Enter	PM Pk Hour Exit	Sat. Peak Hour Enter	Sat. Peak Hour Exit
Single Family Detached Housing	80	Dwelling Units	51	30	41	34
Residential Condominium / Townhouse	12	Dwelling Units	4	2	3	3
Shopping Center	25	T.G.L.A.	120	130	183	169
Total			175	162	227	206
Multi-Use Trips	10%		18	16	23	21
			157	146	204	185
Pass By trips (shopping center only)	10%		12	13	18	17
New Trips			145	133	186	168

G-70

A3

Level of Service: Criteria and Definitions

Level of Service Criteria

Highway Capacity Manual 2000

SIGNALIZED INTERSECTIONS

Level of Service is a qualitative measure describing operational conditions within a traffic stream, based on service measures such as speed and travel time, freedom to maneuver, traffic interruptions, comfort, and convenience. Level of Service for signalized intersections is defined in terms of delay specifically, average total delay per vehicle for a 15 minute analysis period. The ranges are as follows:

Level of Service	Control Delay per vehicle (seconds)
A	< 10
B	10 – 20
C	20 – 35
D	35 – 55
E	55 – 80
F	>80

UNSIGNALIZED INTERSECTIONS

Level of Service for unsignalized intersections is also defined in terms of delay. However, the delay criteria are different from a signalized intersection. The primary reason for this is driver expectation that a signalized intersection is designed to carry higher volumes than an unsignalized intersection. The total delay threshold for any given Level of Service is less for an unsignalized intersection than for a signalized intersection. The ranges are as follows:

Level of Service	Control Delay per vehicle (seconds)
A	< 10
B	10 – 15
C	15 – 25
D	25 – 35
E	35 - 50
F	>50

A4

Level of Service Calculations: Background Conditions

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	Y		↑↱		↰	↑↑
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0		0	200	
Storage Lanes	1	0		0	1	
Turning Speed (mph)	15	9		9	15	
Lane Util. Factor	1.00	1.00	0.95	0.95	1.00	0.95
Frt	0.879		0.996			
Flt Protected	0.995				0.950	
Satd. Flow (prot)	1629	0	3525	0	1770	3539
Flt Permitted	0.995				0.950	
Satd. Flow (perm)	1629	0	3525	0	1770	3539
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Link Speed (mph)	30		45			45
Link Distance (ft)	1145		639			456
Travel Time (s)	26.0		9.7			6.9
Volume (vph)	15	130	747	20	150	1221
Peak Hour Factor	0.82	0.82	0.91	0.91	0.96	0.96
Adj. Flow (vph)	18	159	821	22	156	1272
Lane Group Flow (vph)	177	0	843	0	156	1272
Sign Control	Stop		Free			Free

Intersection Summary

Area Type: Other
Control Type: Unsignalized
Intersection Capacity Utilization 49.3% ICU Level of Service A
Analysis Period (min) 15

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	Y		↑↱		↰	↑↑
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Volume (veh/h)	15	130	747	20	150	1221
Peak Hour Factor	0.82	0.82	0.91	0.91	0.96	0.96
Hourly flow rate (vph)	18	159	821	22	156	1272
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None					
Median storage veh)						
Upstream signal (ft)			639			
pX, platoon unblocked	0.90	0.90			0.90	
vC, conflicting volume	1780	421			843	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1756	245			713	
tC, single (s)	6.8	6.9			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	67	77			80	
cM capacity (veh/h)	55	680			794	

Direction, Lane #	WB 1	NB 1	NB 2	SB 1	SB 2	SB 3
Volume Total	177	547	296	156	636	636
Volume Left	18	0	0	156	0	0
Volume Right	159	0	22	0	0	0
cSH	313	1700	1700	794	1700	1700
Volume to Capacity	0.57	0.32	0.17	0.20	0.37	0.37
Queue Length 95th (ft)	82	0	0	18	0	0
Control Delay (s)	30.5	0.0	0.0	10.6	0.0	0.0
Lane LOS	D			B		
Approach Delay (s)	30.5	0.0		1.2		
Approach LOS	D					

Intersection Summary

Average Delay	2.9		
Intersection Capacity Utilization	49.3%	ICU Level of Service	A
Analysis Period (min)	15		

Background - PM
4: Route 20 & Route 75(Camp Road)

Lowes Hamburg
3/14/2007

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	550		550	550		550	190		145	190		320
Storage Lanes	2		1	2		1	2		1	1		1
Total Lost Time (s)	4.0	4.2	4.2	4.4	4.8	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Leading Detector (ft)	50	50	50	50	50	50	50	50	50	50	50	50
Trailing Detector (ft)	0	0	0	0	0	0	0	0	0	0	0	0
Turning Speed (mph)	15		9	15		9	15		9	15		9
Lane Util. Factor	0.97	0.95	1.00	0.97	0.95	1.00	0.97	0.95	1.00	1.00	0.95	1.00
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3433	3539	1583	3433	3539	1583	3433	3539	1583	1770	3539	1583
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3433	3539	1583	3433	3539	1583	3433	3539	1583	1770	3539	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			7			13			84			6
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Link Speed (mph)		45			45			45			45	
Link Distance (ft)		3866			1001			1120			609	
Travel Time (s)		58.6			15.2			17.0			9.1	
Volume (vph)	247	989	328	336	1067	12	418	528	239	33	1042	320
Peak Hour Factor	0.91	0.91	0.91	0.90	0.90	0.90	0.92	0.92	0.92	0.95	0.95	0.95
Adj. Flow (vph)	271	1084	362	373	1186	13	470	574	260	35	1098	337
Lane Group Flow (vph)	271	1084	362	373	1186	13	470	574	260	35	1098	337
Turn Type	Prot		pm+ov	Prot		pm+ov	Prot		pm+ov	Prot		pm+ov
Protected Phases	7	4	5	3	8	1	5	2	3	1	6	7
Permitted Phases			4			8			2			6
Detector Phases	7	4	5	3	8	1	5	2	3	1	6	7
Minimum Initial (s)	4.0	4.5	4.0	4.5	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	8.0	21.0	8.0	8.0	21.0	8.0	8.0	21.0	8.0	8.0	21.0	8.0
Total Split (s)	13.0	38.0	26.0	16.0	41.0	10.0	26.0	58.0	16.0	10.0	40.0	13.0
Total Split (%)	10.8%	31.7%	21.7%	13.3%	34.2%	8.3%	21.7%	48.3%	13.3%	8.3%	33.3%	10.8%
Maximum Green (s)	9.0	33.0	21.0	11.5	36.0	6.0	21.0	53.0	11.0	6.0	35.0	9.0
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lead/Lag	Lag	Lead	Lead	Lag	Lead	Lead	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	None	None	None	None	C-Max	None	None	C-Min	None
Walk Time (s)		5.0			5.0			5.0			5.0	
Flash Dont Walk (s)		11.0			11.0			11.0			11.0	
Pedestrian Calls (#/hr)		0			0			0			0	
Act Effct Green (s)	9.0	34.0	56.0	12.0	37.0	43.0	22.0	56.0	69.4	6.0	36.0	45.0
Actuated g/C Ratio	0.08	0.28	0.47	0.10	0.31	0.36	0.18	0.47	0.58	0.05	0.30	0.38
v/s Ratio	1.00	1.09	0.49	1.09	1.09	0.02	1.07	0.35	0.28	0.36	1.03	0.56
Control Delay	124.2	84.5	14.6	117.2	90.9	7.1	101.2	21.9	7.8	68.4	78.1	23.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	124.2	84.5	14.6	117.2	90.9	7.1	101.2	21.9	7.8	68.4	78.1	23.7
LOS	F	F	B	F	F	A	F	C	A	E	E	C

Background - PM
4: Route 20 & Route 75(Camp Road)

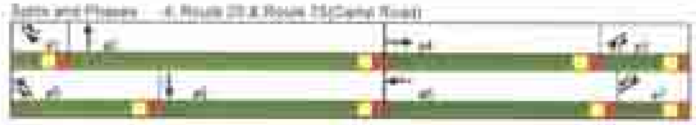
Lowes Hamburg
3/14/2007

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Approach Delay		78.0			90.3			54.8			65.4	
Approach LOS		E			F			D			E	

Intersection Summary

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green, Master Intersection
Natural Cycle: 120
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.09
Intersection Signal Delay: 73.8 Intersection LOS: E
Intersection Capacity Utilization 96.8% ICU Level of Service F
Analysis Period (min) 15

Splits and Phases: 4: Route 20 & Route 75(Camp Road)



G-75

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	100		0	100		0	0		0	100		0
Storage Lanes	1		0	1		0	0		0	1		0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Leading Detector (ft)	50	50		50	50		50	50		50	50	
Trailing Detector (ft)	0	0		0	0		0	0		0	0	
Turning Speed (mph)	15		9	15		9	15		9	15		9
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.999			0.984			0.902			0.850	
Flt Protected	0.950			0.950				0.986		0.950		
Satd. Flow (prot)	1770	3536	0	1770	3483	0	0	1697	0	1770	1583	0
Flt Permitted	0.119			0.254				0.951		0.748		
Satd. Flow (perm)	220	3536	0	473	3483	0	0	1588	0	1393	1583	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		1			27			16			31	
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Link Speed (mph)		45			30			30			30	
Link Distance (ft)		2537			726			192			360	
Travel Time (s)		38.4			16.5			4.4			8.1	
Volume (vph)	81	1022	6	2	1043	126	5	5	8	128	1	35
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.60	0.60	0.60	0.85	0.85	0.85
Adj. Flow (vph)	88	1111	7	2	1134	136	8	8	13	151	1	41
Lane Group Flow (vph)	88	1118	0	2	1270	0	0	29	0	151	42	0
Turn Type	pm+pt			pm+pt			Perm			Perm		
Protected Phases	5	2		1	6			8			4	
Permitted Phases	2			6			8			4		
Detector Phases	5	2		1	6		8	8		4	4	
Minimum Initial (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Minimum Split (s)	20.0	21.0		8.0	21.0		21.0	21.0		21.0	21.0	
Total Split (s)	20.0	46.0	0.0	8.0	34.0	0.0	21.0	21.0	0.0	21.0	21.0	0.0
Total Split (%)	26.7%	61.3%	0.0%	10.7%	45.3%	0.0%	28.0%	28.0%	0.0%	28.0%	28.0%	0.0%
Maximum Green (s)	17.0	41.0		5.0	29.0		16.0	16.0		16.0	16.0	
Yellow Time (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
All-Red Time (s)	0.0	2.0		0.0	2.0		2.0	2.0		2.0	2.0	
Lead/Lag	Lead	Lag		Lead	Lag							
Lead-Lag Optimize?	Yes	Yes		Yes	Yes							
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	Max		None	Max		None	None		None	None	
Walk Time (s)	5.0	5.0			5.0		5.0	5.0		5.0	5.0	
Flash Dont Walk (s)	11.0	11.0			11.0		11.0	11.0		11.0	11.0	
Pedestrian Calls (#/hr)	0	0			0		0	0		0	0	
Act Effct Green (s)	51.5	50.1		47.6	45.2			13.7		13.7	13.7	
Actuated g/C Ratio	0.67	0.68		0.60	0.61			0.19		0.19	0.19	
v/c Ratio	0.33	0.46		0.01	0.59			0.09		0.59	0.13	
Control Delay	6.1	7.1		5.5	11.3			14.0		33.4	8.9	
Queue Delay	0.0	0.0		0.0	0.0			0.0		0.0	0.0	
Total Delay	6.1	7.1		5.5	11.3			14.0		33.4	8.9	
LOS	A	A		A	B			B		C	A	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Approach Delay		7.1			11.3			14.0			28.3	
Approach LOS		A			B			B			C	

Intersection Summary

Area Type: Other
Cycle Length: 75
Actuated Cycle Length: 73.6
Natural Cycle: 75
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.59
Intersection Signal Delay: 10.7 Intersection LOS: B
Intersection Capacity Utilization 60.1% ICU Level of Service B
Analysis Period (min) 15

Splits and Phases: 8: Route 20 & Howard Road

6-76

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↑↱		↰	↑↱		↰	↑↑↱		↰	↑↑↱	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	100		0	100		0	0		0	0		0
Storage Lanes	1		0	1		0	1		0	1		0
Turning Speed (mph)	15		9	15		9	15		9	15		9
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	0.95
Frt		0.850			0.852			0.985			0.998	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1583	0	1770	1587	0	1770	3486	0	1770	3532	0
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1770	1583	0	1770	1587	0	1770	3486	0	1770	3532	0
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		594			823			763			801	
Travel Time (s)		13.5			18.7			17.3			18.2	
Volume (vph)	2	0	11	38	2	105	17	796	88	125	1275	13
Peak Hour Factor	0.65	0.65	0.65	0.82	0.82	0.82	0.88	0.88	0.88	0.92	0.92	0.92
Adj. Flow (vph)	3	0	17	46	2	128	19	905	100	136	1386	14
Lane Group Flow (vph)	3	17	0	46	130	0	19	1005	0	136	1400	0
Sign Control		Stop			Stop			Free			Free	

Intersection Summary

Area Type: Other
Control Type: Unsignalized
Intersection Capacity Utilization 57.8% ICU Level of Service B
Analysis Period (min) 15

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↑↱		↰	↑↱		↰	↑↑↱		↰	↑↑↱	
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Volume (veh/h)	2	0	11	38	2	105	17	796	88	125	1275	13
Peak Hour Factor	0.65	0.65	0.65	0.82	0.82	0.82	0.88	0.88	0.88	0.92	0.92	0.92
Hourly flow rate (vph)	3	0	17	46	2	128	19	905	100	136	1386	14
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	2285	2708	700	1975	2665	502	1400			1005		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	2285	2708	700	1975	2665	502	1400			1005		
tC, single (s)	7.5	6.5	6.9	7.5	6.5	6.9	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	74	100	96	0	86	75	96			80		
cM capacity (veh/h)	12	16	382	29	17	514	484			685		

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3
Volume Total	3	17	46	130	19	603	402	136	924	476
Volume Left	3	0	46	0	19	0	0	136	0	0
Volume Right	0	17	0	128	0	0	100	0	0	14
cSH	12	382	29	333	484	1700	1700	685	1700	1700
Volume to Capacity	0.26	0.04	1.60	0.39	0.04	0.35	0.24	0.20	0.54	0.28
Queue Length 95th (ft)	16	3	135	45	3	0	0	18	0	0
Control Delay (s)	395.3	14.9	590.6	22.6	12.7	0.0	0.0	11.5	0.0	0.0
Lane LOS	F	B	F	C	B			B		
Approach Delay (s)	73.4		171.5		0.2			1.0		
Approach LOS	F		F							

Intersection Summary

Average Delay	12.2		
Intersection Capacity Utilization	57.8%	ICU Level of Service	B
Analysis Period (min)	15		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	150		0	100		0	75		0	200		0
Storage Lanes	1		0	1		0	1		0	1		0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Leading Detector (ft)	50	50		50	50		50	50		50	50	
Trailing Detector (ft)	0	0		0	0		0	0		0	0	
Turning Speed (mph)	15		9	15		9	15		9	15		9
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	0.95
Frt		0.985			0.957			0.977			0.996	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1831	0	1770	1783	0	1770	3458	0	1770	3525	0
Flt Permitted	0.698			0.665			0.150			0.118		
Satd. Flow (perm)	1344	1831	0	1238	1783	0	279	3458	0	220	3525	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		11			26			58			7	
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Link Speed (mph)		30			30			45			45	
Link Distance (ft)		1148			815			1001			200	
Travel Time (s)		26.0			18.5			15.2			3.0	
Volume (vph)	84	109	14	171	84	34	4	1068	202	25	1099	20
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85	0.90	0.92	0.90	0.90	0.92	0.90
Adj. Flow (vph)	99	128	16	201	99	40	4	1220	224	28	1221	22
Lane Group Flow (vph)	99	144	0	201	139	0	4	1444	0	28	1244	0
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Detector Phases	4	4		8	8		2	2		6	6	
Minimum Initial (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Minimum Split (s)	21.0	21.0		21.0	21.0		21.0	21.0		21.0	21.0	
Total Split (s)	22.0	22.0	0.0	22.0	22.0	0.0	38.0	38.0	0.0	38.0	38.0	0.0
Total Split (%)	36.7%	36.7%	0.0%	36.7%	36.7%	0.0%	63.3%	63.3%	0.0%	63.3%	63.3%	0.0%
Maximum Green (s)	17.0	17.0		17.0	17.0		33.0	33.0		33.0	33.0	
Yellow Time (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		C-Max	C-Max		C-Max	C-Max	
Walk Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Flash Dont Walk (s)	11.0	11.0		11.0	11.0		11.0	11.0		11.0	11.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	
Act Effct Green (s)	14.6	14.6		14.6	14.6		37.4	37.4		37.4	37.4	
Actuated g/C Ratio	0.24	0.24		0.24	0.24		0.62	0.62		0.62	0.62	
v/c Ratio	0.33	0.32		0.67	0.30		0.02	0.66		0.20	0.57	
Control Delay	20.7	18.2		31.1	14.7		3.2	9.2		10.5	8.8	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	20.7	18.2		31.1	14.7		3.2	9.2		10.5	8.8	
LOS	C	B		C	B		A	A		B	A	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NEL	NET	NER	SWL	SWT	SWR
Approach Delay		19.2			24.4			9.1			8.8	
Approach LOS		B			C			A			A	

Intersection Summary
Area Type: Other
Cycle Length: 60
Actuated Cycle Length: 60
Offset: 53 (88%), Referenced to phase 2:NETL and 6:SWTL, Start of Green
Natural Cycle: 55
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.67
Intersection Signal Delay: 11.2
Intersection LOS: B
Intersection Capacity Utilization 62.9%
ICU Level of Service B
Analysis Period (min) 15

Splits and Phases: 14: Sowles Road & Route 20

6-78

Lane Group	EBL2	EBL	SBL	SBR	SWR	SWR2
Lane Configurations						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Turning Speed (mph)	15	15	15	9	9	9
Lane Util. Factor	0.95	0.97	1.00	1.00	0.88	0.95
Frt			0.910		0.850	
Flt Protected		0.950	0.984			
Satd. Flow (prot)	0	3433	1668	0	2787	0
Flt Permitted		0.950	0.984			
Satd. Flow (perm)	0	3433	1668	0	2787	0
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Link Speed (mph)		45	30		45	
Link Distance (ft)		200	238		2537	
Travel Time (s)		3.0	5.4		38.4	
Volume (vph)	2	1214	1	2	3	1152
Peak Hour Factor	0.92	0.92	0.50	0.50	0.92	0.92
Adj. Flow (vph)	2	1320	2	4	3	1252
Lane Group Flow (vph)	0	1322	6	0	1255	0
Sign Control		Free	Stop		Free	

Intersection Summary

Area Type: Other
Control Type: Unsignalized
Intersection Capacity Utilization 44.7% ICU Level of Service A
Analysis Period (min) 15

Movement	EBL2	EBL	SBL	SBR	SWR	SWR2
Lane Configurations						
Sign Control		Free	Stop		Free	
Grade		0%	0%		0%	
Volume (veh/h)	2	1214	1	2	3	1152
Peak Hour Factor	0.92	0.92	0.50	0.50	0.92	0.92
Hourly flow rate (vph)	2	1320	2	4	3	1252
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			
Median storage veh)						
Upstream signal (ft)		200				
pX, platoon unblocked			0.74			
vC, conflicting volume	1255		1293	628		
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1255		1048	628		
tC, single (s)	4.1		6.8	6.9		
tC, 2 stage (s)						
tF (s)	2.2		3.5	3.3		
p0 queue free %	100		99	99		
cM capacity (veh/h)	550		165	426		

Direction, Lane #	EB 1	EB 2	SB 1	SW 1	SW 2
Volume Total	442	880	6	2	1253
Volume Left	2	0	2	0	0
Volume Right	0	0	4	0	1252
cSH	550	1700	279	1700	1700
Volume to Capacity	0.00	0.52	0.02	0.00	0.74
Queue Length 95th (ft)	0	0	2	0	0
Control Delay (s)	0.1	0.0	18.2	0.0	0.0
Lane LOS	A		C		
Approach Delay (s)	0.0		18.2	0.0	
Approach LOS			C		

Intersection Summary

Average Delay	0.1		
Intersection Capacity Utilization	44.7%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	Y		↑↱		↰	↑↑
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0		0	200	
Storage Lanes	1	0		0	1	
Turning Speed (mph)	15	9		9	15	
Lane Util. Factor	1.00	1.00	0.95	0.95	1.00	0.95
Frt	0.879		0.994			
Flt Protected	0.995				0.950	
Satd. Flow (prot)	1629	0	3518	0	1770	3539
Flt Permitted	0.995				0.950	
Satd. Flow (perm)	1629	0	3518	0	1770	3539
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Link Speed (mph)	30		45			45
Link Distance (ft)	1145		320			456
Travel Time (s)	26.0		4.8			6.9
Volume (vph)	18	155	717	30	98	874
Peak Hour Factor	0.82	0.82	0.91	0.91	0.96	0.96
Adj. Flow (vph)	22	189	788	33	102	910
Lane Group Flow (vph)	211	0	821	0	102	910
Sign Control	Stop		Free			Free

Intersection Summary

Area Type: Other
Control Type: Unsignalized
Intersection Capacity Utilization 46.8% ICU Level of Service A
Analysis Period (min) 15

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	Y		↑↱		↰	↑↑
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Volume (veh/h)	18	155	717	30	98	874
Peak Hour Factor	0.82	0.82	0.91	0.91	0.96	0.96
Hourly flow rate (vph)	22	189	788	33	102	910
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None					
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1464	410			821	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1464	410			821	
tC, single (s)	6.8	6.9			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	79	68			87	
cM capacity (veh/h)	104	590			804	

Direction, Lane #	WB 1	NB 1	NB 2	SB 1	SB 2	SB 3
Volume Total	211	525	296	102	455	455
Volume Left	22	0	0	102	0	0
Volume Right	189	0	33	0	0	0
cSH	397	1700	1700	804	1700	1700
Volume to Capacity	0.53	0.31	0.17	0.13	0.27	0.27
Queue Length 95th (ft)	75	0	0	11	0	0
Control Delay (s)	23.9	0.0	0.0	10.1	0.0	0.0
Lane LOS	C			B		
Approach Delay (s)	23.9	0.0		1.0		
Approach LOS	C					

Intersection Summary

Average Delay	3.0		
Intersection Capacity Utilization	46.8%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↱		↰	↱		↰	↱		↰	↱	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	100		0	100		0	0		0	0		0
Storage Lanes	1		0	1		0	1		0	1		0
Turning Speed (mph)	15		9	15		9	15		9	15		9
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.859			0.854			0.989			0.999	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1600	0	1770	1591	0	1770	1842	0	1770	1861	0
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1770	1600	0	1770	1591	0	1770	1842	0	1770	1861	0
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		546			512			602			683	
Travel Time (s)		12.4			11.6			13.7			15.5	
Volume (vph)	11	1	11	35	2	59	9	643	53	57	643	5
Peak Hour Factor	0.72	0.72	0.72	0.82	0.82	0.82	0.96	0.96	0.96	0.92	0.92	0.92
Adj. Flow (vph)	15	1	15	43	2	72	9	670	55	62	699	5
Lane Group Flow (vph)	15	16	0	43	74	0	9	725	0	62	704	0
Sign Control		Stop			Stop			Free			Free	

Intersection Summary

Area Type: Other
Control Type: Unsignalized
Intersection Capacity Utilization 59.0% ICU Level of Service B
Analysis Period (min) 15

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↱		↰	↱		↰	↱		↰	↱	
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Volume (veh/h)	11	1	11	35	2	59	9	643	53	57	643	5
Peak Hour Factor	0.72	0.72	0.72	0.82	0.82	0.82	0.96	0.96	0.96	0.92	0.92	0.92
Hourly flow rate (vph)	15	1	15	43	2	72	9	670	55	62	699	5
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	1587	1569	702	1555	1544	697	704			725		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1587	1569	702	1555	1544	697	704			725		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	77	99	97	48	98	84	99			93		
cM capacity (veh/h)	67	102	438	82	105	441	893			878		

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	NB 2	SB 1	SB 2
Volume Total	15	17	43	74	9	725	62	704
Volume Left	15	0	43	0	9	0	62	0
Volume Right	0	15	0	72	0	55	0	5
cSH	67	344	82	399	893	1700	878	1700
Volume to Capacity	0.23	0.05	0.52	0.19	0.01	0.43	0.07	0.41
Queue Length 95th (ft)	20	4	56	17	1	0	6	0
Control Delay (s)	73.5	16.0	88.4	16.1	9.1	0.0	9.4	0.0
Lane LOS	F	C	F	C	A		A	
Approach Delay (s)	43.5		42.4		0.1		0.8	
Approach LOS	E		E					

Intersection Summary

Average Delay	4.3		
Intersection Capacity Utilization	59.0%	ICU Level of Service	B
Analysis Period (min)	15		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	100		0	100		0	0		0	100		0
Storage Lanes	1		0	1		0	0		0	1		0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Leading Detector (ft)	50	50		50	50		50	50		50	50	
Trailing Detector (ft)	0	0		0	0		0	0		0	0	
Turning Speed (mph)	15		9	15		9	15		9	15		9
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.998			0.985			0.916			0.850	
Flt Protected	0.950			0.950				0.981		0.950		
Satd. Flow (prot)	1770	3532	0	1770	3486	0	0	1674	0	1770	1583	0
Flt Permitted	0.118			0.532				0.911		0.814		
Satd. Flow (perm)	220	3532	0	991	3486	0	0	1555	0	1516	1583	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		2			16			33			277	
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Link Speed (mph)		45			30			30			30	
Link Distance (ft)		2549			729			130			400	
Travel Time (s)		38.6			16.6			4.4			9.1	
Volume (vph)	57	773	10	8	953	109	10	5	20	117	8	22
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.80	0.80	0.60	0.85	0.85	0.85
Adj. Flow (vph)	62	840	11	9	1036	118	20	2	33	129	9	26
Lane Group Flow (vph)	62	851	0	9	1154	0	0	55	0	129	35	0
Turn Type	pm+pt			pm+pt			Perm			Perm		
Protected Phases	5	2		1	6			8			4	
Permitted Phases	2			6			8			4		
Detector Phases	5	2		1	6		8	8		4	4	
Minimum Initial (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Minimum Split (s)	20.0	21.5		8.0	21.5		21.0	21.0		21.0	21.0	
Total Split (s)	20.0	46.0	0.0	8.0	34.0	0.0	21.0	21.0	0.0	21.0	21.0	0.0
Total Split (%)	26.7%	61.3%	0.0%	10.7%	45.3%	0.0%	28.0%	28.0%	0.0%	28.0%	28.0%	0.0%
Maximum Green (s)	17.0	41.0		5.0	29.0		16.0	16.0		16.0	16.0	
Yellow Time (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
All-Red Time (s)	0.0	2.0		0.0	2.0		2.0	2.0		2.0	2.0	
Lead/Lag	Lead	Lag		Lead	Lag							
Lead-Lag Optimize?	Yes	Yes		Yes	Yes							
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	Max		None	Max		None	None		None	None	
Walk Time (s)	5.0	5.0			5.0		5.0	5.0		5.0	5.0	
Flash Dont Walk (s)	11.0	11.0			11.0		11.0	11.0		11.0	11.0	
Pedestrian Calls (#/hr)	0	0			0		0	0		0	0	
Act Effct Green (s)	54.0	53.0		50.5	47.9			12.9		12.9	12.9	
Actuated g/C Ratio	0.69	0.70		0.61	0.63			0.17		0.17	0.17	
v/c Ratio	0.23	0.36		0.02	0.52			0.18		0.50	0.08	
Control Delay	6.1	5.7		3.4	5.8			15.7		30.4	3.1	
Queue Delay	0.0	0.0		0.0	0.0			0.0		0.0	0.0	
Total Delay	6.1	5.7		3.4	5.8			15.7		30.4	3.1	
LOS	A	A		A	A			B		C	A	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Approach Delay		5.8			5.8			15.7			25.3	
Approach LOS		A			A			B			C	

Intersection Summary

Area Type: Other
Cycle Length: 75
Actuated Cycle Length: 75.6
Natural Cycle: 75
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.52
Intersection Signal Delay: 9.3
Intersection LOS: A
Intersection Capacity Utilization 55.9%
ICU Level of Service B
Analysis Period (min) 15

Splits and Phases: 6: Route 20 & Howard Road

6-92

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	550		550	550		550	150		145	155		550
Storage Lanes	2		1	2		1	2		1	1		1
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Leading Detector (ft)	50	50	50	50	50	50	50	50	50	50	50	50
Trailing Detector (ft)	0	0	0	0	0	0	0	0	0	0	0	0
Turning Speed (mph)	15		9	15		9	15		9	15		9
Lane Util. Factor	0.97	0.95	1.00	0.97	0.95	1.00	0.97	0.95	1.00	1.00	0.95	1.00
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3433	3539	1583	3433	3539	1583	3433	3539	1583	1770	3539	1583
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3433	3539	1583	3433	3539	1583	3433	3539	1583	1770	3539	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			22			17			108			13
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		3680			984			1122			1095	
Travel Time (s)		83.6			22.4			25.5			24.9	
Volume (vph)	288	771	375	293	967	15	349	459	180	53	353	383
Peak Hour Factor	0.91	0.91	0.91	0.89	0.89	0.89	0.89	0.89	0.89	0.91	0.91	0.91
Adj. Flow (vph)	316	847	412	329	1087	17	392	516	202	58	388	421
Lane Group Flow (vph)	316	847	412	329	1087	17	392	516	202	58	388	421
Turn Type	Prot		pm+ov	Prot		pm+ov	Prot		pm+ov	Prot		pm+ov
Protected Phases	7	4	5	3	8	1	5	2	3	1	6	7
Permitted Phases			4			8			2			6
Detector Phases	7	4	5	3	8	1	5	2	3	1	6	7
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	9.0	21.0	9.0	9.0	21.0	9.0	9.0	21.0	9.0	9.0	21.0	9.0
Total Split (s)	16.0	37.0	23.0	16.0	37.0	12.0	23.0	35.0	16.0	12.0	24.0	16.0
Total Split (%)	16.0%	37.0%	23.0%	16.0%	37.0%	12.0%	23.0%	35.0%	16.0%	12.0%	24.0%	16.0%
Maximum Green (s)	11.0	32.0	18.0	11.0	32.0	7.0	18.0	30.0	11.0	7.0	19.0	11.0
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lead/Lag	Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	Min	None	None	Min	None	None	C-Min	None	None	C-Min	None
Walk Time (s)		5.0			5.0			5.0			5.0	
Flash Dont Walk (s)		11.0			11.0			11.0			11.0	
Pedestrian Calls (#/hr)		0			0			0			0	
Act Effct Green (s)	12.0	32.7	55.9	12.2	32.7	44.4	19.3	33.7	49.7	7.7	20.0	36.0
Actuated g/C Ratio	0.12	0.33	0.56	0.12	0.33	0.44	0.19	0.34	0.50	0.08	0.20	0.36
v/c Ratio	0.77	0.73	0.46	0.80	0.94	0.02	0.60	0.45	0.26	0.42	0.86	0.71
Control Delay	58.3	34.2	14.5	53.2	46.7	5.5	57.4	28.1	9.4	53.8	50.8	35.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	58.3	34.2	14.5	53.2	46.7	5.5	57.4	28.1	9.4	53.8	50.8	35.6
LOS	E	C	B	D	D	A	E	C	A	D	D	D

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Approach Delay		33.9			47.7			35.0			43.6	
Approach LOS		C			D			D			D	

Intersection Summary

Area Type: Other
Cycle Length: 100
Actuated Cycle Length: 100
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green, Master Intersection
Natural Cycle: 90
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.94
Intersection Signal Delay: 40.7 | Intersection LOS: D
Intersection Capacity Utilization 78.4% | ICU Level of Service D
Analysis Period (min) 15

Splits and Phases: 10: Route 20 (Southwestern Blvd) & Route 75/Camp Road

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Background - SAT
14: Sowles Road & Route 20

Lowes Hamburg
3/14/2007

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	150		0	150		0	75		0	200		0
Storage Lanes	1		0	1		0	1		0	1		0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Leading Detector (ft)	50	50		50	50		50	50		50	50	
Trailing Detector (ft)	0	0		0	0		0	0		0	0	
Turning Speed (mph)	15		9	15		9	15		9	15		9
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	0.95
Frt		0.982			0.957			0.978			0.997	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1829	0	1770	1783	0	1770	3467	0	1770	3529	0
Flt Permitted	0.693			0.687			0.160			0.182		
Satd. Flow (perm)	1274	1829	0	1280	1783	0	298	3461	0	304	3529	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		15			32			61			2	
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Link Speed (mph)		30			30			45			45	
Link Distance (ft)		1142			413			844			167	
Travel Time (s)		26.0			18.5			12.8			2.5	
Volume (vph)	63	82	11	136	67	27	3	876	154	20	1001	24
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	74	96	13	160	79	32	3	973	171	22	1150	27
Lane Group Flow (vph)	74	109	0	160	111	0	3	1144	0	22	1177	0
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Detector Phases	4	4		8	8		2	2		6	6	
Minimum Initial (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Minimum Split (s)	21.0	21.0		21.0	21.0		21.0	21.0		21.0	21.0	
Total Split (s)	21.0	21.0	0.0	21.0	21.0	0.0	29.0	29.0	0.0	29.0	29.0	0.0
Total Split (%)	42.0%	42.0%	0.0%	42.0%	42.0%	0.0%	58.0%	58.0%	0.0%	58.0%	58.0%	0.0%
Maximum Green (s)	16.0	16.0		16.0	16.0		24.0	24.0		24.0	24.0	
Yellow Time (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		C-Max	C-Max		C-Max	C-Max	
Walk Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Flash Dont Walk (s)	11.0	11.0		11.0	11.0		11.0	11.0		11.0	11.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	
Act Effct Green (s)	11.9	11.9		11.9	11.9		33.0	33.0		33.0	33.0	
Actuated g/C Ratio	0.24	0.24		0.24	0.24		0.66	0.66		0.66	0.66	
v/c Ratio	0.24	0.24		0.52	0.25		0.02	0.50		0.11	0.50	
Control Delay	15.8	13.8		21.8	11.8		7.5	8.3		7.8	7.4	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	1.4	
Total Delay	15.8	13.8		21.8	11.8		7.5	8.3		7.8	8.8	
LOS	B	B		C	B		A	A		A	A	

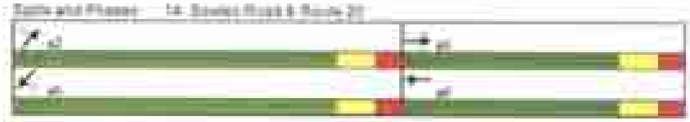
Background - SAT
14: Sowles Road & Route 20

Lowes Hamburg
3/14/2007

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Approach Delay		14.6			17.7			8.3			8.8	
Approach LOS		B			B			A			A	

Intersection Summary
Area Type: Other
Cycle Length: 50
Actuated Cycle Length: 50
Offset: 45 (90%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 45
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.52
Intersection Signal Delay: 9.8 Intersection LOS: A
Intersection Capacity Utilization 50.5% ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 14: Sowles Road & Route 20



G 94

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Turning Speed (mph)	15			9	15	9
Lane Util. Factor	0.95	0.95	0.95	0.95	1.00	1.00
Frt					0.932	
Flt Protected					0.976	
Satd. Flow (prot)	0	3539	3539	0	1694	0
Flt Permitted					0.976	
Satd. Flow (perm)	0	3539	3539	0	1694	0
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Link Speed (mph)		45	45		30	
Link Distance (ft)		191	2546		320	
Travel Time (s)		2.9	38.6		7.3	
Volume (vph)	2	964	1068	1	1	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.50	0.50
Adj. Flow (vph)	2	1048	1161	1	2	2
Lane Group Flow (vph)	0	1050	1162	0	4	0
Sign Control		Free	Free		Stop	

Intersection Summary
Area Type: Other
Control Type: Unsignalized
Intersection Capacity Utilization 39.6% ICU Level of Service A
Analysis Period (min) 15

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Volume (veh/h)	2	964	1068	1	1	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.50	0.50
Hourly flow rate (vph)	2	1048	1161	1	2	2
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type					None	
Median storage veh)						
Upstream signal (ft)		191				
pX, platoon unblocked					0.83	
vC, conflicting volume	1162				1690	581
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1162				1627	581
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				97	100
cM capacity (veh/h)	597				77	457

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	SB 1
Volume Total	351	699	774	388	4
Volume Left	2	0	0	0	2
Volume Right	0	0	0	1	2
cSH	597	1700	1700	1700	132
Volume to Capacity	0.00	0.41	0.46	0.23	0.03
Queue Length 95th (ft)	0	0	0	0	2
Control Delay (s)	0.1	0.0	0.0	0.0	33.2
Lane LOS	A				D
Approach Delay (s)	0.0		0.0		33.2
Approach LOS					D

Intersection Summary
Average Delay 0.1
Intersection Capacity Utilization 39.6% ICU Level of Service A
Analysis Period (min) 15

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A5

Level of Service Calculations: Full Development Conditions

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0		0	200	
Storage Lanes	1	0		0	1	
Turning Speed (mph)	15	9		9	15	
Lane Util. Factor	1.00	1.00	0.95	0.95	1.00	0.95
Frt	0.878		0.996			
Flt Protected	0.995				0.950	
Satd. Flow (prot)	1627	0	3525	0	1770	3539
Flt Permitted	0.995				0.950	
Satd. Flow (perm)	1627	0	3525	0	1770	3539
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Link Speed (mph)	30		45			45
Link Distance (ft)	1145		639			456
Travel Time (s)	26.0		9.7			6.9
Volume (vph)	15	139	747	20	160	1221
Peak Hour Factor	0.82	0.82	0.91	0.91	0.96	0.96
Adj. Flow (vph)	18	170	821	22	167	1272
Lane Group Flow (vph)	188	0	843	0	167	1272
Sign Control	Stop		Free			Free

Intersection Summary

Area Type: Other
Control Type: Unsignalized
Intersection Capacity Utilization 49.8% ICU Level of Service A
Analysis Period (min) 15

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Volume (veh/h)	15	139	747	20	160	1221
Peak Hour Factor	0.82	0.82	0.91	0.91	0.96	0.96
Hourly flow rate (vph)	18	170	821	22	167	1272
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None					
Median storage veh)						
Upstream signal (ft)			639			
pX, platoon unblocked	0.90	0.90			0.90	
vC, conflicting volume	1801	421			843	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1778	241			711	
tC, single (s)	6.8	6.9			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	65	75			79	
cM capacity (veh/h)	52	682			794	

Direction, Lane #	WB 1	NB 1	NB 2	SB 1	SB 2	SB 3
Volume Total	188	547	296	167	636	636
Volume Left	18	0	0	167	0	0
Volume Right	170	0	22	0	0	0
cSH	313	1700	1700	794	1700	1700
Volume to Capacity	0.60	0.32	0.17	0.21	0.37	0.37
Queue Length 95th (ft)	91	0	0	20	0	0
Control Delay (s)	32.3	0.0	0.0	10.7	0.0	0.0
Lane LOS	D			B		
Approach Delay (s)	32.3	0.0		1.2		
Approach LOS	D					

Intersection Summary

Average Delay	3.2		
Intersection Capacity Utilization	49.8%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	500		550	500		300	180		140	150		350
Storage Lanes	2		1	2		1	2		1	1		1
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Leading Detector (ft)	50	50	50	50	50	50	50	50	50	50	50	50
Trailing Detector (ft)	0	0	0	0	0	0	0	0	0	0	0	0
Turning Speed (mph)	15		9	15		9	15		9	15		9
Lane Util. Factor	0.97	0.95	1.00	0.97	0.95	1.00	0.97	0.95	1.00	1.00	0.95	1.00
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3433	3539	1583	3433	3539	1583	3433	3539	1583	1770	3539	1583
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3433	3539	1583	3433	3539	1583	3433	3539	1583	1770	3539	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			8			13			93			8
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Link Speed (mph)		45			45			45			45	
Link Distance (ft)		4580			1001			1123			639	
Travel Time (s)		69.4			15.2			17.0			9.7	
Volume (vph)	247	1015	320	355	1121	12	810	525	258	33	1043	320
Peak Hour Factor	0.91	0.91	0.91	0.90	0.90	0.90	0.92	0.92	0.92	0.95	0.95	0.95
Adj. Flow (vph)	271	1115	352	394	1246	13	880	574	280	35	1098	337
Lane Group Flow (vph)	271	1115	352	394	1246	13	880	574	280	35	1098	337
Turn Type	Prot		pm+ov	Prot		pm+ov	Prot		pm+ov	Prot		pm+ov
Protected Phases	7	4	5	3	8	1	5	2	3	1	6	7
Permitted Phases			4			8			2			6
Detector Phases	7	4	5	3	8	1	5	2	3	1	6	7
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	8.0	21.0	8.0	8.0	21.0	8.0	8.0	21.0	8.0	8.0	21.0	8.0
Total Split (s)	13.0	38.0	26.0	17.0	42.0	10.0	26.0	55.0	17.0	10.0	39.0	13.0
Total Split (%)	10.8%	31.7%	21.7%	14.2%	35.0%	8.3%	21.7%	45.8%	14.2%	8.3%	32.5%	10.8%
Maximum Green (s)	8.0	33.0	21.0	12.0	37.0	5.0	21.0	50.0	12.0	5.0	34.0	8.0
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lead/Lag	Lag	Lead	Lead	Lag	Lead	Lead	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	None	None	None	None	C-Max	None	None	C-Max	None
Walk Time (s)		5.0			5.0			5.0			5.0	
Flash Dont Walk (s)		11.0			11.0			11.0			11.0	
Pedestrian Calls (#/hr)		0			0			0			0	
Act Effct Green (s)	8.0	34.0	56.0	13.0	38.0	44.0	22.0	55.2	69.6	6.0	35.2	44.0
Actuated g/C Ratio	0.06	0.28	0.47	0.11	0.32	0.37	0.18	0.46	0.58	0.05	0.29	0.37
v/c Ratio	1.26	1.11	0.46	1.06	1.11	0.02	1.07	0.35	0.30	0.39	1.06	0.56
Control Delay	134.2	104.5	14.7	106.4	69.2	6.8	101.2	22.5	8.2	68.4	87.7	24.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	134.2	104.5	14.7	106.4	69.2	6.8	101.2	22.5	8.2	68.4	87.7	24.8
LOS	F	F	B	F	F	A	F	C	A	E	F	C

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Approach Delay		89.0			100.2			54.5			72.9	
Approach LOS		F			F			D			E	

Intersection Summary

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green, Master Intersection

Natural Cycle: 120

Control Type: Actuated-Coordinated

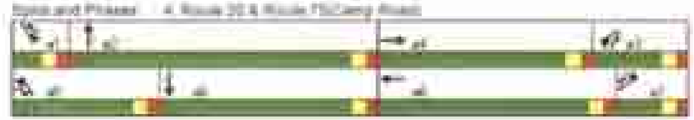
Maximum v/c Ratio: 1.11

Intersection Signal Delay: 78.9 Intersection LOS: E

Intersection Capacity Utilization 97.8% ICU Level of Service F

Analysis Period (min) 15

Splits and Phases: 4: Route 20 & Route 75/Camp Road



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Full Dev't PM
8: Route 20 & Howard Road

Lowes Hamburg
3/14/2007

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	[illegible]	[illegible]		[illegible]	[illegible]			[illegible]		[illegible]	[illegible]	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	100		0	100		0	0		0	100		0
Storage Lanes	1		0	1		0	0		0	1		0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Leading Detector (ft)	50	50		50	50		50	50		50	50	
Trailing Detector (ft)	0	0		0	0		0	0		0	0	
Turning Speed (mph)	15		9	15		9	15		9	15		9
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.999			0.984			0.932			0.850	
Flt Protected	0.950			0.950				0.986		0.950		
Satd. Flow (prot)	1770	3536	0	1770	3483	0	0	1657	0	1770	1583	0
Flt Permitted	0.118			0.218				0.940		0.746		
Satd. Flow (perm)	220	3536	0	406	3483	0	0	1592	0	1390	1583	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		1			19			13			42	
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Link Speed (mph)		45			45			30			30	
Link Distance (ft)		1513			729			192			400	
Travel Time (s)		24.4			11.0			4.4			9.1	
Volume (vph)	70	1104	5	2	1127	124	5	0	9	129	1	36
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.60	0.60	0.60	0.85	0.85	0.85
Adj. Flow (vph)	76	1200	5	2	1225	135	8	0	15	152	1	42
Lane Group Flow (vph)	76	1205	0	2	1359	0	0	18	0	152	43	0
Turn Type	pm+pt			pm+pt			Perm			Perm		
Protected Phases	5	2		1	6			8			4	
Permitted Phases	2			6			8			4		
Detector Phases	5	2		1	6		8	8		4	4	
Minimum Initial (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Minimum Split (s)	20.0	21.0		8.0	21.0		21.0	21.0		21.0	21.0	
Total Split (s)	20.0	40.0	0.0	8.0	34.0	0.0	21.0	21.0	0.0	21.0	21.0	0.0
Total Split (%)	26.7%	51.3%	0.0%	10.7%	45.3%	0.0%	28.0%	28.0%	0.0%	28.0%	28.0%	0.0%
Maximum Green (s)	17.0	41.0		5.0	29.0		16.0	16.0		16.0	16.0	
Yellow Time (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
All-Red Time (s)	0.0	2.0		0.0	2.0		2.0	2.0		2.0	2.0	
Lead/Lag	Lead	Lag		Lead	Lag							
Lead-Lag Optimize?	Yes	Yes		Yes	Yes							
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	Max		None	Max		None	None		None	None	
Walk Time (s)	5.0	5.0			5.0		5.0	5.0		5.0	5.0	
Flash Dont Walk (s)	11.0	11.0			11.0		11.0	11.0		11.0	11.0	
Pedestrian Calls (#/hr)	0	0			0		0	0		0	0	
Act Effct Green (s)	51.0	49.5		47.1	44.8			13.5		13.5	13.5	
Actuated g/C Ratio	0.57	0.68		0.59	0.61			0.19		0.19	0.19	
v/c Ratio	0.29	0.50		0.01	0.64			0.06		0.59	0.13	
Control Delay	7.1	7.5		5.9	12.1			14.0		33.5	8.1	
Queue Delay	0.0	0.0		0.0	0.0			0.0		0.0	0.0	
Total Delay	7.1	7.5		5.5	12.1			14.0		33.5	8.1	
LOS	A	A		A	B			B		C	A	

Full Dev't PM
8: Route 20 & Howard Road

Lowes Hamburg
3/14/2007

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Approach Delay		7.4			12.1			14.0			28.1	
Approach LOS		A			B			B			C	

Intersection Summary

Area Type: Other
Cycle Length: 75
Actuated Cycle Length: 72.6
Natural Cycle: 75
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.64
Intersection Signal Delay: 11.1 — Intersection LOS: B
Intersection Capacity Utilization 62.9% — ICU Level of Service B
Analysis Period (min) 15

Splits and Phases: 8: Route 20 & Howard Road

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Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↰	↑↑	↑↱		↰	↱
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	150			0	0	0
Storage Lanes	1			0	1	1
Turning Speed (mph)	15			9	15	9
Lane Util. Factor	1.00	0.95	0.95	0.95	1.00	1.00
Frt			0.987			0.850
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1770	3539	3493	0	1770	1583
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	1770	3539	3493	0	1770	1583
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Link Speed (mph)		45	45		30	
Link Distance (ft)		660	1613		353	
Travel Time (s)		10.0	24.4		8.0	
Volume (vph)	133	1176	1142	104	131	65
Peak Hour Factor	0.92	0.92	0.92	0.92	0.75	0.75
Adj. Flow (vph)	145	1278	1241	113	175	87
Lane Group Flow (vph)	145	1278	1354	0	175	87
Sign Control		Free	Free		Stop	

Intersection Summary

Area Type: Other
Control Type: Unsignalized
Intersection Capacity Utilization 59.5% ICU Level of Service B
Analysis Period (min) 15

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↰	↑↑	↑↱		↰	↱
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Volume (veh/h)	133	1176	1142	104	131	65
Peak Hour Factor	0.92	0.92	0.92	0.92	0.75	0.75
Hourly flow rate (vph)	145	1278	1241	113	175	87
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type					None	
Median storage veh)						
Upstream signal (ft)		1124				
pX, platoon unblocked					0.81	
vC, conflicting volume	1354				2226	677
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1354				2277	677
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	71				0	78
cM capacity (veh/h)	504				20	395

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	SB 1	SB 2
Volume Total	145	639	639	828	527	175	87
Volume Left	145	0	0	0	0	175	0
Volume Right	0	0	0	0	113	0	87
cSH	504	1700	1700	1700	1700	20	395
Volume to Capacity	0.29	0.38	0.38	0.49	0.31	8.92	0.22
Queue Length 95th (ft)	29	0	0	0	0	Err	21
Control Delay (s)	15.0	0.0	0.0	0.0	0.0	Err	16.7
Lane LOS	B					F	C
Approach Delay (s)	1.5			0.0		6688.5	
Approach LOS						F	

Intersection Summary

Average Delay	576.0		
Intersection Capacity Utilization	59.5%	ICU Level of Service	B
Analysis Period (min)	15		

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Lane Group	SBL	SBR	NEL	NET	SWT	SWR
Lane Configurations		↱		↑↑	↑↱	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Turning Speed (mph)	15	9	15			9
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	0.95
Frt		0.865			0.996	
Flt Protected						
Satd. Flow (prot)	0	1611	0	3539	3525	0
Flt Permitted						
Satd. Flow (perm)	0	1611	0	3539	3525	0
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Link Speed (mph)	30			45	45	
Link Distance (ft)	422			273	660	
Travel Time (s)	9.6			4.1	10.0	
Volume (vph)	0	66	0	1309	1178	29
Peak Hour Factor	0.70	0.70	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	94	0	1423	1280	32
Lane Group Flow (vph)	0	94	0	1423	1312	0
Sign Control	Yield			Free	Free	

Intersection Summary

Area Type: Other
Control Type: Unsignalized
Intersection Capacity Utilization 44.2% ICU Level of Service A
Analysis Period (min) 15

Movement	SBL	SBR	NEL	NET	SWT	SWR
Lane Configurations		↱		↑↑	↑↱	
Sign Control	Yield			Free	Free	
Grade	0%			0%	0%	
Volume (veh/h)	0	66	0	1309	1178	29
Peak Hour Factor	0.70	0.70	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	94	0	1423	1280	32
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None					
Median storage veh)						
Upstream signal (ft)				464		
pX, platoon unblocked	0.72					
vC, conflicting volume	2008	656	1312			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	2011	656	1312			
tC, single (s)	6.8	6.9	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	77	100			
cM capacity (veh/h)	37	408	523			

Direction, Lane #	SB 1	NE 1	NE 2	SW 1	SW 2
Volume Total	94	711	711	854	458
Volume Left	0	0	0	0	0
Volume Right	94	0	0	0	32
cSH	408	1700	1700	1700	1700
Volume to Capacity	0.23	0.42	0.42	0.50	0.27
Queue Length 95th (ft)	22	0	0	0	0
Control Delay (s)	16.5	0.0	0.0	0.0	0.0
Lane LOS	C				
Approach Delay (s)	16.5	0.0		0.0	
Approach LOS	C				

Intersection Summary

Average Delay	0.5		
Intersection Capacity Utilization	44.2%	ICU Level of Service	A
Analysis Period (min)	15		

6-91

Full Dev't PM
14: Sowles Road & Route 20

Lowes Hamburg
3/14/2007

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	150		0	150		0	15		0	200		0
Storage Lanes	1		0	1		0	1		0	1		0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Leading Detector (ft)	50	50		50	50		50	50		50	50	
Trailing Detector (ft)	0	0		0	0		0	0		0	0	
Turning Speed (mph)	15		9	15		9	15		9	15		9
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	0.95
Frt		0.865			0.948			0.979			0.999	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1611	0	1770	1766	0	1770	3461	0	1770	3532	0
Flt Permitted	0.661			0.667			0.108			0.118		
Satd. Flow (perm)	1231	1611	0	1238	1766	0	200	3461	0	220	3532	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		11			45			54			8	
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Link Speed (mph)		30			30			45			45	
Link Distance (ft)		1149			815			1001			181	
Travel Time (s)		26.0			18.5			15.2			2.8	
Volume (vph)	93	109	14	171	84	44	4	1172	202	34	1171	39
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	109	128	16	201	99	52	4	1302	224	38	1301	43
Lane Group Flow (vph)	109	144	0	201	151	0	4	1526	0	38	1344	0
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Detector Phases	4	4		8	8		2	2		6	6	
Minimum Initial (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Minimum Split (s)	21.0	21.0		21.0	21.0		21.0	21.0		21.0	21.0	
Total Split (s)	22.0	22.0	0.0	22.0	22.0	0.0	38.0	38.0	0.0	38.0	38.0	0.0
Total Split (%)	36.7%	36.7%	0.0%	36.7%	36.7%	0.0%	63.3%	63.3%	0.0%	63.3%	63.3%	0.0%
Maximum Green (s)	17.0	17.0		17.0	17.0		33.0	33.0		33.0	33.0	
Yellow Time (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		C-Max	C-Max		C-Max	C-Max	
Walk Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Flash Dont Walk (s)	11.0	11.0		11.0	11.0		11.0	11.0		11.0	11.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	
Act Effct Green (s)	14.8	14.8		14.8	14.8		37.4	37.4		37.4	37.4	
Actuated g/C Ratio	0.24	0.24		0.24	0.24		0.62	0.62		0.62	0.62	
v/c Ratio	0.36	0.32		0.67	0.33		0.03	0.70		0.28	0.61	
Control Delay	21.5	18.3		31.1	14.2		2.8	11.0		13.2	8.1	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	21.5	18.3		31.1	14.2		2.8	11.0		13.2	8.1	
LOS	C	B		C	B		A	B		B	A	

Full Dev't PM
14: Sowles Road & Route 20

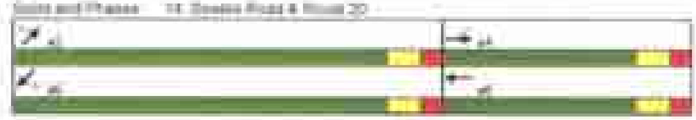
Lowes Hamburg
3/14/2007

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Approach Delay		19.6			23.8			11.0			9.2	
Approach LOS		B			C			B			A	

Intersection Summary

Area Type: Other
Cycle Length: 60
Actuated Cycle Length: 60
Offset: 33 (55%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 60
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.70
Intersection Signal Delay: 12.2 Intersection LOS: B
Intersection Capacity Utilization 84.6% ICU Level of Service C
Analysis Period (min) 15

Splits and Phases: 14: Sowles Road & Route 20



Co-92

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↱		↰	↱		↰	↑↱		↰	↑↱	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	100		0	100		0	0		0	0		0
Storage Lanes	1		0	1		0	1		0	1		0
Turning Speed (mph)	15		9	15		9	15		9	15		9
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	0.95
Frt		0.850			0.852			0.985			0.999	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1583	0	1770	1587	0	1770	3486	0	1770	3536	0
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1770	1583	0	1770	1587	0	1770	3486	0	1770	3536	0
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		594			823			763			801	
Travel Time (s)		13.5			18.7			17.3			18.2	
Volume (vph)	2	0	11	38	2	105	17	805	88	125	1284	13
Peak Hour Factor	0.65	0.65	0.65	0.82	0.82	0.82	0.88	0.88	0.88	0.92	0.92	0.92
Adj. Flow (vph)	3	0	17	46	2	128	19	915	100	136	1396	14
Lane Group Flow (vph)	3	17	0	46	130	0	19	1015	0	136	1410	0
Sign Control		Stop			Stop			Free			Free	

Intersection Summary

Area Type: Other
Control Type: Unsignalized
Intersection Capacity Utilization 58.0% ICU Level of Service B
Analysis Period (min) 15

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↱		↰	↱		↰	↑↱		↰	↑↱	
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Volume (veh/h)	2	0	11	38	2	105	17	805	88	125	1284	13
Peak Hour Factor	0.65	0.65	0.65	0.82	0.82	0.82	0.88	0.88	0.88	0.92	0.92	0.92
Hourly flow rate (vph)	3	0	17	46	2	128	19	915	100	136	1396	14
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	2300	2728	705	1990	2685	507	1410			1015		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	2300	2728	705	1990	2685	507	1410			1015		
tC, single (s)	7.5	6.5	6.9	7.5	6.5	6.9	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	73	100	96	0	85	75	96			80		
cM capacity (veh/h)	11	15	379	28	17	511	480			679		

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3
Volume Total	3	17	46	130	19	610	405	136	930	479
Volume Left	3	0	46	0	19	0	0	136	0	0
Volume Right	0	17	0	128	0	0	100	0	0	14
cSH	11	379	28	327	480	1700	1700	679	1700	1700
Volume to Capacity	0.27	0.04	1.64	0.40	0.04	0.36	0.24	0.20	0.55	0.28
Queue Length 95th (ft)	17	3	136	46	3	0	0	19	0	0
Control Delay (s)	411.9	14.9	617.0	23.1	12.8	0.0	0.0	11.6	0.0	0.0
Lane LOS	F	B	F	C	B			B		
Approach Delay (s)	76.0		178.7		0.2			1.0		
Approach LOS	F		F							

Intersection Summary

Average Delay	12.6		
Intersection Capacity Utilization	58.0%	ICU Level of Service	B
Analysis Period (min)	15		

G-93

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↰↑	↑↱		Y	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Turning Speed (mph)	15			9	15	9
Lane Util. Factor	0.95	0.95	0.95	0.95	1.00	1.00
Frt					0.910	
Flt Protected					0.984	
Satd. Flow (prot)	0	3539	3539	0	1668	0
Flt Permitted					0.984	
Satd. Flow (perm)	0	3539	3539	0	1668	0
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Link Speed (mph)		45	45		30	
Link Distance (ft)		191	273		302	
Travel Time (s)		2.9	4.1		6.9	
Volume (vph)	2	1307	1243	3	1	2
Peak Hour Factor	0.92	0.92	0.92	0.92	0.50	0.50
Adj. Flow (vph)	2	1421	1351	3	2	4
Lane Group Flow (vph)	0	1423	1354	0	6	0
Sign Control		Free	Free		Stop	

Intersection Summary

Area Type: Other
Control Type: Unsignalized
Intersection Capacity Utilization 47.5% ICU Level of Service A
Analysis Period (min) 15

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↰↑	↑↱		Y	
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Volume (veh/h)	2	1307	1243	3	1	2
Peak Hour Factor	0.92	0.92	0.92	0.92	0.50	0.50
Hourly flow rate (vph)	2	1421	1351	3	2	4
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type					None	
Median storage veh)						
Upstream signal (ft)		191				
pX, platoon unblocked					0.71	
vC, conflicting volume	1354				2067	677
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1354				2095	677
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				94	99
cM capacity (veh/h)	504				32	395

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	SB 1
Volume Total	476	947	901	454	6
Volume Left	2	0	0	0	2
Volume Right	0	0	0	3	4
cSH	504	1700	1700	1700	82
Volume to Capacity	0.00	0.56	0.53	0.27	0.07
Queue Length 95th (ft)	0	0	0	0	6
Control Delay (s)	0.1	0.0	0.0	0.0	52.1
Lane LOS	A				F
Approach Delay (s)	0.0		0.0		52.1
Approach LOS					F

Intersection Summary

Average Delay	0.1		
Intersection Capacity Utilization	47.5%	ICU Level of Service	A
Analysis Period (min)	15		

G-94

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	Y		↑↑→		↰	↑↑
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0		0	200	
Storage Lanes	1	0		0	1	
Turning Speed (mph)	15	9		9	15	
Lane Util. Factor	1.00	1.00	0.95	0.95	1.00	0.95
Frt	0.878		0.994			
Flt Protected	0.995				0.950	
Satd. Flow (prot)	1627	0	3518	0	1770	3539
Flt Permitted	0.995				0.950	
Satd. Flow (perm)	1627	0	3518	0	1770	3539
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Link Speed (mph)	30		45			45
Link Distance (ft)	1145		320			456
Travel Time (s)	26.0		4.8			6.9
Volume (vph)	18	173	717	30	117	874
Peak Hour Factor	0.82	0.82	0.91	0.91	0.96	0.96
Adj. Flow (vph)	22	211	788	33	122	910
Lane Group Flow (vph)	233	0	821	0	122	910
Sign Control	Stop		Free			Free

Intersection Summary

Area Type: Other
Control Type: Unsignalized
Intersection Capacity Utilization 48.9% ICU Level of Service A
Analysis Period (min) 15

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	Y		↑↑→		↰	↑↑
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Volume (veh/h)	18	173	717	30	117	874
Peak Hour Factor	0.82	0.82	0.91	0.91	0.96	0.96
Hourly flow rate (vph)	22	211	788	33	122	910
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None					
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1503	410			821	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1503	410			821	
tC, single (s)	6.8	6.9			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	77	64			85	
cM capacity (veh/h)	95	590			804	

Direction, Lane #	WB 1	NB 1	NB 2	SB 1	SB 2	SB 3
Volume Total	233	525	296	122	455	455
Volume Left	22	0	0	122	0	0
Volume Right	211	0	33	0	0	0
cSH	396	1700	1700	804	1700	1700
Volume to Capacity	0.59	0.31	0.17	0.15	0.27	0.27
Queue Length 95th (ft)	91	0	0	13	0	0
Control Delay (s)	26.3	0.0	0.0	10.3	0.0	0.0
Lane LOS	D			B		
Approach Delay (s)	26.3	0.0		1.2		
Approach LOS	D					

Intersection Summary

Average Delay	3.5		
Intersection Capacity Utilization	48.9%	ICU Level of Service	A
Analysis Period (min)	15		

G-95

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↰	↑↑	↑↱		↰	↱
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	150			0	0	0
Storage Lanes	1			0	1	1
Turning Speed (mph)	15			9	15	9
Lane Util. Factor	1.00	0.95	0.95	0.95	1.00	1.00
Frt			0.982			0.850
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1770	3539	3476	0	1770	1583
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	1770	3539	3476	0	1770	1583
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Link Speed (mph)		45	45		30	
Link Distance (ft)		692	1613		353	
Travel Time (s)		10.5	24.4		8.0	
Volume (vph)	282	911	1076	144	198	128
Peak Hour Factor	0.92	0.92	0.92	0.92	0.75	0.75
Adj. Flow (vph)	307	990	1170	157	264	171
Lane Group Flow (vph)	307	990	1327	0	264	171
Sign Control		Free	Free		Stop	

Intersection Summary

Area Type: Other
Control Type: Unsignalized
Intersection Capacity Utilization 70.9% ICU Level of Service C
Analysis Period (min) 15

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↰	↑↑	↑↱		↰	↱
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Volume (veh/h)	282	911	1076	144	198	128
Peak Hour Factor	0.92	0.92	0.92	0.92	0.75	0.75
Hourly flow rate (vph)	307	990	1170	157	264	171
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type					None	
Median storage veh)						
Upstream signal (ft)		1125				
pX, platoon unblocked						
vC, conflicting volume	1326				2356	663
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1326				2356	663
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	41				0	58
cM capacity (veh/h)	517				12	404

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	SB 1	SB 2
Volume Total	307	495	495	780	546	264	171
Volume Left	307	0	0	0	0	264	0
Volume Right	0	0	0	0	157	0	171
cSH	517	1700	1700	1700	1700	12	404
Volume to Capacity	0.59	0.29	0.29	0.46	0.32	21.80	0.42
Queue Length 95th (ft)	96	0	0	0	0	Err	51
Control Delay (s)	21.6	0.0	0.0	0.0	0.0	Err	20.3
Lane LOS	C					F	C
Approach Delay (s)	5.1			0.0		6081.0	
Approach LOS						F	

Intersection Summary

Average Delay	866.7		
Intersection Capacity Utilization	70.9%	ICU Level of Service	C
Analysis Period (min)	15		

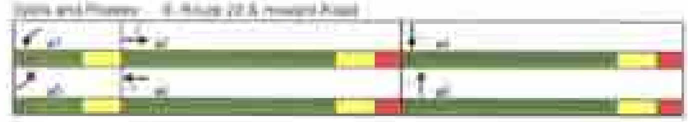
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	100		0	0		0	100		0
Storage Lanes	1		0	1		0	0		0	1		0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Leading Detector (ft)	50	50		50	50		50	50		50	50	
Trailing Detector (ft)	0	0		0	0		0	0		0	0	
Turning Speed (mph)	15		9	15		9	15		9	15		9
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.998			0.986			0.903			0.850	
Flt Protected	0.950			0.950				0.986		0.950		
Satd. Flow (prot)	1770	3532	0	1770	3490	0	0	1609	0	1770	1583	0
Flt Permitted	0.339			0.336				0.941		0.727		
Satd. Flow (perm)	658	3532	0	458	3490	0	0	1583	0	1354	1583	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		2			23			32			267	
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Link Speed (mph)		45			45			30			30	
Link Distance (ft)		1615			725			192			400	
Travel Time (s)		24.4			11.0			4.4			9.1	
Volume (vph)	75	899	10	8	1088	109	12	0	20	110	2	41
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	82	976	11	9	1183	118	13	0	22	120	2	45
Lane Group Flow (vph)	82	987	0	9	1299	0	0	48	0	120	48	0
Turn Type	pm+pt			pm+pt			Perm			Perm		
Protected Phases	5	2		1	6			8			4	
Permitted Phases	2			6			8			4		
Detector Phase	5	2		1	6		8	8		4	4	
Minimum Initial (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Minimum Split (s)	8.0	21.0		8.0	21.0		21.0	21.0		21.0	21.0	
Total Split (s)	8.0	21.0	0.0	8.0	21.0	0.0	21.0	21.0	0.0	21.0	21.0	0.0
Total Split (%)	16.0%	42.0%	0.0%	16.0%	42.0%	0.0%	42.0%	42.0%	0.0%	42.0%	42.0%	0.0%
Maximum Green (s)	5.0	16.0		5.0	16.0		16.0	16.0		16.0	16.0	
Yellow Time (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
All-Red Time (s)	0.0	2.0		0.0	2.0		2.0	2.0		2.0	2.0	
Lead/Lag	Lead	Lag		Lead	Lag							
Lead-Lag Optimize?	Yes	Yes		Yes	Yes							
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	Min		None	Max		None	None		None	None	
Walk Time (s)		5.0			5.0		5.0	5.0		5.0	5.0	
Flash Dont Walk (s)		11.0			11.0		11.0	11.0		11.0	11.0	
Pedestrian Calls (#/hr)		0			0		0	0		0	0	
Act Effct Green (s)	37.8	37.0		35.2	32.7			13.2		13.3	13.3	
Actuated g/C Ratio	0.66	0.62		0.59	0.55			0.21		0.21	0.21	
v/c Ratio	0.23	0.46		0.02	0.68			0.13		0.44	0.08	
Control Delay	6.7	8.7		8.8	16.2			7.6		19.1	5.3	
Queue Delay	0.0	0.0		0.0	0.0			0.0		0.0	0.0	
Total Delay	6.7	8.7		8.8	16.2			7.6		19.1	5.3	
LOS	A	A		A	B			A		B	A	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Approach Delay		8.6			16.2			7.6			13.3	
Approach LOS		A			B			A			B	

Intersection Summary

Area Type: Other
Cycle Length: 50
Actuated Cycle Length: 55.7
Natural Cycle: 50
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.68
Intersection Signal Delay: 12.6 Intersection LOS: B
Intersection Capacity Utilization 60.4% ICU Level of Service B
Analysis Period (min) 15

Splits and Phases: 6: Route 20 & Howard Road



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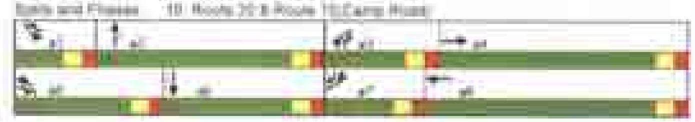
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	500		500	550		350	100		145	155		350
Storage Lanes	2		1	2		1	2		1	1		1
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Leading Detector (ft)	50	50	50	50	50	50	50	50	50	50	50	50
Trailing Detector (ft)	0	0	0	0	0	0	0	0	0	0	0	0
Turning Speed (mph)	15		9	15		9	15		9	15		9
Lane Util. Factor	0.97	0.95	1.00	0.97	0.95	1.00	0.97	0.95	1.00	1.00	0.95	1.00
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3433	3539	1583	3433	3539	1583	3433	3539	1583	1770	3539	1583
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3433	3539	1583	3433	3539	1583	3433	3539	1583	1770	3539	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			20			17			97			8
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Link Speed (mph)		40			40			30			30	
Link Distance (ft)		2886			494			1120			1095	
Travel Time (s)		53.8			18.1			25.5			24.9	
Volume (vph)	288	920	375	326	1110	15	337	455	219	35	844	383
Peak Hour Factor	0.91	0.91	0.91	0.88	0.88	0.88	0.88	0.88	0.90	0.91	0.91	0.91
Adj. Flow (vph)	316	1011	412	370	1247	17	392	518	240	38	888	421
Lane Group Flow (vph)	316	1011	412	370	1247	17	392	518	240	38	888	421
Turn Type	Prot		pm+ov	Prot		pm+ov	Prot		pm+ov	Prot		pm+ov
Protected Phases	7	4	5	3	8	1	5	2	3	1	6	7
Permitted Phases			4			8			2			6
Detector Phase	7	4	5	3	8	1	5	2	3	1	6	7
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	8.0	21.0	8.0	8.0	21.0	8.0	8.0	21.5	8.0	8.0	21.0	8.0
Total Split (s)	10.0	37.0	22.0	17.0	39.0	13.0	22.0	34.0	17.0	13.0	24.0	10.0
Total Split (%)	10.0%	37.0%	22.0%	17.0%	39.0%	13.0%	22.0%	34.0%	17.0%	13.0%	24.0%	10.0%
Maximum Green (s)	10.0	32.0	17.0	12.0	34.0	7.0	17.0	29.0	12.0	7.0	19.0	10.0
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lead/Lag	Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	Min	None	None	Min	None	None	C-Min	None	None	C-Min	None
Walk Time (s)		5.0			5.0			5.0			5.0	
Flash Dont Walk (s)		11.0			11.0			11.0			11.0	
Pedestrian Calls (#/hr)		0			0			0			0	
Act Effct Green (s)	11.3	33.8	55.3	13.1	35.2	46.8	18.0	32.5	49.1	7.7	19.8	34.6
Actuated g/C Ratio	0.11	0.33	0.55	0.13	0.35	0.47	0.18	0.32	0.49	0.08	0.20	0.35
v/c Ratio	0.82	0.86	0.47	0.83	1.00	0.02	0.64	0.46	0.30	0.30	0.86	0.75
Control Delay	61.8	49.0	14.8	63.5	56.4	5.4	48.8	29.2	11.0	53.8	52.7	38.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	61.8	49.0	14.8	63.5	56.4	5.4	48.8	29.2	11.0	53.8	52.7	38.3
LOS	E	D	B	E	E	A	D	C	B	D	D	D

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Approach Delay		38.4			55.2			43.2			47.1	
Approach LOS		D			E			D			D	

Intersection Summary

Area Type: Other
Cycle Length: 100
Actuated Cycle Length: 100
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green, Master Intersection
Natural Cycle: 80
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.00
Intersection Signal Delay: 45.8 Intersection LOS: D
Intersection Capacity Utilization 82.7% ICU Level of Service E
Analysis Period (min) 15

Splits and Phases: 10: Route 20 & Route 75(Camp Road)



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Lane Group	SBL	SBR	NEL	NET	SWT	SWR
Lane Configurations		↱		↑↑	↑↱	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Turning Speed (mph)	15	9	15			9
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	0.95
Frt		0.865			0.994	
Flt Protected						
Satd. Flow (prot)	0	1611	0	3539	3518	0
Flt Permitted						
Satd. Flow (perm)	0	1611	0	3539	3518	0
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Link Speed (mph)	30			45	45	
Link Distance (ft)	422			242	692	
Travel Time (s)	9.6			3.7	10.5	
Volume (vph)	0	128	0	1193	1156	48
Peak Hour Factor	0.70	0.70	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	183	0	1297	1257	52
Lane Group Flow (vph)	0	183	0	1297	1309	0
Sign Control	Yield			Free	Free	

Intersection Summary

Area Type: Other
Control Type: Unsignalized
Intersection Capacity Utilization 48.1% ICU Level of Service A
Analysis Period (min) 15

Movement	SBL	SBR	NEL	NET	SWT	SWR
Lane Configurations		↱		↑↑	↑↱	
Sign Control	Yield			Free	Free	
Grade	0%			0%	0%	
Volume (veh/h)	0	128	0	1193	1156	48
Peak Hour Factor	0.70	0.70	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	183	0	1297	1257	52
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None					
Median storage veh)						
Upstream signal (ft)				433		
pX, platoon unblocked	0.78					
vC, conflicting volume	1931	654	1309			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1912	654	1309			
tC, single (s)	6.8	6.9	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	55	100			
cM capacity (veh/h)	47	409	525			

Direction, Lane #	SB 1	NE 1	NE 2	SW 1	SW 2
Volume Total	183	648	648	838	471
Volume Left	0	0	0	0	0
Volume Right	183	0	0	0	52
cSH	409	1700	1700	1700	1700
Volume to Capacity	0.45	0.38	0.38	0.49	0.28
Queue Length 95th (ft)	56	0	0	0	0
Control Delay (s)	20.7	0.0	0.0	0.0	0.0
Lane LOS	C				
Approach Delay (s)	20.7	0.0		0.0	
Approach LOS	C				

Intersection Summary

Average Delay 1.4
Intersection Capacity Utilization 48.1% ICU Level of Service A
Analysis Period (min) 15

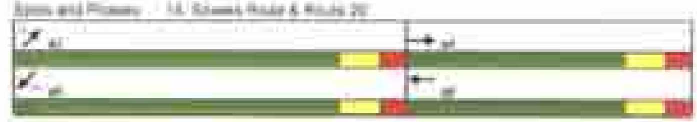
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SWL	SWT	SWR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	150		0	150		0	15		0	0		0
Storage Lanes	1		0	1		0	1		0	1		0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Leading Detector (ft)	50	50		50	50		50	50		50	50	
Trailing Detector (ft)	0	0		0	0		0	0		0	0	
Turning Speed (mph)	15		9	15		9	15		9	15		9
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	0.95
Frt		0.962			0.939			0.991			0.998	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1826	0	1770	1749	0	1770	3472	0	1770	3532	0
Flt Permitted	0.672			0.687			0.160			0.160		
Satd. Flow (perm)	1252	1826	0	1280	1749	0	298	3472	0	298	3532	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		13			40			46			10	
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Link Speed (mph)		30			30			45			45	
Link Distance (ft)		1145			815			994			191	
Travel Time (s)		26.0			18.5			15.1			2.9	
Volume (vph)	82	82	11	136	67	46	2	1063	104	38	1204	42
Peak Hour Factor	0.92	0.85	0.85	0.85	0.85	0.85	0.90	0.90	0.90	0.92	0.92	0.92
Adj. Flow (vph)	89	96	13	160	79	54	2	1181	116	41	1309	46
Lane Group Flow (vph)	89	109	0	160	133	0	2	1297	0	41	1355	0
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Detector Phase	4	4		8	8		2	2		6	6	
Minimum Initial (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Minimum Split (s)	21.0	21.0		21.0	21.0		21.0	21.0		21.0	21.0	
Total Split (s)	21.0	21.0	0.0	21.0	21.0	0.0	29.0	29.0	0.0	29.0	29.0	0.0
Total Split (%)	42.0%	42.0%	0.0%	42.0%	42.0%	0.0%	58.0%	58.0%	0.0%	58.0%	58.0%	0.0%
Maximum Green (s)	16.0	16.0		16.0	16.0		24.0	24.0		24.0	24.0	
Yellow Time (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		C-Max	C-Max		C-Min	C-Min	
Walk Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Flash Dont Walk (s)	11.0	11.0		11.0	11.0		11.0	11.0		11.0	11.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	
Act Effct Green (s)	11.9	11.9		11.9	11.9		33.0	33.0		33.0	33.0	
Actuated g/C Ratio	0.24	0.24		0.24	0.24		0.66	0.66		0.66	0.66	
v/c Ratio	0.30	0.24		0.52	0.29		0.02	0.56		0.21	0.58	
Control Delay	16.8	13.8		21.9	11.6		6.3	8.2		10.6	8.2	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	2.8	
Total Delay	16.8	13.8		21.9	11.6		6.3	8.2		10.6	11.0	
LOS	B	B		C	B		A	A		B	B	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SWL	SWT	SWR
Approach Delay		15.1			17.2			8.2			11.0	
Approach LOS		B			B			A			B	

Intersection Summary

Area Type: Other
Cycle Length: 50
Actuated Cycle Length: 50
Offset: 1 (2%), Referenced to phase 2:NBTL and 6:SWTL, Start of Green
Natural Cycle: 55
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.58
Intersection Signal Delay: 10.7 Intersection LOS: B
Intersection Capacity Utilization 55.9% ICU Level of Service B
Analysis Period (min) 15

Splits and Phases: 14: Sowles Road & Route 20



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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	100		0	100		0	0		0	0		0
Storage Lanes	1		0	1		0	1		0	1		0
Turning Speed (mph)	15		9	15		9	15		9	15		9
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.859			0.854			0.989			0.999	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1600	0	1770	1591	0	1770	1842	0	1770	1861	0
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1770	1600	0	1770	1591	0	1770	1842	0	1770	1861	0
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		546			512			602			683	
Travel Time (s)		12.4			11.6			13.7			15.5	
Volume (vph)	11	1	11	35	2	59	9	661	53	57	661	5
Peak Hour Factor	0.72	0.72	0.72	0.82	0.82	0.82	0.96	0.96	0.96	0.92	0.92	0.92
Adj. Flow (vph)	15	1	15	43	2	72	9	689	55	62	718	5
Lane Group Flow (vph)	15	16	0	43	74	0	9	744	0	62	723	0
Sign Control		Stop			Stop			Free			Free	

Intersection Summary

Area Type: Other
Control Type: Unsignalized
Intersection Capacity Utilization 59.9% ICU Level of Service B
Analysis Period (min) 15

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Volume (veh/h)	11	1	11	35	2	59	9	661	53	57	661	5
Peak Hour Factor	0.72	0.72	0.72	0.82	0.82	0.82	0.96	0.96	0.96	0.92	0.92	0.92
Hourly flow rate (vph)	15	1	15	43	2	72	9	689	55	62	718	5
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	1626	1608	721	1593	1583	716	724			744		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1626	1608	721	1593	1583	716	724			744		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	76	99	96	45	98	83	99			93		
cM capacity (veh/h)	63	96	427	77	100	430	879			864		

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	NB 2	SB 1	SB 2
Volume Total	15	17	43	74	9	744	62	724
Volume Left	15	0	43	0	9	0	62	0
Volume Right	0	15	0	72	0	55	0	5
cSH	63	332	77	388	879	1700	864	1700
Volume to Capacity	0.24	0.05	0.55	0.19	0.01	0.44	0.07	0.43
Queue Length 95th (ft)	21	4	60	17	1	0	6	0
Control Delay (s)	79.8	16.4	98.3	16.5	9.1	0.0	9.5	0.0
Lane LOS	F	C	F	C	A		A	
Approach Delay (s)	46.7		46.3		0.1		0.7	
Approach LOS	E		E					

Intersection Summary

Average Delay	4.5		
Intersection Capacity Utilization	59.9%	ICU Level of Service	B
Analysis Period (min)	15		

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Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↰↑	↑↱		Y	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Turning Speed (mph)	15			9	15	9
Lane Util. Factor	0.95	0.95	0.95	0.95	1.00	1.00
Frt					0.932	
Flt Protected					0.976	
Satd. Flow (prot)	0	3539	3539	0	1694	0
Flt Permitted					0.976	
Satd. Flow (perm)	0	3539	3539	0	1694	0
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Link Speed (mph)		45	45		30	
Link Distance (ft)		191	242		329	
Travel Time (s)		2.9	3.7		7.5	
Volume (vph)	2	1191	1284	1	1	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	2	1295	1396	1	1	1
Lane Group Flow (vph)	0	1297	1397	0	2	0
Sign Control		Free	Free		Stop	

Intersection Summary

Area Type: Other
Control Type: Unsignalized
Intersection Capacity Utilization 45.5% ICU Level of Service A
Analysis Period (min) 15

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↰↑	↑↱		Y	
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Volume (veh/h)	2	1191	1284	1	1	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	2	1295	1396	1	1	1
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type					None	
Median storage veh)						
Upstream signal (ft)		191				
pX, platoon unblocked					0.77	
vC, conflicting volume	1397				2048	698
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1397				2062	698
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				97	100
cM capacity (veh/h)	485				36	383

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	SB 1
Volume Total	434	863	930	466	2
Volume Left	2	0	0	0	1
Volume Right	0	0	0	1	1
cSH	485	1700	1700	1700	66
Volume to Capacity	0.00	0.51	0.55	0.27	0.03
Queue Length 95th (ft)	0	0	0	0	3
Control Delay (s)	0.1	0.0	0.0	0.0	61.2
Lane LOS	A				F
Approach Delay (s)	0.0		0.0		61.2
Approach LOS					F

Intersection Summary

Average Delay	0.1		
Intersection Capacity Utilization	45.5%	ICU Level of Service	A
Analysis Period (min)	15		

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Level of Service Calculations: Full Development Conditions with Mitigation

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0		0	200	
Storage Lanes	1	0		0	1	
Turning Speed (mph)	15	9		9	15	
Lane Util. Factor	1.00	1.00	0.95	0.95	1.00	0.95
Frt	0.878		0.996			
Flt Protected	0.995				0.950	
Satd. Flow (prot)	1627	0	3525	0	1770	3539
Flt Permitted	0.995				0.950	
Satd. Flow (perm)	1627	0	3525	0	1770	3539
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Link Speed (mph)	30		45			45
Link Distance (ft)	1145		639			456
Travel Time (s)	26.0		9.7			6.9
Volume (vph)	15	139	747	20	160	1221
Peak Hour Factor	0.82	0.82	0.91	0.91	0.96	0.96
Adj. Flow (vph)	18	170	821	22	167	1272
Lane Group Flow (vph)	188	0	843	0	167	1272
Sign Control	Stop		Free			Free

Intersection Summary

Area Type: Other
Control Type: Unsignalized
Intersection Capacity Utilization 49.8% ICU Level of Service A
Analysis Period (min) 15

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Volume (veh/h)	15	139	747	20	160	1221
Peak Hour Factor	0.82	0.82	0.91	0.91	0.96	0.96
Hourly flow rate (vph)	18	170	821	22	167	1272
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None					
Median storage veh)						
Upstream signal (ft)			639			
pX, platoon unblocked	0.90	0.90			0.90	
vC, conflicting volume	1801	421			843	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1778	238			709	
tC, single (s)	6.8	6.9			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	65	75			79	
cM capacity (veh/h)	52	684			794	

Direction, Lane #	WB 1	NB 1	NB 2	SB 1	SB 2	SB 3
Volume Total	188	547	296	167	636	636
Volume Left	18	0	0	167	0	0
Volume Right	170	0	22	0	0	0
cSH	313	1700	1700	794	1700	1700
Volume to Capacity	0.60	0.32	0.17	0.21	0.37	0.37
Queue Length 95th (ft)	91	0	0	20	0	0
Control Delay (s)	32.3	0.0	0.0	10.7	0.0	0.0
Lane LOS	D			B		
Approach Delay (s)	32.3	0.0		1.2		
Approach LOS	D					

Intersection Summary

Average Delay	3.2		
Intersection Capacity Utilization	49.8%	ICU Level of Service	A
Analysis Period (min)	15		

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Full Dev't PM MITIGATED
4: Route 20 & Route 75/Camp Road

Lowes Hamburg
3/14/2007

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	550		500	550		355	180		140	195		350
Storage Lanes	2		1	2		1	2		1	1		1
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Leading Detector (ft)	50	50	50	50	50	50	50	50	50	50	50	50
Trailing Detector (ft)	0	0	0	0	0	0	0	0	0	0	0	0
Turning Speed (mph)	15		9	15		9	15		9	15		9
Lane Util. Factor	0.97	0.95	1.00	0.97	0.95	1.00	0.97	0.95	1.00	1.00	0.95	1.00
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3433	3539	1583	3433	3539	1583	3433	3539	1583	1770	3539	1583
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3433	3539	1583	3433	3539	1583	3433	3539	1583	1770	3539	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			3			13			62			8
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Link Speed (mph)		45			45			45			45	
Link Distance (ft)		3689			1001			1120			640	
Travel Time (s)		55.9			15.2			17.0			9.7	
Volume (vph)	247	1015	329	355	1121	12	516	528	258	33	1041	320
Peak Hour Factor	0.91	0.91	0.91	0.90	0.90	0.90	0.92	0.92	0.92	0.95	0.95	0.95
Adj. Flow (vph)	271	1115	362	394	1246	13	570	574	280	35	1096	337
Lane Group Flow (vph)	271	1115	362	394	1246	13	570	574	280	35	1096	337
Turn Type	Prot		pm+ov	Prot		pm+ov	Prot		pm+ov	Prot		pm+ov
Protected Phases	7	4	5	3	8	1	5	2	3	1	6	7
Permitted Phases			4			8			2			6
Detector Phases	7	4	5	3	8	1	5	2	3	1	6	7
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	9.0	21.0	9.0	9.0	21.0	9.0	9.0	21.0	9.0	9.0	21.0	9.0
Total Split (s)	13.0	39.0	26.0	17.0	43.0	10.0	26.0	54.0	17.0	10.0	38.0	13.0
Total Split (%)	10.8%	32.5%	21.7%	14.2%	35.8%	8.3%	21.7%	45.0%	14.2%	8.3%	31.7%	10.8%
Maximum Green (s)	8.0	34.0	21.0	12.0	38.0	5.0	21.0	49.0	12.0	5.0	33.0	8.0
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lead/Lag	Lag	Lead	Lead	Lag	Lead	Lead	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	None	None	None	None	C-Max	None	None	C-Max	None
Walk Time (s)		5.0			5.0			5.0			5.0	
Flash Dont Walk (s)		11.0			11.0			11.0			11.0	
Pedestrian Calls (#/hr)		0			0			0			0	
Act Effct Green (s)	8.0	29.0	57.0	13.0	39.0	45.0	22.0	54.0	68.8	6.0	34.0	43.0
Actuated g/C Ratio	0.08	0.25	0.48	0.11	0.32	0.38	0.18	0.45	0.57	0.05	0.28	0.36
v/c Ratio	1.09	1.08	0.48	1.08	1.08	0.02	1.07	0.36	0.30	0.39	1.06	0.59
Control Delay	124.2	93.0	14.2	106.4	88.4	6.3	101.2	23.2	8.6	68.4	98.6	25.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	124.2	93.0	14.2	106.4	88.4	6.3	101.2	23.2	8.6	68.4	98.6	25.8
LOS	F	F	B	F	F	A	F	C	A	E	F	C

Full Dev't PM MITIGATED
4: Route 20 & Route 75/Camp Road

Lowes Hamburg
3/14/2007

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Approach Delay		81.3			92.1			54.8			81.2	
Approach LOS		F			F			D			F	

Intersection Summary

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green, Master Intersection
Natural Cycle: 120
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.09
Intersection Signal Delay: 77.6 Intersection LOS: E
Intersection Capacity Utilization 97.8% ICU Level of Service F
Analysis Period (min) 15

Splits and Phases: 4: Route 20 & Route 75/Camp Road

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Full Dev't PM MITIGATED
6: Route 20 & Howard Road

Lowes Hamburg
3/14/2007

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	100		0	100		0	0		0	100		0
Storage Lanes	1		0	1		0	0		0	1		0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Leading Detector (ft)	50	50		50	50		50	50		50	50	
Trailing Detector (ft)	0	0		0	0		0	0		0	0	
Turning Speed (mph)	15		9	15		9	15		9	15		9
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.999			0.983			0.932			0.853	
Flt Protected	0.950			0.950				0.984		0.950		
Satd. Flow (prot)	1770	3539	0	1770	3486	0	0	1687	0	1770	1589	0
Flt Permitted	0.118			0.218				0.846		0.746		
Satd. Flow (perm)	220	3539	0	406	3486	0	0	1459	0	1390	1589	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		1			19			14			42	
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Link Speed (mph)		45			45			30			30	
Link Distance (ft)		1613			729			192			400	
Travel Time (s)		24.4			11.0			4.4			9.1	
Volume (vph)	70	1104	6	2	1127	126	3	6	9	129	1	36
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.60	0.60	0.60	0.85	0.85	0.85
Adj. Flow (vph)	76	1200	7	2	1225	138	5	10	15	152	1	42
Lane Group Flow (vph)	76	1207	0	2	1364	0	0	18	0	152	43	0
Turn Type	pm+pt			pm+pt			Perm			Perm		
Protected Phases	5	2		1	6			8			4	
Permitted Phases	2			6			8			4		
Detector Phases	5	2		1	6		8	8		4	4	
Minimum Initial (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Minimum Split (s)	20.0	21.0		8.0	21.0		21.0	21.0		21.0	21.0	
Total Split (s)	29.0	61.0	0.0	8.0	34.0	0.0	21.0	21.0	0.0	21.0	21.0	0.0
Total Split (%)	38.7%	81.3%	0.0%	10.7%	45.3%	0.0%	28.0%	28.0%	0.0%	28.0%	28.0%	0.0%
Maximum Green (s)	17.0	41.0		3.0	29.0		16.0	16.0		16.0	16.0	
Yellow Time (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
All-Red Time (s)	5.0	2.0		5.0	2.0		2.0	2.0		2.0	2.0	
Lead/Lag	Lead	Lag		Lead	Lag							
Lead-Lag Optimize?	Yes	Yes		Yes	Yes							
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	Max		None	Max		None	None		None	None	
Walk Time (s)	5.0	5.0			5.0		5.0	5.0		5.0	5.0	
Flash Dont Walk (s)	11.0	11.0			11.0		11.0	11.0		11.0	11.0	
Pedestrian Calls (#/hr)	0	0			0		0	0		0	0	
Act Effct Green (s)	51.0	46.5		47.1	44.0			13.9		13.9	13.9	
Actuated g/C Ratio	0.67	0.59		0.59	0.61			0.19		0.19	0.19	
v/c Ratio	0.29	0.50		0.01	0.64			0.06		0.59	0.13	
Control Delay	7.1	7.5		5.5	12.1			14.0		33.5	9.1	
Queue Delay	0.0	0.0		0.0	0.0			0.0		0.0	0.0	
Total Delay	7.1	7.5		5.5	12.1			14.0		33.5	9.1	
LOS	A	A		A	B			B		C	A	

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6: Route 20 & Howard Road

Lowes Hamburg
3/14/2007

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Approach Delay		7.4			12.1			14.0			28.1	
Approach LOS		A			B			B			C	

Intersection Summary

Area Type: Other
Cycle Length: 75
Actuated Cycle Length: 72.8
Natural Cycle: 75
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.64
Intersection Signal Delay: 11.1 Intersection LOS: B
Intersection Capacity Utilization 63.9% ICU Level of Service B
Analysis Period (min) 15

Splits and Phases: 6: Route 20 & Howard Road

G-106

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	150			350	0	0
Storage Lanes	1			1	1	1
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Leading Detector (ft)	50	50	50	50	50	50
Trailing Detector (ft)	0	0	0	0	0	0
Turning Speed (mph)	15			9	15	9
Lane Util. Factor	1.00	0.95	0.95	1.00	1.00	1.00
Frt				0.850		0.850
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1770	3539	3539	1583	1770	1583
Flt Permitted	0.121				0.950	
Satd. Flow (perm)	225	3539	3539	1583	1770	1583
Right Turn on Red				Yes		Yes
Satd. Flow (RTOR)				113		13
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Link Speed (mph)		40	45		30	
Link Distance (ft)		860	1612		232	
Travel Time (s)		10.0	24.4		5.3	
Volume (vph)	133	1176	1142	104	131	55
Peak Hour Factor	0.92	0.92	0.92	0.92	0.75	0.75
Adj. Flow (vph)	145	1278	1241	113	175	61
Lane Group Flow (vph)	145	1278	1241	113	175	61
Turn Type	pm+pt			pm+ov		pm+ov
Protected Phases	5	2	6	4	4	5
Permitted Phases	2			6		4
Detector Phases	5	2	6	4	4	5
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	21.0	21.0	21.0	21.0	21.0	21.0
Total Split (s)	21.0	54.0	33.0	21.0	21.0	21.0
Total Split (%)	28.0%	72.0%	44.0%	28.0%	28.0%	28.0%
Maximum Green (s)	16.0	49.0	28.0	16.0	16.0	16.0
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lead/Lag	Lead		Lag			Lead
Lead-Lag Optimize?	Yes		Yes			Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	Min	None	Min	Min	None
Walk Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Flash Dont Walk (s)	11.0	11.0	11.0	11.0	11.0	11.0
Pedestrian Calls (#/hr)	0	0	0	0	0	0
Act Effct Green (s)	35.1	39.3	25.6	44.1	15.2	24.1
Actuated g/C Ratio	0.61	0.65	0.45	0.77	0.27	0.42
v/c Ratio	0.37	0.57	0.78	0.09	0.47	0.13
Control Delay	7.9	7.0	18.6	0.9	27.1	10.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	7.9	7.0	18.6	0.9	27.1	10.0
LOS	A	A	B	A	C	A

Full Dev't PM MITIGATED
8: Route 20 & Lowes Main Drive

Lowes Hamburg
3/14/2007

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Approach Delay		7.1	18.1		21.4	
Approach LOS		A	B		C	

Intersection Summary

Area Type: Other
Cycle Length: 75
Actuated Cycle Length: 57.4
Natural Cycle: 75
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.78
Intersection Signal Delay: 13.2 Intersection LOS: B
Intersection Capacity Utilization 56.2% ICU Level of Service B
Analysis Period (min) 15

Splits and Phases: 8: Route 20 & Lowes Main Drive

6107

Lane Group	SBL	SBR	NEL	NET	SWT	SWR
Lane Configurations						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Turning Speed (mph)	15	9	15			9
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	0.95
Frt		0.865			0.996	
Flt Protected						
Satd. Flow (prot)	0	1611	0	3539	3525	0
Flt Permitted						
Satd. Flow (perm)	0	1611	0	3539	3525	0
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Link Speed (mph)	30			45	45	
Link Distance (ft)	422			273	660	
Travel Time (s)	9.6			4.1	10.0	
Volume (vph)	0	66	0	1309	1178	29
Peak Hour Factor	0.70	0.70	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	94	0	1423	1280	32
Lane Group Flow (vph)	0	94	0	1423	1312	0
Sign Control	Yield			Free	Free	

Intersection Summary

Area Type: Other
Control Type: Unsignalized
Intersection Capacity Utilization 44.2% ICU Level of Service A
Analysis Period (min) 15

Movement	SBL	SBR	NEL	NET	SWT	SWR
Lane Configurations						
Sign Control	Yield			Free	Free	
Grade	0%			0%	0%	
Volume (veh/h)	0	66	0	1309	1178	29
Peak Hour Factor	0.70	0.70	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	94	0	1423	1280	32
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None					
Median storage veh)						
Upstream signal (ft)				464	660	
pX, platoon unblocked	0.83	0.69	0.69			
vC, conflicting volume	2008	656	1312			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1001	44	999			
tC, single (s)	6.8	6.9	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	87	100			
cM capacity (veh/h)	198	698	473			

Direction, Lane #	SB 1	NE 1	NE 2	SW 1	SW 2
Volume Total	94	711	711	854	458
Volume Left	0	0	0	0	0
Volume Right	94	0	0	0	32
cSH	698	1700	1700	1700	1700
Volume to Capacity	0.13	0.42	0.42	0.50	0.27
Queue Length 95th (ft)	12	0	0	0	0
Control Delay (s)	11.0	0.0	0.0	0.0	0.0
Lane LOS	B				
Approach Delay (s)	11.0	0.0		0.0	
Approach LOS	B				

Intersection Summary

Average Delay	0.4		
Intersection Capacity Utilization	44.2%	ICU Level of Service	A
Analysis Period (min)	15		

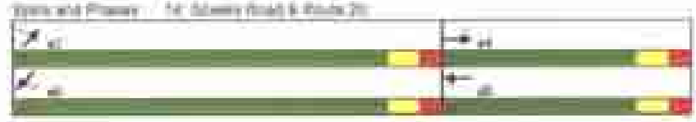
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	150		0	150		0	75		0	200		0
Storage Lanes	1		0	1		0	1		0	1		0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Leading Detector (ft)	50	50		50	50		50	50		50	50	
Trailing Detector (ft)	0	0		0	0		0	0		0	0	
Turning Speed (mph)	15		9	15		9	15		9	15		9
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	0.95
Frt		0.983			0.948			0.978			0.995	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1831	0	1770	1766	0	1770	3461	0	1770	3522	0
Flt Permitted	0.661			0.660			0.126			0.114		
Satd. Flow (perm)	1231	1831	0	1229	1766	0	235	3461	0	220	3522	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		11			46			34			6	
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Link Speed (mph)		30			30			45			45	
Link Distance (ft)		1168			815			1001			151	
Travel Time (s)		26.5			18.5			15.2			2.3	
Volume (vph)	93	109	14	171	84	44	4	1172	202	36	1171	39
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	109	128	16	201	99	52	4	1302	224	40	1301	43
Lane Group Flow (vph)	109	144	0	201	151	0	4	1526	0	40	1344	0
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Detector Phases	4	4		8	8		2	2		6	6	
Minimum Initial (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Minimum Split (s)	21.0	21.0		21.0	21.0		21.0	21.0		21.0	21.0	
Total Split (s)	22.0	22.0	0.0	22.0	22.0	0.0	38.0	38.0	0.0	38.0	38.0	0.0
Total Split (%)	36.7%	36.7%	0.0%	36.7%	36.7%	0.0%	63.3%	63.3%	0.0%	63.3%	63.3%	0.0%
Maximum Green (s)	17.0	17.0		17.0	17.0		33.0	33.0		33.0	33.0	
Yellow Time (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		C-Max	C-Max		C-Max	C-Max	
Walk Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Flash Dont Walk (s)	11.0	11.0		11.0	11.0		11.0	11.0		11.0	11.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	
Act Effct Green (s)	14.8	14.8		14.8	14.8		37.4	37.4		37.4	37.4	
Actuated g/C Ratio	0.24	0.24		0.24	0.24		0.62	0.62		0.62	0.62	
v/c Ratio	0.36	0.32		0.67	0.35		0.03	0.70		0.28	0.61	
Control Delay	21.5	18.3		31.1	14.2		2.8	10.9		15.2	9.1	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	21.5	18.3		31.1	14.2		2.8	10.9		15.2	9.1	
LOS	C	B		C	B		A	B		B	A	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NEL	NET	NER	SWL	SWT	SWR
Approach Delay		19.5			23.8			10.8			9.2	
Approach LOS		B			C			B			A	

Intersection Summary

Area Type: Other
Cycle Length: 60
Actuated Cycle Length: 60
Offset: 53 (88%), Referenced to phase 2:NETL and 6:SWTL, Start of Green
Natural Cycle: 40
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.70
Intersection Signal Delay: 13.1 Intersection LOS: B
Intersection Capacity Utilization 64.8% ICU Level of Service C
Analysis Period (min) 15

Splits and Phases: 14: Sowles Road & Route 20



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Full Dev't PM MITIGATED
15: Howard Road & Camp Road

Lowes Hamburg
3/14/2007

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↱		↰	↱		↰	↑↱		↰	↑↱	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	100		0	100		0	0		0	0		0
Storage Lanes	1		0	1		0	1		0	1		0
Turning Speed (mph)	15		9	15		9	15		9	15		9
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	0.95
Frt		0.850			0.852			0.985			0.999	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1583	0	1770	1587	0	1770	3486	0	1770	3536	0
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1770	1583	0	1770	1587	0	1770	3486	0	1770	3536	0
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		594			823			763			801	
Travel Time (s)		13.5			18.7			17.3			18.2	
Volume (vph)	2	0	11	38	2	105	17	805	88	125	1284	13
Peak Hour Factor	0.65	0.65	0.65	0.82	0.82	0.82	0.88	0.88	0.88	0.92	0.92	0.92
Adj. Flow (vph)	3	0	17	46	2	128	19	915	100	136	1396	14
Lane Group Flow (vph)	3	17	0	46	130	0	19	1015	0	136	1410	0
Sign Control		Stop			Stop			Free			Free	

Intersection Summary

Area Type: Other
Control Type: Unsignalized
Intersection Capacity Utilization 58.0% ICU Level of Service B
Analysis Period (min) 15

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Full Dev't PM MITIGATED
15: Howard Road & Camp Road

Lowes Hamburg
3/14/2007

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↱		↰	↱		↰	↑↱		↰	↑↱	
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Volume (veh/h)	2	0	11	38	2	105	17	805	88	125	1284	13
Peak Hour Factor	0.65	0.65	0.65	0.82	0.82	0.82	0.88	0.88	0.88	0.92	0.92	0.92
Hourly flow rate (vph)	3	0	17	46	2	128	19	915	100	136	1396	14
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	2300	2728	705	1990	2685	507	1410			1015		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	2300	2728	705	1990	2685	507	1410			1015		
tC, single (s)	7.5	6.5	6.9	7.5	6.5	6.9	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	73	100	96	0	85	75	96			80		
cM capacity (veh/h)	11	15	379	28	17	511	480			679		

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3
Volume Total	3	17	46	130	19	610	405	136	930	479
Volume Left	3	0	46	0	19	0	0	136	0	0
Volume Right	0	17	0	128	0	0	100	0	0	14
cSH	11	379	28	327	480	1700	1700	679	1700	1700
Volume to Capacity	0.27	0.04	1.64	0.40	0.04	0.36	0.24	0.20	0.55	0.28
Queue Length 95th (ft)	17	3	136	46	3	0	0	19	0	0
Control Delay (s)	411.9	14.9	617.0	23.1	12.8	0.0	0.0	11.6	0.0	0.0
Lane LOS	F	B	F	C	B			B		
Approach Delay (s)	76.0		178.7		0.2			1.0		
Approach LOS	F		F							

Intersection Summary

Average Delay	12.6		
Intersection Capacity Utilization	58.0%	ICU Level of Service	B
Analysis Period (min)	15		

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Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↰↑	↑↱		Y	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Turning Speed (mph)	15			9	15	9
Lane Util. Factor	0.95	0.95	0.95	0.95	1.00	1.00
Frt					0.910	
Flt Protected					0.984	
Satd. Flow (prot)	0	3539	3539	0	1668	0
Flt Permitted					0.984	
Satd. Flow (perm)	0	3539	3539	0	1668	0
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Link Speed (mph)		45	45		30	
Link Distance (ft)		191	273		299	
Travel Time (s)		2.9	4.1		6.8	
Volume (vph)	2	1307	1243	3	1	2
Peak Hour Factor	0.92	0.92	0.92	0.92	0.50	0.50
Adj. Flow (vph)	2	1421	1351	3	2	4
Lane Group Flow (vph)	0	1423	1354	0	6	0
Sign Control		Free	Free		Stop	

Intersection Summary

Area Type: Other
Control Type: Unsignalized
Intersection Capacity Utilization 47.5% ICU Level of Service A
Analysis Period (min) 15

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↰↑	↑↱		Y	
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Volume (veh/h)	2	1307	1243	3	1	2
Peak Hour Factor	0.92	0.92	0.92	0.92	0.50	0.50
Hourly flow rate (vph)	2	1421	1351	3	2	4
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type					None	
Median storage veh)						
Upstream signal (ft)		191	933			
pX, platoon unblocked	0.70				0.84	0.70
vC, conflicting volume	1354				2067	677
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1077				1057	109
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				99	99
cM capacity (veh/h)	450				185	646

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	SB 1
Volume Total	476	947	901	454	6
Volume Left	2	0	0	0	2
Volume Right	0	0	0	3	4
cSH	450	1700	1700	1700	353
Volume to Capacity	0.00	0.56	0.53	0.27	0.02
Queue Length 95th (ft)	0	0	0	0	1
Control Delay (s)	0.1	0.0	0.0	0.0	15.4
Lane LOS	A				C
Approach Delay (s)	0.0		0.0		15.4
Approach LOS					C

Intersection Summary

Average Delay	0.1		
Intersection Capacity Utilization	47.5%	ICU Level of Service	A
Analysis Period (min)	15		

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Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	Y		↑↱		↰	↑↑
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0		0	200	
Storage Lanes	1	0		0	1	
Turning Speed (mph)	15	9		9	15	
Lane Util. Factor	1.00	1.00	0.95	0.95	1.00	0.95
Frt	0.878		0.994			
Flt Protected	0.995				0.950	
Satd. Flow (prot)	1627	0	3518	0	1770	3539
Flt Permitted	0.995				0.950	
Satd. Flow (perm)	1627	0	3518	0	1770	3539
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Link Speed (mph)	30		45			45
Link Distance (ft)	1145		320			456
Travel Time (s)	26.0		4.8			6.9
Volume (vph)	18	173	717	30	117	874
Peak Hour Factor	0.82	0.82	0.91	0.91	0.96	0.96
Adj. Flow (vph)	22	211	788	33	122	910
Lane Group Flow (vph)	233	0	821	0	122	910
Sign Control	Stop		Free			Free

Intersection Summary

Area Type: Other
Control Type: Unsignalized
Intersection Capacity Utilization 48.9% ICU Level of Service A
Analysis Period (min) 15

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	Y		↑↱		↰	↑↑
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Volume (veh/h)	18	173	717	30	117	874
Peak Hour Factor	0.82	0.82	0.91	0.91	0.96	0.96
Hourly flow rate (vph)	22	211	788	33	122	910
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None					
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1503	410			821	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1503	410			821	
tC, single (s)	6.8	6.9			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	77	64			85	
cM capacity (veh/h)	95	590			804	

Direction, Lane #	WB 1	NB 1	NB 2	SB 1	SB 2	SB 3
Volume Total	233	525	296	122	455	455
Volume Left	22	0	0	122	0	0
Volume Right	211	0	33	0	0	0
cSH	396	1700	1700	804	1700	1700
Volume to Capacity	0.59	0.31	0.17	0.15	0.27	0.27
Queue Length 95th (ft)	91	0	0	13	0	0
Control Delay (s)	26.3	0.0	0.0	10.3	0.0	0.0
Lane LOS	D			B		
Approach Delay (s)	26.3	0.0		1.2		
Approach LOS	D					

Intersection Summary

Average Delay	3.5		
Intersection Capacity Utilization	48.9%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	150			300	0	0
Storage Lanes	1			1	1	1
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Leading Detector (ft)	50	50	50	50	50	20
Trailing Detector (ft)	0	0	0	0	0	0
Turning Speed (mph)	15			9	15	9
Lane Util. Factor	1.00	0.95	0.95	1.00	1.00	1.00
Frt				0.850		0.850
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1770	3539	3539	1583	1770	1583
Flt Permitted	0.143				0.950	
Satd. Flow (perm)	266	3539	3539	1583	1770	1583
Right Turn on Red				Yes		Yes
Satd. Flow (RTOR)				157		70
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Link Speed (mph)		45	45		30	
Link Distance (ft)		692	1613		353	
Travel Time (s)		10.5	24.4		8.0	
Volume (vph)	282	911	1076	144	198	128
Peak Hour Factor	0.92	0.92	0.92	0.92	0.75	0.75
Adj. Flow (vph)	307	990	1170	157	264	171
Lane Group Flow (vph)	307	990	1170	157	264	171
Turn Type	pm+pt			pm+ov		pm+ov
Protected Phases	5	2	6	4	4	5
Permitted Phases	2			6		4
Detector Phases	5	2	6	4	4	5
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	21.0	21.0	21.0	21.0	21.0	21.0
Total Split (s)	21.0	49.0	28.0	21.0	21.0	21.0
Total Split (%)	30.0%	70.0%	40.0%	30.0%	30.0%	30.0%
Maximum Green (s)	16.0	44.0	23.0	16.0	16.0	16.0
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lead/Lag	Lead		Lag			Lead
Lead-Lag Optimize?	Yes		Yes			Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	Min	None	Min	Min	None
Walk Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Flash Dont Walk (s)	11.0	11.0	11.0	11.0	11.0	11.0
Pedestrian Calls (#/hr)	0	0	0	0	0	0
Act Effct Green (s)	42.4	42.4	23.7	42.1	14.3	33.1
Actuated g/C Ratio	0.65	0.65	0.37	0.65	0.22	0.51
v/c Ratio	0.80	0.43	0.90	0.15	0.68	0.21
Control Delay	14.8	6.6	33.1	1.3	33.1	8.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	14.8	6.6	33.1	1.3	33.1	8.7
LOS	B	A	C	A	C	A

Full Dev't SAT MITIGATED
3: Route 20 & Lowes Main Drive

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Approach Delay		8.4	29.3		23.5	
Approach LOS		A	C		C	

Intersection Summary

Area Type: Other
Cycle Length: 70
Actuated Cycle Length: 64.8
Natural Cycle: 70
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.90
Intersection Signal Delay: 19.8 Intersection LOS: B
Intersection Capacity Utilization 66.7% ICU Level of Service C
Analysis Period (min) 15

Splits and Phases: 3: Route 20 & Lowes Main Drive

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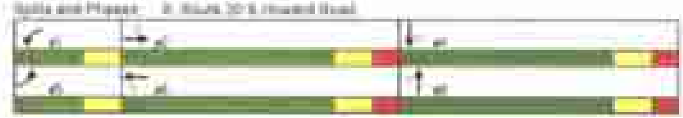
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	[illegible]	[illegible]		[illegible]	[illegible]			[illegible]		[illegible]	[illegible]	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	100		0	0		0	100		0
Storage Lanes	1		0	1		0	0		0	1		0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Leading Detector (ft)	50	50		50	50		50	50		50	50	
Trailing Detector (ft)	0	0		0	0		0	0		0	0	
Turning Speed (mph)	15		9	15		9	15		9	15		9
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.998			0.986			0.900			0.850	
Flt Protected	0.950			0.950				0.998		0.950		
Satd. Flow (prot)	1770	3532	0	1770	3490	0	0	1655	0	1770	1583	0
Flt Permitted	0.209			0.238				0.941		0.727		
Satd. Flow (perm)	389	3532	0	443	3490	0	0	1560	0	1354	1583	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		2			21			65			267	
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Link Speed (mph)		45			45			30			30	
Link Distance (ft)		1613			725			190			400	
Travel Time (s)		24.4			11.0			4.4			9.1	
Volume (vph)	75	808	10	8	1099	109	12	3	30	110	0	41
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.60	0.60	0.85	0.85	0.85
Adj. Flow (vph)	82	878	11	9	1195	118	13	3	33	129	0	48
Lane Group Flow (vph)	82	887	0	9	1292	0	0	49	0	129	48	0
Turn Type	pm+pt			pm+pt			Perm			Perm		
Protected Phases	5	2		1	6			8			4	
Permitted Phases	2			6			8			4		
Detector Phases	5	2		1	6		8	8		4	4	
Minimum Initial (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Minimum Split (s)	8.0	21.0		8.0	21.0		21.0	21.0		21.0	21.0	
Total Split (s)	8.0	21.0	0.0	8.0	21.0	0.0	21.0	21.0	0.0	21.0	21.0	0.0
Total Split (%)	16.0%	42.0%	0.0%	16.0%	42.0%	0.0%	42.0%	42.0%	0.0%	42.0%	42.0%	0.0%
Maximum Green (s)	5.0	16.0		5.0	16.0		16.0	16.0		16.0	16.0	
Yellow Time (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
All-Red Time (s)	0.0	2.0		0.0	2.0		2.0	2.0		2.0	2.0	
Lead/Lag	Lead	Lag		Lead	Lag							
Lead-Lag Optimize?	Yes	Yes		Yes	Yes							
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	Min		None	Max		None	None		None	None	
Walk Time (s)		5.0			5.0		5.0	5.0		5.0	5.0	
Flash Dont Walk (s)		11.0			11.0		11.0	11.0		11.0	11.0	
Pedestrian Calls (#/hr)		0			0		0	0		0	0	
Act Effct Green (s)	37.8	37.0		35.2	30.7			12.2		12.3	12.3	
Actuated g/C Ratio	0.65	0.63		0.63	0.53			0.21		0.21	0.21	
v/c Ratio	0.23	0.40		0.03	0.68			0.13		0.44	0.08	
Control Delay	6.7	6.7		5.5	16.0			7.6		18.1	3.3	
Queue Delay	0.0	0.0		0.0	0.0			0.0		0.0	0.0	
Total Delay	6.7	6.7		5.5	16.0			7.6		18.1	3.3	
LOS	A	A		A	B			A		B	A	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Approach Delay		6.7			15.6			7.6			13.8	
Approach LOS		A			B			A			B	

Intersection Summary
Area Type: Other
Cycle Length: 50
Actuated Cycle Length: 58.7
Natural Cycle: 60
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.68
Intersection Signal Delay: 12.8 Intersection LOS: B
Intersection Capacity Utilization 60.6% ICU Level of Service B
Analysis Period (min) 15

Splits and Phases: 8: Route 20 & Howard Road



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Full Dev't SAT MITIGATED
10: Route 20 & Route 75(Camp Road)

Lowes Hamburg
3/14/2007

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	350		350	350		350	165		145	100		350
Storage Lanes	2		1	2		1	2		1	1		1
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Leading Detector (ft)	50	50	50	50	50	50	50	50	50	50	50	50
Trailing Detector (ft)	0	0	0	0	0	0	0	0	0	0	0	0
Turning Speed (mph)	15		9	15		9	15		9	15		9
Lane Util. Factor	0.97	0.95	1.00	0.97	0.95	1.00	0.97	0.95	1.00	1.00	0.95	1.00
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3433	3539	1583	3433	3539	1583	3433	3539	1583	1770	3539	1583
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3433	3539	1583	3433	3539	1583	3433	3539	1583	1770	3539	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			20			11			81			10
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Link Speed (mph)		40			45			30			30	
Link Distance (ft)		3589			994			1120			1089	
Travel Time (s)		60.9			15.1			25.4			24.8	
Volume (vph)	288	922	375	329	1110	15	527	456	219	51	544	383
Peak Hour Factor	0.91	0.91	0.91	0.89	0.89	0.89	0.89	0.89	0.89	0.91	0.91	0.91
Adj. Flow (vph)	316	1013	412	370	1247	17	592	512	246	56	598	421
Lane Group Flow (vph)	316	1013	412	370	1247	11	592	512	245	56	598	421
Turn Type	Prot		pm+ov	Prot		pm+ov	Prot		pm+ov	Prot		pm+ov
Protected Phases	7	4	5	3	8	1	5	2	3	1	6	7
Permitted Phases			4			8			2			6
Detector Phases	7	4	5	3	8	1	5	2	3	1	6	7
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	9.0	21.0	9.0	9.0	21.0	9.0	9.0	21.0	9.0	9.0	21.0	9.0
Total Split (s)	14.0	37.0	22.0	17.0	40.0	12.0	22.0	34.0	17.0	12.0	24.0	14.0
Total Split (%)	14.0%	37.0%	22.0%	17.0%	40.0%	12.0%	22.0%	34.0%	17.0%	12.0%	24.0%	14.0%
Maximum Green (s)	9.0	32.0	17.0	12.0	35.0	7.0	17.0	29.0	12.0	7.0	19.0	9.0
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lead/Lag	Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	Min	None	None	Min	None	None	C-Min	None	None	C-Min	None
Walk Time (s)		5.0			5.0			5.0			5.0	
Flash Dont Walk (s)		11.0			11.0			11.0			11.0	
Pedestrian Calls (#/hr)		0			0			0			0	
Act Effct Green (s)	19.4	33.3	55.5	13.1	36.5	47.7	18.0	32.0	49.1	7.7	19.9	34.0
Actuated g/C Ratio	0.19	0.33	0.56	0.13	0.36	0.48	0.18	0.32	0.49	0.08	0.20	0.34
v/c Ratio	0.48	0.86	0.47	0.82	0.98	0.02	0.96	0.46	0.30	0.42	0.86	0.77
Control Delay	71.5	40.6	14.9	53.9	60.2	6.1	68.4	29.3	11.0	53.6	52.7	40.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	71.5	40.6	14.9	53.9	60.2	6.1	68.4	29.3	11.0	53.6	52.7	40.1
LOS	E	D	B	D	E	A	E	C	B	D	D	D

Full Dev't SAT MITIGATED
10: Route 20 & Route 75(Camp Road)

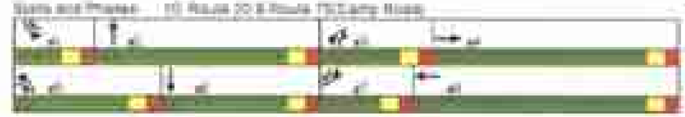
Lowes Hamburg
3/14/2007

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Approach Delay		39.9			55.5			43.3			47.4	
Approach LOS		D			E			D			D	

Intersection Summary

Area Type: Other
Cycle Length: 100
Actuated Cycle Length: 100
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green, Master Intersection
Natural Cycle: 90
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.98
Intersection Signal Delay: 46.1 Intersection LOS: D
Intersection Capacity Utilization 85.3% ICU Level of Service E
Analysis Period (min) 15

Splits and Phases: 10: Route 20 & Route 75(Camp Road)



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Lane Group	EBL	SBL	SBR	SWR	SWR2
Lane Configurations					
Ideal Flow (vphpl)	1900	1900	1900	1900	1900
Turning Speed (mph)	15	15	9	9	9
Lane Util. Factor	0.97	1.00	1.00	0.88	0.95
Frt			0.865	0.850	
Flt Protected	0.950				
Satd. Flow (prot)	3433	0	1611	2787	0
Flt Permitted	0.950				
Satd. Flow (perm)	3433	0	1611	2787	0
Headway Factor	1.00	1.00	1.00	1.00	1.00
Link Speed (mph)	45	30		45	
Link Distance (ft)	228	422		692	
Travel Time (s)	3.5	9.6		10.5	
Volume (vph)	1193	0	128	1156	48
Peak Hour Factor	0.92	0.70	0.70	0.92	0.92
Adj. Flow (vph)	1297	0	183	1257	52
Lane Group Flow (vph)	1297	0	183	1309	0
Sign Control	Free	Yield		Free	

Intersection Summary

Area Type: Other
Control Type: Unsignalized
Intersection Capacity Utilization 56.7% ICU Level of Service B
Analysis Period (min) 15

Movement	EBL	SBL	SBR	SWR	SWR2
Lane Configurations					
Sign Control	Free	Yield		Free	
Grade	0%	0%		0%	
Volume (veh/h)	1193	0	128	1156	48
Peak Hour Factor	0.92	0.70	0.70	0.92	0.92
Hourly flow rate (vph)	1297	0	183	1257	52
Pedestrians					
Lane Width (ft)					
Walking Speed (ft/s)					
Percent Blockage					
Right turn flare (veh)					
Median type		None			
Median storage veh)					
Upstream signal (ft)	433			692	
pX, platoon unblocked		0.79	0.68		
vC, conflicting volume		1931	654		
vC1, stage 1 conf vol					
vC2, stage 2 conf vol					
vCu, unblocked vol		1082	32		
tC, single (s)		6.8	6.9		
tC, 2 stage (s)					
tF (s)		3.5	3.3		
p0 queue free %		100	74		
cM capacity (veh/h)		168	707		

Direction, Lane #	EB 1	EB 2	SB 1	SW 1	SW 2
Volume Total	648	648	183	838	471
Volume Left	0	0	0	0	0
Volume Right	0	0	183	0	52
cSH	1700	1700	707	1700	1700
Volume to Capacity	0.38	0.38	0.26	0.49	0.28
Queue Length 95th (ft)	0	0	26	0	0
Control Delay (s)	0.0	0.0	11.9	0.0	0.0
Lane LOS			B		
Approach Delay (s)	0.0		11.9	0.0	
Approach LOS			B		

Intersection Summary

Average Delay	0.8		
Intersection Capacity Utilization	56.7%	ICU Level of Service	B
Analysis Period (min)	15		

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Full Dev't SAT MITIGATED
14: Sowles Road & Route 20

Lowes Hamburg
3/14/2007

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	150		0	150		0	75		0	0		0
Storage Lanes	1		0	1		0	1		0	1		0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Leading Detector (ft)	50	50		50	50		50	50		50	50	
Trailing Detector (ft)	0	0		0	0		0	0		0	0	
Turning Speed (mph)	15		9	15		9	15		9	15		9
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	0.95
Frt		0.982			0.909			0.981			0.996	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1829	0	1770	1749	0	1770	3472	0	1770	3522	0
Flt Permitted	0.672			0.697			0.155			0.160		
Satd. Flow (perm)	1252	1829	0	1298	1749	0	289	3472	0	298	3522	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		13			45			45			10	
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Link Speed (mph)		30			30			45			45	
Link Distance (ft)		1145			815			934			205	
Travel Time (s)		26.0			18.5			14.1			3.1	
Volume (vph)	80	82	11	138	67	48	3	1068	154	38	1204	42
Peak Hour Factor	0.92	0.85	0.60	0.85	0.85	0.85	0.92	0.90	0.90	0.92	0.92	0.92
Adj. Flow (vph)	88	96	18	160	79	56	3	1186	171	41	1308	46
Lane Group Flow (vph)	88	109	0	160	133	0	3	1354	0	41	1355	0
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Detector Phases	4	4		8	8		2	2		6	6	
Minimum Initial (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Minimum Split (s)	21.0	21.0		21.0	21.0		21.0	21.0		21.0	21.0	
Total Split (s)	21.0	21.0	0.0	21.0	21.0	0.0	29.0	29.0	0.0	29.0	29.0	0.0
Total Split (%)	42.0%	42.0%	0.0%	42.0%	42.0%	0.0%	58.0%	58.0%	0.0%	58.0%	58.0%	0.0%
Maximum Green (s)	16.0	16.0		16.0	16.0		24.0	24.0		24.0	24.0	
Yellow Time (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		C-Max	C-Max		C-Min	C-Min	
Walk Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Flash Dont Walk (s)	11.0	11.0		11.0	11.0		11.0	11.0		11.0	11.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	
Act Effct Green (s)	11.9	11.9		11.9	11.9		33.0	33.0		33.0	33.0	
Actuated g/C Ratio	0.24	0.24		0.24	0.24		0.66	0.66		0.66	0.66	
v/c Ratio	0.30	0.24		0.52	0.29		0.02	0.59		0.21	0.58	
Control Delay	16.8	13.8		21.9	11.5		6.3	8.2		10.0	8.3	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	1.6	
Total Delay	16.8	13.8		21.9	11.5		6.3	8.2		10.0	9.9	
LOS	B	B		C	B		A	A		A	A	

Full Dev't SAT MITIGATED
14: Sowles Road & Route 20

Lowes Hamburg
3/14/2007

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NEL	NET	NER	SWL	SWT	SWR
Approach Delay		15.1			17.2			8.2			9.9	
Approach LOS		B			B			A			A	

Intersection Summary

Area Type: Other
Cycle Length: 50
Actuated Cycle Length: 50
Offset: 1 (2%), Referenced to phase 2:NETL and 6:SWTL, Start of Green
Natural Cycle: 55
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.59
Intersection Signal Delay: 10.2 Intersection LOS: B
Intersection Capacity Utilization 55.5% ICU Level of Service B
Analysis Period (min) 15

Splits and Phases: 14: Sowles Road & Route 20

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↱		↰	↱		↰	↱		↰	↱	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	100		0	100		0	0		0	0		0
Storage Lanes	1		0	1		0	1		0	1		0
Turning Speed (mph)	15		9	15		9	15		9	15		9
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.859			0.854			0.989			0.999	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1600	0	1770	1591	0	1770	1842	0	1770	1861	0
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1770	1600	0	1770	1591	0	1770	1842	0	1770	1861	0
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		546			512			602			683	
Travel Time (s)		12.4			11.6			13.7			15.5	
Volume (vph)	11	1	11	35	2	59	9	661	53	57	661	5
Peak Hour Factor	0.72	0.72	0.72	0.82	0.82	0.82	0.96	0.96	0.96	0.92	0.92	0.92
Adj. Flow (vph)	15	1	15	43	2	72	9	689	55	62	718	5
Lane Group Flow (vph)	15	16	0	43	74	0	9	744	0	62	723	0
Sign Control		Stop			Stop			Free			Free	

Intersection Summary

Area Type: Other
Control Type: Unsignalized
Intersection Capacity Utilization 59.9% ICU Level of Service B
Analysis Period (min) 15

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↱		↰	↱		↰	↱		↰	↱	
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Volume (veh/h)	11	1	11	35	2	59	9	661	53	57	661	5
Peak Hour Factor	0.72	0.72	0.72	0.82	0.82	0.82	0.96	0.96	0.96	0.92	0.92	0.92
Hourly flow rate (vph)	15	1	15	43	2	72	9	689	55	62	718	5
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	1626	1608	721	1593	1583	716	724			744		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1626	1608	721	1593	1583	716	724			744		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	76	99	96	45	98	83	99			93		
cM capacity (veh/h)	63	96	427	77	100	430	879			864		

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	NB 2	SB 1	SB 2
Volume Total	15	17	43	74	9	744	62	724
Volume Left	15	0	43	0	9	0	62	0
Volume Right	0	15	0	72	0	55	0	5
cSH	63	332	77	388	879	1700	864	1700
Volume to Capacity	0.24	0.05	0.55	0.19	0.01	0.44	0.07	0.43
Queue Length 95th (ft)	21	4	60	17	1	0	6	0
Control Delay (s)	79.8	16.4	98.3	16.5	9.1	0.0	9.5	0.0
Lane LOS	F	C	F	C	A		A	
Approach Delay (s)	46.7		46.3		0.1		0.7	
Approach LOS	E		E					

Intersection Summary

Average Delay	4.5		
Intersection Capacity Utilization	59.9%	ICU Level of Service	B
Analysis Period (min)	15		

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↰↑	↑↱		Y	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Turning Speed (mph)	15			9	15	9
Lane Util. Factor	0.95	0.95	0.95	0.95	1.00	1.00
Frt					0.932	
Flt Protected					0.976	
Satd. Flow (prot)	0	3539	3539	0	1694	0
Flt Permitted					0.976	
Satd. Flow (perm)	0	3539	3539	0	1694	0
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Link Speed (mph)		45	45		30	
Link Distance (ft)		205	228		290	
Travel Time (s)		3.1	3.5		6.6	
Volume (vph)	2	1191	1284	1	1	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.50	0.50
Adj. Flow (vph)	2	1295	1396	1	2	2
Lane Group Flow (vph)	0	1297	1397	0	4	0
Sign Control		Free	Free		Stop	

Intersection Summary

Area Type: Other
Control Type: Unsignalized
Intersection Capacity Utilization 45.5% ICU Level of Service A
Analysis Period (min) 15

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↰↑	↑↱		Y	
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Volume (veh/h)	2	1191	1284	1	1	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.50	0.50
Hourly flow rate (vph)	2	1295	1396	1	2	2
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type					None	
Median storage veh)						
Upstream signal (ft)		205	920			
pX, platoon unblocked	0.71				0.82	0.71
vC, conflicting volume	1397				2048	698
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1145				1218	156
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	99				99	100
cM capacity (veh/h)	428				141	608

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	SB 1
Volume Total	434	863	930	466	4
Volume Left	2	0	0	0	2
Volume Right	0	0	0	1	2
cSH	428	1700	1700	1700	229
Volume to Capacity	0.01	0.51	0.55	0.27	0.02
Queue Length 95th (ft)	0	0	0	0	1
Control Delay (s)	0.2	0.0	0.0	0.0	21.0
Lane LOS	A				C
Approach Delay (s)	0.1		0.0		21.0
Approach LOS					C

Intersection Summary

Average Delay	0.1		
Intersection Capacity Utilization	45.5%	ICU Level of Service	A
Analysis Period (min)	15		

APPENDIX H

Appendix H

COSTICH ENGINEERING

Photolog
Lowe's Hamburg
CE# 3717
Driven 11-22-2006

Legend

Photo Locations

Path

1 inch equals 300 feet

H-1

Costich Engineering

Lowes Hamburg
Photo Taken 11-22-2006
Lens: Digital ~50mm

No View of Balloons
Looking West from Heatherwood Dirve
530' from site (building will be visible after construction)
Arrows mark location of corners.

Photo 101
Original
CE# 3717

H-2

COSTICH ENGINEERING

Lowes Hamburg
Photo Taken 11-22-2006
Lens: Digital ~50mm

No View of Balloons
Looking South from Pineview and Howard
650' from site (View blocked by homes)

Photo 102
Original
CE# 3717

COSTICH ENGINEERING

Lowes Hamburg
Photo Taken 11-22-2006
Lens: Digital ~50mm

No View of Balloons
Looking South from Cumberland and Howard
600' from site (View blocked by homes and trees)

Photo 103
Original
CE# 3717

H-4

COSTICH ENGINEERING

Lowes Hamburg
Photo Taken 11-22-2006
Lens: Digital ~50mm

No View of Balloons
Looking South from Cumberland
175' from site (View blocked by homes and trees)

Photo 104
Original
CE# 3717

H-5

Costich Engineering

Lowes Hamburg
Photo Taken 11-22-2006
Lens: Digital ~50mm

No View of Balloons
Looking South from Cumberland and Howard
550' from site (View blocked by homes and trees)

Photo 105
Original
CE# 3717

H-6

Costich Engineering

Lowes Hamburg
Photo Taken 11-22-2006
Lens: Digital ~50mm

No View of Balloons
Looking West from Dogwood
800' from site (View blocked by homes and trees)

Photo 106
Original
CE# 3717

H-7

COSTICH ENGINEERING

Lowes Hamburg
Photo Taken 11-22-2006
Lens: Digital ~50mm

No View of Balloons
Looking West from Dogwood
150' from site (View blocked by homes and trees)

Photo 107
Original
CE# 3717

118

COSTICH ENGINEERING

Lowes Hamburg
Photo Taken 11-22-2006
Lens: Digital ~50mm.

No View of Balloons
Looking West from Dogwood
150' from site (View blocked by homes and trees)

Photo 108
Original
CE# 3717

COSTICH ENGINEERING

Lowes Hamburg
Photo Taken 11-22-2006
Lens: Digital ~50mm

No View of Balloons
Looking West from School Driveway
850' from site (View blocked by homes)

Photo 109
Original
CE# 3717

H-10

COSTICH ENGINEERING

Lowes Hamburg
Photo Taken 11-22-2006
Lens: Digital ~50mm

No View of Balloons
Looking West from Parking Lot off Southwestern
820' from site (View blocked by trees)

Photo 110
Original
CE# 3717

A-11

Lowes Hamburg
Photo Taken 11-22-2006
Lens: Digital ~50mm

View of 70' Marker Balloon at Peak Location
Looking North from Parking Lot off Southwestern
130' from site
Arrows Mark Locations of Building Corners

Photo 111
Original
CE# 3717

Costich Engineering

COSTICH ENGINEERING

Lowes Hamburg
Photo Taken 11-22-2006
Lens: Digital ~50mm

Photosimulation
Looking North from Parking Lot off Southwestern
600' from Lowe's

Photo 111
Simulation
CE# 3717

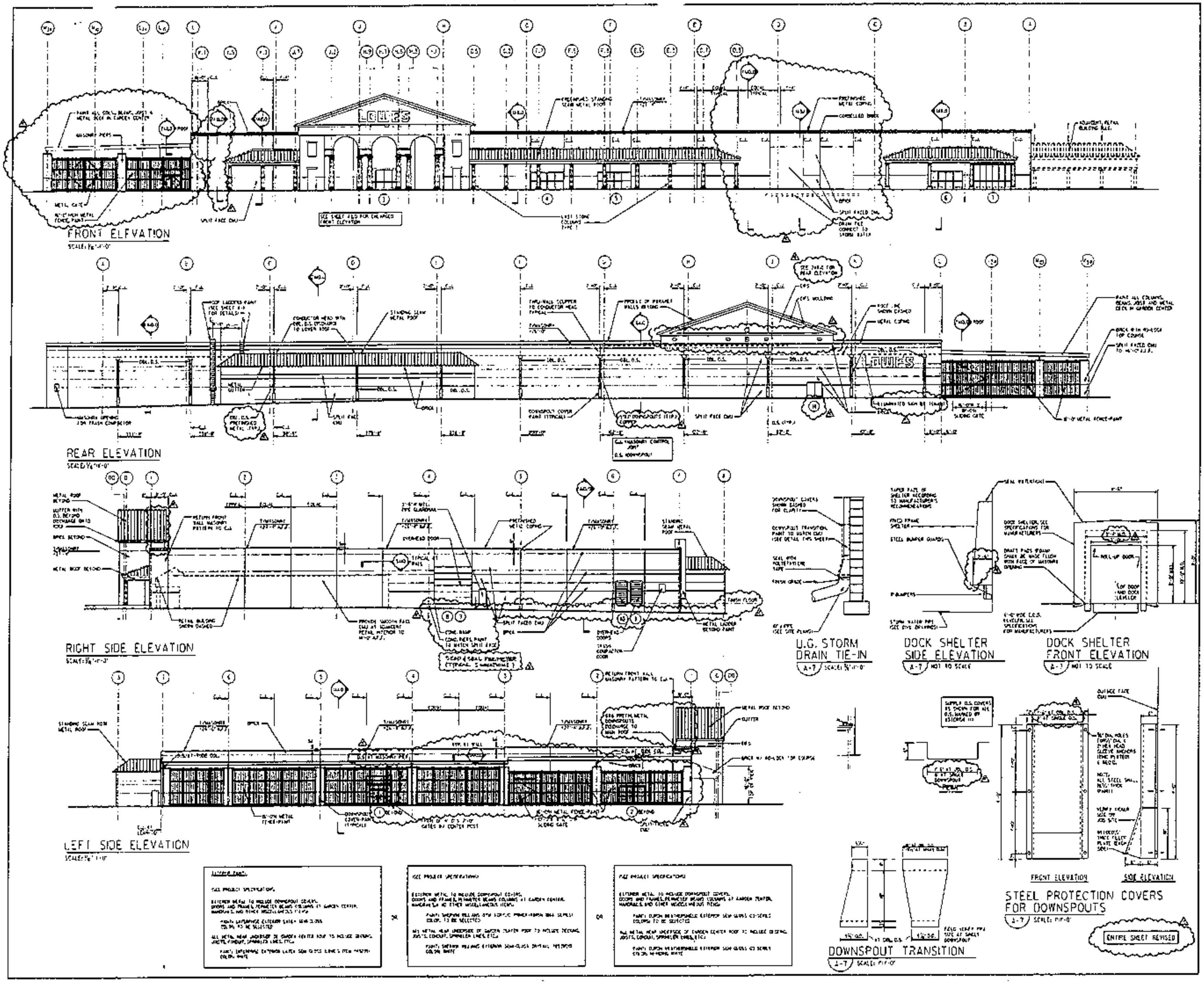
11-13

LOWE'S OF CICERO, NY

LOWE'S OF CONCORD, NH

LOWE'S OF GILFORD, NH

LOWE'S OF LITTLETON, NH



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LOWE'S

KENTLANDS SHOPPING CENTER
GAITHERSBURG, MARYLAND

No.	Revision	Date
3	TENANT COMMENTS	4/21/93
2	TENANT COMMENTS	4/9/93
1	PROTOTYPE REVISION	3/5/93

File	Drawn	Checked	Issued
			9/23/92

Sheet Title
EXTERIOR ELEVATIONS

Scale
Sheet No.
A7.0

H-13

LOWE'S OF GAITHERSBURG, MD

LOWE'S OF GAITHERSBURG, MD