TOWN OF EXETER, NEW HAMPSHIRE

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www.town.exeter.nh.us

July 30, 2013

Ms. Joy Hilton
Water Technical Unit
USEPA, OES4-3
5 Post Office Square, Suite 100
Boston, MA 02109-3912

Re: Quarterly Progress Report for the quarter of April 1, 2013 to June 30, 2013, per Administrative Order Docket # 010-024, Town of Exeter.

Dear Ms. Hilton:

This report is being made as required by the Administrative Order, page 11, IV. Order, item 13, Quarterly Reports and Work Projections, and is for the calendar quarter ending June 30, 2013. This report details efforts taken to reduce, and ultimately prevent, Combined Sewer Overflow (CSOs) and Sanitary Sewer Overflows (SSOs) in the Town of Exeter.

Combined Sewer Overflow (CSOs) and Sanitary Sewer Overflows (SSOs) this quarter:

There were no CSO or SSO events during this quarterly reporting period.

The following Planning and Operation & Maintenance activities were undertaken during this first quarter, 2013, reporting period:

- **Five Year Cycle of Sewer Cleaning and CCTV Inspections to date ending this Quarter**: A total of 10,125 linear feet, 1.92 miles, of sewage collection system was hydro jet cleaned and CCTV inspected at the close of the second quarter, or June 30th, of 2013. A table of streets and distances is attached to this report.

- **Linden Street SSO Investigations and Cross-Country Cleaning**: On May 14th, the entire 850 foot length of sewer from SMH #464 to #467 was jet cleaned and CCTV inspected after may delays in reaching agreement with the Exeter Conservation Commission as to how to access sewer right-of-

way (ROW) through conservation land known as the Morrisette property. ***The approximate 190 feet of 8" sewer between SMH #464 and #465, had never been cleaned and was at least half full of asphalt, rocks, gravel and children's toys.*** **The Town's complete cleaning and inspection of the collection system from Linden Street to the Court Street Pumping Station has greatly lowered the probability of future SSOs.** Many SSOs had occurred historically on Linden Street at sewer manholes #455 to 459 as discussed in the administrative order.

- **Regularly Scheduled Repeat Quarterly "High Maintenance" Cleaning (jetting) Activities**: The Town continues cleaning this second quarter (jetting) of the Town's "high maintenance" areas. All these problem areas flowed without problem as noted during regular monitoring. These sewer lines have either minimal slope, root intrusion, repeating grease encrustation or sags between manholes. These areas normally include the two 820 feet long 8" parallel siphons under the Squamscott River and the monitoring of the 1,050 feet long 6" private water Street sewer Condominium lines. The private condominium associations are utilizing a contractor for cleaning but the Town inspects the private collection system and responds to calls reporting "slow sewer flow".

- **Sewer User Ordinance (SUO) Enforcement and Private Sewer CMOM:** On April 15th the Exeter Board of Selectmen voted to fully enforce the Town SUO prohibiting non-sanitary sewage inflows to the collection system. A copy of the new (effective January 28, 2013) revised SUOs were previously submitted to EPA and NHDES. The ordinances to be fully enforced are 1501.7, 1501.8 and 1507.3 (copies of the relevant pages are attached). **A goal of two years, or April 15th, 2015, was set for Town-wide compliance as to sump pump, roof leader, and foundation drain inflow separation.** The Town's NPDES permit, effective March 1st, 2013, requires submittal of a plan to include how and when such inflows are to be removed by September 1st, 2013.

- **Improvements in Sewer Mapping Updates and "as built" Digitizing:** The Town has made great progress in updating its collection system mapping and geographical information systems (GIS). The Town's first CMOM Self Assessment of April 19, 2011, had listed the Town as being deficient in locating and mapping new sewage collection system infrastructure by being as much as ten years behind in data entry to the Town's GIS system and record keeping. Wright-Pierce Engineering provided technical guidance to the Town and capital expenditures followed. A *Leica* GNSS geographical positioning system (GPS) accurate to 4.0 centimeters was purchased. Field surveying of the collection system (i.e., manhole invert/rim elevations, latitude, longitude) with this instrument are automatically downloaded to *People Forms Online,* the Town's GIS and maps online system. A *Canon* multi-function full blue print size printer was purchased as well. Starting in June a summer intern and temporary summer technician began digitizing "as-built" blue prints/maps and field surveying both new and previously unmapped infrastructure. The newest (last 12 years) and largest subdivisions and commercial/industrial sewer users are now approximately 50% complete for updating.

Capital Improvement Projects, Measures and Programs Implemented or Planned by the Town and/or Private Collection systems in 2013 to Resolve CMOM Deficiencies:

- **<u>Portsmouth Avenue Water/Sewer Project</u>: The plans for this Town project are currently under review by NHDES. Pending design approval, an RFP for bids is expected to be advertised during the third quarter of this year.** The sewer improvement component of this $1,120,000 project is $940,000 and replaces 2,800 linear feet (LF) of vitrified clay pipe sewers in poor condition. The completion of this project will reduce the probability of SSOs (occurring on the Portsmouth Avenue Town sewer) and CSOs due to a reduction in infiltration and inflow (I&I).

- **<u>Sewer Collection Capital Improvement-Jady Hill Utilities Project, Phase II</u>**: During this quarter the *Jady Hill Utilities Project*, Phase II, is nearly complete, an outfall easement was negotiated for the newly constructed relief drains. The balance of the remaining Phase II sewer work, resumed in April, is the connection of the private (residential) new sanitary sewer services to the newly installed street sewer mains. The relief services, or laterals, are used to receive any sump pumps, roof leaders or foundation drain flow that was previously connected to the sanitary sewer. This will reduce I&I and so decrease the probability of SSOs and CSOs. This quarters' street work included the replacement of eight (8) sewer manholes and installation of a relief drain outfall on Webster Avenue.

- **<u>Pleasant Street to High Street Sewer Improvement:</u>** A change order for installation of forty feet (40') of new 8" SDR 35 pipe was negotiated with the contractor, J.A. Polito, and the work completed this quarter (a GIS drawing is attached). Thirty one (31) feet of 8" sewer from SMH # 926 to SMH #375 was abandoned and forty (40') feet of new 8" sewer was installed from #926 to #375A to greatly improve the entry angle of the Pleasant Street sewer to the High Street sewer. The previous poor junction had caused SSOs in the past.

- **<u>Sewer Collection Capital Improvement- Lift Station Generators</u>: A 30kW back-up diesel generator has been installed at the River bend Circle sewage lift station (consisting of two of 5 horse power pumps) by *Gemini Electric*.** An RFP was advertised on June 21st for the purchase and installation of a back-up generator for the *Colcord Pond Drive* sewage lift station (two of 7.5 horse power pumps). The last station lacking back-up power is Folsom Acres sewage lift station (consisting of two of 7.5 horse power pumps) which will be a 2014 capital improvement project.

- **<u>Surface Water Treatment Plant Reduction in Peak and Total Sewage Flows:</u>** The Town has begun the construction phase of the *Surface Water Treatment Plant Waste Reduction Project* (SRF Project# 0801010-04). This drinking water recycling project, though a water conservation effort, reduces inflow to the sewage collection system by 50% of the current volume produced from clarifier flushes and filter back washes. A new SCADA controlled more efficient pumping system also reduces peak flow rates of 1,100 gallons per minute (gpm) to 250 gpm. **This $284,625 project significantly reduces the probability of SSOs and CSOs during large weather events.** During routine alum sludge removal of the SWTP lower lagoon, it was discovered that wet weather surface water and leakage from nearby 36" storm water culverts has been entering the lagoon and is another source of

collection system inflow. To address this, the adjacent gravel road will be graded away from the lagoon and new 36" replacement piping installed during the third July/September quarter of this year.

- **Replacement of the existing jet/vactor sewer cleaning truck**: The purchase of a new jet/vactor truck has been awarded to C. N. Wood. **A new truck is tentatively expected to be delivered early in October of 2013.** This new CMOM maintenance machine will be much more reliable and allow the Town to better meet the AO and new NPDES permit CMOM requirements.

- **Possible Undivided Sanitary Sewer/Storm Drainage**: The Town's I&I consultant, Underwood Engineering, has calculated that up to sixteen acres of precipitation may be entering the sanitary sewer as undivided drainage/sewer collection systems in close proximity to the Spring Street CSO structure and Water Street main pumping station. Study of the Spring Street CSO structure flows (during CSO events), wet well levels, main station pumping rates and automated rain gage records has indicated a near immediate rise and fall of CSO discharges and pumping rates with short term but high rate precipitation. Previous smoke testing near Phillips Exeter Academy (PEA) campus buildings found three storm drain catch basins connected to the sanitary sewer. One of the three basins and the roof leaders of the "Quad" main building were removed last year as agreed upon by PEA. The remaining two basins are currently being removed-pictures of the Langdon Merrill site are attached. However, the Town was unaware of roof leaders, foundation drains and sump pumps also piped in to the catch basins at the Langdon Merrill building until reviewing the separation work on site with PEA's contractor. An aerial photograph with the campus delineated will be mailed (too much data to be sent electronically) which illustrates the point that the PEA campus may be a very large contributor of inflow generally and sudden peak inflows specifically. **Further detailed inflow investigations, as listed and budgeted for in the Long Term Control Plan (LTCP), are warranted**.

Please contact me with any questions or comments you may have concerning this quarterly progress report.

Sincerely,

Michael Jeffers

Michael Jeffers, Water & Sewer Managing Engineer

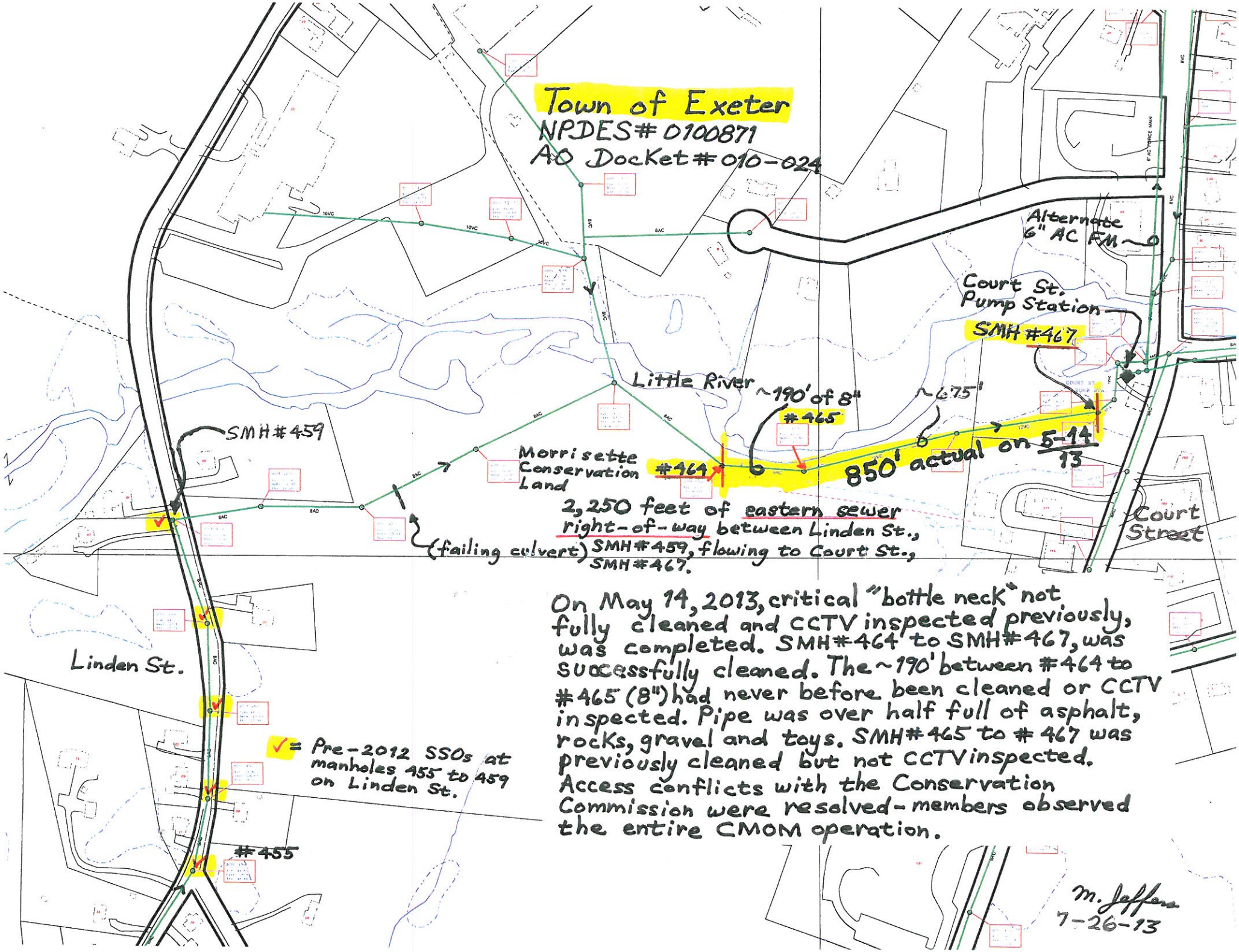
Town of Exeter

Cc: Russ Dean, Town Manager
Jennifer Perry, Public Works Director
Paul Vlasich, PE, Town Engineer
Tracy Wood, NHDES-WWEB

Enc.

Town of Exeter; AO# Docket 010-024; NPDES # 0100871							
Sewer Jetting 2013-A.O. 5 Year Plan							
		1/1/2013 to 6/30/2013					
Street Name:		SMH #	To	SMH #		Footage	
Carrol Street		608		607		294	
		607		606		300	
Union Street		663		664		440	
		664		665		368	
Arbor Street		660		661		400	
Penn Lane		579		581		314	
		579		580		150	
		579		578		340	
Brentwood Road		578		577		110	
Crestview Drive		555		577		103	
		555		576		224	
		576		575		278	
		575		574		260	
		574		573		550	
Arbor Court		660		559		321	
Parker Street		559		657		414	
Union Street		664		665		377	
Crawford Ave		417		416		338	
		416		415		321	
		415		414		347	
		414		413		342	
		413		412		319	
		412		411		266	
Prospect Street		349		346		317	
		349		368		376	
Linden Street x		459		460		203	
		460		461		235	
		461		462		289	
		462		463		345	
		463		464		318	
		464		465		187	
		465		466		355	
		466		467		324	
					Total Feet	10,125	

Sewer Televise 2013- A.O 5 Year Plan Town of Exeter, NPDES# 0100871 & AO #010-024						
	1/1/2013 to 6/30/2013					
Street Name:	SMH #	To	SMH #		Footage	Rate
Carrol Street	608		607		294	2
	607		606		300	2
Union Street	663		664		440	4
	664		665		368	4
Arbor Street	660		661		400	4
Penn Lane	579		581		314	3
	579		580		150	3
	579		578		340	1
Brentwood Road	578		577		110	3
Crestview Drive	555		577		103	3
	555		576		224	3
	576		575		278	3
	575		574		260	3
	574		573		550	3
Arbor Court	660		559		321	3
Parker Street	559		657		414	3
Union Street	664		665		377	3
Crawford Ave	417		416		338	4
	416		415		321	4
	415		414		347	4
	414		413		342	4
	413		412		319	4
	412		411		266	4
Prospect Street	349		346		317	3
	349		368		376	3
Linden Street x	459		460		203	3
	460		461		235	3
	461		462		289	3
	462		463		345	3
	463		464		318	3
	464		465		187	3
	465		466		355	3
	466		467		324	3
				Total Feet	10,125	


Town of Exeter
NPDES # 0100871
AO Docket # 010-024
Alternate 6" AC FM
Court St. Pump Station
SMH #467
Little River
~190' of 8"
#465
~675'
850' actual on 5-14-13
SMH #459
Morrisette Conservation Land
#464
2,250 feet of eastern sewer right-of-way between Linden St., SMH #459, flowing to Court St., SMH #467.
(failing culvert)
Court Street
Linden St.
✓ = Pre-2012 SSOs at manholes 455 to 459 on Linden St.
#455
On May 14, 2013, critical "bottle neck" not fully cleaned and CCTV inspected previously, was completed. SMH #464 to SMH #467, was successfully cleaned. The ~190' between #464 to #465 (8") had never before been cleaned or CCTV inspected. Pipe was over half full of asphalt, rocks, gravel and toys. SMH #465 to #467 was previously cleaned but not CCTV inspected. Access conflicts with the Conservation Commission were resolved - members observed the entire CMOM operation.
M. Jeffers
7-26-13

Wastewater: The spent water of a community. Any combination of the liquid and water-carried wastes from residences, commercial buildings, industrial plants, governmental facilities, and institutions, whether treated or untreated that is contributed to the POTW.

Wastewater Treatment Facility: That portion of the POTW that is used to provide treatment of sanitary sewage and industrial wastewater.

April 15, 2013, Board of Selectmen voted for full final enforcement by 2 years or April 15th 2015.

1501 Use of Public Sewers Required

Pursuant to the provisions of RSA 147:8, and 147:11, and any other authority thereto enabling, the owner of any improved property benefited, improved, served or accommodated by any sewer, or to which any sewer is available, shall connect such improved property thereto in such manner as the Town may require, within ninety (90) days after notice to such owner from the Town to make such connection, for the purpose of discharge of all sanitary sewage and industrial wastewater from such improved property into the POTW, subject to such limitations and restrictions as shall be established herein or otherwise shall be established by the Town from time to time. Each such owner shall, within the same time limit, cease and desist from all further discharge of sanitary sewage and/or industrial wastes into any other conduit or pre-existing system whether privately or publicly owned.

1501.1. All sanitary sewage and industrial wastewater from any improved property, after connection of such improved property to the POTW as required under Section 1501, shall be conducted into a sanitary sewer, subject to such limitations and restrictions as shall be established by these regulations or otherwise shall be established by the Town, from time to time.

1501.2. No person shall place or deposit, or permit to be placed or deposited, upon public or private property within the Town of Exeter, any sanitary sewage or industrial wastewater in violation of Section 1501.

1501.3. No person shall discharge or permit to be discharged to any natural outlet within the Town, any sanitary sewage, industrial wastewater, and/or pollutant in violation of Section 1501, except where suitable treatment has been provided which is satisfactory to the Town, and the NHDES.

1501.4. No privy vault, cesspool, sinkhole, septic tank or similar receptacle shall be used and maintained at any time upon any improved property which has been connected to the POTW or which shall be required under Section 1501 to be connected to the POTW. The use of portable chemical toilets is allowed at construction sites and for other temporary purposes provided the wastes are properly disposed off site.

1501.5. No privy vault, cesspool, sinkhole, septic tank or similar receptacle at any time shall be connected to the POTW.

1501.6. No person shall discharge into any public sewer of the Town, or into any fixture that thereafter discharges into any public sewer, any waste or substance until all applicable approvals and permits have been obtained.

1501.7. Except as specifically designated by the Town with reference to some particular sewer, sanitary sewers shall be used only for the conveyance and disposal of sanitary sewage, and for industrial wastewaters that are not objectionable as hereinafter provided. No sanitary sewer shall be used to receive and convey or dispose of any storm or surface water, subsoil drainage, or unpolluted water. No industrial wastewater shall be directed to a sewer that is not connected to the POTW.

1501.8. No person shall make connection of roof downspouts, foundation drains, areaway drains, or other surface runoff, ground water or unpolluted water to a building sewer or building drain which in turn is connected directly or indirectly to a public sanitary sewer unless such connection is approved by the Town for purposes of disposal of polluted surface drainage.

Stormwater and all other unpolluted drainage shall be discharged to storm sewers, if available, or to a natural outlet approved by the Town. Unpolluted industrial cooling water or unpolluted process waters may be discharged, on approval of the Town, the NHDES and EPA to a storm sewer, if available, or an approved natural outlet.

1501.9. If the intended or designated use of any particular sewer or drain and allowable discharge thereto is unclear, the Director will consider the pertinent facts and make a determination. This determination shall be final and binding.

1502 Sewer Connection Permits and Fees

1502.1. No person shall uncover, repair, connect, make any opening into or use, alter or disturb in any manner any Sewer or any part of the POTW without first executing an "Application for Sewer Service Work" from the Public Works Department and paying all applicable fees.

All work must be performed and completed in accordance with all applicable regulations by persons who are: 1) certified and employed by firms that hold a valid "Utility Pipe Installers" license, or 2) with special permission of the Public Works Director, a residential building owner doing work for themselves, at their residence. Utility pipe installers shall maintain minimum insurance coverage in accordance with Selectmen's Policy 96-05.

1502.2. There shall be charges in all areas of the Town for a sewer tie-in or connection permit for single and multi-residential living units; for commercial establishments; and for establishments producing industrial wastes. Application for a permit must be made at the office of the Water and Sewer Billing during its normal working hours. A permit fee shall be paid for a single residential and commercial service and higher permit fee shall be paid for multi-dwelling or industrial service. These fees will be charged in accordance with a Schedule of Charges for Sewer Service which the Town may adopt from time to time.

1502.3. A permit fee shall be paid for each sewer service connection permit in those instances where the Town has already installed the building sewer to the street line. This charge will be charged in accordance with a Schedule of Charges for Sewer Service which the Town may adopt from time to time. In all other cases, the full cost of the connection shall be borne by the applicant.

Permits will be issued only to qualified utility pipe installers licensed to lay pipes in the Town, and homeowners qualified under section 1502.1. Permits are not transferable.

Permits will not be issued until the applicant has filed a layout plan showing the location of existing service connection, house location and route of sewer service, and said layout has been approved by the Town.

Permits shall be subject to revocation when any of the rules and regulations contained herein are not being followed.

plastics, wood, whole blood, paunch manure, hair and fleshings, entrails, and paper dishes, cups, milk containers, etc., either whole or ground by garbage grinders;

E. Pollutants, including oxygen-demanding pollutants (e.g., BOD, COD), or chlorine demand requirements released in a discharge at a flow rate and/or pollutant concentration that, either singly or by interaction with other pollutants, will cause interference with the POTW, constitute a hazard to humans or animals, create a public nuisance, or cause pass through;

F. Wastewater containing such concentrations or quantities of pollutants that its introduction to the POTW could cause a treatment process upset and subsequent loss of treatment ability;

G. Wastewater having a temperature greater than 150°F (65°C), or that will inhibit biological activity in the wastewater treatment facility resulting in interference, but in no case wastewater that causes the temperature at the introduction into the wastewater treatment facility to exceed 104°F (40°C);

H. Petroleum oil, non-biodegradable cutting oil, or products of mineral oil origin, in amounts that will cause interference or pass through;

I. Any pollutants that result in the presence of toxic gases, vapors or fumes within the POTW in a quantity that may cause worker health and safety problems;

J. Any trucked or hauled pollutants, except at discharge points designated by the Director;

K. Any medical/infectious waste, pharmaceutical waste, or radiological waste except as specifically authorized in an IDP;

L. Wastewater causing, alone or in conjunction with other sources, the wastewater treatment facility's effluent or biosolids to fail a toxicity test; and

M. Any hazardous waste listed or designated by the NHDES under Env-Hw 400.

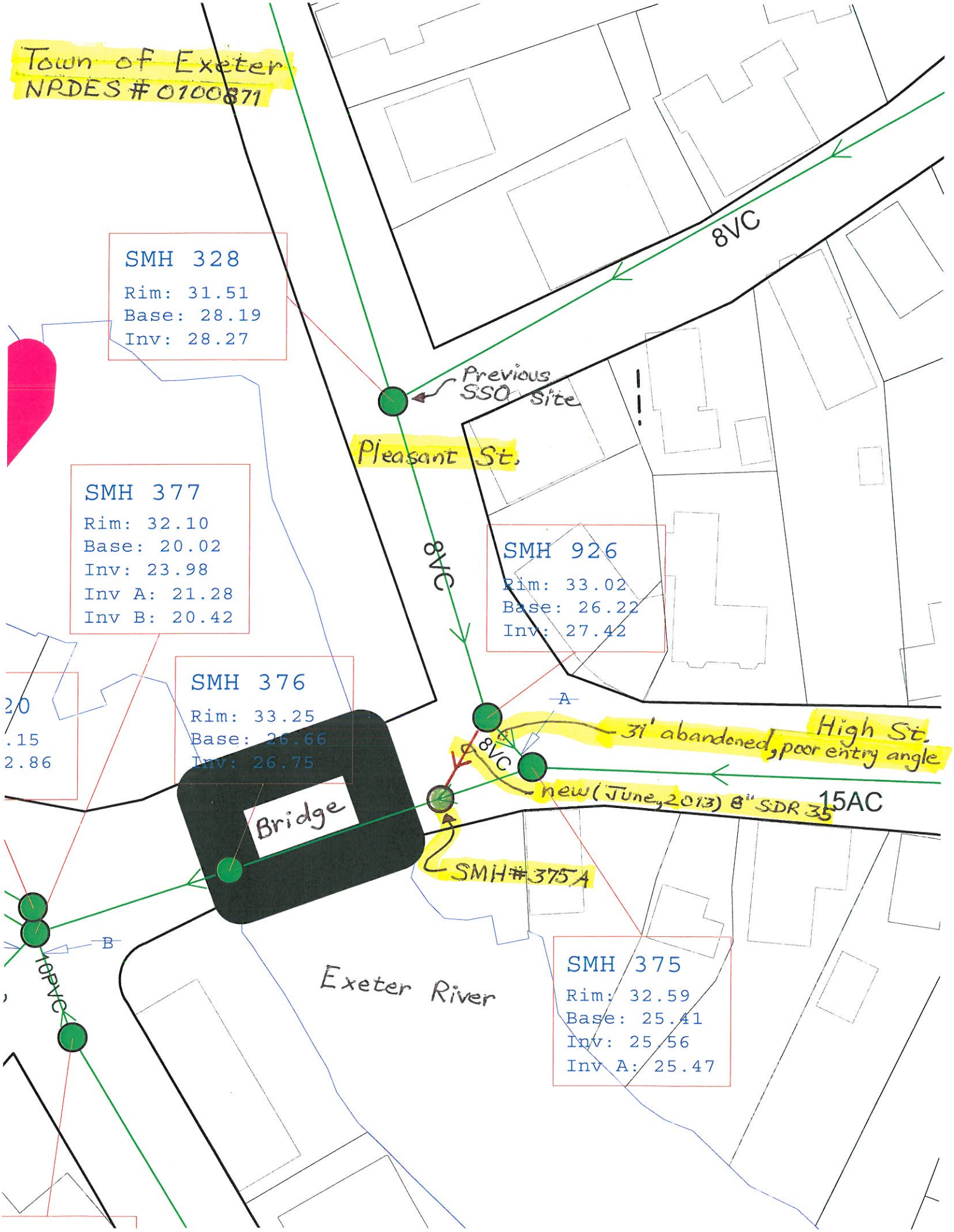
1507.3. Additional Prohibitions. No person shall discharge or cause to be discharged the following described substances, materials, waters, or wastes unless specifically authorized by the Director in an IDP:

A. Wastewater that imparts color that cannot be removed by the treatment process, such as, but not limited to, dye wastes and vegetable tanning solutions, which consequently imparts color to the treatment facility's effluent, thereby violating the Town's NPDES permit;

B. Noxious or malodorous liquids, gases, solids, or other wastewater that, either singly or by interaction with other wastes, could be sufficient to create a public nuisance, objectionable odors, or a hazard to life, or to prevent entry into the public sewers for maintenance or repair;

C. Stormwater, surface water, groundwater, artesian well water, roof runoff, subsurface drainage, swimming pool drainage, condensate, deionized water, noncontact cooling water, or otherwise unpolluted wastewater;

D. Sludges, screenings, or other residues from the pretreatment of industrial wastes;

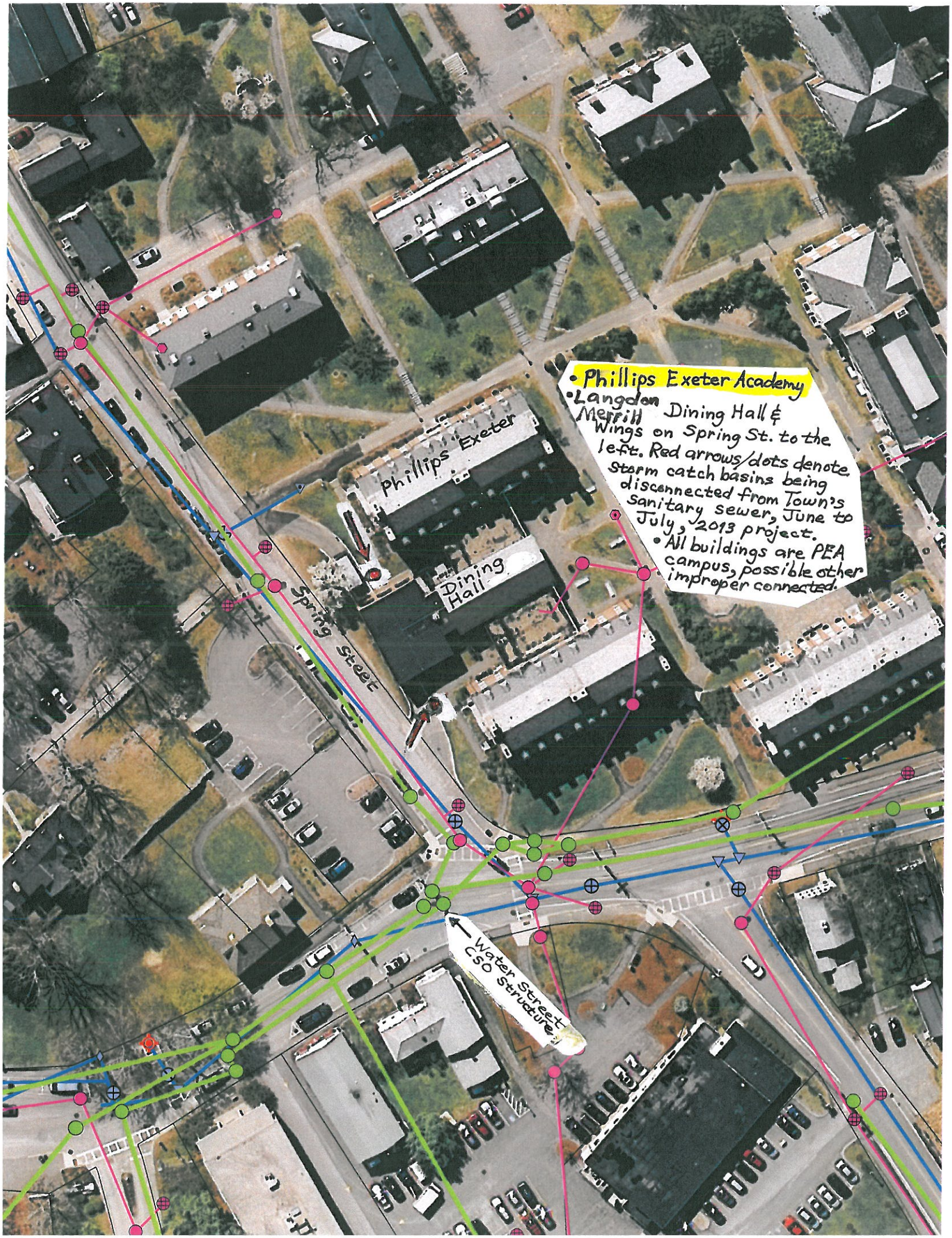

Town of Exeter
NPDES # 0100871
SMH 328
Rim: 31.51
Base: 28.19
Inv: 28.27
8VC
Previous SSO Site
Pleasant St.
SMH 377
Rim: 32.10
Base: 20.02
Inv: 23.98
Inv A: 21.28
Inv B: 20.42
8VC
SMH 926
Rim: 33.02
Base: 26.22
Inv: 27.42
SMH 376
Rim: 33.25
Base: 26.66
Inv: 26.75
A
31' abandoned, poor entry angle
High St.
8VC
new (June, 2013) 8" SDR 35
15AC
Bridge
SMH #375A
B
10PVC
Exeter River
SMH 375
Rim: 32.59
Base: 25.41
Inv: 25.56
Inv A: 25.47

• Exeter, NH ; NPDES#0100871; AO Docket#010-024 (7-16-13)

• Phillips Exeter Academy - Langdon Merrill Dining Hall (on Spring St.)

• The northern catchbasin (formerly located just in front of bucket - note old iron pipe/new pipe connection) has been removed. The PEA project to remove the southern and northern catch basins, found by Town W&S personnel to be connected to the Town's sanitary sewer, began in June, 2013. PEA's contractor is Cantwell Excavating, LLC. Cantwell is replacing an old in-ground grease interceptor (1,000 gallon per Town SUO) in this location as well.

- Exeter, NH; NPDES#0100871; AO Docket#010-024 (7-16-13)
- Phillips Exeter Academy Campus Dining Hall (actually located on Spring Street).
- This storm water catch basin is on the south side of the building. This catch basin, as well as an opposite northern basin, were found to be connected to the Town's sanitary sewer during 2011 smoke testing. The separation work began June, 2013, by Cantwell Excavating, LLC, contracted by Phillips Exeter Academy. Other pictures show the northern catch basin to be much further along in separation. During a site visit by Town W&S staff on June 24, 2013, Cantwell principal, Robert Cantwell, discussed the project. It was discovered that foundation drains, roof leaders and basement sump pump were connected to the catch basins. PEA plans were reviewed that confirmed this. The Elm Street Dining Hall project was slowed down until a new drainage scheme was in place so that these previously unknown (to the Town) sources of inflow could have an alternate drainage terminus determined.


• Phillips Exeter Academy
• Langdon Merrill Dining Hall & Wings on Spring St. to the left. Red arrows/dots denote storm catch basins being disconnected from Town's sanitary sewer, June to July, 2013 project.
• All buildings are PEA campus, possible other improper connected.
Phillips Exeter
Dining Hall
Spring Street
Water Street CSO Structure