State Environmental Quality Review

NOTICE OF COMPLETION OF FINAL SUPPLEMENTAL ENVIRONMENTAL IMPACT STATEMENT (FSEIS)

Date: April 24, 2017

This notice is issued pursuant to Part 617 of the implementing regulations pertaining to Article 8 (State Environmental Quality Review Act) of the Environmental Conservation Law.

A Final Supplemental Environmental Impact Statement (FSEIS) has been completed and accepted by the Town of North Castle Planning Board, acting as Lead Agency for the Proposed Action described below.

Name of Action: Park Place at Westchester County Airport

SEQRA Status: Type I Action

Description of Action: 11 New King Street, LLC (the "applicant") proposes to construct a multi-level automated parking structure (the "proposed project") at 11 New King Street (the "project site") in the Town of North Castle, Westchester County to provide parking for users of the Westchester County Airport where there is an existing shortage of parking.

The proposed parking facility would be called Park Place at Westchester County Airport ("Park Place"). In conjunction with the site plan application, the applicant has submitted a zoning petition to amend the Town of North Castle zoning code to allow parking structures in the Industrial AA (IND-AA) zoning district with a special permit.

The project site comprises two tax map parcels that are located in the southern portion of the Town of North Castle adjacent to Westchester County Airport near the Connecticut state line. The proposed project would involve construction of an approximately 31,493 square-foot footprint building that will accommodate approximately 850 vehicles.

The FSEIS presents a modified project that reduces the impervious coverage to comply with NYCDEP Regulations and avoids the need for variance from NYCDEP. The FSEIS also responds to comments from NYCDEP, Westchester County, the Watershed Inspector General, and other involved and interested agencies.

Location: Located in the Town of North Castle on New King Street

Tax Lots: Section 3, Block 4, Lot 14.B and Section 3, Block 4, Lot 13.A

Lead Agency: North Castle Planning Board

Town of North Castle Town Hall Annex 17 Bedford Road

Armonk, New York 10504

Contact Person: Adam R. Kaufman, AICP, Director of Planning

Town of North Castle, Annex Building, 17 Bedford Road, Armonk, New York 10504

Telephone Number: (914) 273-3542

A copy of the FSEIS may be examined at the North Castle Town Clerk's office and both North Castle Public Library locations during regular office hours; may be purchased from the Planning Board Secretary; or may be viewed on the Town of North Castle website http://www.northcastleny.com/planning/pages/park-place-at-westchester-airport-documents

A Copy Of This Notice Has Been Sent To The Following Involved and Interested Agencies:

Town of North Castle Planning Board, Town Hall Annex, 17 Bedford Road, Armonk, New York 10504

Town of North Castle Town Board, Town Hall, 15, Bedford Road, Armonk, New York 10504

U.S. Army Corps of Engineers, Jacob Javits Federal Building, 26 Federal Plaza, New York 10278

Basil Segos, New York State Department of Environmental Conservation, 625 Broadway, Albany, New York 12233-1011

Kelly Turturro, Director, Region 3, New York State Department of Environmental Conservation, 21 South Putt Corners Road, New Paltz, New York 12561

Howard Zucker, M.D., J.D., Commissioner, NYS Department of Health, Corning Tower, Empire State Plaza, Albany, NY 12237

Dr. Sherlita Amler, MD, MS, FAAP, Commissioner, Westchester County Department of Health, 145 Huguenot St., New Rochelle, New York 10801

Cynthia Garcia, New York City Department of Environmental Protection, SEQRA Coordination Section, 465 Columbus Avenue, Suite 350, Valhalla, New York 10595

Todd Westhuis, PE, New York State Department of Transportation, Region 8, Elanor Roosevelt State Office Building, 4 Burnett Blvd., Poughkeepsie, New York 12603

Vincent F. Kopicki, Commissioner, Westchester County Department of Transportation, Westchester County Office Building, 148 Martine Avenue, White Plains, New York 10601

Federal Aviation Administration, Eastern Region, 159-30 Rockaway Blvd., Jamaica, NY 11434-4848

Joseph Cermele, P.E., Town Engineer, Kellard Sessions Consulting, 500 Main Street, Armonk, New York 10504

Roland A. Baroni, Esq., Town Counsel, Town of North Castle, Town Hall, 15, Bedford Road, Armonk, New York 10504

Chairman, Town of North Castle Conservation Board, Town Hall Annex, 17 Bedford Road, Armonk, New York 10504

Beata Buhl Tatka, Chairman, Town of North Castle Architectural Review Board, Town Hall Annex, 17 Bedford Road, Armonk, New York 10504

Richard Conrad, Chairman, Town of North Castle Airport Committee, Town Hall Annex, 17 Bedford Road, Armonk, New York 10504

Jamie Norris, Highway Department, Town of North Castle, Town Hall, 15 Bedford Road, Armonk, New York 10504

Sal Misiti, Director of Water & Sewer Operations, Town of North Castle, Department of Sewer and Water, 15 Business Park Drive, Armonk, New York 10504

Fire Commissioners, Town of North Castle Fire District No. 2, 40 Maple Avenue, Armonk, New York 10504

Chief Peter Simonsen, North Castle Police Department, 15 Bedford Road, Armonk

Town of North Castle Public Library, 19 Whippoorwill Road East, Armonk, New York 10504

North White Plains Public Library, Clove Road, North White Plains, New York 10604

Commissioner, Westchester County Department of Planning, Michaelian Office Building, 148 Martine Avenue, Room 432, White Plains, NY 10601-4704

Rose Harvey, Commissioner, New York State Office of Parks, Recreation and Historic Preservation, Rockefeller Empire State Plaza, Agency Building 1, Albany. New York 12238

Christopher Bradbury, Village Administrator, Village of Rye Brook, Village Clerk, 938 King Street, Rye Brook, N.Y. 10576

Town of Rye, Town Clerk, 14 West Glen Ave., Port Chester, N.Y. 10573

Town Clerk, Town of Greenwich, Town Clerk, 101 Field Point Road, Greenwich, Ct. 06830

Town/Village Clerk, Town/Village of Harrison, Town Clerk, 1 Heineman Place, Harrison, N.Y. 10528

State of New York, Office of the Attorney General, The Capitol, Albany, New York 12224

Margaret Cunzio, Westchester County Board of Legislators, District 3, 800 Michaelian Office Building, 148 Martine Avenue, White Plains, NY 10601

Riverkeeper, Senior Watershed Attorney, Pace Environmental Litigation Clinic, 78 North Broadway, White Plains, New York 10603

NYPIRG, New York Public Interest Research Group, Attn: Watershed Protection Coordinator 9 Murray Street, New York, New York 10007-2272

NRDC, Natural Resources Defense Council, 40 West 20 Street, New York, New York 10011

WESPAC, 17 Marble Ave, Pleasantville, NY 10570

Sierra Club, Lower Hudson Group, c/o George Klein, Vice Chair, 74 Croton Dam Road, Ossining, NY 10562

Ted Anderson, Chair – The Airport Committee, The Sierra Club, 35 Pines Lane, Chappaqua, NY 10514

The Environmental Notice Bulletin (ENB), enb@gw.dec.state.ny.us	
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PARK PLACE AT WESTCHESTER AIRPORT

11 New King Street
Town of North Castle, New York



Final Supplemental Environmental Impact Statement

Prepared by:



Project Sponsor:

11 New King Street, LLC

Lead Agency:

Town of North Castle Planning Board 17 Bedford Road Armonk, NY 10504

April 2017

PARK PLACE AT WESTCHESTER COUNTY AIRPORT FINAL SUPPLEMENTAL ENVIRONMENTAL IMPACT STATEMENT

Lead Agency: Town of North Castle Planning Board, North Castle, New York

Applicant: 11 New King Street, LLC

11 New King Street

White Plains, New York 10604

Prepared by: AKRF, Inc.

34 South Broadway Suite 401 White Plains, New York 10601

April 24, 2017

PARK PLACE AT WESTCHESTER COUNTY AIRPORT FINAL SUPPLEMENTAL ENVIRONMENTAL IMPACT STATEMENT

Project Name: Park Place at Westchester County Airport

Project Location: 11 New King Street, Town of North Castle, NY 10604

Section 3, Block 4, Lot 14B

Section 3, Block 4, Lot 13A (partial)

Lead Agency: Town of North Castle Planning Board

Town of North Castle 17 Bedford Road Armonk, NY 10504

Contact: Adam R. Kaufman, AICP, Director of Planning

Contact Phone Number: (914) 273-3542

Applicant/Sponsor: 11 New King Street, LLC

11 New King Street White Plains, NY 10604

Contact: Bill Null

Contact Phone Number: (914) 761-1300

FSEIS Acceptance Date: April 24, 2017

This document is the Final Supplemental Environmental Impact Statement (FSEIS) for the above-referenced project. Copies are available for review at the office of the Lead Agency (Planning Department, North Castle Town Hall), the North Castle Public Library, and the North White Plains Public Library. A copy of this document has also been made available on the Internet at the following address: http://www.northcastleny.com/ hall_department_planning.php.

FSEIS Preparer/Civil Engineer: AKRF, Inc.

34 South Broadway, Suite 401 White Plains, NY 10601 Contact: Nanette Bourne Telephone: (914) 922-2350

Architect: KG&D Architects PC

285 Main Street

Mount Kisco, NY 10549

Structural Engineer: Nachman Engineering

610 Quaker Road

Chappaqua, NY 10514

Systems Engineer: O'Dea, Lynch & Abbattista

50 Broadway

Hawthorne, NY 10532

Geotechnical Engineer: Melick-Tully and Associates, PC

117 Canal Road

South Bound Brook, NJ 08880

Groundwater Engineer: Leggette, Brashears & Graham Inc.

4 Research Drive, Suite 301

Shelton, CT 06484

Survey: Control Point Associations, Inc.

35 Technology Drive Warren, NJ 07059

Legal Counsel: Cuddy & Feder, LLP

445 Hamilton Avenue, 14th Floor

White Plains, NY 10601

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ATTACHMENTS

- A: Stormwater Pollution Prevention Plan (SWPPP)
- B: Modified Site Engineering Plans
- C: Written Comment Letters and Full Public Hearing Transcript
- D: FAA Determination of No Hazard Documentation (Appendix E of 2016 DSEIS)
- E: Wetland and Wetland Buffer Enhancement Plan (Appendix F of 2015 FEIS)

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L-1: Wetland Buffer and Mitigation Exhibit

A. INTRODUCTION

11 New King Street, LLC (the "applicant") proposes to construct a multi-level automated parking structure, *Park Place at Westchester County Airport*, (the "proposed project") at 11 New King Street (the "project site") in the Town of North Castle, Westchester County. *Park Place* will address an existing demand for a convenient and assured parking facility for travelers who fly from/into Westchester County Airport. Currently, the lack of convenient and assured parking has created a situation where many passengers arrange to be driven to and picked up from the airport rather than take the chance that parking will be unavailable. This situation degrades the traveling experience, frequently increases the number of trips per passenger from two to four, and increases the vehicle miles associated per passenger and the attendant adverse environmental impacts from these additional vehicle trips. In addition to the commercial traveler experience, there is an immediate need for employee parking to support the general aviation community at the airport – particularly for the corporate aviation segment of the Fixed Based Operators (FBO's).

This Final Supplemental Environmental Impact Statement (FSEIS) responds to comments made at the Public Hearing for the Draft Supplemental Environmental Impact Statement (DSEIS) on April 11, 2016, and responds to written comments received by the Planning Board, as Lead Agency. This FSEIS also describes modifications to the proposed project made in response to comments, and presents the supplemental analyses of potentially adverse impacts to proposed project modifications. This FSEIS has been prepared in accordance with 6 NYCRR Part 617: Preparation and content of environmental impact statements of the Environmental Conservation Law of New York State.

As before, in concert with alleviating an existing parking shortage at Westchester County Airport, the proposed project will incorporate green and sustainable design elements that will result in substantive benefits to the community and environment, including:

- A reduction in the size of the parking facility to avoid the need for New York City Department of Environmental Protection (NYCDEP) variances;
- Treating stormwater runoff from the project site and a portion of an adjacent developed site, where none is currently provided;
- Avoiding the NYCDEP reservoir stem limiting distance (buffers);
- Avoiding disturbance on-site federal and Town wetlands;
- Developing a previously developed and vacant site, thereby minimizing new ground disturbance as compared to an undeveloped site;
- Reducing traffic within a congested traffic network;

- Improving traffic flow at several area intersections (Airport Road/NYS Route 120, Airport Road/Interstate 684 northbound ramps, and Airport Road/Interstate 684 southbound ramps) through mitigation measures;
- Reducing air emissions as a result of a more efficient traffic flow due to the enclosed automated facility whereby vehicles do not idle or circulate within the structure;
- Designing a project to US Green Building Council LEED Certification standards; and
- Increasing tax revenues to the Town and County.

The applicant has submitted a petition to amend the text of the existing Industrial AA (IND-AA) zoning district to allow parking structures as a principal use subject to issuance of a special permit. Currently, the IND-AA zoning district permits parking structures as an accessory use (rather than a principal use). Accompanying this FSEIS is a set of schematic site plan drawings that reflect the revisions presented within this FSEIS, and a revised Stormwater Pollution Prevention Plan (SWPPP). These drawings include:

- C-1 NOTES PLAN
- C-2 EXISTING CONDITIONS PLAN
- C-3 EXISTING STEEP SLOPE ANALYSIS
- C-4 DEMOLITION PLAN
- C-5 SITE PLAN
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B. MODIFIED PROPOSED PROJECT

In consideration of comments received, the applicant has made substantive modifications to the proposed project. The most significant modification is that the size of the parking structure itself has been reduced and this reconfiguration of the footprint complies with NYCDEP regulations and avoids the need for variances from NYCDEP. The footprint of the building has been reduced to 31,493 square feet, and the total impervious coverage has been reduced to 41,509 square feet, a 23.1% *net* increase from the existing impervious coverage. The NYCDEP has advised that the calculation of new impervious area may not be offset by crediting the amount of any current impervious surface that would be restored to a pervious condition, as is proposed with the current plan. Only areas of 'expanded' impervious surface beyond the existing impervious footprint are considered. Therefore, the applicant has added an approximately 4,000 sf green roof to offset impervious surface resulting in a percent *expansion* of 24.98 percent, meeting the NYCDEP requirement in accordance with the Watershed Rules and Regulations Section 18-39 (a) (4) (iii). In addition, the parking capacity of the project has been reduced from 1,450 spaces in the DEIS to 850

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NYCDEP permits a maximum of 25% expansion in impervious coverage from existing conditions. Expanding impervious coverage in excess of 25% requires a variance from NYCDEP Watershed Rules and Regulations Section 18-39.a.4.iii.

spaces in the FSEIS. These modifications have enabled the total amount of impervious areas to be reduced from 68,579 square feet as presented in the DEIS, to 41,509 square feet as presented in this FSEIS, a 39 percent reduction from the DEIS. The total area of site disturbance was reduced from 122,038 square feet in the DEIS to 106,484 square feet, a 13 percent reduction. The design components of the building have also been modified such that the building would be able to achieve LEED certification. Project modifications are summarized in **Table 1-1**.

Table 1-1
Summary of Project Modifications

	Existing Conditions	Original Project (2011 DEIS)	Modified Project (2015 FEIS)	Modified Project (2016 DSEIS)	Current Project for FSEIS	Difference from original project (2011 DEIS)	% Difference from original project (2011 DEIS)
Number of Parking Spaces	35	1,450	1,380	980	850	-600	- 41%
Building Footprint	9,700 sf	50,915 sf	44,812 sf	37,444 sf	31,493 sf	-19,422 sf	-38%
Building Height***	10 ft	56 ft	59 ft	53 ft	53 ft	-3 ft	-5%
Limit of Disturbance	n/a	122,038 sf	117,081 sf	106,540 sf	106,484 sf	-15,554 sf	-13%
Excavated Material	n/a	25,075 су	19,949 cy	**	**	-5,126 cy	-20%
Wetland Disturbance	n/a	5,699 sf	0 sf	0 sf	0 sf	-5,699 sf	-100%
Impervious Surface (Total)*	33,716 sf	68,579 sf	62,767 sf	47,272 sf	41,509 sf	-27,070 sf	-39%
Impervious Surface Area within 100-ft Town Buffer	12,316 sf	40,722 sf	36,514 sf	27,466 sf	18,040 sf	-22,682 sf	-56%
Impervious Area within 100-ft DEP Watercourse Buffer	7,704 sf	23,642 sf	18,662 sf	13,697 sf	11,494 sf	-12,148 sf	-69%

Notes:

^{*} The percentage expansion in impervious surface as compared to existing conditions is now 24.98% with the FSEIS site plan, and therefore complies with the NYCDEP Watershed Rules and Regulations Section 18-39.a.4.iii.

^{**} A cut/fill balance was not completed for the FSEIS building footprint. However, owing to the substantial reduction in building footprint, the current FSEIS site plan should realize a similar reduction in excavated material as was seen in the reduction between the DEIS and FSEIS site plans.

^{***} Building height is averaged for the 4 building sides. The original DEIS building proposed a height of 56 ft. Current FSEIS building is 6 levels and 53 ft. Building height has also varied due to the building's shrinking footprint which has reduced the height of the western façade. The front façade/entrance of the current building plan is in height measured from the proposed finished first floor. The elevation of the building roof is 454' above mean sea level (msl), which has been approved by the FAA for air navigation.

The architecture has also been modified to reflect the reduction in the size of the building. The structure will be a composite concrete and steel framed building. On the exterior of the building from grade to the second floor will be a metal framed green-screen which will allow vegetation to grow up the lattice and natural light to penetrate the main level drop-off/pick up zones. The upper levels of the building are planned to be clad in a combination of insulated metal and translucent panels which balances an energy efficient building enclosure with allowing natural daylight to penetrate into the storage levels. A green roof has also been added to the structure of the building. See Figures 2 through 4.

On the main level will be the loading/unloading and customer waiting area. Above the main level will be five levels of vehicle storage areas — unoccupied except for occasional maintenance; and one below grade level — a total of six (6) levels. No customer access will be permitted outside of the loading/unloading area on the main level.

A monument sign will be located at the driveway entrance on New King Street to direct customers into the *Park Place*. A building mounted sign will be located at the entrance to the building. Lighting used throughout the site will be dark sky compliant. A down-light will be incorporated into the ground mounted entry sign. Along the driveway will be dark-sky compliant bollards directing customers towards the *Park Place* structure. At the entrance to the building will be ceiling mounted LED fixtures to provide illumination for a customer dropping-off/picking up their vehicle. Internally, there will be minimal LED lighting for security purposes only.

The Site Landscape Plan for the modified project has been revised to reflect the updated design for the building and overall site. It reflects changes to the SWPPP, the revised site engineering plans, and the revised architectural drawing set. The revisions to the landscape plan and plant list also address comments from NYCDEP and reflect current guidance for design of green infrastructure. The stormwater management plan has been updated to address the projected runoff. The plant palette for the redesigned bioretention area in front of the building and the stormwater planter at the back of the building have also been updated to reflect the revised design of the stormwater management system. Plant locations throughout the project site have been adjusted to reflect revised site layout, revised building design and the revised grading plan.

The automated parking system proposed for Park Place will be state-of-the-art technology, similar to an automated warehousing system. The automated parking system will stack the vehicles using conveyors and pallets to transport cars to their 'parking space.' Therefore, by eliminating the vehicular circulation used in a conventional garage, the interior space can be used more efficiently and economically.

Apart from the design of the structure, the operational characteristics of Park Place will remain the same as discussed in the DEIS and DSEIS. Customers will drop off their vehicles in loading bays, after which automated machinery will transport the vehicle to a storage space within the facility. As the design has evolved, the interior layout has been modified to a level storage system. With regards to queuing, it should be clarified that there will be no change to the number of egress lanes compared to the earlier iteration of the site plan - there will still be one exterior egress lane and two interior egress lanes (pick-up and a through lane). Specific details will be addressed during site plan review. The proposed building height, at 53-feet, remains below the 60-foot height limit included in the proposed zoning text amendment. Finally, the applicant will be designing a building to LEED certification standards. The proposed parking facility will require the deconstruction of an existing 10,000 square foot office building and the construction of an enclosed fully-automated, multi-level parking structure. Within the facility are proposed a

variety of 'green low-impact' practices which will lengthen the building's useful life and lessen its impact on the surrounding environment. As a 'sustainable building,' the project's planning has considered both site and building elements from the conceptual design of site features to the commissioning of the building systems.

PURPOSE AND NEED

Park Place will meet an existing and growing parking need experienced by many who work and use Westchester County Airport. Today, the Airport is served by a single 3-level, 1,051 space parking structure. An overflow lot on Airport Road (formerly a cell phone lot) with approximately 150 spaces is also available to those in need of parking when the parking structure is at capacity. It should be noted that industry standards suggest that the activity at Westchester County Airport would justify a demand for 2,500-3,000 parking spaces.

Insufficient parking has been an historical issue at the Airport and has been cited as one of Westchester County Airport's greatest deficiencies. Surveys of commercial airport travelers have found that 46% are being dropped-off/picked up by a family/friend or car service, as compared to 25% at comparable airports, suggesting an uncertainty of there being a predictable place to park at the airport. Not knowing if parking will be available has resulted in travelers seeking alternatives to self-driven trips to the airport, which increases vehicle trips and air emissions, and adds stress to commercial travelers who are committed to a scheduled flight.

However, the parking demand for those traveling on one of the four commercial airlines that fly out of Westchester County Airport represents only twenty-five percent (25%) of the aviation activity, with seventy-five percent (75%) of the airport serving the general aviation market, including private and corporate aircraft. In fact, forty-six percent (46%) of general aviation at Westchester County Airport is corporate aviation - considered a lucrative and growing sector of the aviation market. An example of this growth is the recent groundbreaking for the Million Air FBO, an \$88 million hangar to house privately-owned aircraft. This high-end sector of the aircraft market is considered a trend to create a positive 'first impression' to the corporate and the high-end personal jet market by providing high end amenities, services, and accommodations for business and leisure private jet travelers. So whereas this sector may not sell tickets to individual passenger, there is considerable need for providing parking for employees serving corporate aviation. The National Business Aircraft Association estimates that a typical corporate flight will require on average, six to seven employees per flight, i.e. pilots, maintenance workers, in-flight service attendants, administration, etc.

BALLOON TEST

At the request of the Town Board, a balloon test was done on October 4, 2016. A large red balloon was raised by motorized lift equipment to the height of the proposed building of fifty-three feet (53') above the existing grade. The balloon was raised from a platform elevated twenty feet (20') above existing grade. The location of the balloon was approximately in the center of the proposed footprint on the existing drive pavement. The proposed building corners were staked and flagged prior to the event of the balloon test. The figures on the following pages identify locations where the balloon was visible. See Figures 5 through 8. These photos represent the growing season views that can be expected of the project site. Removal of some trees as shown in Sheet C-4 Demolition Plan may make the proposed building more visible from Route 120 than is shown in Figure 6. However, a buffer of trees at least 50 feet wide would remain. From the other vantage points, from New King Street and from the open parcel to the

south, little tree clearing is proposed; therefore views of the proposed project site are expected to be similar to those that occur at present.

It can be assumed that during the winter months when the leaves are off the trees, the proposed building will be more visible from some vantage points. During those times what will be seen, in the Applicant's opinion, will be a modern and architecturally distinct building that has been designed based on state-of-the-art sustainability principals. The views of the building will include a vertical wall of landscaping, also known as a green-screen, that will be affixed to the external wall of the proposed building with climbing vines and ivy. This feature will be in addition to the landscaping that will be added to the site.

MODIFIED SWPPP & SITE ENGINEERING PLANS

The Stormwater Pollution Prevention Plan (SWPPP) and the Site Engineering Plans have been updated to reflect the changes from the reduced impervious coverage and address comments from NYCDEP. See Attachment A for the complete SWPPP and Attachment B for modified Site Engineering Plans.

The water quality and peak flow mitigation calculations have been revised to be consistent with the new site layout and with the methodology described in Chapters 9 and 10 of the New York State Stormwater Management Design Manual (NYSSMDM). The hydrologic soil groups of the site were updated to be consistent with the latest available information provided by the United States Department of Agriculture (USDA). The TR-55 methodology was used to calculate the required 1-year, 24-hour water quality volume. Green infrastructure techniques (a stormwater planter, bioretention basin, and green roof) were used to satisfy more than the minimum runoff reduction volume requirements associated with the new impervious area. The site has been designed to minimize the limit of disturbance and to limit work in regulated buffers. Surface sand filter and stormwater wetland calculations are provided in accordance with the NYSSMDM. The rainfall values and rainfall distribution curve used in the hydrologic models were updated using the latest available information provided by the Northeast Regional Climate Center (NRCC). The pre-existing, pre-development, and post-development hydrologic models were adjusted using the new rainfall data and incorporate the modified proposed project. The hydrologic model demonstrates that the post-development conditions of the site will be below pre-existing conditions during the smaller storm events and below pre-development condition during the larger storm events, as well.

The pollutant loading calculations were modified to address comments from the NYCDEP and to reflect the modified proposed project layout. The Simple Method was used to calculate an annual load for total phosphorus, soluble phosphorus, total suspended solids and total nitrogen. Pollutant concentration values were obtained from the East of Hudson Watershed Corporation's Stormwater Retrofit Design Manual (EOHWC SRDM) and the NYSSMDM (2001). Stormwater management practices' treatment efficiencies were obtained from the EOHWC SRDM and the Center for Watershed Protection's National Pollutant Removal Performance Database. The project estimates a reduction for all four pollutants under post-development conditions.

The Site Engineering Plans were also revised to reflect the modified proposed project and are attached to this FSEIS. A reduced proposed building has been added to the plans. The stormwater planter was modified and relocated while a bioretention basin was added to satisfy the revised stormwater quality calculations. Site grading was modified to facilitate the stormwater management design and to provide adequate access and drainage.

A. INTRODUCTION

This chapter summarizes and evaluates the potential environmental impacts from the modified proposed project that is the subject of this FSEIS. The impact analysis is limited to the proposed project that is reduced in size. Each project refinement, if any, is analyzed in the topic area where the potential for environmental impacts exists; and for the reasons stated below, these refinements do not have the potential to generate any significant adverse environmental impacts in those subject areas.

B. SUBMISSION OF VARIANCE REQUEST TO NEW YORK CITY DEPARTMENT OF ENVIRONMENTAL PROTECTION (NYCDEP)

The previous project that was the subject of the 2016 DSEIS sought a variance from Section 18-39(a)(1) of the Watershed Regulations to allow the construction of impervious surfaces within 100 feet of a NYCDEP regulated watercourse. For commercial projects, the Watershed Regulations allow for the creation of new impervious surfaces up to 25% of existing conditions. The DSEIS proposed an increase of 40.2% impervious surfaces. As described in Chapter 1 of this FSEIS, the proposed project has again been modified and reduced in size and no longer requires a NYCDEP variance. Through reduction in building size, modification to drives, and incorporation of a green roof, the site plan that is the subject of the current FSEIS proposes an expansion of impervious surfaces of 24.98%. As such, a variance from the NYCDEP Watershed Rules and Regulations is no longer necessary. This increase is less than the 25% threshold for NYCDEP.

Table 2.B-1 below summarizes the various project iterations' proposed impervious surface areas. Refer to exhibits in Appendix B of the SWPPP for a graphical depiction of pre- and post-development impervious surface areas. Based upon the most recent revisions to the Proposed Action, a NYCDEP variance is no longer required.

Table 2.B-1
Project Iteration Impervious Surface Comparison

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Project Iteration	Impervious Surface Area (sq. ft.)	Net Increase from Pre-Development (%)		
Pre-Development	33,716	-		
FEIS (2015) Post- Development	63,447	88.2		
DSEIS (2016) Post- Development	47,272	40.2		
FSEIS Post-Development	41,508	23.1		

C. POLLUTANT LOADING ASSESSMENT

The pollutant loading calculations were recalculated using the Simple Method due to the reduced impervious coverage associated with the revised site layout and comments from the NYCDEP. The following summarizes the methodology and results of the pollutant loading analysis. Additional information can be found in the revised SWPPP (Attachment A), Section 6.3 and SWPPP Appendix I.

The proposed stormwater management practices have been designed in accordance with the NYSDEC stormwater sizing criteria to treat the full water quality volume. As a result, the practices are capable of 80% TSS removal and 40% TP removal (NYSSMDM Section 3.3).

Using the Simple Method, four pollutants (total phosphorus (TP), soluble phosphorus (SP), total suspended solids (TSS) and total nitrogen (TN)) were analyzed for the modified proposed project. Pollutant concentration values are based on land coverage and were obtained from the East of Hudson Watershed Corporation's Stormwater Retrofit Design Manual (EOHWC SRDM) and the NYSSMDM (2001). Each stormwater management practice has the ability to reduce pollutants to varying degrees based upon type and function. This pollutant removal ability is represented by the practice's removal efficiency. The stormwater management practices' treatment efficiencies were obtained from the EOHWC SRDM and the Center for Watershed Protection's National Pollutant Removal Performance Database. The results are summarized below in Table 2.D-1.

Table 2.D-1 Pollutant Loading Analysis

	Pre-	Post-	Change in	Loading		
Pollutant	Development (kg/yr)	Development (kg/yr)	(kg/yr)	(%)		
TP	1.62	0.82	-0.80	-49.4%		
SP	0.94	0.88	-0.06	-6.4%		
TSS	706	234	-472	-66.9%		
TN	15.35	14.55	-0.80	-5.2%		

BOD removal efficiencies for stormwater management practices and BOD concentrations based on land coverage are not readily available. The National Stormwater Quality Database publishes BOD concentrations based on land use (commercial, residential, industrial, etc.). The land use (commercial) will not change as a result of the proposed project. Operational controls to curb BOD generation are described in Section 6.3 of the SWPPP.

It should be noted, no credit was taken for the permeable pavements utilized in the fire lane and maintenance access path. These practices were utilized as a reduction in impervious area. They are capable of pollutant removal through the promotion of infiltration. The omission of the permeable pavement from the pollutant loading calculations simply provides a more conservative result.

The current condition of this project site (as well as, the other developed sites along New King Street) provides no stormwater quality or quantity treatment. In the existing condition, untreated and unmitigated stormwater runs off the project site and across/under I-684 into the Kensico Reservoir. The proposed project will be the first along New King Street to capture and treat runoff from the entire project site and also a portion of the abutting parcel (Lot 13A). The stormwater analyses and the revised pollutant loading analysis (provided in the revised SWPPP)

(Attachment A)) demonstrate post-development runoff rates and pollutant concentrations will be reduced as compared to the pre-development conditions.

D. INFILTRATION TEST AND DEEP SOIL PIT SUMMARY

Appendices J, K & L of the revised SWPPP (Attachment A) document the soils conditions of the site. Included in the appendices are: the USDA Web Soil Survey, Soil Testing Location Map, 2015 Infiltration Tests and Test Pit and the 2008 Melick-Tully and Associates Preliminary Soils and Foundation Investigation. These documents demonstrate the site soil's ability to enable the various proposed stormwater management practices.

As previously noted in the previous 2016 DSEIS, infiltration and deep soil pit tests were conducted on December 15, 2015. The tests were witnessed by staff from NYCDEP and engineering consultants representing the Town of North Castle. The deep soil pit test was conducted within the vicinity of the proposed pretreatment basin and the two infiltration tests were conducted in the region of the proposed permeable paver fire lane. The deep soil pit was dug to a depth of two feet below the bottom elevation of the proposed pretreatment basin. No groundwater or mottling was observed. The soil conditions meet the requirements of the NYSDEC Stormwater Management Design Manual because seasonal high groundwater is deeper than two feet below the proposed bottom elevation of the pretreatment basin. The infiltration tests provided adequate infiltration rates to accommodate the use of porous pavers. Documentation of the infiltration test is provided in Appendix L of the revised SWPPP (Attachment A).

No additional infiltration tests were conducted in the immediate vicinity of the proposed stormwater planter or bioretention basin. Both practices are designed as flow through systems with an underdrain. They are not intended to infiltrate into the underlying soils. As a result, infiltration tests are not required.

A. INTRODUCTION

This Final Supplemental Environmental Impact Statement (FSEIS) addresses comments that were made on the 2016 Draft Supplemental EIS (DSEIS), either presented verbally at the Public Hearing held on April 11, 2016 or provided in writing through April 26, 2016. This includes all comments made by the public or their representatives, public officials, and interested and involved agencies. Additional comments from the Town of North Castle and New York City Department of Environmental Protection (DEP) from a preliminary February 2017 submission of the FSEIS are included at the end of this chapter.

The DSEIS, prepared on behalf of 11 New King Street, LLC (the applicant), analyzed the potential environmental impacts of the proposed project. This chapter of the FSEIS summarizes the substantive verbal and written comments submitted on the DSEIS. Similar comments in terms of subject or technical points are grouped together in correlation with the chapters of the DSEIS and the commenters are noted in parentheses after the comment. Some comments have been paraphrased, with careful attention to ensure that the substance of the comment is preserved. A full transcript of public testimony from the April 11, 2016 public hearing, and complete correspondence from which these summaries are drawn can be found in **Attachment C**.

B. COMMENTERS ON THE DSEIS

OFFICIALS

- 1. Cynthia Garcia, SEQRA Coordination Section, NYCDEP, letter dated April 26, 2016 (Garcia_NYCDEP)
- 2. Adam Kaufman, AICP, Director of Planning, Town of North Castle, letter dated March 18, 2016 (Kaufman_North Castle)
- 3. Donald Lake, P.E., technical comments prepared on behalf of the office of the watershed inspector general, dated April 26, 2016 (Lake)
- 4. Office of the Watershed Inspector General, letter dated April 26, 2016 (WIG)
- 5. Edward Buroughs, AICP, Commissioner, Westchester County Planning Board, letter dated March 18, 2016
- 6. Cynthia Garcia, SEQRA Coordination Section, NYCDEP, letter dated March 27, 2017 (Garcia_NYCDEP_2)

ORGANIZATIONS

- 7. Ted Anderson, Chair, New York Sierra Club Airport Committee, letter dated April 24, 2016 (Anderson_Sierra)
- 8. Patrick Cleary, AICP, CEP, PP, LEED AP, on behalf of Sierra Club, letter dated April 25, 2016 (Cleary_Sierra)
- 9. Misti Duvall, Staff Attorney, Riverkeeper, letter dated April 26, 2016; and Public Hearing dated April 11, 2016 (Duvall_Riverkeeper)
- 10. Donald Heithaus, Chairman, Airport Advisory Board, Westchester County Airport, letter dated April 22, 2016 (Heithaus_WCA)
- 11. Richard J. Lippes, on behalf of Sierra Club, letters dated April 25, 2016 and February 26, 2016 (Lippes_Sierra_1, Lippes_Sierra_2)
- 12. Peter Scherrer, Airport Manager, Westchester County Airport, letters dated April 11, 2016 (Scherrer_1, Scherrer_2)

GENERAL PUBLIC

- 13. Albert J. Pirro, Jr. esq., letter dated April 26, 2016 (Pirro)
- 14. Thomasa D'Agostino, email dated April 11, 2016 (D'Agostino)
- 15. Robert Porto, Public Hearing dated April 11, 2016 (Porto)
- 16. Susan Leifer, Public Hearing dated April 11, 2016 (Leifer)
- 17. Tim Halpern, Public Hearing dated April 11, 2016 (Halpern)
- 18. Richard Conrad, Public Hearing dated April 11, 2016 (Conrad)
- 19. George Klein, Public Hearing dated April 11, 2016 (Klein)

PLEASE NOTE: This chapter of the Final Supplemental Environmental Statement (FSEIS) provides responses to comments that were made on the Draft Supplemental Environmental Impact Statement - DSEIS (January 2016). References are also made to the original Draft Environmental Impact Statement - DEIS (March 2011), and the Final Environmental Impact Statement - FEIS (January 2015). All of these documents are incorporated into this FSEIS as reference.

C. SUMMARY OF COMMENTS

DONALD HEITHAUS, CHAIRMAN, AIRPORT ADVISORY BOARD, WESTCHESTER COUNTY AIRPORT, LETTER DATED APRIL 22, 2016

Comment 1: Over the past several years, public parking has not been an issue, especially during the heavy holiday travel periods where the existing public parking garage and long-term parking lot has had excess parking capacity. (Heithaus_WCA)

A. INTRODUCTION

This Final Supplemental Environmental Impact Statement (FSEIS) addresses comments that were made on the 2016 Draft Supplemental EIS (DSEIS), either presented verbally at the Public Hearing held on April 11, 2016 or provided in writing through April 26, 2016. This includes all comments made by the public or their representatives, public officials, and interested and involved agencies. Additional comments from the Town of North Castle and New York City Department of Environmental Protection (DEP) from a preliminary February 2017 submission of the FSEIS are included at the end of this chapter.

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C. SUMMARY OF COMMENTS

DONALD HEITHAUS, CHAIRMAN, AIRPORT ADVISORY BOARD, WESTCHESTER COUNTY AIRPORT, LETTER DATED APRIL 22, 2016

Comment 1: Over the past several years, public parking has not been an issue, especially during the heavy holiday travel periods where the existing public parking garage and long-term parking lot has had excess parking capacity. (Heithaus_WCA)

Response:

It is in the Applicant's opinion that Park Place will meet an existing and growing parking need experienced by many who work and use Westchester County Airport. Due in part to the fragmented and uncertainty of there being a predictable place to park at the airport, approximately forty-six percent (46%) of those travelling on one of the four commercial airlines at the airport are dropped off/picked up by a family member or vehicle-for-hire; compared to twenty-five percent (25%) at comparable airports. This suggests that fewer people are choosing to park at the airport from what would be expected.

In addition, the four commercial airlines that fly out of Westchester County Airport represent only twenty-five percent (25%) of total aviation activity. According to the County's website, the majority of air traffic, seventy-five percent (75%), is considered general aviation. General aviation, also known as private aviation, is defined as flights that do not sell tickets to individual passengers. Forty-six percent (46%) of general aviation is for corporate use, representing a segment of the aviation market that has increased due to technology bringing the availability of private jets to a wider audience.

The National Business Aircraft Association (NBAA) estimates that corporate aviation flights require on average, six to seven employees to support each trip. This support staff includes pilots, maintenance workers, in-flight service attendants, administration, etc. So based on NBAA estimates, in addition to parking for commercial travelers, there can be expected to also be a parking demand for employees serving the corporate aviation component of the County's airport travel. In fact according to the County's website, this past Thanksgiving (2016), general aviation operations at Westchester County airport surpassed Teterboro Airport (NJ), before then the number one private aviation airport in the country. It is based on this data that the Applicant has determined that there is an existing demand for parking from the corporate users who park their planes at one of the five (5) fixed based operator (FBO) terminals operators or this non-commercial segment of the passenger population. FBO's employ support staff, jobs for Westchester County, including pilots, maintenance workers, in-flight service attendants, administration, etc. (an average of 6 to 7 individuals of support per plane) and support tenants such as JP Morgan, Phillip Morris, IBM and Net Jets. They generate 80% of the revenue at the airport.

PETER SCHERRER, AIRPORT MANAGER, WESTCHESTER COUNTY AIRPORT, LETTER DATED APRIL 11, 2016

Comment 2: The modified Park Place proposes a 980-vehicle parking structure to be built in a structure which is larger than the original application. The application only analyzes parking facilities of different sizes for the project site. No other alternatives are provided such as office or warehouse space. The Draft Supplemental Environmental Impact Statement (DSEIS) does not address the "no build" alternative in view that sufficient parking spaces presently exist at the

Westchester County Airport. The following empirical data establishes that there is no need for the proposed project in terms of airport parking. Further, it should be noted that should a future need for additional airport parking arise, there is ample opportunity to provide such parking at the airport. (Scherrer_WCA)

Response:

In response to comments, the size of the proposed project has been reduced in size to 850 spaces. Six alternatives were analyzed in Chapter 18, "Alternatives," of the Draft Environmental Impact Statement (DEIS) (2011). In addition to four alternatives analyzing different sized parking facilities, the chapter evaluated an alternative that assumed the project site would be developed for office use and be constructed to the maximum build out pursuant to existing zoning regulations. This alternative concluded that the existing one-story 9,732-square-foot (sf) office building with 35 parking spaces could be redeveloped with a two-story building of approximately 32,441 sf. A sketch plan of a feasible site layout for this alternative was developed to illustrate the potential environmental impacts for the purpose of comparison with the proposed project (see Figure 18-6 in the 2011 DEIS). The Alternatives chapter also analyzed a "No Action Alternative" that assumed the existing office building would continue to operate under existing conditions.

Comment 3:

Current public parking facilities consist of 1,051 vehicle spaces in the parking garage, and 150 vehicle long-term parking spaces located in the northeast section of the airport. The airport has not experienced a public parking problem over the past six years, as passenger loads have steadily declined since 2011 and passengers have utilized other means of transportation to/from the airport. This is evident during the holiday period, which consists of 67 days in which the airlines do not have any passenger restrictions. During these holiday periods, the airport has ample public parking as vacation travelers are mainly dropped off at the Terminal Building. (Scherrer_WCA)

Response:

See Response to Comment 1. It is in the Applicant's opinion that there is an existing demand for the Proposed Project. While commercial traffic may have declined at Westchester County Airport within the last 5 years, general aviation continues to steadily increase FBO's have begun working on additional hangar space, replacing surface employee and customer parking lots with modern new facilities. In one example, an FBO operator's employees will permanently lose 150 parking spaces as land converts to hangar space. This has created a parking need for general aviation airport users, in addition to commercial aviation's public passengers. The Proposed Project is being designed to meet the needs of the commercial and corporate traveler looking for a guaranteed and convenient, secure, and guaranteed option for parking at the airport. The Proposed Project is also being designed to meet an existing need for the corporate aircraft market that remains a significant proportion of the aircraft economy at Westchester County Airport.

Comment 4:

Under the current Terminal Use Restrictions, Air Carriers are unable to increase the size and seating of their aircraft due to the lack of available passenger allocations in various half-hour slot times. It also has resulted in our inability to attract new air carrier operators, or for our existing air carriers to increase service to other destinations. (Scherrer_2)

Response:

Neither the project site nor the Proposed Project is affiliated with Westchester County Airport. The Proposed Project will be privately owned and operated. Expansion of the airport is restricted by Westchester County's Terminal Capacity Agreement that limits the operating capacity of the airport to 240 passengers per half hour. The Applicant does not seek to void or revise this agreement nor does it have standing to do so.

Comment 5:

The current level of flights at the airport is 72 daily flights, 46 flights on Saturday, and 54 flights on Sunday. Daily passenger loads can widely fluctuate between 1,500 to 6,184 passengers per day. Based on daily travel demands, reduced weekend flight schedule, seasonal flight reductions, severe weather conditions, flight crews' availability, aircraft maintenance, and flight cancellations. The approximately 6,184 passenger seats being utilized today is significantly less than full capacity levels we have experienced in the past. (Scherrer 2)

Response:

Neither the project site nor the Proposed Project is affiliated with Westchester County Airport. The Proposed Project will be privately owned and operated. Expansion of the airport is restricted by Westchester County's Terminal Capacity Agreement that limits the operating capacity of the airport to 240 passengers per half hour. The Applicant does not seek to void or revise this agreement nor does it have standing to do so.

Comment 6:

Proposed modifications to the Terminal Use Agreement are pending before the Westchester County Board of Legislators (BOL). In the event the BOL approves the proposed modifications, the effects on changes to the Air Carrier operations or the number of passengers would not be immediate. Any projected service increase could take several years, along with the necessary upgrades to our Terminal Facility. (Scherrer_2)

Response:

Neither the project site nor the Proposed Project is affiliated with Westchester County Airport. The Proposed Project will be privately owned and operated. Expansion of the airport is restricted by Westchester County's Terminal Capacity Agreement that limits the operating capacity of the airport to 240 passengers per half hour. The Applicant does not seek to void or revise this agreement nor does it have standing to do so.

Comment 7: More importantly, the location of the parking structure within the Runway 16/34 Runway Protection Zone (RPZ) is of greater concern. While the Federal

Aviation Administration (FAA) had conducted an aeronautical study of the proposed structure, with a determination of no hazard to air navigation, the FAA did take issue with the parking structure location within the Runway 16/34 RPZ.

The FAA RPZ Advisory Recommendation states: While the structure does not constitute a hazard to air navigation, it would be located within the RPZ of the Westchester County Airport (HPN) Runway 16/34.

Structures, which will result in the congregation of people within a RPZ, are strongly discouraged in the interest of protecting people and property on the ground. In cases where the airport owner can control the use of the property, such structures are prohibited. In cases where the airport owner exercises no such control, advisory recommendations are issued to inform the sponsor of the inadvisability of the project from the standpoint of safety to personnel and property.

Therefore, we are requesting that the Planning Board strongly consider the implications to Runway 16/34. It is also important to recognize that Runway 16 is our only runway with a full instrument landing system. The parking structure location may impact any future rule changes made by the FAA concerning runway safety requirement of air navigation standards for our instrument landing system. (Scherrer_WCA)

Response:

In 2011, the proposed project received a "Determination of No Hazard" from the Federal Aviation Administration (FAA), pursuant to its FAA 7460-1 Form or Aeronautical Review – Aeronautical Study Number (ASN): 2011-AEA-2792-OE. The 'Determination' expired on August 14, 2014 and the Applicant conducted an updated technical analysis regarding the potential effects of the parking garage using the modified site plan presented herein.

The Applicant submitted an updated "Off Airport Parking Garage Height Limitation Study" to the FAA that was accompanied by an FAA Part 77 Imaginary Surfaces evaluation to identify restrictions over the subject parcel, and a revised FAA Form 7460-1 reflecting updated land coordinates and elevation proposed for the parking garage (Aeronautical Study No. 2015-AEA-4118-OE) (see Attachment D). In correspondence dated August 18, 2015, the FAA issued a "Determination of No Hazard to Air Navigation" for the proposed current Park Place project building and plan (DSEIS plan), which was consistent with the prior determination. In its latest determination, the FAA indicated that its aeronautical study revealed that the proposed project does not exceed obstruction standards and would not be a hazard to air navigation. The determination included one Advisory Recommendation—that, while the structure does not constitute a hazard to air navigation, because it would be located within the RPZ of the Westchester County Airport (HPN) Runway 16/3, "structures which will result in the congregation of people within an RPZ are strongly discouraged in the interest of protecting people and property on the ground." (FAA, 8/18/15 [see Attachment D]).

In cases where the airport owner neither owns nor controls the use of a property (as is the case with the proposed project), FAA advisory recommendations are issued to inform the airport owner from the standpoint of safety of personnel and property on the ground. In the case of the proposed parking garage, the use will not cause the congregation of people because it will have minimal staff and low numbers of people at the facility at any given time dropping off or picking up vehicles.

The FAA's Airport Improvement Program (AIP) Sponsor Guide, provides the following guidance with respect to parking structures within a Runway Protection Zones:

"The following land use criteria apply within the RPZ: (a) While it is desirable to clear all objects from the RPZ, some uses are permitted, provided they do not attract wildlife, are outside the Runway OFA, and do not interfere with navigational aids. Automobile parking facilities, although discouraged, may be permitted, provided the parking facilities and any associated appurtenances, in addition to meeting all of the preceding conditions, are located outside of the object free area extension. (b) Land uses prohibited from the RPZ are: residences and places of public assembly. (Churches, schools, hospitals, office buildings, shopping centers, and other uses with similar concentrations of persons typify places of public assembly.)" (FAA Airport Improvement Program Sponsor Guide, §550).

The project site is outside of the Object Free Area. Further, the existing office use is one of the specific uses "prohibited," if not pre-existing. Therefore, the FAA's Advisory Recommendation does not prohibit the proposed project.

The Lead Agency will need to determine whether there are any significant adverse impacts associated with permitting a parking facility at this location.

ALBERT J. PIRRO, JR. ESQ., LETTER DATED APRIL 26, 2016

Comment 8:

A review of the proposed activity and the previous comments from the New York City Department of Environmental Protection, the New York State Watershed Inspector General and others, clearly indicate that there are significant impacts to the Watershed, not the least of which is, the failure to properly estimate the pre-development phosphorus level discharge from the site and the post-development discharge phosphorus level from the site. (Pirro)

Response:

The SWPPP and Plans have been revised to address NYCDEP's comments and concerns, including pre- and post-development phosphorus levels from the site. The pollutant analysis of the site demonstrates that post-development conditions reduce phosphorous loads from pre-development conditions through the use of stormwater management practices including a stormwater planter, bioretention basin, sand filter and stormwater wetland. Refer to Table 2.D-1 of Chapter 2,

Section D of the FSEIS for a review of the pollutant analysis provided in the SWPPP.

Comment 9:

The proposed project with its numerous impacts to the Watershed are only justified by the Park Place Parking Garage as a source of revenue to the Town of New Castle (the allegation of "need" for more parking has been thoroughly disputed by the Westchester Airport Manager and the Airport Advisory Committee.) (Pirro)

Response:

While it is true that property taxes from the Proposed Project will increase the Town's revenues, it is the Applicant's opinion that the Proposed Project will also provide high quality treatment of stormwater where none exists, and incorporate green features into the project that will minimize impacts to, and in various instances improve, environmental conditions (for example: traffic, emissions, and water quality). As previously stated, it is also the opinion of the Applicant that there is a demand from commercial travelers to have parking available that is convenient and guaranteed. Finally, it is in the Applicant's opinion that there is a significant demand for convenient, secured, and guaranteed parking facilities from the corporate aircraft market that remains a significant proportion of the aircraft economy at Westchester County Airport.

Comment 10: The project sponsor has advised the Board it will not build a "no buffer impact" or "lesser buffer impact" alternative due to lack of economic return. (Pirro)

Response:

In response to concerns, the proposed project has been reduced in size and will not require a variance from NYCDEP. It should be noted that the existing building and parking areas on the project site already encroach on the town wetland buffer. As currently developed, 12,316 sf of impervious surface exist in the Town wetland buffer plus additional property in the buffer that is currently macadam and gravel parking lot, lawn, and regraded fill to accommodate the existing building. These previously disturbed areas have few wetland buffer functions aside from providing groundwater infiltration. The proposed reduction in the project, presented in this FSEIS, will add only 5,724 sf of impervious surface within the Town wetland buffer, as compared to the 30,000 sf of additional impervious surface in the buffer presented in the original DEIS (2011).

Comment 11: Under the circumstances it is respectfully requested that the board issue a Findings Statement which makes a determination that the project not be carried out due to adverse environmental impacts which cannot be mitigated. (Pirro)

Response:

Throughout the State Environmental Quality Review Act (SEQRA) process, the applicant has worked with the Town and NYCDEP to address issues and concerns regarding the size of the project and mitigate potentially adverse impacts. The Lead Agency, based upon its review of the full environmental

record will prepare a findings statement pursuant to the requirements of Article 8 of the New York State Environmental Quality Review Law and 6 NYCRR Part 617.

RICHARD J. LIPPES, ON BEHALF OF SIERRA CLUB, LETTER DATED APRIL 25, 2016

Comment 12: The Planning Board is not the proper entity to conduct environmental review of this action because it is not an "involved agency" and, therefore, cannot be the "lead agency" under SEQRA.

Having the status of an "involved agency" is an indispensable qualification of being the "lead agency." Here, however, as detailed below, the Planning Board is not an "involved agency" because it cannot be said, that the Planning Board "will ultimately make a discretionary decision to fund, approve or undertake an action" in connection with the project. (Lippes_Sierra_1)

Response:

The Planning Board is an 'involved agency' for the proposed project and considered by other involved agencies to be qualified to act as the Lead Agency to conduct the SEQRA review.

Back in 2009, the Applicant submitted an Environmental Assessment Form (EAF) to the Town of North Castle Planning Board, and the Planning Board declared their intent to be the SEQRA lead agency. The EAF presented the proposed Park Place project and an accompanying proposed zoning text amendment to amend the IND-AA District to permit a parking garage with a special permit. Without objection from other involved agencies, including the Town Board, the Planning Board declared themselves to be lead agency and issued a Positive Declaration on September 30, 2009. In addition to having the authority to grant site plan approval, the Planning Board is the approving authority for wetland permit applications for projects that also involve site plan approval from the Planning Board (See Section 209-5(c) of the Town Code). In addition, Town Code Section 192-2 of the Tree Preservation Law gives the building inspector the approving authority except when a project requires site plan approval, in which case the Planning Board is granted the approving authority. Therefore, the Planning Board has approving authority for wetland and tree removal permit applications related to this project, as well as site plan approval

Furthermore, there is substantial precedent in New York State for a planning board to act as Lead Agency on significant land development projects, even when a zoning amendment is required. This is due to a number of reasons: (1) land development projects are typically first received by the planning board, as they are submitted to the planning board for Site Plan approval; (2) planning boards generally have more experience reviewing land development applications; and (3) planning boards are oftentimes more familiar with the

zoning code than the Town Board. This is evidenced and supported by the Town of North Castle Town Code §213-68.C, which requires the Town Board to refer all zoning amendments to the Planning Board for their report and recommendation. As the principle agency in reviewing proposed development projects in the Town of North Castle, the Planning Board typically has greatest familiarity with development and growth patterns in the Town and what land uses may be appropriate for certain areas. For this application, the Town Board recognized the Planning Board as being the proper involved agency to become Lead Agency under SEQRA, and offered no objections. Pursuant to §617.6(b)(6)(i)(b), no evidence has been provided to establish the failure of the Lead Agency's basis of jurisdiction, therefore there is no legitimate reason under SEQRA to reestablish the Town Board as Lead Agency.

Comment 13: SEQRA directs that the lead agency be re-established either by agreement among involved agencies or by requesting that the DEC Commissioner designate the lead agency.

Even if the Town Planning Board were an "involved agency" for purposes of the proposed project, SEQRA and its regulations require that the agency having primary approval responsibility act as lead agency for purposes of conducting the environmental review. Here, given that the Applicant submitted a zoning petition seeking to amend the North Castle Zoning Code to the allow the erection of a parking garage in an IND-AA area, the Town Code dictates that the Town Board has primary approval responsibility.

As recognized in section 213-68 of the Town Zoning Code, New York Town Law section 265 requires that changes or amendments to the town's zoning code be made by the Town Board in accordance with the procedures set forth in section 265. The proposed project cannot proceed without an amendment of the Town Zoning Code. Should the Town Board amend the Zoning Code, the Planning Board would not be responsible for any discretionary decisions or approvals. The Amendment would make the Town Board the approval authority for the Special Permit Application and, pursuant to the Town Code, the Town Board's Special Permit review would obviate the need for Site Plan review from the Planning Board. See, Town Code§ 213-34.

Accordingly, under the present circumstances, and unless it develops at some point that another involved agency should be designated, the Town Board must assume lead agency status for purposes of SEQRA review, and the Board cannot delegate that responsibility to an agency that does not have primary approval authority. (Lippes_Sierra_1)

Response: See Response to Comment 12.

Comment 14: The project also includes a request for a Tree Removal Permit, the authority over which lies with the Building Inspector (who has not been identified as an involved agency), not with the Planning Board. See, Town Code section 192-2. (Lippes_Sierra_1)

Response: It is noted that the Proposed Project will require the Applicant to obtain a Tree Removal Permit from the Planning Board.

Comment 15: It is worth noting at this phase of review that, at the appropriate time, when the lead agency has a "full record" (including all environmental review documents and an FEIS), a referral with respect to the proposed zoning amendment must be made to the Westchester County Planning Department, as required under General Municipal Law 239-m. The County may issue a recommendation, at which point the Town Board would need a majority-plus-one vote in order to pass the amendment. In the event the County does not issue a recommendation within 30 days, the Town could act on a majority vote. (Lippes_Sierra_1)

Response: The DEIS (2011), FEIS (2015), and DSEIS (2016) were referred to the Westchester County Planning Department for review.

Comment 16: The DEIS and SDEIS fails to acknowledge that there is a second stream located on the project site and thereby omits information that would bring parts of the project under the jurisdiction of the Department of Environmental Protection ("DEP"). The DEIS and SDEIS acknowledges the presence of "[t]wo streams·[that] occur on the project site," one of which it refers to as a "perennial stream," the other of which it says is an "ephemeral drainage channel that is infrequently flooded." Both of these streams are DEP watercourses. In figure 8-2 of the DEIS, it is evident that there are two streams designated by Westchester County that pass through the project site and flow to the Kensico Reservoir. DEIS Figure 8-1, the National Wetland Inventory mapped wetlands, also shows a second stream along the southern boundary of the Project Site. (Lippes_Sierra_1)

Response: The 2015 FEIS described in detail the addition of a portion of the onsite intermittent stream by NYCDEP as a second regulated watercourse. The intermittent stream is shown on all project drawings and figures in the FEIS (2015) and DSEIS (2016). The proposed project has been designed to limit disturbance within the 100-foot limiting distances to both NYCDEP-regulated streams. The revised proposed project limits expansion of impervious surfaces to 24.98 percent, less than the 25 percent threshold increase permitted by the

Comment 17: The Town's Wetland Consultant states that this second stream is "a regulated watercourse". "Water was observed within the channel located to the south of the proposed parking garage (partially off-site) and therefore this channel will

NYCDEP Watershed Rules and Regulations.

be considered a regulated watercourse. This determination is based, in part, on the fact that water flow was present more than 48 hours after a rain event." (Memorandum to Planning Board from David J. Sessions, RLA, AICP, dated Dec. 29, 2010)

Contrary to the DEIS and SDEIS assertion that this "secondary drainage feature does not demonstrate perennial or intermittent flow," Mr. Sessions' observation that the stream exhibited water flow more than 48 hours after a rain event clearly demonstrates that the second watercourse at the southern portion of the site constitutes an Intermittent Stream under the DEP's Watershed Regulations (section 18-16(a)(63). Accordingly, the DEIS fails to properly acknowledge that the DEP has jurisdiction over the second stream. (Lippes_Sierra_1)

Response:

Yes, the second ephemeral drainage onsite was determined to be an "intermittent stream" based on site inspection by NYCDEP and has been included on all project drawings and figures from the 2015 FEIS onward.

Comment 18: The secondary stream "would not be directly affected by the development of the project." The DEIS neglects to mention, however, that the proposed parking garage would effectively eliminate the stream's protective buffer areas and probably disturb the stream directly, which is suggested by Figure 8-4 in the DEIS. Indeed, the Town Wetland Consultant stated that, "given the proximity of the proposed improvements to the wetland boundary line, it does not appear feasible to construct the building without directly impacting/disturbing the wetland proper." (Lippes_Sierra_1)

Response:

The existing building and driveway encroach on the 100-foot limiting distance of both the perennial and intermittent streams. The proposed site plan presented in this FSEIS will increase a small portion of the driveway to create a uniform width from the entry on New King Street to the vehicle drop-off location. There will also be additional impervious surface required to extend the southwest corner of the building. Both of these aspects of the proposed site plan will increase impervious surfaces within the 100-foot limiting distance to the onsite streams to 11,494 sf, from the existing square footage of 7,704 sf. (This is a substantial reduction from the 23,642 sf of impervious surface within the NYCDEP stream limiting distances that was presented in the original 2011 DEIS). All runoff from the project's impervious surfaces will be treated within the project's stormwater management facilities designed in accordance with NYSDEC's Stormwater Management Design Manual. The system will consist of a stormwater planter, a bio-retention cell, a surface sand filter, and a stormwater wetland. By treating the site's runoff in this way, the water quality functions of the onsite stream buffers will be preserved and potentially enhanced due to the absence of any stormwater treatment facilities on the site at the present time. In contrast the existing conditions at the site lack any stormwater treatment. Stormwater from the site currently flows unimpeded across the site, traversing I-684, and into the Kensico Reservoir. The Lead Agency will determine whether the proposed amount of Town-regulated wetland buffer disturbance is acceptable and will require the implementation of a mitigation plan meeting the requirements of the Town Code, or a wetlands permit will not be issued.

Comment 19: The approach taken by the Applicant in the DEIS and SDEIS is contrary to the Town's own Freshwater Wetlands Law, which expressly states that, "[t]he establishment of regulatory and conservation practices for these [wetland] areas serves to protect the Town by insuring review and regulation of any activity near or on the wetlands that might adversely affect the public health, safety and welfare." Town Code section 209-3(A)(3). The DEIS and SDEIS should not attempt to avoid the regulatory review applicable to wetlands, especially when those wetland areas are in close proximity to Kensico Reservoir. (Lippes_Sierra_1)

Response:

Impacts to the Town's 100-foot wetland buffers have been minimized to the maximum extent practicable and reduced substantially in response to comments, as compared to the site plans presented in the DEIS (2011), FEIS (2015), and DSEIS (2016). Impervious surface within the Town buffer will increase to 18,040 square feet from 12,316 sf under existing conditions (existing building and drives). A wetland and wetland buffer enhancement plan is proposed, including removing invasive species within the property and replanting wetland buffer areas with native plants to compensate for the wetland buffer impacts. The Lead Agency will determine whether the proposed amount of Townregulated wetland buffer disturbance is acceptable and will require the implementation of a mitigation plan meeting the requirements of the town code, or a wetlands permit will not be issued.

Comment 20: The DEIS does not show the limiting distance from the second Reservoir Stem affecting the site. DEIS Figures 8-1 and 8-2 show two streams that exit the site and immediately enter the Kensico Reservoir. Section 18-16(a)(95) of the Watershed Regulations define a Reservoir Stem as "any watercourse segment which is tributary to a reservoir and lies within 500 feet or less of the reservoir." The DEIS has erroneously omitted information demonstrating the location of the 300-foot buffer from the second Reservoir Stem in relation to the project site. This omission is likely due to the prohibition against the construction of impervious surfaces within 300 feet of a reservoir stem, as set forth in section 18-39(a)(1) of the Watershed Regulations. (Lippes_Sierra_1)

Response:

The 300-foot offset from the two 500-foot reservoir stems are shown in Figure 1 of the FSEIS. No new impervious surface is proposed in either 300-foot offset to the reservoir stems.

Comment 21: The DEIS incorrectly asserts that there is a way around the required buffer area, relying on a limited exception for the expansion of impervious surfaces in buffer areas for existing commercial facilities, which is provided for by watershed Regulation 18-39(a)(4)(iii). The exception does not apply to the proposed project because the exception applies only to "existing" facilities, not to new construction that takes the place of the existing use at the project site. Another reason why the exception does not apply is that the project would add impervious surfaces to the buffer areas in excess of 25% of the existing use. (Lippes_Sierra_1)

Response:

In response to comments, the site plan presented within this FSEIS has reduced impervious surfaces to 24.98 percent, less than the 25 percent expansion threshold permitted by NYCDEP when constructing impervious surface within 100 feet of a watercourse. It should be noted that the proposed project is still subject to the SWPPP review requirements of the Watershed Rules and Regulations (WRR) and the SWPPP will require review and approval by NYCDEP.

Comment 22: Consequently, the Applicant would need to seek a variance from the DEP under Watershed Regulation 18-6l. The DEIS is inadequate in that regard, since it does not demonstrate factually that the proposed project could satisfy any of the requirements for a DEP variance, such as:

- [d]emonstrate that the variance requested is the minimum necessary to afford relief;
- [d]emonstrate that the activity as proposed includes adequate mitigation measures to avoid contamination to or degradation of the water supply which are at least as protective of the water supply as the standards for regulated activities set forth in [the Watershed Regulations]; [or])
- [d]emonstrate that...compliance [with the Watershed Regulations] would create a substantial hardship due to site conditions or limitations.

Watershed Regulations, 18-61(a)(1) (see DEP Comments, infra, at p. 13-15(Lippes_Sierra_1)

Response:

In response to comments, the proposed site plan that is presented in this FSEIS has been reduced and now avoids the need for a variance by NYCDEP. As revised, the impervious surfaces in the proposed site plan have been reduced to 41,508 square feet and incorporates a green roof resulting in a 24.98 percent expansion of the impervious surface at the existing facility. As revised, the proposed site plan is exempt from the limiting distance provisions of the WRR, but will require a SWPPP to be reviewed and approved by NYCDEP.

Comment 23: Nor would the Applicant qualify for a "hardship" variance. The DEIS shows one project alternative in which compliance with Watershed Regulations appears feasible. DEIS at 18-29 to 18-34 & fig. 18-5, Alternative "D," envisions a "no

wetland impacts" Project, which apparently is considered to avoid both Town and DEP regulated buffers. If it is possible that the Applicant can comply with the Watershed Regulations, in order to obtain a "hardship" variance, it must be demonstrated that compliance would be "prohibitively expensive." See, Nilsson, 834 N.Y.S.2d at 691.

Here, however, the DEIS does not contend that Alternative "D" would be prohibitively expensive: "Alternative D would result in economic benefits during construction and during annual operations." Likewise, the DEIS does not contend that, in the absence of a variance from the DEP, compliance with the regulations would cause the Applicant "substantial hardship." (Lippes_Sierra_1)

Response:

In response to comments, the proposed project has been reduced and will no longer require a variance from NYCDEP.

Comment 24: Apart from a "no action alternative," the DEIS and SDEIS reviews only alternative size parking facilities. There is no discussion of alternative uses presently permitted in accordance with the principal uses in the IND-AA, Zoning District. This is a critical omission.

Since the regulations state that the EIS should "evaluate all reasonable alternatives," the applicant should evaluate alternatives consistent with the current permitted use - even if the alterative use is different in nature from the project proposed. (Lippes_Sierra_1)

Response:

Six alternatives were analyzed in Chapter 18, "Alternatives," of the DEIS (2011). In addition to four alternatives analyzing different sized parking facilities, the chapter evaluated an alternative that assumed that the project site would be developed for office use and be constructed to the maximum build out pursuant to existing zoning regulations. This alternative concluded that the existing one-story, 9,732-sf office building with 35 parking spaces could be redeveloped with a two story building of approximately 32,441 sf. A sketch plan of a feasible site layout for this alternative was developed to illustrate the potential environmental impacts for the purpose of comparison with the proposed project (**Figure 18-6 in the 2011 DEIS**). The DEIS alternatives chapter also includes a "No Action Alternative" that assumed the existing office building would continue to operate under existing conditions.

Comment 25: Given the critical nature of the potential impacts upon wetlands, steep slopes, water courses, wetland buffers, the Kensico Watershed, and ultimately the Kensico Reservoir, the DEIS must take into consideration that, under ECL Article 24, certain freshwater permits may be granted only if the proposed action is "the only practical alternative that could accomplish the applicant's objective and [there is] no practical alternative on a site that is not a freshwater wetland or adjacent area." (Lippes_Sierra_1)

Response:

Environmental Conservation Law (ECL) Article 24 (Freshwater Wetlands) does not apply to the proposed project. There are no NYSDEC-mapped or regulated wetlands or wetland buffers on the project site. The only wetland resource affected is the Town of North Castle 100-foot wetland buffer. The Town will weigh the relative benefits and impacts of the proposed project on its wetland buffer resources. Most of the existing building and driveways onsite are currently within the Town's 100-foot wetland buffer. The proposed project will increase buffer encroachment to facilitate the project but will also provide site improvements, most critically a comprehensive and multi-staged stormwater management system, which will improve runoff quality- as compared to existing conditions where neither stormwater collection nor water quality facilities are available to the site In addition, the proposed landscaping plan and wetland/buffer enhancement plan will remove invasive species and improve buffer ecology though the planting of native plants.

Comment 26: Another significant omission from the DEIS and SDEIS is directly related to the reasons given for the construction of parking garage in the first instance. The DEIS and SDEIS should contain a discussion of a non-parking alternative for the site, because evidence suggests that airport parking is available at SUNY Purchase, which includes or would include a shuttle between the SUNY Purchase parking areas and the Westchester County Airport. Given the applicant's claim for the need for additional airport parking at peak travel times, it is likely that parking availability on the SUNY Purchase campus would be sufficient to handle that need. (Lippes Sierra 1)

Response:

The project site is privately owned and zoned IND-AA. Using the existing IND-AA zoning, alternate permitted uses include business and professional offices, light industrial uses, motels, airport uses at Westchester County.

As stated before, the Applicant believes there is a demand for the Proposed Project. While commercial air traffic may have declined at Westchester County Airport, general aviation has increased, evidence the FBO, Million Aire. Some of the improvement plans for the FBO's have replaced surface employee and customer parking lots with modern new hangar facilities, thus losing surface parking for customers and support staff. The Proposed Project is being designed to meet the needs of the commercial traveler looking for a guaranteed and convenient option for parking at the airport. The Proposed Project is also being designed to meet an existing need for the corporate aircraft market that remains a significant proportion of the aircraft economy at Westchester County Airport.

It should be noted that the parking available on the SUNY Purchase campus would remain an option for travelers regardless of this project being constructed.

Comment 27: The Sponsor asserts that the project proposal to construct 980 parking spaces in a five story parking structure is needed to service parking needs at the Westchester County Airport. This allegation is based upon a two (2) day analysis conducted in August 2011. The Sponsor never contacted the Westchester County Airport to verify the premise for the proposal. In fact, the Sponsor's two (2) day analysis failed to include 150 spaces in the airport north lot which was not open on the date of the Sponsor's analysis. Accordingly, on the dates in August 2011 regarding which the Sponsor reports on parking space occupation at the airport, approximately 10% of the spaces were vacant in the airport's 1,050 car parking garage and 100% of the 150 spaces in the Airport's North Lot. Parenthetically, since 2011 there has been a steady decrease in passenger loads. Since 2011, passenger loads at the Westchester County Airport have dropped 500,000 per year down from a high in 2011 of 2 Million to 1.5 Million per year. (Lippes_Sierra_1)

Response:

See Response to Comments 1 and 3. It should be noted that the Applicant met with representatives of Westchester County several times to present the Proposed Development. In addition, the Applicant requested and obtained approval from Westchester County Airport officials to conduct the survey.

Comment 28: Contrary to the Sponsor's allegation of project need, the County of Westchester reports that there is a steady decline of passenger loads, ample parking at Westchester County Airport, and that, if a need does arise, expanded parking may be provided at the airport itself. (Lippes_Sierra_1)

Response:

See Response to Comments 1 and 3. As stated before, the Applicant believes there is a demand for the Proposed Project. While commercial air traffic may have declined at Westchester County Airport, general aviation has increased, evidence the FBO, Million Aire. Some of the improvement plans for the FBO's have replaced surface employee and customer parking lots with modern new hangar facilities, thus losing surface parking for customers and support staff. The Proposed Project is being designed to meet the needs of the commercial traveler looking for a guaranteed and convenient option for parking at the airport. The Proposed Project is also being designed to meet an existing need for the corporate aircraft market that remains a significant proportion of the aircraft economy at Westchester County Airport.

Comment 29: This comparative analysis falls far short of any findings that reasonable range of alternatives have been considered in neither the DEIS or SDEIS. Moreover, due to the fact that it has now been conclusively shown that there is no need for additional parking to service the Westchester County Airport, such lack of need should have been included in the DEIS or SDEIS when considering the "no build" alternative. (Lippes_Sierra_1)

Response:

See Response to Comments 1 and 3. As stated before, the Applicant believes there is a demand for the Proposed Project. While commercial air traffic may have declined at Westchester County Airport, general aviation has increased, evidence the FBO, Million Aire. Some of the improvement plans for the FBO's have replaced surface employee and customer parking lots with modern new hangar facilities, thus losing surface parking for customers and support staff. The Proposed Project is being designed to meet the needs of the commercial traveler looking for a guaranteed and convenient option for parking at the airport. The Proposed Project is also being designed to meet an existing need for the corporate aircraft market that remains a significant proportion of the aircraft economy at Westchester County Airport.

Comment 30: In Village of Ossining, supra, the developer proposed to build 55 single family homes on 53.5 acres of which 17 homes were to be built on 13 acres of watershed land. A swale to divert surface runoff and a curtain drain to prevent, pollutants from entering the reservoir via groundwater was proposed. The Planning Board approved the proposal. The Village of Ossining challenged the approval on the basis of failure to properly evaluate a cluster plan which would locate all homes outside the watershed area. The court agreed and criticized the

look." Ossining, No. 88-16248 at 10-11.

The result of Ossining, supra, is that all agencies, as stewards of the water, are required to consider alternatives which acknowledge that watershed lands deserve and require greater consideration under SEQRA. In Ossining, the Court required the Board to review non-watershed alternatives even through not proposed by the Applicant or studied by the Board as an alternative. (Lippes_Sierra_1)

Board for ignoring any particular alternative which provided for a layout outside the watershed. The court concluded that the Board had failed to take a "hard

Response:

Six alternatives were analyzed in Chapter 18, "Alternatives," of the DEIS (2011). In addition to four alternatives analyzing different sized parking facilities, the chapter evaluated an alternative that assumed that the project site would be developed for office use and be constructed to the maximum build out pursuant to existing zoning regulations. This alternative concluded that the existing one-story, 9,732-sf office building with 35 parking spaces could be redeveloped with a two story building of approximately 32,441 sf. A sketch plan of a feasible site layout for this alternative was developed to illustrate the potential environmental impacts for the purpose of comparison with the proposed project (**Figure 18-6 in the 2011 DEIS**). The DEIS alternatives chapter also includes a "No Action Alternative" that assumed the existing office building would continue to operate under existing conditions.

Comment 31: It is not mere speculation to anticipate the precedential effect of a zoning amendment. The effect also reaches beyond the immediate area, since an amendment may impact other zoning districts within the town. For example, since the requested amendment would establish a maximum height and coverage

allowance beyond what is permissible in any district in the town, future development likely will expect equivalent allowances for their projects. The DEIS is silent regarding these concerns. (Lippes_Sierra_1)

Response:

The proposed text modification to the IND-AA zoning district will only affect parking structures allowed by special permit. Other uses permitted in the IND-AA zoning district will continue to be subject to existing zoning regulations. No changes are being proposed that would affect existing permitted uses or any other zoning district.

Commercial and Institutional Developments involving less than ½ acre of disturbance). General Condition 19 of the Nationwide Program disallows certain Nationwide Permits (including NWP 39) in Designated Critical Resources Waters "for any activity within, or directly affecting, critical resource waters, including wetlands adjacent to such waters." 72 Fed, Reg. 11092, 11193 (March 12, 2007. The East of Hudson Watershed (including the Kensico Reservoir Watershed) has been designated as Critical Resource Waters (DEP, Wetlands in the Watersheds of New York City Water Supply System, at 19), which means that "individual, project-specific permits are required for many activities." (Lippes Sierra 1)

Response:

The proposed project no longer needs a Federal wetlands permit. No wetlands would be disturbed by the proposed project. Therefore, the applicability of Nationwide Permit #39 does not apply. Nor is any other federal wetland permit needed, Individual or Nationwide, under Section 404 of the Clean Water Act.

Comment 33: Under the individualized "Public Interest Review" conducted by the ACOE, (33 CFR § 320.4(a)), "[t]he decision whether to issue a permit will be based on an Evaluation of the probable impacts, including cumulative impacts, of the proposed activity and its intended use on the public interest." The DEIS does not contain a basis for meeting the criteria for such a permit. (Lippes_Sierra_1)

Response:

The wetland onsite falls under the jurisdiction of the U.S. Army Corps of Engineers (USACE). USACE conducted a site inspection on June 1, 2011 and agreed with the applicant's federal wetland boundary, which was confirmed with receipt of USACE's jurisdictional determination (JD) confirmation letter dated February 1, 2012 and included in the 2015 FEIS. It should be noted that the applicant has modified the proposed project to avoid disturbance to the more conservative Town wetland boundary.

Comment 34: Because the proposed project would have adverse impacts upon natural drainage characteristics, sedimentation patterns, and other environmental characteristics of wetlands connected to the Kensico Reservoir, the ACOE likely would be compelled to deny the permit request. (Lippes Sierra 1)

Response: See Response to Comment 33.

Comment 35: Additionally, the DEC would need to make an individualized Water Quality Certification determination for purposes of an ACOE permit pursuant to the

Federal Clean Water Act. (Lippes_Sierra_1)

Response: No Army Corps permit is required for the proposed project because no wetlands

(Federal or Town) would be disturbed. As such, no Clean Water Act Section

401 Water Quality Certification permit is required from the NYSDEC.

Comment 36: Since the DEC will afford a Water Quality Certification only if it can determine

that the project will not violate relevant regulatory requirements intended to preserve water quality (6 NYCRR 608.9), the DEIS should contain a discussion of the proposed project's ability to satisfy each of the listed criteria.

(Lippes_Sierra_1)

Response: No direct wetland impacts (fill) will occur with the modified project design.

Therefore, no Water Quality Certification (CWA Section 401) will be required

from NYSDEC.

Comment 37: Even after considering the changes made by the project sponsor concerning the

reduction in size and footprint of the parking facility, and the other proposed changes, the impacts on natural resources will still be significant. For example, the Town of North Castle - designated wetlands will be adversely affected. Likewise, 100 foot wetland buffer area will also be disturbed. The project still requires encroachment within the 300 foot protection zones around the New York City Department of Environmental Protection reservoir stem, and the proposed projects still threatens the New York State Department of Environmental Conservation Class A greens that are present at the north, south and west site boundaries. In addition, the project still proposes to convey stormwater generated on the pervious parking areas to stormwater basins that will be constructed. These basins will include a detention basin for the settling of suspended sediment and a sand filter basin. The stormwater will then be directed to a wetland that is still to be constructed, and the location of which has

still not been indicated. (Lippes_Sierra_1)

Response: The proposed modified project will not disturb any Town wetland and no new

impervious surface will be constructed within the NYCDEP 300-foot offset from the reservoir stems. Since the existing building and driveway is already within the Town's wetland buffer and the proposed modified project will be constructed within this same area, there will be some disturbance of the Town's wetland buffer. As previously discussed, the project is proposing a wetland buffer enhancement plan using native species, and improving wetland functions by removing invasive species within the wetlands—all designed to benefit the

ecology of the site.

Comment 38: It is a well-established fact that parking lot stormwater runoff contains numerous petroleum constituents and toxic chemicals associated with antifreeze. Overtime, these contaminants accumulate in the area where they are discharged. The detention basins and wetlands that are proposed to be constructed will be in an area where the depth to groundwater is very shallow. Therefore, the contamination that will be directed to the detention basins and wetlands has a high potential to percolate downward through the soil and impact the groundwater. Groundwater will flow and discharge to the adjacent Kensico Reservoir. (Lippes_Sierra_1)

Response:

While this may be true of the existing garage and cell phone lot, parking at the proposed project will be fully contained within the building. A driver will enter a cabin, the vehicle engine will be turned off, and the car will be moved and parked by an automated storage and retrieval system (AS/RS) until it is summoned by the management and retrieval system. The individual cabins will collect all drippings and runoff that will be supported by a concrete slab and collect them in a system of interior drains, with direct flow to an oil-water separator located within the building prior to discharging into the municipal sanitary sewer system. A note identifying the location and use of an oil-water separator has been added to Sheet C-7 Composite Utility Plan of the drawing set. The oil-water separator will be regularly inspected as part of routine maintenance. Any collected material will be disposed of in accordance with applicable ordinances.

Comment 39: The DEP, in its letter, states that the proposed stormwater control measures will not mitigate the project's effect on groundwater because those measures ameliorate "only a limited subset of the range of functions provided by the lost wetland and cannot be considered true mitigation for the loss of the wetland's other functions." (Lippes_Sierra_1)

Response:

In response to comments, the proposed project has been reduced in scale to further limit potentially adverse impacts. No development will occur within any wetland. Additionally, the SWPPP and Plans have been revised to address NYCDEP's comments and concerns.

Comment 40: Other inadequacies of the DEIS mentioned by the DEP include: the absence of a discussion of how stormwater control measures will mitigate increases of dissolved phosphorus; the failure to address additional pollutants, such as nitrogen, suspended solids, "biological oxygen demand," and "fecal coliform loading;" and pre- and post-development drainage area maps for analysis of the significant quantity of new impervious surfaces. The DEP goes even further in stating "DEP consistently discourages" stormwater management practices within 100 feet of a wetland buffer and, therefore, "it is recommended that the

applicant choose an alternative that avoids all impacts to the wetland and wetland buffer." (Lippes_Sierra_1)

Response:

The NYCDEP Watershed Rules and Regulations contain not prohibitions on the construction of stormwater treatment basins or other pervious surfaces within 100 feet of wetlands or watercourses. Redevelopment of any kind, even a site plan that does not expand development beyond the currently cleared and built areas, would require disturbance within the Town and NYCDEP 100 foot wetland buffers onsite. Additionally, the SWPPP and Plans have been revised to address NYCDEP's comments and concerns, including revising the methodology used in the pollutant analysis of the site. The pollutant analysis provided as part of the SWPPP and summarized in Table 2.D-1 of Chapter 2, Section D of the FSEIS, demonstrates that post-development conditions reduce phosphorus, nitrogen and suspended solid loadings when compared to predevelopment conditions. The stormwater management plan for the site provides pollutant removal by directing stormwater runoff from the developed areas to stormwater management practices with documented efficiency for removing pollutants. Supporting literature regarding removal efficiencies for each practice and each pollutant are included in Appendix I of the SWPPP. Please refer to the aforementioned sections for additional information of the pollutant analysis.

Comment 41: More than half of the proposed parking facility would be located within the 100foot buffer zone. The DEP already has articulated that the DEIS is inadequate in dealing with the functional value of the buffers that the project would eradicate Contrary to the Justification given in the DEIS, the Project would triple the amount of impervious surfaces in the buffer area. There are presently 12,132 square feet of impervious surfaces in the buffer. The Project would add 21,354 square feet of impervious surfaces to the buffer area, for a total of 33,486 square feet. (Lippes_Sierra_1)

Response:

There is presently 7,704 sf of impervious surface within the NYCDEP 100-foot watercourse limiting distance. The modified proposed site plan presented within this FSEIS will have 11,494sf, an increase of 3,790 sf, rather than the 23,642 sf proposed in the previous plan. The current site plan therefore complies with NYCDEP Watershed Rules and Regulations Section 18-39.a.4.iii.

Comment 42: Both the DEIS and SDEIS were accepted as complete without a final wetland analysis. In the absence of new information that will be obtained in the Spring of 2011, the public are denied the opportunity to comment or object to the new information. See, Citizens Against Retail Sprawl, ex rel, Ciancio v. Giza, 280 A.D.2d 234, 722 N.Y.S.2d 645 (4th Dep't 2001). The boundaries of all streams and wetlands were field-delineated in the spring and fall of 2008. The Town inspected the wetland boundary in December 2010 and subsequently made preliminary modifications to the boundary. The wetland boundary is expected to

be confirmed in the growing season (i.e., spring 2011). However, potential impacts were assessed based on the preliminary Town-delineated wetland boundary. (Lippes Sierra 1)

Response:

The Town wetland boundary was finalized with inspection by the Town's wetland consultant. In addition, a jurisdictional determination was made in 2012 by USACE confirming the federal wetland boundaries on site. The project has been designed to avoid all wetland impacts. Disturbance will be limited to Town-regulated wetland buffers, primarily wetland buffers already disturbed from the existing building and parking.

Comment 43: The project is conceptually incompatible with the policy against growth or expansion of the Westchester Airport. The DEIS contends that the project would result in a reduction of vehicle trips to and from the airport. The Town's traffic consultant rejected this contention, noting that "the proposed Garage may increase demand and result in travelers now having the option of driving to the Airport for flights." (F.P. Clarke Letter at 8.) Mr. Clarke concludes that the "proposed facility could generate 200 new vehicle trips, plus 18 shuttle bus trip ends and 195 vehicle trip ends plus 18 shuttle bus trip ends during weekday morning and afternoon peak hours, respectively." (Lippes_Sierra_1)

Response:

The project site is not affiliated with the airport, and will be privately owned and operated. Expansion of the airport is restricted by Westchester County's Terminal Capacity Agreement that limits the operating capacity of the airport to 240 passengers per half hour. The applicant does not seek to void or revise this agreement nor does it have standing to do so. The proposed project will address an existing need for additional parking for commercial travelers and employees supporting corporate aviation please refer to the response to Comments 1 and 3.

Further, as concluded in the Town's consultant's study, traffic added to the traffic network will be minimal and will not significantly impact the overall study area traffic operations. The applicant's traffic consultant in consultation with the traffic consultant for the Town of North Castle developed an improvement plan for the intersections of Airport Road at Route 120 and the I-684 ramps. The proposed improvement plan and analysis was sent to NYSDOT for review. The applicant's consultant team along with the Town of North Castle traffic consultant presented the plan to NYSDOT at a meeting on Friday, October 21, 2011. Subsequently, NYSDOT has expressed their endorsement for the improvement plan. A copy of the analysis and correspondence is provided in the 2015 FEIS.

Comment 44: Based on the Town Consultant's projections, the Project would exacerbate existing "F" Level of Service (LOS) levels at three critical intersections: Airport Road and Route 120; Airport Road and the I-684 northbound ramps, and Airport Road and the I-684 southbound ramps. The Town's Comprehensive Plan already expresses concerns that the "Route 210 at Airport Access Road/I-684 Interchange 2" suffers from "[1]imited traffic capacity - high traffic volume(Lippes Sierra 1)

Response:

Refer to Response to Comment 43. In fact, the proposed project would be expected to improve existing LOS at the three critical intersections by reducing the number of airport trips – a reduction in the number of drop-off/pick-ups for commercial travelers.

Further, as concluded in the Town's consultant's study, traffic added to the traffic network will be minimal and will not significantly impact the overall study area traffic operations. The applicant's traffic consultant in consultation with the traffic consultant for the Town of North Castle developed an improvement plan for the intersections of Airport Road at Route 120 and the I-684 ramps. The proposed improvement plan and analysis was sent to NYSDOT for review. The applicant's consultant team along with the Town of North Castle traffic consultant presented the plan to NYSDOT at a meeting on Friday, October 21, 2011. Subsequently, NYSDOT has expressed their endorsement for the improvement plan. A copy of the analysis and correspondence is provided in the 2015 FEIS.

Comment 45: The DEIS simply fails to analyze or propose adequate mitigation of these conditions and is therefore deficient. These omissions make it impossible for SEORA review under the hard look standard. The project's significant adverse traffic impacts are a critical defect. SEQRA requires that the DEIS explore all means necessary to mitigate a project's significant adverse impacts to the maximum extent practicable. (Lippes Sierra 1)

Response:

Refer to Response to Comments 43 and 44.

Comment 46: The proposed zoning amendment is inconsistent with the goals and objectives of the Town's Comprehensive Plan, as well as other regional laws and policies, including Resolution 245-2003 of the Westchester County Board of Legislators, N.Y.S. Assembly Resolution N. 1654, N.Y.S Senate Resolution No. J5435m, which opposes any land use change which would tend to support an increase in the size of the Airport. (Lippes_Sierra_1)

Response:

The project site is not affiliated with the airport and the proposed parking facility will be privately owned and operated. Expansion of the airport is restricted by Westchester County's Terminal Capacity Agreement that limits the operating capacity of the airport to 240 passengers per half hour. The applicant does not seek to void or revise that agreement, nor does it have standing to do so. The proposed project will address an existing need for additional parking for commercial travelers as well as general aviation users.

In the Applicant's opinion, the Proposed Project will promote the goals and objectives of the Town's Comprehensive Plan by developing within an existing commercial/industrial corridor, providing high quality treatment of stormwater where none exists, and incorporating numerous green features into the project that will minimize impacts to, and in various instances improve, environmental conditions (for example: traffic, emissions, and water quality). 'Green' or 'sustainable' design components of the proposed project are described in greater detail in the 2015 FEIS.

Comment 47: The DEIS effectively concedes that the Applicant's goal is to engage in illegal "spot zoning." As the Board knows, spot zoning is "the process of singling out a small parcel of land for a use classification totally different from that of the surrounding area for the benefit of the owner of such property and to the detriment of other owners. (Lippes_Sierra_1)

Response:

The proposed text amendment to the IND-AA district to add 'parking garage' to the list of special permit use is not an example of 'spot zoning.' First, the exercise of the power to zone must be implemented in a manner that is consistent with a municipality's comprehensive plan and provides some benefit to the community, rather than simply benefiting the property owner. A municipality must comply with these standards as noted in the New York State authorizing statutes. This requirement "not only insures that local authorities act for the benefit of the community as a whole but protects individuals from arbitrary restrictions on the use of their land."

Second, the New York Court of Appeals has defined spot zoning as "the process of singling out a small parcel of land for a use classification totally different from that of the surrounding area, for the benefit of the owner of such property and to the detriment of other owners." The Court went on to state that spot zoning is the very antithesis of planned zoning. If, therefore, an ordinance is enacted in accordance with a comprehensive zoning plan, it is not 'spot zoning,' even though it (1) singles out and affects but one small plot or (2) creates in the center of a large zone small areas or districts devoted to a different use."

The real test for spot zoning is whether the zoning change is other than part of a well-considered and comprehensive plan calculated to serve the general welfare of the community

Furthermore, zoning legislation is tested not by whether it defines a comprehensive plan but by whether it accords with a comprehensive plan for the development of the community. When a zoning ordinance is amended, the court decides whether it accords with a comprehensive plan in much the same way, by

¹ Rodgers v. Tarrytown, 302 N.Y. 115 (1951); see also, Boyles v. Town Board of the Town of Bethlehem, 278 A.D.2d 688 (3d Dept. 2000).

determining whether the original plan required amendment because of the community's change and growth and whether the amendment is calculated to benefit the community as a whole as opposed to benefiting individuals or a group of individuals.²

Comment 48: Since a portion of 7 New King Street, (Lot 13 A) owned by JAM Airport, LLC is being used for the project; in addition to a subdivision approval for Lot 13 A (discussed above), the DEIS should address what is contemplated for balance of Lot 13 A and its subdivision. (Lippes Sierra 1)

Response:

See Response to Comment 3-16 in Chapter 3, Responses to Comments," of the 2015 FEIS, excerpted below:

"There are no plans being contemplated for the balance of Lot 13A. To clarify, Lot 13A would not be subdivided. An easement on a portion of Lot 13A for purposes of stormwater management practices would be acquired. An agreement has been reached between the two property owners and is provided in the 2015 FEIS."

Comment 49: Since Lot 14B is within the 300 foot buffer from the Reservoir and another portion is in the Town regulated wetland as well as a Federal watercourse, and steep slope which only permits 25% of the land area in such regulated areas to be used for purposes of FAR it is apparent that 0.86 acre of Lot 13 A owned by Jam Airport, LLC was needed to achieve the combined land area of 3.34 to achieve the FAR of 267,000 square feet. (Lippes_Sierra_1)

Response:

Comment noted. It should be noted that the Applicant acknowledges that it has no right to use the FAR from 7 New King Street. The calculations that are included herein are based solely on the 11 New King Street site.

Comment 50: The Town of North Castle Zoning Code requires 200 feet of street frontage on Old King Street. The Project Site has only 24 feet of frontage or 12% of the required frontage or an 88% reduction or variance from the requirement. (Lippes Sierra 1)

Response:

See Response to Comment 3-18 in Chapter 3, Responses to Comments," of the 2015 FEIS, excerpted below:

"According to the Town of North Castle's definition of frontage, the project site has frontage on two streets- first, the 50-foot frontage on New King Street, and second, and the approximately 190-foot frontage on NYS Route 120. The site is a legal non-conforming use. Therefore the frontage requirements listed in this comment are not applicable to this site. In addition, as stated by the commenter,

² Asian Ams. For Equality v. Koch, 72 NY2d 121 (1989).

the Town Code allows for flexibility in frontage requirements based on case-bycase site conditions whereby 'these requirements may be varied or reduced in connection with the approval of the site plan by the Planning Board where the size and/or shape of existing lots may warrant or require it.""

Comment 51: The Site Plan indicates the Project Site is a "Flag Lot" (See DEIS Figure 2-3). While the Zoning Code of the Town of North Castle does not prohibit developments on "flag lots", it remains that the IND-AA Zone requires 50 feet of frontage along Old King Street where the subject site only has 24 feet which is the only access point to the project. (Lippes_Sierra_1)

Response:

It should be noted that the project site has a 50-foot frontage along New King Street and the proposed driveway will be 24 feet wide.

Comment 52: The visual impact of the 56-foot high structure was limited in the DEIS to \(^14\) mile. The SDEIS did not provide any further analyses in this regard. Because the structure will impact homes on Old King Street and in Greenwich, the DEIS provides insufficient analysis of the project's potential adverse visual impacts. All visual impacts – the change in physical appearance of the project site, the height of the proposed structure, and the proposed screening – are lawful concerns that the DEIS should address. (Lippes_Sierra_1)

Response:

At the request of the Town Board, a balloon test was done on October 4, 2016. A large red balloon was raised by motorized lift equipment to the height of the proposed building of fifty-three feet (53') above the existing grade. The balloon was raised from a platform elevated twenty feet (20') above existing grade. The location of the balloon was approximately in the center of the proposed footprint on the existing drive pavement. The proposed building corners were staked and flagged prior to the event of the balloon test. Figures 5 through 8 in Chapter 1, Description of the Modified Project, identify locations where the balloon was visible. Overall, the heights of trees surrounding the project site are significantly higher than the balloon and obscured visibility from most locations. As documented on the figures from Chapter 1, "Description of the Modified *Project*", the proposed Park Place structure will be hidden from view.

It can be assumed that during the winter months when the leaves are off the trees, the proposed building will be more visible from some vantage points. During those times what will be seen, in the Applicant's opinion, will be a modern and architecturally distinct building that has been designed based on state-of-the-art sustainability principals. The views of the building will include a vertical wall of landscaping, known as a green-screen, that will be affixed to the external wall of the proposed building with climbing vines and ivy. This feature will be in addition to the landscaping that will be added to the site.

Comment 53: The DEIS, for example, provides no photo-simulation to show how the Project would appear from King Street in Connecticut. It also does not consider conditions during winter/leaves off condition when the vegetation that ostensibly provides screening is not there.

The reality is that this nearly sixty foot (60') Project would loom over the residences on King Street in Greenwich year round. Obviously, this impact would be compounded if other projects seek to develop in the IND-AA District in line with the expanded bulk requirements under the proposed zoning amendment. (Lippes_Sierra_1)

Response: See Response to Comment 52.

Comment 54: The DEIS also ignores the community character impacts the Project would have on the adjacent residential community in Greenwich. It incorrectly states, for example, that "[t]he area immediately surrounding the project site is dominated by transportation, business, and commercial land uses," completely ignoring area residents. (DEIS at 3-1.). In contrast, the DEIS is sensitive to North Castle's desire to protect its single family residential neighborhoods, noting that "the Town desires to protect the qualities of a rural community or "quiet suburb", characterized largely by low- to medium-density 'single - family neighborhoods." (Lippes_Sierra_1)

Response: See Response to Comment 3-18 in Chapter 3, Responses to Comments," of the 2015 FEIS, excerpted below:

"This comment refers to the residential properties along King Street, none of which are immediately adjacent to the project site. These residential properties are however within or immediately adjacent to the study area. The statement cited above from the 2011 DEIS page 3-5 was provided in the context of describing the Town's objection to expansion of the airport, and to indicate the necessity of directing growth in appropriate areas to preserve the rural and suburban qualities of the Town. The proposed parking facility would be within an industrial zoning district in an area characterized by office uses, heavily traveled highways, and a regional airport. Therefore, in the opinion of the applicant this is an appropriate location for a parking facility."

It should be noted that Chapter 3, "Land Use, Zoning, and Public Policy," of the 2011 DEIS included a description of the land uses in the area referred to in this comment: "The northern and eastern periphery of the study area (i.e., the portion largely within Greenwich, CT) is predominantly characterized by rural and suburban land uses. The majority of this area comprises low- to medium-density single-family residential development. Other land uses include small agricultural uses such as nurseries and farm stands; a church; and undeveloped wooded areas. These land uses are located along King Street near the intersection of Bedford Road." (2011 DEIS pg. 3-2)

Although it is difficult to apply a quantitative methodology to determine impact on community character, it is a relevant and important concern in an environmental review such as this. According to the SEQRA Handbook published by NYSDEC, "Courts have supported reliance upon a municipality's comprehensive plan and zoning as expressions of the community's desired future state or character. (see Village of Chestnut Ridge v. Town of Ramapo, 2007.) In addition, if other resource-focused plans such as Local Waterfront Revitalization Plans (LWRP), Greenway plans or Heritage Area plans have been adopted, those plans may further articulate desired future uses within the planning area."

The Connecticut General Statutes require that all municipalities amend and adopt a Plan of Conservation and Development at least once every ten years. The Town of Greenwich's Plan of Conservation and Development, most recently amended and adopted May 12, 2009, does not designate King Street as a Scenic Road nor does it indicate any significant scenic views within the ½-mile study area as defined in the Supplemental Visual Impact Analysis (see Chapter 1, "Description of the Modified Project," of this FSEIS).

Even though no scenic resources were identified, the design of the proposed project has taken into consideration potential views from beyond the property boundary. To minimize visibility of the proposed parking structure, the site landscaping plan maximizes any and all opportunities to plant tall-growing deciduous and evergreen trees. In addition, the materials used for the façade of the structure would be muted tones to blend with the dense branching of canopy trees during winter/leaves-off conditions. Further, as shown on the profiles, the existing topography would also minimize visual impacts from residences along King Street. The proposed parking structure would be at a lower elevation than the existing residences, which would allow greater shielding by existing trees and other vegetation."

Comment 55: Of primary concern is the numerous issues that are not responded to in either the DEIS or the SDEIS, since the project applicant has deferred consideration of these issues to the site plan review.

Therefore, for example the following issues have been deferred to site plan review and approval:

- The sponsors' proposal for placement of plants species is not addressed, and there is no specific planting plan provided concerning the wetland and wetland buffer enhancement areas, which has been deferred for consideration at the site plan approval stage.
- The details of the site hydrology and design analysis have been deferred to site plan review.

- Stormwater engineering design details have been deferred to site plan approval. Investigations of options for retrofitting impervious areas have been deferred until the final SWPPP.
- The structural details for outlets structures within the stormwater control system have been deferred until site plan review.
- The design and required correction of the flow splitter is deferred until site plan review.
- The planter details are deferred until site plan review.
- The location of the pocket wetland is deferred until site plan review.
- Engineering details regarding soil is deferred until site plan review.
- The Tc flow path is deferred until site plan review.

(Lippes_Sierra_1)

Response:

The purpose of the SEQRA process is to analyze potentially adverse environmental impact and to do so requires a schematic level of design—at a minimum. As part of this SEQRA process, and in recognition of the unique environmental conditions of the existing site, more detailed analyses and site specific details have been provided to respond to comments. These additional details are intended to meet the rigorous site plan review process that will follow the conclusion of the SEQRA process. The site plan approval process that will follow the conclusion of this SEQRA process will be, per the Town Code, a comprehensive set of documents for the Planning Board to review. Specifically addressing the items mentioned:

- "The sponsors' proposal for placement of plants species is not addressed, and there is no specific planting plan provided concerning the wetland and wetland buffer enhancement areas, which has been deferred for consideration at the site plan approval stage." A planting plan indicating the species and size of proposed plantings has been included as part of the Site Plans. Refer to sheet C-9 Landscape Plan.
- "The details of the site hydrology and design analysis have been deferred to site plan review." A detail review of site hydrology has been included as part of the SWPPP. Refer to Section 6 of the SWPPP.
- "Stormwater engineering design details have been deferred to site plan approval. Investigations of options for retrofitting impervious areas have been deferred until the final SWPPP." Stormwater engineering design details and retrofitting practices have been included as part of the SWPPP and the Site Plans. Refer to sheet C-11 Standard Details II for stormwater engineering design details, including: catch basins, flow splitter, and stormwater planter. Refer to sheet C-13 Standard Details IV for the stormwater facility profile and bioretention basin detail. Refer to Section 6.2.3 of the SWPPP for a discussion of how water quality treatment practices were utilized on the site.

- "The structural details for outlets structures within the stormwater control system have been deferred until site plan review." Outlet structure details have been included as part of the Site Plans. Refer to sheet C-11 Standard Details II for outlet control structure details for the sedimentation basin, sand filter and wetland, and a detail for rip rap outlet protection.
- "The design and required correction of the flow splitter is deferred until site plan review." The design of the flow splitter has been included as part of the Site Plans. Refer to sheet C-6 Paving, Grading and Drainage Plan for the layout and inverts of the flow splitter; refer to sheet C-11 Standard Details II for the flow splitter structural detail.
- "The planter details are deferred until site plan review." The stormwater planter detail has been included as part of the Site Plans. Refer to sheet C-11 Standard Details II for the stormwater planter detail.
- "The location of the pocket wetland is deferred until site plan review." The location of the stormwater wetland has been identified as part of the Site Plans. Refer to sheet C-6 Paving, Grading and Drainage Plan for the location of the stormwater wetland.
- "Engineering details regarding soil is deferred until site plan review." –
 Details regarding soil is included as part of the Site Plans. Refer to sheets C8A C-8C for the location of soil stabilization measures; refer to sheet C-10
 Standard Details I for soil stabilization details, specifically rolled erosion
 control blanket.
- "The Tc flow path is deferred until site plan review." Time of Concentration (Tc) flow paths have been identified as part of the SWPPP.
 Refer to SWPPP Appendix B for a graphical representation of the Tc flow paths. The methodology used to delineate drainage basins and flow paths is detailed in Sections 4 and 6 of the SWPPP.
- **Comment 56:** While the Department of Environmental Protection and the project sponsor continue to be at odds concerning the removal of 40% total phosphorus or the dissolved fraction of the total phosphorus, neither the DEIS nor SDEIS does address other pollutants. (Lippes_Sierra_1)
- **Response:** In response to comments, the proposed project has been reduced in scale to further minimize potentially adverse environmental impacts. Additionally, the SWPPP and site plans have been modified to address NYCDEP's comments and concerns. Refer to Chapter 2, Section D of this FSEIS for a summary of the pollutant analysis provided in the SWPPP.
- **Comment 57:** The Department of Environmental Protection quoted that the project results in a 88%, 49% and 61% in runoff volume above pre-development levels for the one year, ten year and 100 year floods over 24 hour storms respectively. However, in looking at the storms that have occurred during the 21st century to date, what once was considered 100 year storms seem to be occurring at a much greater

regularity. Neither the DEIS nor the SDEIS accounts for this possibility. (Lippes_Sierra_1)

Response:

In response to comments, the proposed project has been modified to further reduced potentially adverse environmental impacts. Additionally, the SWPPP has been revised to use the latest available storm data from the Northeast Regional Climate Center (NRCC).

Comment 58: While the Department of Environmental Protection requested the utilization of more intensive stormwater infiltration to enhance the stormwater management capabilities of the project, the project sponsor has refused to utilize such green roof technology. (Lippes Sierra 1)

Response:

In response to comments, the proposed project has been modified to reduce the area of imperious surfaces under post-development conditions to 24.98 percent—less than the 25 percent NYDCEP threshold of the area of impervious surfaces under pre-development conditions. Additionally, the stormwater planter has been sized for their contributing roof area. Prior to site plan approval, the roof drainage plan will be coordinated with the stormwater management plan. Refer to Appendix E of the SWPPP for stormwater planting sizing calculations.

Comment 59: The project sponsors wetland buffer enhancement planting mitigation ratio of 1:3:1 was below the Town's 2:1 mitigation requirement, and as previously indicated, has deferred the off-site location for planting mitigation. (Lippes_Sierra_1)

Response:

The final revised site plan presented in the FSEIS eliminates all wetland disturbance.

The plan proposes a total of 69,777 square feet (sf) of disturbance to portions of the 100-foot wetland buffer in order to redevelop the site. The buffer area currently includes the existing building, parking areas, maintained lawn, and wooded land on the peripheries of the site, as shown in **Table 1** below.

As detailed in **Table 1**, the proposed project would result in a net increase of 5,724 sf of impervious surface within the 100-foot wetland buffer as compared to the existing condition. All other areas of buffer disturbance within the project's limit-of-disturbance not consisting of new impervious surface would be re-vegetated with grass pavers or native plants upon project completion including, among other things, approximately 1,647 sf of existing impervious area that will be restored to pervious area. This replanting will include wetland plant species (within the pocket wetland and stormwater basins) and upland plant species (within upland areas to be replanted). In the applicant's opinion, this revegetation will restore most wetland buffer functions after construction within those portions of the limit-of-disturbance area not dedicated to the proposed parking garage and driveway surfaces. Of the total 69,777 sf of land to be developed (disturbed) within the 100-foot wetland buffer area, approximately 45,580 sf will be revegetated with native woody and herbaceous plants in accordance with Landscape Plan Sheet C-9.

In addition, the Applicant has developed a separate "Wetland and Wetland Buffer Enhancement Plan" that proposes to remove invasive species and replant native species *outside of* (beyond the bounds of) the project's limit-of-disturbance area. Roughly 50% of this area contains non-native species and in the applicant's opinion would benefit from invasive species removal and supplemental planting with more ecologically beneficial native species. As shown in **Table 1** below and on Landscape Plan Sheet C-9, approximately 19,500 sf of wetland/buffer enhancement planting is proposed.

It is the Applicant's position that mitigation for "unavoidable wetland buffer losses", as conceived by the Town Code §340-9, should be required only for the additional (net increase) of 5,724 sf in impervious surface proposed within the buffer. This added amount of impervious surface within the buffer would lose all buffer functions with development and is therefore the most appropriate quantity to consider when calculating mitigation. Alternatively, the Town may also consider in its definition of buffer "loss" the additional 35,244 sf of wooded land within the buffer to be cleared, regraded and then restored after construction to functional buffer with the re-planting of native wetland and upland species. Lastly, the Town may consider the entire 69,777 sf of disturbance within the wetland buffer worthy of mitigation, despite the fact that much of this area currently consists of the existing building and parking area and most of it will be restored/replanted post-construction.

Mathematically the 19,500 sf of formal wetland mitigation proposed outside of the project's limit-of-disturbance envelope represents a 3.4:1 mitigation ratio considering only the 5,724 sf of added impervious surface proposed within the buffer. This is well in excess of the Town Code's 2:1 mitigation ratio goal for wetland buffer "loss". If the 35,244 sf of disturbance to existing wooded areas to be replanted after construction is also considered in the buffer "loss" equation, the Applicant's proposed mitigation represents a 0.5:1 mitigation ratio. If the total disturbance of 69,777 sf within the buffer is considered, the 19,500 sf of mitigation would only provide a 0.28:1 mitigation ratio. However, the total area of disturbance within the 100-foot buffer of 69,777 sf includes the existing building, parking and lawns which offer little or no buffer functions at present. In the Applicant's opinion, the Town Planning Board should consider both the invasive species removal proposed on 19,500 sf of the site and the restoration/replanting of 45,580 sf of the site to be disturbed temporarily during construction as mitigation for redevelopment of these buffer areas. Both forms of mitigation will serve to restore much of the buffer and allow it to retain many buffer functions.

The Town will decide the adequacy of the proposed project's wetland buffer mitigation in accordance with Town Code §340-9.

The Armonk Fire Department (AFD) has not yet commented on the suitability of the proposed fire access drive. Potential additional grass-paver area for the fire access drive may be required to satisfy comments from the Fire Department. Alternatively, the AFD may require a paved surface or modified layout for the fire access road. Should this become necessary, additional wetland buffer impacts may become necessary and require further review and consideration by the Town as to the environmental significance of the required improvements.

Table 1 below presents the existing and proposed wetland buffer disturbance amounts.

Table 1 Existing vs Proposed Conditions within Town Wetland Buffer

Areas Within Limit of Disturbance (LOD) Line	Existing	Proposed
Impervious Surface in Town Buffer	12,316 sf	18,040 sf
Grass Pavers in Town Buffer (fire and sw maintenance drives)	0 sf	6,157 sf
Lawn and/or Maintained Landscaped in Town Buffer (includes proposed stormwater basins)	22,217 sf	45,580 sf
Forested/Undisturbed in Town Buffer (within tree-line shown on existing conditions survey)	35,244 sf	0 sf
TOTAL (LOD in Town Buffer)	69,777 sf	69,777 sf
Mitigation- Invasive Plant Removal in Town Wetland (Outside of LOD)	0 sf	14,600 sf (0.50 x 29,201 sf)
Mitigation - Invasive Plant Removal in Town Buffer (Outside of LOD)	0 sf	5,067 sf (0.50 x 10,134 sf)

CYNTHIA GARCIA, SEQRA COORDINATION SECTION, NYCDEP, LETTER **DATED APRIL 26, 2016**

Comment 60: Although an overall reduction in the building footprint of the parking garage structure and the number of parking spaces is now shown in comparison to the original project, the overall increase of new impervious surface exceeds 40% of the existing surface area of impervious surface within the limiting distance of the regulated watercourse. As DEP previously stated in its letter dated August 17, 2015, the Rules and Regulations for the Protection from Contamination, Degradation, and Pollution of the New York City Water Supply and Its Sources (Watershed Regulations) allow for up to a 25% expansion conditioned on DEP approval of a Stormwater Pollution Prevention Plan (SWPPP). (Garcia_NYCDEP)

Response:

In response to comments, the proposed building has been reduced in size and the building now incorporates a green roof. Pre-development impervious coverage is 33,716 sf and the post-development coverage is 42,139 sf, a 24.98 percent

expansion of existing impervious coverage, less than the 25 percent NYCDEP threshold. Refer to maps D-3 and D-4 in the SWPPP's Appendix B for a comparison of the pre- and post-development impervious coverages.

Comment 61: Although the DSEIS mentions the infiltration rates in the pervious areas, a plan showing the location of the deep-hole infiltration tests performed in the vicinity of the proposed stormwater planters/pavers was not included in the submission. Without this information, DEP is unable to determine whether the soils beneath the proposed planters are suitable for infiltration of runoff or to verify that there is adequate clearance from the proposed bottom of the practice to groundwater, ledge or bedrock in order to ensure that the system will function long-term. This omission is fundamental as it has not been demonstrated that the stormwater quantity reduction can be achieved. Additionally, a revised green infrastructure calculation showing the proposed volume reduction was not provided and a detail of the stormwater planters was not included for validation. (Garcia NYCDEP)

Response:

Infiltration testing, conducted in accordance with methodology outlined in Appendix D of the New York State Stormwater Design Manual (NYSSMDM), was completed in the vicinity of the proposed permeable pavers. The infiltration testing demonstrated existing soils in the vicinity of the proposed permeable pavers are highly permeable. The results and locations of the infiltration testing are included in the SWPPP's Appendix L. Note: for the site's proposed stormwater management plan, the proposed permeable pavers are being considered an impervious area reduction practice, not a runoff reduction practice.

With regards to groundwater and ledge/bedrock separation for the proposed permeable pavers, refer to the Preliminary Soils and Foundation Investigation Report dated November 6, 2008 prepared by Melick-Tully and Associates, P.C. and included in the SWPPP's Appendix K. Boring B-2 was conducted in the vicinity of the proposed permeable pavers and indicates groundwater 10.5 to 25-feet below existing grade. Boring B-2 was completed at a depth of 51-feet and did not encounter ledge or bedrock. Therefore, adequate separation is provided from the bottom of the proposed permeable pavers to groundwater, ledge or bedrock.

The proposed stormwater planters are designed to function as flow-through planters and are not intended to infiltrate into the underlying soils because they are located in HSG D. Refer to the Stormwater Planter Detail on Sheet C-12. Additionally, refer to the SWPPP's Appendix E for stormwater planter sizing calculations indicating the proposed volume reduction.

Comment 62: DSEIS Response 7: The project sponsor has not demonstrated how the runoff reduction volume requirement for this project is being met. It is unclear whether

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the one-year, 24-hour water quality storm volume was used for the stormwater planter sizing calculations. Without clarification, DEP cannot determine whether even the minimum runoff reduction sizing requirement has been achieved. If the entire one-year storm volume is not flowing into the proposed planters, runoff reduction credit cannot be claimed. It appears that the planters are undersized and will be subject to overflow in the one-year, 24-hour storm event, thereby potentially resulting in erosion and sedimentation within the adjacent areas. Moreover, the roof area from which the planters are tributary was not revised to reflect the current footprint in the volume calculations, and the division of roof runoff to each of the planters is not indicated. As such, the project sponsor has failed to demonstrate that the proposed storm water planters alone can satisfy even the minimum runoff reduction volume recommended by the New York State Design Manual (NYSDM) and by incorporation, the Watershed Regulations. (Garcia_NYCDEP)

Response:

Refer to the revised Post-Development Drainage Area Map (D-2) in the SWPPP's Appendix B and to the revised WQv/RRv calculations in the SWPPP's Appendix E which indicate the proposed stormwater planter is adequately sized to treat its contributing roof area and that the minimum Ry for the site is provided.

Comment 63: DSEIS Response 6: The pollutant loading analysis provided is fundamentally flawed and cannot be relied upon to reasonably represent conditions that exist at the site or that will result from construction of the proposed action. Further, the level of detail provided in the documentation is not sufficient to support the validity of the parameters used in the analysis. Based on these factors, the analysis cannot be relied upon in quantifying potential impacts to land and water from increases in pollutant loads or in demonstrating adequate mitigation. Without a reasonable analysis that is supported by currently accepted data and literature, as stated above, DEP cannot support a finding to approve this action under SEQRA. The following bullets are provided to support this conclusion:

- The pre- and post-development drainage area maps provided are at an inadequate scale and do not provide sufficient detail regarding existing and proposed surface coverage to demonstrate that pollutant loading coefficients are representative of the land use and that imperviousness has been reasonably estimated.
- When applying the Simple Method, the Runoff Coefficient, Rv, is estimated using the formula Rv = 0.05 + 0.009(1). "I" is the percent of site imperviousness. The footnotes provided in the analysis indicate the percent impervious that was assumed for each land cover type. The percent of site imperviousness must not be assumed; it must be calculated based on the amount of impervious surface within the subject drainage area. In addition, the assumptions are unreasonable. For example, "grass" cannot be assumed to be 25% to 35% imperviousness. In fact, for application of the Simple

Method "grass" is typically considered 0% imperviousness. The applicant may have erroneously assumed that "I" is synonymous to "Ia" which is the Initial Abstraction in the TR-20 hydrology model.

- The coefficients are not applied appropriately for the Simple Method. Mean Concentration of Pollutant (C) is a pollutant concentration value for the specified land use. For appropriate use of the Simple Method, a C value that best represents the characteristic of the subject drainage area must be used. A land use area cannot be subdivided into its components (roof, pavement, grass, forest, etc.) and have a C value for each of these components. The land use category already accounts for the applicable components associated with that category in establishing its C value.
- The CPSWQ Exam Review Course Workbook is not an adequate source for referencing pollutant concentration values. To begin with, the citation is incorrect, as the table within the workbook properly cites the source of the information. More significantly, coefficients can be derived from data collected more recently using sources such as the National Stormwater Best Management Practice (BMP) database which includes significantly more data points and rigorous statistical analysis. Finally, sources such as the stormwater database provide justification for more specific land use types. Paved parking area may not have the same land use as a highway; therefore, the highway C value cannot be used for a paved parking area; grass areas associated with residential lawns have different coefficients than those on commercial sites, etc.
- The National Stormwater BMP database has been updated many times since the March 2000 edition cited in the analysis. Later editions include additional monitoring data, types of practices, and, in some cases, concentrations and removal efficiencies associated with additional pollutants of concern. It is unclear why an outdated source was used for this analysis and is unreasonable, given the availability of additional data.
- The analysis assumes 20% and 25% biological oxygen demand (BOD) removal efficiency for the stormwater management practices but provides no supporting documentation for this assumption. Absent this documentation, the assumption cannot be accepted as reasonable. (Garcia_NYCDEP)

Response:

The pollutant analysis has been recalculated and demonstrates that post-development conditions of the site reduce TP, TSS and TN from pre-development conditions. Refer to the SWPPP's Appendix I for the calculations.

BOD removal efficiencies for stormwater management practices are not readily available. Additionally, BOD concentrations based on land coverage are not readily available. The National Stormwater Quality Database publishes BOD concentrations based on land use (commercial, residential, industrial, etc.). The land use (commercial) will not change as a result of the proposed project. Operational controls to curb BOD generation are described in Section 6.3 of the SWPPP.

Comment 64: The direct response to Comment 6 in Section C of the DSEIS is not acceptable. The response indicates that dissolved phosphorus will be removed by plant uptake in the pocket wetland yet provides no reference or documentation to support this claim, which is not widely supported in available literature. Furthermore, the response indicates that the paired practices will provide more than the minimum code requirements. In fact, two practices in series is considered the minimum requirement of the Watershed Regulations for drainage areas that are 20% or more impervious. As stated in DEP's original comment, regulatory compliance represents a minimum code requirement and does not constitute appropriate mitigation under SEQRA. (Garcia_NYCDEP)

Response:

The pollutant analysis contained in SWPPP's Appendix I demonstrates the postdevelopment site demonstrates total phosphorus reduction of 49 percent and soluble phosphorus reduction of six percent.

Comment 65: DSEIS Response 4: The revised construction sequence, although expanded, does not address DEP's prior comment concerning a construction sequence which can reasonably anticipate the means, methods and steps required to avoid adverse water quality impacts. Specific examples of which include, but are not limited to, the following:

- The new sequence does not incorporate the demolition phase of the project and the corresponding detailed sequence of erosion and sediment control practices.
- The new sequence is vague in addressing the order for converting the proposed temporary sediment trap to the final stage pocket wetland and sand filter. Furthermore, upon completion of the construction phase, conversion of the temporary trap to a permanent practice is often difficult and not necessarily always successful. (Garcia NYCDEP)

Response:

Additional detail and notes regarding the demolition phase of the project have been added to the sequence of sheet C-8A. The sediment trap is located in the location of the sand filter and not in the vicinity of the proposed stormwater wetlands. When converting the sediment basin into a sand filter, the sediment basin will be further excavated from elevation 386.5 to elevation 381.5. Additional details regarding ESC, sequencing and sediment trap conversion can be addressed as part of the site plan approval with the Town and as part of a formal SWPPP review application to NYCDEP.

Comment 66: DSEIS Response 7: Rather than address DEP's concern regarding postdevelopment increases in runoff volumes at design point #2, the project sponsor again cites storm water regulatory requirements for mitigating peak flows but not of increases in runoff volumes. As previously stated, regulatory compliance, in this case mitigation of peak discharges, represents a minimum code requirement. It is not a substitute for taking a "hard look" at adverse impacts

associated with the Kensico Reservoir that serves on average, 90% of the water supply for 8.4 million New York City consumers and several municipalities in Westchester County. Increases in runoff volume often result in significantly longer discharge periods, leading to impacts to land and water from saturated channel beds and/or erosion of stream banks. The response does not constitute a reasonable attempt at analyzing the impacts of the increased runoff volumes. (Garcia_NYCDEP)

Response:

A comparison of runoff volumes between pre- and post-development conditions is included in Table 6-6 of the SWPPP. Under post-development conditions runoff volumes will decrease to design points DP1 and DP3 due to a reduction in drainage areas and a reduction in impervious coverage to those points.

The proposed project will increase the discharge period of the site from approximately 24 hours to approximately 54 hours at DP2 for the 100-year, 24-hour storm event. However, as demonstrated by the post-development conditions DP2 hydrograph, the flow rate for the extended discharge period (25 to 52 hours) is less than 0.2 CFS.

Comment 67: DSEIS Response 8: The DSEIS indicates that structural limitations preclude the use of a green roof. At a meeting with the project sponsor in April 2010, DEP informed the project sponsor that by incorporating a green roof, the requirement for a variance from Section 18-39 (a)(4)(iii) of the Watershed Regulations would be eliminated. Rather than make the necessary structural changes to the building design, storm water runoff from the roof is instead directed to storm water planters. To reiterate, review of the supporting calculations indicates that the stormwater planters are undersized for the tributary area. Undersized practices have been known to malfunction through several mechanisms such as scouring, flushing of filter media, and plant die-off. As designed, these practices do not meet minimum regulatory standards much less demonstrate mitigation of potential impacts. (Garcia_NYCDEP)

Response:

In response to comments, the proposed project has been reduced in scale such that the area of imperious surfaces under post-development conditions are 24.98 percent—less than 25 percent of the area of impervious surfaces under predevelopment conditions. Additionally, the stormwater planter has been sized for their contributing roof area. Prior to site plan approval, the roof drainage plan will be coordinated with the stormwater management plan. Refer to Appendix E of the SWPPP for stormwater planting sizing calculations.

Comment 68: DSEIS Response 9: DEP previously commented that 14,000 square feet of wetland and buffer enhancement may not adequately mitigate the proposed impacts. Due to a reduction in the building footprint, the area available for enhancement increased by 19,500 square feet. When considering only new impervious surfaces in the buffer, this is a mitigation ratio of 1.28:1; however, the project sponsor did not include the creation of stormwater features as permanent buffer disturbance. When factoring in new impervious surfaces and stormwater features, the total area of new disturbance is 57,327 square feet, which renders the proposed mitigation ratio to 0.34: 1. Given that the grading and construction activities will result in a permanent change in the buffer conditions, the stormwater features should be included in the total acreage of disturbance. In addition, the likelihood of maintaining less than 5% coverage by invasive species throughout the entire 19,500 square foot mitigation area is highly uncertain, given the challenges that invasive species pose, particularly in an urbanized landscape; therefore, DEP maintains that the proposed mitigation remains inadequate for the project impacts. (Garcia_NYCDEP)

Response:

As stated throughout this SEQRA review, the applicant is willing to consider opportunities for offsite mitigation. However, reuse of the project site with a somewhat larger building footprint than that which occupies the site at present, plus the requirement for installation of stormwater management measures, limits the land available for wetland buffer mitigation. The landscaping plan proposes 39,000 sf of land area be improved with invasive species removal and native plantings to enhance wetland buffer functions – approximately 50% of this land area is occupied by invasive species resulting in 19,500 sf of mitigation. In addition, all landscaping onsite including the regraded areas and stormwater wetland will be planted with native species which will benefit wetland buffer functions. No reasonable reuse of the project site is possible without constructing stormwater management measures in the Town's 100-foot wetland buffer. The Lead Agency will determine whether the proposed amount of Townregulated wetland buffer disturbance is acceptable and will require the implementation of a mitigation plan meeting the requirements of the Town Code, or a wetlands permit will not be issued.

Comment 69: Landscape Plan on drawing C-9: Although quantities of area appear to have been calculated for purposes of wetland and wetland buffer mitigation, it does not appear that this has translated into plant quantities for restoring those and other areas. The plans do not indicate whether there will be sufficient quantities of plants to capture each proposed planting area with vegetation as quantities of plants and seed mixes for each planting zone and the areas that are meant for cover was not provided for review. (Garcia_NYCDEP)

Response:

As stated in Appendix F of the 2015 FEIS: Wetland and Wetland Buffer Enhancement Plan, the primary objective of the revegetation effort will be to create a foundation for long term stability of productive wetland ecology. Based on a site inspection, the cover of invasive plants in portions of the site's buffer and wetland areas approaches 50 percent, totaling approximately 19,500 sf of lands which would benefit from mitigation. These areas will be re-vegetated with native plant seedlings and plant-plugs soon after removals are complete for erosion control and habitat restoration. Herbaceous plant material will be

specified in a variety of sizes for each species; in small containers and plugs. Depending on the species, the vegetation will be planted at 6" to 2'-0" on-center to provide uniform cover of the enhancement area within the first year of growth. Woody plant materials will be specified in a variety of types and sizes; containerized plant and live stakes.

A final planting plan addressing quantities and zones of plantings will be developed as part of the site plan approval and NYCDEP SWPPP Review.

Appendix F of the FEIS (2015) is provided as **Attachment E** of this FSEIS.

Comment 70: The Stormwater Planter Vegetation plant palette is virtually all wetland plant species. Although stormwater planter designs vary by whether they retain or allow flow-through of storm water, the intention of many storm water planter systems is to retain quantities of water temporarily during heavy precipitation events but to allow smaller events to flow through the surface to an underlying sand layer and the native soil during normal events (see NYSDEC guidance about green infrastructure practices at: http://www.dec.ny.gov/docs/water pdf/swdm2010chptr5.pdf). Plant materials must tolerate both occasional inundation and drought conditions during the growing season and may best consist of plants normally found in a floodplain in our region. It has not been demonstrated that there are sufficient quantities of plants that tolerate both periodic flooding and seasonal drought nor was a detail provided regarding planter construction or planting media. (Garcia_NYCDEP)

Response:

In response to comments, the stormwater management plan has been updated to address the projected runoff. The plant palette for the redesigned bioretention area in front of the building and the stormwater planter at the back of the building have also been updated to reflect the new revised plans and to address the comment. A final planting plan addressing quantities and zones of plantings will be developed as part of the Site Plan Approval and NYCDEP SWPPP Review.

ADAM KAUFMAN, AICP, DIRECTOR OF PLANNING, TOWN OF NORTH CASTLE, **LETTER DATED MARCH 18, 2016**

Comment 71: Page 7 and Comment 40 of the SDEIS contains a discussion of the FAA Determination of No Hazard to Air Navigation and associated Advisory Recommendation. The SDEIS should be revised to state that the Lead Agency will need to determine whether there are any significant adverse impacts associated with permitting this type of discouraged use within the RPZ. (Kaufman_North Castle)

Response:

Chapter 1 of this FSEIS states that the lead agency will need to determine whether there are any significant adverse impacts associated with permitting this type of use within the RPZ.

Comment 72: -Page 3 – 1st paragraph – "park" should be revised to state "part" and "dripping" should be revised to state "drippings."

- -Page 6 "This widening is required to perform a uniform driveway width..." should be replaced with "A portion of the proposed increase in impervious surface within the 100-foot limiting distance is required for road widening to provide a uniform..."
- Response 9 should be revised to replace "The proposed Wetland and Buffer Enhancement Plan..." with "In the Applicant's opinion, the proposed Wetland and Buffer Enhancement Plan..."
- Response 16 should be revised to replace "Therefore, it is not a "loss" of buffer..." with "In the Applicant's opinion, therefore, it is not a "loss" of buffer...."
- Response 18 should be revised to include a period before "Considering the Town requirements..."
- Response 48 should be revised to replace the "Erosion and Sediment Control plan has been revised, and is compliant with..." with the "Erosion and Sediment Control plan has been revised, and, in the Applicant's opinion, is compliant with..." (Kaufman_North Castle)

Response: Comments noted. These changes are reflected in the DSEIS where indicated.

PATRICK CLEARY, AICP, CEP, PP, LEED AP, ON BEHALF OF SIERRA CLUB, LETTER DATED APRIL 25, 2016

Comment 73: The FEIS fails to provide a persuasive and definitive argument for the need for the new parking garage. For example:

Walker's main assumption regarding the adequacy of the existing parking garage is flawed. Walker contends that the terminal building was originally proposed to be twice the size of the current facility, but was reduced in size due to public resistance and the stipulated ceiling of 240 passengers per half-hour. The reduced terminal size resulted in a corresponding reduction in the size of the parking garage. Parking demand is not a function of the size of the airport terminal building (as might be the case for other land uses, like an office building) but rather the parking demand is directly related to the number of passengers traveling in and out of the airport (which is legally capped at 240 passengers per half-hour). That limiting threshold has not increased, so why has the parking demand increased? Has the number of passengers per half-hour increased above the stipulated cap? (Cleary_Sierra)

Response:

See Response to Comments 1 and 3. As previously noted, it is in the Applicant's opinion that there is an existing demand for the Proposed Project. It is outside the purpose and intent of the SEQRA process to require the disclosure of the investment decisions of an applicant. Nonetheless, the Applicant has stated that the Proposed Project is being designed to meet the needs of the commercial traveler looking for a guaranteed and convenient option for parking at the

airport. The Proposed Project is also being designed to meet an existing need for the corporate aircraft market that remains a significant proportion of the aircraft economy at Westchester County Airport.

Comment 74: Walker surveyed the utilization of the parking spaces in the existing airport terminal garage on two days in August of 2011. The garage was 96% full (with 46 open available spaces) on a Tuesday and 90% full (with 109 open available spaces) on a Wednesday. From this limited survey, Walker concluded that there is a need for an additional parking garage of over 1,000 spaces. How such a seemingly exaggerated conclusion was reached, was not specified. Furthermore, it could obviously be just as easily argued that the existing parking garage is properly sized, and adequately accommodates all passengers, with excess

capacity of more than 100 spaces left over. (Cleary Sierra)

Response: See Response to Comments 1 and 3.

Comment 75: The Walker study reveals that the airport's overflow lot was "not in operation" during their site visit, so it's operational characteristics could not be surveyed. Could it be because the overflow lot was not needed, and the existing parking garage and other methods of providing passenger access to and from the airport were adequately dealing with the existing demand? (Cleary_Sierra)

Response: See Response to Comments 1 and 3 d. Further, the Applicant recognizes that other parking options exist for travelers, including the parking available at SUNY Purchase. Those parking options will likely continue to attract a clientele different from that of the Proposed Project. The Proposed Project will be oriented towards customers looking for more personalized high-end and secure parking services – particularly customers from the corporate and support personnel from the aviation market.

Comment 76: Another factor often cited as the basis for the need for an additional parking facility are passenger satisfaction surveys. These surveys indicate the need for more parking as the number one airport complaint. However, the method of providing that parking was not addressed. Obviously, every traveler would prefer a fairly priced parking space, located directly next to the terminal. However, if given the choice of a parking space in a remote parking garage, priced to meet private market demand, requiring a shuttle bus trip to get to the terminal, would that same traveler find that solution to be as suitable as the first choice? (Cleary_Sierra)

Response: See Response to Comments 1 and 3

Comment 77: Walker estimates that 30% of passengers currently using the existing parking garage adjacent to the airport terminal building, will elect to utilize the new

proposed off-site parking garage. They claim this will be due to the "pricing advantage" and "better weather protection."

It is highly unlikely that a new, private, market-rate, state-of-the-art, automated parking facility will afford any "pricing advantage" over a public facility operated under the auspices of the Westchester County Government (and subject to public disclosure and bidding laws). And the claim of better weather protection is truly mystifying. A vehicle is either inside or outside. Presumably this applies to the existing single deck of roof-top parking (which is uncovered). Finally, it is hard to understand how anyone would actually prefer to park in a remote off-site lot, instead of within main parking facility, located adjacent to the terminal. (Cleary_Sierra)

Response:

See Response to Comments 1 and 3.

Comment 78: If the infrastructural capacity of the airport is expanded to functionally accommodate higher operating capacity volumes, violations of the threshold capacity become much more likely. (Cleary Sierra)

Response:

The project site is not affiliated with the airport and the proposed parking facility will be privately owned and operated. Expansion of the airport is restricted by Westchester County's Terminal Capacity Agreement that limits the operating capacity of the airport to 240 passengers per half hour. The applicant does not seek to void or revise this agreement, nor does it have standing to do so. The proposed project will address an existing need for additional parking for commercial travelers as well as General Aviation airport users.

Comment 79: Correspondence from the County Board of Legislators (4/28/11) submitted in opposition to the project during the DEIS comment period included the following comment:

> "Resolution No. 245-2003 specifically state the policy of the Westchester County Board of Legislators is an continues to be one of supporting no increase in the total capacity of the Airport's runways, taxiways, ramps, gates, hangers, terminal, motor vehicle parking areas, or access roads, in order that we may protect our fragile environmental, including the drinking water for almost nine million people..."

> The proposed project is in direct conflict with this County resolution. (Cleary Sierra)

Response:

The project site is not affiliated with the airport and the proposed parking facility will be privately owned and operated. Expansion of the airport is restricted by Westchester County's Terminal Capacity Agreement that limits the operating capacity of the airport to 240 passengers per half hour. The applicant does not seek to void or revise this agreement, nor does it have standing to do

so. The proposed project will address an existing need for additional parking for commercial travelers are for employees supporting corporate aviation.

Comment 80: The FEIS notes "The proposed parking facility will be a privately owned and operated facility and would operate independently of Westchester County Airport." This statement is completely disingenuous. The parking facility would be constructed to support airport operations and 100 percent of its spaces would be devoted to travelers and employees of the airport. There is no demand whatsoever for a private parking garage of the size proposed for any other uses in the area of the site. The garage is clearly intended solely for the airport, and as such is plainly an expansion of the airport's operational infrastructure. The DEIS indicates that the "lack of parking has long been cited as one of Westchester County Airport's greatest deficiencies" and refers the reader to Appendix C. Appendix C consists of a 2010 press release from Westchester County concerning holiday travel, and a 2007 article from the Greenwich Times reporting on several disgruntled travelers experiences in being forced to park at remote lots instead of the main garage, and how that caused unanticipated travel delays. These sources hardly justify the need to construct a new parking facility. (Cleary_Sierra)

Response:

See Response to Comments 1, 3, and 23. The project site is privately owned and zoned IND-AA. The IND-AA zoning permits business and professional offices, light industrial uses, motels, airport uses at Westchester County. As such, the project site is zoned to be developed, and it is the Applicant's intent to exercise the right to do so.

The Applicant believes there is a demand for the Proposed Project. While commercial air traffic may have declined at Westchester County Airport, general aviation has increased, evidence the FBO, Million Aire. Some of the improvement plans for the FBO's have replaced surface employee and customer parking lots with modern new hangar facilities, thus losing surface parking for customers and support staff. The Proposed Project is being designed to meet the needs of the commercial traveler looking for a guaranteed and convenient option for parking at the airport. The Proposed Project is also being designed to meet an existing need for the corporate aircraft market that remains a significant proportion of the aircraft economy at Westchester County Airport.

Comment 81: The discussion of the project need in the original DEIS indicates that "Existing parking provisions frequently do not meet existing demand" and that "... parking facilities are routinely at or near capacity, particularly during peak holiday travel periods." These conditions however, are not explained or quantified. How often does demand exceed capacity? By how much? If parking is unavailable and additional vehicle trips are necessary to accommodate pickups and drop offs, does that necessarily create an adverse impact on the roadway network given the fact that arrival and departure trips would typically be separated by multiple days – when compared to the probably adverse impacts created by the construction of the parking facility on a significantly environmentally constrained site? (Cleary Sierra)

Response:

See Response to Comments 1, 3, and 23. The project site is privately owned and zoned IND-AA. The IND-AA zoning permits business and professional offices, light industrial uses, motels, airport uses at Westchester County. As such, the project site is zoned to be developed, and it is the Applicant's intent to exercise the right to do so.

The Applicant believes there is a demand for the Proposed Project. While commercial air traffic may have declined at Westchester County Airport, general aviation has increased, evidence the FBO, Million Aire. Some of the improvement plans for the FBO's have replaced surface employee and customer parking lots with modern new hangar facilities, thus losing surface parking for customers and support staff. The Proposed Project is being designed to meet the needs of the commercial traveler looking for a guaranteed and convenient option for parking at the airport. The Proposed Project is also being designed to meet an existing need for the corporate aircraft market that remains a significant proportion of the aircraft economy at Westchester County Airport.

Comment 82: It is also noted that the project need discussion in the DEIS indicates that the County Bee Line Bus System discontinued a direct airport service with the Airlink Shuttle "...due to low ridership." If indeed airport parking is so limited and problematic, it would be logical to conclude travelers would seek out alternative methods of getting to the airport (such as a direct bus connection). Discontinuing services seems to undermine arguments that parking is inadequate. (Cleary_Sierra)

Response:

The rationale for Westchester County discontinuing bus service to the airport is unknown.

Comment 83: If, as noted in the DEIS, the additional parking would not encourage additional growth of the airport and the airport and County have an ordinance in place to limit expansion, why has the parking demand (and the consequential need for an additional parking facility) increased? What has changed? (Cleary_Sierra)

Response:

See Response to Comments 1 and 3.

Comment 84: The FEIS indicates that "The proposed parking structure would also provide those travelling from the airport the opportunity to reserve a parking space in advance, thus giving certainty that parking would be available." It would appear obvious that such a system of advance reservation could be implemented at the

existing airport parking facilities, without extending the airport operations onto private lands outside of the airport grounds. (Cleary_Sierra)

Response: Comment noted.

Comment 85: The DEIS did a particularly poor job of evaluating alternatives to the proposed parking garage. Most significantly, it did not explore alternatives that would

involve locations on the grounds of the airport itself. (Cleary Sierra)

Response: Six alternatives were analyzed in Chapter 18, "Alternatives," of the DEIS

(2011), per the 2011 DEIS scope adopted by the Planning Board, as lead agency. Prior to the adoption of the scope, the Planning Board held a public hearing eliciting comments on issues to be included in the 2011 DEIS – including alternatives. The 2011 DEIS evaluated all of the alternatives required. No off-site alternatives were included in the 2011 DEIS scope that was adopted

by the lead agency.

In addition to four alternatives analyzing different sized parking facilities, the chapter evaluated an alternative that assumed that the project site would be developed for office use and be constructed to the maximum build out pursuant to existing zoning regulations. This alternative concluded that the existing onestory 9,732-square-foot office building with 35 parking spaces could be redeveloped with a two story building of approximately 32,441 sf. A sketch plan of a feasible site layout for this alternative was developed solely to illustrate the potential environmental impacts for the purpose of comparison with the proposed project. The alternatives chapter of the 2011 DEIS also included a "No Action Alternative" that assumed the existing office building would continue to operate under existing conditions.

It should be noted that prior to the subject property being acquired by the project sponsor, the existing building was predominantly vacant and underutilized. It is the opinion of the applicant that conditions along New King Street reflect a higher than average vacancy rate suggesting that the existing zoning cannot be supported by the market.

supported by the market

Comment 86: The Applicant has failed to acknowledge the Lead Agency's responsibility to

evaluate the overall impact of the proposed development. If the applicant's site is so physically unsuitable for the proposed use, the Lead Agency need not be cowed into approving the project simply because the applicant does not own or control all of the more viable sites site where the project might be more appropriate. If that were the case, the consideration of alternatives for any project would be a ridiculous hollow exercise. If indeed adverse impacts are identified on the subject site (as have been identified for this project) logical

alternatives must be considered.

While the applicant does not control land within the Westchester County Airport, it is by any measure, a fair and logical question to ask if the parking (that according to the applicant is apparently needed to support airport operations) can and should be provided on the airport grounds. There is no other demand for the proposed parking facility than the demand generated by the airport. (Cleary_Sierra)

Response: See Response to Comment 85.

Comment 87: Location of the Project in the Runway Protection Zone The proposed action requires the Town to modify its land use and zoning regulations to accommodate a project that appears to completely inconsistent with a host of long term planning, environmental protection and public safety policies, laws and provisions. Perhaps the most notable is the project's location with the RPZ of Runway 16. (Cleary_Sierra)

Response: See Response to Comment 7.

Comment 88: The applicant notes that while the site is indeed located within the RPZ, it is not in the central portion of the RPZ. As such, uses that are compatible with normal airport operations should be allowed.

The FEIS does not address the fact that the zoning regulations governing development within the RPZ are proposed to be changed by the applicant. The permitted building height would be doubled, coverage would be doubled, FAR requirements eliminated, etc. It is unclear if the "No Hazard" determination issued by the FAA properly took these factors into account.

Regardless, proposing the construction of a large structure within a designated Runway Protection Zone represents at its most basic level, poor planning, and a potential hazard to public safety that could easily, and properly, be avoided. (Cleary Sierra)

Response: See Response to Comment 7.

Comment 89: The applicant asserts that the parking facility is a "compatible land use" by indicating that it would not "...adversely affect flight operations in that which creates or contributes to a flight hazard. One that would attract birds would be considered an incompatible land use."

Anyone who has ever parked in an open parking garage can attest to the desirability of these structures for roosting birds. The location of the garage next to the extensive avian habitat surrounding the Reservoir exacerbates the likelihood that the garage will very likely attract large numbers of birds. (Cleary_Sierra)

Response:

The project will not increase bird roosting to a degree more than surrounding buildings. It will be an enclosed structure and will not provide a food source for pigeons or similar birds. The stormwater management system will not contain an expanse of open water surrounded by lawn, and therefore would not be an attractive location of Canada geese or other flocking waterfowl. There will be no increase in aviation hazards onsite or in the region as a result of the proposed project.

Comment 90: The proposed project calls for modifying local zoning laws to allow for the development of a facility that is located in an area where development is specifically discouraged, and where potential adverse impacts could impact millions of New Yorkers.

Response:

The Proposed Project lies within a zoning district, IND-AA that permits business and professional offices, light industrial uses, motels, airport uses at Westchester County Airport, and non-residential uses permitted in the R-1A district (such as government uses religious facilities, and educational institutions.) Existing uses along New King Street reflect the range of commercial and professional office uses permitted - including parking to support the use. The current IND-AA zoning does not allow parking as a principal use. The proposed zoning modification would not modify any of the principal permitted uses, but would allow structured parking as a special permit use, with discretionary approval by the Town Board. In the Applicant's opinion, the Proposed Project would be an asset to the Town, to the region, and would not in any way be detrimental to the local or broader New York community.

Comment 91: The applicant contends that by complying with the stormwater design criteria of the NYSDEC's Stormwater Design Manual and the NYCDEPs Watershed Rules and Regulations, adequate mitigation will be assured. This position fails to address the most obvious mitigation measure, which are alternatives to the proposed action that do not physically impact the Reservoir Basin.

Response:

In the Applicant's opinion, there will be no potentially adverse impact to result from the development of this project. In fact, development of this project will have the following beneficial impacts:

- Stormwater collection and treatment of subject site prior to release to Reservoir from subject site and a portion of adjacent site - where none presently exists;
- Reduced number of trips from drop-offs/pickups;
- Enhanced wetland management plan that will improve existing wetland functions: and
- Energy efficient and green tech building.

Comment 92: It would be difficult to establish how the proposed zoning amendment does not constitute "spot zoning." The proposed zoning text amendments would be very narrowly applicable, in all likelihood to only the subject site and would allow for a level of development that is entirely inconsistent with other development in the surrounding area.

One need only review the zoning changes proposed to understand the implications of the amendments on the character of the surrounding area; a 100 percent increase in allowable height, from 30' to 60', a 100 percent increase in allowable building coverage, from 30% to 60%, the complete elimination of the Floor Area Ratio control for a parking garage, and the reduction of the side yard setback requirement from 50' to 10'.

Establishing parking structures as a permitted principal use, subject to approval of a special permit, further reinforces the spot zoning argument. Not only would parking structures be geographically limited within the IND-AA district, but they would be even further limited by the special permit criteria, to essentially just the subject site. (Cleary_Sierra)

Response: See Response to Comment 47.

Comment 93: The FEIS indicates that the proposed zoning text amendment has been modeled after the text amendment adopted by the Town Board to enable the construction of a parking structure for MBIA. This position touches the heart of the issue in dispute here. The MBIA parking structure serves as a supportive accessory use to an office building.

The proposed zoning amendments would allow for a parking structure to be constructed as a principal use – and not as a supportive accessory use. If indeed the zoning amendment is intended to support a new principal use – then the zoning amendments would allow for the construction of an independent facility that is so completely out of character with the surrounding area, and manifestly contrary to the existing IND-AA zoning controls, as to be clearly inconsistent with the Town's zoning hierarchy – essentially spot zoning.

If, on the other hand (which is the obvious situation here) the parking garage is being constructed to support the operation of the Westchester County Airport (i.e. an accessory use to the airport), then the project represents an illegal expansion of airport operations, in clear violation of the Terminal Capacity Agreement. (Cleary_Sierra)

Response:

Regarding the 'modeling' of the proposed zoning text on that constructed for MBIA, it should be noted that it was at the Town's suggestion that the applicant examine the MBIA text amendment for its lot and bulk regulations. Subsequent to examining the MBIA zoning text, modifications were made to better integrate the proposed zoning text change within the IND-AA zoning. It should be noted that the proposed text amendment would permit structured parking within the

IND-AA district as a special permit use subject to Town Board approval. With regard to the issue of 'spot zoning' see Response to Comment 47. With regards to the relationship of the proposed use to Westchester County Airport, see Response to Comment 80.

Comment 94: The applicant argues in the FEIS that a parking garage would be consistent with the other permitted uses in the IND-AA district. From strictly a "use" perspective, this may be true. This argument however, fails to take into account the size, scale and magnitude of the type of parking garage that could be constructed. Under the proposed zoning amendments, which would increase certain elements of the parking structure by 100%, the comparative impacts of such a structure would be significant, and clearly inconsistent. (Cleary_Sierra)

Response:

In response to comments, the Proposed Project has been reduced in size, scale, and magnitude. As now presented within this FSEIS, it is the Applicant's opinion that the project will the demand for convenient, secure, and guaranteed parking for commercial and corporate travelers. The Proposed Project will also provide the environment with high quality treatment of stormwater where none exists, and incorporate green features into the project that will minimize impacts to, and in various instances improve, environmental conditions (for example: traffic, emissions, and water quality). These sustainable features are consistent with the Town's Comprehensive Plan.

Comment 95: The Comprehensive Plan establishes that "Any expansion of the airport is not recommended." As noted above, any argument that the proposed parking facility is not an expansion of the airport is disingenuous at best. Clearly the parking garage is intended exclusively for use by airport passengers and employees, and is proposed on private property outside of the existing airport grounds. (Cleary Sierra)

Response:

See Response to Comment 79.

Comment 96: Because the proposed zoning amendments are inconsistent with the Comprehensive Plan, the proper procedure for the Town to follow would be to first amend the Comprehensive Plan, before adopting the proposed zoning allowing for the development of the parking facility.

> Aside from being the proper procedural route required to adopt the proposed zoning, amending the Comprehensive Plan to provide clear and unambiguous policy and land use guidance, with the input of the community as a whole, is simply good planning. (Cleary Sierra)

Response:

The proposed project is consistent with and will promote the goals and objectives of the Town's Comprehensive Plan by developing in an existing office and industrial corridor in the Town, thereby preserving areas with a more dominant residential character, and incorporating numerous green features that would minimize impacts to, and in various instances improve, environmental conditions (for example: traffic, emissions, and water quality). 'Green' or 'sustainable' design components of the proposed project are described in greater detail in the 2015 FEIS.

Comment 97: The site for the proposed parking facility is environmentally constrained. Development will encroach into Town regulated wetland buffers, and will impact a perennial stream that wraps around the site, which is tributary to the Kensico Reservoir as well as an intermittent stream along the site's southern boundary.

The wetland buffer encroachment is prohibited, and would require the issuance of a Town Wetland Permit. Additionally, in accordance with the NYC Watershed Rules and Regulations, an expansion of impervious surfaces in excess of 25% within the 100-foot limiting distance of a regulated watercourse is also prohibited. The applicant is seeking a variance from the Watershed Rules and Regulations §18-39(a)(4)(iii) to allow for this expansion of impervious surfaces. The site also contains soils exhibiting various degrees of constraints as well as steeply sloping topography.

Summarizing these points simply illustrates the fact that if all of the incompatible land use policy issues, and zoning issues and legal issues were adequately addressed, the development of the site as proposed would still be problematic due to the site's environmental constraints. (Cleary Sierra)

Response:

The project site is a previously developed property occupied by an office building, impervious parking and drives, and a sizable overflow parking lot constructed on fill material. As such, its wetland buffers have already been affected considerably. The proposed project would encroach further on the site's wetland buffers but would plant remaining buffer and wetlands with native species as mitigation. The project no longer needs a variance from the NYCDEP WRR because total impervious surfaces onsite have been kept to a 24.98 percent increase over existing. The Lead Agency will determine whether the proposed amount of Town-regulated wetland buffer disturbance is acceptable and will require the implementation of a mitigation plan meeting the requirements of the Town Code, or a wetlands permit will not be issued.

Comment 98: The applicant contends that the project would not exceed any of the thresholds established in the NYSDEC publication "Assessing and Mitigating Visual Impacts" so the project would not result in an adverse visual impact. This DEC publication focuses on blocking views of specifically designated visual resources. No such resources surround the project site, but that misses the point. The project involves not only the construction of the parking garage, but the amendment of existing zoning regulations, modifications of land use policies,

various environmental permits for prohibited activities and a DEP variance. The issue of concern relates to permitting all of these modifications permits and amendments, to then allow for a structure that would impact the visual character of the area. (Cleary_Sierra)

Response:

See Response to Comment 52.

Comment 99: The traffic analysis for the project concludes that the project will result in an overall reduction in vehicle trips on the surrounding roadway networks. This claim is based on the assumption that by driving to the airport and parking, a passenger is creating only 1 inbound vehicle trip, compared to an inbound and outbound trip created by a limousine bringing that same passenger to the airport. This fails to account for the fact that very often limousines carry multiple passengers to and from the airport. Also, limousines will often deliver one passenger to the airport, and will thereafter pick-up a different passenger for separate outbound trip. The claim of a trip reduction is questionable and unsubstantiated. (Cleary_Sierra)

Response:

As noted earlier in this document, traveler surveys demonstrated a dropoff/pick-up rate of 46 percent of the travelers on one of the four commercial airlines at the airport, as compared with 23 percent for comparable airports. Even with limousines combining delivery and pick-ups, a reduction in trips is to be expected.

Comment 100: Providing a greater range of more effective multi-modal transportation options for passengers to move to and from the airport is a far more environmentally sustainable approach, when compared to simply building more parking spaces to make individual private passenger vehicle trips more convenient. (Cleary_Sierra)

Response:

Comment noted.

Comment 101: It is noted that 3 critical intersections would operate a failing levels-of-service F upon completion of the project. In fact, in the case of the southbound I-684 ramp, the 33% increase in the delays is so great, the resulting traffic queue cannot even be calculated by standard traffic engineering models. Mitigation will not improve this condition. (Cleary Sierra)

Response:

As concluded in the Town's consultant's study, traffic added to the traffic network will be minimal and will not significantly impact the overall study area traffic operations. The applicant's traffic consultant in consultation with the traffic consultant for the Town of North Castle developed an improvement plan for the intersections of Airport Road at Route 120 and the I-684 ramps. The proposed improvement plan and analysis was sent to NYSDOT for review. The applicant's consultant team along with the Town of North Castle traffic consultant presented the plan to NYSDOT at a meeting on Friday, October 21, 2011. Subsequently, NYSDOT has expressed their endorsement for the improvement plan. A copy of the analysis and correspondence is provided in the 2015 FEIS.

Comment 102: The geographic boundaries of the traffic study were limited, and should be expanded to more accurately reflect overall traffic operation conditions. For example Purchase Street (NYS Rte 120) carries a significant volume of traffic, both local and regional, to and from the airport (including traffic to the SUNY Purchase remote airport parking lot). The Purchase Street/Anderson Hill Road intersection operates at certain times at LOS F. The traffic issues in the area extend beyond the small area already evaluated by the applicant. (Cleary_Sierra)

Response: See Response to Comment 101.

Comment 103: The description of the automated vehicle storage system indicates that it will utilize a "lift and shuttle" system operated by chains, pulleys and electric motors. Hydraulic lifts and hydraulic fluid "are not anticipated to be part of the process." A brief review of these systems indicates that most in fact operate hydraulically. What assurances exists that proposed chain and pulley system would not be replaced by a hydraulic system? The implications of hydraulic fluid leaking or being discharged into the Kensico Reservoir watershed are obvious. Explicitly prohibiting this from occurring by preventing the installation of a hydraulic system would appear to be necessary. (Cleary_Sierra)

Response:

The proposed project includes a system that is operated by motors, pulleys, and chains, including track-mounted elements. There is one step of the process that includes hydraulic pumps to transfer the cars from the lift to the storage location. This small hydraulic reservoir is completely self-contained. This reservoir will be inspected as part of routine maintenance procedures and collected material will be disposed of in accordance with applicable regulations. Additionally, a system of interior drains will collect and direct runoff and drippings to an oil-water separator inside the building prior to discharging to the municipal sanitary sewer system. The oil-water separator will also be inspected as part of routine maintenance procedures.

Comment 104: Table 1 illustrates the modifications made to the project resulting in reductions in the scale of the project. While these reductions represent obvious incremental improvements, it is important to not lose sight of the overall project related impacts. The current plan will still disturb 73% of the site, with most of the onsite wetland buffer and DEP watercourse buffer being impacted. (Cleary_Sierra)

Response: Yes, redevelopment of the site will require temporary disturbance to Town and DEP wetland and watercourse buffers. However, permanent buffer "loss" has been limited to an increase in impervious surface of just 5,724 sf to Town

buffer. An additional 32,301 square feet of undeveloped land within the Town-regulated wetland buffer would be disturbed for the construction of the stormwater management basins and regrading. This area would be planted with native species. As mitigation, approximately 19,500 sf of onsite undisturbed land within the buffer and wetland would benefit from the removal of invasive species and planting of native species in accordance with the project's wetland and wetland buffer enhancement planting plan. In this way, floral diversity will be improved and water quality wetland buffer functions will be preserved. It is the applicant's opinion that the current site plan fully complies with the Town wetland code. In response to comments the modified plan that is the subject of this FSEIS has reduced the increase in overall site impervious such that it now complies with the NYCDEP WRR §18-39.a.4.iii, regarding new impervious surfaces within 100 feet of a watercourse. No impervious surfaces are proposed within the 300 foot offset from the Kensico reservoir stems. See Response to Comment 59 regarding buffer disturbance and mitigation.

Comment 105: The DSEIS indicates that "Further reducing the building footprint to eliminate the need for a NYCDEP variance is not economically feasible as it would require further reductions below the current 980 parking space size."

What is the basis for this conclusion? How small would the parking garage need to be to avoid the need for the DEP variance? Simply because the garage has already been reduced in size, doesn't obviate the obligation to comply with all applicable regulations, including the DEP prohibition of constructing new impervious surfaces within 100' of a watercourse. (Cleary_Sierra)

Response:

In response to comments, the modified site plan that is the subject of this FSEIS has been reduced and avoids the need for a NYCDEP variance by keeping the increase in impervious surface at 24.98 percent—below the 25 percent NYCDEP threshold.

Comment 106: The DSEIS states that "Design of the proposed garage is constrained by footprint and height limitations". This statement leads to the obvious conclusion that the site is too small and physically unsuitable for the development of a facility of the size and scale proposed by the applicant. (Cleary_Sierra)

Response: As is typical with sites in developed areas, design is limited by the acreage that is owned by an applicant. Such is the case with the proposed site.

Comment 107: The 3rd paragraph on this page reads: "The Lead Agency will need to determine whether the project should be revised to reduce project impacts so that a NYCDEP variance would not be required..." based upon the extensive record complied for this project, it would be quite difficult for the Lead Agency to find any documented justification for a DEP variance.

The applicant's argument for the variance consists of the following statement: "Further reducing the building footprint to eliminate the need for a NYCDEP variance is not economically feasible as it would require further reductions below the current 980 parking space design." No economic pro-forma has been submitted addressing the projects viability. Moreover, no documented need for 980 parking spaces was provided. The economic feasibility argument is hollow, without a sound economic basis. (Cleary_Sierra)

Response:

In response to comments, the proposed project has been reduced in size and does not need a variance from NYCDEP, conditioned on a NYCDEP approval of a SWPPP.

Comment 108: The FAA's Advisory Recommendation indicates that "...while it is desirable to clear all objects from the RPZ, some uses are permitted, provided they do not attract wildlife..." it continues "...Automobile parking facilities, although discouraged, may be permitted..." As noted earlier in this memorandum, the proposed location of the parking facility in the RPZ is simply bad planning, and is discouraged by the FAA. Moreover, such a facility may be acceptable if it does not attract wildlife. A cursory review of the problems faced by parking facility managers reveals that pest birds have long been a challenging problem.

Birds often find refuge in parking garages, and this is a common nuisance problem for garage operators and patrons alike. Non-migratory birds such as pigeons, starlings and sparrows find parking garages suitable for nesting, roosting and landing, which creates several problems and concerns for parking garages and those who are responsible for their maintenance and management. These pest birds find parking garages to be suitable due to their protection from the outside elements and an ample food supply from garbage containers and on occasion, patrons feeding them. Bird droppings not only deface vehicles parked in the garage, but also pose several health and safety risks for the individuals themselves. When these birds do take flight, they often do so in large groups, which pose a hazard to pedestrians, vehicles and most significantly in this instance, aircraft. (Cleary_Sierra)

Response:

See Response to Comment 1 and 3 regarding demand for the proposed parking facility, and Response to Comment 89 regarding to potential impacts to birds.

Comment 109: In the discussion of pollutant loading assessment, the DSEIS details various methods that are proposed to mitigate pollutant loading from the site, post development. It is stated that currently no stormwater quality or quantity treatment exists on the site, and untreated stormwater flows directly unabated into the Kensico Reservoir. While no active stormwater management practices are present on the site, the existing natural features on the site, including the wetland, wetland buffer, watercourse and it's buffer area, as well as the existing

grassed and pervious portion of the site, all serve to treat, filter, and slowdown stormwater.

In the last few years, the DEP has constructed 5 stormwater management projects on the west side of the Kensico Reservoir to mitigate the impacts of pollutant runoff and turbidity in the Reservoir. Combined, these projects represent a significant capital outlay of public funds and a commitment of City resources to preserve and protect a vital resource. It is difficult to see how the DEP could in any instance, authorize the issuance of a variance to the Watershed Rules and Regulations to support a private development project that so flagrantly violates the well-conceived long term planning goals of so many different overlapping layers of local, county state and federal government. (Cleary_Sierra)

Response:

In response to comments, the proposed project has been reduced in scale to limit potential impacts. Additionally, the SWPPP and Plans have been revised to address NYCDEP's comments and concerns. Refer to Chapter 2, Section D of this FSEIS for a review of the pollutant analysis provided in the SWPPP. The analysis for the proposed design shows an improvement over existing conditions.

Comment 110: The exact extent of the "limiting distance disturbance" should be accurately and clearly defined. This response shifts this issue to the DEP, and suggests that the variance will resolve the issue. In fact, the Lead Agency must also address this issue, and the overall environmental impacts of disturbances to this specially regulated area. (Cleary_Sierra)

Response:

In response to comments, the proposed project has been modified to reduce the increase in impervious surface to 24.98 percent, less than the 25 percent threshold for requiring a NYCDEP variance. Consequently, a variance from NYCDEP will not be required.

Comment 111: It is noted that the DEP indicated that a Negative Declaration from the Lead Agency would be needed before the necessary variance could be granted. It is obvious that a Negative Declaration will not be issued in this instance, but rather the Lead Agency will issue a Findings Statement. What would happen if the Findings include conditions that the DEP finds unacceptable? What if the Lead Agency were to determine that the project would not have an adverse environmental impact, yet the DEP finds that there would be adverse impacts. Would the DEP be required to issue the variance against their will? Would the DEP (an Involved Agency) be bound by the Lead Agency's Findings? (Cleary_Sierra)

Response:

In response to comments, the Proposed Project has been modified to reduce the increase in impervious surface to 24.98 percent, less than the 25 percent NYCDEP threshold requiring a variance.

It should be noted that agencies involved in the same action may have entirely different findings. This can result from agencies' differing balancing of environmental with social and economic factors, as well as from fundamental differences among agencies' underlying jurisdictions. An involved agency is not obligated to make the same findings as the lead agency or any other involved agency. However, findings must be based on, and related to, information in the EIS record. If one agency prepares positive findings, and another prepares negative findings, the action cannot go forward unless the conflict is resolved."

Comment 112: The response indicates that Temporary Sediment Basin 2 will not be used until the final phase of construction, and as such the storage volume above the ground water level will be sufficient. If so, then why is this basin needed? Will it be constructed with the other basins, and if so, how would it be prevented from functioning until the final phase of construction? (Cleary_Sierra)

Response:

The Construction Sequence and Plans have been revised to address NYCDEP's comments and concerns related to sediment and erosion controls. The Sequence details the process of construction activities and the various erosion and sediment controls required by NYSDEC's Standards and Specifications for Erosion and Sediment Controls at each stage. The Sequence demonstrates through the use of appropriate erosion and sediment controls, including temporary sediment traps, the site can be constructed without adverse impact to downstream watercourses.

Comment 113: The DEP expressed concern over the applicant's minimal approach to address pollutant removal, noting, "... regulatory compliance represents a minimum code requirement and does not constitute appropriate mitigation under SEQRA."

The applicant has not modified the water quality treatment facilities, but rather provided a more complete and detailed explanation of the facility that the DEP initially found to be inadequate. (Cleary_Sierra)

Response:

The proposed project has been reduced in scale to limit potential impacts. Additionally, the SWPPP and Plans have been revised to address NYCDEP's comments and concerns. Refer to Chapter 2, Section D of this FSEIS for a review of the pollutant analysis provided in the SWPPP. The analysis for the proposed design shows an improvement over existing conditions.

Comment 114: The DEP expressed concerns about the adverse impacts of post development increases in stormwater volume. The applicant has indicated that "Reduction of

volume of runoff from the larger storm events would require infiltration practices which are not able to be supported by the site soils."

This represents yet another example of the physical unsuitability of the site to support the project as currently proposed. (Cleary_Sierra)

Response: Refer to response to Comment 66.

Comment 115: It is unclear why the applicant has discarded the green roof suggestion, which the DEP advocated. (Cleary_Sierra)

Response: Refer to response to Comment 67.

Comment 116: The DEP questioned whether the area of proposed wetland mitigation was adequate compared to the area of wetland/buffer disturbance.

While the area of wetland buffer loss has been reduced to 15,150 square feet and a mitigation area of 19,500 square feet is proposed, the 2:1 mitigation requirement established in §340: Wetlands and Watercourse Protection is not met. The applicant has indicated that he is willing to provide additional off-site wetland buffer mitigation at a location of the Town's choosing. This suggestion, like many others offered by the applicant, reinforces the fact that the site is simply unsuitable for the proposed use, as it cannot physically support all of the necessary improvements required mitigate adverse impacts and otherwise support the project. (Cleary_Sierra)

Response: See Response to Comment #59.

Comment 117: The DEP objected to the use of chemical methods to remove invasive species. The applicant responded by indicating that only NYSDEC approved herbicides would be used. Certainly the DEP assumed that any herbicides applied would be approved by the DEC, and not some illegal chemical. The applicant's clarification that they would indeed use only legal herbicides does not address the objection to the use of chemicals in the first place. (Cleary_Sierra)

Response: The applicant will avoid all use of pesticides if that is a condition of approval. However, wetland ecologists experienced with removal of invasive species have attested to the safety of Glyphosate for removal of phragmites and its necessity for full eradication of this species. However, the region of phragmites onsite is not extensive. The applicant is eager to discuss these particulars of the wetland mitigation and landscaping maintenance during the permit review process.

Comment 118: The Watershed Inspector General's observation that the Town does not permit stormwater treatment facilities in the designated wetland buffer, is addressed by indicating that they are "temporary" and will eventually become fully vegetated. In fact, the stormwater treatment facilities are not temporary, but are permanent

stormwater management facilities – and not natural wetland buffer areas. (Cleary_Sierra)

Response:

The stormwater facilities are permanent, but will be vegetated with native species and maintained as such. Therefore, in the applicant's opinion, their buffer function is equal to the native/non-native condition of the existing wetland buffers onsite.

It should be noted that the Lead Agency typically does not permit stormwater treatment practices to be used as Town-regulated wetlands or wetland buffer mitigation.

Comment 119: In addressing the percent increase of impervious surface within 100' of a watercourse, the Watershed Inspector General indicates that their office is "...aware of no reason why a variance to this prohibition should be granted. Thus, the Project should be scaled down or reconfigured to exclude disturbances and new impervious areas from Town and DEP buffer areas."

The applicant's response to this overwhelmingly critical comment is to note the relatively modest reductions made to the size of the project, and that any further reduction would "not be economically feasible." No technical justification for the variance has been put forward by the applicant. (Cleary_Sierra)

Response: As discussed above, no NYCDEP variance is required with the current site plan.

Comment 120: The Watershed Inspector General pointed out that the rainfall data used by the applicant is no longer valid in New York State. Rather than complying with the proper data input suggested by the WIG, the applicant argues that the Soil Conservation Service rainfall curve they used is actually more conservative. Once again, the WIG presumably knew this when the comment was offered, but the applicant elected to ignored this, instead of redoing the analysis as suggested by the WIG. (Cleary Sierra)

Response:

The NYSSMDM does not require the use of NRCC rainfall distributions as requested by WIG. However, the hydrologic analysis has been updated to use a custom rainfall distribution based on NRCC data. Refer to the SWPPP for further information.

Comment 121: The Watershed Inspector General has noted that the applicant is deferring the consideration of retrofitting impervious areas. The applicant has indicated that those options "would be considered" during the site plan review phase. The applicant fails to recognize that these options are mitigation measures necessary to address adverse environmental impacts, and as such should be addressed at this stage of the project review. (Cleary_Sierra)

Response:

In response to comments, the proposed project has been reduced in scale to limit potentially adverse impacts. Additionally, the SWPPP and Plans have been revised to provide significant total phosphorus reduction. Refer to Chapter 2, Section D of this FSEIS for a review of the pollutant analysis provided in the SWPPP. The analysis for the proposed design shows an improvement over existing conditions.

Comment 122: The Westchester County Planning Department also expressed concern about the potential for the proposed facility attracting birds due to the stormwater planters. The applicant dismisses this concern, but the concern is warranted, particularly in concert with comment #6 above. (Cleary Sierra)

Response:

As discussed above, the building will be fully enclosed and will not cause increased potential for bird roosting. The stormwater management measure will be fully planted and will not constitute preferred habitat by Canadian Geese (open lawn areas with ponds) and will be surrounded by mature forest which limits the ability for geese to fly in. No increase in bird use of the site is expected as compared to existing conditions.

Comment 123: The Westchester County Planning Department raised concern over glare associated with rooftop solar panels. The applicant agreed to comply with FAA guidelines, but did not offer anything specific. Generalized compliance with a federal guideline that is subject to change is difficult, and weak mitigation measures to include in the Findings Statement would be much more effective (and enforceable) to include specific limitations and restrictions. (Cleary_Sierra)

Response: The current project no longer includes solar panels.

Comment 124: The facility would violate the 2004 Terminal Capacity Agreement by expanding airport facilities to the subject site, is located in the Airport's Runway Protection Zone, where it is "desirable to clear all objects", in the Kensico Reservoir Drainage Basin where new "new development is disfavored", in an area where the Town of North Castle Comprehensive Plan indicates that "any expansion of the airport is not recommended", in a zone where the use is prohibited, and its scale and mass would exceed the existing zoning controls by 100% in several key areas, the proposed solution to which is to "illegally "spot-zone" the site, on property that is extremely environmentally constrained, for a project that would result in definable adverse stormwater, traffic and visual impacts. All of this for a project for which a specific demand has not been accurately documented. (Cleary_Sierra)

Response: See Responses to Comments 1, 7, and 48.

OFFICE OF THE WATERSHED INSPECTOR GENERAL, LETTER DATED APRIL 26, 2016

Comment 125: The potential for harm to water quality in the Kensico Reservoir is heightened by the fact that its water is unfiltered. Pursuant to the federal Safe Drinking Water Act, 42 U.S.C. § 300f et seq. (Act), the Environmental Protection Agency (EPA) promulgated the Surface Water Treatment Rule, which requires that a public drinking-water system maintain clean water either by installing a filtration system or by meeting criteria, including a "watershed control program," to protect the quality of the water in the absence of filtration. See 40 C.F.R. §§ 141.70, 141.71. Water from the Kensico Reservoir has remained unfiltered, pursuant to a series of filtration avoidance determinations issued by EPA and the New York State Department of Health (DOH) under the Act and the New York Public Health Law. Those determinations require New York City to control its watershed by acquiring land, implementing its Watershed Rules and Regulations, and developing a variety of other programs intended to keep the water clean and safe.

The Act strictly regulates discharges of turbid water and pathogens into the Reservoir. It restricts turbidity in the "raw water" (before entry into the distribution system) to no more than 5 nephelometric turbidity units. See 40 CFR § 141.71(a)(2). In addition, because of the health risks associated with pathogens in a drinking water supply, EPA requires that each unfiltered water system meet strict requirements "ensuring that the system is not a source of a waterborne disease outbreak." 40 C.F.R. § 141.71. Violations of the Act's standards concerning turbidity and pathogens could provide grounds for DOH, which holds primacy in enforcing filtration avoidance requirements, to require the City to filter the Kensico Reservoir's water. Constructing a filtration plant would be extremely burdensome for City and State taxpayers, costing well over 10 billion dollars. (WIG)

Response:

In response to comments, the proposed site plan, as modified and presented within this FSEIS, fully meets the NYCDEP watershed rules and regulations on impervious surfaces within 100 feet of watercourses. Furthermore, it includes a stormwater management plan that will avoid releases of turbid water and other pollutants by capture and treatment of all runoff from the developments impervious surfaces—a condition not currently met by the existing building and parking areas. The SWPPP will be reviewed by the Town and NYCDEP and must be permitted separately by these agencies before the development can be approved.

Comment 126: Park Place would increase impervious areas within the DEP-regulated watercourse buffer in breach of DEP's Watershed Rules and Regulations. The Sponsor is seeking a variance from DEP excusing its noncompliance. The WIG

Office believes that a variance should be denied. Impervious surfaces are generally excluded from watercourse buffers because they facilitate increased downstream flow of polluted stormwater runoff. A variance here would be especially inappropriate given the watercourse's location, just several hundred feet upstream of the critically important Kensico Reservoir. (WIG)

Response:

In response to comments, the proposed project, as modified and presented in this FSEIS has reduced impervious coverage by reducing the footprint of the proposed building to 24.98 percent increase in impervious area, less than the 25 percent threshold for requiring a variance from NYCDEP. As a result, the project does not require a variance from NYCDEP for the increase in impervious area.

Comment 127: The SWPPP for Park Place is incomplete and preliminary because the Sponsor has chosen not to address at this time important engineering processes, calculations and details that are required by the DEC SPDES General Permit for Stormwater Activity from Construction Activity, Permit No. GP-0-15-002 (effective January 29, 2015) (General Permit). The Sponsor wishes to defer developing this information and providing it to the Planning Board and the public until the site plan review stage, after the SEQRA process (with its opportunity for public comment) has concluded. (WIG)

But without this information, the Sponsor cannot demonstrate, and the Planning Board cannot find, that the Project will prevent stormwater pollution of the Kensico Reservoir as required by applicable State technical standards for erosion and sediment control and stormwater management. The missing information, assuming it is eventually provided, may well disclose further deficiencies in the SWPPP whose correction may require significant changes to the Project design as well as to the SWPPP itself. (WIG)

Response:

In response to comments from the Watershed Inspector General, the SWPPP and site plan have been advanced to include the majority of the additional details, information and calculations requested. These additional project details include building footprint and pollutant analysis, design of an oil/water separator to capture potential drippings associated with the vehicles within the building, an analysis of the stormwater facilities to mitigate increases of dissolved phosphorous and additional pollutants such as nitrogen, suspended solids, biological oxygen demand and fecal coliform loading, and construction sequencing. Subsequent to satisfying the 'hard look' of the analyses that are included within the documents that are a part of this SEQRA process, the Applicant will be required to submit a complete site engineering package for site plan approval for review by the Town and related permitting agencies.

Comment 128: The SWPPP should be revised to provide the missing information, in accordance with our technical comments. Environmental review under SEQRA

must be comprehensive; it must cover all "relevant areas of environmental concern." Har Enterprises v. Town of Brookhaven, 74 N.Y.2d 524, 529 (1989). In the context of a development project in a very sensitive watershed, such as Park Place, SEQRA review must thoroughly address pollution impacts that "might adversely affect nearby water supplies." Inland Vale Farm Co. v. Stergianopoulis, 65 N.Y.2d 718, 720 (1985). That thorough review must encompass environmental impacts relating to stormwater. Matter of Pheasant Meadow Farms, Inc. v. Town of Brookhaven, 31 A.D.3d 770 (2d Dep't 2006).

Response: See Response to Comment 127.

Comment 129: SEQRA requires that the lead agency take a "hard look" at the potential environmental impacts of its discretionary actions. Jackson v. New York State Urban Dev. Corp., 67 N.Y.2d, 400, 417 (1986). A hard look is not taken when a planning board defers review of information essential for assessing the project's potential environmental impacts to a later stage in the approval process. Penfield Panorama Area Community, Inc. v. Town of Penfield Planning Board, 253 A.D.2d 342, 349-50 (3d Dep't 1999). As the court found in Penfield Panorama, the necessary information should be made available as part of the SEQRA process to avoid shielding it from public scrutiny. Id. This principle applies especially where, as in Town of Red Hook v. Dutchess County Resource Recovery Agency, "various issues with respect to water concededly require further study." Id., 146 Misc.2d 723, 728-29 (Sup. Ct. Dutchess Cty. 1990) (FEIS and findings statement annulled).

Response: See Response to Comment 127.

Comment 130: The WIG Office respectfully recommends that impervious areas should be removed from the watercourse buffer and that the SWPPP be revised to reflect needed information required by State law. All these changes should be subject to public review and comment under SEQRA. (WIG)

Response:

In response to comments, the Proposed Project has been modified and reduced in scope by reducing the footprint. As revised, the Proposed Project (building, driveway and other impervious surfaces) reflects a 24.98 percent expansion over existing conditions – less than the 25 percent threshold for requiring a NYCDEP variance. Therefore, while a SWPPP review permit will be needed from NYCDEP, no variances from NYCDEP WRR will be required.

It should be noted that while the Project proposes impervious area in the watercourse buffers, the impervious area does not drain through the buffer to the watercourse. The impervious area is directed to stormwater management practices for treatment prior to release. The Lead Agency will determine whether the proposed amount of Town-regulated wetland buffer disturbance is

acceptable and will require the implementation of a mitigation plan meeting the requirements of the Town Code, or a wetlands permit will not be issued.

TECHNICAL COMMENTS OF DONALD LAKE, P.E., PREPARED ON BEHALF OF THE OFFICE OF THE WATERSHED INSPECTOR GENERAL CONCERNING THE DRAFT SUPPLEMENTAL ENVIRONMENTAL IMPACT STATEMENT FOR THE PARK PLACE AT WESTCHESTER AIRPORT PROJECT

Comment 131: Water Resource Encroachment: WIG 6/1/11 comments, items II-21, 24, 25, and WIG 2/19/15 comments, item III.1. These comments are discussed in the DSEIS, Comments 16 and 17, page 17, Section C, DSEIS.

This issue has not been fully addressed. Although overall project disturbances have been reduced, there is still a significant amount of new impervious area proposed at the site and within the New York City Department of Environmental Protection (DEP) regulated watercourse buffer. As shown in Table I, page 4, of the DSEIS, the planned increase in impervious area at the site substantially exceeds 25% of the existing condition. DEP regulations prevent the creation of new impervious areas within the buffer for the on-site watercourse. See DEP Watershed Rules and Regulations, Section 18-39.a.4.iii. The Project needs to be scaled down further to comply with the regulations. (Lake)

Response:

In response to comments, the Proposed Project has been modified and reduced in scope and now constitutes a 24.98% expansion of impervious surfaces, less than the 25 percent threshold requiring a variance by NYCDEP. The Lead Agency will determine whether the proposed amount of Town-regulated wetland buffer disturbance is acceptable and will require the implementation of a mitigation plan meeting the requirements of the Town Code, or a wetlands permit will not be issued.

Comment 132: Hydrology: WIG 2/19/15 comments, items 2a, 2b and 2c, discussed in the DSEIS, Comments 18 and 19.

The sponsor used the USDA Soil Conservation Service Type 3 rainfall distribution in the DSEIS, but this is no longer valid in New York. The hydrology should be recalculated to insure that the project is properly sized for the current rainfall data.

Response:

The NYSSMDM does not require the use of NRCC rainfall distributions. However, the hydrologic analysis has been updated to use a custom rainfall distribution based on NRCC data. Refer to the SWPPP for further information.

Comment 133: Inconsistencies between Drawings & HydroCAD Analysis: WIG 2/19/15 comments, item 3, discussed in the DSEIS, Comment 20.

Although this issue was addressed in the DSEIS, it most probably will need to be addressed in the FEIS once the hydrologic analysis is corrected (see technical comment 2 above).

Response:

Additional detail and information have been added to the plans. The plans substantially reflect the intent of the hydrologic analysis. Additional review for consistency between the stormwater analyses and the plans will be conducted concurrent with site plan approval.

Comment 134: Comments Deferred to Site Plan Review: A significant number of previous WIG comments have not been answered. The DSEIS states that they will be addressed later on as part of the site plan review. These unaddressed comments are:

- WIG 6/1/11 comments, item 11, Temporary conveyances (DSEIS, Comment 27)
- WIG 6/1/11 comments, item 12, Curve number (DSEIS, Comment 28)
- WIG 6/1/11 comments, item 13, Structural details table (DSEIS, Comment 29)
- WIG 6/1/11 comments, item 14, Flow splitter detail (DSEIS, Comment 30)
- WIG 6/1/11 comments, item 15, Stormwater planters (DSEIS, Comment 31)
- WIG 6/1/11 comments, item 16, Pocket wetland profile (DSEIS, Comment 32)
- WIG 6/1/11 comments, item 17, RRv calculations (DSEIS, Comment 33)
- WIG 6/1/11 comments, item 18, Tc Flow path (DSEIS, Comment 34)
- WIG 6/1/11 comments, item 19, Kv and n values (DSEIS, Comment 35)
- WIG 6/1/11 comments, item 20, Sand filter pre-treatment (DSEIS, Comment 36)
- WIG 2/19/15 comments, item 3b, Quality control check (DSEIS, Comment 21)
- WIG 2/19/15 comments, item 8, Structure Type ES6 (DSEIS, Comment 26).

Many of the engineering processes, calculations and details that the Sponsor wishes to defer until site plan review after the SEQRA process affect design balance and the proper proportioning of the project. Without the missing information it is not possible "to connect the dots" and make sure that what is being proposed will actually perform as required. If changes are necessary at the final step, due to unanticipated constraints, criteria for prevention of pollution may be compromised and an inadequate option accepted. The needed information listed above should have been available as part of the DSEIS and appurtenant documents so a full review could have been completed. Because the Sponsor did not provide this information for the DSEIS, it should be subject to further review and comment by the public. (Lake)

Response:

Comment noted. Additional detail and information have been added to the plans that are appended to this FSEIS. Subsequent to the conclusion of the 'hard look' required by SEQRA, a detailed site plan application will be submitted to the Planning Board for review.

The following comments have been addressed in the SWPPP and Plans as part of the 2016 FSEIS:

- WIG 6/1/11 comments, item 13, Structural details table (2016 DSEIS, Comment 29)
- WIG 6/1/11 comments, item 16, Pocket wetland profile (2016 DSEIS, Comment 32)
- WIG 6/1/11 comments, item 17, RRv calculations (2016 DSEIS, Comment 33)
- WIG 6/1/11 comments, item 18, Tc Flow path (2016 DSEIS, Comment 34)
- WIG 6/1/11 comments, item 19, Kv and n values (2016 DSEIS, Comment 35)
- WIG 6/1/11 comments, item 20, Sand filter pre-treatment (2016 DSEIS, Comment 36)
- WIG 2/19/15 comments, item 3b, Quality control check (2016 DSEIS, Comment 21)
- WIG 2/19/15 comments, item 8, Structure Type ES6 (2016 DSEIS, Comment 26).

The following comments will be included in the site plan application package that will be submitted to the Planning Board subsequent to the SEQRA process and will be fully addressed during the site plan review process:

- WIG 6/1/11 comments, item 11, Temporary conveyances (DSEIS, Comment 27)
- WIG 6/1/11 comments, item 12, Curve number (DSEIS, Comment 28)
- WIG 6/1/11 comments, item 14, Flow splitter detail (DSEIS, Comment 30)
- WIG 6/1/11 comments, item 15, Stormwater planters (DSEIS, Comment 31)

Comment 135: A revised pollutant loading analysis, dated 12/30/15, was submitted to us in April 2016 as Appendix B of the DSEIS. Instead of using the outdated values presented in Appendix B of the DSEIS, I completed an analysis of the site using updated event mean concentration values and pollutant removal rates (see March 5, 2015 East of Hudson Watershed Corporation Stormwater Retrofit Project Design Manual). I also corrected the annual rainfall amount and adjusted the Rv value to 0.95 for impervious area instead of 0.932 used in Appendix B. With two stormwater management practices arranged in series (a sand filter with a pocket wetland) to receive stormwater runoff from five of the eleven post-developed subareas, and a pocket wetland for two others, there is a significant reduction of total phosphorus from the existing condition. Individually, the sand

filter has a total phosphorus removal allowance of 59%, and a pocket wetland has a 57% removal allowance. Together in series they have a calculated total phosphorus removal rate of 82%. My calculations show an existing total phosphorus load equal to 9.25 pounds; a post-developed load of 11.64 pounds; and a post-developed load with a stormwater management program treatment equal to 5.20 pounds. This is a 44% reduction from the existing condition. No pollutant reduction consideration was allowed for the green infrastructure practices, stormwater planters or porous pacers, since supporting sizing calculations were not provided. (These practices may not be able to treat the full water quality volume draining to them.) The foregoing analysis assumes that all stormwater management practices will be designed to the criteria required in the current New York State Stormwater Design Manual (January 2015). But we do not know whether this is the case because the design details needed to prove it have not been provided. Specifically, the entire list of design information in Section I.4.above (other than items I.4.a. and I.4.k) are needed. These should be included in a revised SWPPP made subject to public comment. (Lake)

Response:

The pollutant analysis has been recalculated and demonstrates that post-development conditions of the site reduce TP, TSS and TN from pre-development conditions. Refer to the SWPPP's Appendix I for the calculations.

Comment 136: Note 6 for Construction Sequence 3 on both Engineering Drawings C-1 and C-8C in Appendix C, Drawings of Appendix G, of the FEIS labeled Stormwater Pollution Plan Summary, refers to a wet pond. This notation needs to be changed to Pocket Wetland. (Lake)

Response: The notation has been revised to indicate a "stormwater wetland."

Comment 137: Engineering Drawing C-13 in Appendix C, Drawings, as noted above, shows an elaborate profile for a wet pond stormwater practice. However this stormwater practice has been replaced by a pocket wetland system. The profile for a wet pond stormwater practice needs to be replaced with a profile for the designed pocket wetland system on Engineering Drawing C-13. (Lake)

Response: Comment noted. Additional detail and information have been added to the plans. Specific site plan details will be addressed during the site plan review process.

EDWARD BOROUGHS, COMMISSIONER WESTCHESTER COUNTY PLANNING BOARD, APRIL 18, 2016

Comment 138: Location within runway protection zone for Westchester County Airport. As we noted previously in several of our previous response letters to this proposal, the location of the proposed parking garage is within the runway protection zone (RPZ) for runway 16 at the County Airport. Because the County is responsible

as a sponsor for grants received from the FAA, the FAA has recommended that the County take action to the extent reasonable to discourage development within the RPZ. (Boroughs)

Response:

See Response to Comment 7.

Comment 139: Wetland, stormwater and water quality impacts. While the draft SEIS responds to a number of our concerns with respect to wetland, stormwater and water quality issues, the stormwater management plan continues to show extensive site disturbance within wetland buffer areas. Because the site is in close proximity to the Kensico Reservoir and contains a watercourse which drains directly to the reservoir, the Town must take a hard look at the impacts to water quality before issuing approvals for the proposed plans. (Boroughs)

Response:

As discussed above, the stormwater management plan has been revised to accommodate the revised building and site plan. Disturbance to wetland and watercourse buffers (Town and DEP) have been reduced. Most significantly, the increase in the amount of impervious surface within Town buffer and DEP buffer has been reduced to just 5,724 square feet and 3,790 square feet respectively. By reducing the building footprint, the project no longer requires a variance from the NYCDEP WRR's. The Lead Agency will determine whether the proposed amount of Town-regulated wetland buffer disturbance is acceptable and will require the implementation of a mitigation plan meeting the requirements of the Town Code, or a wetlands permit will not be issued.

TED ANDERSON, CHAIR, NEW YORK SIERRA CLUB AIRPORT COMMITTEE, **LETTER DATED APRIL 24, 2016**

Comment 140: The property is next to the Westchester County Airport, which already has a

parking garage with 1250 spaces. The applicant gives the reason for an amendment to Zoning Ordinance "to address the shortage of parking at Westchester County Airport". According to the airport manager there is no need

for additional spaces. (Anderson Sierra)

Response:

See Responses to Comments 1 and 3. As stated before, the Applicant believes there is a demand for the Proposed Project. While commercial air traffic may have declined at Westchester County Airport, general aviation has increased, evidence the FBO, Million Aire. Some of the improvement plans for the FBO's have replaced surface employee and customer parking lots with modern new hangar facilities, thus losing surface parking for customers and support staff. The Proposed Project is being designed to meet the needs of the commercial traveler looking for a guaranteed and convenient option for parking at the airport. The Proposed Project is also being designed to meet an existing need for the corporate aircraft market that remains a significant proportion of the aircraft economy at Westchester County Airport.

Comment 141: The Westchester County Airport is on the shores of the Kensico-Rye Reservoir. We know that with today's environmental laws this airport would not have been allowed to be built. With the stress of additional construction in the Kensico-Rye Reservoir watershed the reservoir's capacity to assimilate pollution will have reached a tipping point forcing a water filtration plant to be mandated. Former Department of environment protection Water Commissioner Christopher Ward has stated that this proposed garage would add significantly to that stress. (Anderson_Sierra)

Response:

As previously noted, the project site is not affiliated with the airport, and will be privately owned and operated. The modified proposed plan that is the subject of this FSEIS has been reduced in size and scale to substantially reduce potentially adverse environmental impact, but retains the significant environmental benefits of the proposed project. These environmental benefits include: a) collection and treatment of stormwater that currently flows unimpeded across the site, traversing I-684 and into the Kensico Reservoir; b) capture and treatment of a portion of stormwater runoff from the adjacent property; c) construction of a 'green' building; d) providing an assured parking space at the airport, thus reducing vehicle trips and related air emissions.

Comment 142: Three governing bodies our own Westchester Legislature, the New York State Assembly and New York State Senate have all passed resolutions calling for the non-expansion of the Westchester County Airport including its parking. (Anderson Sierra)

Response:

Neither the project site nor the Proposed Project is affiliated with the airport. The Proposed Project will be privately owned and operated. Expansion of the airport is restricted by Westchester County's Terminal Capacity Agreement that limits the operating capacity of the airport to 240 passengers per half hour. The Applicant does not seek to void or revise this agreement nor does it have standing to do so.

Comment 143: The proposed parking garage goes against the combined wisdom of federal agencies and our local and state legislatures and many environmental organizations concerned with the protection of our Kensico's critical drinking water supply. (Anderson_Sierra)

Response:

The modified proposed plan that is the subject of this FSEIS has been reduced in size and scale to substantially reduce potentially adverse environmental impact, but retains the significant environmental benefits of the proposed project. These environmental benefits include: a) collection and treatment of stormwater that currently flows unimpeded across the site, traversing I-684 and into the Kensico Reservoir; b) capture and treatment of a portion of stormwater runoff from the adjacent property; c) construction of a 'green' building; d) providing an assured

parking space at the airport, thus reducing vehicle trips and related air emissions.

Comment 144: A hydro-geologist, Peter Dermody clearly stated that this proposed project, in the Town of New Castle is in a designated wetland buffer area within the 300 foot protection zone around the Kensico-Rye Reservoir system operated by New York City Department of Environmental Protection. (Anderson Sierra)

Response:

Yes, the project site is within Town-regulated 100-foot wetland buffer area, within the 100-foot limiting distance to NYCDEP-regulated watercourses, and within the NYCDEP-regulated 300-foot offset from a reservoir stem. These areas are shown in the enclosed figures and drawings. However, as discussed in the FSEIS, the proposed project is now below the 25% increase allowed by the NYCDEP's Watershed Rules and Regulations, and no impervious surface is proposed within the 300-foot offset from the reservoir stem. Therefore, the project complies with the NYCDEP Watershed Rules and Regulations, subject to review of the Stormwater Pollution Prevention Plan (SWPPP) that has been developed for the site to properly treat stormwater runoff.

Comment 145: This King Street proposed parking construction will require the disregard of layers of protective environmental regulations. These have been established for the protection of water quality within the wetland buffers of the reservoir. The proposed detention basin built in the wetland buffer zone, will concentrate the contaminants into the wetland's ground water and thus the reservoir. (Anderson Sierra)

Response:

The proposed stormwater management plan is not designed to infiltrate stormwater as a means of water quality treatment. Instead, the components of the stormwater management system include a bioretention system, stormwater planter, surface sand filter, and stormwater wetland. Pollutant removal in these practices is achieved through settling, sequestration in soil media, and biological uptake within the practice. A pollutant analysis included as part of the SWPPP demonstrates that post-development conditions of the site will reduce pollutants entering the watershed, including phosphorus, nitrogen and suspended solids, when compared to existing conditions. The analysis is summarized in Table 2.D-1 of Chapter 2, Section D of the FSEIS.

Comment 146: According to SEQRA regulations and case law (see documented Richard Lippes legal brief pages 3-5 attached) only the North Castle Town Board has the ultimate decision making power and therefore only this body has the authority to undertake both investigation and decision making under SEQRA law. (Anderson Sierra)

Response:

The Planning Board is an 'involved agency' for the proposed project and considered by other involved agencies to be qualified to act as the Lead Agency to conduct the SEQRA review.

Back in 2009, the Applicant submitted an Environmental Assessment Form (EAF) to the Town of North Castle Planning Board, and the Planning Board declared their intent to be the SEQRA lead agency. The EAF presented the proposed Park Place project and an accompanying proposed zoning text amendment to amend the IND-AA District to permit a parking garage with a special permit. Without objection from other involved agencies, including the Town Board, the Planning Board declared themselves to be lead agency and issued a Positive Declaration on September 30, 2009. In addition to having the authority to grant site plan approval, the Planning Board is the approving authority for wetland permit applications for projects that also involve site plan approval from the Planning Board (See Section 209-5(c) of the Town Code). In addition, Town Code Section 192-2 of the Tree Preservation Law gives the building inspector the approving authority except when a project requires site plan approval, in which case the Planning Board is granted the approving authority. Therefore, the Planning Board has approving authority for wetland and tree removal permit applications related to this project, as well as site plan approval

Furthermore, there is substantial precedent in New York State for a planning board to act as Lead Agency on significant land development projects, even when a zoning amendment is required. This is due to a number of reasons: (1) land development projects are typically first received by the planning board, as they are submitted to the planning board for Site Plan approval; (2) planning boards generally have more experience reviewing land development applications; and (3) planning boards are oftentimes more familiar with the zoning code than the Town Board. This is evidenced and supported by the Town of North Castle Town Code §213-68.C, which requires the Town Board to refer all zoning amendments to the Planning Board for their report and recommendation. As the principle agency in reviewing proposed development projects in the Town of North Castle, the Planning Board typically has greatest familiarity with development and growth patterns in the Town and what land uses may be appropriate for certain areas. For this application, the Town Board recognized the Planning Board as being the proper involved agency to become Lead Agency under SEQRA, and offered no objections. Pursuant to §617.6(b)(6)(i)(b), no evidence has been provided to establish the failure of the Lead Agency's basis of jurisdiction, therefore there is no legitimate reason under SEQRA to reestablish the Town Board as Lead Agency.

Comment 147: It is our conclusion that this proposed King Street parking complex while not directly on airport property will be built solely to promote greater parking to the airport, encourage airport expansion and gravely increasing the threat to the

Kensico-Rye Reservoir water quality forcing the EPA to rescind our prized filtration avoidance declaration. (Anderson_Sierra)

Response:

The project site is not affiliated with the airport and the proposed parking facility will be privately owned and operated. Expansion of the airport is restricted by Westchester County's Terminal Capacity Agreement that limits the operating capacity of the airport to 240 passengers per half hour. The applicant does not seek to void or revise this agreement, nor does it have standing to do so. The proposed project will address an existing need for additional parking for commercial travelers are for employees supporting corporate aviation.

MISTI DUVALL, STAFF ATTORNEY, RIVERKEEPER, LETTER DATED APRIL 26, 2016

Comment 148: While we are pleased that the proposed project has been scaled back to eliminate direct wetland disturbance, we remain highly concerned about harm to the water quality of the Kensico Reservoir. The proposed project would still result in significant disturbance of critical wetland and watercourse buffer areas within close proximity to the Reservoir. The project fails to describe adequate mitigation measures for these buffer encroachments, and is missing numerous pieces of information critical to evaluating mitigation measures for stormwater runoff. Runoff from the parking facility and its service roads will carry sand, oil, grease, hydrocarbons and other contaminants, degrading water quality in the on-

and

ultimately

the

Kensico

Reservoir.

watercourse,

Response:

site wetland,

(Duvall_Riverkeeper)

In response to comments, the proposed project has been modified and the increase in impervious surface have been reduced to 24.98 percent, less than the 25 percent threshold requiring a variance from NYCDEP. By reducing the building footprint, the project no longer requires a variance from the NYCDEP WRR's. The wetland enhancement planting plan proposes 19,500 sf of invasive species removal and native plantings. This constitutes a mitigation ratio of 3.4:1 compared to the 5,724 sf of additional impervious in the wetland buffer. An additional 32,301 sf of undeveloped land would be disturbed within the Townregulated wetland buffer for construction of the stormwater management facilities. These will be revegetated with fully-native plant species as shown in the enclosed Landscaping Plan. No direct wetland disturbance is proposed—all improvements have been located outside Town regulated wetland. In the applicant's opinion, these provisions satisfy the wetland avoidance and mitigation requirements of the Town Code. The Lead Agency will determine whether the proposed amount of Town-regulated wetland buffer disturbance is acceptable and will require the implementation of a mitigation plan meeting the requirements of the Town Code, or a wetlands permit will not be issued.

For additional information on the project's wetland buffer impacts, see Response to Comment 59.

Comment 149: Given the deficiencies in the Draft SEIS and the significant harm to the water quality of the Kensico Reservoir likely to result, the Planning Board may not certify that the project proposed in the Draft SEIS is the alternative that best minimizes significant environmental impacts pursuant to the State Environmental Quality Review Act ("SEQRA"), N.Y. E.C.L. §§ 8-0101, et seq. In order comply with SEQRA, the Board must require a revised or second SEIS that evaluates a scaled-down or alternative site project that eliminates encroachment on wetland and watercourse buffers and results in no increase in stormwater runoff reaching the Kensico Reservoir, or select the No Action

alternative and deny project approval. (Duvall Riverkeeper)

Response:

See Response to Comment 85. The modified proposed plan that is the subject of this FSEIS has been reduced in size and scale to substantially reduce potentially adverse environmental impact, but retains the significant environmental benefits of the proposed project. These environmental benefits include: a) collection and treatment of stormwater that currently flows unimpeded across the site, traversing I-684 and into the Kensico Reservoir; b) capture and treatment of a portion of stormwater runoff from the adjacent property; c) construction of a 'green' building; d) providing an assured parking space at the airport, thus reducing vehicle trips and related air emissions. As noted above, the modified proposed project does not require a NYCDEP variance.

Comment 150: This extensive wetland and watercourse buffer encroachment is particularly concerning given the extremely sensitive nature of the project site. The proposed project site is located approximately 600 feet from Rye Lake, which is part of the Kensico Reservoir system. (Duvall_Riverkeeper)

Response:

No wetland encroachment is proposed. The wetland/watercourse buffer encroachment that remains is predominantly the same as currently exists with the existing building, parking area, and driveway. The small increase in buffer disturbance, 5,724 square feet, will be mitigated by manually removing invasive species and planting native species on 19,500 square feet on-site to offset this buffer disturbance. In addition, the proposed project is providing onsite stormwater management facilities to replicate the water quality improvement function of the wetland buffers. The Lead Agency will determine whether the proposed amount of Town-regulated wetland buffer disturbance is acceptable and will require the implementation of a mitigation plan meeting the requirements of the Town Code, or a wetlands permit will not be issued. For additional information on the project's wetland buffer impacts, see Response to Comment 59.

Comment 151: Due to the sensitivity of the Kensico Reservoir, its close proximity to the proposed project site, and the existing disturbed areas of the Town regulated wetland buffer and the NYCDEP regulated watercourse buffer, the Town must prohibit any additional disturbance of the existing buffers.

It is imperative to avoid further disturbance of the buffer zones that protect aquatic resources on the proposed project site. Vegetated buffers provide transitional areas that intercept stormwater from upland habitat before it reaches wetlands or other aquatic habitat. Water quality benefits of buffer zones include reducing thermal impacts (shade), nutrient uptake, providing infiltration, reducing erosion, and restoring and maintaining the chemical, physical and biological integrity of water resources. Buffers also filter sediment, pesticides, heavy metals and other pollutants from stormwater and reduce nutrient loadings to wetlands by uptake in vegetation and denitrification. These processes protect streams and wetlands from excessive loadings and enable them to perform similar functions without overloading contaminants. Buffers also function to store water and reduce peak runoff velocities during storm events and provide unique recreation, academic and aesthetic opportunities. In addition, buffers provide habitat for flora and fauna and corridors for wildlife to move between larger sections of habitat. (Duvall_Riverkeeper)

Response:

It is understood that wetland/watercourse buffer disturbance should be avoided to preserve buffer functions and protect water quality. The Proposed Project has reduced impervious surface encroachment in buffers to a minimum and has provided onsite stormwater management facilities to replicate the water quality improvement functions of the wetland buffers where none currently exists. Lastly, invasive species will be removed and native species planted on 19,500 sf of onsite land to offset the loss of wetland buffer (loss being that portion of the buffer converted to impervious surfaces). The Lead Agency will determine whether the proposed amount of Town-regulated wetland buffer disturbance is acceptable and will require the implementation of a mitigation plan meeting the requirements of the Town Code, or a wetlands permit will not be issued. For additional information on the project's wetland buffer impacts, see Response to Comment 59.

Comment 152: In order to disturb wetland buffer area as proposed, the applicant must demonstrate that buffer impacts and/or losses are unavoidable and have been minimized to the maximum extent practicable. Town of North Castle Town Code § 340-8(D). This includes establishing that the proposed disturbance is compatible with the public health and welfare, and that there are not feasible onsite or off-site alternatives, which would include density reductions and alterations in site layout to avoid wetland buffer impacts. Id. The applicant is required to take "all reasonable measures" to minimize such impacts. Id. at 340-8(C). Rather than meeting this standard – and the SEQRA standard that requires a hard look at mitigation measures and selection of the alternative that best

minimizes significant environmental impacts – the applicant merely asserts that the proposed project is the "economically feasible" alternative.³ The applicant then goes on to request that the Planning Board approve the proposed project with admittedly deficient wetland buffer mitigation, discussed below.⁴ (Duvall_Riverkeeper)

Response:

In the Applicant's opinion, the 19,500 sf of onsite wetland buffer enhancement is sufficient to offsite the permanent loss off 5,724 square feet of vegetated buffer from the added impervious surfaces. This represents a 3.4:1 mitigation ratio. As previously stated, throughout the SEQRA review, the applicant has expressed a willingness to explore additional offsite wetland enhancement if the Planning Board determines that additional wetland mitigation is needed. The Lead Agency will determine whether the proposed amount of Town-regulated wetland buffer disturbance is acceptable and will require the implementation of a mitigation plan meeting the requirements of the Town Code, or a wetlands permit will not be issued. For additional information on the project's wetland buffer impacts, see Response to Comment 59.

Comment 153: Given recent correspondence from the Westchester County Airport questioning the need for the proposed project and identifying off-site alternatives, there is significant doubt about the applicant's claims that the project as configured in the Draft SEIS is the only feasible alternative. According to Airport Manager Peter Scherrer, "[t]here is no need for the proposed project in terms of airport parking."⁵ Mr. Scherrer cites several reasons for the lack of need for the proposed project, including that passenger loads at the airport have steadily declined since 2011, there are existing public parking facilities, and the airport has not experienced a public parking problem. He also notes that "should a future need for additional airport parking arise, there is ample opportunity to provide such parking at the airport." (Duvall_Riverkeeper)

Response:

See Response to Comments 1 and 3. As stated before, the Applicant believes there is a demand for the Proposed Project. While commercial air traffic may have declined at Westchester County Airport, general aviation has increased, evidence the FBO, Million Aire. Some of the improvement plans for the FBO's have replaced surface employee and customer parking lots with modern new hangar facilities, thus losing surface parking for customers and support staff. The Proposed Project is being designed to meet the needs of the commercial

³ Draft SEIS, at 6.

⁴ Id., at 13-14.

⁵ Letter from Peter Scherrer, Airport Manager, to Town of North Castle Planning Board re Park Place at Westchester County Airport (Apr. 11, 2016).

⁶ Id.

traveler looking for a guaranteed and convenient option for parking at the airport. The Proposed Project is also being designed to meet an existing need for the corporate aircraft market that remains a significant proportion of the aircraft economy at Westchester County Airport.

Comment 154: The Planning Board must take a hard look at other available alternatives – including a scaled-back project that avoids disturbing wetland and watercourse buffers, off-site alternatives, and the no action alternative. The Planning Board cannot approve the project as proposed in the face of another viable alternative that would prevent impairing critical buffer areas so close to a major source of

unfiltered drinking water. (Duvall_Riverkeeper)

Response:

See Response to Comment 85. The proposed project has further scaled back and reflects limited new impervious surface in the NYCDEP 100-foot limiting distance to 3,790 sf. This modest amount of new DEP limiting distance disturbance coupled with the onsite stormwater management system is intended to avoid impacts to the Kensico Reservoir and the City's drinking water supply. The SWPPP will be reviewed for approval by NYCDEP.

Comment 155: The applicant's proposal to site stormwater basins in the wetland buffer adjacent to the proposed parking garage is also flawed. Siting stormwater management practices in buffers displaces significant buffer area and impairs buffer function by clearing trees, sacrificing hydrology above the practice, altering existing wetland hydrology and increasing thermal impacts. This is recognized in Town regulation, which generally does not permit disturbance of wetland buffer areas for "creating ponds or stormwater detention basins." Town Code § 340-8(C). (Duvall_Riverkeeper)

Response:

The site lacks sufficient space to accommodate both the proposed parking garage and the stormwater facilities required by NYCDEP and NYSDEC without encroaching on the Town's 100-foot wetland buffer. The Town will need to review the extent of buffer disturbance and the effectiveness of the proposed planted stormwater detention basins to offset adverse impacts as required by the Town Code. In the applicant's opinion, the proposed project's site plan complies with the Town's wetland code to the maximum extent practicable.

It should be noted that the Lead Agency typically does not permit stormwater treatment practices to be used as Town-regulated wetlands or wetland buffer mitigation.

⁷ Draft SEIS, at 17.

Comment 156: The disturbance of buffers to site stormwater management infrastructure should be avoided, especially in the instant case when the wetland in question is positioned to provide water quality benefits to the Kensico Reservoir and a significant area of its buffer has already been disturbed. Additional practices that impair buffer function include the application of landscaping chemicals, clearing of healthy vegetation, construction activities, and siting landscaped areas, roads and other impervious surfaces adjacent to buffers. These practices can increase the discharge of sediment, nutrients and other contaminants into buffers and thereby compromise their ability to intercept and retain stormwater runoff before it enters wetlands or other aquatic systems. (Duvall_Riverkeeper)

Response:

The stormwater management facilities have been designed to fully treat increases in stormwater pollutants resulting from land development. Again, it must be noted that currently there are no stormwater quality treatment facilities. Stormwater flows unimpeded across this site, traversing I-684 without treatment.

It should be noted that the Lead Agency typically does not permit stormwater treatment practices to be used as Town-regulated wetlands or wetland buffer mitigation.

Comment 157: The Planning Board must require the applicant to develop a legally binding wetland buffer maintenance and management plan that will ensure the buffer area will function indefinitely as intended. This plan will ensure the long-term protection and stability of the adjacent wetland, and should provide ongoing, regular and periodic maintenance for as long as the original naturally existing wetland remains functional. (Duvall_Riverkeeper)

Response:

Comment noted. The proposed wetland and wetland buffer enhancement plan should be made part of the conditions of approval documents and monitoring/replanting conditions will need to be included in the proposed plan.

Comment 158: In accordance with the NYC Watershed Rules and Regulations, the applicant is prohibited from constructing the project with the proposed 40% increase in impervious surface within a NYCDEP regulated watercourse buffer. R.C.N.Y. § 18-30(a)(iii). This increase in impervious surface is disallowed due precisely to the importance of buffer areas to protecting water quality discussed above. The need for buffer protection is heightened in sensitive locations like the one at issue here, where any degradation in water quality will directly impact a source of unfiltered drinking water. (Duvall_Riverkeeper)

Response:

In response to comments, the project has been modified to eliminate any NYCDEP variance by reducing the increase in overall site impervious surface to 24.98 percent, less than the 25 percent threshold requiring a NYCDEP variance.

Comment 159: The fact that the applicant has applied to NYCDEP for a variance from this requirement does not mitigate the Planning Board's responsibility under SEQRA to ensure that the least environmentally harmful alternative is selected. The Planning Board cannot defer its responsibilities or simply point to regulatory compliance as a substitute for mitigation. During the EIS process, the Planning Board must evaluate potentially significant adverse environmental impacts and proposed mitigation, and make its own determination regarding whether or not those impacts will be avoided or minimized in compliance with SEQRA. (Duvall_Riverkeeper)

Response:

Comment noted. It is the applicant's opinion that the proposed project and modified site plan analyzed within this FSEIS has reduced environmental impacts to the maximum extent practicable, and represents a substantial decrease in impervious surface and buffer disturbance as compared to the initial project site plans presented in the DEIS (2011), FEIS (2015), and DSEIS (2016).

Comment 160: NYCDEP does not have to grant the requested variance, and in fact should not do so in compliance with SEQRA and its own regulations covering variances. In order to receive a variance under the NYC Watershed Rules and Regulation, the applicant must demonstrate that the request relief is the "minimum necessary," proposed mitigation will be adequate to "avoid contamination," and that compliance with the rules without the variance would create a "substantial hardship." R.C.N.Y. § 18-61(a)(1). The SEQRA record fails to demonstrate that a variance from the prohibition against increasing impervious surface in a watercourse buffer by 40% is the "minimum necessary" and the applicant has failed to propose adequate mitigation measures for such an increase. The Draft SEIS proposes no enhancement or other mitigation measures for the buffer of the NYCDEP regulated watercourse on the project site, yet proposes the addition of 5,993 sf of impervious area to the existing 7,704 sf of impervious area in its buffer. 8 Further, the applicant has not demonstrated that it would suffer substantial hardship in the absence of the variance: it has merely asserted that further reducing the footprint of the proposed project is not "economically feasible," a statement that is contradicted by the Westchester County Airport's own representation that additional parking is not needed. (Duvall Riverkeeper)

Response:

As discussed above, the project has been reduced is size and scale and no longer requires a NYCDEP variance.

⁸ Draft SEIS, at 4.

⁹ Id., at 6.

Comment 161: The large proposed addition of impervious surface risks substantially increasing contaminated stormwater runoff and impairing the natural proactive buffer of a watercourse that is located dangerously close to a sensitive water supply. The Planning Board must require the applicant to eliminate plans that increase impervious surface in the NYCDEP regulated watercourse buffer. (Duvall_Riverkeeper)

Response:

The increase in impervious surface in the NYCDEP watercourse limiting distance has been reduced to 3,790 square feet. The project no longer requires a NYCDEP variance because it has limited the overall site's increase in impervious surface to 24.98 percent, less than the 25percent threshold for requiring a NYCDEP variance. The Lead Agency will determine whether the proposed amount of Town-regulated wetland buffer disturbance is acceptable and will require the implementation of a mitigation plan meeting the requirements of the Town Code, or a wetlands permit will not be issued.

Comment 162: The proposed buffer mitigation measures are inadequate to protect the on-site wetland from further degradation.

The applicant's Wetland and Wetland Buffer Enhancement Plan (Enhancement Plan) is inadequate to protect the existing wetland and will result in further degradation of the wetland and its buffer. Under existing conditions, the wetland buffer now has 12,316 sf of impervious surface disturbance. Under developed conditions, the current Draft SEIS proposes the addition of 15,150 sf of new impervious area for a total of 27,466 sf. To mitigate the impacts of increased impervious area, the applicant proposes to enhance 19,500 sf of combined wetland and buffer areas by removing invasive plant species. This represents a 1.3:1 ratio of enhancement area to disturbed wetland + buffer areas and conflicts with the Town of North Castle's Wetlands and Watercourse Protection Law, which requires a 2:1 ratio. Town Code § 340-9(A)(1). (Duvall Riverkeeper)

Response:

The increase in impervious surface within the Town-regulated 100-foot buffer as compared to the current condition has been reduced to 5,724 square feet. The approximately 19,500 sf of wetland buffer enhancement planting onsite represents a 3.4:1 mitigation ratio for the 5,724 sf increase in site impervious surface in the buffer. The original 2011 DEIS site plan proposed an increase of impervious surface in the Town wetland buffer of 28,406 square feet. Therefore, the FSEIS site plan has reduced this by fully 80 percent – a substantial decrease in permanent buffer loss as compared to the originally proposed project. This

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¹⁰ Id., App.D.

¹¹ Id., Table 1, Summary of Project Modifications, at 4.

¹² Id.

demonstrates the applicant's proven good faith and willingness to limit the size/scope of their project in response to Town, Agency and public comment throughout the SEOR review process. It is the applicant's opinion that the proposed project's current site plan and wetland buffer enhancement complies with the Town's wetland code. The Lead Agency will determine whether the proposed amount of Town-regulated wetland buffer disturbance is acceptable and will require the implementation of a mitigation plan meeting the requirements of the Town Code, or a wetlands permit will not be issued. For additional information on the project's wetland buffer impacts, please see the full response to Comment 59.

Comment 163: The applicant must also clarify the proposed mitigation ratio. Depending on how it is calculated, the applicant is proposing wetland buffer mitigation that ranges from 0.28:1 – which is grossly inadequate – to 1.3:1, which is still insufficient to protect wetland resources and comply with Town requirements. As set forth in the record, and as a matter of law, the proposed mitigation is wholly inadequate. (Duvall_Riverkeeper)

The Town Planning Board will determine the adequacy of the project's compliance with the wetlands code, both with respect to the location of improvements in the wetland buffer and the ability of the stormwater management plan and wetland buffer enhancement planting plan to offset wetland buffer impacts. No wetland will be disturbed by the proposed project. See Response to Comment 59 for a complete discussion of temporary and permanent disturbance to Town-regulated wetland buffer area.

Comment 164: The practice of combining areas of wetland and buffer enhancement to satisfy compensatory mitigation requirements for buffer disturbance fails to protect the wetland in question. Under existing conditions the wetland has no disturbance, yet the fact that a significant area of the wetland is dominated by invasive species targeted for removal indicates that wetland functions have degraded where invasives have established. The buffer zone is the wetland's first line of defense against flooding, sedimentation, and nutrient and chemical loading.

Response: In the Applicant's opinion, the proposed wetland and buffer enhancement will improve upon the existing floristic diversity and will remove non-native, invasive species in both onsite buffer and wetland.

Comment 165: Under existing conditions, the wetland buffer is already impacted by 12,316 sf of impervious surface and is failing to protect its adjacent wetland from degradation. Now the applicant proposes to increase impervious area in an already-degraded buffer by 15,150 sf. The practice of enhancing the buffer while further reducing it with added impervious area will not enhance or sustain protection of the wetland. It is counterproductive to simultaneously enhance

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wetland functions and impair the wetland buffer functions. (Duvall_Riverkeeper)

Response:

The increase in impervious surface within the Town-regulated 100-foot buffer as compared to the current condition has been reduced to 5,724 sf. The approximately 19,500 sf of wetland buffer enhancement planting onsite represents a 3.4:1 mitigation ratio as compared to the increase in permanent, impervious surface located in the buffer. An additional 32,301 square feet of undeveloped land within the Town-regulated wetland buffer will be disturbed for the construction of the stormwater management basins and regrading. This area will be replanted with native species. It is the applicant's opinion that the proposed project's current site plan and wetland buffer enhancement complies with the Town's wetland code. The Lead Agency will determine whether the proposed amount of Town-regulated wetland buffer disturbance is acceptable and will require the implementation of a mitigation plan meeting the requirements of the Town Code, or a wetlands permit will not be issued. See response to Comment 59 regarding disturbance to Town-regulated wetland buffer.

Comment 166: Mitigation plans must be detailed in the Draft SEIS, not vaguely raised for possible future consideration. In order to satisfy SEQRA, proposed mitigation must be evaluated in an EIS in sufficient detail to allow the public and involved agencies the opportunity to understand and review and for the Planning Board to determine whether or not such plans contain adequate mitigation for identified environmental impacts. N.Y. E.C.L. § 8-0109(2); 6 N.Y.C.R.R. § 617.9(b). See also Webster Associates v. Town of Webster, 451 N.E.2d 189, 192 (N.Y. 1983) ("the omission of a required item from a draft EIS cannot be cured simply by including the item in the final EIS"). The mention of possible off-site mitigation without detail in the Draft SEIS does not satisfy this requirement. (Duvall_Riverkeeper)

Response:

The onsite wetland mitigation plan is contained in the FSEIS and describes the means, methods, and monitoring required to offsite the project's impacts to Town-regulated wetland buffers. As previously stated, the applicant is willing to consider offsite wetland mitigation opportunities.

Comment 167: The Town of North Castle regulates activities in wetland and watercourse buffers areas of 100 feet in width. Town Code § 340-3. The fact that the on-site wetland buffer has already been compromised by the addition of impervious area and no longer meets even the accepted minimum width requirements for water quality protection prescribed by land use planners and regulators emphasizes the importance of avoiding further encroachment into the wetland buffer and protecting the remaining buffer with robust stormwater controls to benefit water quality. (Duvall Riverkeeper)

Response:

The primary wetland buffer to be affected onsite is that bordering the wetland at the site's lowest elevations adjacent to Route 120 and its contributory ephemeral stream that is confined between two stone walls. This wetland (Wetland "A") has been previously compromised by the existing development upslope which contributes untreated stormwater runoff that is detained at the Route 120 highway berm. In the Applicant's opinion, the proposed wetland buffer disturbance required to construct the parking garage would result in a de minimis impact to existing wetland buffer functions to be offset by the wetland and buffer enhancement plan, and by the improved water quality in runoff provided by the stormwater wetland and other components of the stormwater management plan.

Comment 168: As discussed above, SEQRA requires a detailed analysis of mitigation measures in an EIS. The analysis must be sufficient to evaluate the effectiveness of the mitigation measures proposed and allow the lead agency and the public the opportunity to determine the extent to which significant environmental impacts will be avoided or minimized. (Duvall_Riverkeeper)

Response:

The proposed wetland and wetland buffer mitigation planting plan will be monitored for a period after it is installed, as will all onsite plantings. It is customary for an applicant's wetland ecology consultant to provide annual reports to the Town documenting the condition and success of the wetland mitigation, and to undertake supplemental actions to guarantee the plan's success including removal of invasive species that have colonized since initial establishment and to provide supplemental planting to compensate for plant mortality on an annual basis. These provisions are included in the applicant's proposed wetland enhancement planting plan and can be further modified by the Town's representative during the permit review process. Wetland mitigation is a well-established method to offset wetland and wetland buffer impacts while allowing property owners reasonable use of their land. Considering the preexisting development of the site with an office building, pavement, and overflow gravel parking areas, the small 5,724 sf of additional impervious surface proposed within the wetland buffer has avoided wetland buffer impacts sufficiently to meet the Town Code requirements. (See response to Comment 59 regarding project impacts to Town-regulated wetland buffer.) The temporary wetland buffer disturbance (tree clearing and regrading) to accommodate the stormwater management plan (stormwater wetland and surface sand filter) will continue to be a pervious surface planted with native species and maintained in a vegetated condition. It is the applicant's opinion that the wetland buffer within the area of the stormwater bmp's will continue to serve habitat and water quality treatment functions. Furthermore, construction of a stormwater system is required by Town and State regulations. To allow reasonable redevelopment of the project site, with a site plan that avoids all direct wetland impacts and now meets NYCDEP watershed regulations on impervious surface, wetland buffer disturbance is required.

Comment 169: Given the numerous deficiencies in the SWPPP, the Planning Board and the public are unable to evaluate the effectiveness of the proposed mitigation measures and the impact of stormwater runoff on the Kensico Reservoir. Should the Planning Board decide not to choose the No Action alternative and deny the proposed project, the SWPPP must be substantially revised and made available for public review and comment along with a scaled-back or alternative site project in a revised or second supplemental EIS.

Response:

In response to comments the SWPPP and site plan details have been advanced to include the majority of the additional details, information and calculations requested. These additional project details include building footprint and pollutant analysis, design of an oil/water separator to capture potential drippings associated with the vehicles within the building, an analysis of the stormwater facilities to mitigate increases of dissolved phosphorous and additional pollutants such as nitrogen, suspended solids, biological oxygen demand and fecal coliform loading, and construction sequencing. Subsequent to satisfying the 'hard look' of the analyses that are included within the documents that are a part of this SEQRA process, the Applicant will be required to submit a complete site engineering package for site plan approval for review by the Town and related permitting agencies.

Comment 170: The Enhancement Plan should include and require an IPM plan to further reduce pesticide and herbicide use within the Kensico Watershed. It also should require licensed applicators to employ chemical measures only as a last resort to enhance water quality protection. The New York State Department of Environmental Conservation publishes a Pest Management Resource List on its website, with links to various IPM programs. ¹³ (Duvall_Riverkeeper)

Response:

As discussed above, pesticide use would be limited to Glyphosate for eradication of the aggressive *Phragmites australis* or other species resistant to hand removal methods, as specified in the Wetland Buffer Enhancement Plan document. If required by the Town or NYCDEP, this provision may be modified. However, Glyphosate has been shown to be a safe, effective means of removing invasive species.

Comment 171: Rather than speculating that vegetation "may benefit from a twice yearly application of slow release or organic fertilizer," the applicant should develop a

¹³ NYS Dept. of Environmental Conservation, Pest Management Resource List, http://www.dec.ny.gov/chemical/42925.html.

nutrient management plan that requires a licensed applicator to manage fertilizer use based on soil analysis and individual plant requirements. (Duvall Riverkeeper)

Response:

Comment noted. This condition would be acceptable and will be pursued with the Town.

RICHARD J. LIPPES, ON BEHALF OF SIERRA CLUB, LETTER DATED FEBRUARY 26, 2016

Comment 172: The Applicant states that the parking facilities at the airport are at 90% capacity and there is a need for additional parking to accommodate airport passengers. To date the Applicant has not, in view of the significant impact to the Kensico Reservoir and its buffer areas, examined that the need, if any, can be accommodated by an expansion of parking at the airport itself. This alternative would pose substantially fewer environmental impacts and would alleviate concerns about the geographic expansion of the airport.

Response:

The project site is not affiliated with the airport, and will be privately owned and operated. The potential to expand the existing airport parking garage is outside the scope of this analyses. As previously noted, the Proposed Project will address an *existing* need for additional parking for commercial travelers and employees supporting corporate aviation please refer to the response to Comments 1 and 3.

Comment 173: Upon review of the DSEIS prepared for Park Place at Westchester Airport, the document cannot be declared complete because the Project Sponsor's SDEIS has failed to adequately address fundamental design flaws and moreover has failed to adequately responds to comments raised by involved agencies. In general, the Project Sponsor has failed to provide adequate levels of detail on stormwater management and other so-called environmental mitigation measures while claiming that the design is sensitive to the critical nature of the property's proximity to a direct tributary to the Kensico Reservoir. The Project Sponsor's deferral of these critical measures until site plan review is inappropriate. This needs to be addressed and studied at this time to deal with fundamental design matters upon which the validity of the proposed project is based.

Response:

In response to comments, the SWPPP and site plan have been advanced to include the majority of the additional details, information and calculations requested. These additional project details include building footprint and pollutant analysis, design of an oil/water separator to capture potential drippings associated with the vehicles within the building, an analysis of the stormwater facilities to mitigate increases of dissolved phosphorous and additional pollutants such as nitrogen, suspended solids, biological oxygen demand and fecal coliform loading, and construction sequencing. Subsequent to satisfying

the 'hard look' of the analyses that are included within the documents that are a part of this SEQRA process, the Applicant will be required to submit a complete site engineering package for site plan approval for review by the Town and related permitting agencies.

Comment 174: The Project Sponsor has submitted an incomplete representation of the of the project's mitigation measures. Section 4.11 of the New York State Storm Water Design Manual includes "fleet storage areas (buses, trucks, etc.)" as a "Stormwater Hotspot". Given the proposed storage of 980 cars in a concentrated location and the associated pollutant loading of those cars and operational components of the facility this appears to be an irresponsible proposal with respect to the critical nature of the site's proximity to the Kensico Reservoir. However, at a minimum, the Project Sponsor should have provided adequate design details relating to the proposed project and specifically how those details will mitigate the impacts associated with the proposed project, especially when the request for those details was made by the agency that is charged with protecting the Kensico Reservoir. (Lippes_Sierra2)

Response:

See Response to Comment 103. The proposed project has been reduced in scale to further limit potential impacts. The SWPPP provides a detail review of potential impacts to stormwater and a review of the mitigation efforts being utilized. Refer to Chapters 1 and 2 for a review of the modifications to the SWPPP.

Comment 175: The Project Sponsor has submitted an incomplete representation of the requested alternative design. The New York City DEP has made very clear that the "Watershed Regulations generally prohibit the construction of new impervious surfaces within 100 feet of a DEP-flagged watercourses" ... and ... "that the project should be scaled down ... to exclude ... new impervious areas from ... DEP buffer areas." The Project Sponsor merely represents that the proposed project related impervious surface has been reduced from prior proposals (only doubling the amount of existing impervious surface in the buffer) and that a variance will be required. (Lippes_Sierra2)

Response:

Increases in impervious surface within the 100-foot NYCDEP limiting distance has been reduced to 3,790 sf. A variance from the NYCDEP is no longer required due to this reduction.

Comment 176: The Project Sponsor has submitted a serious continuing concern of the Federal Aviation Administration's August 18, 2015 "Determination of No Hazard to Air Navigation" correspondence. The FAA correspondence relates to air navigation and is not an endorsement of the proposed use, or the safety of the proposed use, within the Runway Protection Zone (RPZ) for the only instrument rated approach to the airport. The FAA's letter states that because the property is not

the airport owner, " ... recommendations are issued to inform the sponsor of the inadvisability of the project from the standpoint of safety to personnel and property (emphasis added)." The Project Sponsor represents that because the proposed action will not result in the congregation of people, but " ... only small groups of people ... ," the FAA would have no objection to the proposed structure. The FAA's letter does not support the Project Sponsor's representation. Furthermore, in the context of this discussion, the Project Sponsor fails to identify the origin of the RPZ, why it is shaped the way it is and how its dimensions are determined. Perhaps if the DSEIS more adequately included a discussion of the RZP dimensions and geometry which are based upon aircraft crash data, the FAA's alert of the inadvisability of the project would be more appropriately assessed.

Response:

In 2011, the proposed project received a "Determination of No Hazard" from the Federal Aviation Administration (FAA), pursuant to its FAA 7460-1 Form or Aeronautical Review – Aeronautical Study Number (ASN): 2011-AEA-2792-OE. The 'Determination' expired on August 14, 2014 and the Applicant conducted an updated technical analysis regarding the potential effects of the parking garage using the modified site plan presented herein.

The Applicant submitted an updated "Off Airport Parking Garage Height Limitation Study" to the FAA that was accompanied by an FAA Part 77 Imaginary Surfaces evaluation to identify restrictions over the subject parcel, and a revised FAA Form 7460-1 reflecting updated land coordinates and elevation proposed for the parking garage (Aeronautical Study No. 2015-AEA-4118-OE) (see Attachment D). In correspondence dated August 18, 2015, the FAA issued a "Determination of No Hazard to Air Navigation" for the proposed current Park Place project building and plan (DSEIS plan), which was consistent with the prior determination. In its latest determination, the FAA indicated that its aeronautical study revealed that the proposed project does not exceed obstruction standards and would not be a hazard to air navigation. The determination included one Advisory Recommendation—that, while the structure does not constitute a hazard to air navigation, because it would be located within the RPZ of the Westchester County Airport (HPN) Runway 16/3, "structures which will result in the congregation of people within an RPZ are strongly discouraged in the interest of protecting people and property on the ground." (FAA, 8/18/15 [see Attachment D]).

In cases where the airport owner neither owns nor controls the use of a property (as is the case with the proposed project), FAA advisory recommendations are issued to inform the airport owner from the standpoint of safety of personnel and property on the ground. In the case of the proposed parking garage, the use will not cause the congregation of people because it will have minimal staff and low numbers of people at the facility at any given time dropping off or picking up vehicles.

The FAA's Airport Improvement Program (AIP) Sponsor Guide, provides the following guidance with respect to parking structures within a Runway **Protection Zones:**

"The following land use criteria apply within the RPZ: (a) While it is desirable to clear all objects from the RPZ, some uses are permitted, provided they do not attract wildlife, are outside the Runway OFA, and do not interfere with navigational aids. Automobile parking facilities, although discouraged, may be permitted, provided the parking facilities and any associated appurtenances, in addition to meeting all of the preceding conditions, are located outside of the object free area extension. (b) Land uses prohibited from the RPZ are: residences and places of public assembly. (Churches, schools, hospitals, office buildings, shopping centers, and other uses with similar concentrations of persons typify places of public assembly.)" (FAA Airport Improvement Program Sponsor Guide, §550).

The project site is outside of the Object Free Area. Further, the existing office use is one of the specific uses "prohibited," if not pre-existing. Therefore, the FAA's Advisory Recommendation does not prohibit the proposed project.

The Lead Agency will need to determine whether there are any significant adverse impacts associated with permitting a parking facility at this location.

Comment 177: The driveway is approximately 21 feet wide and spans a NYSDEC regulated Class A watercourse. It is only wide enough for one vehicle at a time. The Sponsor proposed to expand the driveway to 24 feet. Sponsor does not address whether the 24 foot wide proposal adequately accommodates vehicles ingressing and egressing simultaneously or emergency vehicles. The impacts to this Class A watercourse are not addressed other to say it will be "bridged." The DSEIS does not address in its response to the DEP how this bridge will be managed during stormwater runoff or pollutants from snow reduction chemicals. (Lippes_Sierra2)

Response:

As shown on Sheet C.5, two interior lanes are depicted – one through land and one curbside pick-up. Both lanes are shown as minimally required 8-feet wide. However, as the interior column design is finalized, it is anticipated these two interior lanes will be widened. The two interior lanes will merge into one exterior egress lane. In previous plans, the singular exterior egress lane was depicted as 14-feet wide. In the current plan set, the singular exterior egress lane is 15 -feet wide.

In addition, a portion of the driveway is being widened to satisfy Town requirements for emergency vehicle access. This fire access lane was shared with the Town of North Castle Fire Department in September, 2014. The design will be further coordinated as part of the site plan approval process. The widening of the driveway will not require modifications to the culvert located in

the watercourse. The satisfactory use of erosion and sediment controls during construction will prevent impacts to the watercourse. The installation of a curb and catch basin under post-development conditions will collect runoff from the driveway and direct it to the stormwater management practices for treatment prior to discharge offsite.

Comment 178: The proposed DSEIS does not discuss in detail engineering controls to prevent contaminants from entering the Kensico Reservoir. This requires a complete description of any operation, maintenance and monitoring requirements including the mechanisms that will be used to continually implement, maintain, monitor and enforce such controls. These long term maintenance and monitoring must include the inspection of the hydraulic systems within the structure and the periodic testing of groundwater for contaminants. (Lippes_Sierra2)

Response:

The SWPPP included in this FSEIS details how pollutants are prevented from entering the Kensico Reservoir through the use of green infrastructure techniques and stormwater management practices. Refer to Chapters 1 and 2 for a review of the modifications to the SWPPP. In addition to information provided in the SWPPP narrative. Appendix E of the SWPPP provides the required Water Quality Volume calculations. Appendix I of the SWPPP provides the pollutant analysis calculations. Appendix G of the SWPPP provides the Erosion and Sediment Control Inspection Report to be used by a qualified inspector during construction. Appendix H of the SWPPP provides the inspection and maintenance form to be used after construction is completed.

Comment 179: However, what the Sponsor fails to explain that there is no evidence that the present existing 9,000 square foot building on the site releases any contaminants into the Kensico Reservoir. Accordingly, there may in fact be no need for a particular storm water control at this site at this time. Rather, it is obvious that the proposed development of the 53 foot high parking facility, operated with hydraulic mechanisms, and increasing the impervious area on the site of necessity does require storm water control and other engineering controls to prevent contaminants from running into the Kensico Reservoir. Accordingly, there is not empirical evidence in the record that the present site requires a storm water retention facility to prevent contaminants from eliminating into the reservoir. (Lippes_Sierra2)

Response:

The SWPPP included in this FSEIS details how contaminants are prevented from entering the Kensico Reservoir through the use of green infrastructure techniques and stormwater management practices. Refer to Chapters 1 and 2 for a review of modifications to the SWPPP.

Comment 180: The Sponsor has admitted that the parking system within the structure will be operated by hydraulics. Information regarding the chemical identity and quantity of the hydraulic liquid products to be used is non-existent. To the extent the hydraulic fluids constitute hazardous substances and/or hazardous waste, DEC permitting will be implicated for management, as well as DOH health concerns for health and safety. An explanation of the life-cycle of the hydraulic liquids, from delivery through disposal is necessary. The delivery, frequency of delivery, storage before and after use, use, disposal and spill precautions are management issues that must to be discussed and a determination reached now as to whether the risks of this type development are outweighed by the dangers posed this critically sensitive watershed. (Lippes_Sierra2)

Response:

The proposed project includes a system that is operated almost exclusively by motors, pulleys, and chains including track mounted elements. There is one step of the process that includes hydraulics to transfer the cars from the lift to the storage location. This small hydraulic reservoir is completely self-contained. This reservoir will be inspected as part of routine maintenance procedures and collected materially will be disposed of in accordance with applicable regulations. Additionally, a system of interior drains will collect and direct runoff and drippings to an oil-water separator inside of the building prior to discharging to the municipal sanitary sewer system. The oil-water separator will also be inspected as part of routine maintenance procedures.

Comment 181: Obtain a new Federal Aviation Administration (FAA) "Determination of No Hazard" for the project. The previous determination expired, new rules governing development within the Runway Protection Zone (RPZ) have been issued and the proposed height of the garage has been increased. Note: A new FAA Determination of No Hazard was received and a copy is included herein. (Lippes_Sierra2)

Response: Comment noted. See Response to Comment 7.

Comment 182: Address project elements and airport safety with respect to bird attraction associated with stormwater mitigation practices and sun glare from proposed rooftop-mounted solar panels have been eliminated. (Lippes_Sierra2)

Response: The project will not increase bird roosting to a degree more than surrounding buildings. However, the proposed project will be an enclosed structure and will not provide a food source for pigeons or similar birds. The stormwater management system will not contain an expanse of open water surrounded by lawn, and therefore will not be an attractive location of Canada geese or other flocking waterfowl. There will be no increase in aviation hazards onsite or in the region as a result of the proposed project.

April 24, 2017

Comment 183: Prepare a new alternative for review where no portion, or a reduced portion, of the proposed garage building is located within the 100-foot limiting distance to the NYCDEP intermittent stream. (Lippes Sierra2)

Response:

In response to comments, the proposed project has been modified and now a reduced portion, 3,790 square feet is in the 100-foot limiting distance to the NYCDEP intermittent stream. A variance from NYCDEP is no longer required due to this reduction.

Comment 184: Limiting distance disturbance is not defined. (Lippes_Sierra2)

Response:

The NYCDEP defines "limiting distance" as "the shortest horizontal distance from the nearest point of a structure or object to the edge, margin or steep bank forming the ordinary high water mark of a watercourse, wetland, reservoir, reservoir stem or controlled lake or to the contour line coinciding with the reservoir spillway elevation".

Comment 185: Although the Sponsor provides a revised construction sequence, the construction of the building foundation proceeds without first constructing a sand filter. Further, the Sponsor proposes to utilize a pocket wetland to accept runoff from the sand filter. This measure does not address early construction activities or other measures required by a SPDES construction permit. (Lippes_Sierra2)

Response:

The Construction Sequence and Plans have been revised to address NYCDEP's comments and concerns related to sediment and erosion controls. The Sequence details the process of construction activities and the various erosion and sediment controls required by NYSDEC at each stage. The Sequence demonstrates through the use of appropriate erosion and sediment controls the site can be constructed without adverse impact to downstream watercourses.

Comment 186: The Sponsor does not adequately address the DEP concerns. Sediment Basin No. 2, which will be used during the final phase of construction will not function as intended because the bottom excavation penetrates the seasonably high water table which was witnessed in deep test pit excavation conducted by DEP. (Lippes_Sierra2)

Response: Refer to response to Comment 185.

Comment 187: The DEP and the Sponsor continue to be at odds regarding the removal of 40% total phosphorus or the dissolved fraction of the total phosphorus. Further, the DSEIS still does not address or assess pollutants such as TN, BOD and TSS in the DSEIS. (Lippes_Sierra2)

Response:

The pollutant analysis contained in SWPPP's Appendix I demonstrates the post-development site demonstrates total phosphorus reduction of 49 percent and soluble phosphorus reduction of six percent.

Comment 188: The DEP noted that the project results in an 88%, 49% and 61% in runoff volume above pre-development levels for the 1 year, 10 year and 100 year, 24 hour storms respectively. Sponsor admits this cannot be remedied by stating that infiltration practices to address these increases cannot be supported by site soils. The project Sponsor's statement that stormwater facilities in a series design are effective for removing dissolved phosphorus remains unsupported in the design and information provided in the DSEIS. (Lippes Sierra2)

Response: Refer to responses to Comments 135.

Comment 189: DEP has requested the utilization of more intensive green roof storm water infiltration to enhance the storm water management capability of the project. The Sponsor has refused to utilize a green roof "due to structural limitations." (Lippes Sierra2)

Response: Refer to response to Comment 58.

Comment 190: The Sponsor's wetland/buffer enhancement planting mitigation ratio of 1:3: 1 is below the Towns 2:1 mitigation requirement. In addition to this defect, the Sponsor has not identified an off-site location for a planting mitigation. (Lippes_Sierra2)

Response:

See Response to Comment 59, which says: Throughout the SEQRA review process, the applicant has been willing to consider off site wetland mitigation opportunities. However, it is the applicant's opinion that the currently proposed onsite wetland and wetland buffer enhancement planting fully complies with the goals and requirements of the Town Code's wetland mitigation policy, §340-9.

The Lead Agency will determine whether the proposed amount of Town-regulated wetland buffer disturbance is acceptable and will require the implementation of a mitigation plan meeting the requirements of the Town Code, or a wetlands permit will not be issued.

Comment 191: Comment No. 9, Page 10. Propose 19,500 square feet of wetland buffer enhancement planting which is a mitigation ratio of 1:3: 1 which is less than the Town Codes 2: 1 mitigation requirement. The Sponsor states a willingness to provide additional "offsite" wetland buffer mitigation at a location of the Town's choosing. As the Sponsor acknowledges, Section 209-9 of the Town Code explicitly states that 2:1 buffer mitigation is required "unless the approval authority determines that such mitigation is not feasible." No such determination has been made by the Town, nor can it be. Just because the project has already

been reduced in size there is no reason it cannot be further reduced, or even more appropriately, given the critically sensitive watershed, deemed totally incompatible with the site and denied. Moreover, there is no authority for providing mitigation measures at a different location of the Town's choosing. The very reason for the Town Code is to protect this site's stormwater impacts on the watershed and no other. (Lippes_Sierra2)

Response:

See response to Comment 59 for a full discussion of project related impacts to Town-regulated wetland buffer, both permanent (impervious surface) and temporary (clearing/re-planting). Regarding onsite and/or offsite wetland mitigation, typically the project sponsor hires a wetlands consultant to implement the mitigation plan and to monitor the grow-in and establishment over a period of several years. Reports would be submitted to the Town on an annual basis as outlined in the Wetland and Wetland Buffer Enhancement Plan. It is expected that the Town would engage the services of its own wetland ecologist to inspect the site and review monitoring plans submitted by the applicant's consultant.

Comment 192: The Sponsor admits use of chemical methods for removal of invasive species which results in extensive chemical application within a wetland and buffer in close proximity of the Kensico Reservoir. The Sponsor's proposed chemical methods over a 14,000 square foot area does not adequately address whether any chemical application should be permitted next to this major water drinking source. (Lippes Sierra2)

Response:

The applicant is willing to avoid all use of pesticides if that is a condition of approval. However, wetland ecologists experienced with removal of invasive species have attested to the safety of Glyphosate for removal of phragmites and its necessity for full eradication of this species. However, the region of phragmites onsite is not extensive. The applicant is eager to discuss these particulars of the wetland mitigation and landscaping maintenance during the permit review process.

Comment 193: The DSEIS does not adequately address protection of native species or the monitoring of same. (Lippes_Sierra2)

Response:

As described in the wetland buffer enhancement plan, a wetlands ecologist will oversee all non-native species removal activities to ensure that native species are not inadvertently removed or harmed. Construction fencing around groupings of protected species may be used. Mechanized land clearing is not proposed.

Comment 194: The Sponsor does not discuss enforcement of the monitoring of the amount of invasive species. Rather, it simply defers this issue to working with the Town Planning and Building Department during the site plan approval process. (Lippes_Sierra2)

Response:

Typically the project sponsor hires a wetlands consultant to implement the mitigation plan and to monitor the grow-in and establishment over a period of several years. Reports would be submitted to the Town on an annual basis as outlined in the Wetland and Wetland Buffer Enhancement Plan. It is expected that the Town would engage the services of its own wetland ecologist to inspect the site and review monitoring plans submitted by the applicant's consultant.

Comment 195: The Sponsor's proposal for placement of plant species is still not addressed in the DSEIS. The Sponsor admits no specific planting plan is provided in the Wetland and Wetland Buffer Enhancement Areas. Rather, the Sponsor indicates this will be resolved during site plan approval. (Lippes Sierra2)

Response:

Comment noted. Owing to the field conditions, in which valuable native species are interspersed with non-native species, no plan-based planting layout can be developed. However, as discussed above, site inspection reveals that roughly 50 percent of the 39,000 sf enhancement area onsite contains non-native species which would be spot-removed rather than removed through land clearing. In the applicant's opinion, the adequacy of the wetland enhancement plan and its suitability to field conditions should be confirmed by the Town's wetlands consultant prior to approval and execution.

Comment 196: The WIG stated its position that no variance should be issued by the DEP in view of the extremely sensitive location of the site and proposed large encroachment within the buffer. The Sponsor's response is inadequate in the fact that although the footprint has been reduced, the project still requires a variance. (Lippes_Sierra2)

Response: No NYCDEP variance is required, as discussed above.

Comment 197: In response to the comment that the parking facility would increase by over 400% of the amount of impervious surface within the 100 foot buffer of a DEP regulated intermittent stream (from approximately 2,043 square feet to 10,413 square feet, Sponsor responds that the proposed footprint of the building was reduced to 5,993 square feet. The increase is still over 200% more than that which currently exists, still unacceptable given the general prohibition of the construction of any amount of impervious surface within 100 feet of a watercourse, especially such a sensitive watershed at issue here. The proposed construction should simply be denied as incompatible with the location situated next to the Reservoir. (Lippes_Sierra2)

Response:

As an existing facility, the project site is exempt from NYCDEP's prohibition on the construction of new impervious surface within 100 feet of a watercourse, provided the overall increase in the site's impervious surface does not increase by more than 25 percent. The currently proposed project, at a 24.989 percent increase, does not require a NYCDEP variance.

Comment 198: The project has not eliminated the construction of storm water practices within the 100 foot Town of North Castle wetland buffer. The Sponsor's response is that this impervious surface within the DEP 100 foot limiting distance be reduced to 13,697. While reduced, this does not address the comment of WIG. The DSEIS continues to assert that the details of the site hydrology and design analysis will be addressed during site plan review while the WIG finds that they must be addressed in the SEIS (sizing, placement and sequencing of practices impact the amount of disturbance). (Lippes_Sierra2)

Response:

Additional detail and information have been added to the plans that are appended to this FSEIS. The plans substantially reflect the intent of the hydrologic analysis. Additional review for consistency between the stormwater analyses and the plans will be conducted concurrent with site plan approval.

It should be noted that the Lead Agency typically does not permit stormwater treatment practices to be used as Town-regulated wetlands or wetland buffer mitigation.

Comment 199: The WIG commented that the hydrologic analysis is flawed in that the Northeast Regional Climate Center rainfall data values were not incorporated into the Hydro CAD file. The Sponsor does not adequately address this comment; rather, the Sponsor simply indicates the method it used is conservative. (Lippes_Sierra2)

Response:

Additional detail and information have been added to the plans that are appended to this FSEIS. The plans substantially reflect the intent of the hydrologic analysis. Additional review for consistency between the stormwater analyses and the plans will be conducted concurrent with site plan approval.

Comment 200: The WIG corrected the soil type identified by the Sponsor and requested that the hydrology be recalculated. No recalculation was done by the Sponsor. (Lippes_Sierra2)

Response: The SWPPP, included herein, has been revised to use the latest available soil data from the Unite States Department of Agriculture (USDA).

Comment 201: The Sponsor's position that stormwater engineering design details will be discussed during site plan approval is inadequate since the issue is critical during the SEQRA review process. (Lippes_Sierra2)

Response: Additional detail and information have been added to the plans that are appended to this FSEIS. Subsequent to the conclusion of the 'hard look' required by SEQRA, a detailed site plan application will be submitted to the Planning Board for review.

Comment 202: The WIG commented that investigation of options for retrofitting impervious areas should not be deferred until the final SWPPP. The Sponsor does not address this request and continues to defer such issues until the final SWPPP. (Lippes_Sierra2)

Response:

The proposed project has been reduced in scale to limit potential impacts. Additionally, the SWPPP and Plans have been revised to provide adequate phosphorus treatment. Refer to Chapter 2, Section D of this FSEIS for a review of the pollutant analysis provided in the SWPPP. The analysis for the proposed design shows an improvement over existing conditions.

Comment 203: In response to the comment that the Sponsor should be required to investigate options for retrofitting impervious areas and include them in the final SWPPP, the Sponsor states it is "sensitive to the fact that much of the adjacent Lot 13A, which they need for the project, was developed without concern for water quality as it predates the regulations. To address these concerns, Sponsor proposes to incorporate treatment of only approximately 11,000 square feet of impervious surface. The Sponsor needs this property for the proposed development. The entirety of Lot 13A's impervious surfaces need to be addressed now, not later. If not feasible, then neither is the development and it should be denied. Moreover, the Sponsors approach fails to acknowledge that the project exacerbates Lot 13A's development without concern for water quality by its refusal to meet the Town Code 2:1 buffer mitigation and in excess of a 200% increase in impervious surface on the proposed development site. (Lippes_Sierra2)

Response:

The SWPPP and Plans have been revised to provide adequate water quality treatment. Refer to Chapters 1 and 2 of this FSEIS for a review of modifications to the SWPPP. The analysis for the proposed design shows an improvement over pre-development conditions.

Comment 204: WIG comment regarding removal of certain outlets and re-routing to a sediment basin are noted but not addressed as an environmental issue. The Sponsor simply states it will defer this issue until site plan approval. (Lippes_Sierra2)

Response:

Additional detail and information have been added to the plans that are appended to this FSEIS. Subsequent to the conclusion of the 'hard look' required by SEQRA, a detailed site plan application will be submitted to the Planning Board for review.

Comment 205: The WIG requested calculations on a 100 year storm event. The calculations were not done; rather, the Sponsor states that such calculations would not have a substantive impact on the site plan layout. Further, the WIG's request for specific dimensions for a perimeter dike swale were ignored by the Sponsor and deferred until site plan approval. (Lippes_Sierra2)

Response: Calculations on the 100-year storm event were included as part of the SWPPP

submitted with the 2015 FEIS. The 100-year storm event remains a part of the

revised SWPPP included in this FSEIS.

Comment 206: The WIG recommends a curve number of 98 to size the erosion and sediment

controls for all areas. The Sponsor states it doesn't affect the layout of the

proposed site plan. (Lippes_Sierra2)

Response: Comment noted. Additional detail and information have been added to the plans

that are appended to this FSEIS. Subsequent to the conclusion of the 'hard look' required by SEQRA, a detailed site plan application will be submitted to the

Planning Board for review.

Comment 207: The WIG notes that validation of the post-development design Hydro CAD

routings cannot be made without structural details for outlet structures within the Stormwater Control System. The Sponsor states this doesn't affect the layout of the proposed site plan and structural details will be provided during site plan

review. (Lippes_Sierra2)

Response: Comment noted. Additional detail and information have been added to the plans

that are appended to this FSEIS. Subsequent to the conclusion of the 'hard look' required by SEQRA, a detailed site plan application will be submitted to the

Planning Board for review.

Comment 208: Again a required correction identified by the WIG in the flow splitter is deferred

until site plan and not corrected. (Lippes_Sierra2)

Response: Comment noted. Additional detail and information have been added to the plans

that are appended to this FSEIS. Subsequent to the conclusion of the 'hard look' required by SEQRA, a detailed site plan application will be submitted to the

Planning Board for review.

Comment 209: Again a required correction identified by the WIG in the planter details are

deferred until site plan and not corrected. (Lippes_Sierra2)

Response: Comment noted. Additional detail and information have been added to the plans

that are appended to this FSEIS. Subsequent to the conclusion of the 'hard look' required by SEQRA, a detailed site plan application will be submitted to the

Planning Board for review.

Comment 210: Again a required correction identified by the WIG in the elevation correction in

the pocket wetland is deferred until site plan and not corrected. (Lippes_Sierra2)

Response: Comment noted. Additional detail and information have been added to the plans

that are appended to this FSEIS. Subsequent to the conclusion of the 'hard look'

required by SEQRA, a detailed site plan application will be submitted to the Planning Board for review.

Comment 211: Again a required correction identified by the WIG in the engineering details regarding soil depth is deferred until site plan and not corrected. (Lippes_Sierra2)

Response:

Comment noted. Additional detail and information have been added to the plans that are appended to this FSEIS. Subsequent to the conclusion of the 'hard look' required by SEQRA, a detailed site plan application will be submitted to the Planning Board for review.

Comment 212: Again a required correction identified by the WIG in the Tc flow path is deferred until site plan and not corrected. (Lippes_Sierra2)

Response:

Comment noted. Additional detail and information have been added to the plans that are appended to this FSEIS. Subsequent to the conclusion of the 'hard look' required by SEQRA, a detailed site plan application will be submitted to the Planning Board for review.

Comment 213: Again a required correction identified by the WIG in the certain mannings coefficients is deferred until site plan and not corrected. (Lippes_Sierra2)

Response:

Comment noted. Additional detail and information have been added to the plans that are appended to this FSEIS. Subsequent to the conclusion of the 'hard look' required by SEQRA, a detailed site plan application will be submitted to the Planning Board for review.

Comment 214: Again a required correction identified by the WIG in the stormwater engineering design details deferred until site plan and not corrected. (Lippes_Sierra2)

Response:

Comment noted. Additional detail and information have been added to the plans that are appended to this FSEIS. Subsequent to the conclusion of the 'hard look' required by SEQRA, a detailed site plan application will be submitted to the Planning Board for review.

Comment 215: Again, a required correction identified by the WIG in the additional retrofits of impervious areas of Lot 13A are required to increase phosphorus removal. (Lippes_Sierra2)

Response:

The proposed project has been reduced in scale to limit potential impacts. Additionally, the SWPPP and Plans have been revised to provide adequate phosphorus treatment. Refer to Chapter 2, Section D of this FSEIS for a review of the pollutant analysis provided in the SWPPP. The analysis for the proposed design shows an improvement over existing conditions.

Comment 216: Again a required correction identified by the WIG in rooftop runoff from the masonry building on Lot 13A, as well as, runoff from other impervious surfaces on Lot 13A should be captured and treated. (Lippes_Sierra2)

Response: The SWPPP demonstrates that runoff from the masonry building on Lot 13A and tributary impervious area are being treated by stormwater management practices on the project site.

Comment 217: The FAA, on August 18, 2015, issued a "determination of no hazard to air navigation", however, the FAA did state that the proposed structure is within the RPZ of the Westchester County Airport Runway 16/3. Notwithstanding, where, as here, the structure results in a congregation of people within the RPZ, the FAA has, in its August 18, 2016 determination, recommended that the project is inadvisable from the standpoint of safety to personnel and property. See, August 18, 2015 FAA Determination, p. 1 of 5, Exhibit E to DSEIS. Under SEQRA public safety is a significant environmental impact which the Sponsor cannot avoid. With 980 vehicles and drivers at the parking structure it is certainly a congregation of people within the RPZ. (Lippes_Sierra2)

Response: See Response to Comment 7.

Comment 218: Further, the FAA Determination had expired on January 19, 2016 unless the Sponsor has filed for a construction permit with the FCC. There is nothing in the record indicating that such a filing was made. (Lippes_Sierra2)

Response: See Response to Comment 7.

Comment 219: The Sponsor's treatment of the risk of airplane bird strikes is that a substantial net reduction in lawn area in project proposal will decrease the habitat preferred by Canadian Geese. This is not explained except in conjectural terms. (Lippes_Sierra2)

Response: Geese are unlikely to occupy a property with little lawn for grazing, and surrounded by tall trees without a large waterbody for fly-in and landing. This describes the proposed condition of the project site. Other nearby existing properties on New King Street are more attractive to Canada geese and other flocking birds due to their open landscape plan and abundance of lawn area. By contrast, the plantings around the stormwater management features will be allowed to grow tall, which is shown to discourage geese, and a buffer of mature trees will continue to encircle the project site limiting the potential for visitation by geese. In sum, there should be no increase in use of the site by geese. See NYCDEC: http://www.dec.ny.gov/docs/wildlife pdf/geeseproblem.pdf

Comment 220: It is unclear whether Sponsor presently includes solar panels in its project. (Lippes_Sierra2)

Response: The current project no longer includes solar panels.

Comment 221: The statement that Westchester County, in a meeting with Sponsor and County DPW, expressed no concern over restriping of the Airport Access Road (Co. Route 135), east of NYS Route 120 to create 2 receiving lanes and a road permit is undocumented. The only written communication remains the County's February 11, 2015 communication. (Lippes Sierra2)

Response: The communication was oral and coordinated with the Town's traffic consultant.

Comment 222: The County notes there will be extensive site disturbance within wetland buffers. The Sponsor simply repeats prior observations that this project will be the first to improve in New King Street property to treat stormwater runoff. (Lippes_Sierra2)

Response: For information on the project's wetland buffer impacts, see Response to Comment 59. The project will increase disturbance within Town wetland buffers but proposes only a small 5,724 sf increase in impervious surface within the buffers. It is the applicants opinion that the project's landscaping plan, stormwater management plan, and wetland buffer enhancement planting plan will offset the detrimental effects of buffer disturbance while allowing productive re-use of a previously developed property. The Lead Agency will determine whether the proposed amount of Town-regulated wetland buffer disturbance is acceptable and will require the implementation of a mitigation plan meeting the requirements of the Town Code, or a wetlands permit will not be issued.

Comment 223: The County's concern regarding denuding the forested embankment which provides a natural buffer rather than a manmade system which requires proper site and environmental conditions, design, construction and long term maintenance is ignored. This is coupled by the Sponsor's constant deferral of proper engineering controls until site plan review which obviates an environmental review at the earliest possible time. (Lippes_Sierra2)

Response: The stormwater management plan has been revised for the current FSEIS site plan, including the water quality analysis. While it is true the stormwater basins would require clearing/regrading a portion of the 100-foot Town wetland buffer, the basins would be replanted with native species and would be properly engineered for long-term functionality.

Comment 224: Complete details specific to the stormwater plantings, although requested by the County are deferred until site plan review. (Lippes_Sierra2)

Response: Details specific to stormwater plantings are included in the revised SWPPP and

provided on the landscaping plan.

Comment 225: Sponsor indicates that a Highway Work Permit is required from NYSDOT. No

permit application has been submitted by the Sponsor for approvals of any work to be performed in the ROW including permanent improvements. Accordingly, there is no way to review the environmental impact of the proposed work plan

which requires approval by the NYSDOT. (Lippes_Sierra2)

Response: Comment noted. Permits will be submitted upon site plan approval by the

Town's Planning Board.

EMAIL FROM THOMAS D'AGOSTINO, DATED APRIL 11, 2016

Comment 226: Specifically, my concern is that this project is part of a larger plan for expansion

of the Airport's passenger capacity being proposed by the County....A new parking facility is not needed, there is plenty of parking available at nearby

SUNY Purchase with shuttle service to the airport. (D'Agostino)

Response: The project site is not affiliated with the airport, and will be privately owned and

operated. Expansion of the airport is restricted by Westchester County's Terminal Capacity Agreement that limits the operating capacity of the airport to 240 passengers per half hour. The applicant does not seek to void or revise this

agreement nor does it have standing to do so.

In addition, the proposed project will address an *existing* need for additional parking for commercial travelers and employees supporting corporate aviation

please refer to the response to Comments 1 and 3.

ROBERT PORTO, PUBLIC HEARING, DATED APRIL 11, 2016

Comment 227: It's the last place you want a parking garage, and it's two-fold. It's a point of

source pollution because it's like, so close to all the waterways, and the

reservoirs, and stuff like that. (Porto)

Response: Comment noted.

MISTI DUVALL, PUBLIC HEARING, DATED APRIL 11, 2016

Comment 228: I know you are aware that this construction in the DEP regulated water course

buffer area requires a variance from the City, and the increase is larger than what is normally around under the New York City watershed regulations which

is a concern for us and we think needs to be looked at very carefully. (Duvall)

Response: In response to comments, the Proposed Project has been modified and reduced

in scope by reducing the footprint. As revised, the Proposed Project (building,

driveway and other impervious surfaces) reflects a 24.98 percent expansion from existing conditions – less than the 25 percent threshold for requiring a NYCDEP variance. Therefore, while a permit from NYCDEP will be needed, no variance from NYCDEP WRR will be required.

Comment 229: The stormwater-based, and the landscaping construction going on with only the impervious areas, the proposed mitigation is 1.3 to 1; and if you take into account all of the disturbance, it's 0.28 to 1; and those are under, and the second one quite far under the Town Regulation which are 2 to 1 mitigation. (Duvall)

Response: For information on the project's wetland buffer impacts and mitigation, see Response to Comment 59.

Comment 230: And to that end, we are also very concerned about the proposed use of stormwater infrastructure controls within a wetland buffer. That's something that is generally not appropriate. It can degrade wetland function and often isn't an adequate means of stormwater treatment and control. It's something we very, very highly encourage be taken out of the wetland buffer. (Duvall)

Response:

While location of stormwater management facilities outside of wetland buffers is preferred where space exists, the project site is currently developed without any stormwater runoff treatment. To allow for re-development of the site with a footprint of impervious surface similar to the one at present, additional undeveloped land must be used for the stormwater practices to meet the Town and State regulations. The wetland buffer is a mix of disturbed shrubby land formerly regraded through movement of fill material for additional parking (overflow parking) and wooded land. It serves some wetland habitat functions but does not offer much in the way of groundwater infiltration or water quality treatment due to slope and its confinement between Route 120 and the existing buildings onsite and adjacent to the site. In the applicant's opinion, conversation of some wooded and shrubby disturbed land for use as stormwater infrastructure will not cause a significant adverse impact to the buffer. The pollutant analysis shown in Chapter 2 (Table 2.D-1) shows in improvement in all parameters as compared to the existing condition – the site's building and driveways currently have no treatment practices. Water quality treatment is one of the critical functions of wetland buffers which, in the applicant's opinion, will be improved with the proposed project. Furthermore, the stormwater management components include bioretention, stormwater planters, and a stormwater wetland - all of which will be planted with native plant species to restore wetland buffer habitat functions.

SUSAN LEIFER, PUBLIC HEARING, DATED APRIL 11, 2016

Comment 231: There is no need to build this, and there is no reason to build in the watershed if there is no need to build it; and I think that has not been properly discussed nor looked at. (Leifer)

Response: See Response to Comments 1 and 3.

Comment 232: Why are you using this kind of a building in the wetlands? There is no need to build in the wetlands. (Leifer)

Response:

The proposed modified project will not disturb any Town wetland and no new impervious surface will be constructed within the NYCDEP 300-foot offset from the reservoir stems. Since the existing building and driveway is already within the Town's wetland buffer and the proposed modified project will be constructed within this same area, there will be some disturbance of the Town's wetland buffer. As previously discussed, the project is proposing a wetland buffer enhancement plan using native species, and improving wetland functions by removing invasive species within the wetlands—all designed to benefit the ecology of the site.

RICHARD CONRAD, PUBLIC HEARING, DATED APRIL 11, 2016

Comment 233: So really it comes down to really what's the purpose of this monstrosity being put in an area where, one, traffic is ridiculous as it is? The way the traffic leaves the airport out of New King Street is already a mess as it is. (Conrad)

Response:

As concluded in the Town consultant's study, traffic added to the traffic network will be minimal and will not significantly impact the overall study area traffic operations. The applicant's traffic consultant in consultation with the traffic consultant for the Town of North Castle developed an improvement plan for the intersections of Airport Road at Route 120 and the I-684 ramps. The proposed improvement plan and analysis was sent to NYSDOT for review. The applicant's consultant team along with the Town of North Castle traffic consultant presented the plan to NYSDOT at a meeting on Friday, October 21, 2011. Subsequently, NYSDOT has expressed their endorsement for the improvement plan. A copy of the analysis and correspondence is provided in the 2015 FEIS

Comment 234: So I think that the creation of this thing will cause a lot of problems for our town; and as a town member and a user of the airport, I think it's a big mistake, and I think it is unnecessary. (Conrad)

Response: Comment noted.

Comment 235: And if there is an answer to this, the answer is building a bigger garage at the airport, and also that revenue goes to the airport. (Conrad)

Response: Comment noted.

Comment 236: The growth of the airport, as a master plan, I think will influence this project tremendously, and probably a decision should not even be made until a master plan has been public because that will change everything. (Conrad)

Response: Comment noted.

GEORGE KLEIN, PUBLIC HEARING, DATED APRIL 11, 2016

Comment 237: The upcoming master plan for the airport is expected to propose physical expansion at the airport, perhaps raise the terminal and other facilities, County Executive Astorino's proposal for expanding the number of passengers through the airport, and now the parking garage. So when you look at it in its totality, it's expansion, and expansion is not in the interest of this community, and its citizens, and property values, and tranquility. That's it. (Klein)

Response: Comment noted. It should be noted that the project site is not affiliated with the airport, and will be privately owned and operated. Expansion of the airport is restricted by Westchester County's Terminal Capacity Agreement that limits the operating capacity of the airport to 240 passengers per half hour. The applicant does not seek to void or revise this agreement nor does it have standing to do so.

EDWARD BUROUGHS, AICP, COMMISSIONER, WESTCHESTER COUNTY PLANNING BOARD, LETTER DATED MARCH 18, 2016

Comment 238: Our review continues to find significant concerns about the compatibility of the proposed development with the need to protect people and property on the ground within certain zones around the airport. We consider it incumbent upon the Town of North Castle to place these concerns in the forefront when making decisions about what land uses should be permitted in runway protection zones. As the sole entity with land use authority at this location, it is the Town's responsibility to ensure that its land use controls and decisions protect public safety. The County Planning Board's review raises serious concerns about the prudence of amending the Town Zoning Ordinance to allow the processing of the proposed development. (Buroughs)

Response: Comment noted.

Comment 239: As we noted previously in several of our previous response letters to this proposal, the location of the proposed parking garage is within the runway protection zone (RPZ) for runway 16 at the County Airport. Because the County

is responsible as a sponsor for grants received from the FAA, the FAA has recommended that the County take action to the extent reasonable to discourage development within the RPZ. (Buroughs)

Response: Comment noted. See Response to Comment 7.

Comment 240: While the draft SEIS responds to a number of our concerns with respect to wetland, stormwater and water quality issues, the stormwater management plan continues to show extensive site disturbance within the wetland buffer areas. Because the site is in close proximity to the Kensico Reservoir and contains a watercourse which drains directly to the reservoir, the Town must take as hard look at the impacts to water quality before issuing approvals for the proposed plans. (Buroughs)

Response:

As presented in Chapter 1 of this FSEIS, and in response to concerns regarding potentially adverse impacts, the proposed project has been substantially reduced in size. In fact, the proposed project will not require a variance from NYCDEP. It should be noted that the existing building and parking areas on the project site already encroach on the town wetland buffer. As currently developed, 12,316 sf of impervious surface exist in the wetland buffer plus additional property in the buffer that is currently macadam and gravel parking lot, lawn, and regraded fill to accommodate the existing building. These previously disturbed areas have few wetland buffer functions aside from providing groundwater infiltration. The proposed reduction in the project, presented in this FSEIS, will add only 5,724 sf of impervious surface within the Town wetland buffer, as compared to the 30,000 sf of additional impervious surface in the buffer presented in the original DEIS (2011).

In addition, throughout the State Environmental Quality Review Act (SEQRA) process, the applicant has worked with the Town and NYCDEP to address issues and concerns regarding the size of the project and mitigate potentially adverse impacts. As demonstrated in this FSEIS, there are no adverse environmental impacts that have not been mitigated. The Lead Agency will determine whether the proposed amount of Town-regulated wetland buffer disturbance is acceptable and will require the implementation of a mitigation plan meeting the requirements of the Town Code, or a wetlands permit will not be issued.

CYNTHIA GARCIA, SEQRA COORDINATION SECTION, NYCDEP, LETTER DATED MARCH 27, 2017

Comment 241: With regard to the footnote on page 1-2 of the Draft FSEIS, DEP would like to further explain the applicable sections of the Rules and Regulations for the Protection from Contamination, Degradation, and Pollution of the New York City Water Supply and Its Sources (Watershed Regulations). Section 18-39 (a)

(1) of the Watershed Regulations generally prohibits locating new impervious surfaces within 100 feet of watercourses and wetlands. As previously discussed, an exemption from this prohibition is provided in Section 18-39 (a) (4) (iii) of the Watershed Regulations that allows for an expansion of impervious surfaces provided they do not exceed 25% of the area of the existing impervious surfaces at that commercial, institutional, municipal, industrial, or multi-family residential facilities if any part of the expansion is within the limiting distance. (Garcia_NYCDEP_2)

Response:

Comment Noted. The DEP comment states that calculation of the new impervious area within 100 feet of watercourses and wetlands may not be offset by crediting the amount of any current impervious surface that would be restored to a pervious condition. DEP has advised that such restored pervious area may not be credited against such new impervious surfaces to reduce the overall calculation. The footnote on page 1-2 of the FSEIS will be revised accordingly.

- Comment 242: Expansion of newly proposed impervious surfaces includes all impervious surfaces proposed outside the footprint of the existing impervious surface, not simply the net difference between pre- and post-development conditions. For the purposes of determining the percent expansion of impervious surface, the new impervious cover for all phases of the project, both on and off-site, must be considered. This information is not clearly presented in the submission and currently is unknown. The Draft FSEIS and plans shows a net increase of impervious surface in the post-development condition that is outlined in Table 1-1 Summary of Project Modifications. It is imperative that DEP's perspective on this is clearly understood. In order to analyze and compare the total allowable impervious area correctly, the following information is required.
 - a. A comprehensive tabulation of impervious areas that will be redeveloped with currently impervious areas,
 - b. Impervious areas that will be converted to pervious cover, and
 - c. Existing pervious areas that are to become impervious areas.
 - d. A color coded overlay plan with this tabulation detail would better explain to the agency whether a variance request is needed or not

Utilizing the tabular information, the amount of pervious area that will be converted to impervious area must then be compared to the amount of existing impervious area to determine the amount of the proposed expansion. This information will be the basis in determining whether a variance request is necessary.

DEP recognizes that the proposed parking garage structure has been reduced in size, yet the final jurisdictional determination cannot be made without this information. (Garcia_NYCDEP_2)

Response:

AKRF acknowledges that DEP's interpretation of its regulations do not provide a benefit or credit for conversion of existing impervious areas to new pervious area. The DEP comment above was based on a plan that did not include a green roof. In response to the comment, a portion of green roof has been added to the building to eliminate the need for a variance.

AKRF has confirmed with DEP that the calculation of the 25% expansion in impervious surfaces may be offset by use of a green roof, which would be "credited" against any new impervious area. The attached figure (D-7) depicts a portion of the building in which a green roof will be provided to comply with 25% limit set forth in the DEP regulation governing the extent of impervious area expansion.

As the building program is refined throughout the site plan approval and DEP SWPPP review processes, the exact location of, and size of, the green roof may be adjusted, while maintaining adherence to the DEP exemption requirements.

Comment 243: Response to DEP Comment 61 references Appendix K, yet the results of the soil borings were not provided. Please include the requested information in order to verify the depth and separation of groundwater and bedrock.

Also, in reference to the response to Comment 61, the detail for the proposed flow through planter must show the minimum width associated with this practice. (Garcia_NYCDEP_2)

Response:

SWPPP Appendix K (Geotechnical Report) is included in the SWPPP hardcopy the Town has on file. The borings presented in the appendix, and referenced in the comment response, document adequate separation from groundwater and ledge for the proposed permeable pavers. The SWPPP appendix will be formally submitted to DEP as part of their SWPPP Review Process.

The width of the proposed flow through planter is depicted on Sheet C-5 and is consistent with the sizing methodology outlined in the SWPPP. The construction detail will be updated per DEP's comment prior to formal submission for its review.

Comment 244: With regard to the response to Comment 62, it should be noted that runoff reduction must be applied to each subcatchment prior to discharge into a standard stormwater management practice, unless that standard practice has runoff reduction capability per the New York State Stormwater Management Design Manual (Design Manual). Please have the project sponsor demonstrate that runoff reduction is provided for each subcatchment rather than for the overall site. (Garcia NYCDEP 2)

Response:

The design points (DP-1, 2, & 3), and associated subcatchments presented in the hydrologic analysis, all drain to a common point at the Kensico Reservoir 300feet from the project site. The design points are presented separately to demonstrate peak flow rates to localized property line crossings and are being maintained or lessened to demonstrate no adverse impact to adjacent property owners.

As such, analyzing the project's water quality requirements on an overall basis is in-keeping with the NYSDEC Design Manual. The technical details for how to present accounting of runoff reduction will be reviewed, and revised if necessary, with DEP as part of its review of the project.

Comment 245: As previously requested, please have the project sponsor provide a larger scale drainage area map in order to assess the hydrologic and pollutant loading characteristics based on the existing and proposed surface coverage. Please note that while the East of Hudson Watershed Corporation (EOHWC) Manual may apply to stormwater retrofit projects, it may not be appropriate for use in estimating pollutant loading or removal efficiency for new development or redevelopment projects; therefore, the response to comment 64 cannot be accepted. Without a reasonable analysis based on an acceptable reference source, DEP cannot support a finding to approve this action under SEQRA. The bullets provided in the previous DEIS comment 63 must be addressed appropriately and demonstrate adequate mitigation. (Garcia NYCDEP 2)

Response:

The EOHWCD literature is widely accepted as a reference for calculating phosphorus loading and removal. Furthermore, the EOHWC Manual was referenced by WIG in their April 26, 2016 comment memorandum. As part of the DEP SWPPP review process, additional information and revised pollutant load calculations will be provided to DEP as may be necessary to support its review. As part of its comment, DEP has not explicitly rejected the use of the EOHWC literature as a reference. In the event DEP directs AKRF to an alternate resource of the EOHWC literature as part of its SWPPP review, AKRF will prepare a revised pollutant analysis in coordination with DEP's SWPPP review.

Comment 246: With regard to the response to Comment 65, some post development drainage areas that will be 20% or more impervious in the post development scenario do not include two stormwater management practices in series as required to capture and treat the newly proposed impervious surfaces in cases where the green infrastructure practice applied does not fully reduce the water quality volume generated in the drainage area. For example, in post development subcatchment areas 2E and 2B do not appear to be fully treated as per the Watershed Regulations and Design Manual. (Garcia_NYCDEP_2)

Response:

As demonstrated by Table 3 in SWPPP Appendix I, each drainage area that includes proposed impervious area (BR, FS, PT and PLT) includes at least two stormwater management practices in series. Additionally, the DEP comment references subcatchment areas not presented in the latest version of the analysis (2E and 2B).

Comment 247: The construction sequence must include appropriate steps necessary for the removal of contaminated soils. The demolition phase must include details on the method for soil remediation upon completion of the removal of contaminated soil that are keyed to appropriate erosion and sediment control practices. (Garcia NYCDEP 2)

Response:

As part of the site plan approval and DEP SWPPP review process, additional detail regarding the construction sequence for contaminated soils will be incorporated into the SWPPP.

Comment 248: As designed, the proposal indicates that the runoff volumes at design points DP3 and DP1 will be significantly reduced post development while volumes at DP2 will significantly increase. As such, it must be demonstrated that the impacts to receiving waters (e.g., changes to the hydrologic regime, wetland plants, habitat, etc.) have been adequately assessed and appropriate mitigation provided. (Garcia NYCDEP 2)

Response:

DEP's concerns regarding runoff volumes were addressed in response to Comment 66 of the revised FSEIS. A transcript of that comment response is included below for convenience:

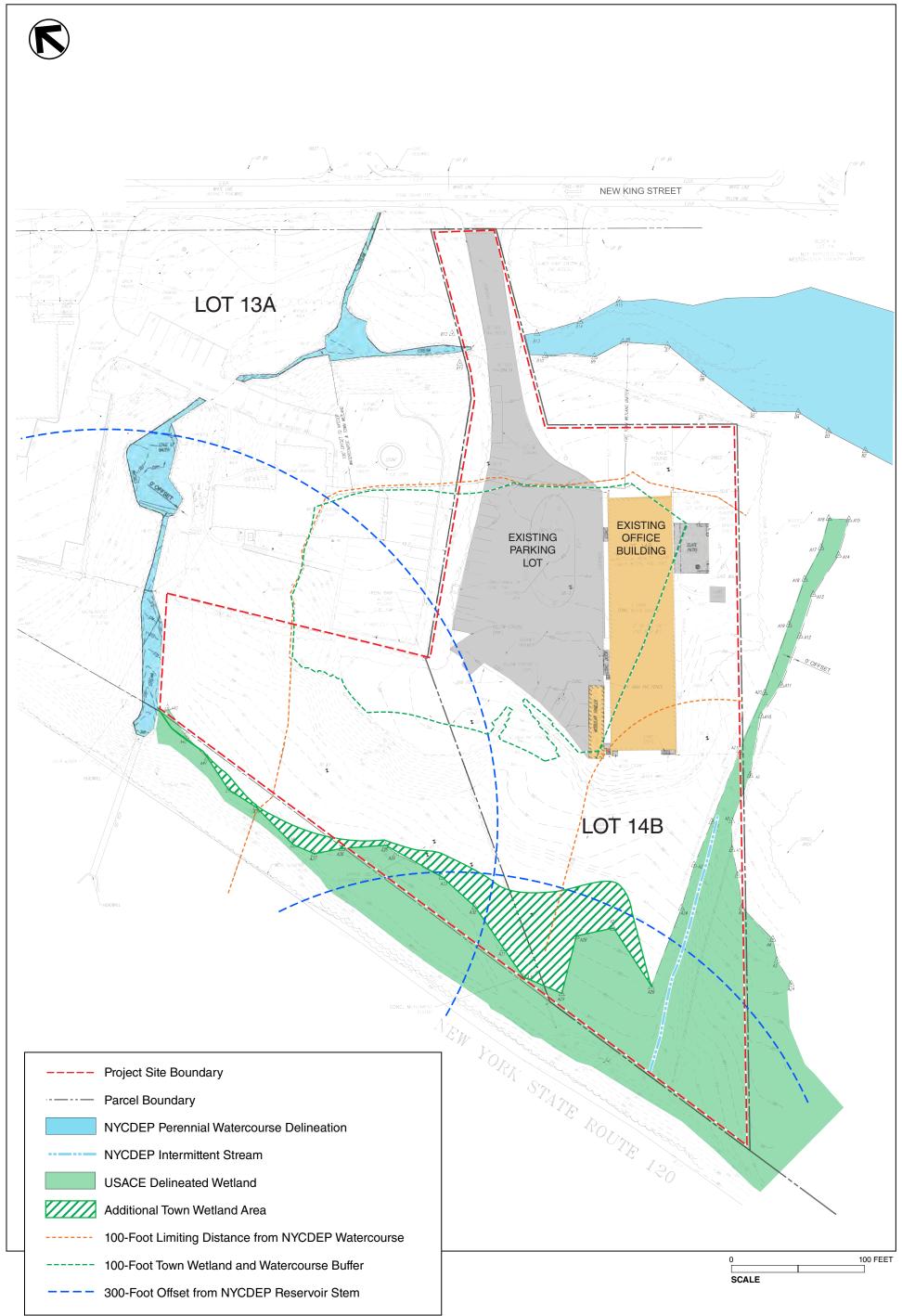
A comparison of runoff volumes between pre- and post-development conditions is included in Table 6-6 of the SWPPP. Under post-development conditions runoff volumes will decrease to design points DP1 and DP3 due to a reduction in drainage areas and a reduction in impervious coverage to those points.

The proposed project will increase the discharge period of the site from approximately 24 hours to approximately 54 hours at DP2 for the 100-year, 24hour storm event. However, as demonstrated by the post-development conditions DP2 hydrograph, the increase in peak flow rate for the extended discharge period (25 to 52 hours) is less than 0.2 CFS (the pre-development peak flow rate for t=25 hr is 0.085 CFS and the post-development peak flow rate for t=25 hr is 0.245 CFS).

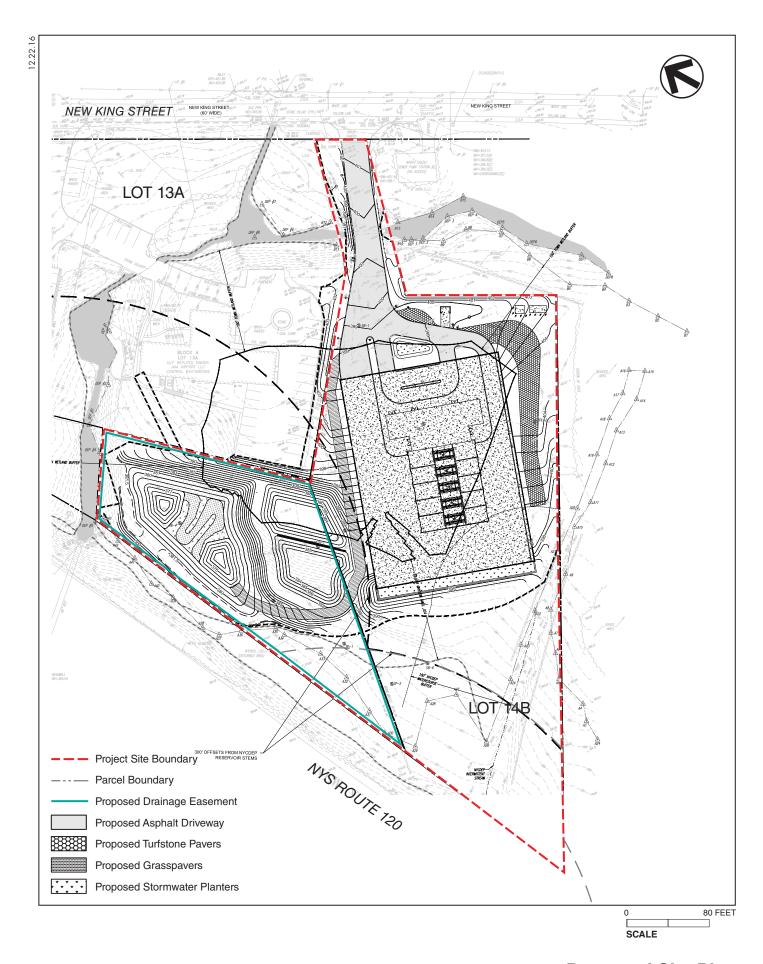
By limiting the post-development peak flow discharge rates at DP2 to less than pre development rates, and by providing a rip-rap apron at the outlet, erosion of the stream channel will be mitigated. Stormwater pollutant levels will be reduced as compared to the existing condition as supported by the water quality analysis contained in the FSEIS. Therefore, impacts to water quality in the receiving stream (perennial stream) will be avoided.

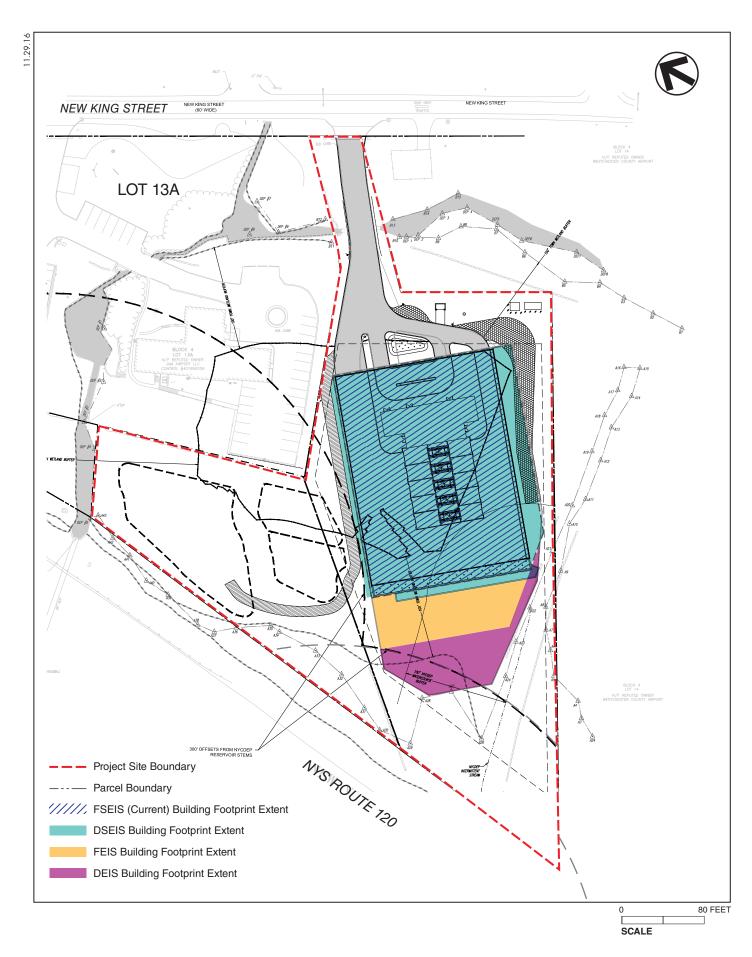
The small reduction in post-construction flows to DP1 should have no detrimental effects to the onsite wetlands. As discussed in the DEIS and FEIS, wetland A has a small drainage area-to-wetland area ratio (5:1), which suggests that maintenance of wetland conditions is primarily reliant on groundwater inputs (i.e. surface water inputs are relatively minor). Also, because the wetland is drained at its lower end by a culvert the invert of which is essentially flush with the bottom elevation of the wetland, most of the surface flow delivered to the wetland is quickly conveyed through and out of the complex with very little residence time. These two factors (small drainage area-to-wetland area ratio and low residence time) suggest that surface water inputs delivered via stormwater runoff are unlikely to play a significant role in maintaining wetland hydrology.

*

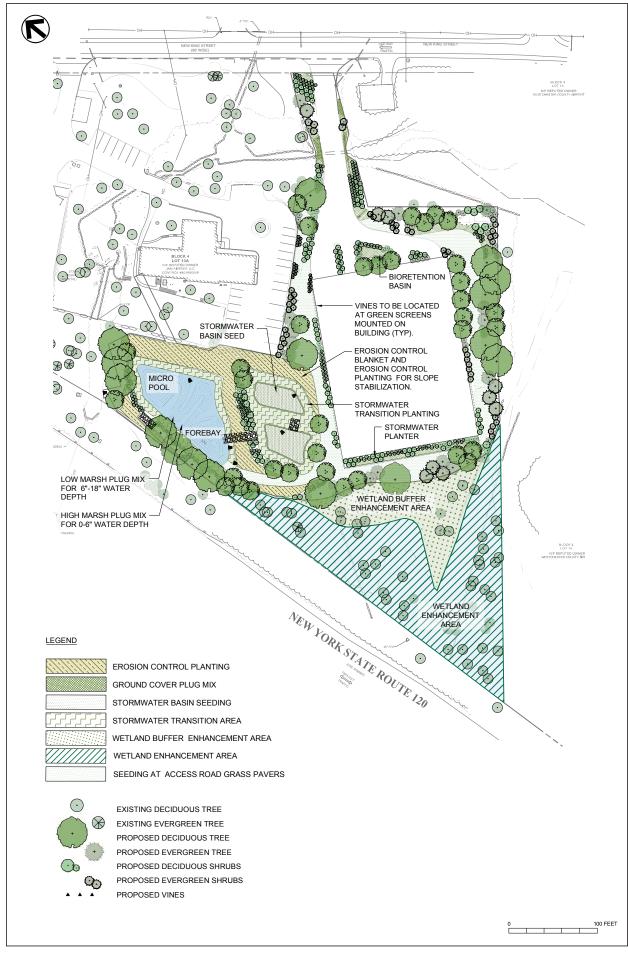






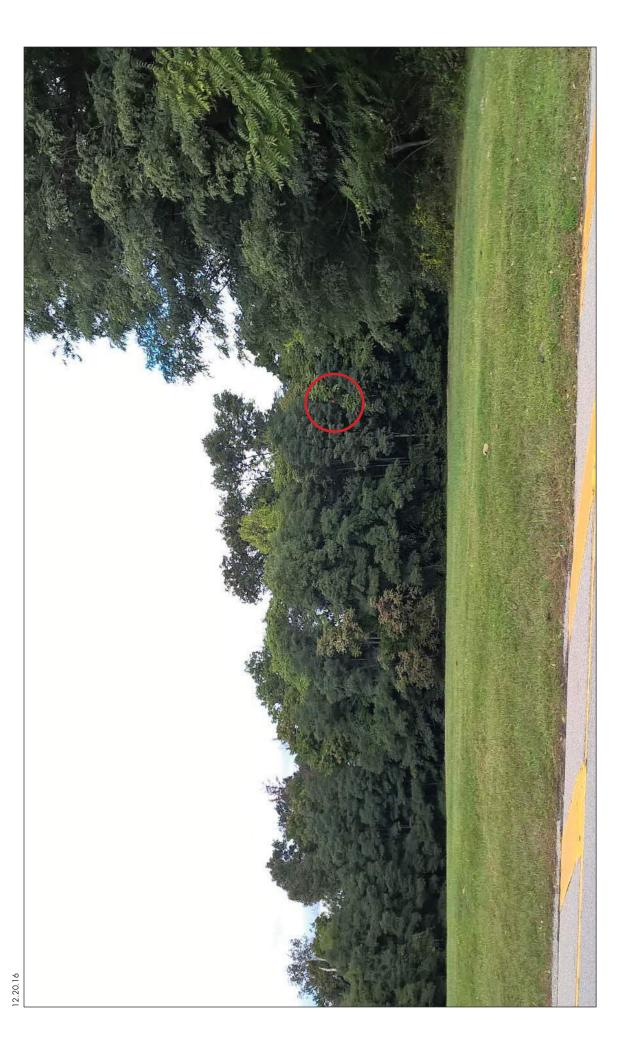


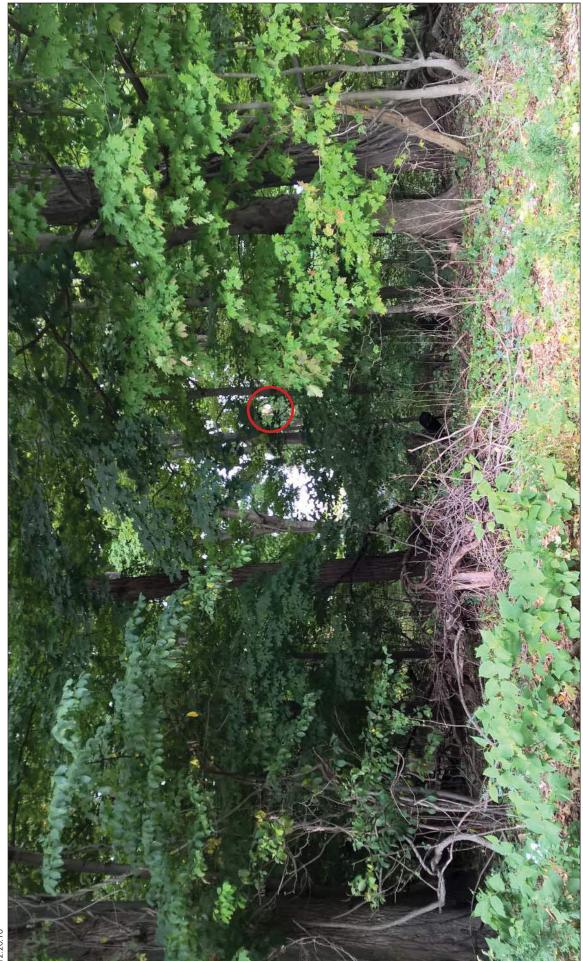
PARK PLACE at Westchester Airport
Figure 3



Park Place
Balloon Test
11 New King Street



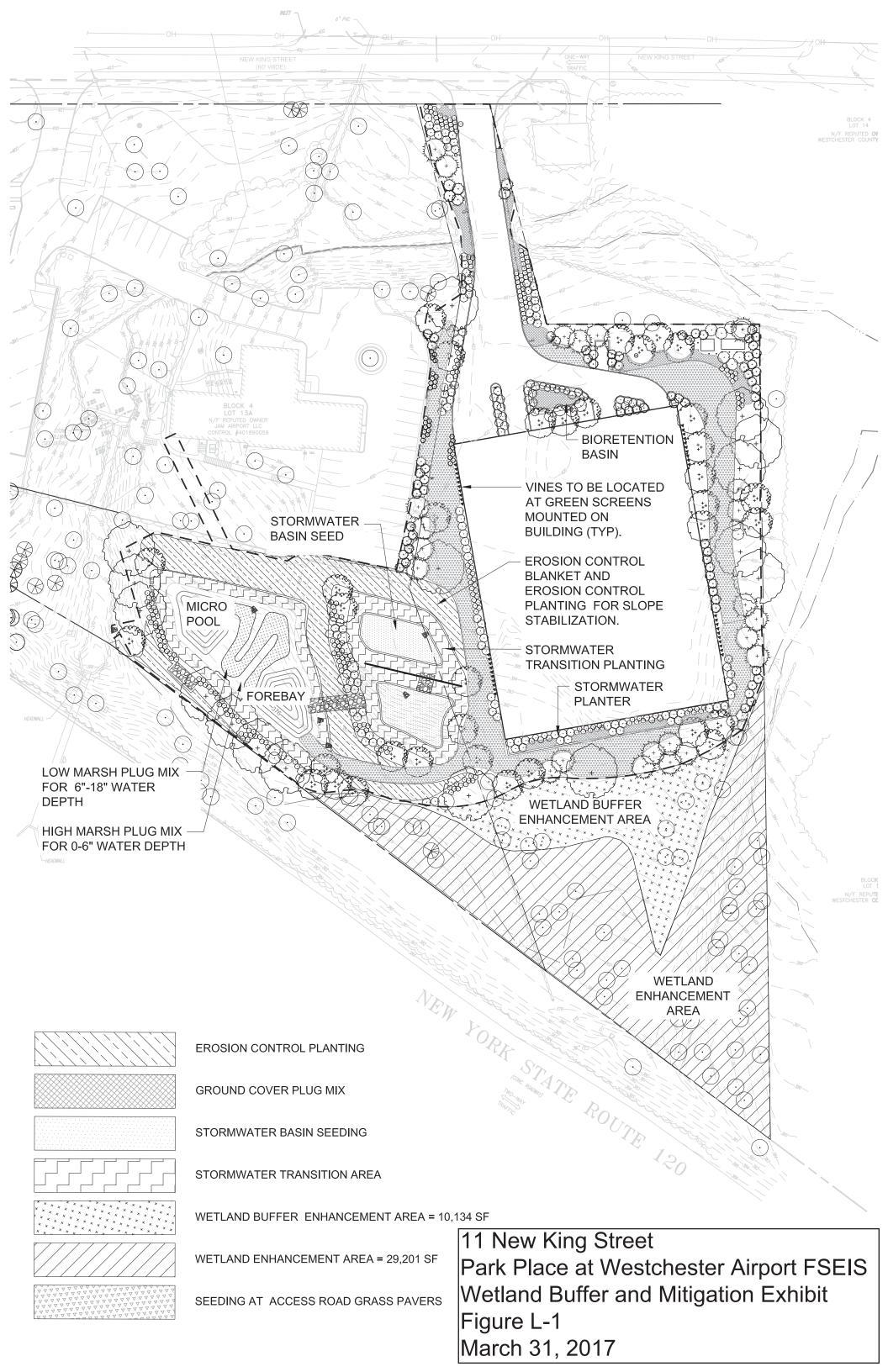












Park Place at Westchester Airport

TOWN OF NORTH CASTLE WESTCHESTER COUNTY, NEW YORK

Stormwater Pollution Prevention Plan

AKRF Project Number: 80202

Prepared for:

11 New King Street, LLC 11 New King Street White Plains, NY 10604

Prepared by:



AKRF Engineering, P.C. 34 South Broadway White Plains, NY 10601 (914) 949-7336

October 2010 Revised January 2011 Revised November 26, 2014 Revised December 9, 2014 Revised November 17, 2016 Revised December 2016

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FIGURES

FIGURE 1: Site Location Map

APPENDICES

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APPENDIX B: Pre- and Post-Development Stormwater Maps

Pre- and Post-Development Impervious Coverage Maps

APPENDIX C: Drawings (11" x 17" Reduced Plans)

APPENDIX D: Pre-Existing and Pre-Development Hydrologic Routing Calculations

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APPENDIX I: Pollutant Loading Calculations

APPENDIX J: USDA Web Soil Survey

APPENDIX K: 2008 Melick-Tully and Associates Preliminary Soils and Foundation Investigation

APPENDIX L: 2015 Infiltration Tests and Test Pit Log

Soil Testing Location Map

1.0 OBJECTIVE

AKRF Engineering, P.C. (AKRF) prepared this Stormwater Pollution Prevention Plan (SWPPP) in accordance with the following applicable rules, regulations and guidance documents:

- New York State Department of Environmental Conservation (NYSDEC) Stormwater Pollutant Discharge Elimination System (SPDES) General Permit for Stormwater Discharges from Construction Activities Permit No. GP-0-15-002 (SPDES GP-0-15-002);
- New York State Stormwater Management Design Manual, dated January 2015 produced by the NYSDEC;
- New York State Standards and Specifications for Erosion and Sediment Control, dated July 2016 produced by NYSDEC;
- City of New York, Watershed Rules and Regulations for the Protection from Contamination, Degradation and Pollution of the New York City Water Supply and its Sources;
- Town of North Castle, Stormwater, Soil Erosion and Sediment Control (Town Code Chapter 173)
 Management Code

The objectives of this SWPPP are to:

- 1. Outline Owner and Contractor responsibilities to maintain compliance with SPDES GP-0-15-002, including required inspections, maintenance, forms, and certifications.
- 2. Outline measures to install, inspect, and maintain erosion and sediment control measures for the proposed project. The objective of these measures is to eliminate or significantly minimize pollutant discharges to the adjacent surface water bodies during construction activities.
- 3. Demonstrate that the post construction water quality treatment practices as proposed are designed to capture and treat the stormwater runoff from the proposed project.
- 4. Specify post construction stormwater management structures on-site such that the proposed peak flows do not exceed the pre–development peak flows, thus providing channel protection, overbank flood control, and control of the peak discharge control from the extreme storm event.
- 5. Incorporate green infrastructure techniques in order to replicate pre-development hydrology by maintaining pre-construction infiltration, peak runoff flow and discharge volume.
- 6. Provide a long term inspection and maintenance plan that will ensure the long term operation of the proposed practices.

2.0 OWNER/APPLICANT'S RESPONSIBILITIES

11 New King Street, LLC, the "Owner/Applicant", is responsible to ensure that the Contractor installs and maintains the erosion and sediment control measures in accordance with this SWPPP. The Owner/Applicant is also responsible to ensure that the appropriate forms and certifications contained herein are completed prior to and throughout the duration of demolition and construction activities. The Owner/Applicant shall keep a copy of this document, associated attachments, and any inspection reports generated on-site for the duration of the project and for a minimum of 5 years from the date that the site achieves final stabilization. During this time period it is the Owner/Applicant's responsibility to conform to any changes or updates to the current regulations as they apply to the project.

The Owner/Applicant should ensure that the provisions of the SWPPP are implemented from the commencement of construction activity until all areas of disturbance have achieved final stabilization and the Notice of Termination (NOT) has been submitted to the appropriate NYSDEC office.

The Owner/Applicant should maintain a copy of the General Permit (SPDES GP-0-15-002), Notice of Intent (NOI), NOI acknowledgement letter, SWPPP, MS4, Acceptance Form, and Inspection Reports at the construction site until all disturbed areas have achieved final stabilization and the Notice of Termination has been submitted to the NYSDEC. The documents must be maintained in a secure location, such as a project trailer, on-site construction office, or mailbox with lock; that is accessible during normal working hours to an individual performing a compliance inspection.

3.0 CONTRACTOR'S RESPONSIBILITIES

The Contractor is responsible for implementing this SWPPP and related project specifications and reviewing all forms, certifications, and contract drawings, in order to become familiar with all aspects related to the SPDES GP-0-15-002. The Contractor shall retain a signed copy of this SWPPP and all associated attachments on-site from the initiation of demolition and proposed construction activities to the date of final stabilization. The Contractor is responsible for completing the certification contained herein Appendix A, prior to the commencement of demolition and proposed construction activities. Each of the Subcontractors involved in the implementation of erosion and sediment control measures or soil disturbance activities must also complete a certification. The Contractor is responsible for each of the Subcontractors employed by the Contractor that are involved in the implementation of erosion and sediment controls or earthwork.

It is the duty of the Contractor to properly install and maintain all erosion and sediment control measures on the site as per this SWPPP. The Contractor shall also be responsible for the inspection of all erosion and sediment control measures for the proposed project by a "Trained Contractor" as per this SWPPP. Should the Owner, an owner's representative, or any local authority having jurisdiction deem that the SWPPP or the Contractor's implementation of the SWPPP proves to be ineffective in eliminating or significantly minimizing the pollutants or achieving the goals of the SPDES GP-0-15-002, the Contractor shall take any necessary action to conform to the objectives of the permit at no additional cost to the Owner

It is the duty of the Contractor to properly inspect and maintain all erosion and sediment control measures installed on the site as per this SWPPP. Any revision to the SWPPP in design, demolition and construction activities, inspection, or maintenance shall be reflected by the Contractor in the on-site copy of the SWPPP in a timely manner. At the beginning of this work, the Contractor must designate a qualified inspector. The Contractor shall coordinate with the Resident Engineer to ensure that all of the inspection requirements are in conformance with this SWPPP and the requirements of the SPDES GP-0-15-002. On a monthly basis, copies of all inspection forms and maintenance records shall be organized and filed accordingly by the Contractor.

4.0 PRE-DEVELOPMENT CONDITIONS

The proposed project site is located at 11 New King Street in the Town of North Castle, New York. The site is situated to the east of New York State Route 120, north of Airport Road and to the west of New King Street. Further west of Route 120 is U.S. Highway 684 and Rye Lake. Rye Lake is part of Kensico Reservoir which is part of the New York City Department of Environmental Protection (NYCDEP) East

of Hudson (EOH) watershed. The NYCDEP water supply system provides drinking water to 9 million people within New York City and other municipalities.

The phosphorous load to the reservoirs from the contributing drainage basins results in exceedances of the phosphorous water quality values established by the NYSDEC and set forth in its Technical and Operational Guidance Series (TOGS) as determined by the NYCDEP. Therefore NYSDEC and NYCDEP have identified phosphorous as a pollutant of concern within the EOH watershed and have established specific design criteria as outlined in the NYSSDM "Enhanced Phosphorous Removal" standards.

The project development comprises of two tax map parcels within the Industrial AA (IND-AA) zoning district. The existing flag lot, designated as Block 4, Lot 14B, is approximately 2.47 acres and is currently developed with a one-story office building, associated parking area, and a two-way driveway which provides access from New King Street. The existing lot contains minimal slopes stretching from New King Street to the edge of the existing development but has moderate to steep slopes (15% or greater) beyond and extending to the western property line. A NYCDEP delineated watercourse traverses the eastern portion of the site through an existing 36-in. diameter culvert. This culvert is located beneath the existing driveway which connects the parking area to New King Street. A wetland, delineated by AKRF staff and to be confirmed by Town staff, also traverses the site along the southern and western boundary lines.

The proposed project will also involve the use of a portion of the adjoining property, designated as Block 4, Lot 13A, located to the northwest of Lot 14B. The portion of this property which is planned for drainage use is currently undeveloped and consists of trees and low-lying brush located within moderately to steep slopes. This area is bound by Town delineated wetlands to the west and a parking area to the east.

4.1 Existing Soil Conditions

The following soils are found on the property and adjacent sites based on the United States Department of Agriculture (USDA) Natural Resource Conservation Service Soil Survey of Putnam and Westchester Counties, New York.

4.1.1 USDA Soil Description

Below is a list of on-site soil types and associated descriptions as determined by United States Department of Agriculture "Web Soil Survey" (See Appendix J).

Woodbridge Loam (WdB)

This soil is gently sloping, very deep, and moderately well drained. It formed in compact glacial till derived from schist, gneiss, and granite and is located on the lower parts of hillsides in the uplands. Slope of the Woodbridge Loam soil ranges from 3 to 8 percent slope. The water table of this soil mapping unit is between 1.5 to 2.5 feet below the surface from November to May. Bedrock is at a depth of more than 60 inches. Included with this soil mapping are small areas of the poorly drained and very poorly drained Sun soils, areas of well drained Paxton soils, the somewhat poorly drained Ridgebury soils, bouldery or very stony areas, and areas of soils with a friable substratum.

Ridgebury Loam (RdB)

Ridgebury loam consists of gently sloping, very deep soil that is poorly drained to somewhat poorly drained. Slope of the Ridgebury loam ranges on the project site from 3 to 8 percent slope. The water table is perched from November to May and is located at a depth of 0 to 1.5 feet. Permeability is moderate or moderately rapid in the surface layer

and subsoil and slow or very slow in the substratum. Bedrock is at a depth of more than 60 inches. Ridgebury loam is present on along both the east and west boundary line.

Udorthents, Smoothed (Ub)

Udorthents, smoothed consists of very deep soil that is excessively drained to moderately well-drained. Slope of the Udorthents soil ranges from 0 to 25 percent slope. Many characteristics cannot be defined for this soil because there is a high variable composition. Fill material can be present at depths greater than 20 inches over the original soil. The Udorthents soil comprises the majority of the total soil on the site.

Table 4-1 Project Site Soil Types

Symbol	Soil Series Name	Hydrologic Soil Group	Drainage Characteristics
WdB	Woodbridge loam 2 to 8 percent slopes	C/D (D used in analyses)	Moderately well drained. Permeability is moderate in the surface layer and subsoil and slow or very slow in the substratum. Erosion hazard is moderate, surface runoff medium, and water capacity moderate. "K" Factor: 0.32.
RdB	Ridgebury loam, 3 to 8 percent slopes	B/D (D used in analyses)	Gently sloping, very deep and poorly drained soil located on lower parts of hillsides and along small drainage ways. Permeability is moderate or moderately rapid in the surface layer and subsoil and slow or very slow in the substratum. Erosion factor is slight, surface runoff medium and water capacity moderate. "K" factor: 0.24.
Ub	Udorthents, smoothed	В	Very deep, excessively drained to moderately well-drained soil located near urban areas. It is comprised of alternating layers of material ranging from sand to silt loam. Properties are extremely variable and merit onsite investigation to determine properties for given site. "K" factor: 0.20.

Source: Web Soil Survey, USDA Natural Resources Conservation Service (Appendix J).

Note: "K" Factor given indicates the erosion potential of each soil type. This indicates the susceptibility of a soil to sheet and rill erosion by water. Values of "K" range from 0.05 to 0.69. The higher the value the more susceptible the soil to erosion

4.1.2 Geotechnical Results

Test pits, infiltration tests, and soil borings were performed throughout the proposed development areas to help determine the feasibility of certain types of stormwater treatment practices and those that will offer the best performance, see Table 4-2 and 4-3. Soil testing locations were survey located and can be found on the Pre-Development Drainage Map (Appendix B). NYCDEP and AKRF staff was present to witness the soil testing.

Infiltration tests were conducted in the vicinity of the proposed grass pavers to confirm infiltration capabilities of shallow soils. Borings were performed throughout the site, to provide information for the building foundation and pavement design. The information is also used to evaluate the potential for green infrastructure design. Results for Test Pit 2015-1 and infiltration tests can be found in Appendix L. Results for all other test pits and borings can be found in Appendix K.

Table 4-2
Project Site Deep Test Results

Deep Test Hole Number	Description
1	10' Total Depth, 6' Groundwater Seepage
2	8' Total Depth, 6' Groundwater Seepage, 3'-6" Mottling Observed
3	11' Total Depth, 7' Groundwater Seepage
4	9' Total Depth, 8' Groundwater Seepage
2015-1	16' Total Depth, No Groundwater Seepage, No Mottling Observed

Table 4-3
Project Site Boring Results

Boring Number	Description
1	44' Total Depth, 25'-6" Groundwater Seepage
2	51' Total Depth, 10.5' Groundwater Seepage
3	36' Total Depth, 16' Groundwater Seepage
4	45'-2" Total Depth, 26'-6" Groundwater Seepage
5	30'-4" Total Depth, Water level not recorded
6	31' Total Depth, 18' Groundwater Seepage

Table 4-4
Project Site Infiltration Test Results

Test Number	Results
1	45 in/hr
2	20.25 in/hr

4.2 Existing Natural Resources

Located within the project site are a Town designated wetland and a class "A" watercourse, as designated by NYSDEC. Approximately 18,680 square feet (sf) (0.428 acres) of the wetland is on Lot 14B, and approximately 3,200 sf (0.073 acres) of the wetland is on Lot 13A. The town designated wetland was delineated by a field survey conducted by AKRF. The wetland was found to be present within the undeveloped southern portion of the project site and outside the western borders of the property along Route 120. A wetland is mapped along the unnamed stream outside the eastern project boundary near New King Street. These designated wetland areas are protected by town defined wetland setbacks. Reservoir stems are located on the west side of NYS Route 120. NYCDEP requires a 300 foot boundary line setback from the reservoir stems.

4.2.1 Watercourses

All state waters are assigned a class and standard designation based on existing or expected best usage. Streams that are designated as C(t) or higher (i.e., C(ts), B, or A) are collectively referred to as protected streams and are subject to the stream protection provisions of the Protection of Waters regulations.

The primary stream that traverses across the eastern portion of the project site flows through an existing 36-in. diameter culvert beneath the existing driveway. This perennial stream is listed as Class A by the NYSDEC and is therefore subject to the provisions of the Protection of Waters Program (6 NYCRR Part 608). The classification AA or A is assigned to waters used as a source of drinking water. The stream's proximity to the Kensico Reservoir, which is part of the NYCDEP water supply system, accounts for this designation. This stream is also subject to the Town of North Castle Code which regulates watercourses and disturbance activities within 100 feet of watercourses.

The secondary on-site drainage feature is identified as the Town designated wetland portion which stretches along the southern property line from east to west. This secondary drainage feature does not demonstrate perennial or intermittent flow and is more accurately termed an ephemeral drainageway, conveying surface runoff during or immediately following a rain event only. It is not mapped by NYSDEC and is therefore not regulated at the state level pursuant to the Protection of Waters Program.

Section 18-39(c)(6) of the Watershed Rules and Regulations prohibits impervious surfaces within 100 feet of a watercourse. NYCDEP staff members were present at the project site during the delineation of the watercourse. This information is shown on Sheet No. C-2 - Existing Conditions, see Appendix C.

4.2.2 Reservoir Stem

The NYCDEP regulates activities within a 300-foot radius of a reservoir stem. This setback helps to limit activities to areas within close proximity to downstream water supply reservoirs. The reservoir stem associated with this project is located to the northwest of the project site at the discharge point of the watercourse into Rye Lake, part of the Kensico Reservoir. The reservoir stem was determined using the elevation of the Kensico Dam, as provided by NYCDEP, and survey locating the elevation along the reservoir edge within the proximity of the tributary stream. The surveyor then delineated a 500-foot segment of the tributary stream. A 300-foot radius from the 500-foot segment was then drawn on the plans to show the reservoir stem setback. The project site is

located within this reservoir stem setback however, the building and associated impervious surfaces has been situated outside of this required setback zone.

4.2.3 Wetlands

The project site contains wetlands located along the east, west, and south property lines. These two wetland areas were delineated by the Town of North Castle and survey located. The wetland area to the east of the property follows the delineation of the NYCDEP defined watercourse and stretches through the adjacent property to the north until it reaches an existing 60-in. diameter culvert located to the northwest of the site. This culvert conveys water beneath New York State Route 120 and towards Rye Lake.

The town delineated wetland area located along the south and west property lines conveys water to an existing 36-in. diameter culvert located off-site. This culvert conveys water beneath New York State Route 120 and towards Rye Lake

Wetlands are defined at the Federal level as "those areas that are 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 for life in saturated soil conditions." Wetlands generally include "swamps, marshes, bogs, and similar areas" (Federal Register, 1982). Wetlands are regulated at the Federal level by the Army Corps of Engineers (ACOE) pursuant to Section 404 of the Clean Water Act and its implementing regulations. Wetlands are also regulated at the local level by the Town of North Castle, Town Code §209. The Town also regulates disturbance activities within a 100-foot buffer surrounding wetlands to protect their function and values.

4.3 Existing Utilities

Based on discussions with the Town of North Castle personnel there is no existing water service from New King Street, Route 120, or Airport Road. The project site is currently located outside of any existing water districts. An existing well is located on the slate patio in the rear of the existing building which currently provides potable water to the office building.

Sanitary sewage is discharged through a 3" PVC force main that runs under the driveway to the sanitary manhole located approximately 14 feet from the eastern most property line. At this point the sanitary flows are connected to the municipal sanitary system which runs beneath New King Street to the south.

There is an existing 1,000-gallon underground storage tank located along the southeast corner of the existing building. This fuel tank is used to provide heat and hot water to the existing facility.

4.4 Existing Stormwater

There are no existing stormwater management systems on-site and therefore, no existing treatment practices. The existing subwatersheds have been delineated in order to understand existing stormwater runoff flow conditions (Map D-1 in Appendix B). Pre-development hydrologic routing calculations can be found in Appendix D of this report.

Therefore the majority of stormwater runoff is conveyed via overland flow from paved surfaces. Stormwater flows from rooftops, over paved areas and bare soil, and through sloped lawns collecting and transporting soil, animal waste, salt, pesticides, fertilizers, oil and grease, debris and other potential pollutants.

Potential Sources of Water Pollution

The existing subsurface sewage treatment systems are no longer functional and have been abandoned for several years and therefore are not a contributing source of pollution runoff. Roof leaders convey stormwater runoff from the office buildings to the lawn areas, where flow is spread out. Potential pollution sources within the watersheds include sand and salt from roadway and parking lot runoff, pesticide and fertilizers, and grass clippings.

Sand and salt is typically used for de-icing on the project site and adjacent paved surfaces. Since there is no existing stormwater management system, accumulated sediment could potentially be transported to the adjacent waterbodies.

Many of the NYC Water Supply streams, lakes and reservoirs are impacted from intensifying land use. In addition to increased levels of phosphorous, chloride concentrations due to de-icing operations are increasingly found at higher levels in surface waters. Not only is chloride conveyed via surface water runoff, but it also infiltrates through the soil and intercepts the groundwater table, which is the contributing base flow of streams. In its annual report, New York City DEP has reported steady increases in conductivity of most reservoirs in the Croton Watershed since the early 1990s, most likely a result of increased development and associated pollutants (e.g., increased use of road salt).

Potential short-term and long-term impacts of runoff carrying fertilizers, pesticides, and other chemicals from lawns, roadways and other impervious surfaces and sedimentation is that it can be toxic to plants and animals.

Design Point 1

Design Point 1 is located along New York State Route 120 at the inlet of an existing 36-in. diameter culvert which is located within an existing stormwater wetland just beyond the southwest property line. This existing 36-in. diameter culvert conveys stormwater from a portion of the project site and the adjoining Westchester Airport property (located to the south) beneath NYS Route 120 towards Rye Lake which is part of the Kensico Reservoir. Stormwater runoff from the south edge of the property and a portion of the roof of the existing office building (Pre 1) drains to the town designated wetland located along the western property line. From here, stormwater runoff is conveyed off-site to an existing 36-in. diameter culvert which directs stormwater under NYS Route 120.

The contributing drainage area consists of land use types varying from wooded areas, landscaped/lawn areas, and impervious surfaces from the existing building, surface drives and walkway areas. Currently stormwater runoff is conveyed via overland flow to this design point and at no point is runoff collected into on-site existing stormwater structures.

Flow entering the town designated wetland (located near the south edge of the property) from the south was omitted from the hydrologic analysis. That portion of area will remain unchanged and be unaffected by the development.

Design Point 2

Design Point 2 is located along New York State Route 120 near the inlet of an existing 60-in. diameter culvert which is located within an existing town designated wetland and NYCDEP designated watercourse. This existing 60-inch (in.) diameter culvert is located northwest of the property line just west of lot 13A.

The existing watercourse, which flows south to north at the existing driveway entrance for 11 New King Street, is conveyed under the driveway, via a 38 linear foot, 36-in. diameter culvert. This watercourse flows through the adjoining property, traveling beneath the existing driveway through a stone culvert and over a concrete spillway, before eventually entering into a 60-in. diameter culvert downstream. This existing 60-in. diameter culvert conveys stormwater, from a portion of the project site and the adjoining properties to the north, beneath NYS Route 120 towards Rye Lake, a portion of the Kensico Reservoir.

The contributing drainage area consists of land use types varying from wooded areas, landscaped/lawn areas, and impervious surfaces from the existing buildings, surface drives and walkway areas. The stormwater flows contributing from the associated parking area and a portion of the existing building (Pre 2), are directed northwest, overland towards the town designated wetland. A portion of the stormwater runoff is conveyed via overland sheet flow, before discharging into the watercourse at the stream edge, while the majority of the overland flow collects into a town designated wetland located to the west of Lot 13A. After ponding in this area, stormwater runoff is conveyed to the north and discharges into the watercourse in the area of the existing 60-in. diameter culvert.

The existing watercourse appears to be in stable condition with minimal erosion issues, as a majority of the stream banks are rock-lined. In many cases the degree of stream movement is limited by these rock-lined banks allowing little opportunity to meander. These attributes are suggestive of a stream system with relatively low sensitivity to hydrologic changes.

Design Point 3

Design Point 3 is located in the eastern portion of the site adjacent to the watercourse. Under predevelopment condition, this drainage area consists of a portion of the existing one-story building, a portion of the associated parking area and driveway, wooded areas, and landscaped/lawn areas.

Stormwater runoff from the eastern portion of the project site, including the eastern portion of the associated parking and driveway leading towards New King Street (Pre 3), is conveyed via overland flow to the NYCDEP watercourse located off-site. Runoff then flows within the watercourse through the existing 36-in. diameter culvert, beneath the existing driveway, and eventually to the existing 60-in. diameter culvert which conveys water under New York State Route 120. In the pre-development condition, stormwater runoff from the impervious surface is not collected or treated within a stormwater facility.

For the hydrologic model, a point downstream of the 36-inch diameter culvert was selected. At this location, the associated drainage area envelops the existing driveway and its runoff. The drainage area truncated at a point in the watercourse south of the project site's southern property line. Because the flows to the driveway culvert will decrease under post-development conditions, a hydrologic analysis including the area beyond the point of truncation is not required. Under post-development conditions, the driveway will be collected by an on-site storm drain system and directed to a series of treatment and detention practices.

5.0 PROPOSED PROJECT DESCRIPTION

11 New King Street, LLC (the Applicant) proposes to construct a parking structure (proposed project) at 11 New King Street (project site) in the Town of North Castle, Westchester County to alleviate an existing parking shortage at Westchester County Airport.

The project site is located in the southern portion of the Town of North Castle, near the Connecticut state line and Westchester County Airport. (see Figure 1, Site Location Map). The proposed project would involve the construction of a multi-level parking structure with a building footprint of approximately 31,493 square feet. This project would also involve the construction of associated paved areas for on-site drive lanes and site access from New King Street. The site is currently developed with an approximately 9,700-square-foot one-story office building, an associated parking area, and a driveway which provides access from New King Street.

5.1 Anticipated Permits

The following is a list of anticipated permits for the construction activities associated with the proposed project.

5.1.1 New York State Department of Environmental Conservation

The project work will result in more than 5,000 square feet of disturbance within the New York City East of Hudson Watershed. This will require coverage under the SPDES General Permit for New Construction GP-0-15-002. This SWPPP is being prepared in compliance with the requirements of the New York State Stormwater Management Design Manual (NYSSMDM).

5.1.2 Westchester County Department of Health

The existing well is located within the footprint of the proposed building therefore a new well will be located on-site. Westchester County Department of Health approval will be required for the new on-site well.

5.1.3 New York City Department of Environmental Protection

In conformance with Section 18-37(d) of the Watershed Rules and Regulations (WRR), the applicant will be required to notify the Department of the modification to the existing sanitary sewer connection and submit associated engineering drawings. The proposed building will require a pump chamber and associated force main to pump sewage from the new building to the municipal sewer system located along New King Street. This connection will be made at an existing manhole located along the edge of the existing driveway, at the southeastern most property line.

NYCDEP review and approval of the SWPPP is required according to Section 18-39(b)(3)(iii) of the Watershed Rules and Regulations.

5.1.4 Town of North Castle

The Town is considered a regulated, land use control under the Municipal Separate Storm Sewer System (MS4) program and therefore the review and approval of the SWPPP is required prior to submission to NYSDEC.

The following table is a complete list of all permits required for the proposed project.

Table 5-1
Required Permits, Approvals and Involved Agencies

Approval/Permit/Review	Involved Agency	
Town of North Castle		
Site Plan Approval	Planning Board	
Wetland Permit	Planning Board	
Tree Removal Permit	Planning Board	
Zoning Text Amendment	Town Board	
Sanitary Sewer Connection	Building Department	
Westchester County		
Sanitary Sewer Connection	Department of Health (WCDOH)	
Water Supply Well	WCDOH	
Roadway/Signal Improvements	Department of Public Works (WCDPW)	
New York City		
SWPPP	Department of Environmental Protection (NYCDEP)	
Sanitary Sewer Connection NYCDEP		
New York State		
Roadway/Signal Improvements (NYS Route 120)	Department of Transportation (NYSDOT)	
SPDES Permit (GP-0-15-002)	Department of Environmental Conservation (NYSDEC)	
Federal		
Height Limitation	Federal Aviation Administration (FAA)	
Notice of Proposed Construction or Alteration	FAA	
Nationwide Permit, if applicable	U.S. Army Corps of Engineers (USACE)	

6.0 POST-CONSTRUCTION STORMWATER PRACTICES

Post-construction stormwater practices that provide water quality and quantity control are required to meet pollutant removal goals, reduce runoff volume, reduce channel erosion, prevent overbank flooding, and control extreme floods. These controls help mitigate the effects of development by controlling suspended solids content and peak flows of runoff from developed sites. The NYSDEC has developed unified sizing criteria to size stormwater management measures. However, as previously mentioned, the project is located within the NYCDEP East of Hudson Watershed where the stormwater management design must also address specific NYCDEP requirements. The NYCDEP requirement for the treatment volume, also referred to as water quality volume (WQv), is to capture and treat the runoff generated from a 1-year, 24-hour storm event. The NYSDEC requirements for overbank flood and extreme storm are the same as NYCDEP requirements for attenuating the larger storm events.

The NYSDEC requirement for Water Quality Volume (WQv) for enhanced phosphorous removal is to capture the calculated runoff from the 1-year, 24-hour design storm. The method for calculating the runoff volume is based on the USDA NRCS Technical Release 20 and Technical Release 55. The

stormwater treatment practices have been designed to meet the current WRR, including the requirement that the stormwater ponds be designed to capture and treat the runoff generated from the 1-year, 24-hour storm event from new impervious surfaces based on the requirements of Chapter 10 – Enhanced Phosphorous Removal Standards outlined in the NYSSMDM.

6.1 Regulations

6.1.1 NYSDEC Sizing Criteria

The following table is representative of the storm design criteria required within the New York State Stormwater Management Design Manual.

Table 6-1 NYSDEC Uniform Sizing Criteria

Water Quality Volume (WQv)	WQv = Detention of the 1 year storm event
Runoff Reduction Volume (RRv)	RRv = Reduction of the total WQv by application of green infrastructure techniques and SMPs to replicate pre-development hydrology.
Channel Protection (Cpv)	Cpv = 24 hour extended detention of post-developed 1-year, 24-hour storm event.
Overbank Flood (Qp)	Control the peak discharge from the 10-year storm to 10-year predevelopment rates.
Extreme Storm (Qf)	Control the peak discharge from the 100-year storm to 100-year predevelopment rates. Safely pass the 100-year storm event.

As the project is within the NYCDEP East of Hudson Watershed, the requirements and guidelines within the New York State Stormwater Management Design Manual Chapter 10 – Phosphorous Removal Enhancement was used to design the stormwater management system.

6.1.2 New York City Department of Environmental Protection Requirements

The project is located within the Kensico Reservoir watershed, which is part of New York City's surface water drinking water supply. NYCDEP is currently operating under a Memorandum of Agreement with the United States Environmental Protection Agency for filtration avoidance. Under this agreement certain provisions regarding impervious surface and stormwater runoff were incorporated within the City of New York, Rules and Regulations for the Protection from Contamination, Degradation and Pollution of the New York City Water Supply and its Sources (WRR) promulgated in 1997 and revised most recently in April 2010. The stormwater design criteria of the NYSSMDM are now referenced in the WRR. The WRR has additional criteria, such as the stormwater treatment practices must be designed to be in series. However, generally, the sizing and design criteria follow the state requirements.

6.1.3 Town

The Town of North Castle is a regulated, traditional land use control MS4, therefore the review and acknowledgement of the SWPPP is required.

6.2 Five-step process for site planning and stormwater management practice (SMP) selection

6.2.1 Step 1: Site Planning to preserve natural features and reduce impervious cover

The development of the stormwater management system for the proposed project site involves the use of green infrastructure practices, where feasible. The project area (project site + drainage easement) is 3.33 acres with approximately 33,716 square feet (sf) (0.77 acres) of existing impervious surface. The project's limit of disturbance (LOD) will be approximately 2.44 acres. The proposed automated parking garage design was a major factor in reducing the building footprint from the typical multi-level self-park system. The proposed project includes 41,508 sf (0.95 acres) of impervious surface, or 7,792 sf (0.18 acres) of new impervious surface. The proposed stormwater plan will also consider approximately 15,401 (0.35 acre) of off-site impervious surfaces from the existing office building roof runoff and associated parking area from adjacent Lot 13A and a portion of New King Street.

The parking, drop-off, and traffic queuing areas are all located internal to the building. Therefore, runoff from the parking areas is not connected to the stormwater system. As a result, there is a decreased the likelihood for oil and grease type pollutants to enter the storm system.

The following site planning practices were used to help determine the site layout and stormwater management system design.

Planning Practice 1: Preservation of Undisturbed Areas

The first approach to the overall design at Park Place is the preservation of undisturbed site area in order to maintain natural features and native vegetative areas. This technique coincides with Better Site Design (BSD) practice #1: preservation of undisturbed and BSD practice #3: reduction of clearing and grading. Both practices ensure that unnecessary earthwork is not performed and instead help to limit overall site disturbance by developing in areas where disturbance has already occurred. Where possible the project has been designed to re-use existing impervious areas (i.e., driveway entrance, driveway) and has eliminated any disturbance of the presently undisturbed wetlands along the south and west property lines.

Planning Practice 2: Preservation of Buffers

The project site is situated in an area where Town delineated wetlands and NYCDEP designated wetlands greatly minimize the developable area on site. Currently, stormwater runoff from impervious surfaces located within wetland and watercourse buffers discharge directly to the waterbodies without any treatment. The project has been designed such that all runoff on impervious surfaces is treated by a series of water quality treatment methods before discharging downstream.

Planning Practice 3: Reduction of Clearing and Grading

The proposed building and associated impervious surfaces have been situated on the project site such that there will be no disturbance to existing wetland areas and hence, no

clearing or grading is expected within these areas. The building has also been designed as a tiered structure which will work most efficiently with the existing site topography and thus minimize clearing and grading areas to the greatest extent possible.

Planning Practice 4: Locating Sites in Less Sensitive Areas

By constructing the new development in an area already disturbed, the project has helped to maintain the site's natural character and existing habitat. Also, while the proposed project will increase impervious surface, the project will provide stormwater quality and quantity controls where there are presently none. By treating runoff through a series of stormwater treatment facilities the stormwater quality will be improved and will thus, improve the surrounding watercourse and wetland areas.

Planning Practice 6: Soil Restoration

Prior to final site stabilization the on-site soils will be modified or restored in order to reintroduce oxygen into compacted soils and improve the water storage within the soil. This process will subsequently help reduce runoff by allowing for a greater potential for infiltration.

Planning Practice 8: Roadway Reduction

The driveway travel lanes at the Park Place development have been designed to provide adequate safety and conveyance throughout the site. Originally four car exit lanes were designed to leave the building, however after evaluating the travel patterns the two lane exit was reduced to only one lane. Also, the fire access lane and maintenance path have both been designed to consist of permeable pavers in order to decrease impervious cover and increase site infiltration.

6.2.2 Step 2: Determine Required Water Quality Volume

Water quality volume has been calculated based upon the site layout and contributing drainage areas utilizing Chapter 9 – Redevelopment Project design criteria described in the NYSDEC Stormwater Management Design Manual (NYSSMDM). As the project is within the NYCDEP East of Hudson Watershed, the requirements and guidelines within the NYSSMDM Chapter 10 – Phosphorous Removal Enhancement and specific requirements of the NYCDEP Rules and Regulations were used to design the stormwater management system.

The NYCDEP requirement for the treatment volume, also referred to as water quality volume (WQv), is to capture and treat the runoff generated from a 1-year, 24-hour storm event. The WQv Required is based on the amount of impervious area within the total disturbed area for the project site.

The first step in calculating the WQv Required is to determine the 1-year, 24-hour storm event runoff volume from the disturbance area (12,153 CF). Refer to hydrologic routing calculations for the disturbance area in Appendix E.

The second step in calculating the WQv Required is adjusting the 1-year, 24-hour storm event runoff volume based on the project's classification as a Redevelopment Project. As noted in Part 9.2.1.B.II of the NYSSMDM, Redevelopment Projects require treatment for 25% of the existing, disturbed impervious area, while new development requires treatment for 100% of the new impervious area.

A methodology for determining the WQv Required for projects containing both redevelopment and new development is not included in the NYSSMDM. Therefore, the methodology presented in Section 2.3.2.2.1 of Appendix B of Chapter 8 of the NYSDOT Highway Design Manual is utilized to determine the WQv Required. The NYSDOT methodology uses a weighted factor, based on the total amounts of new and redeveloped impervious areas, to calculate the percentage of the 1-year, 24-hour storm event runoff volume to be treated. Refer to Appendix E for calculations to determining the weighted factor and the WQv Required.

6.2.3 Step 3: Apply Runoff Reduction Practices

Along with treating for water quality and quantity during the major storm events on the proposed project site, the NYSSMDM requires the applicant to achieve a runoff reduction volume. This volume is achieved through infiltration, groundwater recharge, reuse, recycle, evaporation/evapotranspiration of 100-percent of the post-development water quality volumes in order to replicate pre-development hydrology by maintaining pre-construction infiltration, peak runoff flow, discharge volume, as well as minimizing concentrated flow. This requirement can be accomplished by application of on-site green infrastructure techniques, standard stormwater management practices with runoff reduction capacity, and good operation and maintenance.

In order to achieve the requirements for the Runoff Reduction Volume (RRv), the proposed project site must use green infrastructure techniques and practices to provide runoff reduction as determined by the NYSSMDM. The minimum required runoff reduction volume is 470 CF. By providing permeable pavement as an impervious area reduction practice, the project was able to reduce the required RRv. By providing a stormwater planter and a bioretention basin, the project is able to reduce runoff by 502 CF through the use of green infrastructure techniques.

Green infrastructure practices or SMPs with runoff reduction capacity are required for the water quality volume associated with the new impervious area (pervious to impervious) of 7,792 SF. There are limiting site conditions that do not warrant the ability to reduce the runoff to pre-construction conditions, however the project has been designed to reduce a percentage of the runoff from impervious areas of the proposed development. Since this project is not able to meet the required standard for RRv, the NYSSMDM allows for projects to reduce the required runoff reduction volume where additional efforts are not feasible. This reduction is based on a Hydrologic Soil Group(s) (HSG) of the site and is defined as the Specific Reduction Factor (S). The project site is located in HSGs B & D, therefore the weighted reduction factor is 0.27. The reduction factor for this site decreases the required RRv to 470 CF. According to the revised reduction factor, the provided green infrastructure measures implemented on the site are sufficient to meet the minimum required RRv. The calculations for RRv and WQv can be found in Appendix E of this report. The results are summarized below in Table 6-2.

Table 6-2 Summary of Water Quality Requirements

Factor	Amount
Water Quality Volume (WQv) Required	4,749 CF
Water Quality Volume (WQv) Provided	13,466 CF (283% of required)
Minimum Runoff Reduction Volume (RRv)	470 CF
Runoff Reduction Volume (RRv) Provided	502 CF (107% of required)

Infrastructure Technique 9: Stormwater Planters

The proposed development will be designed to have a stormwater planter system along the west face of the parking structure. The stormwater planter will be designed to treat the stormwater runoff from a portion of the roof of the proposed structure. Roof leaders will route the roof area to the planter for water quality treatment and pollutant removal before releasing into the proposed stormwater conveyance system.

Infrastructure Technique 11: Permeable Pavement

In the areas where high traffic is not expected (i.e. the fire access lane and the maintenance path), permeable pavers will be installed in place of conventional paving. This will help to reduce stormwater runoff from these areas and improve water quality and quantity downstream. The use of permeable pavers will reduce the amount of stormwater runoff through promoting infiltration.

No credit is being claimed for the use of permeable pavement other than the reduction of impervious surface. The permeable pavements are not included as volume reduction practices in the WQv or RRv provided calculations.

Non-structural Stormwater Best Management Practices

Below lists nonstructural stormwater management practices that will be implemented throughout the project site:

- Long term soil stabilization through landscaping and maintenance in the developed areas. Prevention of soil loss, through establishment of vegetation and a landscape plan that will increase the amount of tree canopy and healthy ground cover. The landscape plan will also maximize the travel time of stormwater runoff and minimize concentrated flows.
- The grounds maintenance program limits the potential for excessive nutrient loading, specifically controlling the application of phosphate-based fertilizers.
- Often there is a potential for an increase in pollutants associated with open parking areas such as petroleum, antifreeze, and refuse. These pollutants can be picked up by stormwater flows and carried downstream, thus potentially increasing pollutant loading in a stream and reducing water quality. This project, however, is designed to provide multiple levels of parking within the building. By doing so, the impervious cover or impervious footprint will be decreased from a development of equal parking volumes. It will also allow for the pollutants, associated with parking areas, to be

collected internally and discharged to the sanitary system rather than into the watershed.

• For those driving surfaces located at the entrance to the proposed building, a high level of maintenance and good housekeeping practices will be implemented at the site to minimize the threat of potential pollutants to the environment.

Catch basins with deep sumps and hoods will be installed at the downstream end of all proposed catch basins. This will trap floatables and debris within the catch basin. The deep sumps will trap the petroleum and antifreeze attached to sediment particles. The accumulated material will be cleaned out of the catch basins in accordance with the long term inspection and maintenance plan.

6.2.4 Step 4: Apply Standard SMPs to Address Remaining Water Quality Volume

The remainder of the water quality volume is achieved by a surface sand filter and a stormwater wetland. Each of these practices has been designed in accordance with NYSDEC standards. The practices are proposed in a series to increase the runoff treatment. Refer to Appendix E for sizing calculations of the surface sand filter and the stormwater wetland. Table 6-3 summarizes the provided water quality volume for each stormwater management practice (SMP).

Table 6-3 Stormwater Management Practices				
Practice Drainage Area Provided WQv Applied RRv (sf) (cf) (cf)				
Bioretention Basin	2,425	226	132	
Stormwater Planter	6,972	1,264	370	
Surface Sand Filter	68,050	9,782	0	
Stormwater Wetland	22,283	2,420	0	
Total	99,703	13,692	502	

<u>Proposed Surface Sand Filter (the NYSSMDM)</u>

The following parameters were used in designing and sizing the surface sand filter system:

- Off-Line System Stormwater runoff is conveyed via a storm pipe network, therefore the Sand Filter is designed off-line. A flow-splitter diversion structure has been designed to divert the runoff from the 1-year, 24 hour storm.
- Overflow An overflow structure has been provided to convey stormwater to stormwater wetland. A stabilized rip-rap spillway has also been provided to convey stormwater from the larger storm events.
- Underdrain A 6-inch diameter perforated pipe placed in a gravel layer, is proposed to collect stormwater that has filtered through the sand layer. Geotextile filter fabric will be placed between the gravel layer and sand layer.
- Groundwater Table A minimum 2-ft. separation between the filter bottom and the seasonal high groundwater table has been provided.
- Pretreatment (Sedimentation Basin) A sedimentation basin will provide pretreatment at the inlet point. This will provide primary settling for the larger particulates. The sedimentation basin will be sized to contain 25% of the WQv. The depth of the

sedimentation basin is four feet. The outfall from the inlet pipe will be stabilized with rip rap to minimize erosion of the ponds' side slopes. A fixed depth marker will be installed to assist in the long term inspection and maintenance plan. This will help determine the depth of sediment accumulation and when maintenance is required.

- Treatment Basin Sizing The complete system, including sedimentation basin, is designed to hold and treat at least 75% of the WQv and will consist of a surface sand filter which will have a coefficient of permeability of 3.5 ft/day.
- Filter Media The proposed filter media will consist of a medium sand meeting ASTM C-33 concrete sand.
- Side-Slopes The side slopes for the sedimentation basin and the surface sand filter are 3:1(H:V).
- Vegetation Landscape plans include various grass species for the side slopes and bottom of the surface sand filter. The plant variety will provide treatment through filtering and nutrient uptake. See Landscape Plans.
- Geometry Both pretreatment and the surface sand filter have been designed with a length to width ratio of 1.5:1 as required by NYSSMDM.
- Energy Dissipater A rip rap velocity dissipater will be installed at the outlet that discharges into the sedimentation basin.
- Maintenance As specified in the Operation and Maintenance section of the SWPPP a legally binding and enforceable maintenance agreement shall be executed with the Town and the applicant/operator.

<u>Proposed Stormwater Wetland (per the NYSSMDM)</u>

The following parameters were used in designing and sizing the stormwater wetland:

- Water Quality Volume The WQv is equivalent to the runoff from the 1-year, 24-hour storm event.
- Wetland The proposed stormwater wetland is not located within NYSDEC jurisdictional waters, including wetlands.
- Pond Embankment The proposed stormwater wetland will not require a constructed dam because it is an excavated system created below existing grading.
- Forebay A forebay is provided as the proposed stormwater wetland to store a minimum of 10% of the WQv.
- Side Slopes The side slopes for the stormwater wetland are 4:1(H:V), therefore a pond safety bench is not required.
- Micropool A micropool will be provided at the outlet in order to protect the low flow pipe from clogging and prevent sediment resuspension. This area will range from four to six feet in depth and will be able to store a minimum of 10% of the WQv. The contributing drainage area from the proposed roof leader extension from the existing office building Lot 13B is less than 10% of the total design storm flow discharges directly to the micropool.
- Water Quality Volume At a minimum 25% of the WQv will be in deep water zones with a depth greater than four feet.

- Vegetation Landscape plans include various grass species for the side slopes and emergent wetland species. The plant variety will provide treatment through nutrient uptake. Minimum elements of a plan include: delineation of pond landscaping zones, selection of corresponding plant species, planting plan, sequence for preparing the wetland bed and sources of plant material.
- Landscaping Native plants that promote phosphorous and nitrogen uptake will be specified in the final landscaping plans.
- Permanent pool 50% of the WQv will be provided in the permanent pool, as required for stormwater wetlands designed for extended detention. The seasonal groundwater table will be intercepted to provide a permanent pool.
- Geometry The stormwater wetland has been designed with a length to width ratio of 2:1 as required by NYSSMDM. A minimum Surface Area: Drainage Area of 1:100 has been provided.
- Pond Buffer A pond buffer of at least 25 ft has been provided around the pond maximum water surface elevation.
- Energy Dissipater A rip rap velocity dissipater will be installed at the inlet and outlet of
 the lower pond. The lower pond discharges to the existing NYCDEP delineated
 watercourse where the banks are in stable condition. This will eliminate the potential for
 erosion of the stream bed.
- Emergency overflow Safe conveyance of the 100-year storm flow will be provided through a rip rap lined overflow spillway. The elevation is determined by the 100-yr flood elevation and located such that stormwater flows will not adversely impact surrounding properties.
- Maintenance access A 10-foot minimum width access path will be provided for long term maintenance of the stormwater ponds. The path will be constructed of grasspavers in order to decrease impervious surface and increase infiltration.
- Outlet control structure The pre-cast concrete structure is designed with a low flow orifice. The larger storm events will also be conveyed through openings at the top of the outlet control structure designed to attenuate the larger storm events.
- The outlet control structure is located within the embankment, providing safe egress for maintenance.
- Freeboard 1-ft of freeboard above the 100-year storm elevation.
- Pond Drain A drain pipe would be part of the outlet control structure so that the pond could be completely drained for maintenance.
- Maintenance Agreement An Operation and Maintenance Plan as outlined in the SWPPP would be developed into a legally binding and enforceable agreement with Town as a condition of the site plan approval.

6.2.5 Step 5: Apply Volume and Peak Rate Control Practices

The channel protection volume, overbank flood control and extreme flood control for the project have been satisfied via the surface sand filter and stormwater wetland. The rainfall values in Table 6-4 have been utilized in the hydrologic analyses for the project. Summary Table 6-5 provides a comparison of the peak flow rates that occur under pre-development and post-development conditions. Summary Table 6-6 compares pre-development and post-development conditions runoff volumes.

Table 6-4
Rainfall Values

24-hour Storm Event (Year)	Rainfall Value (inches)	
1	2.82	
2	3.44	
5	4.31	
10	5.12	
25	6.43	
50	7.64	
100	9.08	
Source: Northeast Regional Climate Center (Appendix D)		

Table 6-5
Peak Runoff Flow Analysis

		Peak Kullol	n Fiow Analy:	515			
	Pre-Existing	Pre-	Post-	Change in Flow Rate			
Design Point	Conditions	Development	Development	Pre-	Dev. to	Pre-Ex	isting to
	(cfs)	(cfs)	(cfs)	Pos	st-Dev.	Pos	t-Dev.
	1-year storm						
DP1	0.68	1.18	0.67	-0.51	-43.2%	-0.01	-1.5%
DP2	0.54	1.03	0.50	-0.53	-51.5%	-0.04	-7.4%
DP3	0.95	1.15	0.97	-0.18	-15.7%	0.02	2.1%
10-year storm							
DP1	2.55	3.33	2.17	-1.16	-34.8%	-0.38	-14.9%
DP2	2.11	2.87	2.23	-0.64	-22.3%	0.12	5.7%
DP3	2.97	3.74	2.59	-1.15	-30.7%	-0.38	-12.8%
25-year storm							
DP1	3.73	4.57	3.07	-1.5	-32.8%	-0.66	-17.7%
DP2	3.11	3.95	3.51	-0.44	-11.1%	0.40	12.9%
DP3	4.18	4.99	3.52	-1.47	-29.5%	-0.66	-15.8%
100-year storm							
DP1	6.16	7.07	4.89	-2.18	-30.8%	-1.27	-20.6%
DP2	5.20	6.09	5.96	-0.13	-2.1%	0.76	14.6%
DP3	6.63	7.46	5.34	-2.12	-28.4%	-1.29	-19.5%

Table 6-6 Runoff Volume Analysis

		on volume imaly of				
Design	Pre-Development	ent Post-Development Change in Volur		ı Volume		
Point	(cf)	(cf)	(cf)	(%)		
	1-year storm					
DP1	6,037	3,073	-2,964	-49.1%		
DP2	5,123	14,905	9,782	190.9%		
DP3	7,330	3,895	-3,435	-46.9%		
Total	18,490	21,873	3,383	18.3%		
		10-year storm				
DP1	16,945	9,496	-7,449	-44.0%		
DP2	14,380	34,880	20,500	142.6%		
DP3	18,854	10,689	-8,165	-43.3%		
Total	50,179	55,065	4,886	9.7%		
		25-year storm				
DP1	23,854	13,700	-10,154	-42.6%		
DP2	20,244	46,929	26,685	131.8%		
DP3	25,941	14,959	-10,982	-42.3%		
Total	70,039	75,588	5,549	7.9%		
		100-year storm				
DP1	38,523	22,779	-15,744	-40.9%		
DP2	32,693	71,939	39,246	120.0%		
DP3	40,768	23,990	-16,778	-41.2%		
Total	111,984	118,708	6,724	6.0%		

6.2.5.1. Design Analysis

In order to evaluate the pre- and post-development drainage conditions, the site has been delineated into three (3) discharge analysis points based on pre-development hydrology; Design Points 1, 2, & 3. These points were analyzed to evaluate the effects of the proposed development on surface stormwater runoff. The design points and their pre- and post-development contributing subcatchment areas are shown on Pre- and Post-Development Stormwater Maps, Sheet Nos. D-1 and D-2 found in Appendix B.

To analyze the peak flow rates and runoff volumes in pre-and post-development conditions, HydroCAD version 10, a computer aided design tool, was used to evaluate and analyze the stormwater runoff from the site. The program also models the surface flow through the proposed stormwater practices determining the plug-flow and center-of-mass detention time within the ponds. A simultaneous routing process is used to evaluate the impacts associated with stormwater practices in series. The program is based on United State Department of Agriculture, Natural Resources Conservation Service (NRCS) Technical Releases TR20 and TR55. TR55 and TR20 are tools that were developed to calculate the volume and peak discharge rates of stormwater runoff generated in different rainfall events over a 24-hour period. Runoff volumes and rates are calculated by determining the curve numbers (CN) and calculating the time of concentration (Tc) for each subcatchment area depending on the given rainfall value. The CN values are based on the TR55 table considering the hydrologic soil group, cover type, hydrologic condition and antecedent runoff condition. The Tc represents the time it takes for surface water to travel the most hydraulically remote point within a

subcatchment area. The post-development hydrologic analysis can be found in Appendix F.

Site specific 24-hour storm event rainfall values, shown in Table 6-4, were obtained from the Northeast Regional Climate Center (NRCC) (also in Appendix D). Using the data obtained from NRCC, a site specific 24-hour rainfall distribution was created (Appendix D). This site specific rainfall distribution correlates with an NRCC Type C rainfall distribution. NRCC rainfall distributions are based on more recent rainfall data and are in the process of replacing the use of NRCS rainfall distributions in the Northeast.

6.2.5.2. Design Point 1

The location of DP1 does not change from pre- to post-development conditions. The proposed development area contributing to Design Point 1 (DP1) includes the following proposed surfaces: a portion of the fire access lane, landscaped areas, and wooded areas. Permeable pavers that are greater than 50% pervious area are proposed in the fire access lane.

The existing and proposed drainage areas differ in size because of the location of the proposed building and required treatment. The roof leaders for the proposed structure will collect and convey stormwater runoff to the north side of the building and discharge ultimately to Design Point 2 (DP2). For this reason, the proposed impervious surface within the DP1 drainage area is eliminated in proposed conditions and stormwater flows and volumes are reduced from existing conditions.

Therefore, a stormwater treatment practice is not proposed for this drainage area. The proposed condition will improve the stormwater quality and quantity at DP1.

For similar reasons presented for pre-development conditions, the portion of area south of the town designated wetland tributary to DP1 was excluded from the hydrologic analysis. This omission does not affect the hydrologic analysis.

6.2.5.3. Design Point 2

The proposed development area contributing to Design Point 2 (DP2) includes the following proposed surfaces: the proposed building, the driveway, the maintenance access path, the fire access lane, multiple concrete pads for utilities, new landscaped areas, and the existing building and parking lot on the adjoining property to the north. The location of the new building is such that there will be an increase in impervious surface coverage, total drainage area, and stormwater volume conveyed to DP2.

The contributing drainage area to the proposed stormwater facilities (approximately 2.7 acres), along with the high seasonal groundwater table, makes the stormwater wetland the most suitable method for stormwater treatment. In accordance with Section 18-39(c)(6) of the Watershed Rules and Regulations, "If an activity requiring a stormwater pollution prevention plan will result in impervious surfaces covering twenty percent (20%) or more of the drainage area for which a stormwater management practice is designed, the stormwater pollution prevention plan shall provide for stormwater runoff from that drainage area to be treated by two different types of stormwater management practices in series." Therefore, to address the stormwater runoff from the proposed development, two stormwater facilities are proposed: a surface sand filter to treat the water quality volume and a stormwater wetland which

will treat water quality volume conveyed from the surface sand filter and attenuate the flows from the larger storm events. These stormwater facilities are designed in series to capture and treat the stormwater runoff from the 1-year, 24-hour storm event in accordance with NYSDEC and NYCDEP requirements for treatment of phosphorous pollutants. These stormwater ponds also provide attenuation of peak flows from the larger storm events.

Due to the desired site layout, existing topography and on-site regulated wetlands, two large stormwater facilities could not be located on the project site. As a result, the stormwater facilities are located on the adjoining property to the north.

The stormwater facilities have been designed to capture and treat the stormwater runoff associated with the 1-year, 24-hour storm event and to meet the required elements of the NYSSMDM design criteria for surface sand filter and stormwater wetland.

The stormwater runoff from post-development subcatchment drainage areas will be collected and conveyed through a conventional stormwater collection system (i.e., pipes, manholes, catch basins) to a flow diversion structure. The stormwater volume of a 1-year storm event will be diverted into a surface sand filter for water quality treatment. Per the requirements of the NYSSMDM, the flow diversion structure is utilized direct the water quality volume into the surface sand filter as an off-line system.

The proposed project would disturb a portion of the steep slopes (>25%) on the western and northern sides of the project site. A majority of the existing steep slopes were created by soil filling during previous site development and do not include appropriate measures to minimize erosion and environmental impacts. The proposed development plan includes removal of the fill material comprising the steep slopes, and engineering measures to construct a new slope network that will minimize project-related and future environmental impacts.

The stormwater flows leaving the surface sand filter will then get discharged to the larger stormwater wetland located slightly down gradient. Stormwater runoff volumes larger than the 1-year storm will by-pass the filter and discharge directly into the stormwater wetland. The stormwater wetland will serve as the second level of water quality and water quantity control before stormwater is discharged off-site and into the existing watercourse to the north.

For similar reasons presented for pre-development conditions, only flow up to the property line and drainage easement was considered at DP 2. A hydrologic analysis of the area beyond the property line and drainage easement is not required because runoff beyond the property line and drainage easement will remain unchanged under the post-development conditions.

6.2.5.4. Design Point 3

The proposed design area contributing to Design Point 3 (DP3) will result in a reduction of the drainage area and impervious surface runoff to this design point. The proposed condition will redirect the on-site stormwater flows from the impervious surfaces into a conventional collection system and treat the runoff in the series of stormwater management facilities discussed in Section 6.2.5.3. Therefore, a stormwater treatment practice is not proposed for this drainage area. The results of the pre- and

post-development flows demonstrate that the impact of the proposed condition will improve the stormwater quality and quantity at DP3.

For similar reasons presented for pre-development conditions, the drainage area to DP3 is truncated at a point in the watercourse south of the project site's southern property line. Because the flows to the driveway culvert will decrease under post-development conditions, a hydrologic analysis including the area beyond the point of truncation is not required.

6.3 Pollutant Loading Analysis

The proposed stormwater management practices have been designed in accordance with the NYSDEC stormwater sizing criteria to treat the full water quality volume. As a result, the practices are capable of 80% TSS removal and 40% TP removal (NYSSMDM Section 3.3).

Using the Simple Method, four pollutants, total phosphorus (TP), soluble phosphorus (SP), total suspended solids (TSS) and total nitrogen (TN), were analyzed for the proposed project. Appendix I provides the pollutant analysis calculations and Table 6-7 below summarizes the results. Pollutant concentration values are based on land coverage and were obtained from the East of Hudson Watershed Corporation's Stormwater Retrofit Design Manual (EOHWC SRDM) and the NYSSMDM (2001). Each stormwater management practice has the ability to reduce pollutants to varying degrees based upon type and function. This pollutant removal ability is represented by the practice's removal efficiency. The stormwater management practices' treatment efficiencies were obtained from the EOHWC SRDM and the Center for Watershed Protection's National Pollutant Removal Performance Database.

Table 6-7
Pollutant Loading Analysis

Pre-		Post-	Change in Loading		
Pollutant	Development (kg/yr)	Development (kg/yr)	(kg/yr)	(%)	
TP	1.62	0.82	-0.80	-49.4%	
SP	0.94	0.88	-0.06	-6.4%	
TSS	706	234	-472	-66.9%	
TN	15.35	14.55	-0.80	-5.2%	

The pollutant loading for biochemical oxygen demand (BOD) was not calculated for the project. BOD removal efficiencies for stormwater management practices and BOD concentrations based on land coverage are not readily available. The National Stormwater Quality Database does publish BOD concentrations based on land use (commercial, residential, industrial, etc.). However, because the land use of our site is not changing from pre- to post-development conditions, using these concentrations would not demonstrate a change in BOD concentration due to a change in impervious surface area.

Typical stormwater contaminants that increase BOD are "grass clippings, fallen leaves, hydrocarbons, human and animal waste" (*The Causes of Urban Stormwater Pollution*, Engineering Department, City of Marietta, Georgia). The proposed project will be legally bound to an operations and management agreement for stormwater management practices, which will disallow the accumulation of plant debris in stormwater management practices. Additionally, vehicle storage, queuing and drop-off will occur inside of the proposed buildings. As a result, drippings and pollutants related to automobiles will be captured by the interior drainage system and discharge into the municipal sanitary sewer systems, thereby preventing pollutants from

reaching the protected watercourses. Finally, the site will not have an on-site wastewater treatment system; rather it will be connected to the municipal sanitary sewer system. As a result, BOD sources potentially related to human or animal waste activities will not threaten this site.

6.4 Potential Pollutants

Deicing Materials

There is a reduction of paved asphalt area from existing conditions, therefore there would be a decrease in potential pollutant loading due to the reduce application area. The following guidance for winter road maintenance deicers, based on guidance from the NYS Office of the Attorney General, would be observed with the primary duty to protect human life and safety.

- 1. Total Phosphorus (TP) Guidance:
 - Endorsed Deicer products that contain 50 parts per million (ppm) TP or less.
 - Discouraged Deicer products that contain more than 100 ppm TP.
 - Avoid Any deicer that contains greater than 250 ppm TP should not be used or applied.
- 2. Reducing the use of sand as a treatment material should be a primary goal of environmentally responsible road maintenance because sand usage is responsible for much of the phosphorus introduced into the reservoirs from winter road maintenance. The use of sand also degrades aquatic habitat in streams, wetlands and rivers.

Herbicide, Pesticide, Fertilizer, and Fungicide

Fertilizer and pesticide application will be performed in accordance with NYSDEC application rates and be applied by a certified company. Fertilizer will be applied so that the vegetation can be quickly established; however, repeat use is not anticipated once vegetation has been sufficiently established. A detailed plan for fertilization and pesticide application will be presented with the final landscaping plan. Fungicide and herbicides use are not anticipated. If required, manual weeding will be performed to avoid the use of chemicals that can potentially be harmful to water quality.

The proposed stormwater management system and non-structural practices will provide adequate mitigation of potential impacts including potential secondary impacts to the Kensico Reservoir and the reservoir stem.

6.5 Summary

The proposed stormwater management system has been designed to treat the Water Quality Volume (WQv) and attenuate the larger storm events to pre-development conditions. In addition, the project is designed based on Chapter 10 of the NYSSMDM for enhanced phosphorus removal.

The proposed project incorporates stormwater management practices as well as green infrastructure techniques that will treat runoff from the proposed project. These practices, designed in accordance with the regulations established by NYSDEC and NYCDEP, will include water quality treatment, peak flow attenuation, and temporary and permanent erosion and sediment control measures. The proposed facilities will be sufficient to mitigate the potential impacts of the proposed project related to the quantity and quality of stormwater runoff.

6.6 Variance

The existing paved driveway is approximately 20 feet wide in the area of the existing 36 inch diameter culvert. However, to comply with the Town Code, the minimum width of an access driveway to a site with more than 21 parking spaces shall be 24 feet.

Article IX §213-44G of the Town Code states that access drives for ingress and egress to and from the parking areas for sites located in commercial districts shall be designed in conformance with the width standards, as well as the grade and surface standards provided in § 213-47. The driveway width requirement for a parking area with more than 21 parking spaces is 24 feet. The driveway surface shall be improved and suitably maintained to the extent deemed necessary by the Town Engineer to avoid nuisances of dust, erosion or excessive water flow across public ways or adjacent lands.

Therefore, the applicant is requesting a variance so that the driveway will meet the Town Code and provide safe travel conditions for vehicular traffic. Shuttle busses will be used to transport passengers to and from Westchester County Airport. Various driveway alternatives were reviewed, including keeping the existing driveway width of 20.7 feet, however, 24 feet, or two 12-foot travel lanes, would meet the Town Code and provide a safe buffer width for passing vehicles. The 3.3-foot additional impervious surface is the minimum necessary to afford relief from the Town Code. There will be no disturbance to the water course or to the existing culvert for the proposed driveway widening.

Stormwater runoff currently flows across the asphalt driveway and directly discharges to the watercourse and wetland areas. With the proposed driveway widening, stormwater runoff would be directed to catch basins with deep sumps, a surface sand filter and a stormwater wetland. The practices have been designed to treat 100% of the water quality volume from the entire existing and proposed asphalt pavement within the contributing drainage area. However, only 25% of the WQv from the existing impervious surfaces would be required. In addition to treating the larger WQv, the stormwater management system is designed to capture existing impervious surfaces from the adjacent Lot 13A. Stormwater runoff from the roof and paved surfaces currently flow overland towards the watercourse, causing erosive conditions in some areas of the lawn. Stormwater treatment practices do not exist at the site, therefore this would be a significant improvement over existing conditions and goes beyond the design requirements.

7.0 TEMPORARY EROSION AND SEDIMENT CONTROLS

The proposed new building will be arranged on the project site to maximize the use of the existing site topography and in order to utilize previously disturbed (cleared/regraded) areas for the new building and the proposed circulation network. The proposed 'Site Plan' and 'Paving, Grading and Drainage Plan' are shown on the large-scale plans (Sheet No. C-4 and C-5 in Appendix C).

The majority of the proposed development will be located within the existing developed area, which has moderate slopes of 25% or less. Disturbance to slopes greater than 25 percent would be minimized, totaling approximately 0.21 acres.

Table 7-1 indicates the estimated acreage of disturbance by slope category.

Table 7-1 Slope Disturbance

Slope Category	Acreage of Disturbance		
0-25 percent	2.23 acres		
25-35 percent	0.14 acres		
35 percent or greater	0.07 acres		

The proposed project will require excavation of soil and the grading of topography, which will result in the exposure of soil to natural forces. Several soil types located on the project site have moderate erosion potential, including the Woodbridge and Ridgebury loams. If not properly managed, the temporary exposure of bare soil accelerates the potential for erosion. Acceleration in soil erosion could potentially lead to siltation of the on- and off-site wetlands, ponds, and off-site watercourses. It could even potentially cause a reduction in surface water quality. Measures to avoid impacts from the proposed project are discussed below.

Section 355-18 (Hilltops, ridgelines and steep slopes) of the Town of North Castle Code requires that a building permit be attained prior to disturbing a slope category (25% or greater). The appropriate plans and permits will be submitted to the Town of North Castle for approval prior to initiating site development. The current engineering design plans include measures to minimize erosion and sedimentation, protect against possible slope failure and landslides, minimize stormwater runoff and flooding, and meet or exceed all applicable regulations for slope disturbance.

The proposed site plan for the Park Place project would result in the alteration of the topography of a portion of the property. Specifically, the proposed area of disturbance will occur on approximately 2.7 acres on-site and within the drainage easement.

The proposed project will require the excavation of earth material. Of the total excavated material, only small portion will be used as fill in the regrading of the construction area. The net excess material is to be disposed off-site.

7.1 Erosion and Sediment Control Practices

The following are specific erosion control measures as identified in the large scale drawings prepared for this project. Refer to the large scale Erosion and Sediment Control Plan (sheets C-8A-C-8C) in Appendix C.

7.1.1 Stabilized Construction Entrance / Exit (SCE)

The construction entrance/exit shall have a stabilized aggregate pad underlain with filter cloth to prevent construction vehicles from tracking sediment off-site. Stabilized construction entrances are located at specific transition areas between concrete/asphalt to exposed earth.

7.1.2 Silt Fence

Silt fence shall be installed on the down gradient edge of disturbed areas parallel to existing or proposed contours or along the property line as perimeter control. Silt fence are to be used where stakes can be properly driven into the ground as per the Silt Fence detail in the New York State Standards and Specifications for Erosion and Sediment Control.

Silt fence controls sediment runoff where the soil has been disturbed by slowing the flow of water and encouraging the deposition of sediment before the water passes through the straw bale or silt fence. Built-up sediment shall be removed from silt fences when it has reached one-third the height of the bale/fence and properly disposed.

7.1.3 Storm Drain Inlet Protection

Inlet protection shall be installed at all inlets where the surrounding area has been disturbed. The inlet protection shall be constructed in accordance with NYSDEC Standards and Specifications for Erosion and Sediment Control. Typically they should be constructed to pass stormwater through, but prevent silt and sediment from entering the drainage system.

7.1.4 Stockpile Detail

Stockpiled soil is to be protected, stabilized, and sited in accordance with the Soil Stockpile Detail, as shown on the detail sheets. Soil stockpiles and exposed soil shall be stabilized by seed, mulch, or other appropriate measures, when activities temporarily cease during construction for 7 days or more in accordance with NYSDEC requirements.

7.1.5 Dust Control

During the demolition and construction process, debris and any disturbed earth shall be wet down with water, if necessary to control dust. After demolition and construction activities, all disturbed areas shall be covered and/or vegetated to provide for dust control on the site.

7.1.6 Temporary Seeding and Stabilization

In areas where demolition and construction activities, clearing, and grubbing have ceased, temporary seeding or permanent landscaping shall be performed to control sediment laden runoff and provide stabilization to control erosion during storm events. This temporary seeding/stabilization or permanent landscaping shall be in place no later than 7 days after demolition and construction activity has ceased.

7.1.7 Sump Pit

A temporary pit is constructed to trap and filter water for pumping to a suitable discharge area. The purpose is to remove excessive water from excavations. Sump pits are constructed when water collects in isolated low points during the excavation phase of construction.

7.1.8 Dewatering

Due to the depth of excavation for the building foundation and proximity to on-site watercourses and wetland areas, there may be areas of construction where the groundwater table will be intercepted and dewatering activities will take place. Site-specific practices and appropriate filtering devices should be employed by the contractor so as to avoid discharging turbid water to the surface waters of the State of New York.

A sediment tank may be used in conjunction with other practices that will settle and filter the sediment from the stormwater runoff. The sediment tank is a compartmented tank container to which sediment laden water is pumped to trap and retain the sediment. The purpose of the tank is to trap and retain sediment prior to pumping the water to drainage ways, adjoining properties, and rights-of-way below the sediment tank site. In conjunction with the portable sediment tank, the mechanical filtering devices may be necessary to filter out the finer particulates. A permit may be required for such activities and the contractor must coordinate with the resident engineer.

7.1.9 Perimeter Dike/Swale

The purpose of a perimeter dike/swale is to prevent off-site storm runoff from entering a disturbed area and to prevent sediment laden storm runoff from leaving the construction site or disturbed area. It can also be used to convey stormwater runoff from the work area to a proposed sediment basin.

7.1.10 Temporary Sediment Basin

The purpose of a sediment basin is to intercept sediment-laden runoff and filter the sediment laden stormwater runoff leaving the disturbed area in order to protect drainage ways, properties, and rights-of-way below the sediment basin. The basin will be installed down gradient of construction operations which expose critical areas to soil erosion. The basin shall be maintained until the tributary disturbed area is protected against erosion by permanent stabilization.

7.1.11 Materials Handling

The Contractor must store construction and waste materials as far as practical from any environmentally sensitive areas. Where possible, materials shall be stored in a covered area to minimize any potential runoff. The Contractor shall incorporate storage practices to minimize exposure of the materials to stormwater, and spill prevention and response where practicable. Prior to commencing any construction activities the contractor shall obtain all necessary permits or verify that all permits have been obtained.

7.2 Sequence of Construction

The phasing of the project is important for the construction of the proposed development. The protection of the natural resources, specifically the watercourse and wetland areas, have also been carefully factored into the development of the sequence of construction.

A pre-construction meeting shall be held with representatives of the Town, NYCDEP, the Resident Engineer, and the Contractor prior to any site disturbance. Any potential changes to the Erosion and Sediment Control Plan should be discussed at this time.

A Sequence of Construction Activities is included in the drawing set (Appendix C) on sheet C-1 and on sheets C-8A – C-8C.

8.0 INSPECTION AND MAINTENANCE

8.1 Inspections and Record Keeping During Construction

Once the contract has been let, the name, address, and phone number of responsible parties for maintenance will be provided to the NYSDEC. The following is a description of the maintenance and inspection practices that will be implemented as part of the project. Maintenance and inspection is important to ensure that the stabilization and structural practices that are part of the SWPPP continue to be effective in preventing sediment and other pollutants from entering the stormwater system. It is the responsibility of the owner or operator to ensure that inspections are completed in accordance with NYSDEC regulations.

8.1.1 Erosion and Sediment Control Inspection Report

As a part of the SWPPP inspection and maintenance activities during construction, the Erosion and Sediment Control Inspection Report shall be updated and kept on-site. A sample Erosion and Sediment Control Inspection Report is provided in Appendix H of this report.

Inspections would be conducted by the qualified inspector periodically according to the schedule required by the SPDES GP-0-15-002. During each inspection, the qualified inspector would record the areas of disturbance, deficiencies in erosion and sediment control practices, required maintenance, and areas of temporary or permanent stabilization. The need for modifications to the Erosion and Sediment Control Plan should be identified and implemented immediately.

The Erosion and Sediment Control Inspection Report will be completed by a qualified inspector to fully document each inspection. A qualified inspector is a person knowledgeable in the principles and practices of erosion and sediment control, such as a licensed Professional Engineer, Certified Professional in Erosion and Sediment Control (CPESC), licensed Landscape Architect, or other NYSDEC endorsed individual(s). It also means someone working under the direct supervision of the licensed Professional Engineer or licensed Landscape Architect, provided the person has training in the principles and practices of erosion and sediment control. Training in the principles and practices of erosion and sediment control means that an individual performing the site inspection has received four hours of training, which has been endorsed by the NYSDEC, from a Soil and Water Conservation District, CPESC, Inc., or other NYSDEC endorsed entity, in proper erosion and sediment control principles no later than two years from the date SPDES GP-0-15-002 is issued. After receiving the initial training, an individual working under the direct supervision of the licensed Professional Engineer or licensed Landscape Architect shall receive four hours of training every three years.

8.1.2 Inspections

Inspections shall be conducted by the qualified inspector periodically according to the following schedule:

- 1. When construction activities are ongoing, the qualified inspector shall conduct a site inspection at least once every seven (7) calendar days.
- 2. If soil disturbance activities have been temporarily suspended (e.g. winter shutdown) and temporary stabilization measures have been applied to all disturbed areas, the qualified inspector shall conduct a site inspection at least once every thirty (30) calendar days. The owner or operator shall notify the Regional Office stormwater contact person in writing prior to reducing the frequency of inspections.
- 3. If soil disturbance activities have been shut down with partial project completion, the qualified inspector can stop conducting inspections if all areas disturbed as of the project shutdown date have achieved final stabilization and all post-construction stormwater management practices required for the completed portion of the project have been constructed in conformance with the SWPPP and are operational. The owner or operator shall notify the Regional Office stormwater contact person in writing prior to the shutdown. If soil disturbance activities have not resumed within 2 years from the date of shutdown, the owner or operator shall have the qualified

inspector(s) perform a final inspection and certify that all disturbed areas have achieved final stabilization, and all temporary, structural erosion and sediment control measures have been removed, and that all post-construction stormwater management practices have been constructed in conformance with the SWPPP by signing the "Final Stabilization" and "Post-Construction Stormwater Management Practice" certification statements on the Notice of Termination (NOT). The owner or operator shall then submit the completed NOT form in accordance with NYSDEC regulations.

During each inspection, the qualified inspector should fill out the Erosion and Sediment Control Inspection Report as directed below:

On the Erosion and Sediment Control Inspection Report site map show the following:

- Disturbed site areas and drainage pathways.
- Site areas that are expected to undergo initial disturbance or significant site work within the next 14-day period.
- Site areas that have undergone temporary or permanent stabilization.
- In areas where soil disturbance activity has been temporarily or permanently ceased, temporary and/or permanent soil stabilization measures shall be installed and/or implemented within seven (7) days from the date the soil disturbance activity ceased. The soil stabilization measures selected shall be in conformance with the most current version of the technical standard, New York State Standards and Specifications for Erosion and Sediment Control.
- Photographs, including date stamp, of any deficiencies and recommendations.
- As deficiencies are fixed by the contractor, a photograph, include date stamp, should be included in the report.
- Photograph of each outfall during a rain event.

Record the following information on the Erosion and Sediment Control Inspection Report:

- For each structural measure, circle YES, NO, or N/A (not applicable) to indicate if the pollutant control measure is in conformance with specifications.
- For each structural measure, circle YES, NO, or N/A to indicate whether the structural measure is performing effectively in minimizing stormwater pollution.
- Inspect all sediment control practices and record the approximate degree of sediment accumulation as a percentage of the sediment storage volume in the allocated location on the Inspection Form Chart (e.g., 10 percent, 20 percent, and 50 percent).
- A description of the condition of the runoff at all points of discharge from the
 construction site. This shall include identification of any discharges of sediment from
 the construction site. Include discharges from conveyance systems (i.e. pipes,
 culverts, ditches, etc.) and overland flow;
- A description of the condition of all natural surface waterbodies located within, or immediately adjacent to, the property boundaries of the construction site which

receive runoff from disturbed areas. This shall include identification of any discharges of sediment to the surface waterbody;

The qualified inspector will give a brief explanation for all locations where he/she has noted that the structural practice was either not in conformance with specifications or in need of repair. This should be noted in the Erosion and Sediment Control Inspection Report.

8.1.3 Erosion And Sediment Control Maintenance Measures

All maintenance described below shall be completed in accordance with the New York State Standards and Specifications for Erosion and Sediment Control. Any material removed from erosion and sediment control measure shall be properly disposed.

All measures will be maintained in good working order; if repairs are found to be necessary, the qualified inspector shall notify the owner or operator and appropriate contractor (and subcontractor) of any corrective actions needed within one business day. The contractor (or subcontractor) shall begin implementing the corrective actions within one business day of this notification and shall complete the corrective actions in a reasonable time frame.

A maintenance inspection report, titled "Erosion and Sediment Control Inspection Report," will be made after each inspection conducted by a qualified inspector.

Disturbed areas and materials storage areas will be inspected for evidence of potential pollutants entering stormwater systems. Within one business day of the completion of the inspection, the qualified inspector shall notify the owner or operator and the appropriate contractor (or subcontractor) of any corrective actions that need to be taken. The contractor (or subcontractor) shall begin implementing the corrective actions within one business day of this notification and shall complete the corrective actions in a reasonable time frame.

A Monthly Summary of Site Inspection Activities will be prepared and kept on file with completed Erosion and Sediment Control Inspection Report. A Record of Stabilization and Construction Activities will be prepared and kept on file with the completed Construction Duration Inspection Forms.

The following are the maintenance requirements for each practice that will be implemented at the site.

8.1.4 Stabilized Construction Entrance/Exit

The stabilized construction entrance/exit shall be maintained in a condition that will prevent the tracking or flow of sediment onto public rights-of-way. All sediment spilled, dropped, washed or tracked onto public rights-of-way must be removed immediately; streets shall be swept as needed. The gravel pad shall be replaced as necessary. Sediment tracked onto public streets should be removed or cleaned on a daily basis.

8.1.5 Silt Fence

Maintenance of all silt fence shall be performed as needed. If a silt fence is knocked down, it shall be replaced immediately. When a silt fence appears deteriorated or ineffective and/or built up sediment reaches one-third the height of the bale or fence, the

silt fence shall be replaced and/or cleaned accordingly. When "bulges" of material develop on the fence, they shall be removed.

Silt fence controls sediment runoff where the soil has been disturbed by slowing the flow of water and encouraging the deposition of sediment before the water passes through the silt fence. Built-up sediment shall be removed from silt fences when it has reached one-third the height of the fence and properly disposed.

8.1.6 Sump Pit

The sump pit will be inspected for proper control of runoff and sediment materials. Clean water should be pumped to a grassy area. If the contractor notices any visible contrast in the water, proper filtration shall be provided to release off site.

8.1.7 Soil Stockpile Detail

The silt fencing should be inspected for bulges and proper installation. The soil stockpile should be stabilized with grass or rolled erosion control blanket.

8.1.8 Storm Drain Inlet Protection

Maintenance and inspection of the filter fabric cloth beneath inlet grates in paved areas or the filter fabric drop inlet protection around the drop inlet shall be conducted. The filter fabric cloth shall be cleaned to allow water to pass and prevent clogging the drainage structure. The drainage inlet protection should be inspected for integrity and visible sediment buildup. Collected sediment should be removed from the drainage inlet protection and shall be disposed of properly in accordance with all applicable local, state, and federal requirements.

8.1.9 Dust Control

Maintain all dust control measures through dry weather periods until all disturbed areas are stabilized.

8.1.10 Soil Stabilization

To ensure that the site is properly seeded and stabilized, the Contractor must initiate stabilization measures as soon as practicable in areas of the site where construction activities have permanently ceased and in no case more than 7 days after the construction activity in that portion of the site has temporarily or permanently ceased. The Contractor will be responsible for the maintenance of the vegetated cover for the duration of construction activities. The areas shall be monitored to ensure that vegetation achieves good coverage over the entire disturbed section. Additional seeding shall be completed as needed. Watering shall be provided as needed.

In areas where soil disturbance activity has been temporarily or permanently ceased, temporary and/or permanent soil stabilization measures shall be installed and/or implemented within seven days from the date the soil disturbance activity ceased. The soil stabilization measures selected shall be in conformance with the most current version of the technical standard, New York State Standards and Specifications for Erosion and Sediment Control.

8.1.11 Perimeter Dike/Swale

The dike/swale should be properly stabilized with rolled erosion control blanket or other stabilization measures. Any rilling or areas of cutting should be immediately stabilized. Further investigation as to the cause should also be performed to determine if other upstream erosion and sediment control measures are needed. When accumulated sediment reached a depth of 1/3 of the total depth of the swale, this material shall be removed and properly disposed.

8.1.12 Temporary Sediment Basin

Any rilling and erosion of the basin side slopes should be evaluated and adequate stabilization should be provided. Rolled erosion control blankets or other stabilization practices should be installed on the side slopes. The outlet structure should be inspected for damages, accumulation of sediment, trash and debris, and overall performance. If sediment-laden stormwater is leaving the basin then additional erosion and sediment control practices may be required.

8.2 Post-Construction Operation and Maintenance

Following completion of construction, a long term inspection and maintenance program will be implemented to ensure the proper function of the stormwater management system. The program will be carried out by the facilities manager. A detailed checklist of pond inspection and maintenance is included in the Appendix H.

The stormwater conveyance system maintenance program will include the following:

- Litter and debris will be removed from catch basins, vegetated swales, ponds, and the outlet control structures.
- The stormwater management system should be inspected after each major storm event (greater than 1-year, 24-hour storm) to ensure the small orifices and inlets remain open.
- Silt will be cleaned from catch basins and other drainage structures when the depth exceeds half of the depth of the sump.
- Use of road salt for maintenance of driveway areas will be minimized.

In addition to inspection and maintenance of the stormwater management system, inspection of the overall site for areas of potential contamination will also be noted. Maintenance of existing landscaped areas is performed consistently throughout the year. Pest control would follow an Integrated Pest Management program in conjunction with guidance from the Cornell Cooperative Extension Agency, applicable regulations, and best practices. All potential pollutants, such as petroleum products, chemicals, etc, will be properly stored in designated areas that will minimize contact with precipitation.

Following completion of construction, a long term inspection and maintenance program would be implemented to ensure the proper function of the stormwater management system. The program would be carried out by the facilities manager. A detailed checklist of pond inspection and maintenance is included in Appendix I of the SWPPP.

Below is a breakdown of the maintenance programs designed for the different proposed stormwater facilities:

Surface Sand Filter

Sedimentation Basin (Pretreatment)

- A fixed vertical sediment depth marker would be installed in the forebay to measure sediment deposition over time.
- Sediment will be removed from sedimentation basin as needed, but at a minimum of every five years.
 A backhoe or excavator will be used to remove sediment accumulation from the bottom of the basin.
 However, vehicles shall be prevented from traversing the side slopes to the extent possible to avoid damaging established vegetation. Repairs to the embankment should be done with hand tools to the greatest extent practical.

Surface Sand Filter

- Maintenance responsibility for the filtering system would be vested with a responsible authority by
 means of a legally binding and enforceable instrument that is executed as a condition of plan
 approval. A legally binding and enforceable maintenance agreement shall be executed between the
 facility owner and the local review authority to ensure the following:
 - a. Sediment shall be cleaned out of the sedimentation chamber when it accumulates to a depth of more than six inches. Vegetation within the sedimentation chamber shall be limited to a height of 18 inches. The sediment chamber outlet devices shall be cleaned/repaired when drawdown times exceed 36 hours. Trash and debris shall be removed as necessary.
 - b. Silt/sediment shall be removed from the filter bed when the accumulation exceeds one inch. When the filtering capacity of the filter diminishes substantially (i.e., when water ponds on the surface of the filter bed for more than 48 hours), the top few inches of discolored material shall be removed and shall be replaced with fresh material. The removed sediments shall be disposed in an acceptable manner (i.e., landfill).
- Surface sand filters that have a grass cover should be mowed a minimum of three times per growing season to maintain maximum grass heights less than 12 inches.
- Remove sediment/gross solids from sedimentation chamber and filter surface annually or when depth exceeds 3 inches.
- Provide stone drop (at least 6 inches) at the inlet.
- Eroded areas and gullies will be restored and re-seeded as soon as possible.

Stormwater Wetland

- Maintenance responsibility for a wetland and its buffer shall be vested with a responsible authority by
 means of a legally binding and enforceable maintenance agreement that is executed as a condition of
 plan approval.
- The principal spillway shall be equipped with a removable trash rack, and generally accessible from dry land.
- If a minimum coverage of 50% is not achieved in the planted wetland zones after the second growing season, a reinforcement planting is required. Eroded areas and gullies will be restored and re-seeded as soon as possible.

- Sediment removal at the inlets shall occur every 3 years or after 30% of pipe end section stone has been filled.
- Sediment removal from the main basin every 5 years or when the minimum water depth approaches 3 feet. More regular maintenance will help ensure that the system is achieving the highest removal of phosphorus. A backhoe or excavator will be used to remove sediment accumulation from the bottom of the detention pond. However, vehicles shall be prevented from traversing the side slopes to the greatest extent possible to avoid damaging established vegetation. Repairs to the embankment should be done with hand tools to the extent practical.
- The side slopes of the wetland will be mowed at a minimum twice a year. If necessary, invasive
 woody vegetation in and around the wetland will be removed to prevent it from becoming established
 within the wetland.

Stormwater Planters

A regular and thorough inspection regime is vital to the proper and efficient function of stormwater planters. The following operation and maintenance program is to be implemented:

- Debris and trash removal should be conducted on a weekly or monthly basis, depending on likelihood of accumulation.
- Following construction, planters should be inspected after each storm event greater than 0.5 inches, and at least twice in the first six months. Subsequently, inspections should be conducted seasonally and after storm events equal to or greater than the 1-year storm event.
- Routine maintenance activities include pruning and replacing dead or dying vegetation, plant thinning, and erosion repair.
- The soil surface should be inspected for evidence of sediment build-up from the connected impervious surface and for surface ponding. Attention should be paid to additional seasonal maintenance needs, as well as, the first growing season.

Permeable Pavers

- Permeable pavements are highly susceptible to clogging and subject to owner neglect. Individual
 owners need to be educated to ensure that proper maintenance and winter operation activities will
 allow the system to function properly.
- The type of permeable paving and the location of the site dictate the required maintenance level and failure rate. Concrete grid pavers and plastic modular blocks require less maintenance because they are not clogged by sediment as easily as porous asphalt and concrete. Typical maintenance activities for permeable paving are summarized below.

Activity	Schedule
Ensure that paving area is clean of debris	Monthly
Ensure that paving dewaters between storms	Monthly and after storms > 0.5 in.
Ensure that the area is clean of sediments	Monthly
Mow upland and adjacent areas, and seed bare areas	As needed
Inspect the surface for deterioration or spalling	Annual

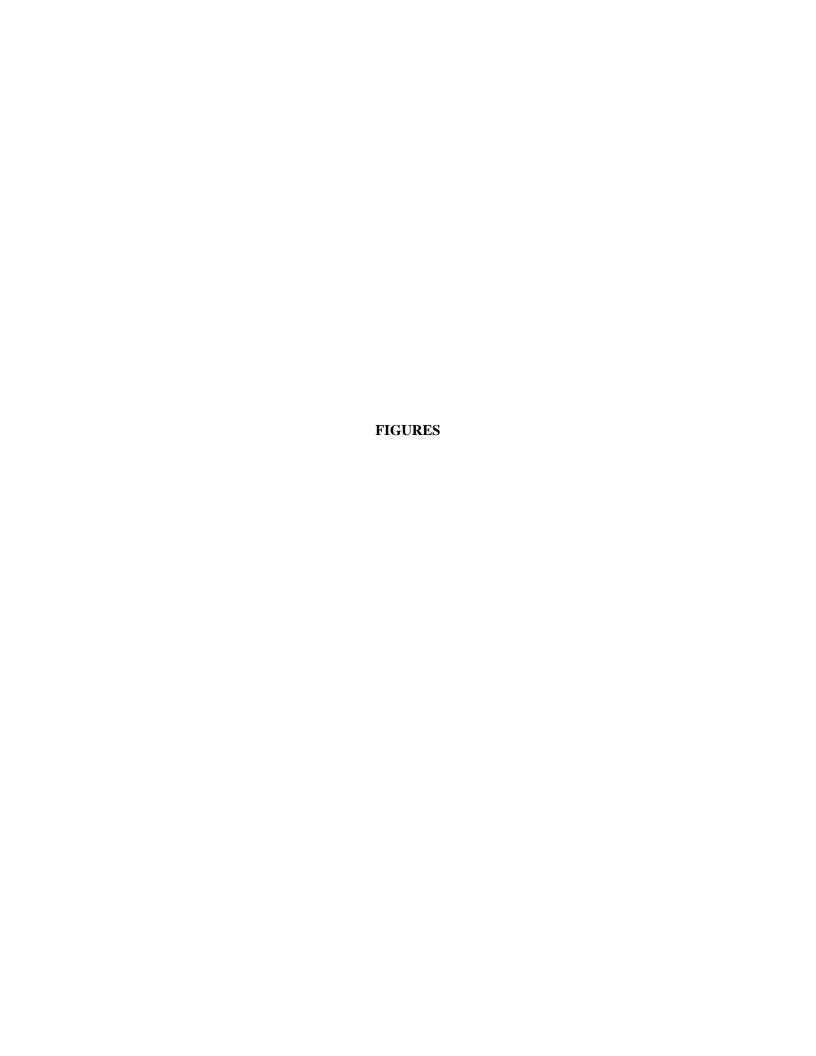
Bioretention Basin

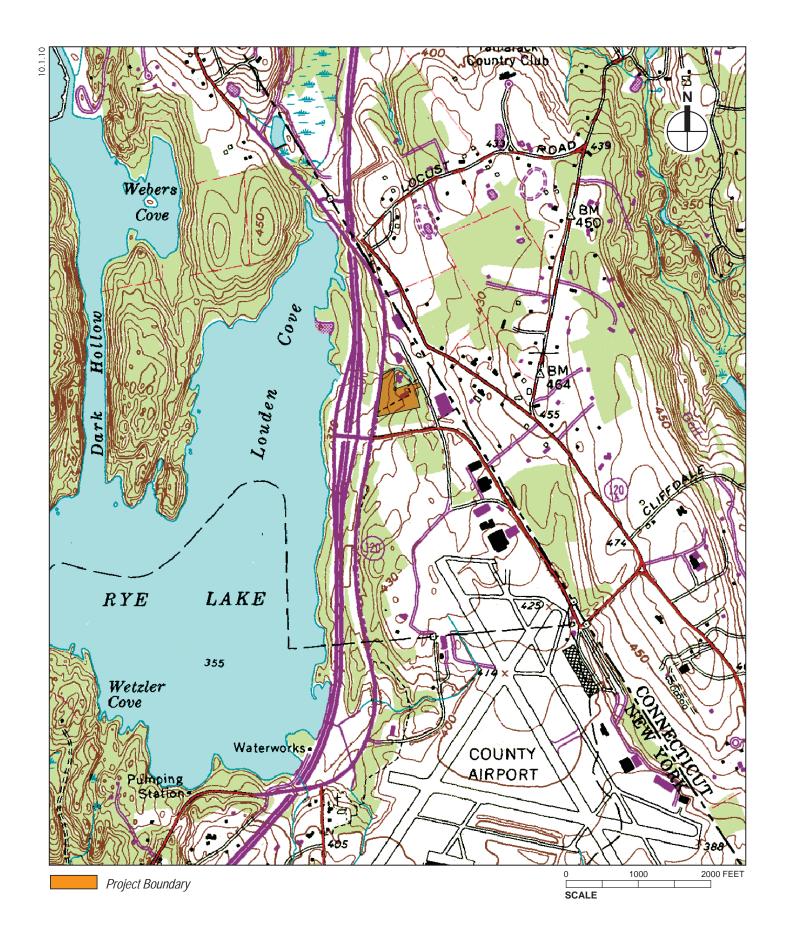
Bioretention basins are intended to be relatively low maintenance. However, these practices may be subject to sedimentation and invasive plant species which could create maintenance problems. If the recharge ability is lost by accumulation of fine sediment, mosquito breeding may occur. Adequate arrangements for long-term maintenance of these systems and updated inventories of their location are essential for the long-term performance of these practices. Bioretention basins should be treated as a component of the landscaping, with routine maintenance specified through a legally binding maintenance agreement.

- Routine maintenance would include the occasional replacement of plants, mulching, weeding and thinning to maintain the desired appearance. Weeding and watering are essential the first year, and would be minimized with the use of a weed-free mulch layer.
- The landscapers would be educated regarding the purpose and maintenance requirements of the rain garden, so the desirable aspects of ponded water are recognized and maintained.
- Keeping the basin weeded is one of the most important tasks, especially in the first couple of years
 while the native plants are establishing their root systems. Once the basin has matured, the planted
 area should be free of bare areas except where outlet structure is located. Keep plants pruned if they
 start to get "leggy" and floppy. Cut off old flower heads after a plant is done blooming.
- Inspect for sediment accumulations or heavy organic matter where runoff enters the garden and remove as necessary. The top few inches of planting soil should be removed and replaced when water ponds for more than 48 hours. Blockages may cause diversion of flow around the garden. Make sure all appropriate elevations have been maintained, no settlement has occurred and no low spots have been created.

8.3 Note on West Nile Virus

Recent field observations conclude that constructed wetlands and stormwater management ponds actually pose a low risk in spreading the West Nile Virus. The mosquito species that are found in wetlands and stormwater management ponds tend not to be the variety that is known to carry the West Nile Virus. Within a healthy aquatic ecosystem, other aquatic invertebrates (dragonfly larvae and other species) prey on mosquito larvae, thereby reducing mosquito populations. The SWPPP submitted to the NYSDEC and NYCDEP will include a regular maintenance schedule to be implemented at the completion of construction.





SWPPP APPENDIX A

NOTICE OF INTENT
CERTIFICATIONS

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	onl	у)

Stormwater Discharges Associated with Construction Activity Under State Pollutant Discharge Elimination System (SPDES) General Permit # GP-0-15-002 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.

-IMPORTANTRETURN THIS FORM TO THE ADDRESS ABOVE

OWNER/OPERATOR MUST SIGN FORM

	Owner/Operator Information Owner/Operator (Company Name/Private Owner Name/Municipality Name)														
Owner/Operator (Company 1	Name/Private Owner Name/	Municipality Name)													
Owner/Operator Contact Pe	erson Last Name (NOT CON	ISULTANT)													
Owner/Operator Contact Pe	erson First Name														
Owner/Operator Mailing Ad	ldress														
City															
State Zip	-														
Phone (Owner/Operator)	Fax (Owner/Op	erator)													
Email (Owner/Operator)															
FED TAX ID															

Project/Site Name														
Street Address (NOT P.O. BOX)														
Side of Street O North O South O East O West														
City/Town/Village (THAT ISSUES BUILDING PERMIT)														
State Zip County N Y -	DEC Region													
Name of Nearest Cross Street														
Distance to Nearest Cross Street (Feet)	Project In Relation to Cross Street O North O South O East O West													
Tax Map Numbers Section-Block-Parcel														
1. Provide the Geographic Coordinates for the project must go to the NYSDEC Stormwater Interactive Map														
www.dec.ny.gov/imsmaps/stormwater/viewe	er.htm													
Zoom into your Project Location such that you can adyour site. Once you have located your project site, choose "i"(identify). Then click on the center of the X, Y coordinates in UTM will pop up. Transcribe below. For problems with the interactive map use the	go to the tool boxes on the top and your site and a new window containing these coordinates into the boxes													
X Coordinates (Easting)	Y Coordinates (Northing) 4													
2. What is the nature of this construction project?														
2. What is the hature of this constitution project:														
O New Construction														
O Redevelopment with increase in impe	rvious area													
O Redevelopment with no increase in i	mpervious area													

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	Post-Development Future Land Use
○ FOREST	O SINGLE FAMILY HOME Number of Lots
O PASTURE/OPEN LAND	O SINGLE FAMILY SUBDIVISION
○ CULTIVATED LAND	O TOWN HOME RESIDENTIAL
○ SINGLE FAMILY HOME	O MULTIFAMILY RESIDENTIAL
○ SINGLE FAMILY SUBDIVISION	○ INSTITUTIONAL/SCHOOL
O TOWN HOME RESIDENTIAL	○ INDUSTRIAL
○ MULTIFAMILY RESIDENTIAL	○ COMMERCIAL
○ INSTITUTIONAL/SCHOOL	○ MUNICIPAL
○ INDUSTRIAL	○ ROAD/HIGHWAY
○ COMMERCIAL	O RECREATIONAL/SPORTS FIELD
○ ROAD/HIGHWAY	○ BIKE PATH/TRAIL
O RECREATIONAL/SPORTS FIELD	OLINEAR UTILITY (water, sewer, gas, etc.)
○ BIKE PATH/TRAIL	O PARKING LOT
○ LINEAR UTILITY	O CLEARING/GRADING ONLY
○ PARKING LOT	O DEMOLITION, NO REDEVELOPMENT
OTHER	○ WELL DRILLING ACTIVITY *(Oil, Gas, etc.)
	OTHER
Note: for gas well drilling, non-high volume	
. In accordance with the larger common plan of enter the total project site area; the total existing impervious area to be disturbed (factivities); and the future impervious area disturbed area. (Round to the nearest tenth	<pre>l area to be disturbed; or redevelopment constructed within the of an acre.)</pre>
Total Site Total Area To Exist	Future Impervious ing Impervious Area Within
Area Be Disturbed Area	To Be Disturbed Disturbed Area
. Do you plan to disturb more than 5 acres of	soil at any one time? O Yes O No
. Indicate the percentage of each Hydrologic	
A B 8	C D %
. Is this a phased project?	○ Yes ○ No
. Enter the planned start and end dates of the disturbance activities.	End Date - Date - Date

area?

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	O River On Site 9b. How was the wetland identified? O Lake On Site O Regulatory Map																																									
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15.	Does the site runoff enter a separate storm sewer system (including roadside drains, swales, ditches, culverts, etc)?	No O Un	known												
16.	What is the name of the municipality/entity that owns the separate system?	storm se	wer												
17.	Does any runoff from the site enter a sewer classified as a Combined Sewer?														
18.	Will future use of this site be an agricultural property as defined by the NYS Agriculture and Markets Law?														
19.	Is this property owned by a state authority, state agency, federal government or local government?														
20.	Is this a remediation project being done under a Department approved work plan? (i.e. CERCLA, RCRA, Voluntary Cleanup Agreement, etc.)	○ Yes	○ No												
21.	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)?	O Yes	O No												
22.	Does this construction activity require the development of a SWPPP that includes the post-construction stormwater management practice component (i.e. Runoff Reduction, Water Quality and Quantity Control practices/techniques)? If No, skip questions 23 and 27-39.														
23.	Has the post-construction stormwater management practice component of the SWPPP been developed in conformance with the current NYS Stormwater Management Design Manual?	O Yes	O No												

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SWPPP Preparer Certification

I hereby certify that the Stormwater Pollution Prevention Plan (SWPPP) for this project has been prepared in accordance with the terms and conditions of the GP-0-15-002. Furthermore, I understand that certifying false, incorrect or inaccurate information is a violation of this permit and the laws of the State of New York and could subject me to criminal, civil and/or administrative proceedings.

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Last	Name	2															
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25.	Has a construction sequence schedule for the practices been prepared?	e planned management				
26.	26. Select all of the erosion and sediment control practices that will be employed on the project site:					
	Temporary Structural	Vegetative Measures				
	Ocheck Dams	O Brush Matting				
	\bigcirc Construction Road Stabilization	O Dune Stabilization				
	O Dust Control	○ Grassed Waterway				
	○ Earth Dike	○ Mulching				
	O Level Spreader	O Protecting Vegetation				
	○ Perimeter Dike/Swale	O Recreation Area Improvement				
	O Pipe Slope Drain	○ Seeding				
	O Portable Sediment Tank	○ Sodding				
	O Rock Dam	○ Straw/Hay Bale Dike				
	O Sediment Basin	O Streambank Protection				
	○ Sediment Traps	○ Temporary Swale				
	○ Silt Fence	\bigcirc Topsoiling				
	O Stabilized Construction Entrance	O Vegetating Waterways				
	O Storm Drain Inlet Protection	Permanent Structural				
	○ Straw/Hay Bale Dike	Permanent Structurar				
	O Temporary Access Waterway Crossing	O Debris Basin				
	O Temporary Stormdrain Diversion	O Diversion				
	○ Temporary Swale	O Grade Stabilization Structure				
	O Turbidity Curtain	O Land Grading				
	○ Water bars	○ Lined Waterway (Rock)				
		O Paved Channel (Concrete)				
	Biotechnical	O Paved Flume				
O Brush Matting		O Retaining Wall				
	○ Wattling	O Riprap Slope Protection				
○ nacciting		O Rock Outlet Protection				
Oth	<u>er</u>	O Streambank Protection				

Post-construction Stormwater Management Practice (SMP) Requirements

Important: Completion of Questions 27-39 is not required
 if response to Question 22 is No.

- 27. Identify all site planning practices that were used to prepare the final site plan/layout for the project.
 - O Preservation of Undisturbed Areas
 - O Preservation of Buffers
 - O Reduction of Clearing and Grading
 - O Locating Development in Less Sensitive Areas
 - O Roadway Reduction
 - O Sidewalk Reduction
 - O Driveway Reduction
 - O Cul-de-sac Reduction
 - O Building Footprint Reduction
 - O Parking Reduction
- 27a. Indicate which of the following soil restoration criteria was used to address the requirements in Section 5.1.6("Soil Restoration") of the Design Manual (2010 version).
 - O All disturbed areas will be restored in accordance with the Soil Restoration requirements in Table 5.3 of the Design Manual (see page 5-22).
 - O Compacted areas were considered as impervious cover when calculating the **WQv Required**, and the compacted areas were assigned a post-construction Hydrologic Soil Group (HSG) designation that is one level less permeable than existing conditions for the hydrology analysis.
- 28. Provide the total Water Quality Volume (WQv) required for this project (based on final site plan/layout).

Total	WQv	Requi	ired	
	— .		acre-fe	et

29. Identify the RR techniques (Area Reduction), RR techniques(Volume Reduction) and Standard SMPs with RRv Capacity in Table 1 (See Page 9) that were used to reduce the Total WQv Required(#28).

Also, provide in Table 1 the total impervious area that contributes runoff to each technique/practice selected. For the Area Reduction Techniques, provide the total contributing area (includes pervious area) and, if applicable, the total impervious area that contributes runoff to the technique/practice.

Note: Redevelopment projects shall use Tables 1 and 2 to identify the SMPs used to treat and/or reduce the WQv required. If runoff reduction techniques will not be used to reduce the required WQv, skip to question 33a after identifying the SMPs.

	Total Contributi	ng	Total	Cont	tributing
RR Techniques (Area Reduction)	Area (acres)	Im	pervio	us A	Area(acres)
○ Conservation of Natural Areas (RR-1)		and/or			
<pre>O Sheetflow to Riparian Buffers/Filters Strips (RR-2)</pre>		and/or			
○ Tree Planting/Tree Pit (RR-3)	. - - -	and/or			
\bigcirc Disconnection of Rooftop Runoff (RR-4)		and/or	:		
RR Techniques (Volume Reduction)					
○ Vegetated Swale (RR-5) ······	• • • • • • • • • • • • • • • • • • • •	• • • • • • •			
○ Rain Garden (RR-6) ······	• • • • • • • • • • • • • • • • • • • •	• • • • • • • •		_ -	
○ Stormwater Planter (RR-7)	• • • • • • • • • • • • • • • • • • • •	• • • • • • •		-	
○ Rain Barrel/Cistern (RR-8)	• • • • • • • • • • • • • • • • • • • •	• • • • • • •		_ -	
○ Porous Pavement (RR-9)	• • • • • • • • • • • • • • • • • • • •	• • • • • • •		-	
○ Green Roof (RR-10)	• • • • • • • • • • • • • • • • • • • •				
Standard SMPs with RRv Capacity					
○ Infiltration Trench (I-1) ······	• • • • • • • • • • • • • • • • • • • •	• • • • • • •		-	
○ Infiltration Basin (I-2) ······				_ -	
○ Dry Well (I-3) ······	• • • • • • • • • • • • • • • • • • • •	• • • • • •		-	
○ Underground Infiltration System (I-4)	• • • • • • • • • • • • • • • • • • • •	• • • • • •		-	
○ Bioretention (F-5)	• • • • • • • • • • • • • • •			.	
○ Dry Swale (0-1) ······	• • • • • • • • • • • • • • • • • • • •				
Standard SMPs					
O Micropool Extended Detention (P-1)	• • • • • • • • • • • • • • • • • • • •	• • • • • • •		_ .	
○ Wet Pond (P-2) · · · · · · · · · · · · · · · · · · ·		• • • • • •		-	
○ Wet Extended Detention (P-3) ······	• • • • • • • • • • • • • • • • • • • •			-	
○ Multiple Pond System (P-4) ······	• • • • • • • • • • • • • • • • • • • •	• • • • • •		-	
O Pocket Pond (P-5) ······		• • • • • • •		-	
○ Surface Sand Filter (F-1) ······	• • • • • • • • • • • • • • • • • • • •	• • • • • • •			
○ Underground Sand Filter (F-2) ······	• • • • • • • • • • • • • • • •				
O Perimeter Sand Filter (F-3) ·····	• • • • • • • • • • • • • • • • • • • •	• • • • • •			
Organic Filter (F-4)					
○ Shallow Wetland (W-1)					
○ Extended Detention Wetland (W-2)					
○ Pond/Wetland System (W-3)				-	
O Pocket Wetland (W-4)					
○ Wet Swale (0-2)					

criteria.

Table 2 -Alternative SMPs (DO NOT INCLUDE PRACTICES BEING USED FOR PRETREATMENT ONLY) Total Contributing Alternative SMP Impervious Area(acres) ○ Hydrodynamic \bigcirc Wet Vault O Media Filter Other Provide the name and manufacturer of the Alternative SMPs (i.e. proprietary practice(s)) being used for WQv treatment. Name Manufacturer Note: Redevelopment projects which do not use RR techniques, shall use questions 28, 29, 33 and 33a to provide SMPs used, total WQv required and total WQv provided for the project. 30. Indicate the Total RRv provided by the RR techniques (Area/Volume Reduction) and Standard SMPs with RRv capacity identified in question 29. Total RRv provided acre-feet 31. Is the Total RRv provided (#30) greater than or equal to the total WQv required (#28). O Yes O No If Yes, go to question 36. If No, go to question 32. 32. Provide the Minimum RRv required based on HSG. [Minimum RRv Required = (P)(0.95)(Ai)/12, Ai=(S)(Aic)] Minimum RRv Required acre-feet 32a. Is the Total RRv provided (#30) greater than or equal to the ○ Yes ○ No Minimum RRv Required (#32)? If Yes, go to question 33. Note: Use the space provided in question #39 to summarize the specific site limitations and justification for not reducing 100% of WQv required (#28). A detailed evaluation of the specific site limitations and justification for not reducing 100% of the WQv required (#28) must also be included in the If No, sizing criteria has not been met, so NOI can not be processed. SWPPP preparer must modify design to meet sizing

33.	Identify the Standard SMPs in Table 1 and, if applicable, the Alternative SMPs in Table 2 that were used to treat the remaining total WQv(=Total WQv Required in 28 - Total RRv Provided in 30).
	Also, provide in Table 1 and 2 the total $\underline{\text{impervious}}$ area that contributes runoff to each practice selected.
	<u>Note</u> : Use Tables 1 and 2 to identify the SMPs used on Redevelopment projects.
33a.	Indicate the Total WQv provided (i.e. WQv treated) by the SMPs identified in question #33 and Standard SMPs with RRv Capacity identified in question 29.
	WQv Provided acre-feet
<u>Note</u> :	For the standard SMPs with RRv capacity, the WQv provided by each practice = the WQv calculated using the contributing drainage area to the practice - RRv provided by the practice. (See Table 3.5 in Design Manual)
34.	Provide the sum of the Total RRv provided (#30) and the WQv provided (#33a).
35.	Is the sum of the RRv provided (#30) and the WQv provided (#33a) greater than or equal to the total WQv required (#28)? \bigcirc Yes \bigcirc No
	If Yes, go to question 36. If No, sizing criteria has not been met, so NOI can not be processed. SWPPP preparer must modify design to meet sizing criteria.
36.	Provide the total Channel Protection Storage Volume (CPv) required and provided or select waiver (36a), if applicable.
	CPv Required CPv Provided acre-feet acre-feet
36a. '	The need to provide channel protection has been waived because: O Site discharges directly to tidal waters or a fifth order or larger stream.
	O Reduction of the total CPv is achieved on site through runoff reduction techniques or infiltration systems.
37.	Provide the Overbank Flood (Qp) and Extreme Flood (Qf) control criteria or select waiver (37a), if applicable.
	Total Overbank Flood Control Criteria (Qp)
	Pre-Development Post-development
	CFS CFS CFS
	Total Extreme Flood Control Criteria (Qf)

Post-development

CFS

Pre-Development

CFS

37a.	The need to meet the Qp and Qf criteria has been waived because:			
	O Site discharges directly to tidal waters or a fifth order or larger stream.			
	O Downstream analysis reveals that the Qp and Qf controls are not required			
38.	Has a long term Operation and Maintenance Plan for the post-construction stormwater management practice(s) been $$\odot$$ Yes $$\odot$$ No developed?			
	If Yes, Identify the entity responsible for the long term Operation and Maintenance			
39.	Use this space to summarize the specific site limitations and justification for not reducing 100% of WQv required(#28). (See question 32a) This space can also be used for other pertinent project information.			

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40.	Identify other DEC permits, existing and new, that are required for thi project/facility.	S				
	○ Air Pollution Control					
	○ Coastal Erosion					
	○ Hazardous Waste					
	○ Long Island Wells					
	○ Mined Land Reclamation					
	○ Solid Waste					
	O Navigable Waters Protection / Article 15					
	○ Water Quality Certificate					
	○ Dam Safety					
	○ Water Supply					
	○ Freshwater Wetlands/Article 24					
	○ Tidal Wetlands					
	○ Wild, Scenic and Recreational Rivers					
	O Stream Bed or Bank Protection / Article 15					
	O Endangered or Threatened Species(Incidental Take Permit)					
	○ Individual SPDES					
	O SPDES Multi-Sector GP N Y R					
	Other					
	○ None					
41.	Does this project require a US Army Corps of Engineers Wetland Permit? If Yes, Indicate Size of Impact.	○ Yes	O No			
42.	Is this project subject to the requirements of a regulated, traditional land use control MS4? (If No, skip question 43)) Yes	O No			
43.	Has the "MS4 SWPPP Acceptance" form been signed by the principal executive officer or ranking elected official and submitted along with this NOI?) Yes	○ №			
44.	If this NOI is being submitted for the purpose of continuing or transfe	rring				

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Owner/Operator 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 hereby certify that this document and the corresponding documents were prepared under my direction or supervision. 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) business 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	
	Data
	Date

CONTRACTOR'S CERTIFICATION

"I hereby certify under penalty of law that I understand and agree to comply with the terms and conditions of the SWPPP and agree to implement any corrective actions identified by the qualified inspector during a site inspection. I also understand that the owner or operator must comply with the terms and conditions of the most current version 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. Furthermore, I am aware that there are significant penalties for submitting false information, that I do not believe to be true, including the possibility of fine and imprisonment for knowing violations."

SIGNED:	DATE:	
NAME:		
FIRM:		
ADDRESS:		
PHONE:		
SITE:		
SWPPP IMPLEMENTER'S NAME:		
SWPPP		
IMPLEMETER'S TITLE:		
CONTRACTOR'S SCOPE:		
TRAINED CONTRACTOR'S NAME:		
TRAINED CONTRACTOR'S TITLE:		

*The SWPPP Implementer must be a trained contractor responsible for SWPPP implementation, an employee of the firm who has received training in accordance with SPEDES GP-0-10-001.

OWNER'S 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 hereby certify that this document and the corresponding documents were prepared under my direction or supervision. 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) business 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."

NAME:		
FIRM:		
ADDRESS:		
TIDDICESS.		
DIVONE		
PHONE:		
SITE:		

SWPPP APPENDIX B

PRE- AND POST-DEVELOPMENT STORMWATER MAPS
PRE- AND POST-DEVELOPMENT IMPERVIOUS COVERAGE MAPS









SWPPP APPENDIX C

DRAWINGS

THE LARGE SCALE DRAWINGS ARE INCLUDED IN THE FEIS SUBMISSION AS A SEPARATE ATTACHMENT

GENERAL NOTES

- SURVEY INFORMATION SHOWN IS BASED ON TOPOGRAPHIC AND UTILITY SURVEY PERFORMED OCTOBER 2008 BY CONTROL POINT ASSOCIATES, ELEXATIONS SHOWN ARE REFERRED TO NOVIO 1929. ALL VALUES SHOWN ARE IN ENGLISH UNITS, EXISTING UNDERGROUND UTILITIES, AS SHOWN ON THIS DRAWING, HAVE BEEN DETERMINED BY STANDARD SURVEY METHODS AND AVAILABLE UTILITY RECORDS, NETTHER THE EXACT LOCATION NOR THE INFORMATION GIVEN FOR THESE EXISTING UTILITIESTS GUARANTEED TO BE
- THE EVISTING UTILITIES SHOWN ON THE SURVEY WERE TAKEN FROM THE BEST AVAILABLE INFORMATION AND ARE NOT GUARANTEED
 TO BE ADCLIRATE. FIELD CONDITIONS MAY YARY. ITIS THE RESPONSIBILITY OF THE CONTRACTOR TO CONTACT THE LOCAL UTILITY
 COMPANIES THAT HAVE SUBSURFACE INSTALLATIONS IN THE AREA OF WORK FOR THIS CONTRACT AND DIRECT THEM TO HAVE THEIR
 FACILITIES MARKED OUT PROOF TO COMMENCING WORK.
- 3. CONTRACTOR TO REFER TO THE GEOTECHNICAL INVESTIGATION REPORTS DATED NOVEMBER 6, 2008 PREPARED BY MELICK-TULLEY AND ASSOCIATES, P.C., FOR INFORMATION ON SUBSURFACE SOIL CONDITIONS.
- SITE EXCAVATION: ALL EXCAVATED SOIL SHALL BE STOCKPILED IN CONFORMANCE WITH THE EROSION AND SEDIMENT CONTROL
 DETAILS. ALL NYSDEC AND USEPA REGULATIONS FOR REMOVAL OF CONTROLLED FILL SHALL BE ADHERED TO.
- 5. CONTRACTOR TO INSTALL TEMPORARY SITE CONSTRUCTION FENCE AROUND PERIMETER OF WORK AREA PRIOR TO START OF
- SITE SHALL BE WATERED DOWN DURING CONSTRUCTION TO MINIMIZE DUST. THIS ACTIVITY SHALL BE PERFORMED BY THE CONTRACTOR AS DEEMED NECESSARY BY THE ENGINEER.
- ALL DEMOLITION, GRADING, AND TREE REMOVAL PROCEDURES, PERMITS AND APPROVALS SHALL BE IN ACCORDANCE WITH NYSDEC AND/OR OTHER APPROPRIATE AUTHORIZING AGENCIES AND ARE THE RESPONSIBILITY OF THE CONTRACTOR.
- 8 THE CONTRACTOR IS TO EXERCISE EXTREME CASE WHEN PERFORMING ANY WORK ACTIVITIES ADJACENT TO BUILDING WALLS TO REMAIN IN PLACE. ALL UNSUITABLE MATERIAL, CONSTRUCTION DEBRIS, ETC. SHALL BE PROPERLY REMOVED AND DISPOSED OF OFF-SITE IN ACCORDANCE WITH ALL APPLICABLE CODES, ORDINANCES AND LAWS.
- THE CONTRACTOR SHALL PRESERVE ALL NATURAL SITE FEATURES. AS LITTLE VEGETATIVE COVER SHALL BE REMOVED AS NECESSARY.
 ANY DISTURBED AREA SHALL BE IMMEDIATELY STABILIZED BY ROLLED EROSION CONTROL PRODUCT.
- 10. ALL EXISTING TREES AND VEGETATION TO REMAIN SHALL BE PROTECTED BY THE CONTRACTOR, ANY DAMAGED TREES AND/OR VEGETATION SHALL BE REPLACED IN KIND AT THE EXPENSE OF THE CONTRACTOR.
- 11. THE CONTRACTOR SHALL TAKE APPROPHATE MEASURES TO ENSURE THE SAFETY OF HIS EMPLOYES AND GENERAL PUBLIC, STRUCTURAL/SITE FEATURES TO REMAIN ADJACENT PROPERTIES & PUBLIC RIGHT-OF-MAY'S DURNIO ALL CONSTRUCTION AND REMOVAL ACTIVITIES IN ACCORDANCE WITH FEDERAL STATE AND LOCK LOOSES AND REGULATIONS. THE CONNER AND PROJECE ENGINEER ASSUME NO RESPONSIBILITIES FOR THE CONTRACTOR'S SAFETY PROGRAM AND PROCEDURES IN CONNECTION WITH
- 12. PRIOR TO THE ISSUANCE OF A CERTIFICATE OF OCCUPANCY BY THE BUILDING INSPECTOR, AN "AS-BUILT" PLAN SHOWING THE INSTALLED AND COMPLETED IMPROVEMENTS (ABOVE AND BELOW BRADE), CERTIFIED BY A NEW YORK STATE LICENSED LAND SURVEYOR SHALL BE PREPARED AT THE SOLE PEPINSE OF THE CONTRACTOR, SAID AS-BUILT PLAN SHALL BE PROVIDED TO THE BUILDING INSPECTOR AND PROLECT FORMINER DOCUMENTING SAITSFACTORY COMPLETION OF ALL APPROVED AND AUTHORIZED CONSTRUCTION ACTIVITIES AND ZONING COMPLIANCE.
- 13. WETLAND BOUNDARY DELINEATED BY KELLARD SESSIONS CONSULTING, P.C. BASED ON SITE VISIT DATED DECEMBER 23, 2010. WETLAND BOUNDARY TO BE FIELD VERIFIED AND SURVEY LOCATED IN THE SPRING 201:

DEMOLITION NOTES

- 1. CONTRACTOR TO FIELD-VERIFY ALL REMOVAL QUANTITIES.
- ALL DEMOLITION DEBRIS SHALL BE PROPERLY HANDLED AND DISPOSED OF IN ACCORDANCE WITH NYSDEC WESTCHESTER COUNTY AND LOCAL REGULATIONS.
- 3 EXISTING SANITARY SEWER SHOULD BE CAPPED AT THE BUILDING AND AT THE EXISTING SANITARY MANHOLE AT SITE ENTI-SEWER SHALL BE REMOVED IN ACCORDANCE WITH DRAWINGS AND DETAILS. APPROXIMATELY 330 LF OF SANITARY FORCEMAIN TO BE REMOVED. CONTRACTOR TO FIELD VERIFY LOCATION OF SANITARY FORCE MAIN AND ALL APPURTENANCES.
- 4. EXISTING SANTARY SEWER CONNECTION TO BE CAPPED IN CONFORMANCE WITH TOWN AND WESTCHESTER COUNTY DEPARTMENT OF HEALTH REQUIREMENTS.
- 5 EXISTING SANITARY PLIMP CHAMBER TO BE DEMOLISHED AND REMOVED IN CONFORMANCE WITH WESTCHESTER COLL DEPARTMENT OF HEALTH REQUIREMENTS. PRIOR TO DEMOUTION, THE CONTRACTOR SHALL DISMANTLE AND CLEAN OUT THE EXISTING PUMP CHAMBER IN CONFORMANCE WITH ALL LOCAL AND STATE REQUIREMENTS.
- EXISTING SANITARY FORCEMAIN TO BE CAPPED IN CONFORMANCE WITH TOWN AND WESTCHESTER COUNTY DEPARTMENT OF HEALTH REQUIREMENTS. THE FORCEMAIN IS TO BE REMOVED AND DISPOSED IN ACCORDANCE WITH WESTCHESTER DEPARTMENT OF HEALTH AND INVESTOR FERLI MATING.
- 7. APPROXIMATELY 30 LF GRAVITY SANITARY SEWER BETWEEN PUMP CHAMBER AND BUILDING CONNECTION TO BE REMOVED.
- EXISTING UTILITIES SHALL BE CAPPED 10' BEYOND BUILDING FOUNDATION PRIOR TO BUILDING DEMOLITION BY A LICENSED PLUMBER AND ELECTRICIAN. CONTRACTOR IS RESPONSIBLE FOR COORDINATING WITH ALL UTILITY PROVIDERS.
- EXISTING ELECTRICAL AND COMMUNICATION LINES TO BE DISCONNECTED IN ACCORDANCE WITH ASSOCIATED UTILITY PROVIDER. CONTRACTOR IS RESPONSIBLE FOR COORDINATING WITH APPLICABLE UTILITY PROVIDERS.
- 10. EXISTING TRANSFORMER TO BE REMOVED IN ACCORDANCE WITH CON-ED REQUIREMENTS. CONTRACTOR IS RESPONSIBLE FOR COORDINATING WITH CON-ED. ASSOCIATED CONCRETE PAD AND ASSOCIATED CONDUITS TO BE DEMOLISHED AND REMOVED.
- 11. EXISTING ONE-STORY CONCRETE BUILDING AND ASSOCIATED SLATE PATIO AND WALKWAYS TO BE DEMOLISHED AND REMOVED.
- 12. EXISTING MODULAR TRAILER TO BE DISCONNECTED FROM ALL UTILITY CONNECTIONS AND REMOVED FROM SIT
- 13. WELL DECOMMISSIONING SHALL BE IN ACCORDANCE WITH WESTCHESTER COUNTY DEPARTMENT OF HEALTH. THE CONTRACTOR IS WELL DECOMMISSIONING SPIELL BE IN ACCORDINGLY HIT IN YES CONTROLLED BY COUNT PERFORMENT OF WEARTH. THE CONTROLLIN'S RESPONSIBLE FOR SCURING A INSCED FEGISTER WELL DEFORM THE WELL ABANDONMENT / DECOMMISSIONING. IN SIDE WELL DRIVER SHALL PROVIDE DEFAILS OF WELL DECOMMISSIONING TO WESTCHESTER COUNTY DEPARTMENT OF HEALTH IN WRITING PRIOR TO STARTING OF WORLD.
- WHERE EXISTING OR ASPHALT CONCRETE PAVEMENT ARE REMOVED, THE CONTRACTOR SHALL SAWCUT AND NEATLY TRIM EDGE OF REMAINING PAVEMENT REFORE INSTALLING NEW PAVEMENT.
- 15. EXISTING UNDERGROUND PETROLEUM STORAGE TANKS (2) TO BE FIELD LOCATED BY CONTRACTOR, TANK REMOVAL SHALL BE PERFORMED IN ACCORDANCE WITH WESTCHESTER COUNTY REGULATION AS WELL AS NYSDEC REQUIREMENT:
- 16. CONTRACTOR TO RELD VERIFY LOCATION OF EXISTING ABANDONED SANITARY ASSOPRITION FIELDS. DISTING PIPE, GRAVEL AND ASSOCIATED APPLIETEMANCES SHALL BE REMOVED AND DISPOSED OF IN ACCORDANCE WITH WOODE ADD INSIDE REQUIREMENTS. SURPOLINORIS GOIL SHOULD BE INSTEED AND DEPOSED IN ACCORDANCE WITH HYSDEC REQUIREMENTS.

CONSTRUCTION NOTES

- THE CONTRACTOR SHALL REVIEW THE SEQUENCE OF CONSTRUCTION PLAN AND EROSION AND SEDIMENT CONTROL PLAN TO INCLIDE WORK STAGING AND A TEMPORARY METHOD OF COLLECTING AND CONVEYING DRAWAGE QUIRNG CONSTRUCTION NOLLDING EROSION AND SEDIMENT CONTROL, PRACTICES. THE SEQUENCE OF CONSTRUCTION SHALL BE SUBMITTED FOR REVIEW TO ARRE ENGINEEMEND FOR THE PRE-CONSTRUCTION MEETING.
- 2. CONTRACTOR IS RESPONSIBLE FOR OBTAINING ALL NECESSARY CONSTRUCTION PERMITS AND APPROVALS PRIOR TO COMMENCING
- PRIOR TO STARTING ANY CONSTRUCTION ACTIVITY THE CONTRACTOR SHALL COORDINATE AND ATTEND A PRECONSTRUCTION MEETING WITH ARRE ENGINEERING.
- CONTRACTOR SHALL EXAMINE AND FIELD VERIFY ALL EXISTING AND GIVEN DIMENSIONS AND CONDITIONS WITH THOSE SHOWN ON THE PLANS. IN CASE OF ANY DISCREPANCY, CONTRACTOR SHALL IMMEDIATELY NOTIFY THE PROJECT ENGINEER.
- THE LOCATIONS OF ALL EXISTING UNDERGROUND LITLITIES SHOWN ARE APPROXIMATE. THE CONTRACTOR IS RESPONSIBLE FOR FIELD VERIFICATION OF LOCATION AND EXTENT OF ALL UTILITIES PRIOR TO COMMENCING CONSTRUCTION.
- CONTRACTOR RESPONSIBLE FOR COORDINATING WITH PROPER UTILITY COMPANY OR AGENCY FOR DISCONNECTING SERVICES, RELOCATING SERVICES, AND PROVIDING NEW SERVICES WITHIN THE PROJECT AREA.
- WHERE CONSTRUCTION, INCLUDING UTILITY LINES, CROSSES OR IS ADJACENT TO EXISTING UTILITY LINES (FUEL, WATER, SEWER, TELECOMMANIACATION, GAS OR ELECTRIC), CONTRACTOR SHALL DIG TEST PITS AND CAREFULLY HAND EXCAVATE SO AS TO LOCATE, MARK, AND PROTECT THE UTILITY LINES AGAINST DISTURBANCE OR DAMAGE.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR ADEQUATELY BRACING AND PROTECTING ALL WORK DURING CONSTRUCTION AGAINST DAMAGE, BREAKAGE, COLLAPSE, DISTORTIONS AND OFF ALIGNMENTS ACCORDING TO CODES AND STANDARDS OF C
- 9. CONTRACTOR IS RESPONSIBLE FOR PROVIDING ALL LABOR, EQUIPMENT, AND MATERIALS AS REQUIRED FOR THE IMPROVEMENT
- 10. THE TOP ELEVATION OF ALL EXISTING HANDHOLES, MANHOLES, CATCH BASINS, VALVE BOXES, AND FILL CAPS COVERS LOCATED WITHIN THE CONSTRUCTION AREA SHALL BE RESET AND BE MADE FLUSH WITH THE PROPOSED GRADE.
- CONTRACTOR TO SUBMIT SHOP DRAWINGS FOR ALL PRODUCTS (I.E. PIPES, STRUCTURES, ETC.) INCLUDING MATERIA SPECIFICATIONS FOR ROCK, FILL MATERIAL, EROSION CONTROL MAT, SILT FENCE, AND PAVEMENT SECTION. ALL SITE-RELATED SHOP DRAWINGS SUBMITTED TO THE ENGINEER SHALL BEAR THE APPROVAL STAMP OF GENERAL CONTRACTOR.
- WHERE MANUFACTURERS NAMES AND PRODUCT NUMBERS ARE INDICATED ON DRAWINGS, IT SHALL BE CONSTRUED TO MEAN THE ESTABLISHMENT OF GUALITY AND PERFORMANCE STANDARDS OF SUCH HEMS. ALL OTHER PRODUCTS MUST BE SUBMITTED TO THE REQUIRER FOR PROPOUR SEFORE HEY SHALL BE DEEDED COULD.
- 13. ALL FINISH GRADING IS TO BE DONE SO AS TO ENSURE POSITIVE DRAINAGE TOWARD THE APPROPRIATE CATCH BASINS.
- 14. ALL SITE SIGNAGE AND PAVEMENT MARKINGS SHALL CONFORM TO THE LATEST NATIONAL MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (M.U.T.C.D.)
- 15. UNLESS OTHERWISE SPECIFIED OR INDICATED ALL CONCRETE SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH @28 DAYS OF
- 16. UNSUITABLE MATERIAL, CONSTRUCTION DEBRIS, ETC. SHALL BE PROPERLY REMOVED AND DISPOSED OF OFF-SITE IN ACCORDANCE WITH APPLICABLE STATE AND LOCAL CODES, ORDINANCES, AND LAWS.
- 17. IN AREAS DEEMED AS FULL DEPTH ASPHALT PAVEMENT REPLACEMENT, EXISTING ASPHALT PAVEMENT SHALL BE ENTIRELY REMOVED AND DISPOSED OF BY THE CONTRACTOR IN CONFORMANCE WITH INVESCE AND TOWN COSE. THE SUBGRADE SHALL BE PREPARED AND ROUGHT TO THE REQUESTED LEVIATION PROFIT OF CONSTRUCTION BESEN AND TOP COURSE.
- 18 ALL EXCAVATION SHALL BE PROPERLY BACKFILLED IN 12" LIFTS OR LESS WITH CLEAN FILL AND COMPACTED TO MINIMUM 95% ALL DAWARD TO SPAIL BE PROPERLY BRANCHED IN Z. LET'S ON LESS WITH ALEXEN TILL AND COMPRENDED ON INNIBIDIA 3939 PROFICIOR IN PARA PARAS) OF THE MAXIMMON BRY DESIZY SO ETERMINED BY ASIM D-1557 TEST PROCEDURE. THE CONTRACTOR SHALL BE RESPONSIBLE FOR COMPACTION TESTING AND SHALL SUBMIT SUCH REPORT AND VENEFICATION TO PROJECT ENGINEER.
- 19. A MINIMUM OF TWELVE (12) INCHES OF ENVIRONMENTALLY CLEAN TOP SOIL SHALL BE USED ON ALL EXPOSED GROUND SURFACES,
- 20. HIGH DENSITY POLYETHYLENE (HDPE) PIPE SHALL BE HANCOR (BLUE SEAL) AND FITTINGS SHALL HAVE SMOOTHED INTERIOR AND
- 21 THE ENGINEER SHALL NOT BE RESPONSIBLE FOR CONSTRUCTION METHODS AND MEANS FOR COMPLETION OF THE WORK DEPICTED. THE ENRIGHEN AND, AND THE ART CONTROL OWNSTHALD HOW DISTANCE HOUSE WAS DEADNEST THE CONTROL OF THE VOIR AND OWNSTHAND WHICH HOUSE WAS DEADNESS. THE WORK PRIOR THE WORK PRIOR THE WORK PRIOR THE WORK PRIOR TO THE CONTRACTOR SHALL I RESPONSIBLE FOR DETERMINING METHODS AND MEANS OF COMPLETE HOW OF THE WORK PRIOR TO THE COMMENCEMENT OF CONTROLLING WAS THE WORK PRIOR TO THE COMMENCEMENT OF CONTROLLING WAS THE WORK PRIOR TO THE COMMENCEMENT OF CONTROLLING WAS THE WORK PRIOR TO THE COMMENCEMENT OF CONTROLLING WAS THE WORK PRIOR TO THE COMMENCEMENT OF CONTROLLING WAS THE WORK PRIOR TO THE WORK PRIOR TO THE COMMENCEMENT OF CONTROLLING WAS THE WORK PRIOR TO THE W
- 22. CONTRACTOR TO COMPLY WITH THE FOLLOWING EARTHWORK MATERIAL GUIDELINES:
- 22.A. HIL AND BACKFILL ONLY ENVIRONMENTALLY CLEAN MATERIAL (I.E., MATERIAL THAT HAS BEEN TESTED AND FOUND TO CONTAIN LEVES OF SEMI-VOLATILE ORGANIC COMPOUNDS OF INDREAMIC ANALYTES THAT DO NOT EXCEED INSDEC TAGM HIM-AUGR ECOMMENDE SOL (CLEANIP DESCRIPS AND DICTESTED AS UPLIED GROANIC COMPOUNDS) SHALL BE USED AS FILL AND BACKFILL COMPOSITION SHALL CONSIST OF SAND, GRAVEL, CRUSHED STONE, CRUSHED ORANGE OR A MIXTURE OF THESE. MATERIAL SHALL NOT CONTAIN SALTS OR FORBISH MATERIALS OF ANY KIND. THESE FILL MATERIALS SHALL CONTAIN NO PARTICLES SOCKEDING 4" IN THE LARGEST DIMENSION. NO MORE THAN 30% OF THE MATERIAL SHALL BETARDED ON A 5" SIEVE IT HE MATERIAL PASSING THE 48" SEE SHALL CONTAIN, BY WEIGHT, NO MORE THAN 40% PASSING THE NO. 100 SEVE, NOR 12% PASSING THE NO. 200 SEVE.
- 22.B. <u>AGGREGATE</u> BASE, AGGREGATE BASE COURSE UNDER PAYEMENT SHALL BE COMPOSED OF CRUSHED LEDGE ROCK OR TALUS, ROUGHTY CUBICAL OR PYRAMIDAL IN SHAPE, AND SAND METRING THE AGARDATION AND SOUNDRIESS REQUIREMENTS OF NEW YORK STATE DOT, IT SHALL OR QUIFT, OR SHAPE AND FREE OF WOOD, LOAM, CLAY, DIRT, ROOTS, BARK, AND ANY OTHER EXTRANEOUS MATERIAL.
- 23. FIELD QUALITY CONTROL TESTING SHALL BE PERFORMED BY THE CONTRACTOR AT THE CONTRACTOR'S EXPENSE AND THE RESULTS ARE TO BE FURNISHED TO PROJECT ENGINEER FOR REVIEW AND APPROVAL.

- 23.A. SIEVE ANALYSIS: THE CONTRACTOR SHALL PERFORM SIEVE ANAYLSIS IN ACCORDANCE WITH ASTM D422 ON FILL AND AGGREGATE MATERIALS AT THE SITE PRIOR TO PLACEMENT IN ORDER TO VERIFY CONFORMANCE WITH THE REQUIREMENTS.
- 23.B. FIELD DENSITY TESTS: PERFORM IN-PLACE FIELD DENSITY TESTS IN ACCORDANCE WITH ASTM D1557 PROCEDURES.
- 26.B.1. EXISTING SUBGRADE ONE FIELD DENSITY TEST FOR EACH 2000 SQ. FT., BUT IN NO CASE LESS THAN THREE

26.B.2. FILL AREAS - FOR EACH LIFT (FILL TO BE PLACED IN LIFTS NO GREATER THAN 6"), ONE FIELD DENSITY TEST FOR EACH 2000 SQ. FT.,

UTILITY NOTES

SANITARY SEWERS

- EXISTING UTILITY LOCATIONS SHOWN ON THE COMPOSITE UTILITY PLAN ARE APPROXIMATE. IT IS THE SOLE RESPONSIBILITY OF THE COMPRECION TO DETERMINE EXACT LOCATION AND ELEVATION OF ALL EXISTING UNDERGROUND UTILITIES PRIOR TO COMMERCING CONSTRUCTION.
- 2. SANITARY SEWERS SHALL BE CLEANED AND FLUSHED UPON CONSTRUCTION COMPLETION.
- THE CONTRACTOR SHALL EXERCISE CAUTION WHEN REGARDING OVER EXISTING/NEW UTILITIES INCLUDING, BUT NOT LIMITED TO STORM AND SANITARY SEWERS, WATER MAINS, GAS AND ELECTRIC LINES.
- 4. THE SANITARY MANHOLE COVERS ARE TO BEAR THE INSCRIPTION "SANITARY"
- 5. NO SANITARY SEWER MAIN WITHIN THE PROJECT SITE SHALL BE ACTIVATED UNTIL AN EXFILTRATION/INFILTRATION. TEST IS MADE INFILTRATION TEST RATE OF ONE HUNDRED (100) GALLONS PER DAY/MILE/INCH DIAMETER, OR ANY OTHER REQUIREMENT SET FORTH BY THE TOWN ENGINEER
- EXFILTRATION/INFILTRATION TESTS SHALL BE OBSERVED AND CERTIFIED TO THE TOWN ENGINEER AND DEVELOPER'S LICENSED PROFESSIONAL ENGINEER.
- THE SANITARY SEWER FORCE MAIN SHALL BE 4" PVC. CONTRACTOR TO REFER TO MEP/ARCHITECTURAL DRAWINGS FOR LOCATION

FLECTRIC

- 1. CONTRACTOR TO FIELD VERIFY ALL EXISTING BURIED UTILITIES INCLUDING ELECTRIC.
- 2. CONTRACTOR SHALL COORDINATE WITH CONSOLIDATED EDISON (CON-ED) REGARDING THE REMOVAL OF ANY UTILITY POLES. TRANSFORMERS, CONDUITS, AND OVERHEAD WIRES.
- 3. CONTRACTOR SHALL COORDINATE WITH CON-ED REGARDING THE PROPOSED CONNECTIONS FROM EXISTING OVERHEAD WIRES, AND PROPOSED LITHLITY POLY.
- 4. PROPOSED TRANSFORMER AND ASSOCIATED PAD SHALL BE CONSTRUCTED IN ACCORDANCE WITH CON-ED.

TOWN OF NORTH CASTLE

GENERAL NOTES

- 1. INSPECTION OF EROSION CONTROLS BY THE TOWN ENGINEER IS REQUIRED PRIOR TO ANY EXCAVATION.
- 2. ALL DRAINAGE FACILITIES SHALL BE INSPECTED PRIOR TO BACKFILLING BY THE TOWN ENGINEER, (FOR ANY PROPOSED
- 3. SOIL TESTING DATA IS REQUIRED TO BE SUBMITTED.
- 4. INSPECTION OF SUBSURFACE DRAINAGE SYSTEMS SHALL BE INSPECTED BY THE TOWN ENGINEER PRIOR TO BACKFILLING.
- 5. PUBLIC ROADWAYS SHALL BE PROTECTED FROM MACHINERY AND DEBRIS.
- 6. ANY CHANGES, ALTERATIONS, AND/OR MODIFICATIONS SHALL BE REVIEWED AND APPROVED BY THE BUILDING INSPECTOR AND/OR TOWN ENGINEER, PRIOR TO PERFORMING SUCH WORK.

EROSION & SEDIMENT CONTROL NOTES

- CONTRACTOR IS RESPONSIBLE CONTRACTOR IS RESPONSIBLE FOR IMPLEMENTING ALL OF THE EROSION AND SEDIMENT CONTROL
 PRACTICES IN ACCORDANCE WITH THE STORMWATER POLLUTION PREVENTION PLAN (SWPPP).
- 2. CONTRACTOR IS RESPONSIBLE TO EVALUATE AND IMPLEMENT ADDITIONAL EROSION AND SEDIMENT CONTROL MEASURES AS REQUIRED TO MEET THE OBJECTIVES OF THE TOWN, NYSDEC AND NYCDEP REGULATIONS.
- 3. CONTRACTOR IS REQUIRED TO HAVE A NYSDEC CERTIFIED TRAINED CONTRACTOR ON-SITE RESPONSIBLE FOR THE IMPLEMENTATION
- CONTRACTOR IS RESPONSIBLE FOR INSTALLATION, INSPECTION, AND MAINTENANCE OF ALL EROSION AND SEDIMENT CONTROL
 MEASURES SHOWN ON THE PLANS AND AS DIRECTED BY THE ENGINEER.
- 5. CONTRACTOR IS RESPONSIBLE TO INSTALL EROSION AND SEDIMENT CONTROL PRACTICES PRIOR TO ANY SOLL DISTURBANCE AND TO MAINTAIN THEM LUTIL PERMANENT PROTECTION IS ESTABLISHED. EROSION AND SEDIMENT CONTROL MEASURES MUST BE INSTALLED IN ACCORDANCE WITH THE CURRENT EDITION OF THE NEW YORK STATE STANDARDS AND SPECIFICATIONS FOR EROSION AND SEDIMENT CONTROL MELL BEING. AND SEDIMENT CONTROL ("BLUE BOOK")
- THE CONTRACTOR SHALL PRESERVE ALL NATURAL SITE FEATURES. AS LITTLE VEGETATIVE COVER SHALL BE REMOVED AS NECESSARY. ANY DISTURBED AREAS SHALL BE IMMEDIATELY STABILIZED BY ROLLED EROSION CONTROL PRODUCT.
- 7. CONTRACTOR IS RESPONSIBLE TO INSPECT THE EROSION AND SEDIMENT CONTROL MEASURES AND THAT THEY BE MAINTAINED IN
- 8. CONTRACTOR IS RESPONSIBLE TO TEMPORARILY STABILIZE DISTURBED AREAS IN ACCORDANCE WITH NEW YORK STATE STANDARDS AND SPECIFICATIONS FOR EROSION AND SEDIMENT CONTROL, NO LATER THAN 7 DAYS AFTER CONSTRUCTION ACTIVITY IN THE AREA
- CONTRACTOR IS RESPONSIBLE TO KEEP PUBLIC RIGHTS-OF-WAY ALONG SITE BOUNDARIES CLEAR OF SOIL AND DEBRIS AND IS
 RESPONSIBLE FOR ANY STREET CLEANING NECESSARY DURING THE COURSE OF THE PROJECT.
- 10. THE SITE SHALL BE WATERED DOWN DURING CONSTRUCTION TO MINIMIZE DUST. THIS ACTIVITY SHALL BE PERFORMED BY THE CONTRACTOR AS DEEMED NECESSARY BY THE ENGINEER. CONTRACTOR IS RESPONSIBLE FOR DUST CONTROL THROUGHOUT CONSTRUCTION PERIODS AND UNTIL SITE IS PERMANENTLY STABILIZED.
- 11. CONTRACTOR IS RESPONSIBLE TO REMOVE EROSION AND SEDIMENT CONTROL MEASURES AFTER THE DISTURBED AREAS HAVE BEEN PERMANENTLY STABILIZED, I.E. GREATER THAN 80% VEGETATIVE COVER.
- 12. AREAS DISTURBED BY CONSTRUCTION SHALL BE SEEDED & MULCHED UNLESS OTHERWISE NOTED. AFTER FINAL GRADING AND CLEANUP OF ALL DISTURBED AREAS, CONTRACTOR SHALL ESTABLISH A STAND OF GRASS BY SEEDING AND MULCHING AS PER THE VEGETATIVE PLAN. THE CONTRACTOR SHALL WATER THE SEEDED AREAS TO MAINTAIN MOISTURE LEVELS FOR OPTIMUM GROWTH FOR A PERIOD NO LESS THAN TWO (2) WEEKS.
- 13. CONTRACTOR IS RESPONSIBLE FOR INSTALLING AND MAINTAINING A CONCRETE TRUCK WASH OUT STATION. THE FACILITY SHALL BE WATERTIGHT. WASTE WATER SHALL NOT BE PERMITTED TO ENTER INTO ENVIRONMENTALLY SENSITIVE RESOURCES.

SEQUENCE OF CONSTRUCTION ACTIVITIES

SEQUENCE I: (LIMIT OF DISTURBANCE = 1.4 AC)

- A PRE CONSTRUCTION MEETING SHALL BE HELD WITH REPRESENTATIVES OF NYCDEP, CERTIFIED PROFESSIONAL TRAINED CONTRACTOR, THE TOWN, AND THE ENGINEER PRIOR TO ANY SITE DISTURBANCE.
- 2. PRIOR TO CLEARING AND GRUBBING ACTIVITIES THE CONTRACTOR SHALL INSTALL STABILIZED CONSTRUCTION ENTRANCE/EXIT AND
- 3. INSTALL SILT FENCE AS INDICATED ON THE EROSION AND SEDIMENT CONTROL PLAN.
- 4. DISCONNECT ALL UTILITY CONNECTIONS TO EXISTING ONE STORY BUILDING
- RAZE EXISTING BUILDING AND ASSOCIATED APPURTENANCES IN ACCORDANCE WITH DEMOLITION PLAN. PAVEMENT DEMOLITION SHALL NOT BE PERFORMED UNTIL TEMPORARY SEDIMENT TRAP IS INSTALLED.
- 6. CLEAR AND GRUB IN AREA OF SEQUENCE I TEMPORARY SEDIMENT TRAP. ANY TOPSOIL SHALL BE STOCKPILED ON-SITE AS SHOWN ON
- ROUGH GRADE PROPOSED TEMPORARY SEDIMENT TRAP AND ASSOCIATED STORMWATER STRUCTURES. INSTALL 6° OF TOPSOIL, SEED, AND STABILIZE WITH ROLLED EROSION CONTROL PRODUCT (RECP).
- 10. INSTALL PERIMETER DIKE/SWALE STARTING WITH POSITIVE DRAINAGE TO THE TEMPORARY SEDIMENT TRAP AS SHOWN ON PLAN.
- 11. INSTALL CHECK DAMS IN THE PERIMETER SWALE.
- 13. SOIL STOCKPILE SHOULD BE LOCATED ON GRASSY AREAS IN ACCORDANCE WITH DETAIL
- 14. BEGIN CLEARING AND GRUBBING IN THE AREA OF THE PROPOSED BUILDING FOOTPRINT. STOCKPILE FILL MATERIAL IN DESIGNATED
- 15. BEGIN CONSTRUCTION OF BUILDING FOUNDATION AT THE WESTERLY PORTION (REAR OF BUILDING) AND PROCEED WITH EXCAVATION TOWARDS THE EASTERLY PORTION (FRONT OF BUILDING).
- 16. STOCKPILE SHALL RE A TEMPORARY STAGING AREA FOR SOIL EXPORT AND MAY MOVE THROUGHOUT THE DURATION OF EXCAVATION

SEQUENCE II: (LIMIT OF DISTURBANCE = 2.0 AC)

- 1. CLEAR AND GRUB IN AREA OF SEQUENCE II TEMPORARY SEDIMENT TRAP
- ROUGH GRADE PROPOSED TEMPORARY SEDIMENT TRAP AND ASSOCIATED STORMWATER STRUCTURES. INSTALL 6° OF TOPSOIL, SEED, AND STABILIZE WITH ROLLED EROSION CONTROL PRODUCT (RECP).
- 3. INSTALL PERIMETER DIKE/SWALE STARTING WITH POSITIVE DRAINAGE TO THE TEMPORARY SEDIMENT TRAP AS SHOWN ON THE PLAN.
- 4. INSTALL CHECK DAMS IN THE PERIMETER SWALE.
- INSTALL SUMP PIT WITHIN THE BUILDING FOUNDATION. CONNECT SUMP PIT TO A DEWATERING BAG ABOVE THE SEDIMENT TRAP. ALL SEDIMENT LADEN WATER SHALL BE DIRECTED TO THE TEMPORARY SEDIMENT TRAP.
- 6. CONTRACTOR TO CONTINUE EXCAVATION WITHIN THE EASTERLY PORTION OF THE BUILDING FOUNDATION (FRONT OF BUILDING).
- ONCE INTERIOR EXCAVATION IS COMPLETED, THEN THE CONTRACTOR IS TO BEGIN STABILIZING THE EXCAVATION BY POURING THE CONCRETE FOUNDATION AND SLAB.
- 8. ONCE FOUNDATION IS COMPLETE, BACKFILL AND FOUNDATION AND STABILIZE

SEQUENCE III: (LIMIT OF DISTURBANCE = 2.4 AC)

- ONCE BUILDING EXCAVATION IS STABILIZED, BEGIN INSTALLATION OF STORMWATER STRUCTURES AND PIPING.CONTRACTOR IS TO BEGIN WITH THE DOWNSTREAM STRUCTURES AND PROCEED UPSTREAM.
- 2. IMMEDIATELY INSTALL INLET PROTECTION ONCE INLET STRUCTURE REGINS TO RECEIVE A TRIRLITARY AREA.
- 3. INSTALL PROPOSED UTILITIES.
- 4. MAINTAIN SUMP PIT AND DEWATERING BAG UNTIL EXCAVATION COVERED.
- 5. SEQUENCE III TEMPORARY SEDIMENT TRAP CAN BE LIMITED TO AREA OF PROPOSED PRETREATMENT BASIN
- 6 CLEAR AND GRUR IN AREA OF POCKET WETLAND. ANY TOPSOIL SHALL BE STOCKPILED ON-SITE AS SHOWN ON THE DRAWING
- 7. STABILIZE SLOPES WITH ROLLED EROSION CONTROL PRODUCT (RECP).
- 9. ONCE BUILDING AND PAVED SURFACES ARE COMPLETE, COMPLETE FINAL GRADING IN ADJACENT AREAS. STABILIZE WITH ROLLED
- 10. COMPLETE FINAL GRADING IN BASINS AND INSTALL VEGETATION IN ACCORDANCE WITH LANDSCAPE PLAN.
- 11. ONCE FINAL GRADE IS ACHIEVED IN PROPOSED LANDSCAPED AREAS TEMPORARY SEEDING AND MULCHING SHALL BE DONE
- 12. INSTALL SAND FILTER OFFLINE, DO NOT CONNECT UNTIL TRIBUTARY AREA IS CONSIDERED STABILIZED. 13. STORMWATER WETLAND TO BE COMPLETED ONCE TRIBUTARY AREA IS STABILIZED. TEMPORARY OUTLET CAN BE REMOVED ONCE
- 14. CLEAN ALL INLET STRUCTURES OF SEDIMENT AND DEBRIS.
- 15 REMOVE SILT FENCE AND REMAINING EROSION AND SEDIMENT CONTROLS

PARK **PLACE**

11 New King Street

Town of North Castle, New York

11 New King Street LLC 11 New King Street, White Plains, NY 10604





AKRF ENGINEERING, P.C. 34 SOUTH BROADWAY WHITE PLAINS, NY 10601 Tel:(914) 949-7336 Fax:(914) 949-7559

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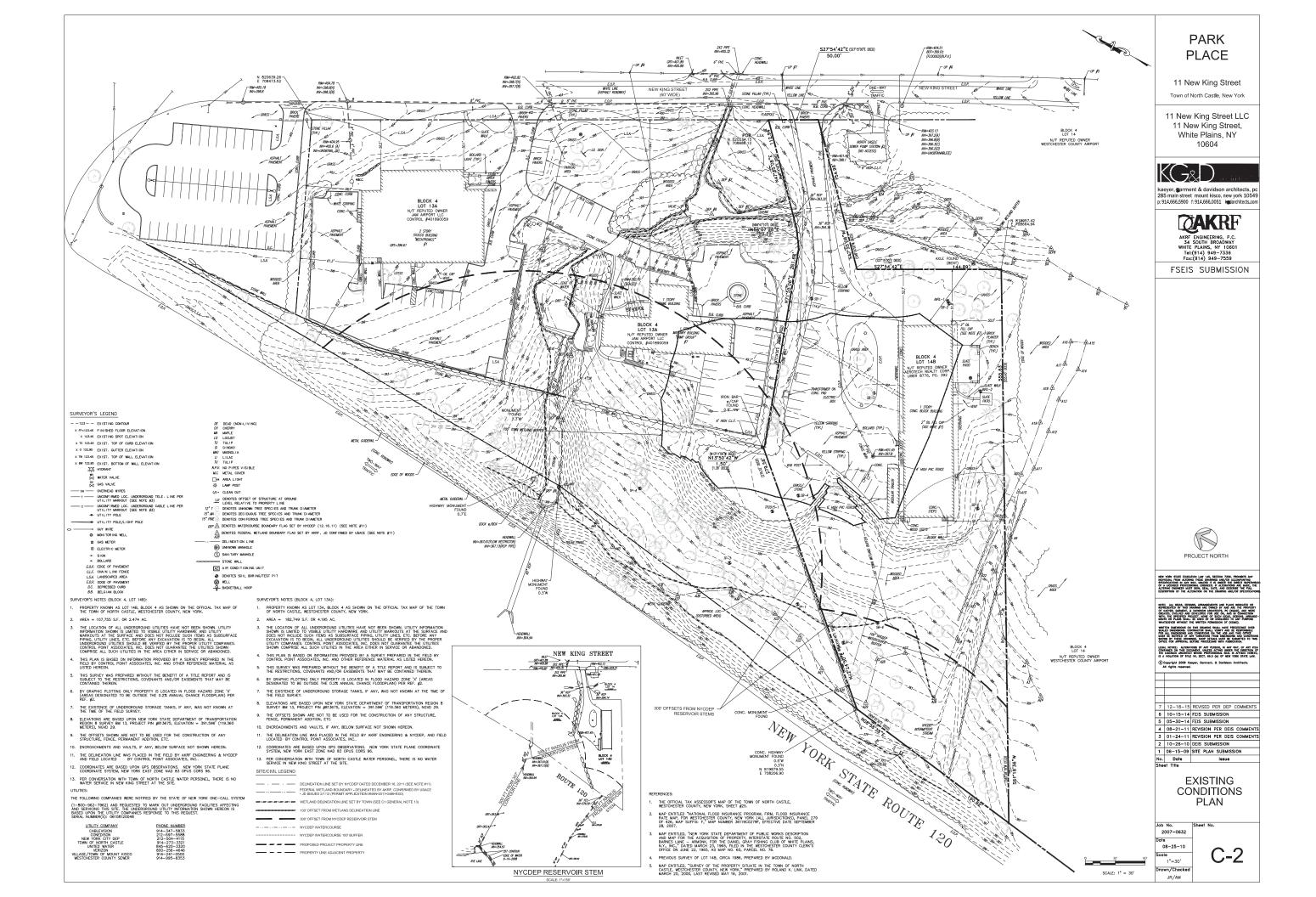
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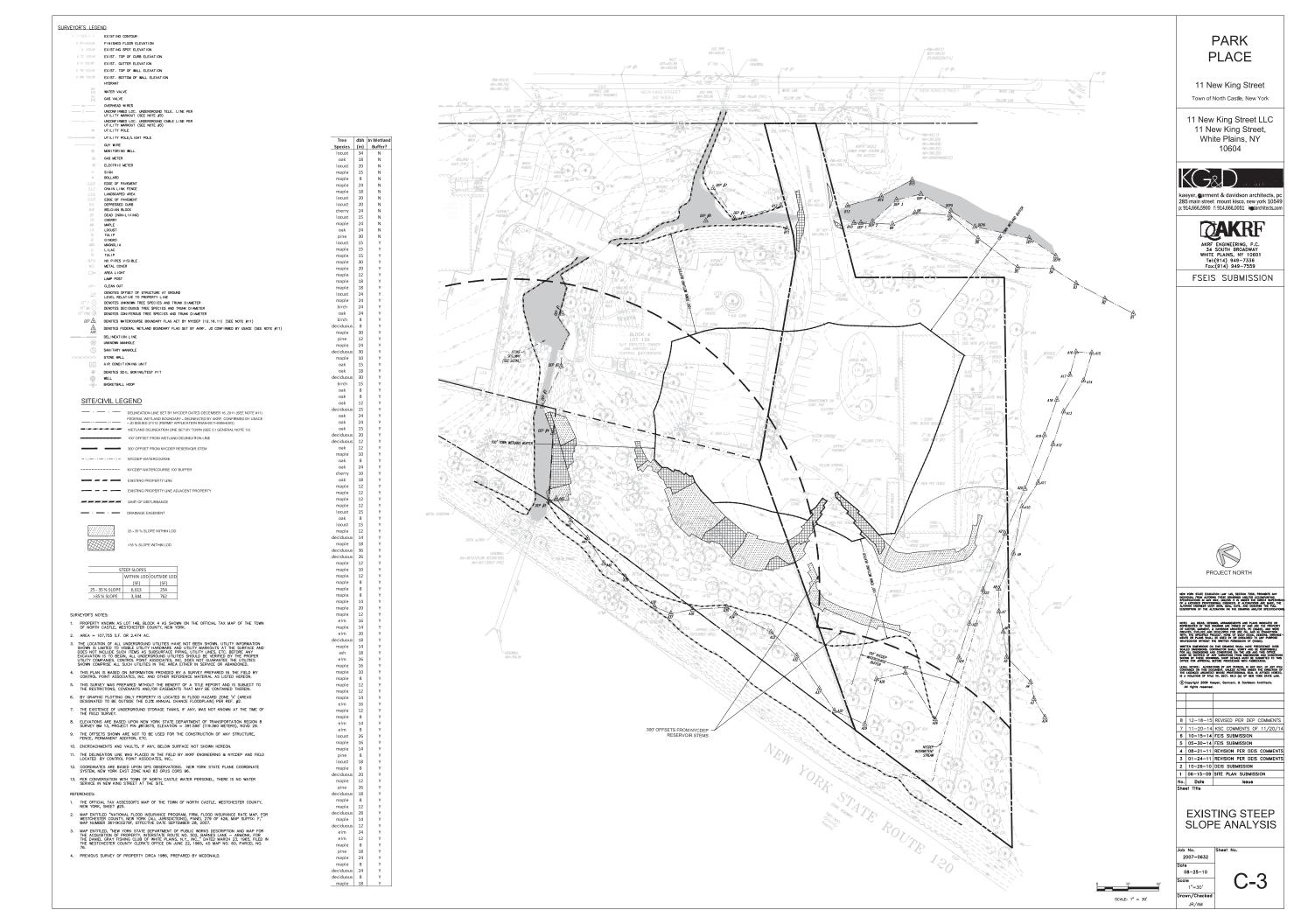
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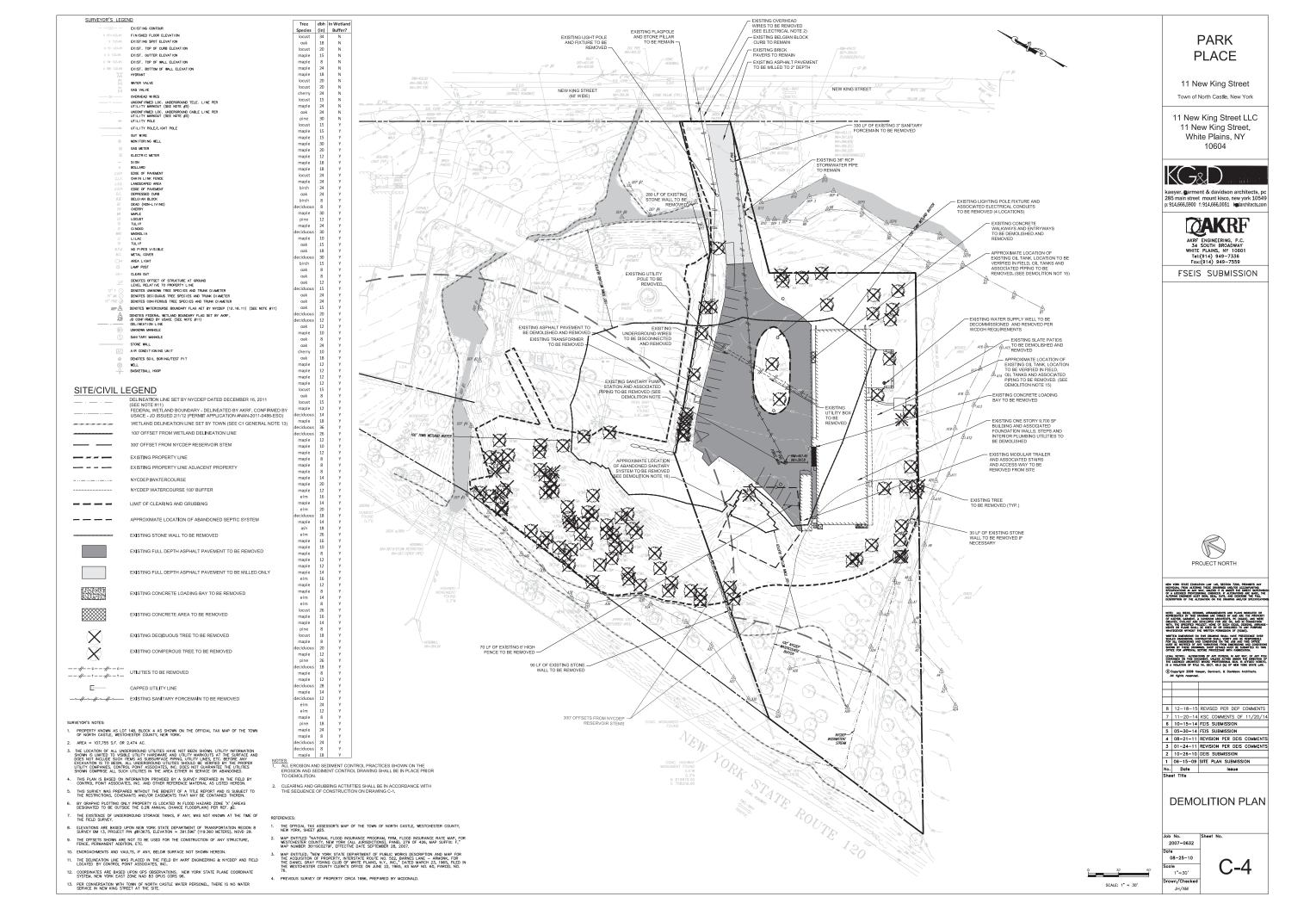
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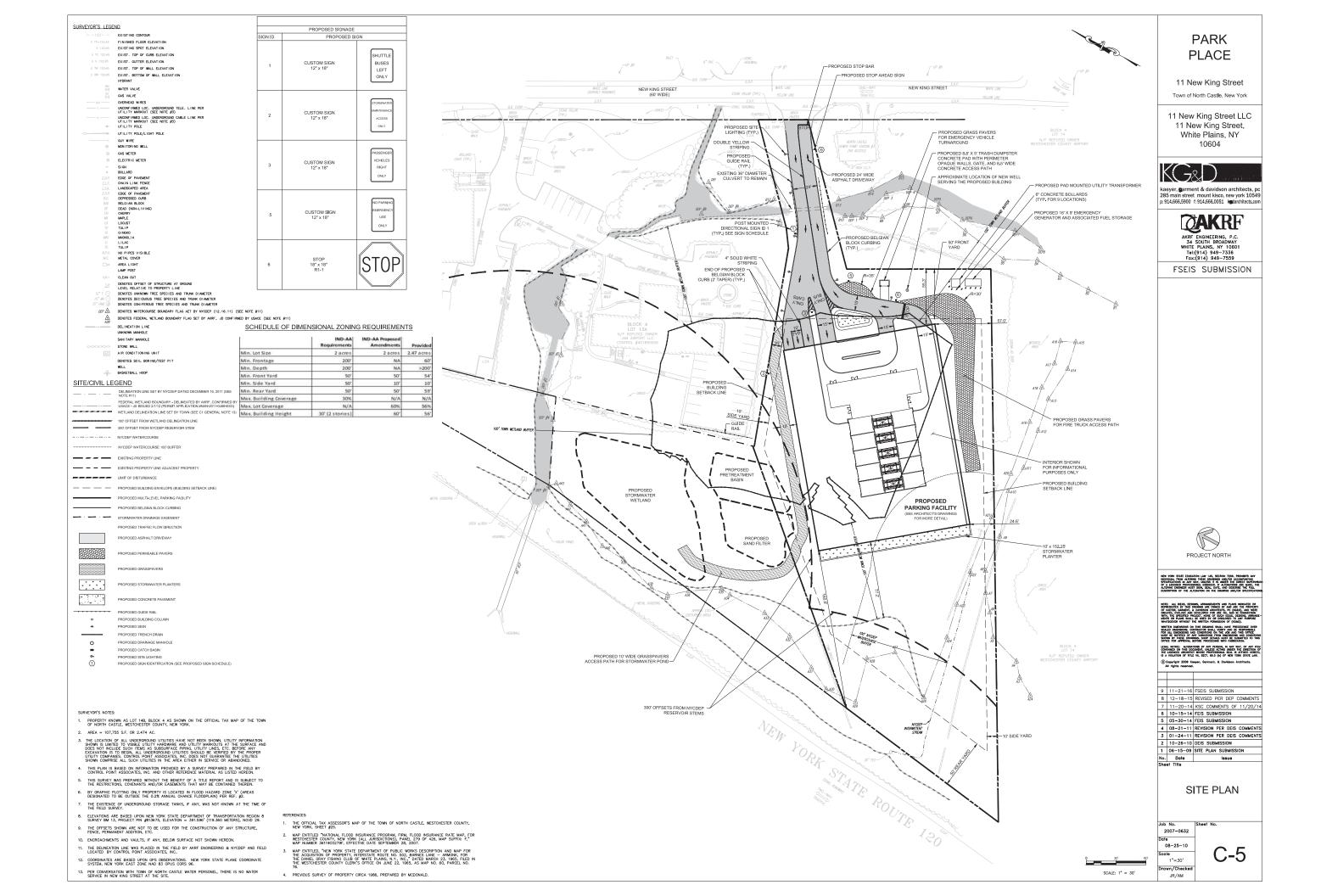
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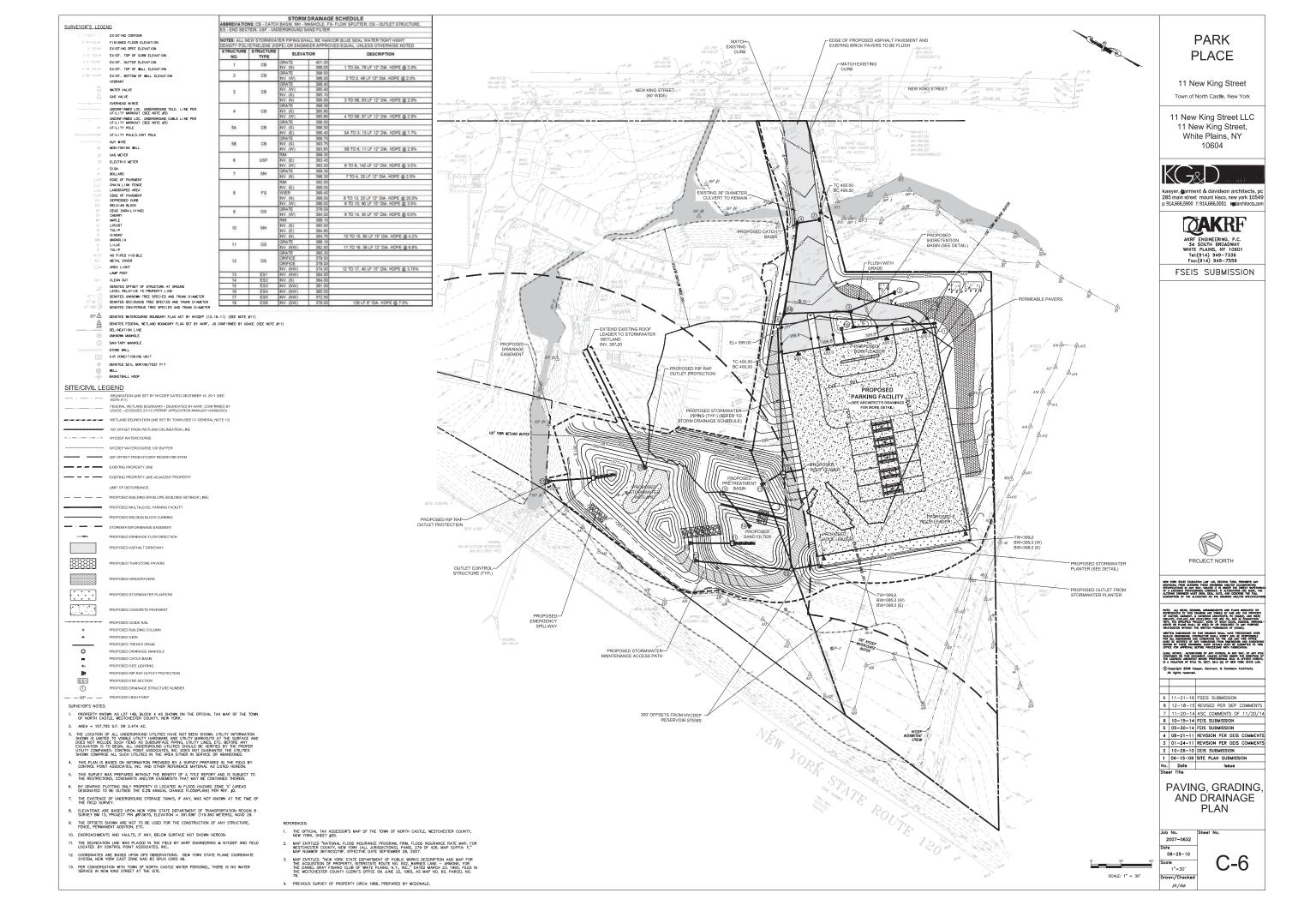
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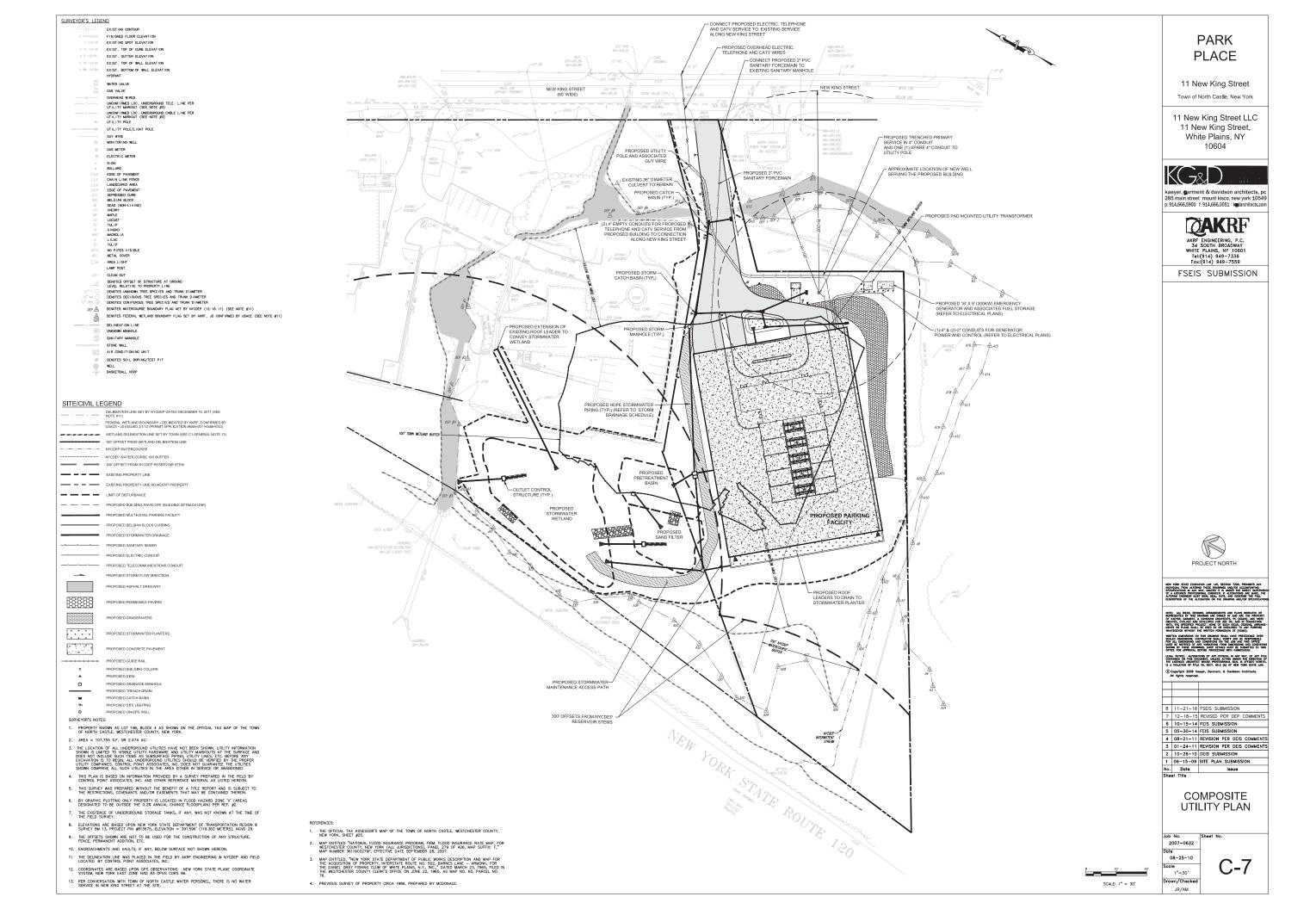


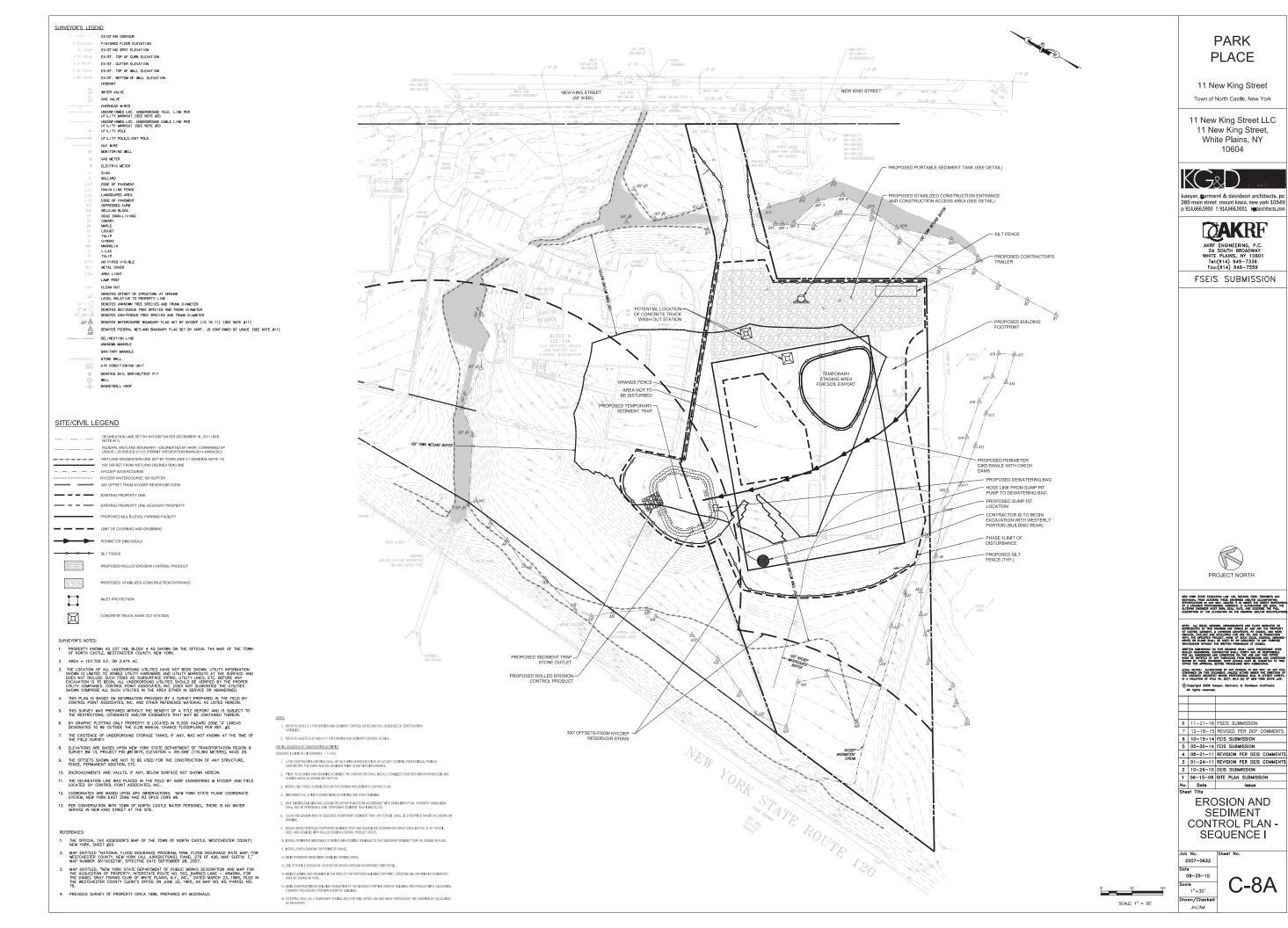


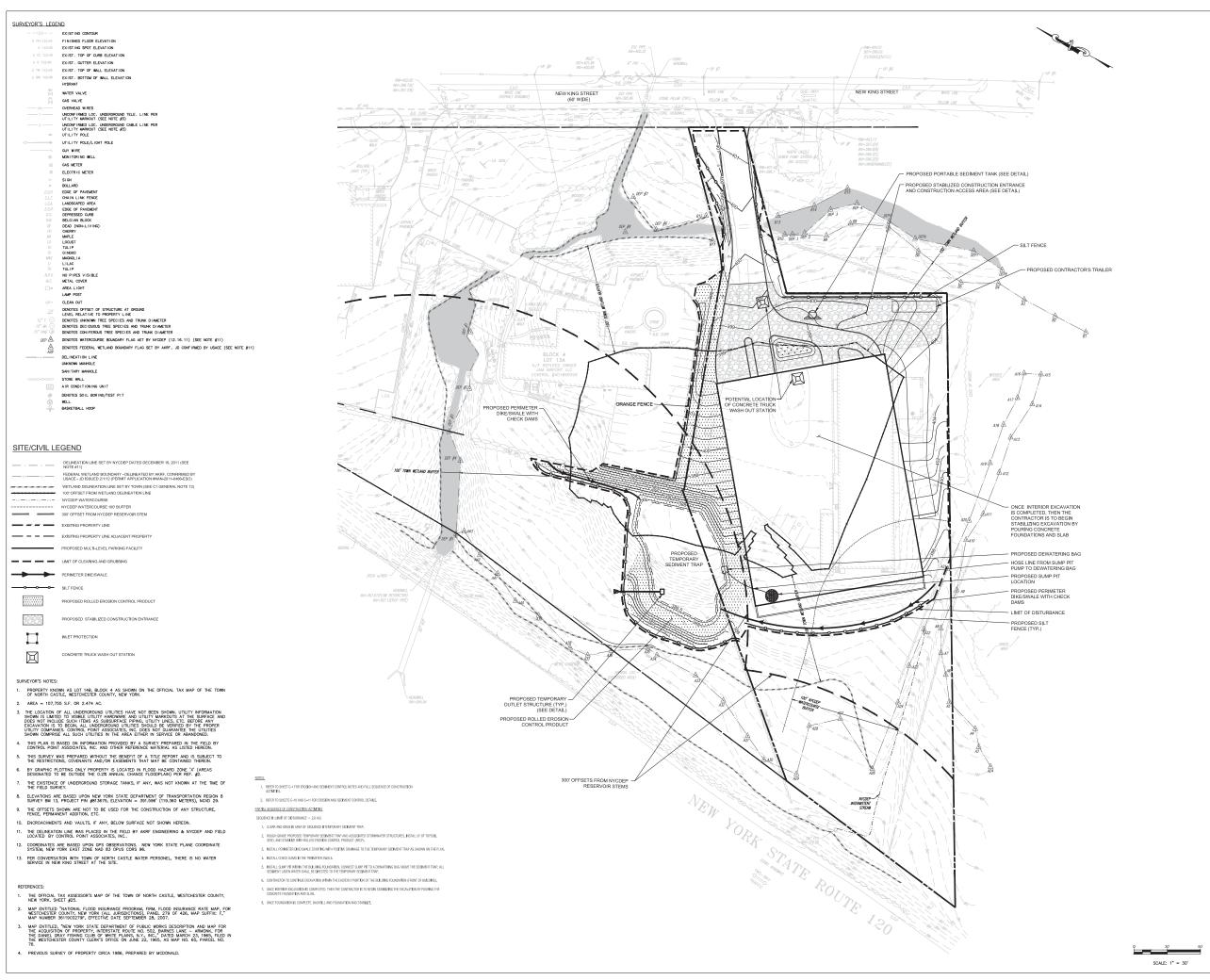












PARK PLACE

11 New King Street
Town of North Castle, New York

11 New King Street LLC 11 New King Street, White Plains, NY 10604



kaeyer, garment & davidson architects, pc 285 main street mount kisco, new york 10549 p: 914.666.5900 f: 914.666.0051 | legiarchitects.com



AKRF ENGINEERING, P.C. 34 SOUTH BROADWAY WHITE PLAINS, NY 10601 Tel:(914) 949-7336 Fax:(914) 949-7559

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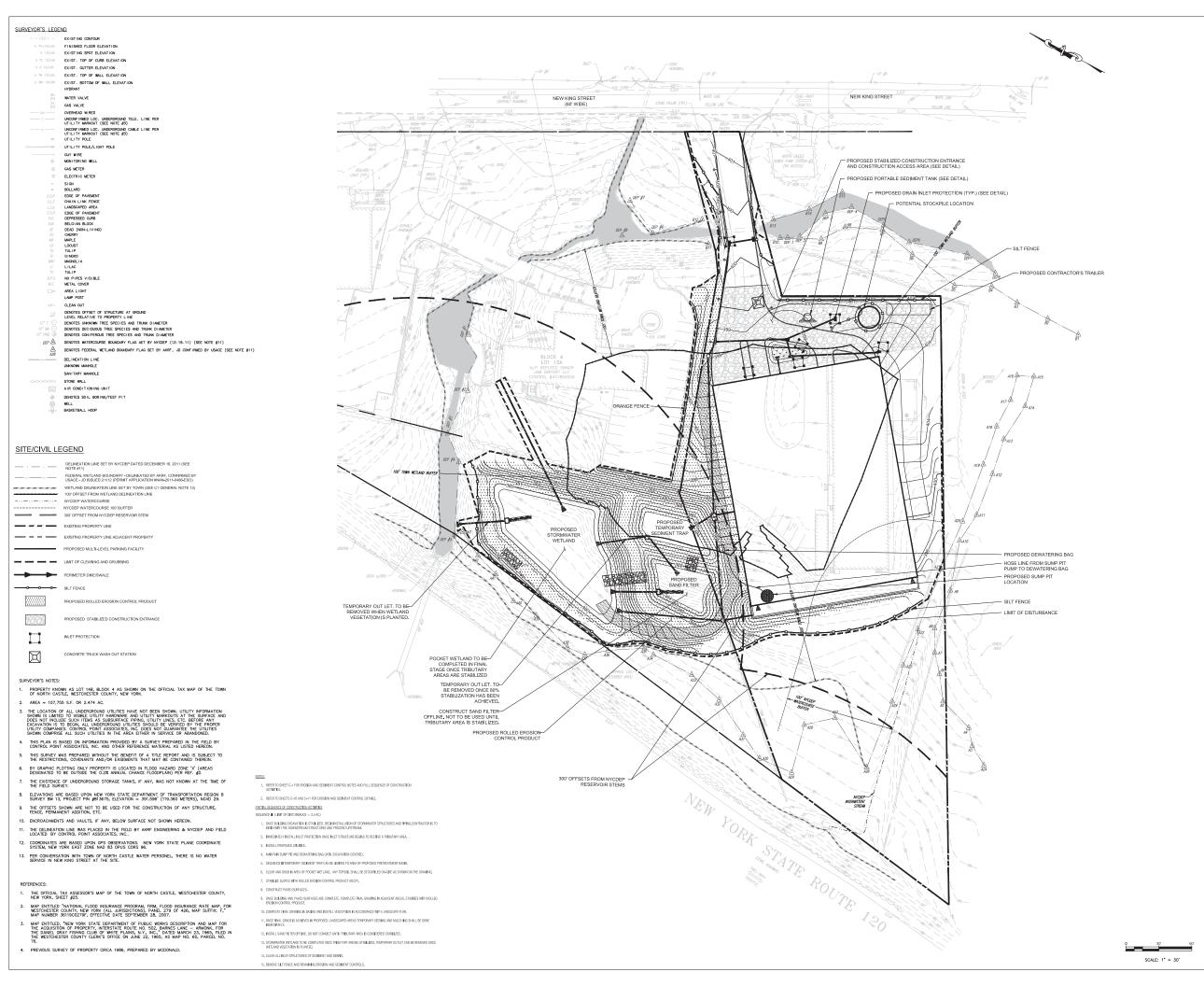
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EROSION AND SEDIMENT CONTROL PLAN -SEQUENCE II

Job No. 2007-0632 Date 08-25-10

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PARK PLACE

11 New King Street
Town of North Castle, New York

11 New King Street LLC 11 New King Street, White Plains, NY 10604



kaeyer, garment & davidson architects, pc 285 main street mount kisco, new york 10549 p: 914,666,5900 f: 914,666,0051 kmdarchitects.com



AKRF ENGINEERING, P.C. 34 SOUTH BROADWAY WHITE PLAINS, NY 10601 Tel:(914) 949-7336 Fax:(914) 949-7559

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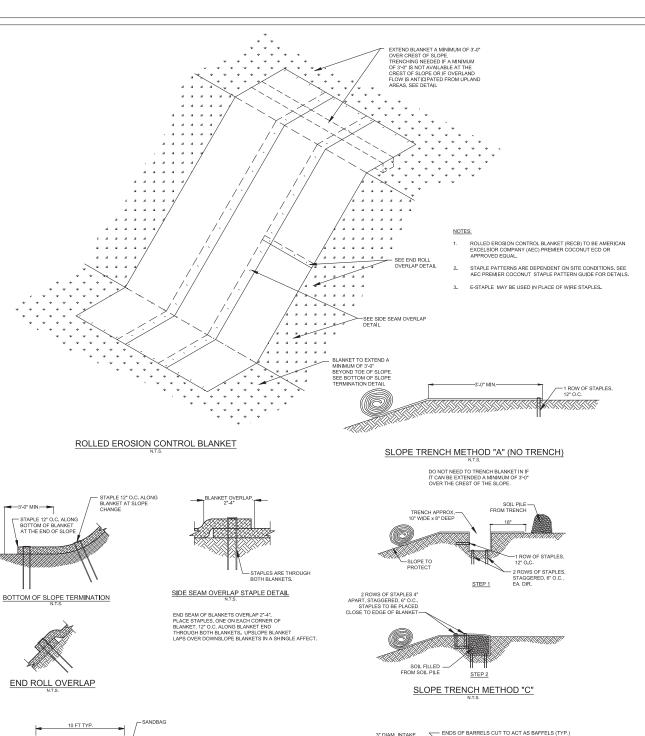
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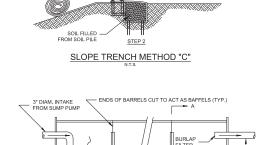
EROSION AND SEDIMENT CONTROL PLAN -SEQUENCE III

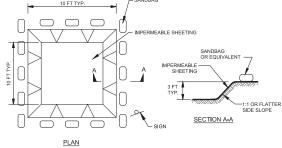
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UPLAND PLANT LIST	OP. BOTANICAL NAVAL	Calsas (ar long)	State (1900) Sevenino (COMMENS	inte	STORMWATER TRANSITION PLUG MI	X COMMON NAME	6° PC -			PARK
LARGE DECIDIOUS THEES	Acer robrons	Red Vaple	[21-21/21 CAL] B&B [ASSHOWN] FULL, DI	CMSC, BALANCED SHAPE	VX IEAS	30.00% Fonsterror digitalis W	Vnite geardiangue ox Sedge	OH OH		OH	PLACE
US OB EVEROBERS TREES	, quidamber syraciflua Quercus picalor	Swamp White Cak	[71 - 2 1/2" CAL B&B AS SHOWN [FULL, DI [2" - 2 1/2" CAL B&B AS SHOWN [FULL, DI		<u></u>		ushy anafail wang milkweya	NEW KING STREET (60' WIDE)	<i>H</i>	ONE-WAY NEW KING STREET	44 Nov. 1/2 v. Obr.
IA -	Juniperus virginiana Prous strobus	Disternired cedar Pastern white pine	7-9" of B&B AS \$40WN (GL., DI 8-40 HC B&B AS \$40WN (HL., DI	ENSE, BALANCED SHAFT ENSE, BALANCED SHAFF	Srid.	15.00% Institution of B FROSION CONTROL SEED MIX 5-9-00X (COMPROL 9-00)	Lee fing ins	(60 WIDE) //		TRAFFIC	11 New King Stre
SMAL DECIDIOUS 1394S AC	Ame another canadensis	Servinose in	8-15/ HT F&R A55H0WN MUTIS	TEM, BALANCED, FULL BRANCHING	IC X 8 138	FRNIVX 127/Retent on Basin Wildlife Mix	ox Sedije		//999		,
0	Carney flat ou Chataegus pheropyrain	Howering copword Washington newthorn	2° 21/2° CA. B&B AS SHOWN FULL, DI 2° - 21/2° CA. B&B AS SHOWN FULL DI			27 00% Familiar clandes Financial (C 20 00% Elymps sing ricus	ernorgue (1 oga) Inginia Wilding				11 New King Street 11 New King Stre
AA AM	Aronia a bandaha "Brillishi isi ma" Aronia ne anekaroa "Morton"	Red Chakecher y Brilliantissima Black Chokeberry	241-301HT CONT AS SHOWN FULL, DI 241-301HT CONT AS SHOWN FULL DI	ENSE, BALANCED SHAFE		4.00% Agrissis perennans A	urid IShallow, Sedge utumn Bentgrass		11+ 20		White Plains, N
CAD -	Circles alorine a Human og Rillo Cornus seneral dere half	Summersweet "Humming Sud" Red Osier Dogwood "Carding	241 301 HT CONT AS SHOWN FULL, DI 241 401 HT CONT AS SHOWN FULL, DI 241 401 HT CONT AS SHOWN FULL, DI	ENSE, BALANICED SHIFE		s.008 Lineus réfusios So	Skie Vervain oft Bash reen Bollosh		1 + 1		10604
FS 102	Fot Yeigilla garder Hydrangea quero lotta Wilyoni	losad Farthe Qula Oak Leal Hydrandea Allisan	241-3011-T CONT AS SHOWN FULL, DI 241-301-E1 CON AS SHOWN ELL, DI	ENSE, BAJANCED SHAFE ENSE, BAJANCED SHAFE		7.00% Lares apulina H	op Sodge Audjorass				
V:	ex verticilista limitandy ex verticilista Rec Sprite	Bin Sandy Winterlandy Rec Spine Winterberry	241 3011 T FONT AS SHOWN MAJERS 241-301H1 CONT AS SHOWN HALL D	ENSE, BALANCEC SHAPE		\$0.00% Asteriambe tatus E 30.00% Minutes ingens 5:	lat Topard White Astor quare Sternined Monkeyflower				KG&D :::::
.e	Lorsingh sa (temy's Game!"	Virgin i Sweetspire Henry e Sur Spice auch Nine bark	et' 24' 30' FT CONT AS SHOWN FULL, DI 30' 36' FT CONT AS SHOWN FULL DI	ENSE, BAJANCED SHAPE		STORMWATER BASIN SEED MIX	warrip Milkweed				kaeyer, garment & davidson ard 285 main street mount kisco, new
90s 90 90	Physotangus apunfaling Showfall* Shore ontaring Gro Low Shore one	Program Suma. Veneralization	30°36°F1 CORT ASSEDWED FULL DI 24°30°F1 CONT ASSEDWED FULL DI 24°40°F1 CONT ASSEDWED FULL DI	ENSE, BALANCED SHAPE	MKEC		ats or Rye	7	Con		p:914.666.5900 f:914.666.0051 kgda
VA .	V suman acerifor and	Vapleteal Viburion	101-361 FT CONT AS SHOWN FULL, DI HOT (61-FT CONT AS SHOWN FULL, DI	ENSE, BALANCED SHAFE		10,00% Elymes with elicus V	diangrass ngin a Wildove	0			PAKRI
EVERGREEN SERJIKN	ex G sora	nkberry	HOSSELL CON [ASSERTMENT, DO	ENSE, BALANCED SHAPE		4,005 Hymus sing Picto D	uturon Bentgrass anada Wildryn igbludsforn	000			AKRF ENGINEERING, P.C 34 SOUTH BROADWAY
IG: JVg	ick Gatau (respects Juniperativing mena 'Grey Owl'	Compact Inkliency Grey Cw. Red Copar	20136114 FORT ASSHOWN FULL DI 2414301FT CONT ASSHOWN FULL DI	ENSE, RALANCED SHAPE		2.00% Charisacri sia fascinista 6, 2,00% Eulyriacea purpurea Fr	arridge Pea imple Conellower		+ }		WHITE PLAINS, NY 1060 Tel:(914) 949-7336 Fax:(914) 949-7559
V NES .	Sharledershar macing in	Ross, bay Bhorlester chor	30136111 CONT AS SHOWN FULL, DI			1.50% Agrostis scabro Ti	eitingrass (Shawner) icklegrass				Fax:(914) 949-7559 FSEIS SUBMISSI
ram par PERENNIALS AND GROUNDS	Compass rapidors Parthenocissos quinquetel a	France: Vice Vigina Cresper	3 GA. CONT 3 O.C. TRAINC			1.00% Tridens flavus Fo	accolical Categoris urpletou	0			7 SEIS SODIVIISSI
354 470	Asarum canadense Asarum canadense	Wildiginger Swomp in Road	21F.US FLATS 1010.0 21F.US FLATS 121D.0	-		J.00% Rudbekia Firta B	keye Surflower lackeyed Sosan				* *
ech .	Echinodea purpurea "Mangue" Pachysand wiprodumbeds	Magnus Purole Conef ewer A legacity Society	1 GAL CONT 121 G.C 2016 G.B.C 201			0.60% Liatris spicata M	rindri Busha lever farsh Bushing Stan Allo Bergamoni	mil thinning			
ph red	PHoxic vericatus Biologika folgida	Creeping affax Rack Eyerl Susan	1 QT	<u> </u>		0.40% Symphotrichon nevaerangliae N	ew England Aster				***
GRASSES AND FERNS (a) A	Carex amphibola	Crook Seege	2"F.US F.ATS 12"OC.	: -	нен/гом	V MARSH PLUG MIXES		· · · · · · · · · · · · · · · · · · ·		Ter	
de .	Chrexitur da Chrysogonom vinginianom Willen Br		2" FLUG FLATS 9" 0 C.		HMX BOYANICAL MAN SHIMARSH PLUS MIX FOR DITUR	RE COMMONINAME SPACE	e ^a	0		L BIORETENTION BASIN	
ano . can	(Choolea sensibilis Pari sum virgation Polystichum acrostiche des	Sensitive Form Switchgrass Constants Form	2" FLUS FLATS 12" D.C. 2" FLUS FLATS 16" O.C. 2" FLUS FLATS 12" D.C.	:	25% Acoras calamos 25% Estruchion perpersum	Sweet Flag 1910. Jee-Pye Wood 1810.		2		VINES TO BE LOCATED AT GREEN SCREENS MOUNTED ON BUILDING (TYP). SEE ARCHITECTURAL PLANS	
j.n	mage in an arrest than are	CP SHACETH	2 F CA 15 M C		25% Scripus cyperinus 25% Symphymrichum navae any	Woolgrass 180 O	c)		FOR LOCATIONS. — EROSION CONTROL BLANKET AND	
STORMWATER MANAG	GEMENT PLANT LIST	CGMANON NAME	577 8007 SPACING	CGMM/OFTS	w MARSH PLUG Mix FOR 61 TO 1 - 75% Portandra virginica	18" WATER DOPTH Accomplished 18" ()	(.().)	100	81.76	EROSION CONTROL SEED MIX FOR SLOPE STABILIZATION.	
BIORETENTION PLANTER IN SMALL DECID JOUR TREES		- Character no en	2000 miles State and	(GASAP SHS	25% Seghornop retus american 25% Seghornop ectus taberraei	mentan Golf Stein Bull Rush 1910.				STORMWATER TRANSITION PLUG MIX	
AC GECIOUOUS SHRUBS	Amelanch er cariaconsis	Servicoberry	8'-10 PT. 686 ASSECTIVE MULT 5	JEM, BALANCOD SHAPR	- 25% Spatgan um ant in same species rilusters of 5					STORMWATER TRANSITION PLUG MIX	
4.9	Arenia melanera pa (Messer) Petenti la Pol Iddesa	Black Thoketonny Bush Cinquefoll	241-301 HT CONT AS SHOWN FULL D CONT AS SHOWN FILL D							S	
VO PERENNIAIS, GROUNDOGVE		American V bornour	SC1-351 HT CONT AS SHOWN FULL D							8	
cors des	Carex stricta Deschamps a cespitosa	Tussock Sedge oft Ham Grass	71P.UG FLATS 1210 C FLAKT (21PLUG FLATS 1210 C.	AT . CIVIFR FI EVATIONS		(i)			STORMWATER	The state of the s	
III IIII STORMWATER PLANTER IS	Justines election Junitaries elections and the definitions	Northern Solt Rush	71PLUG FLATS 121 0 C. PLANT	AT LOWER ELEVATIONS					BASIN SEED A		
DECIDIOUS SHRUBS	Clethrale nife of Humaning Bird.	Summersweet "Normaling dird"	741 BOTHE CONF ASSHOWN FAILED	FNSE HALANCED SHAPE		LOW MARSH P FOR 6"-18" WA	LUG MIX			\	\\ \text{\tin}\text{\tetx{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\ti}\}\tittt{\text{\text{\ti}\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\texi}\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\ti}\tittt{\text{\text{\text{\text{\texi}\ti}\tittt{\text{\texi}\tittt{\text{\text{\text{\texit{\text{\texi}\text{\texit{\tet
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CONSTRUCTION SPECIFICATIONS

- CONSTRUCTION SPECIFICATIONS

 I LOCATE WASHOUT STRUCTURE A MINIMUM OF 50 FEET AWAY FROM OPEN CHANNELS, STORM DRAIN INLETS, SENSITIVE AREAS, WETLANDS, BUFFERS AND WATER COURSES AND AWAY FROM CONSTRUCTION TRAFFIC.

 SENSITIVE AREAS, WETLANDS, BUFFERS AND WATER COURSES AND AWAY FROM CONSTRUCTION TRAFFIC.

 SIZE WASHOUT STRUCTURE FOR VOLUME NECESSARY TO CONTAIN WASH WATER AND SOLIDS AND MAINTAIN AT LEAST 4 INCHES OF FREEBOARD. TYPICAL DIMENSIONS ARE 10 FEET X 10 FEET X 3 FEET DEEP.

 PREPARE SOLI BASE FREE OF FOCKS OR OTHER DEBRIS THAT MAY CAUSE TEARS OR HOLES IN THE LINER, FOR LINER, USE 10 MIL OR THICKER UV RESISTANT, IMPERMEABLE SHEETING, FREE OF HOLES AND TEARS OR OTHER DEFECTS THAT MAY CAUSE THAT ANY CAUS

EXCAVATED CONCRETE WASHOUT STATION N.T.S.

55 GAL. DRUMS, OR SIMILAR, WELDED END TO END CUT OUT (INTERIOR WALLS ONLY) 2" x 4" CRADLE CONSTRUCTION SPECIFICATIONS

1. CLEAN OUT THE SEDIMENT TANK WHEN ONE THIRD (1/3) FILLED WITH SILT.

- STEEL DRUMS ARE USED AS AN EXAMPLE DUE TO THEIR READY AVAILABILITY.
 ANY TANKS MAY BE USED, PROVIDING THAT THE VOLUME REQUIREMENTS ARE MET
- ALL SEDIMENT COLLECTED IN THE TANK SHALL BE DISPOSED OF IN A SEDIMENT TRAPPING DEVICE OR AS APPROVED BY THE INSPECTOR.

PORTABLE SEDIMENT TANK

S. - ADAPTED FROM: NYSDEC STANDARDS & SPECIFICAT
FOR EROSION & SEDIMENT CONTROL.

SEEDING: TYP TIME QUANTITY

RYEGRASS (ANNUAL OR PERENNIAL) 30 LBS, PER ACRE (1 LB./1000 SF)

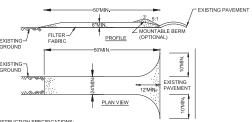
MULCHING:

TIME TYP QUANTITY

ANY SEEDING TIME HAY OR STRAW 2 TONS PER ACRE (90 LBS. PER 1000 S.F.)

100 LBS. PER ACRE (2.5 LBS. /1000 S.F.)

TEMPORARY SEEDING AND MULCHING SCHEDULE



- CONSTRUCTION SPECIFICATIONS:

 1. STONE SIZE USE 1-4 INCHES STONE, OR RECLAIMED OR RECYCLED CONCRETE EQUIVALENT.

 2. LENGTH- NOT LESS THAN SO FEET

 3. THICKNESS NOT LESS THAN SIX (6) INCHES.

 4. AND STANDAM SO FEET

 4. OR EGRESS OCCURS. TWENTY-POUR (24) FOOT IF SINGLE ENTENDE TO STIE.

 5. FILTER FABRIC: WILL BE PLACED OVER THE ENTIFIE AREA PRIOR TO PLACING OF STONE.

 6. SURFACE WATER ALL SURFACE WATER FLOWING OR DIVERTED TOWARD CONSTRUCTION ENTRANCES SHALL BE PIPED ACROSS THE ENTRANCE; IF PIPING IS IMPRACTICAL, AN OUNTABLE BERN WITH 5: 1

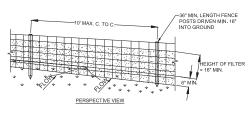
 SLOPES WILL BE PERMITTED.

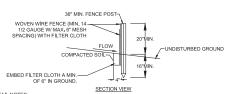
 5. MANITEMANCE: THE EXITE AREA IN SINGLE SHALL BE MAINTAINED IN A CONDITION WHICH WILL PREVENT TRACKING MAINTAINED IN A CONDITION WHICH WILL PREVENT TRACKING THACTED ONTO PUBLIC RICHTSOF-WAY ALL SEDIMENT SPILLED, DROPPED, WASHED OR TRACTED ONTO PUBLIC RICHTSOF-WAY ALL SEDIMENT SPILLED, DROPPED, WASHED OR DRAINS INTO AN APPROVED SEDIMENT TRAPPING DEVICE.

 WHEN WASHING IS REQUIRED, IT SHALL BE DONE ON AN AREA STABILIZED WITH STONE AND WHICH DRAINS INTO AN APPROVED SEDIMENT TRAPPING DEVICE.

 PERIODIC INSPECTION AND NEEDED MAINTENANCE SHALL BE PROVIDED EVERY 7 CALENDAR DAYS AND AFTER EACH RAINFALL EVENT.

STABILIZED CONSTRUCTION ENTRANCE/EXIT



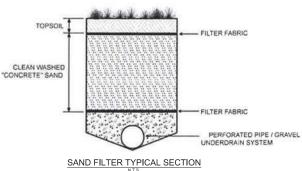


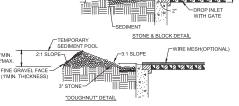
- DETAIL NOTES:

 1. WOVEN WIRE FENCE TO BE FASTENED SECURELY TO FENCE POSTS WITH WIRE TIES OR STAPLES.
 POSTS SHALL BE STEEL EITHER "T' OR "U" TYPE OR HARDWOOD.

 2. FILTER CLOTH TO BE TO BE FASTENDS SECURELY TO WOVEN WIRE FENCE WITH TIES SPACED EVERY 24" AT TOP AND MID SECTION. FENCE SHALL BE WOVEN WIRE, 6" MAXIMUM MESH
- 24 AT 10°F AND MID SECTION. FENCE GRALL BE WOVEN WIRE, D WARRING MEST OPENING, WHEN TWO SECTIONS OF FILTER CLOTH ADJOIN EACH OTHER THEY SHALL BE OVER-LAPPED BY SIX INCHES AND FOLDED. FILTER CLOTH SHALL BE EITHER FILTER X, MIRAFI 100X, STABILINKA T140N, OR APPROVED EQUIVALENT.

SILT FENCE





<u>DETAIL NOTES:</u> 1. THIS INLET PROTECTION STRUCTURE IS ONLY TO BE USED IN AREAS WHERE PAVEMENT HAS

- THIS INLET PROTECTION STRUCTURE IS ONLY TO BE USED IN AREAS WHERE PAVEMENT HAS VET TO BE STABILIZED.

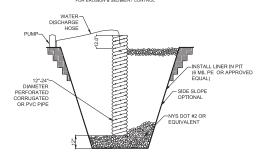
 LAY ONE BLOCK ON EACH SIDE OF THE STRUCTURE ON ITS SIDE FOR DEWATERING. FOUNDATION SHALL BE PLACED AGAINST INLET FOR SUPPORT.

 HARDWARE CLOTH OR 12" WIRE MESH SHALL BE PLACED OVER BLOCK OPENINGS TO SUPPORT STONE.

 USE CLEAN STONE.

 USE CLEAN STONE OF RAYEL 12"-34" MICH IN DIAMETER PLACED 2 INCHES BELOW TOP OF THE BLOCK OF STONE OF THE PLACED AGAINST THE STONE WILL BE PLACED AGAINST THE STONE WILL BE PLACED AGAINST THE 3 INCH STONE AS SHOWN ON THE DRAWINGS. 6 MAXIMUM DRAINAGE AREA 1 ACRE

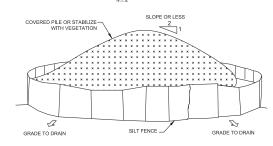
STONE AND BLOCK DROP INLET PROTECTION N.T.S. ADAPTED FROM: NYSDEC STANDAPTS & SDECIEICATIONS



- CONSTRUCTION SPECIFICATIONS

 1. SUMP PIT TO BE USED IN COORDINATION WITH ANTI-TRACKING/DECONTAMINATION PAGE
- PIT DIMENSIONS ARE OPTIONAL.
 THE STANDPIPE SHOULD BE CONSTRUCTED BY PERFORATING A 12-24" DIAMETER CORRUGATED
- OR PVC PIPE.
 A BASE OF 2' AGGREGATE SHOULD BE PLACED IN THE PIT TO A DEPTH OF 12'. AFTER INSTALLING THE STANDPIPE, THE PIT SURROUNDING THE STANDPIPE SHOULD BE BACKFILLED WITH 2' AGGREGATE.
 THE STANDPIPE SHOULD EXTEND 12-18' ABOVE THE LIP OF THE PIT.
 WATERT TO BE PLACED IN DOT APPROVED CONATINER FOR OFF SITE DISPOSAL.

SUMP PIT



- CONSTRUCTION SPECIFICATIONS

 1. THIS DETAIL IS TO BE USED ONLY FOR CLEAN, TESTED MATERIAL STOCKPILING.

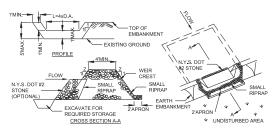
 2. AREA CHOSEN FOR SOIL STOCKPILE SHALL BE DRY AND STABLE

 3. MAXIMUM SLOPE OF SOIL STOCKPILE SHALL BE 2:1

 4. PRIOR TO DISTURBING FILL MATERIAL, EACH PILE SHALL BE SURROUNDED BY SILT FENCING.

 5. UPON COMPLETION OF FILL MATERIAL GRADING, EACH PILE SHALL BE COVERED OR STABILIZED WITH
- VEGETATION,
 6. SEGREGATE CERTIFIED CLEAN MATERIALS FROM OTHER MATERIALS WHEN STOCKPILING.

SOIL STOCKPILE DETAIL



- OPTION: A ONE FOOT LAYER OF N,Y.S., DOT #2 STONE MAY BE PLACED ON THE UPSTREAM SIDE OF THE RIPRAP INPLACE OF THE EMBEDDED FILTER CLOTH.

 THE FILL MATERIAL FOR THE EMBANAMENT SHALB BE FREE OF ROOTS AND OTHER WOODV VEGETATION AS WELL AS OVER-SECD STONES, MOOKS, MOOKEN, MATERIAL OF DIREF OSSECTIONALE MATERIAL, THE MEMBANAMENT SHALB BE THE STONE USED IN THE OUTLET SHALB BE SMALL RIPRAP -4.1% ALONG WITH A 1.*THOKNESS OF 2" AGGREGATE PLACED ON THE UPGRADE SIDE OF THE SMALL RIPRAP OF REMEDIATE HER CLOTH IN THE BEPPAR.

 SEDIMENT SHALL BE REMOVED AND TRAP RESTORED TO ITS ORIGINAL DIMENSIONS WHEN THE SEDIMENT HAS ACCUMULATED TO 10 THE PLESTED DEPTH.
 - STONE OUTLET SEDIMENT TRAP (ST-IV)

PARK **PLACE**

11 New King Street Town of North Castle, New York

11 New King Street LLC 11 New King Street, White Plains, NY 10604



kaeyer, garment & davidson architects, pc 285 main street mount kisco, new york 10549 p: 914,666,5900 f: 914,666,0051 | mailarchitects.com



Tel:(914) 949-7336 Fax:(914) 949-7559

FSEIS SUBMISSION

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7 12-18-15 REVISED PER DEP COMMENTS

6 10-15-14 FEIS SUBMISSION 5 05-30-14 FEIS SUBMISSION 3 01-24-11 REVISION PER DEIS COMMENTS

2 10-26-10 DEIS SUBMISSION
1 06-15-09 SITE PLAN SUBMISSION
No. Date Issue
Sheet Title

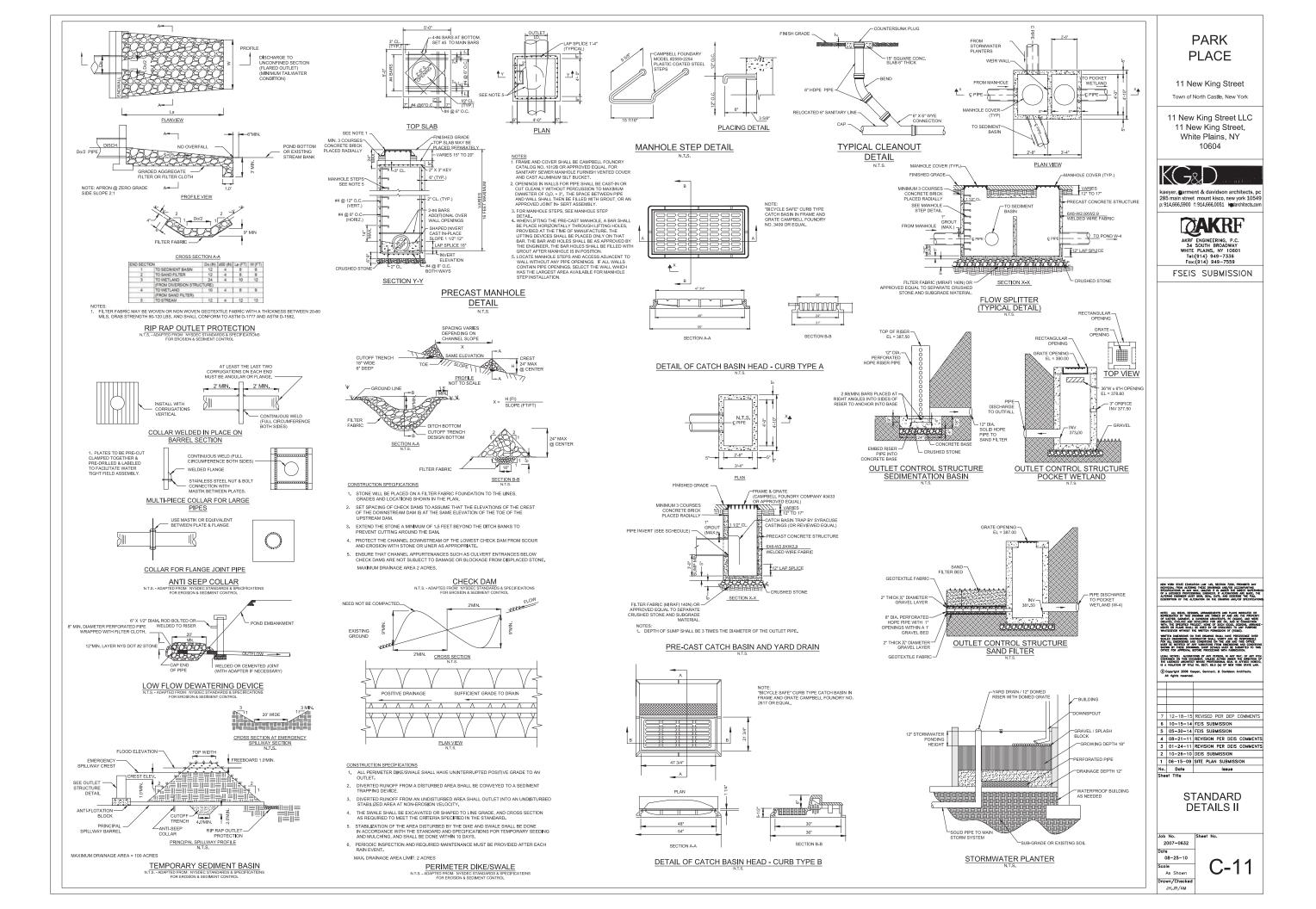
STANDARD

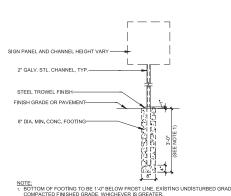
DETAILS I

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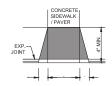
SIGNPOST DETAIL

INSTALL 6" WIDE, BLUE MAGNETIC UNDERGROUND MARKING —LABELED "CAUTION, BURIED PIPELINE BELOW" @ 18" DEPTH SHAPED GRANULAR SUBGRADE INSTALL FILTER FABRIC ION-MIRAFI) OR APPROVED TO SEPARATE SUBGRADE AND BACKFILL MATERIAL 0.6 O.D. CRUSHED STONE

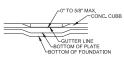
NOTE: GAS, WATER, AND SANITARY SEWER PIPE REQUIRE THE COLORED TAPE AND TRACER WIRE, REFER TO THE TABLE FOR COLOR DESIGNATION.

TAPE COLOR DESIGNATION					
COLOR	UTILITY				
RED	ELECTRIC				
	GAS, OIL, DANGEROUS MATERIALS				
ORANGE	TELEPHONE, TELEGRAPH, TELEVISION, POLICE AND FIRE COMMUNICATIONS				
BLUE	WATER LINES				
GREEN	SANITARY SEWER LINES				

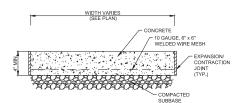
TYPICAL TRENCH DETAIL



SIDEWALK/ PEDESTRIAN RAMPS



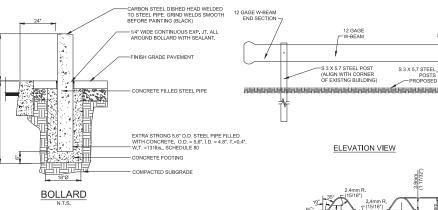
SIDEWALK/ PEDESTRIAN RAMP ELEVATION

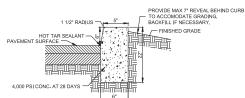


CONCRETE RAMP / PAD FOR EMERGENCY EXIT & REFUSE AREA

EXPANSION/CONTRACTION JOINT NOTES:

- EXPANSION JOINTS SHALL BE PROVIDED AT EQUAL DISTANCES OF NO MORE THAN 20 FEET. ALL EXISTING AND PROPOSED BUILDINGS, CURBING AND EXISTING PAZEMENT JOINTS SHALL BE FILLED WITH PREFORMED EXPANSION JOINT FILLER, 1/2" THICK. THE JOINT SHALL BE RECESSED 1/4" FROM THE TOP OF THE SLAB.
- TOOLED CONTRACTION JOINTS SHALL BE PROVIDED AT EQUAL DISTANCES OF NO MORE THAN 5 FEET. JOINTS SHALL BE SPACED TO RESULT IN A NEAT AND ORDERLY ARRAY OF CONCRETE PAVERS.





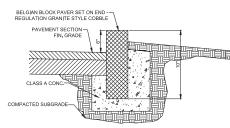
DETAIL NOTES:

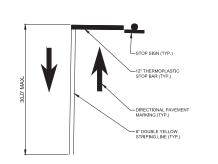
- 1. ANY EXCAVATION BELOW DESIRED GRADE DUE TO OVER EXCAVATION OR WE SOIL CONDITIONS SHALL BE BACKFILLED WITH 3_4 CLEAN CRUSHED STONE. ALL SUBGRADES SHALL BE APPROVED BY THE ENGINEER PRIOR TO POURING.



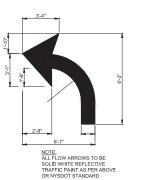


CONCRETE CURB TRANSITION DETAIL





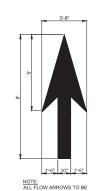
TYPICAL STOP BAR DETAIL



PAINTED TRAFFIC LEFT TURN ARROW (MIRROR IMAGE FOR RIGHT

TURN)

N.T.S.

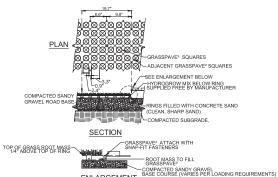


PAINTED TRAFFIC ARROW N.T.S.



CROSSWALK DETAIL





ENLARGEMENT NOTE: GRASS/PLANT TYPES SHALL BE SPECIFIED BY A LANDSCAPE ARCHITECT OR LANDSCAPE DESIGNER

NUSCAPE ARCHITECT OR CANDSCAPE DESIGNER
SPECIFICATIONS
UNIT SIZE-20" X 20" X 1"
UNIT WEIGHT - 18 CZ, OR 4.5 FOUNDS
STRENGTH- 5720 PSI
95% MODIFIED PROCTOR DENSITY-6 INCHES TO 12 INCHES
(DEPTH OF BASE COURSE TO BE DETERMINED BY ON-SITE ENGINEER) GRASSPAVE DETAIL

SECTION EXPANSION JOINT SECTION CONTROL JOINT

12 GAGE-W-BEAM END SECTION

STANDARD W-BEAM RAIL MATERIAL

BACK-UP PLATE

✓ TACK COAT

STONE BASE COURSE NYSDOT ITEM NO. 302

COMPACTED SUBGRADE

31.1mm ± .5mm (12 1/4"± 3/16")

S 3 X 5.7 STEEL

SIDE VIEW

SOIL PLATE TYPICAL

SECTION THRU 12" GAGE W-BEAM

W-BEAM GUIDE RAIL

TYPICAL ASPHALT PAVEMENT

SECTION

CONCRETE PAVEMENT DETAIL

LEGAL NOTICE: ALTERATIONS BY ANY PERSON, IN ANY WAY, OF ANY ITEM CONTINUED ON THIS DOCUMENT, UNLESS ACTING UNDER THE DIRECTION OF THE LICENCED ARCHITECT WHOSE PROFESSIONAL SEAL IS AFFIXED HERETO, IS A VIOLATION OF TITLE WI, SECT. 68.5 (b) OF NEW YORK STATE LAW. 1-21-16 FSEIS SUBMISSION 3 01-24-11 REVISION PER DEIS COMMENT | 2 | 10-26-10 | DEIS SUBMISSION | 1 | 06-15-09 | SITE PLAN SUBMISSION | No. | Date | Issue | Sheet Title | STANDARD **DETAILS III** Job No. 2007-0632

08-25-10 Drawn/Checked

PARK

PLACE

11 New King Street

Town of North Castle, New York

11 New King Street LLC 11 New King Street,

White Plains, NY

10604

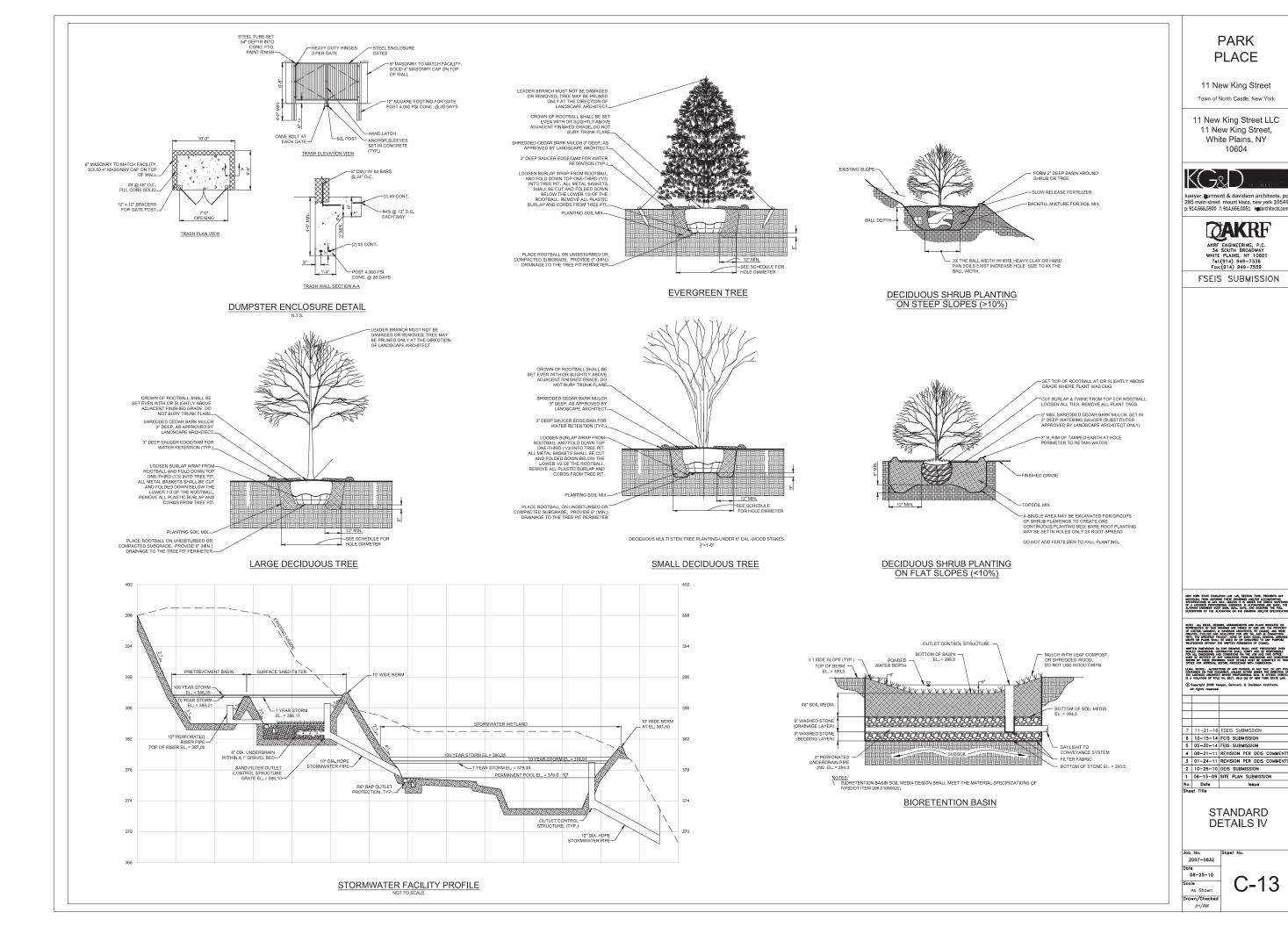
kaeyer, garment & davidson architects, pc 285 main street mount kisco, new york 10549 p: 914.666.5900 f: 914.666.0051 | legiarchitects.com

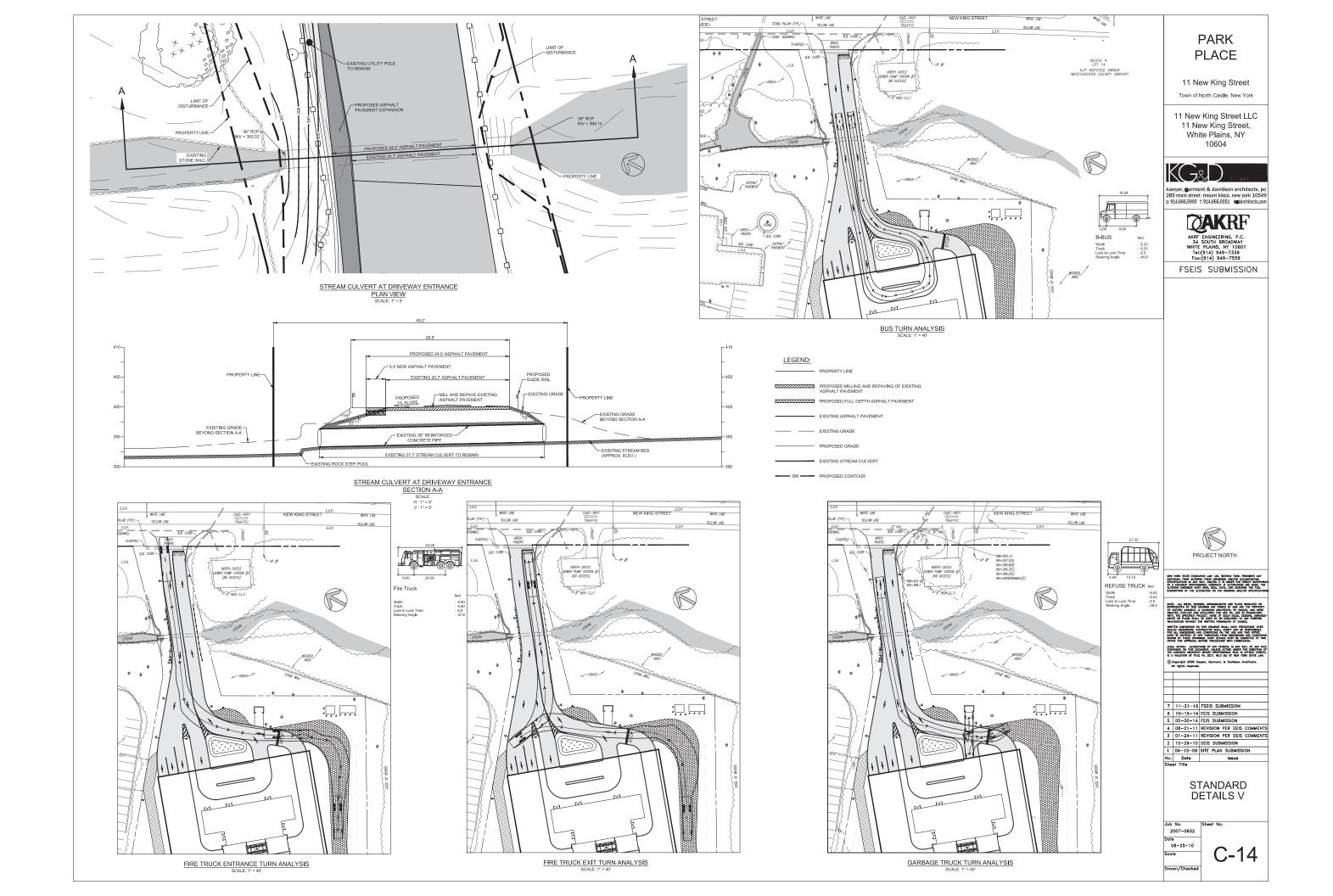
PAKRF

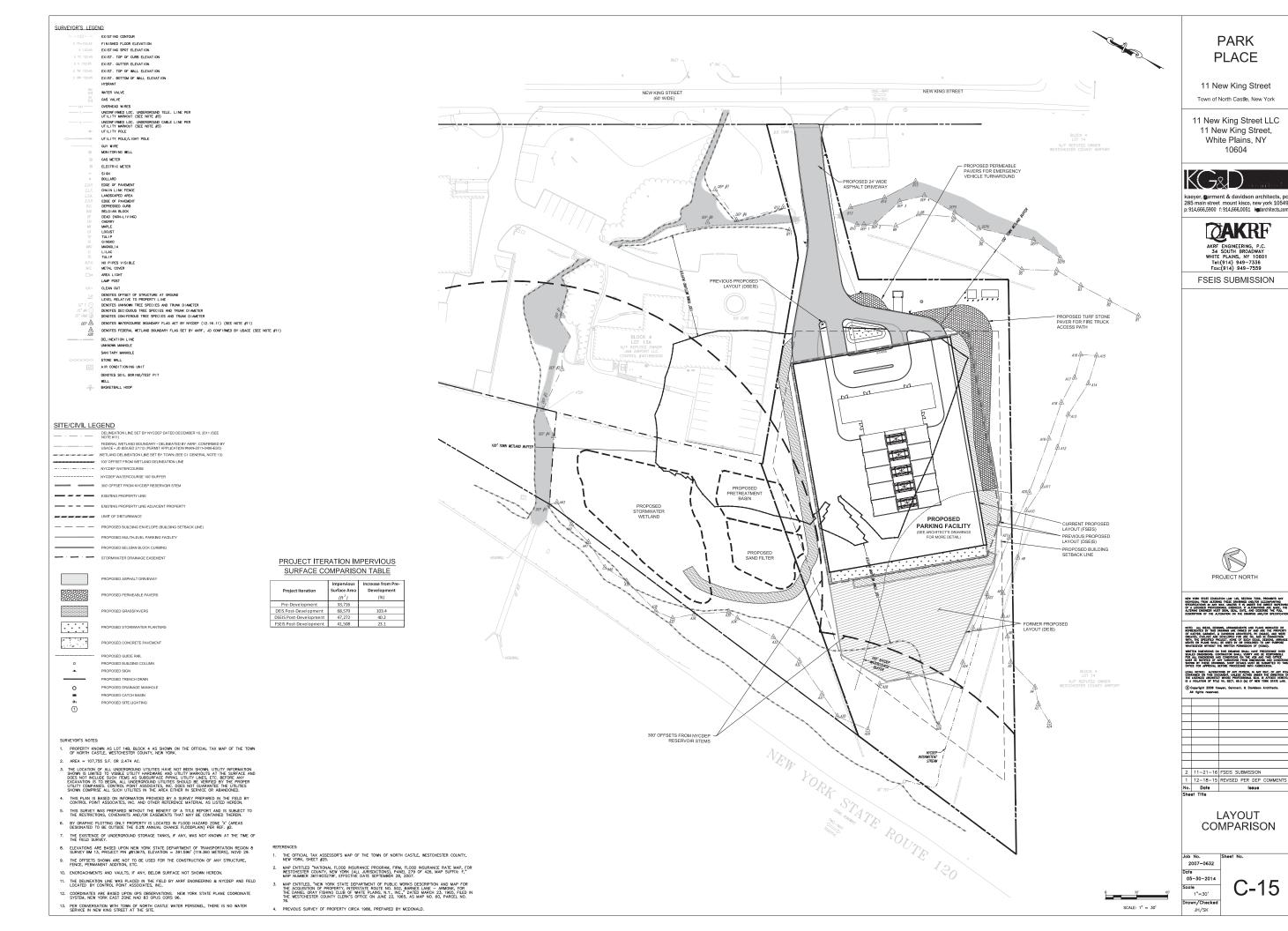
Tel:(914) 949-7336 Fax:(914) 949-7559

FSEIS SUBMISSION

KG&D







SWPPP APPENDIX D

PRE-EXISTING AND PRE-DEVELOPMENT HYDROLOGIC ROUTING CALCULATIONS

Extreme Precipitation Tables

Northeast Regional Climate Center

Data represents point estimates calculated from partial duration series. All precipitation amounts are displayed in inches.

Smoothing No

State New York

Location 11 New King Street, North Castle, NY

Longitude73.715 degrees WestLatitude41.082 degrees NorthElevationUnknown/Unavailable

Date/Time Thu, 20 Oct 2016 09:03:21 -0400

Extreme Precipitation Estimates

	5min	10min	15min	30min	60min	120min		1hr	2hr	3hr	6hr	12hr	24hr	48hr		1day	2day	4day	7day	10day	
1yr	0.33	0.52	0.63	0.85	1.04	1.26	1yr	0.90	1.23	1.47	1.91	2.37	2.82	3.19	1yr	2.50	3.07	3.56	4.28	4.93	1yr
2yr	0.40	0.62	0.77	1.04	1.28	1.53	2yr	1.10	1.49	1.74	2.25	2.80	3.44	3.87	2yr	3.04	3.72	4.27	5.07	5.75	2yr
5yr	0.47	0.73	0.91	1.25	1.58	1.88	5yr	1.37	1.84	2.15	2.78	3.47	4.31	4.89	5yr	3.82	4.70	5.46	6.37	7.13	5yr
10yr	0.54	0.83	1.03	1.44	1.86	2.21	10yr	1.61	2.16	2.51	3.26	4.08	5.12	5.84	10yr	4.53	5.62	6.58	7.58	8.39	10yr
25yr	0.65	0.99	1.23	1.76	2.31	2.73	25yr	2.00	2.67	3.10	4.03	5.06	6.43	7.40	25yr	5.69	7.12	8.41	9.52	10.42	25yr
50yr	0.75	1.13	1.41	2.03	2.73	3.21	50yr	2.36	3.13	3.63	4.74	5.96	7.64	8.86	50yr	6.76	8.52	10.14	11.33	12.27	50yr
100yr	0.86	1.30	1.63	2.35	3.23	3.77	100yr	2.79	3.69	4.26	5.58	7.02	9.08	10.60	100yr	8.04	10.19	12.23	13.47	14.46	100yr
200yr	0.99	1.49	1.89	2.74	3.82	4.44	200yr	3.30	4.34	4.99	6.58	8.27	10.80	12.69	200yr	9.56	12.20	14.76	16.04	17.05	200yr
500yr	1.21	1.80	2.31	3.36	4.78	5.51	500yr	4.12	5.38	6.17	8.18	10.28	13.61	16.11	500yr	12.04	15.49	18.93	20.19	21.20	500yr

Lower Confidence Limits

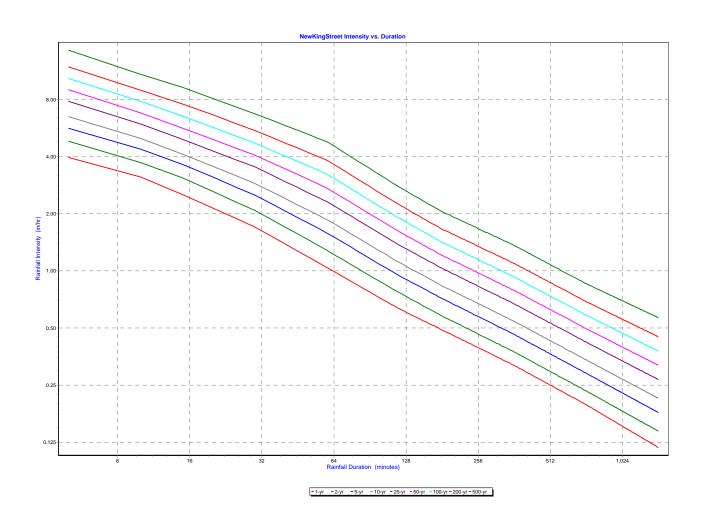
	5min	10min	15min	30min	60min	120min		1hr	2hr	3hr	6hr	12hr	24hr	48hr		1day	2day	4day	7day	10day	
1yr	0.26	0.40	0.49	0.66	0.81	0.95	1yr	0.70	0.93	1.32	1.61	1.98	2.56	2.57	1yr	2.27	2.47	3.12	3.65	4.34	1yr
2yr	0.39	0.61	0.75	1.01	1.24	1.49	2yr	1.07	1.46	1.70	2.19	2.76	3.34	3.74	2yr	2.95	3.60	4.12	4.91	5.58	2yr
5yr	0.43	0.67	0.83	1.14	1.45	1.75	5yr	1.25	1.71	1.98	2.59	3.25	4.00	4.53	5yr	3.54	4.36	5.02	5.86	6.62	5yr
10yr	0.47	0.72	0.90	1.25	1.62	1.97	10yr	1.40	1.93	2.23	2.96	3.70	4.59	5.24	10yr	4.06	5.04	5.83	6.51	7.50	10yr
25yr	0.51	0.78	0.97	1.38	1.82	2.29	25yr	1.57	2.24	2.59	3.49	4.39	5.51	6.37	25yr	4.87	6.12	7.13	7.41	8.87	25yr
50yr	0.54	0.82	1.02	1.46	1.97	2.57	50yr	1.70	2.51	2.92	3.98	5.00	6.34	7.39	50yr	5.62	7.10	8.30	8.01	10.07	50yr
100yr	0.57	0.86	1.08	1.56	2.14	2.87	100yr	1.85	2.80	3.28	4.55	5.70	7.32	8.58	100yr	6.48	8.25	9.67	8.70	11.42	100yr
200yr	0.61	0.91	1.16	1.68	2.34	3.22	200yr	2.02	3.15	3.70	5.21	6.52	8.46	9.97	200yr	7.48	9.59	11.29	9.30	12.99	200yr
500yr	0.65	0.97	1.25	1.82	2.58	3.74	500yr	2.23	3.66	4.34	6.28	7.82	10.26	12.18	500yr	9.08	11.71	13.89	10.02	15.40	500yr

Upper Confidence Limits

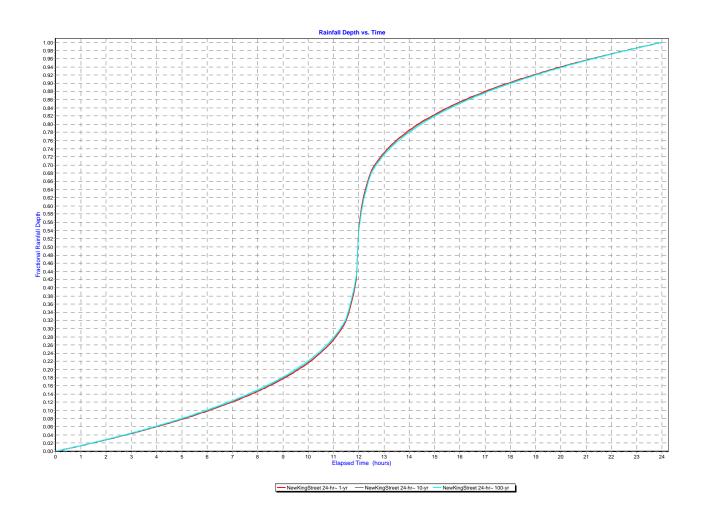
	5min	10min	15min	30min	60min	120min		1hr	2hr	3hr	6hr	12hr	24hr	48hr		1day	2day	4day	7day	10day	
1yr	0.37	0.57	0.70	0.94	1.15	1.40	1yr	0.99	1.37	1.59	2.09	2.64	3.11	3.55	1yr	2.75	3.41	3.84	4.67	5.30	1yr
2yr	0.43	0.66	0.81	1.10	1.36	1.59	2yr	1.17	1.55	1.81	2.32	2.90	3.56	4.01	2yr	3.15	3.86	4.41	5.44	5.98	2yr
5yr	0.52	0.80	0.99	1.36	1.73	2.02	5yr	1.49	1.98	2.33	2.97	3.72	4.65	5.32	5yr	4.11	5.11	5.88	6.85	7.70	5yr
10yr	0.62	0.95	1.17	1.64	2.12	2.43	10yr	1.83	2.38	2.84	3.60	4.52	5.68	6.56	10yr	5.02	6.30	7.29	8.47	9.40	10yr
25yr	0.79	1.20	1.49	2.13	2.80	3.14	25yr	2.42	3.07	3.70	4.63	5.82	7.41	8.66	25yr	6.56	8.33	9.73	11.19	12.18	25yr
50yr	0.94	1.43	1.78	2.56	3.45	3.81	50yr	2.98	3.73	4.53	5.60	7.04	9.06	10.71	50yr	8.02	10.29	12.08	13.82	14.80	50yr
100yr	1.14	1.72	2.16	3.12	4.28	4.64	100yr	3.69	4.54	5.52	6.80	8.59	11.07	13.22	100yr	9.80	12.71	15.01	17.06	17.98	100yr
200yr	1.38	2.07	2.62	3.80	5.30	5.64	200yr	4.57	5.52	6.75	8.23	10.41	13.52	16.30	200yr	11.97	15.67	18.64	21.08	21.86	200yr
500yr	1.79	2.66	3.42	4.97	7.07	7.31	500yr	6.10	7.14	8.81	10.60	13.44	17.63	21.53	500yr	15.60	20.70	24.82	28.02	28.29	500yr



IDF Curve Report



Storm Distribution Report



Pre-Existing Hydrologic Analysis



DP1



DP2



DP3









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Area Listing (selected nodes)

Area	CN	Description
(sq-ft)		(subcatchment-numbers)
51,151	61	>75% Grass cover, Good, HSG B (EX 1, EX 2, EX 3)
30,047	80	>75% Grass cover, Good, HSG D (EX 1, EX 2, EX 3)
13,874	55	Woods, Good, HSG B (EX 1, EX 2, EX 3)
109,508	77	Woods, Good, HSG D (EX 1, EX 2, EX 3)
204,580	72	TOTAL AREA

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Page 3

Soil Listing (selected nodes)

Area	Soil	Subcatchment
(sq-ft)	Group	Numbers
0	HSG A	
65,025	HSG B	EX 1, EX 2, EX 3
0	HSG C	
139,555	HSG D	EX 1, EX 2, EX 3
0	Other	
204,580		TOTAL AREA

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Sub Nun

Ground Covers (selected nodes)

HSG-A (sq-ft)	HSG-B (sq-ft)	HSG-C (sq-ft)	HSG-D (sq-ft)	Other (sq-ft)	Total (sq-ft)	Ground Cover
0	51,151	0	30,047	0	81,198	>75% Grass
						cover, Good
0	13,874	0	109,508	0	123,382	Woods, Good
0	65,025	0	139,555	0	204,580	TOTAL AREA

NewKingStreet 24-hr 1-yr Rainfall=2.82" Printed 11/17/2016

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Page 6 NewKingStreet 24-hr 1-yr Rainfall=2.82" Printed 11/17/2016

Page 5 NewKing
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Summary for Subcatchment EX 1: DP1

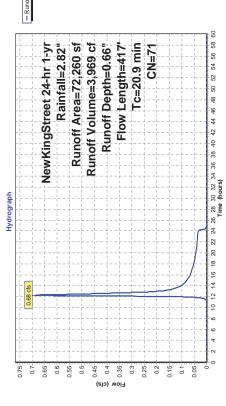
3,969 cf, Depth= 0.66" 0.68 cfs @ 12.28 hrs, Volume=

Runoff

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs NewKingStreet 24-hr 1-yr Rainfall=2.82"

	od, HSG B	od, HSG D	od, HSG B	od, HSG D					Velocity Capacity Description		Sheet Flow,	Woods: Light underbrush n= 0.400 P2= 3.44"	Shallow Concentrated Flow,	Woodland Kv= 5.0 fps	
	cover, Go	cover, Go	cover, Go	cover, Go	d, HSG B	d, HSG D	verage	rvious Area	Capacity	(cfs)					
CN Description	>75% Grass cover, Good, HSG B	>75% Grass cover, Good, HSG I	>75% Grass cover, Good, HSG B	>75% Grass cover, Good, HSG D	Woods, Good, HSG B	Woods, Good, HSG D	Weighted Average	100.00% Pervious Area	Velocity	(ft/sec)	0.14		1.28		
CN	61	80	61	^	25	/ //	71 \	_	Slope	(ft/ft)	150 0.0700		267 0.0660		417 Total
Area (sf)	14,299	381	5,242	2,341	6,481	43,516	72,260	72,260	Tc Length	(feet)	150		267		417
A									Tc	(min)	17.4		3.5		20.9

Subcatchment EX 1: DP1



Summary for Subcatchment EX 2: DP2

3,151 cf, Depth= 0.62" 0.54 dfs @ 12.27 hrs, Volume=

Runoff

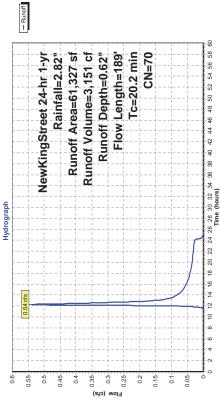
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs NewKingStreet 24-hr 1-yr Rainfall=2.82"

Area (sf) CN Description 12,522 61 >75% Grass cover, Goo 6,817 61 >75% Grass cover, Goo 6,817 61 >75% Grass cover, Goo 5,320 55 Woods, Good, HSG B 35,651 77 Woods, Good, HSG B 61,327 70 Weighted Average 61,327 70 Weighted Average 61,327 70 Weighted Average 61,327 70 Weighted Average 70,00% Pervious Area 70 Child (fuff) (fu/sec) (ds) 14,6 90 0.0330 0.10		>75% Grass cover, Good, HSG B	>75% Grass cover, Good, HSG B	>75% Grass cover, Good, HSG D	I, HSG B	I, HSG D	arage	vious Area	Slope Velocity Capacity Description	(cfs)	Sheet Flow,	Woods: Light underbrush $n = 0.400 P2 = 3.44$ "	Sheet Flow,	Woods: Light underbrush $n = 0.400 P2 = 3.44$ "	Shallow Concentrated Flow,	Woodland Kv= 5.0 fps
Area (sf) (12,522 6,817 1,017 5,320 35,651 61,327 61,327 (feet) 60 (6) 6	escription	75% Grass	75% Grass	75% Grass	loods, Goo	/oods, Goo	/eighted Av	00.00% Per	Velocity	(tt/sec)	0.10		0.20		1.34	
Area (s 12,52 6,81 1,01 5,32 35,65 61,32 (fe (fe	CN	< 19	61	80	22 N	77 V		_	Slope	(#/#)			0.2370		0.0720	
Tc (min) 14.6 5.1 0.5	rea (sf)	12,522	6,817	1,017	5,320	35,651	61,327	61,327	Length	(teet)	06		09		33	
	Ā								С	(min)	14.6		5.1		0.5	

Subcatchment EX 2: DP2

189 Total

20.2



NewKingStreet 24-hr 1-yr Rainfall=2.82" Printed 11/17/2016 Page 7

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Summary for Subcatchment EX 3: DP3

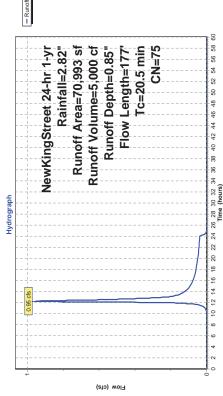
5,000 cf, Depth= 0.85" 0.95 cfs @ 12.25 hrs, Volume=

Runoff

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs NewKingStreet 24-hr 1-yr Rainfall=2.82"

	d, HSG B	d, HSG D	d, HSG B	d, HSG D					Description		Sheet Flow,	Grass: Dense n= 0.240 P2= 3.44"	Shallow Concentrated Flow,	Woodland Kv= 5.0 fps	
	>75% Grass cover, Good, HSG B	>75% Grass cover, Good, HSG I	>75% Grass cover, Good, HSG B	>75% Grass cover, Good, HSG D	Woods, Good, HSG B	Woods, Good, HSG D	verage	100.00% Pervious Area	Velocity Capacity Description	(cts)					
CN Description	75% Gras	75% Grass	75% Gras	75% Gras:	loods, Go	loods, Go	Weighted Average	00.00% Pe	Velocity	(ft/sec)	0.12		2.04		
CN	61 >	80	61	80	25 W	V //	75 W	7	Slope	(ft/ft)	150 0.0170		27 0.1670		177 Total
Area (sf)	9,811	7,862	2,460	18,446	2,073	30,341	70,993	70,993	Tc Length	(feet)	150		27		177
⋖									Tc	(min)	20.3		0.2		20.5

Subcatchment EX 3: DP3



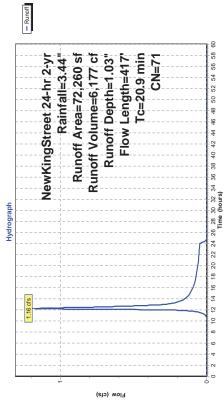
NewKingStreet 24-hr 2-yr Rainfall=3.44" Printed 11/17/2016

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Summary for Subcatchment EX 1: DP1

6,177 cf, Depth= 1.03" 1.16 dfs @ 12.26 hrs, Volume= Runoff Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs NewKingStreet 24-hr 2-yr Rainfall=3.44"

Area (sf) CN Description 14,299 61 >75% Grass cover, Good, HSG B 381 80 >75% Grass cover, Good, HSG B 2,341 80 >75% Grass cover, Good, HSG B 6,481 55 Woods, Good, HSG D 6,481 55 Woods, Good, HSG D 72,260 77 Weighted Average 72,260 100.00% Pervious Area TC Length Slope Velocity Capacity Descriptio (min) (feet) (ft/ft) (ft/sec) (cfs) 17,4 150 0.0700 0.14 Woods: Li 35 267 0.0660 1.28 Shallow C		od, HSG B	od, HSG D	od, HSG B	od, HSG D				· ·	Description		Sheet Flow,	Woods: Light underbrush $n=0.400 P2=3.44$ "	Shallow Concentrated Flow,	Woodland Kv= 5.0 fps	
Area (sf) CN 14,299 61 381 80 5,242 61 2,341 85 6,481 55 77,260 71 72,260 71		s cover, Go	s cover, Gc	s cover, Gc	s cover, Gc	od, HSG B	od, HSG D	verage	rvious Are	Capacity	(CTS)					
Area (sf) CN 14,299 61 381 80 5,242 61 2,341 85 6,481 55 77,260 71 72,260 71	escription	75% Grass	75% Grass	75% Grass	75% Grass	/oods, God	/oods, God	/eighted A	00.00% Pe	Velocity	(tr/sec)	0.14		1.28		
72,2 72,3 6,4 43,5 72,2 72,2 72,2 72,2 (f	CN	.< 19	80	61	.^	25 V	77 W		-	Slope	(11/11)	0.0700		0.0660		Total
Tc (min) 17.4	ea (sf)	14,299	381	5,242	2,341	6,481	43,516	72,260	72,260	Length	(teet)	150		267		417
	Ā									Ĵ.	(min)	17.4		3.5		20.9



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NewKingStreet 24-hr 2-yr Rainfall=3.44"

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Summary for Subcatchment EX 2: DP2

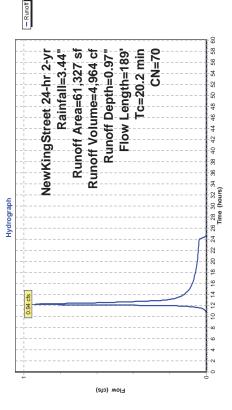
4,964 cf, Depth= 0.97" 0.94 cfs @ 12.25 hrs, Volume=

Runoff

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs NewKingStreet 24-hr 2-yr Rainfall=3.44"

											n= 0.400 P2= 3.44"		n= 0.400 P2= 3.44"	ow,		
	od, HSG B	od, HSG B	od, HSG D				es.	Slope Velocity Capacity Description		Sheet Flow,	Woods: Light underbrush n= 0.400 P2= 3.44"	Sheet Flow,	Woods: Light underbrush n= 0.400 P2= 3.44"	Shallow Concentrated Flow,	Woodland Kv= 5.0 fps	
	>75% Grass cover, Good, HSG B	>75% Grass cover, Good, HSG B	>75% Grass cover, Good, HSG D	Woods, Good, HSG B	Woods, Good, HSG D	verage	100.00% Pervious Area	Capacity	(cts)							
CN Description	75% Grass	75% Gras	75% Gras	loods, Goo	loods, Goo	Weighted Average	00.00% Pe	Velocity	(tt/sec)	0.10		0.20		1.34		
S	61 >	61	80	25 V	77 V	70 V	<u></u>		(ft/ft)	0.0390		60 0.2370		39 0.0720		189 Total
Area (sf)	12,522	6,817	1,017	5,320	35,651	61,327	61,327	Tc Length	(feet)	06		9		38		189
Ā					. •			Tc	(min)	14.6		5.1		0.5		20.2

Subcatchment EX 2: DP2



NewKingStreet 24-hr 2-yr Rainfall=3.44"

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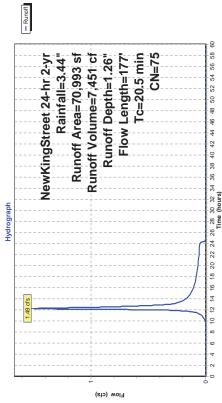
Summary for Subcatchment EX 3: DP3

7,451 cf, Depth= 1.26" 1.49 dfs @ 12.25 hrs, Volume= II

Runoff

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs NewKingStreet 24-hr 2-yr Rainfall=3.44"

Sheet Flow,
Grass: Dense n= 0.240 P2= 3.44"
Shallow Concentrated Flow,
Woodland Kv= 5.0 fps >75% Grass cover, Good, HSG B >75% Grass cover, Good, HSG D >75% Grass cover, Good, HSG B >75% Grass cover, Good, HSG D Woods, Good, HSG B Woods, Good, HSG B Capacity Description (cfs) Weighted Average 100.00% Pervious Area Velocity (ft/sec) 0.12 Slope (ft/ft) 0.0170 CN 61 80 80 80 77 75 (feet) 150 Length 177 9,811 7,862 2,460 18,446 2,073 30,341 70,993 70,993 Area (sf) 20.3 0.2 (min) 20.5



NewKingStreet 24-hr 5-yr Rainfall=4.31" Printed 11/17/2016 NewKing
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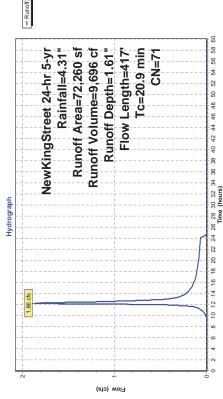
Summary for Subcatchment EX 1: DP1

9,696 cf, Depth= 1.61"
Volume=
12.25 hrs,
1.86 cfs @
II
Runoff

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs NewKingStreet 24-hr 5-yr Rainfall=4.31"

CN Description	>75% Grass cover, Good, HSG B) >75% Grass cover, Good, HSG D	>75% Grass cover, Good, HSG B) >75% Grass cover, Good, HSG D	Woods, Good, HSG B	' Woods, Good, HSG D	Weighted Average	100.00% Pervious Area	Slope Velocity Capacity Description	(ft/ft) (ft/sec) (cfs)	700 0.14 Sheet Flow,	Woods: Light underbrush n= 0.400 P2= 3.44"	1.28	Woodland Kv= 5.0 fps	-
S	61	80	61	80	22	77	71		S	€	150 0.0700		267 0.0660		417 Total
Area (sf)	14,299	381	5,242	2,341	6,481	43,516	72,260	72,260	Tc Length	(feet)					
									ř	(min)	17.4		3.5		20.9

Subcatchment EX 1: DP1



NewKingStreet 24-hr 5-yr Rainfall=4.31" Printed 11/17/2016

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Summary for Subcatchment EX 2: DP2

1.52 dfs @ 12.24 hrs, Volume= Runoff

7,873 cf, Depth= 1.54"

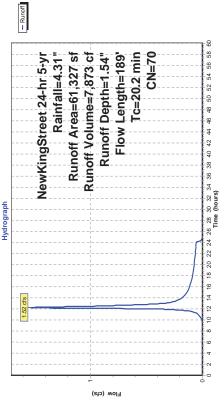
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs NewKingStreet 24-hr 5-yr Rainfall=4.31"

Class
8 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5
Area (sf) 12,522 6,817 1,017 5,320 35,651 61,327 61,327 TC Length iii) (feet) 14,6 90 5,1 60
TC (min) 14.6 5.1 5.1 0.5

Subcatchment EX 2: DP2

189 Total

20.2



NewKingStreet 24-hr 5-yr Rainfall=4.31" Printed 11/17/2016

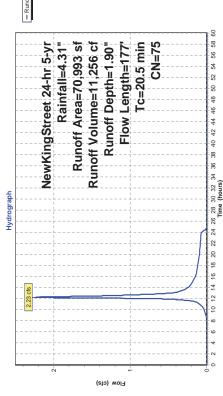
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Summary for Subcatchment EX 3: DP3

11,256 cf, Depth= 1.90" 2.23 cfs @ 12.24 hrs, Volume= Runoff Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs NewKingStreet 24-hr 5-yr Rainfall=4.31"

	>75% Grass cover, Good, HSG B	•75% Grass cover, Good, HSG D	>75% Grass cover, Good, HSG B	▶75% Grass cover, Good, HSG D				в	Description		Sheet Flow,	Grass: Dense n= 0.240 P2= 3.44"	Shallow Concentrated Flow,	Woodland Kv= 5.0 fps	
	s cover, Gc	s cover, Gc	s cover, Gc	s cover, Gc	Noods, Good, HSG B	Woods, Good, HSG D	verage	100.00% Pervious Area	Velocity Capacity	(cts)					
CN Description	75% Gras	75% Gras	75% Gras	75% Gras	Voods, Go	Voods, Go	Weighted Average	00.00% Pe	Velocity	(t/sec)	0.12		2.04		
S	61 >	80	61	80	22 N	77 V	75 V	_	Slope	(#/#)	150 0.0170		27 0.1670		177 Total
Area (sf)	9,811	7,862	2,460	18,446	2,073	30,341	70,993	70,993	Tc Length	(feet)	150		27		177
Ā									Tc	(min)	20.3		0.2		20.5

Subcatchment EX 3: DP3



NewKingStreet 24-hr 10-yr Rainfall=5.12" Printed 11/17/2016

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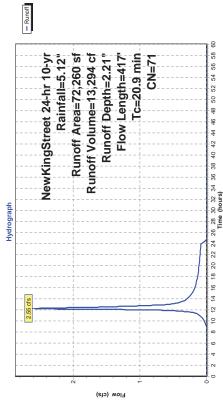
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Summary for Subcatchment EX 1: DP1

13,294 cf, Depth= 2.21" 2.55 dfs @ 12.24 hrs, Volume= Runoff

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs NewKingStreet 24-hr 10-yr Rainfall=5.12"

Area (sf) CN Description 14,299 61 >75% Grass cover, Good, HSG B 381 80 >75% Grass cover, Good, HSG B 2,341 80 >75% Grass cover, Good, HSG B 6,481 55 Woods, Good, HSG D 6,481 55 Woods, Good, HSG D 72,260 77 Weighted Average 72,260 100.00% Pervious Area TC Length Slope Velocity Capacity Descriptio (min) (feet) (ft/ft) (ft/sec) (cfs) 17,4 150 0.0700 0.14 Woods: Li 35 267 0.0660 1.28 Shallow C		od, HSG B	od, HSG D	od, HSG B	od, HSG D				· ·	Description		Sheet Flow,	Woods: Light underbrush $n=0.400 P2=3.44$ "	Shallow Concentrated Flow,	Woodland Kv= 5.0 fps	
Area (sf) CN 14,299 61 381 80 5,242 61 2,341 85 6,481 55 77,260 71 72,260 71		s cover, Go	s cover, Gc	s cover, Gc	s cover, Gc	od, HSG B	od, HSG D	verage	rvious Are	Capacity	(CTS)					
Area (sf) CN 14,299 61 381 80 5,242 61 2,341 85 6,481 55 77,260 71 72,260 71	escription	75% Grass	75% Grass	75% Grass	75% Grass	/oods, God	/oods, God	/eighted A	00.00% Pe	Velocity	(tr/sec)	0.14		1.28		
72,2 72,3 6,4 43,5 72,2 72,2 72,2 72,2 (f	CN	.< 19	80	61	.^	25 V	77 W		-	Slope	(11/11)	0.0700		0.0660		Total
Tc (min) 17.4	ea (sf)	14,299	381	5,242	2,341	6,481	43,516	72,260	72,260	Length	(teet)	150		267		417
	Ā									Ĵ.	(min)	17.4		3.5		20.9



NewKingStreet 24-hr 10-yr Rainfall=5.12" Printed 11/17/2016

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Summary for Subcatchment EX 2: DP2

10,864 cf, Depth= 2.13" 2.11 cfs @ 12.24 hrs, Volume= Runoff

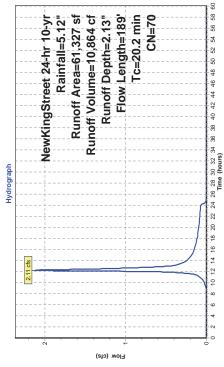
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs NewKingStreet 24-hr 10-yr Rainfall=5.12"

Description 75% Grass cover, Good, HSG B	./5% Grass cover, Good, HSG B .75% Grass cover, Good, HSG D			m.	Slope Velocity Capacity Description		Sheet Flow,	Woods: Light underbrush n= 0.400 P2= 3.44"	Sheet Flow, Woods: Light underbrush n= 0.400 P2= 3.44"	Shallow Concentrated Flow,	Woodland Kv= 5.0 fps
s cover, Go	75% Grass cover, Good, HSG B75% Grass cover, Good, HSG D	od, HSG B	verage	100.00% Pervious Area	Capacity	(cts)					
Description >75% Grass	75% Grass 75% Grass	Woods, Good, HSG B Woods, Good, HSG D	Weighted Average	00.00% Pe	Velocity	(ft/sec)	0.10		0.20	1.34	
N 19	80 ^	55 V 77 V	70 V	_	Slope	(ft/ft)	0.0390		0.2370	0.0720	
Area (sf) 12,522	1,017	5,320 35,651	61,327	61,327	Tc Length	(feet)	90		09	36	
Ā		.,		-	C	(min)	14.6		2.1	0.5	

Subcatchment EX 2: DP2

189 Total

20.2



NewKingStreet 24-hr 10-yr Rainfall=5.12" Printed 11/17/2016

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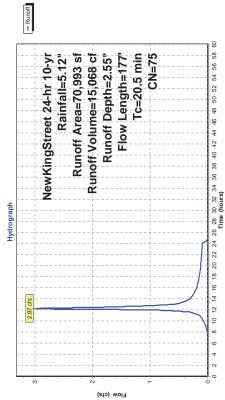
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Summary for Subcatchment EX 3: DP3

15,068 cf, Depth= 2.55" 2.97 cfs @ 12.24 hrs, Volume= Runoff

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs NewKingStreet 24-hr 10-yr Rainfall=5.12"

	Good, HSG B	Good, HSG D	Good, HSG B	Good, HSG D	8.9	Q 9		Area	ity Description	(\$)	Sheet Flow,	Grass: Dense n= 0.240 P2= 3.44"	Shallow Concentrated Flow,	Woodland Kv= 5.0 fps	
CN Description	>75% Grass cover, Good, HSG B	>75% Grass cover, Good, HSG	>75% Grass cover, Good, HSG B	>75% Grass cover, Good, HSG D	Woods, Good, HSG B	Woods, Good, HSG D	Weighted Average	100.00% Pervious Area	Slope Velocity Capacity Description	(ft/sec) (cfs)	0.12		2.04		
	61 >	80	61	80	25 V	77 V	75 V	_	Slope	(ft/ft)	150 0.0170		27 0.1670		177 Total
Area (sf)	9,811	7,862	2,460	18,446	2,073	30,341	70,993	70,993	Tc Length	(feet)	150		27		177
Ā						•			٦ ۲	(min)	20.3		0.2		20.5



NewKingStreet 24-hr 25-yr Rainfall=6.43" Printed 11/17/2016

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NewKingStreet 24-hr 25-yr Rainfall=6.43"
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Summary for Subcatchment EX 1: DP1

19,564 cf, Depth= 3.25" 3.73 cfs @ 12.24 hrs, Volume= Runoff

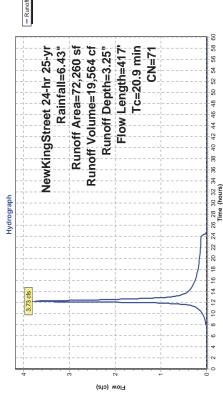
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs NewKingStreet 24-hr 25-yr Rainfall=6.43"

	>75% Grass cover, Good, HSG B >75% Grass cover Good HSG D	>75% Grass cover, Good, HSG B	>75% Grass cover, Good, HSG D				a	Slope Velocity Capacity Description		Sheet Flow,	Woods: Light underbrush $n = 0.400 P2 = 3.44$ "	Shallow Concentrated Flow,	Woodland Kv= 5.0 fps
	s cover, Go	s cover, Go	s cover, Gc	Woods, Good, HSG B	Woods, Good, HSG D	verage	100.00% Pervious Area	Capacity	(cts)				
CN Description	75% Grass 75% Grass	75% Grass	75% Gras	Voods, Goo	Voods, Goo	Weighted Average	00.00% Pe	Velocity	(t/sec)	0.14		1.28	
CN	61 >	61 ×	80	22 N	77 V	71 V	Ť		(ft/ft)	150 0.0700		0.0660	
Area (sf)	14,299	5,242	2,341	6,481	43,516	72,260	72,260	Tc Length	(feet)	150		267	
Ā					,			Tc	(min)	17.4		3.5	
	ı												

Subcatchment EX 1: DP1

417

20.9



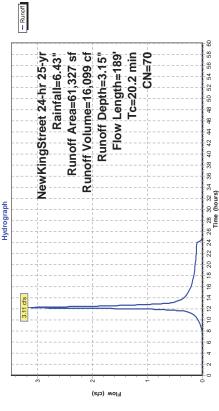
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Summary for Subcatchment EX 2: DP2

16,099 cf, Depth= 3.15" 3.11 cfs @ 12.23 hrs, Volume= Runoff

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs NewKingStreet 24-hr 25-yr Rainfall=6.43"

	od, HSG B	od, HSG B	od, HSG D					Slope Velocity Capacity Description		Sheet Flow,	Woods: Light underbrush n= 0.400 P2= 3.44"	Sheet Flow,	Woods: Light underbrush n= 0.400 P2= 3.44"	Shallow Concentrated Flow,	Woodland Kv= 5.0 fps	
	>75% Grass cover, Good, HSG B	>75% Grass cover, Good, HSG B	>75% Grass cover, Good, HSG D	Woods, Good, HSG B	d, HSG D	/erage	100.00% Pervious Area	Capacity (cfc)	(CIS)							
Area (sf) CN Description	75% Grass	75% Grass	75% Grass	loods, God	Woods, Good, HSG D	Weighted Average	00.00% Pe	Velocity	(INSEC)	0.10		0.20		1.34		
CN	61 >	61	80	25 V	77 W	70 W	_	Slope	(IIVIL)	90 0.0390		60 0.2370		39 0.0720		189 Total
rea (sf)	12,522	6,817	1,017	5,320	35,651	61,327	61,327	Tc Length	(leer)	6		09		33		189
Ā								Tc (wip)		14.6		5.1		0.5		20.2
									•							



NewKingStreet 24-hr 25-yr Rainfall=6.43" Printed 11/17/2016 Iutions LLC Page 19

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Summary for Subcatchment EX 3: DP3

21,602 cf, Depth= 3.65" 4.18 cfs @ 12.23 hrs, Volume= Runoff

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs

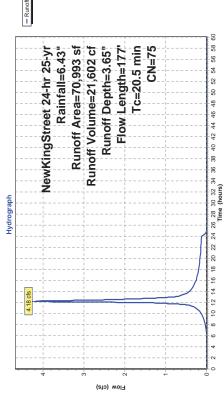
3.43"		>75% Grass cover. Good, HSG B
-yr Rainfall	CN Description	>75% Gra
4-hr 25	S	61
NewKingStreet 24-hr 25-yr Rainfall=6.43"	Area (sf)	9,811

>75% Grass cover, Good, HSG B	>75% Grass cover, Good, HSG D	>75% Grass cover, Good, HSG B	>75% Grass cover, Good, HSG D				ğ	Slope Velocity Capacity Description		Sheet Flow,	Grass: Dense n= 0.240 P2= 3.44"	Shallow Concentrated Flow,	Woodland Kv= 5.0 fps
s cover, G	s cover, G	s cover, G	s cover, G	od, HSG B	Dd, HSG D	verage	ervious Are	Capacity	(cts)				
75% Grass	75% Grass	75% Grass	75% Grass	Woods, Good, HSG B	Woods, Good, HSG D	Weighted Average	100.00% Pervious Area	Velocity	(ft/sec)	0.12		2.04	
.< 19	80	.<	80	25 W	77 W	75 W	~		(ft/ft)	150 0.0170		27 0.1670	
9,811	7,862	2,460	18,446	2,073	30,341	70,993	70,993	Tc Length	(feet)	150		27	
								2 L	(min)	20.3		0.2	

Subcatchment EX 3: DP3

177

20.5



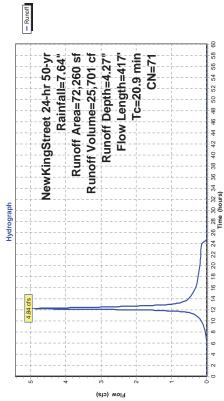
NewKingStreet 24-hr 50-yr Rainfall=7.64" Printed 11/17/2016

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Summary for Subcatchment EX 1: DP1

25,701 cf, Depth= 4.27" 4.84 cfs @ 12.24 hrs, Volume= Runoff Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs NewKingStreet 24-hr 50-yr Rainfall=7.64"

Area (sf) (14,299 381 381 5,242 2,341 6,481 6,481 6,481 6,481 6,481 6,481 (feet) 72,260 72,26		>75% Grass cover, Good, HSG B	•75% Grass cover, Good, HSG D	>75% Grass cover, Good, HSG B	>75% Grass cover, Good, HSG D	Woods, Good, HSG B	Woods, Good, HSG D	Average	100.00% Pervious Area	Slope Velocity Capacity Description (fl/fl) (fl/sec) (cfs)	Sheet Flow,		Woodland Kv= 5.0 tps	
Area (sf) (14,299)escriptior	•75% Gras	.75% Gras	.75% Gras	.75% Gras	Voods, Gc	Voods, Gc	Veighted A	00.00% P	Velocity (ft/sec)		1.28		
Nrea (14,2 2,3 2,3 2,3 2,4 43,5 4 43,5 7 72,2 7 7 7 7	CN	61 >	80	61	^		/ //		_	Slope (ff/ft)	0.0700	0.0660		Total
Tc Tc T7.4 3.5 3.5 20.9	ea (sf)	14,299	381	5,242	2,341	6,481	43,516	72,260	72,260	Length (feet)	150	267		417
	Ā									Tc (min)	17.4	3.5		20.9



NewKingStreet 24-hr 50-yr Rainfall=7.64" Printed 11/17/2016

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Summary for Subcatchment EX 2: DP2

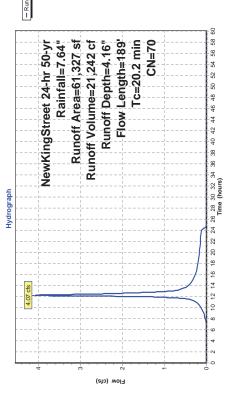
21,242 cf, Depth= 4.16" 4.07 cfs @ 12.23 hrs, Volume= Runoff Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs NewKingStreet 24-hr 50-yr Rainfall=7.64"

											n= 0.400 P2= 3.44"		n= 0.400 P2= 3.44"	ow,	
	od, HSG B	od, HSG B	od, HSG D				er.	Velocity Capacity Description		Sheet Flow,	Woods: Light underbrush n= 0.400 P2= 3.44"	Sheet Flow,	Woods: Light underbrush n= 0.400 P2= 3.44"	Shallow Concentrated Flow,	Woodland Kv= 5.0 fps
	>75% Grass cover, Good, HSG B	>75% Grass cover, Good, HSG B	>75% Grass cover, Good, HSG D	Woods, Good, HSG B	od, HSG D	verage	100.00% Pervious Area	Capacity	(cts)						
Area (sf) CN Description	75% Grass	75% Gras	75% Gras	Voods, Goo	Woods, Good, HSG [Weighted Average	00.00% Pe	Velocity	(t/sec)	0.10		0.20		1.34	
CN	61 >	61	80	22 N	77 V	70 V	_	Slope	(ft/ft)	0.0390		60 0.2370		39 0.0720	
rea (sf)	12,522	6,817	1,017	5,320	35,651	61,327	61,327	Tc Length	(feet)	90		9		33	
Ā								Tc	(min)	14.6		5.1		0.5	

Subcatchment EX 2: DP2

189 Total

20.2



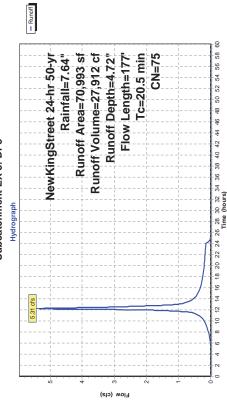
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Summary for Subcatchment EX 3: DP3

27,912 cf, Depth= 4.72" 5.31 cfs @ 12.23 hrs, Volume= Runoff Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs NewKingStreet 24-hr 50-yr Rainfall=7.64"

	>75% Grass cover, Good, HSG B	od, HSG D	>75% Grass cover, Good, HSG B	>75% Grass cover, Good, HSG D				в	Olono Volcoity, Connective Documenton		Sheet Flow,	Grass: Dense n= 0.240 P2= 3.44"	Shallow Concentrated Flow,	Woodland Kv= 5.0 fps	
	s cover, Go	>75% Grass cover, Good, HSG	s cover, Go	s cover, Go	Woods, Good, HSG B	Woods, Good, HSG D	verage	100.00% Pervious Area	, dio coco	(cfs)					
Area (sf) CN Description	75% Grass	75% Grass	75% Grass	75% Grass	/oods, God	/oods, God	Weighted Average	00.00% Pe	VisoloV	(ff/sec)	0.12		2.04		
CN	61	80	61	80	25 V	77 W	75 W	_			150 0.0170		27 0.1670		177 Total
rea (sf)	9,811	7,862	2,460	18,446	2,073	30,341	70,993	70,993	To Longth	(feet)	150		27		177
A									F	(min)	20.3		0.2		20.5



NewKingStreet 24-hr 100-yr Rainfall=9.08" Printed 11/17/2016

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Summary for Subcatchment EX 1: DP1

33,298 cf, Depth= 5.53" 6.16 cfs @ 12.24 hrs, Volume= Runoff

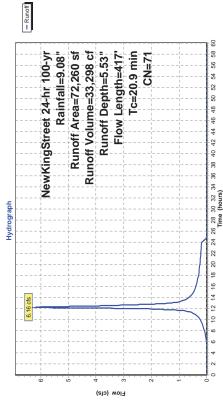
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs NewKingStreet 24-hr 100-yr Rainfall=9.08"

	>75% Grass cover, Good, HSG B	>75% Grass cover, Good, HSG D	>75% Grass cover, Good, HSG B	od, HSG D					Velocity Capacity Description		Sheet Flow,	Woods: Light underbrush n= 0.400 P2= 3.44"	Shallow Concentrated Flow,	Woodland Kv= 5.0 fps
	s cover, Gc	s cover, Gc	s cover, Go	>75% Grass cover, Good, HSG D	Woods, Good, HSG B	Woods, Good, HSG D	verage	100.00% Pervious Area	Capacity	(cts)				
Area (sf) CN Description	75% Gras	75% Gras	75% Grass	75% Grass	Voods, Goo	Voods, Goo	Weighted Average	00.00% Pe	Velocity	(t/sec)	0.14		1.28	
CN	61 >	80 ^	61	80	25 V	77 V	71 V	<u></u>	Slope	(ft/ft)	150 0.0700		0.0660	
rea (sf)	14,299	381	5,242	2,341	6,481	43,516	72,260	72,260	Tc Length	(feet)	150		267	
V									Tc	(min)	17.4		3.5	

Subcatchment EX 1: DP1

Total 417

20.9



NewKingStreet 24-hr 100-yr Rainfall=9.08" Printed 11/17/2016

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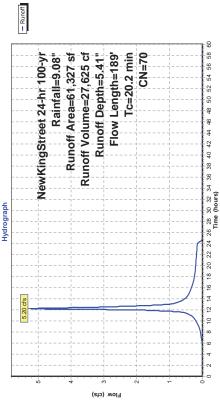
Summary for Subcatchment EX 2: DP2

27,625 cf, Depth= 5.41" 5.20 dfs @ 12.23 hrs, Volume= Runoff Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs NawKinnStreet 24-hr 100-vr. Rainfall=9 n8"

Subcatchment EX 2: DP2

189

20.2



NewKingStreet 24-hr 100-yr Rainfall=9.08"
Printed 11/17/2016
Solutions LLC Page 25

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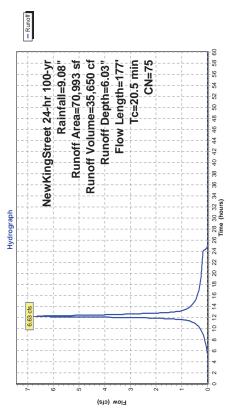
Summary for Subcatchment EX 3: DP3

35,650 cf, Depth= 6.03" 6.63 cfs @ 12.23 hrs, Volume=

Runoff

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs NewKingStreet 24-hr 100-yr Rainfall=9.08"

												Grass: Dense n= 0.240 P2= 3.44"	Shallow Concentrated Flow,	Woodland Kv= 5.0 fps	
	>75% Grass cover, Good, HSG B	>75% Grass cover, Good, HSG D	>75% Grass cover, Good, HSG B	>75% Grass cover, Good, HSG D				a	14.0	(ft/ft) (ft/sec) (ds)	Sheet Flow,	Grass: Dens	Shallow Co	Woodland	
	s cover, Go	s cover, Go	s cover, Go	s cover, Go	Noods, Good, HSG B	Woods, Good, HSG D	verage	100.00% Pervious Area		Capacity (cfs)					
Description	75% Grass	75% Grass	75% Grass	75% Grass	loods, God	loods, God	Weighted Average	00.00% Pe	, 4;00 o o o o	(ft/sec)	0.12		2.04		
CN	61 >	80	61	80 ^	25 V	77 V	75 V	_	C	(ft/ft)	150 0.0170		27 0.1670		177 Total
Area (sf)	9,811	7,862	2,460	18,446	2,073	30,341	70,993	70,993	4	ic Length	150		27		177
Ā									F	min)	20.3		0.2		20.5



Pre-Development Hydrologic Analysis



DP1



DP2



DP3









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Area Listing (selected nodes)

Area	CN	Description
(sq-ft)		(subcatchment-numbers)
14,519	61	>75% Grass cover, Good, HSG B (PRE 1, PRE 2, PRE 3)
21,804	80	>75% Grass cover, Good, HSG D (PRE 1, PRE 2, PRE 3)
44,884	98	Paved parking, HSG D (PRE 1, PRE 2, PRE 3)
13,874	55	Woods, Good, HSG B (PRE 1, PRE 2, PRE 3)
109,508	77	Woods, Good, HSG D (PRE 1, PRE 2, PRE 3)
204,589	79	TOTAL AREA

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Soil Listing (selected nodes)

Area	Soil	Subcatchment
(sq-ft)	Group	Numbers
0	HSG A	
28,393	HSG B	PRE 1, PRE 2, PRE 3
0	HSG C	
176,196	HSG D	PRE 1, PRE 2, PRE 3
0	Other	
204,589		TOTAL AREA

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Sub Nun

Ground Covers (selected nodes)

HSG-A (sq-ft)	HSG-B (sq-ft)	HSG-C (sq-ft)	HSG-D (sq-ft)	Other (sq-ft)	Total (sq-ft)	Ground Cover
0	14,519	0	21,804	0	36,323	>75% Grass
						cover, Good
0	0	0	44,884	0	44,884	Paved parking
0	13,874	0	109,508	0	123,382	Woods, Good
0	28,393	0	176,196	0	204,589	TOTAL AREA

NewKingStreet 24-hr 1-yr Rainfall=2.82" Printed 11/17/2016 Page 5

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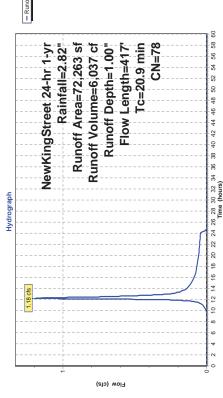
Summary for Subcatchment PRE 1: DP1

6,037 cf, Depth= 1.00" 1.18 cfs @ 12.25 hrs, Volume= Runoff

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs NewKingStreet 24-hr 1-yr Rainfall=2.82"

		od, HSG B	od, HSG D					Ø.	Slope Velocity Capacity Description		Sheet Flow,	Woods: Light underbrush n= 0.400 P2= 3.44"	Shallow Concentrated Flow,	Woodland Kv= 5.0 fps	
	Paved parking, HSG D	>75% Grass cover, Good, HSG B	>75% Grass cover, Good, HSG D	Woods, Good, HSG B	Woods, Good, HSG D	verage	79.68% Pervious Area	20.32% Impervious Area	Capacity	(cfs)					
CN Description	aved parki	75% Grass	75% Grass	loods, God	loods, God	Weighted Average	9.68% Per	J.32% Imp	Velocity	(ft/sec)	0.14		1.28		
	98 P	61	^	25 V	77 W	78 W	7	Ñ	Slope	(ft/ft)	150 0.0700		267 0.0660		417 Total
Area (sf)	14,683	5,242	2,341	6,481	43,516	72,263	57,580	14,683	Tc Length	(feet)	150		267		417
⋖									T _C	(min)	17.4		3.5		20.9

Subcatchment PRE 1: DP1



NewKingStreet 24-hr 1-yr Rainfall=2.82" Printed 11/17/2016

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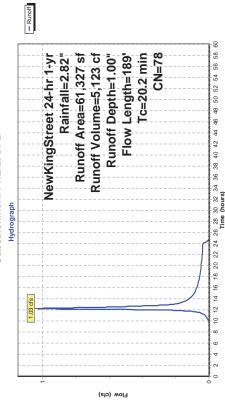
Summary for Subcatchment PRE 2: DP2

5,123 cf, Depth= 1.00" 1.03 dfs @ 12.24 hrs, Volume= Runoff

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs NewKingStreet 24-hr 1-yr Rainfall=2.82"

Subcatchment PRE 2: DP2

Total 189



Page 7 NewKingStreet 24-hr 1-yr Rainfall=2.82" Printed 11/17/2016

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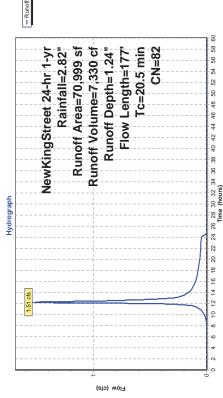
Summary for Subcatchment PRE 3: DP3

7,330 cf, Depth= 1.24" 1.51 cfs @ 12.24 hrs, Volume= Runoff

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs NewKingStreet 24-hr 1-yr Rainfall=2.82"

		od, HSG B	od, HSG D					а		Velocity Capacity Description		Sheet Flow,	Grass: Dense n= 0.240 P2= 3.44"	Shallow Concentrated Flow,	Woodland Kv= 5.0 fps	
	Paved parking, HSG D	>75% Grass cover, Good, HSG B	>75% Grass cover, Good, HSG D	Woods, Good, HSG B	Woods, Good, HSG D	verage	75.10% Pervious Area	24.90% Impervious Area		Capacity	(cts)					
Area (sf) CN Description	aved parki	75% Grass	75% Grass	loods, God	loods, God	Weighted Average	5.10% Per	4.90% Imp	, 4;00 lo / /	velocity	(tt/sec)	0.12		2.04		
CN	98 P	61		25 V	77 W	82 W	7	2	C	adois	(ft/ft)	150 0.0170		27 0.1670		177 Total
rea (sf)	17,679	2,460	18,446	2,073	30,341	566,07	53,320	17,679	44000	ic rendin	(feet)	150		27		177
A									F	<u>.</u>	(min)	20.3		0.2		20.5

Subcatchment PRE 3: DP3



NewKingStreet 24-hr 2-yr Rainfall=3.44" Printed 11/17/2016

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Summary for Subcatchment PRE 1: DP1

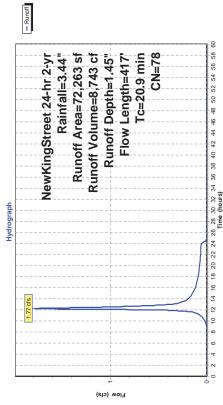
8,743 cf, Depth= 1.45" 1.77 dfs @ 12.24 hrs, Volume=

Runoff

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs NewKingStreet 24-hr 2-yr Rainfall=3.44"

CN Description	Paved parking, HSG D	>75% Grass cover, Good, HSG B	>75% Grass cover, Good, HSG D	Woods, Good, HSG B	Woods, Good, HSG D	Weighted Average	79.68% Pervious Area	20.32% Impervious Area	Slope Velocity Capacity Description) (ft/sec) (cfs)) 0.14 Sheet Flow,	Woods: Light underbrush n= 0.400 P2= 3.44") 1.28 Shallow Concentrated Flow,	Woodland Kv= 5.0 fps	
CN	86	61	80	22	77	78			Slope	(ft/ft)	150 0.0700		267 0.0660		Total
Area (sf)	14,683	5,242	2,341	6,481	43,516	72,263	57,580	14,683	Tc Length	(feet)					417 Total
1									Tc	(min)	17.4		3.5		20.9

Subcatchment PRE 1: DP1



NewKingStreet 24-hr2-yr Rainfall=3.44" Printed 11/17/2016 Page 9

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Summary for Subcatchment PRE 2: DP2

7,420 cf, Depth=
Volume=
12.24 hrs,
1.53 cfs @
II
Runoff

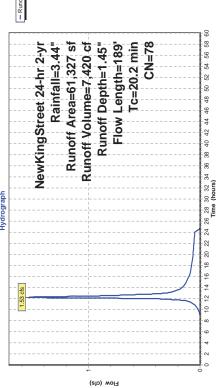
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs NewKingStreet 24-hr 2-yr Rainfall=3.44"

4	rea (sf)	N 8	Area (sf) CN Description	L CONT		
	6,817		>75% Grass cover, Good, HSG B	cover, Go	od, HSG B	
	1,017	80	>75% Grass cover, Good, HSG D	cover, Go	od, HSG D	
	5,320	22	Woods, Good, HSG B	d, HSG B		
	35,651	77 \	Woods, Good, HSG D	d, HSG D		
	61,327	78 \	Weighted Average	verage		
	48,805	-	79.58% Pervious Area	rious Area		
	12,522	.,	20.42% Impervious Area	ervious Are	œ.	
Tc	Tc Length		Velocity	Capacity	Slope Velocity Capacity Description	
(min)	(feet)	(ft/ft)	(ft/sec)	(cts)		
14.6		90 0.0390	0.10		Sheet Flow,	
					Woods: Light underbrush n= 0.400 P2= 3.44"	3.44"
5.1	09	60 0.2370	0.20		Sheet Flow,	
					Woods: Light underbrush n= 0.400 P2= 3.44"	3.44"
0.5	36	0.0720	1.34		Shallow Concentrated Flow,	
					Woodland Kv= 5.0 fps	

Subcatchment PRE 2: DP2

189

20.2



NewKingStreet 24-hr 2-yr Rainfall=3.44" Printed 11/17/2016

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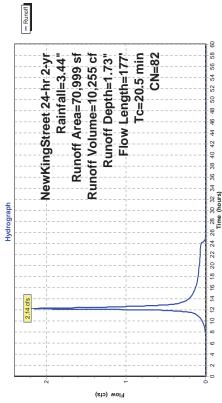
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Summary for Subcatchment PRE 3: DP3

10,255 cf, Depth= 1.73" 2.14 dfs @ 12.23 hrs, Volume= Runoff Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs NewKingStreet 24-hr 2-yr Rainfall=3.44"

Area (sf) CN Description 17,679 98 Paved parking, HSGD 2,460 61 >75% Grass cover, Good, HSG B 18,446 80 >75% Grass cover, Good, HSG B 2,073 55 Woods, Good, HSG B 30,341 77 Woods, Good, HSG B 70,999 82 Weighted Average 53,320 75,10% Pervious Area 17,679 24,90% Impervious Area 17,679 (feet) (fuff) (fusec) (cfs) 20,3 150 0,0170 0,12 Sheet Flow Grass: Den Co. 27 0,1670 2,04 Shallow CC 8 Shallow CC 177 Total			od, HSG B	d, HSG D					a	Description		Sheet Flow,	Grass: Dense n= 0.240 P2= 3.44"	Shallow Concentrated Flow,	Woodland Kv= 5.0 fps	
Nrea (sf) (7,679 17,679 2,460 2,073 30,341 70,999 17,679 Length (feet) (ng, HSG D	cover, God	cover, God	d, HSG B	d, HSG D	/erage	vious Area	ervious Are	Capacity	(cts)					
Nrea (sf) (7,679 17,679 2,460 2,073 30,341 70,999 17,679 Length (feet) (escription	aved parki	.75% Grass	.75% Grass	Voods, Goc	Voods, Goc	Veighted Av	5.10% Per	4.90% Imp	Velocity	(ft/sec)	0.12		2.04		
\text{Viea (sf)} \text{17,679} \text{2,460} \text{2,460} \text{2,073} \text{30,341} \text{77} \text{77} \text{177} \text{177}	CN		61			77 V		7	0	Slope	(#/#)	0.0170		0.1670		Total
TC (min) 20.3	ea (st)	17,679	2,460	18,446	2,073	30,341	666,02	53,320	17,679	enath	(feet)	150		27		177
	Ar									Ļ	(min)	20.3		0.2		20.5

Subcatchment PRE 3: DP3



NewKingStreet 24-hr 5-yr Rainfall=4.31" Printed 11/17/2016

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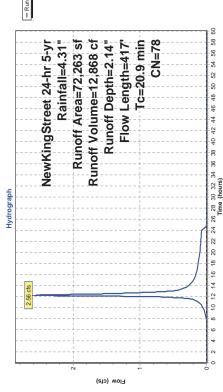
Summary for Subcatchment PRE 1: DP1

12,868 cf, Depth= 2.14" 2.56 cfs @ 12.24 hrs, Volume= Runoff

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs NewKingStreet 24-hr 5-yr Rainfall=4.31"

Area (sf) CN Description 14,683 98 Paved parking, HSG D 5,242 61 >75% Grass cover, Good, HSG B 2,341 80 >75% Grass cover, Good, HSG D 6,481 55 Woods, Good, HSG D 43,516 77 Woods, Good, HSG D 72,267 78 Weighted Average 57,580 79,68% Pervious Area 14,683 20.32% Impervious Area	Tc Length Slope Velocity Capacity Description (min) (feet) (ff/ft) (ff/sec) (ds)	17.4 150 0.0700 0.14 Sheet Flow, Woods: Light underbrush n= 0.400 P2= 3.44"	3.5 267 0.0660 1.28 Shallow Concentrated Flow, Woodland Kv= 5.0 fps		Arr 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	ea (sf) 14,683 5,242 2,341 63,516 3,516 7,580 77,580 14,683 16,691 150		Description Paved parkir Paved	gg, HSG D cover, Go cover, Go d, HSG B d, HSG D d, HSG D d, HSG D errage ious Area ious Area ious Area (ds)	od, HSG B od, HSG B sa Description Sheet Flow, Woods: Light underbrush n= 0.400 P2= 3.44" Shallow Concentrated Flow, Woodland Kv= 5.0 fps
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Subcatchment PRE 1: DP1



NewKingStreet 24-hr 5-yr Rainfall=4.31" Printed 11/17/2016

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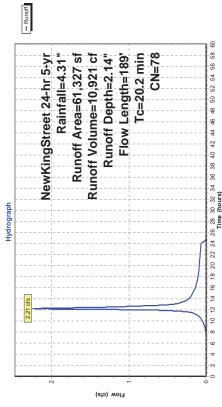
Summary for Subcatchment PRE 2: DP2

10,921 cf, Depth= 2.14" 2.21 dfs @ 12.23 hrs, Volume= Runoff Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs NewKingStreet 24-hr 5-yr Rainfall=4.31"

Area (sf) CN Description 12,522 98 Paved parki 6,817 61 775% Grass 5,320 55 Woods, Gox 35,651 77 Woods, Gox 61,327 78 Weighted A 48,805 79,58% Per 12,522 20,42% Imp (min) (feet) (fuff) (fuff) (fusec) 14.6 90 0.0390 0.10 5.1 60 0.2370 0.20 0.53 0.05 0.10 5.1 60 0.2370 0.20 0.05 0.10 0.5 0.5 0.05 0.05 0.10 0.05 0.05		Paved parking, HSG D	>75% Grass cover, Good, HSG B	>75% Grass cover, Good, HSG D	Woods, Good, HSG B	Woods, Good, HSG D	vverage	79.58% Pervious Area	20.42% Impervious Area	Slope Velocity Capacity Description	(cfs)	Sheet Flow,	Woods: Light underbrush n= 0.400 P2= 3.44"	Sheet Flow,	Woods: Light underbrush n= 0.400 P2= 3.44"	Shallow Concentrated Flow,	Woodland Kv= 5.0 fps
Area (sf) 12,522 6,817 6,817 5,320 35,651 61,327 48,805 12,522 Length (feet) 90 (escription	aved parki	75% Grass	75% Grass	Voods, God	Voods, God	Weighted Average	9.58% Per	0.42% Imp	Velocity	(ft/sec)	0.10		0.20		1.34	
12,55 6,81 1,01 1,01 5,32 35,65 61,32 12,52 Leng	CN		61	80	22 N	77 V		7	7	Slope	(ft/ft)	0.0390		0.2370		0.0720	
Tc (min) 14.6 5.1 6.5	rea (sf)	12,522	6,817	1,017	5,320	35,651	61,327	48,805	12,522	Length	(feet)	06		09		33	
	Ā									Tc	(min)	14.6		5.1		0.5	

Subcatchment PRE 2: DP2

Total 189



Printed 11/17/2016 NewKingStreet 24-hr 5-yr Rainfall=4.31"

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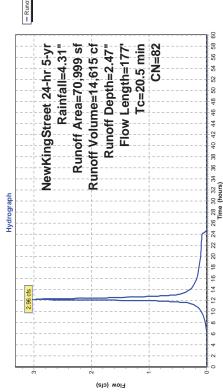
Summary for Subcatchment PRE 3: DP3

14,615 cf, Depth= 2.47" 2.96 cfs @ 12.23 hrs, Volume= Runoff

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs NewKingStreet 24-hr 5-yr Rainfall=4.31"

Area (sf) CN Description 17679 98 Paved parking, HSG D 2,460 61 >75% Grass cover, Good, HSG B 18,446 80 >75% Grass cover, Good, HSG B 2,073 55 Woods, Good, HSG B 30,341 77 Woods, Good, HSG B 70,999 82 Weighted Average 53,320 75,10% Pervious Area 17,679 24,90% Impervious Area 18,100 10,100 10,100 19,100 10,100 10,100 19,100 10,100 10,100 19,			od, HSG B	od, HSG D					a	Description		Sheet Flow,	Grass: Dense n= 0.240 P2= 3.44"	Shallow Concentrated Flow,	Woodland Kv= 5.0 fps	
Area (sf) (7.679 (2.460 (2.4073 (2.4073 (2.4073 (2.4073 (2.4073 (2.4073 (1.4099 (1.409		ng, HSG D	cover, Go	cover, Go	d, HSG B	d, HSG D	verage	vious Area	ervious Are	Capacity	(cfs)					
Area (sf) (7.679 (2.460 (2.4073 (2.4073 (2.4073 (2.4073 (2.4073 (2.4073 (1.4099 (1.409	escription	aved parki	75% Grass	75% Grass	loods, God	loods, Goc	/eighted Av	5.10% Per	4.90% Imp	Velocity	(ft/sec)	0.12		2.04		
17,67 17,67 2,46 18,44 18,44 2,07 30,32 30,32 17,67 17,67 17,67	CN	_				77 W		7	7	olo.	(ff/ff)	0.0170		0.1670		Total
Tc (min) 20.3 0.2 20.5	rea (sf)	17,679	2,460	18,446	2,073	30,341	666,02	53,320	17,679	l enoth	(feet)	150		27		177
	Ā									Ľ	(min)	20.3		0.2		20.5

Subcatchment PRE 3: DP3



NewKingStreet 24-hr 10-yr Rainfall=5.12" Printed 11/17/2016

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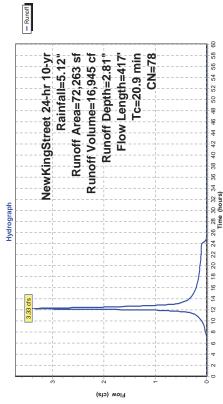
Summary for Subcatchment PRE 1: DP1

16,945 cf, Depth= 2.81" 3.33 dfs @ 12.24 hrs, Volume= Runoff

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs NewKingStreet 24-hr 10-yr Rainfall=5.12"

Area (sf) CN Description	98 Paved parking, HSG D	61 >75% Grass cover, Good, HSG B	80 >75% Grass cover, Good, HSG D	55 Woods, Good, HSG B	77 Woods, Good, HSG D	78 Weighted Average	79.68% Pervious Area	20.32% Impervious Area	Slope Velocity Capacity Description	(ft/ft) (ft/sec) (cfs)	150 0.0700 0.14 Sheet Flow,	Woods: Light underbrush n= 0.400 P2= 3.44"	267 0.0660 1.28 Shallow Concentrated Flow,	Woodland Kv= 5.0 fps	417 Total
rea (st)	14,683	5,242	2,341	6,481	43,516	72,263	57,580	14,683	Tc Length	(feet)	150				417
∢									٦ ۲	(min)	17.4		3.5		20.9

Subcatchment PRE 1: DP1



NewKingStreet 24-hr 10-yr Rainfall=5.12" Printed 11/17/2016

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Summary for Subcatchment PRE 2: DP2

14,380 cf, Depth= 2.81" 2.87 cfs @ 12.23 hrs, Volume= Runoff

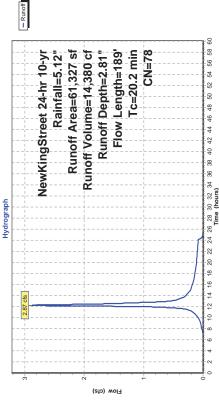
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs NewKingStreet 24-hr 10-yr Rainfall=5.12"

4	12,522 6,817 1,017 5,320 35,651 61,327 48,805	CN 98 61 80 55 77 77	Area (sf) CN Description 12,522 98 Paved parking, HSG D 6,817 61 775% Grass cover, Good, HSG B 5,220 55 Woods, Good, HSG B 35,651 77 Woods, Good, HSG D 61,327 78 Weighted Average 48,8895 77 8,55% Perivius A Read 40,559	ing, HSG D s cover, Go s cover, Go od, HSG D od, HSG D verage verage	od, HSG B	
Tc (min)	Tc Length (feet)	Slope (ft/ft)	Slope Velocity Capacity Description (ft/ft) (ft/sec) (ds)	Capacity (cfs)	Description	
14.6	06	0.0390	0.10		Sheet Flow, Woods: Light underbrush n= 0.400 P2= 3.44"	3.44"
5.1	09	0.2370	0 0.20		Sheet Flow, Woods: Light underbrush n= 0.400 P2= 3.44"	3.44"
0.5	39	0.0720	0 1.34		Shallow Concentrated Flow, Woodland Kv= 5.0 fps	

Subcatchment PRE 2: DP2

Total 189

20.2



NewKingStreet 24-hr 10-yr Rainfall=5.12" Printed 11/17/2016

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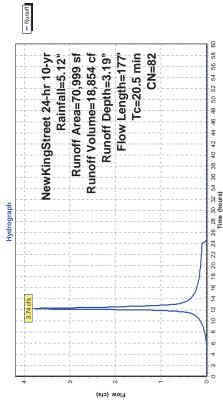
Summary for Subcatchment PRE 3: DP3

18,854 cf, Depth= 3.19" 3.74 cfs @ 12.23 hrs, Volume= Runoff

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs NewKingStreet 24-hr 10-yr Rainfall=5.12"

CN Description	Paved parking, HSG D	>75% Grass cover, Good, HSG B	>75% Grass cover, Good, HSG D	Woods, Good, HSG B	Moods, Good, HSG D	Weighted Average	75.10% Pervious Area	24.90% Impeivous Area	Cap	(tt/sec) (cts)	0.12 Sheet Flow,	Grass: Dense n= 0.240 P2= 3.44"	2.04 Shallow Concentrated Flow,	Woodland $Kv= 5.0 fps$	
CN	98 P	61		25 V	77 W	82 W	7	2	Slope	(#/#)	150 0.0170		27 0.1670		177 Total
Area (sf)	17,679	2,460	18,446	2,073	30,341	666,07	53,320	17,679	Tc Length	(teet)	150		27		177
Ā					•		-,		° L	(min)	20.3		0.2		20.5

Subcatchment PRE 3: DP3



NewKingStreet 24-hr 25-yr Rainfall=6.43" Printed 11/17/2016

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Summary for Subcatchment PRE 1: DP1

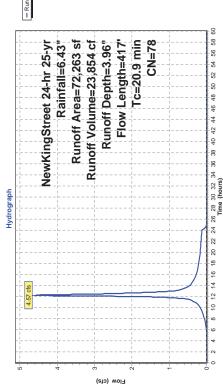
23,854 cf, Depth=
II
s, Volume
12.24 hr
cfs @
4.57
II

Runoff

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs NewKingStreet 24-hr 25-yr Rainfall=6.43"

Description	Paved parking, HSG D	>75% Grass cover, Good, HSG B	>75% Grass cover, Good, HSG D	Woods, Good, HSG B	Woods, Good, HSG D	Weighted Average	79.68% Pervious Area	20.32% Impervious Area	Slope Velocity Capacity Description	tt) (tt/sec) (cfs)	00 0.14 Sheet Flow,	Woods: Light underbrush n= 0.400 P2= 3.44"	30 1.28 Shallow Concentrated Flow,	Woodland Kv= 5.0 fps	
S	86	61	80	22	77	78			Slop	(ft/ft)	150 0.0700		267 0.0660		417 Total
Area (sf)	14,683	5,242	2,341	6,481	43,516	72,263	57,580	14,683	Tc Length	(feet)	150		267		417
⋖									TC	(min)	17.4		3.5		20.9

Subcatchment PRE 1: DP1



NewKingStreet24-hr25-yr Rainfall=6.43" Printed 11/17/2016

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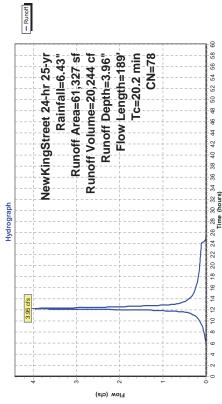
Summary for Subcatchment PRE 2: DP2

20,244 cf, Depth= 3.96" 3.95 dfs @ 12.23 hrs, Volume= Runoff Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs NewKingStreet 24-hr 25-yr Rainfall=6.43"

Area (sf) CN Description	12,522 98 Paved parking, HSG D	6,817 61 >75% Grass cover, Good, HSG B	1,017 80 >75% Grass cover, Good, HSG D	5,320 55 Woods, Good, HSG B	35,651 77 Woods, Good, HSG D	61,327 78 Weighted Average	48,805 79.58% Pervious Area	12,522 20.42% Impervious Area	Length Slope \) (feet) (ft/ft) (ft/sec) (cfs)	5 90 0.0390 0.10 Sheet Flow,	Woods: Light underbrush n= 0.400 P2= 3.44"	1 60 0.2370 0.20 Sheet Flow,	Woods: Light underbrush n= 0.400 P2= 3.44"	5 39 0.0720 1.34 Shallow Concentrated Flow,	
Area (sf)	12,522	6,817	1,017	5,320	35,651	61,327	48,805	12,522	Tc Length	(min) (feet)	14.6 90		5.1 60		0.5 39	

Subcatchment PRE 2: DP2

Total 189



NewKingStreet 24-hr 25-yr Rainfall=6.43" Printed 11/17/2016 Iutions LLC Page 19

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Summary for Subcatchment PRE 3: DP3

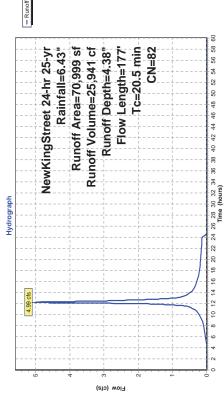
25,941 cf, Depth= 4.38" 4.99 cfs @ 12.23 hrs, Volume= Runoff Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs NewKingStreet 24-hr 25-yr Rainfall=6.43"

		od, HSG B	od, HSG D					Ď.	Slope Velocity Capacity Description		Sheet Flow,	Grass: Dense n= 0.240 P2= 3.44"	Shallow Concentrated Flow,	Woodland Kv= 5.0 fps
	Paved parking, HSG D	>75% Grass cover, Good, HSG B	>75% Grass cover, Good, HSG D	Woods, Good, HSG B	Woods, Good, HSG D	verage	75.10% Pervious Area	24.90% Impervious Area	Capacity	(cts)				
Description	aved park	75% Gras	75% Gras	Voods, Go	Voods, Go	Weighted Average	5.10% Per	4.90% Imp	Velocity	(t/sec)	0.12		2.04	
CN	98 F	61	80	22 N	77 V	82 V	_	7	Slope	(ft/ft)	150 0.0170		27 0.1670	
Area (sf)	17,679	2,460	18,446	2,073	30,341	666,07	53,320	17,679	Tc Length	(feet)	150		27	
Ā									٦ ۲	(min)	20.3		0.2	

Subcatchment PRE 3: DP3

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20.5



NewKingStreet 24-hr 50-yr Rainfall=7.64" Printed 11/17/2016

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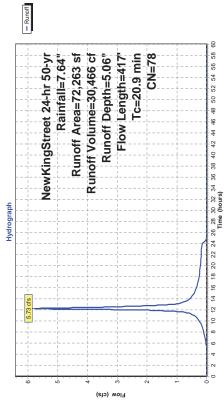
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Summary for Subcatchment PRE 1: DP1

30,466 cf, Depth= 5.06" 5.73 dfs @ 12.24 hrs, Volume= Runoff Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs NewKingStreet 24-hr 50-yr Rainfall=7.64"

	ISGD	>75% Grass cover, Good, HSG B	>75% Grass cover, Good, HSG D	SGB	SGD	96	Area	us Area	Slope Velocity Capacity Description	(cfs)	Sheet Flow,	Woods: Light underbrush n= 0.400 P2= 3.44"	Shallow Concentrated Flow,	Woodland Kv= 5.0 fps	
CN Description	Paved parking, HSG D	√75% Grass cov	√75% Grass cov	Woods, Good, HSG B	Woods, Good, HSG D	Weighted Average	79.68% Pervious Area	20.32% Impervious Area	Velocity Cap	(ft/sec)	0.14		1.28		
CN	98	61		25	77 \	78 \	_	.,	Slope	(ft/ft)	150 0.0700		0.0660		417 Total
Area (sf)	14,683	5,242	2,341	6,481	43,516	72,263	57,580	14,683	Tc Length	(feet)	150		267		417
Ā									Tc	(min)	17.4		3.5		20.9

Subcatchment PRE 1: DP1



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NewKingStreet 24-hr 50-yr Rainfall=7.64" Printed 11/17/2016 Page 21

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Summary for Subcatchment PRE 2: DP2

5.0
Depth=
25,856 cf,
Volume=
12.23 hrs,
4.94 cfs @
II
Runoff

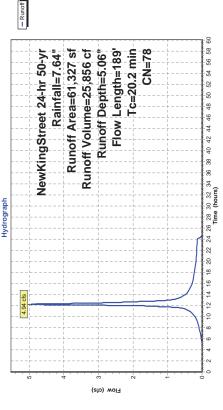
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs NewKingStreet 24-hr 50-yr Rainfall=7.64"

												P2= 3.44"		P2= 3.44"		
												n = 0.400		n = 0.400	ow,	
		>75% Grass cover, Good, HSG B	>75% Grass cover, Good, HSG D					33	Slope Melocity Capacity Description		Sheet Flow,	Woods: Light underbrush n= 0.400 P2= 3.44"	Sheet Flow,	Woods: Light underbrush n= 0.400 P2= 3.44"	Shallow Concentrated Flow,	Woodland Kv= 5.0 fps
	Paved parking, HSG D	s cover, Go	s cover, Go	Woods, Good, HSG B	Woods, Good, HSG D	verage	79.58% Pervious Area	20.42% Impervious Area	Canacity	(cfs)						
CN Description	aved park	75% Grass	75% Gras	loods, Goo	loods, Goo	Weighted Average	9.58% Per).42% Imp	Velocity	(ft/sec)	0.10		0.20		1.34	
CN	98 P	61	80	25 W	77 W	78 W	2	Ñ			90 0.0390		0.2370		0.0720	
Area (sf)	12,522	6,817	1,017	5,320	35,651	61,327	48,805	12,522	To I enoth	(feet)	06		09		39	
Ā									F	(min)	14.6		5.1		0.5	
						'					'					

Subcatchment PRE 2: DP2

189

20.2



NewKingStreet 24-hr 50-yr Rainfall=7.64" Printed 11/17/2016 NewKingS
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Summary for Subcatchment PRE 3: DP3

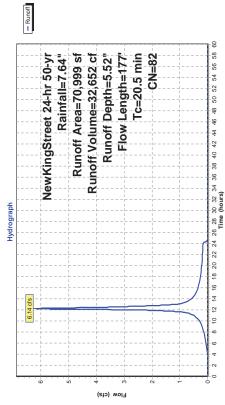
32,652 cf, Depth= 5.52" 6.14 dfs @ 12.23 hrs, Volume=

Runoff

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs NewKingStreet 24-hr 50-yr Rainfall=7.64"

	a Book H	od, HSG D					ia ia	Slope Velocity Capacity Description		Sheet Flow,	Grass: Dense n= 0.240 P2= 3.44"	Shallow Concentrated Flow,	Woodland Kv= 5.0 fps	
	ng, HSG D	cover, Go	od, HSG B	od, HSG D	verage	vious Area	ervious Are	Capacity	(cts)					
CN Description	Paved parking, HSG D	>75% Grass cover, Good, HSG D	Woods, Good, HSG B	Woods, Good, HSG D	Weighted Average	75.10% Pervious Area	24.90% Impervious Area	Velocity	(tt/sec)	0.12		2.04		
CN	98 F		25	/ //	82 \	-	.,	Slope	(#/#)	150 0.0170		27 0.1670		177 Total
Area (sf)	17,679	18,446	2,073	30,341	666'02	53,320	17,679	Tc Length	(teet)	150		27		177
⋖								ĴĹ.	(min)	20.3		0.2		20.5

Subcatchment PRE 3: DP3



NewKingStreet 24-hr 100-yr Rainfall=9.08" Printed 11/17/2016

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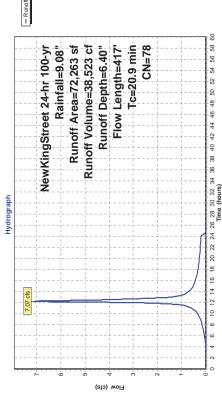
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Summary for Subcatchment PRE 1: DP1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs NewKingStreet 24-hr 100-yr Rainfall=9.08" 38,523 cf, Depth= 6.40" 7.07 cfs @ 12.24 hrs, Volume= Runoff

		od, HSG B	od, HSG D					33	Velocity Capacity Description		Sheet Flow,	Woods: Light underbrush n= 0.400 P2= 3.44"	Shallow Concentrated Flow,	Woodland Kv= 5.0 fps	
	Paved parking, HSG D	>75% Grass cover, Good, HSG B	>75% Grass cover, Good, HSG D	Woods, Good, HSG B	Woods, Good, HSG D	verage	79.68% Pervious Area	20.32% Impervious Area	Capacity	(cts)					
CN Description	aved park	75% Gras	75% Gras:	loods, Go	loods, Go	Weighted Average	3.68% Per	32% Imp	Velocity	(ft/sec)	0.14		1.28		
CN	98 P	61	80	25 W	77 W	78 W	7	Ø	Slope	(ft/ft)	150 0.0700		267 0.0660		417 Total
Area (sf)	14,683	5,242	2,341	6,481	43,516	72,263	57,580	14,683	Tc Length	(feet)	150		267		417
∢									2 L	(min)	17.4		3.5		20.9

Subcatchment PRE 1: DP1



NewKingStreet 24-hr 100-yr Rainfall=9.08" Printed 11/17/2016

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Summary for Subcatchment PRE 2: DP2

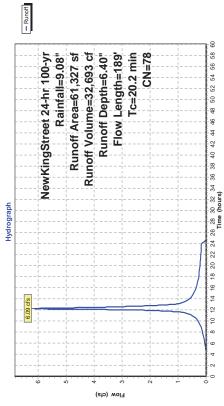
32,693 cf, Depth= 6.40" 6.09 dfs @ 12.23 hrs, Volume= Runoff

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs NewKingStreet 24-hr 100-yr Rainfall=9.08"

4	Area (sf)	S	CN Description		
	12,522	86	Paved parking, HSG D	ing, HSG D	C C C
	0,817	0	>/5% Grass cover, Good, HSG B	s cover, GC	00, H3G B
	1,017	80	>75% Grass cover, Good, HSG D	s cover, Gc	od, HSG D
	5,320	22	Woods, Good, HSG B	od, HSG B	
	35,651	77	Woods, Good, HSG D	od, HSG D	
	61,327	78	Weighted Average	verage	
	48,805		79.58% Pervious Area	vious Area	
	12,522		20.42% Impervious Area	ervious Are	sa .
JC	Tc Length	Slope	Velocity	Capacity	Slope Velocity Capacity Description
(min)	(feet)	(ft/ft)	(ft/sec)	(cfs)	
14.6	06	0.0390	0.10		Sheet Flow,
					Woods: Light underbrush n= 0.400 P2= 3.44"
5.1	09	0.2370	0.20		Sheet Flow,
					Woods: Light underbrush $n=0.400$ P2= 3.44"
0.5	36	0.0720	1.34		Shallow Concentrated Flow,
					Woodland Kv= 5.0 fps

Subcatchment PRE 2: DP2

Total 189



NewKingStreet 24-hr 100-yr Rainfall=9.08" Printed 11/17/2016 Solutions LLC Page 25

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Summary for Subcatchment PRE 3: DP3

40,768 cf, Depth= 6.89" 7.46 cfs @ 12.23 hrs, Volume=

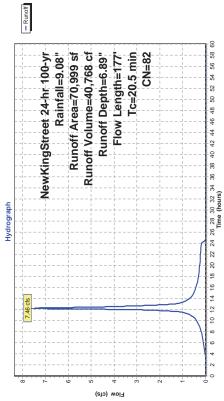
Runoff

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs NewKingStreet 24-hr 100-yr Rainfall=9.08"

		od, HSG B	od, HSG D					a	Slone Velocity Canacity Description		Sheet Flow,	Grass: Dense n= 0.240 P2= 3.44"	Shallow Concentrated Flow,	Woodland Kv= 5.0 fps
	Paved parking, HSG D	>75% Grass cover, Good, HSG B	>75% Grass cover, Good, HSG D	Woods, Good, HSG B	Woods, Good, HSG D	verage	75.10% Pervious Area	24.90% Impervious Area	Capacity	(cfs)				
CN Description	aved park	75% Gras	75% Grass	loods, Goo	loods, Goo	Weighted Average	5.10% Per	4.90% Imp	Velocity	(ft/sec)	0.12		2.04	
CN	98 P	61	,,	22 N	77 V	82 V	7	2	and C.	(ft/ft)	150 0.0170		0.1670	
Area (sf)	17,679	2,460	18,446	2,073	30,341	666,07	53,320	17,679	To Length	(feet)	150		27	
A									Ë	(min)	20.3		0.2	
'						'					•			

Subcatchment PRE 3: DP3

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SWPPP APPENDIX E

WATER QUALITY CALCULATIONS



WQv REQUIRED CALCULATIONS:

	Total Area of	Total Pre- Development	Total Post-	New Impervious	Redeveloped	1-Year Rainfall	New Impervious	Redeveloped	Requi	red Water Quality Volume WQv = (N+0.25R)(RO			Runoff Reducti (RRv		
Area ¹	Disturbance (A) (sq-ft) [1]		Development Impervious Area (sq-ft) [3]	Area (sq-ft) [4] = [3] - [2]	Impervious Area (sq-ft) [5] = [2]	Event (P)² (in) [6]	Factor (N) ⁵ [7] = [4]/[3]	Impervious Factor (R) 5 [8] = [5]/[3]	Runoff Volume (ROv) ³ (cu-ft) [9]		TR-55 WQv _{req} (ac-ft) [11]=[10] / 43,560	Total RRv (cu-ft) [12] = [6]*0.95*[4]/12	HSG Specific Reduction Factor (S) ⁴	Required RRv (cu-ft)	Minimum Required RRv (ac-ft) [15] = [14] / 43,560
LoD	106,484	33,716	41,508	7,792	33,716	2.82	0.188	0.812	12,153	4,749	0.109	1,740	0.27	470	0.011
TOTAL	106,484	-	-	7,792	33,716	-	-	-		4,749	0.109	-	-	470	0.011

¹ - Refer to exhibits D-3 and D-4 in Appendix B for for a depiction of the area of limit of disturbance (LoD).

WQv PROVIDED CALCULATIONS:

	Total Area	Impervious Area	Provided Water C	Quality Volume	RRv Applied ³
Drainage Area ¹	(sq-ft)	(sq-ft)	(cu-ft)	(ac-ft)	(cu-ft)
	[1]	[2]	[3]	[4] = [3] / 43,560	[5]
BR	2,425	1,250	226	0.005	132
FS	47,319	36,178	7,853	0.180	•
PT	15,499	5,516	1,442	0.033	-
SF	5,232	0	487	0.011	•
PLT	6,972	5,450	1,264	0.029	370
WET	22,283	5,261	2,420	0.056	-
TOTAL	99,730	53,655	13,692	0.314	502

¹ - Refer to exhibit D-2 in Appendix B for a depiction of drainage areas.

² - Because project site is located in a phosphorus-limited watershed (East of Hudson NYCDEP Watershed), the 1-Year Rainfall Event is used rather than the 90% Rainfall Event.

³ - Runoff Volume provided by TR-55 methodolgy for Limit of Disturbance. Refer to enclosed HydroCAD analysis.

⁴ - Weighted S value, S=0.40 for HSG B and S=0.20 for HSG D. Within limits of site, 48,515 sq-ft in HSG B and 96,952 sq-ft in HSG D.

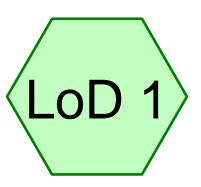
⁵ - Equation for WQv that includes redevelopment and new development obtained from New York Satate Department of Transportation Highway Design Manaul, Chapter 8, Appendix B, Section 2.3.2.2.

² - Water Quality Volume provided by TR-55 methodology. Refer to HydroCAD analysis in SWPPP Appendix F.

Refer to enclosed BMP Sizing Calulations and Bioretention Basin and Stormwater Planter Worksheets for sizing of stormwater practices.

 $^{^{\}rm 3}$ - Refer to enclosed Bioretention Basin and Stormwater Planter Worksheets for Applied RRv.

Runoff Volume for WQv Calculations



Limit of Disturbance









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Summary for Subcatchment LoD 1: Limit of Disturbance

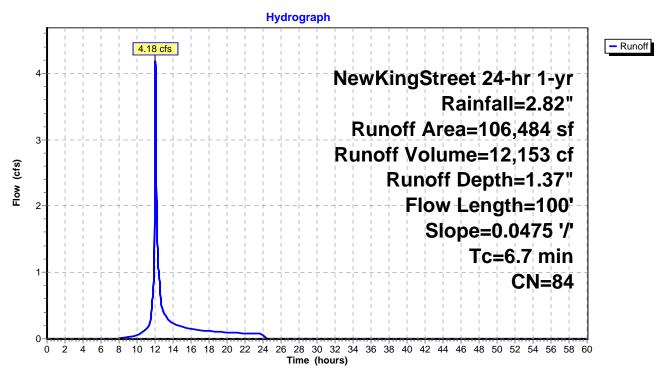
Runoff = 4.18 cfs @ 12.05 hrs, Volume= 12,153 cf, Depth= 1.37"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-60.00 hrs, dt= 0.02 hrs NewKingStreet 24-hr 1-yr Rainfall=2.82"

_	A	rea (sf)	CN [Description				
		41,508	98 F	Paved park				
		19,134	61 >	75% Gras	75% Grass cover, Good, HSG B			
_		45,842	80 >	75% Gras	75% Grass cover, Good, HSG D			
_	1	06,484	84 V	Weighted Average				
		64,976	6	61.02% Pervious Area				
		41,508	3	8.98% lmp	ervious Are	ea		
	Tc	Length	Slope	Velocity	Capacity	Description		
	(min)	(feet)	(ft/ft)	(ft/sec)	(cfs)			
	6.7	100	0.0475	0.25		Sheet Flow,		
						0 0 1	0.450 DO 0.441	

Grass: Short n= 0.150 P2= 3.44"

Subcatchment LoD 1: Limit of Disturbance





Park Place BMP Sizing Calculations

SURFACE SAND FILTER SIZING CALCULATIONS

Sand Filter treats runoff from Drainage Areas: BR, FS, PT & SF with 132 CF removed for RRv in basin BR

Sizing WQv for Sand Filter¹ = 9,876 CF

Sedimentation Basin (Pretreatment):

Sedimentation basin surface area = A_s

 $A_s = -1*(Q_0/W)*ln(1-E)$ Q_0 , discharge rate = WQv/24hr/3600s E, sediment trap efficiency = 90%

W, particle settling velocity = 0.0004 ft/s I, imperviousness = <75%

Min. Sizing $A_c = 658$ SF (if I>75%), 0.0033 ft/s (if I>75%)

<u>Provided A_s=</u> 1,219 <u>SF</u> (contour area at El. 384)

Sedimentation basin volume = 25% of Sizing WQv

Min. Sizing Vol. = 2,469 CF

Chart: Sedimentation Basin Volume (Pretreatment)

Contour Elevation	Pretreatment Contour Area	Incremental Pretreatment Volume	Cumulative Pretreatment Volume	
(ft)	(ft ²)	(ft ³)	(ft³)	
384	1,219	0	0	
385	1,730	1,475	1,475	
386	2,313	2,022	3,496	
387	2,951	2,632	6,128	
	Prov	6,128		

Top of sedimentation basin riser to be set at Elevation 387.0.

Sedimentation Basin Volume @ El. 387.0 (6,128 CF) > Min. Sizing Volume (2,469 CF).

Surface Sand Filter (Treatment):

Surface sand filter surface area = A_f

 $A_f = (WQv^*d_f)/(k^*(h_f+d_f)^*t_f) \qquad d_f, \ \text{filter bed depth} = 1.5 \ \text{ft} \\ h_f, \ \text{water height above filter} = 1.5 \ \text{ft}$

k, filter permeability coeff. = 3.5 ft/d t_f , filter drain time = 1.67 d

 $\underline{\text{Min. Sizing A}_{\text{f}} = \underline{845} \qquad \underline{\text{SF}}}$

<u>Provided A_f = 1,386</u> <u>SF</u> (contour area at El. 384)

Surface sand filter volume (including pretreatment) = 75% of Sizing WQv

Min. Sizing Vol. = 7,407 CF

Chart: Surface Sand Filter (Treatment)

Contour Elevation Sand Filter Contour Area		Incremental Sand Filter Volume	Cummulative Sand Filter Volume	Cumulative Pretreatment Volume	Cumulative Practice Volume
(ft)	(ft²)	(ft ³)	(ft ³)	(ft³)	(ft ³)
384	1,386	0	0	0	0
385	1,903	1,645	1,645	1,475	3,119
386	2,495	2,199	3,844	3,496	7,340
387	3,119	2,807	6,651	6,128	12,779

Overflow spillway to stormwater wetland to be set at Elevation 386.10.

Cumulative Practice Volume @ El. 386.10 (7,884 CF) > Min. Sizing Volume (7,407 CF).

¹Refer to WQv Spread sheet for WQv calculations. RRv Applied is subtracted from Sand Filter Sizing WQv.



Park Place BMP Sizing Calculations

STORMWATER WETLAND SIZING CALCULATIONS

Stormwater Wetland treats runoff from Drainage Areas: BR, FS, PT, SP, PLT & WET with 502 CF removed for RRv in basins BR & PLT

Sizing WQv for Stormwater Wetland¹ = 12,964 CF

Required minimum permanent pool volume = 50% of Sizing WQv

Min. Permanent Pool Volume = 6,482 CF

Forebay:

Required forebay volume = 10% of Sizing WQv

Min. Sizing Vol. = 1,296 CF

Chart: Forebay Storage Volume:

Contour Elev. (ft)	Forebay Contour Area	Incremental Forebay Volume (ft ³)	Cumulative Forebay Volume (ft ³)	
374	101	0	0	
375	281	191	191	
376	543	412	603	
377	859	701	1,304	
378	1,241	1,050	2,354	
	Prov	2,354		

Micro Pool:

Chart: Micro Pool Storage Volume

Contour Elev.	Contour Area	Incremental Micro Pool Volume	Cumulative Micro Pool Volume			
(ft)	(ft ²)	(ft ³)	(ft³)			
374	86	0	0			
375	237	162	162			
376	457	347	509			
377	760	609	1,117			
378	1,128	944	2,061			
	Prov	2,061				

Marsh Areas:

Chart: Marsh Storage Volume

	Area	Marsh Depth	Marsh Volume
	(ft ²)	(ft)	(ft ³)
Low Marsh	1,064	1.5	1,596
High Marsh	1,250	0.5	625
Total Marsh	2,314	-	2,221

<u>Total Permanent Pool Volume @ El. 378 = 6,636</u> <u>CF</u> (Includes Forebay, Micro Pool and Marsh)

Cumulative Permanent Pool Volume @ El. 378.0 (6,636 CF) > Min. Sizing Volume (6,482 CF).

¹Refer to WQv Spread sheet for WQv calculations. RRv Applied is subtracted from Stormwater Wetland Sizing WQv.



Park Place BMP Sizing Calculations

STORMWATER WETLAND EXTENDED DETENTION CALCULATIONS:

1. Compute the average extended detention release rate over 24 hours

 $WQv = 12,964 \qquad CF$ $50\% \ WQv = 6,482 \qquad CF$ $Ave. \ ED \ Release \ Rate = 0.075 \qquad CFS$

2. Compute the average head above the orifice:

Design 1-YR WSEI. in Wetland = 378.25 ft Invert of Orifice = 378.00 ft Average Head = 0.25 ft

3. Use orifice equation to compute cross-sectional area of orifice:

Orifice Equation = $Q = CA*(2gH)^{(0.5)}$ Area (A) = 0.031 SF

4. Compute the required WQv-ED orifice diameter to release 50% WQv over 24 hours:

Circular Area Equation = A = (Pi*D^2)/4

Orifice Diameter = 2.4 in

Stormwater Planter Worksheet

Af=WQv*(df)/[k*(hf+df)(tf)]

where:	Af	Required Surface Area (ft2)
	WQv	Water Quality Volume (ft ³)
	df	Depth of the Soil Medium (ft) The Hyrdaulic Conductivity (ft/day), usually set at 4 ft/day when soil is loosely
	k	placed in the planter, but can be varied depending on the properties of the soil media.
		Sand - 3.5 ft/day (City of Austin 1988); Peat - 2.0 ft/day (Galli 1990); Leaf Compost - 8.7 ft/day (Claytor and Schueler, 1996); Bioretention Soil
	hf	Average Height of Water above planter bed (ft)
	tf	The Design Time to Filter the Treatment Volume Through the Filter Media (days)

Design Point:							
		er Site Data Fo	or Drainage Ar	ea to be	Treated b	y Practice	
Catchment Number	Total Area (Acres)	Impervious Area (Acres)	Percent Impervious %	Rv	WQv (ft ³)	Precipitation (in)	Description
1	0.16	0.13	0.78	0.75	1234.60	2.82	
		Calcu	late the Mimi	mum Fi	lter Area		
Parar	meter	Value	Units				
	WQv	1,235	ft ³	WQv			
Dep	th of Soil Media	1.5	ft	df			
Hydrau	ılic Conductivity	4	ft/d	k			
Average He	eight of Ponding	0.5	ft	hf			
	Filter Time	0.167	d	tf			
Require	ed Area of Filter	1386	ft ²	Af			
			Area of	Filter			
	Width		ft				
	Length	152.25	ft				
	Area Provided	1750.875	ft ²				
V	olume Provided	1559.446					
			Runoff Re	duction			
	Soil Type						
Flow TI	Flow Through Planter? Yes						
	Determine the Runoff Reduction						
RRv	1,235	ft ³					
RRv Applied	370	ft ³					

Bioretention Worksheet

(For use on HSG C or D Soils with underdrains) Af=WQv*(df)/[k*(hf+df)(tf)]

Af	Required Surface Area (ft2)		The hydraulic conductivity [ft/day], can be varied	
WQv	Water Quality Volume (ft3)		depending on the properties of the soil media. Some	
df	Depth of the Soil Medium (feet)	k	reported conductivity values are: Sand - 3.5 ft/day	
- ,	. , ,	N.	(City of Austin 1988); <i>Peat</i> - 2.0 ft/day (Galli 1990);	
hf	Average height of water above the planter bed		Leaf Compost - 8.7 ft/day (Claytor and Schueler,	
tf	Volume Through the Filter Media (days)		1996); Bioretention Soil (0.5 ft/day (Claytor &	

Design Point:						
Ento	er Site Data For	Drainage Are	a to be T	Treated by	Practice	
Catchment Total Area Number (Acres)	Impervious Area (Acres)	Percent Impervious %	Rv	WQv (ft³)	Precipitation (in)	Description
2 0.06	0.03	0.52	0.51	292.87	2.82	
Enter Impervious Area Reduced by Disconnection of Rooftops	d	52%	0.51 293		< <wqv adjusting="" after="" for<br="">Disconnected Rooftops</wqv>	
Enter the portion of the WQv routed to this practice.	that is not redu	ced for all pra	ctices		ft ³	
		Soil Inform	ation			
Soil Group	D					
Soil Infiltration Rate		in/hour				
Using Underdrains?	Yes	Okay				
	Calcula	te the Minim	um Filte	er Area		
		Value		Units	Notes	
WQv			293		ft ³	
Enter Depth of Soil		df	4		ft	2.5-4 ft
Enter Hydraulic Cond	•	k	0.5		ft/day	
Enter Average Height of Ponding		hf	0.5		ft	6 inches max.
Enter Filter Time		tf	2		days	
Required Filter A	Af		260	ft ²		
		ne Actual Bio	-Retenti	on Area		
Filter Width	9.8	ft				
Filter Length	30	ft . 2				
Filter Area	294	ft ²				
Actual Volume Provided	331	ft ³	f Dadwa	ti a a		
La the Bire of a time and the time		ermine Runof	t Keauci	tion		
Is the Bioretention contributing flow to			Select	t Practice		
another practice?	122					
RRV	132		This is	100/ of the	storano provid	ad as MOss
RRv applied	132	ft ³	This is 40% of the storage provided or WQv whichever is less.			
Volume Treated	161	ft ³	This is the portion of the WQv that is not reduced in the practice.			
Volume Directed	0	ft ³	This volume is directed another practice			
Sizing V	ОК		Check to be sure Area provided ≥ Af			

SWPPP APPENDIX F

POST-DEVELOPMENT HYDROLOGIC ROUTING CALCULATIONS

Extreme Precipitation Tables

Northeast Regional Climate Center

Data represents point estimates calculated from partial duration series. All precipitation amounts are displayed in inches.

Smoothing No

State New York

Location 11 New King Street, North Castle, NY

Longitude73.715 degrees WestLatitude41.082 degrees NorthElevationUnknown/Unavailable

Date/Time Thu, 20 Oct 2016 09:03:21 -0400

Extreme Precipitation Estimates

	5min	10min	15min	30min	60min	120min		1hr	2hr	3hr	6hr	12hr	24hr	48hr		1day	2day	4day	7day	10day	
1yr	0.33	0.52	0.63	0.85	1.04	1.26	1yr	0.90	1.23	1.47	1.91	2.37	2.82	3.19	1yr	2.50	3.07	3.56	4.28	4.93	1yr
2yr	0.40	0.62	0.77	1.04	1.28	1.53	2yr	1.10	1.49	1.74	2.25	2.80	3.44	3.87	2yr	3.04	3.72	4.27	5.07	5.75	2yr
5yr	0.47	0.73	0.91	1.25	1.58	1.88	5yr	1.37	1.84	2.15	2.78	3.47	4.31	4.89	5yr	3.82	4.70	5.46	6.37	7.13	5yr
10yr	0.54	0.83	1.03	1.44	1.86	2.21	10yr	1.61	2.16	2.51	3.26	4.08	5.12	5.84	10yr	4.53	5.62	6.58	7.58	8.39	10yr
25yr	0.65	0.99	1.23	1.76	2.31	2.73	25yr	2.00	2.67	3.10	4.03	5.06	6.43	7.40	25yr	5.69	7.12	8.41	9.52	10.42	25yr
50yr	0.75	1.13	1.41	2.03	2.73	3.21	50yr	2.36	3.13	3.63	4.74	5.96	7.64	8.86	50yr	6.76	8.52	10.14	11.33	12.27	50yr
100yr	0.86	1.30	1.63	2.35	3.23	3.77	100yr	2.79	3.69	4.26	5.58	7.02	9.08	10.60	100yr	8.04	10.19	12.23	13.47	14.46	100yr
200yr	0.99	1.49	1.89	2.74	3.82	4.44	200yr	3.30	4.34	4.99	6.58	8.27	10.80	12.69	200yr	9.56	12.20	14.76	16.04	17.05	200yr
500yr	1.21	1.80	2.31	3.36	4.78	5.51	500yr	4.12	5.38	6.17	8.18	10.28	13.61	16.11	500yr	12.04	15.49	18.93	20.19	21.20	500yr

Lower Confidence Limits

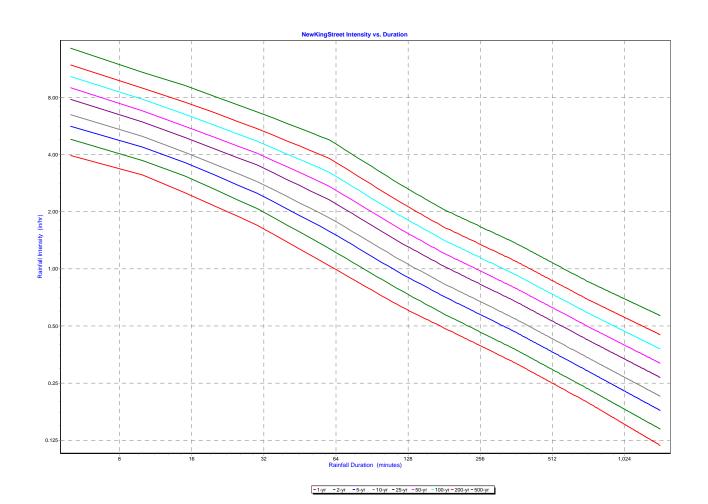
	5min	10min	15min	30min	60min	120min		1hr	2hr	3hr	6hr	12hr	24hr	48hr		1day	2day	4day	7day	10day	
1yr	0.26	0.40	0.49	0.66	0.81	0.95	1yr	0.70	0.93	1.32	1.61	1.98	2.56	2.57	1yr	2.27	2.47	3.12	3.65	4.34	1yr
2yr	0.39	0.61	0.75	1.01	1.24	1.49	2yr	1.07	1.46	1.70	2.19	2.76	3.34	3.74	2yr	2.95	3.60	4.12	4.91	5.58	2yr
5yr	0.43	0.67	0.83	1.14	1.45	1.75	5yr	1.25	1.71	1.98	2.59	3.25	4.00	4.53	5yr	3.54	4.36	5.02	5.86	6.62	5yr
10yr	0.47	0.72	0.90	1.25	1.62	1.97	10yr	1.40	1.93	2.23	2.96	3.70	4.59	5.24	10yr	4.06	5.04	5.83	6.51	7.50	10yr
25yr	0.51	0.78	0.97	1.38	1.82	2.29	25yr	1.57	2.24	2.59	3.49	4.39	5.51	6.37	25yr	4.87	6.12	7.13	7.41	8.87	25yr
50yr	0.54	0.82	1.02	1.46	1.97	2.57	50yr	1.70	2.51	2.92	3.98	5.00	6.34	7.39	50yr	5.62	7.10	8.30	8.01	10.07	50yr
100yr	0.57	0.86	1.08	1.56	2.14	2.87	100yr	1.85	2.80	3.28	4.55	5.70	7.32	8.58	100yr	6.48	8.25	9.67	8.70	11.42	100yr
200yr	0.61	0.91	1.16	1.68	2.34	3.22	200yr	2.02	3.15	3.70	5.21	6.52	8.46	9.97	200yr	7.48	9.59	11.29	9.30	12.99	200yr
500yr	0.65	0.97	1.25	1.82	2.58	3.74	500yr	2.23	3.66	4.34	6.28	7.82	10.26	12.18	500yr	9.08	11.71	13.89	10.02	15.40	500yr

Upper Confidence Limits

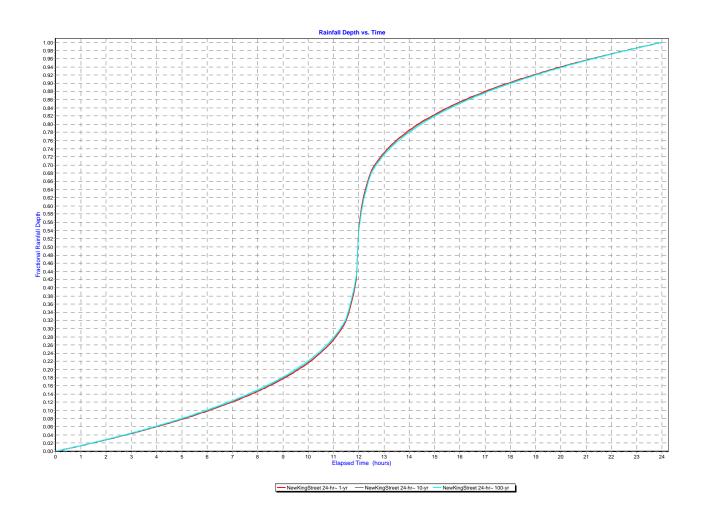
	5min	10min	15min	30min	60min	120min		1hr	2hr	3hr	6hr	12hr	24hr	48hr		1day	2day	4day	7day	10day	
1yr	0.37	0.57	0.70	0.94	1.15	1.40	1yr	0.99	1.37	1.59	2.09	2.64	3.11	3.55	1yr	2.75	3.41	3.84	4.67	5.30	1yr
2yr	0.43	0.66	0.81	1.10	1.36	1.59	2yr	1.17	1.55	1.81	2.32	2.90	3.56	4.01	2yr	3.15	3.86	4.41	5.44	5.98	2yr
5yr	0.52	0.80	0.99	1.36	1.73	2.02	5yr	1.49	1.98	2.33	2.97	3.72	4.65	5.32	5yr	4.11	5.11	5.88	6.85	7.70	5yr
10yr	0.62	0.95	1.17	1.64	2.12	2.43	10yr	1.83	2.38	2.84	3.60	4.52	5.68	6.56	10yr	5.02	6.30	7.29	8.47	9.40	10yr
25yr	0.79	1.20	1.49	2.13	2.80	3.14	25yr	2.42	3.07	3.70	4.63	5.82	7.41	8.66	25yr	6.56	8.33	9.73	11.19	12.18	25yr
50yr	0.94	1.43	1.78	2.56	3.45	3.81	50yr	2.98	3.73	4.53	5.60	7.04	9.06	10.71	50yr	8.02	10.29	12.08	13.82	14.80	50yr
100yr	1.14	1.72	2.16	3.12	4.28	4.64	100yr	3.69	4.54	5.52	6.80	8.59	11.07	13.22	100yr	9.80	12.71	15.01	17.06	17.98	100yr
200yr	1.38	2.07	2.62	3.80	5.30	5.64	200yr	4.57	5.52	6.75	8.23	10.41	13.52	16.30	200yr	11.97	15.67	18.64	21.08	21.86	200yr
500yr	1.79	2.66	3.42	4.97	7.07	7.31	500yr	6.10	7.14	8.81	10.60	13.44	17.63	21.53	500yr	15.60	20.70	24.82	28.02	28.29	500yr



IDF Curve Report



Storm Distribution Report



Post-Development Hydrologic Analysis POST 2A Bioretention (BR) POST POST 3 POST 2B DP1 Flow Split Area (FS) Flow Splitter DP3 POST 21 POST 2C Pretreatment Area (PT) Pretreatment POST 2D Sand Filter Sand Filter Area (SF) POST 2E Planter Area (PLT) POST 2K Wetland Area (WET) Wetland Post 2 (DP2-BY) DP2 Routing Diagram for Park Place 2016-Nov Subcat Reach Pond Link Prepared by AKRF, Inc., Printed 11/21/2016 HydroCAD® 10.00-15 s/n 04852 © 2015 HydroCAD Software Solutions LLC

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Area Listing (selected nodes)

Area	CN	Description
(sq-ft)		(subcatchment-numbers)
23,994	61	>75% Grass cover, Good, HSG B (POST 1, POST 2A, POST 2B, POST 2C, POST 2E, POST 2F, POST 2G, POST 3)
58,270	80	>75% Grass cover, Good, HSG D (POST 1, POST 2B, POST 2C, POST 2D, POST 2E, POST 2F, POST 2G, POST 3)
56,914	98	Paved parking, HSG D (POST 2A, POST 2B, POST 2C, POST 2E, POST 2F, POST 2G, POST 3)
1,782	55	Woods, Good, HSG B (POST 1, POST 3)
67,884	77	Woods, Good, HSG D (POST 1, POST 2G, POST 3)
208,844	82	TOTAL AREA

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Soil Listing (selected nodes)

Area	Soil	Subcatchment
(sq-ft)	Group	Numbers
0	HSG A	
25,776	HSG B	POST 1, POST 2A, POST 2B, POST 2C, POST 2E, POST 2F, POST 2G, POST 3
0	HSG C	
183,068	HSG D	POST 1, POST 2A, POST 2B, POST 2C, POST 2D, POST 2E, POST 2F, POST 2G, POST 3
0	Other	
208,844		TOTAL AREA

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Sub Nun

Ground Covers (selected nodes)

HSG-A (sq-ft)	HSG-B (sq-ft)	HSG-C (sq-ft)	HSG-D (sq-ft)	Other (sq-ft)	Total (sq-ft)	Ground Cover
0	23,994	0	58,270	0	82,264	>75% Grass
						cover, Good
0	0	0	56,914	0	56,914	Paved parking
0	1,782	0	67,884	0	69,666	Woods, Good
0	25,776	0	183,068	0	208,844	TOTAL AREA

NewKingStreet 24-hr 1-yr Rainfall=2.82"

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NewKing
Park Place 2016-Nov
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Summary for Subcatchment POST 1: DP1

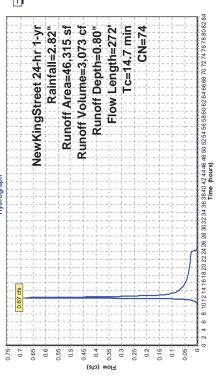
3,073 cf, Depth= 0.80" 0.67 cfs @ 12.17 hrs, Volume= Runoff

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-84.00 hrs, dt= 0.01 hrs NewKingStreet 24-hr 1-yr Rainfall=2.82"

Description >75% Grass cover, Good, HSG B >75% Grass cover, Good, HSG D Moods, Good, HSG B Woods, Good, HSG B	g.	Slope Velocity Capacity Description (ft/ft) (ft/sec) (cfs)	Sheet Flow, Woods: Light underbrush n= 0.400 P2= 3.44"	Shallow Concentrated Flow, Woodland Kv= 5.0 fps	
Description >75% Grass cover, Go >75% Grass cover, Go Woods, Good, HSG B	Weighted Average 100.00% Pervious Area	Capacity (cfs)			
Area (sf) CN Description 7,901 61 >75% Grass cover, Gc 6,202 80 >75% Grass cover, Gc 1,479 55 Woods, Good, HSG B	Weighted Average 100.00% Pervious	Velocity (ft/sec)	0.13	1.25	
CN 61 × 80 × 77 × 77 × 77 × 77 × 77 × 77 × 77	47 V L		100 0.0720	172 0.0630	272 Total
7,901 6,202 1,479 30,733	46,315 46,315	Tc Length nin) (feet)	100	172	272
₹		Tc (min)	12.4	2.3	14.7

Subcatchment POST 1: DP1

Hydrograph



NewKingStreet 24-hr 1-yr Rainfall=2.82"

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NewKing Park Place 2016-Nov Nepared by AKRF, Inc. HydroCAD® 10.00-15 s/n 04852 © 2015 HydroCAD Software Solutions LLC

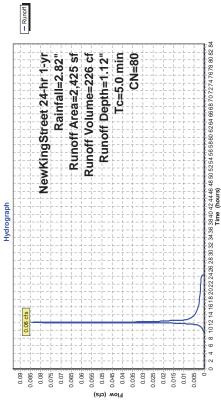
Summary for Subcatchment POST 2A: Bioretention (BR)

226 cf, Depth= 1.12" 0.08 cfs @ 12.03 hrs, Volume= Runoff

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-84.00 hrs, dt= 0.01 hrs NewKingStreet 24-hr 1-yr Rainfall=2.82"

CN Description	98 Paved parking, HSG D	61 >75% Grass cover, Good, HSG B	80 Weighted Average	48.45% Pervious Area	51.55% Impervious Area	Constitution Constitution	Stope verodity description (ft/ft) (ft/sec) (cfs)	Direct Entry,
Area (sf) (1,250	1,175		1,175	1,250		min) (feet)	5.0

Subcatchment POST 2A: Bioretention (BR)



NewKingStreet 24-hr 1-yr Rainfall=2.82" Printed 11/21/2016

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Park Place 2016-Nov
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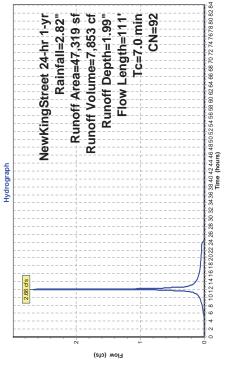
Summary for Subcatchment POST 2B: Flow Split Area (FS)

7,853 cf, Depth= 1.99" 2.66 cfs @ 12.05 hrs, Volume= Runoff

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-84.00 hrs, dt= 0.01 hrs NewKingStreet 24-hr 1-yr Rainfall=2.82"

		HSG B	HSGD				escription		Sheet Flow,	Grass: Short n= 0.150 P2= 3.44"	Shallow Concentrated Flow,	Short Grass Pasture Kv= 7.0 fps	
	Paved parking, HSG D	>75% Grass cover, Good, HSG B	>75% Grass cover, Good, HSG D	verage	23.54% Pervious Area	76.46% Impervious Area	Slope Velocity Capacity Description	(cfs)	S	g	S	S	
escription	aved park	75% Gras	75% Gras	Weighted Average	3.54% Per	3.46% Imp	Velocity	(tt/sec)	0.24		1.15		
Area (sf) CN Description	98 Pe	61 >7	80 >7	92 W	8	76		(ft/ft)	100 0.0450		11 0.0270		111 Total
rea (sf)	36,178	3,635	7,506	47,319	11,141	36,178	Tc Length	(feet)	100		11		111
∢							Tc	(min)	6.8		0.2		7.0

Subcatchment POST 2B: Flow Split Area (FS)



NewKingStreet 24-hr 1-yr Rainfall=2.82" Printed 11/21/2016

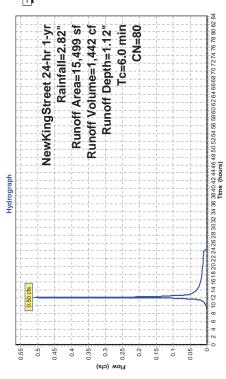
Summary for Subcatchment POST 2C: Pretreatment Area (PT)

1,442 cf, Depth= 1.12" 0.50 cfs @ 12.04 hrs, Volume= Runoff

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-84.00 hrs, dt= 0.01 hrs NewKingStreet 24-hr 1-yr Rainfall=2.82"

		>75% Grass cover, Good, HSG B	>75% Grass cover, Good, HSG D			ea	Slope Velocity Capacity Description		Direct Entry
	Paved parking, HSG D	s cover, Gc	s cover, Gc	verage	64.41% Pervious Area	35.59% Impervious Area	Capacity	(cts)	
Area (sf) CN Description	aved parki	75% Grass	75% Grass	Weighted Average	4.41% Per	5.59% Imp	Velocity	(t/sec)	
CN	98 F	61	80 >	80 V	9	က	Slope	(ft/ft)	
rea (sf)	5,516	5,587	4,396	15,499	9,983	5,516	Tc Length	(teet)	
A							Tc	(min)	0.9

Subcatchment POST 2C: Pretreatment Area (PT)



Printed 11/21/2016 NewKingStreet 24-hr 1-yr Rainfall=2.82"

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Summary for Subcatchment POST 2D: Sand Filter Area (SF)

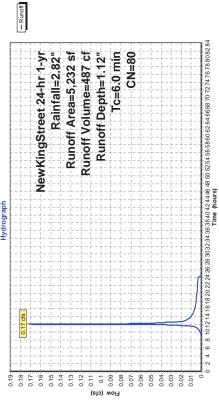
0.17 cfs @ 12.04 hrs, Volume= Runoff

487 cf, Depth= 1.12"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-84.00 hrs, dt= 0.01 hrs NewKingStreet 24-hr 1-yr Rainfall=2.82"

CN Description 80 >75% Grass cover, Good, HSG D 100.00% Pervious Area	Slope Velocity Capacity Description (tt/ft) (tt/sec) (ds)	Direct Entry,
Area (sf) CN 5,232 80 5,232	Tc Length min) (feet)	0.9

Subcatchment POST 2D: Sand Filter Area (SF)



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Summary for Subcatchment POST 2E: Planter Area (PLT)

0.44 cfs @ 12.04 hrs, Volume= Runoff

1,264 cf, Depth= 2.18"

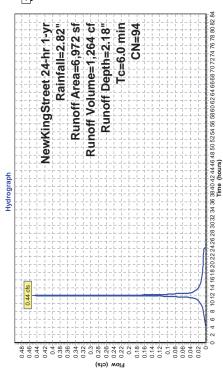
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-84.00 hrs, dt= 0.01 hrs NewKingStreet 24-hr 1-yr Rainfall=2.82"

CN

Area (sf)

Direct Entry,					0.9
	(cfs)	(ft/sec)	(ft/ft)	(feet)	(min)
Velocity Capacity Description	Capacity	Velocity	Slope	Tc Length	Tc
ea	78.17% Impervious Area	8.17% Imp	7	5,450	
	21.83% Pervious Area	1.83% Per	7	1,522	
	verage	Weighted Average	94 V	6,972	
>75% Grass cover, Good, HSG D	s cover, Go	75% Gras	80 >	1,447	
>75% Grass cover, Good, HSG B	s cover, Go	75% Gras	61	75	
	Paved parking, HSG D	aved park	98 F	5,450	

Subcatchment POST 2E: Planter Area (PLT)



NewKingStreet 24-hr 1-yr Rainfall=2.82" Printed 11/21/2016

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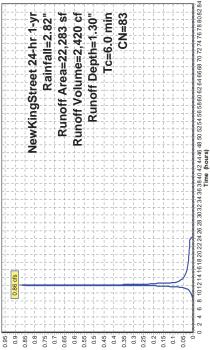
Summary for Subcatchment POST 2F: Wetland Area (WET)

2,420 cf, Depth= 1.30" 0.86 cfs @ 12.04 hrs, Volume= Runoff

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-84.00 hrs, dt= 0.01 hrs NewKingStreet 24-hr 1-yr Rainfall=2.82"

		>75% Grass cover, Good, HSG B	>75% Grass cover, Good, HSG D			ee.	Slope Velocity Capacity Description		Direct Entry.
	Paved parking, HSG D	s cover, Go	s cover, Go	verage	76.39% Pervious Area	23.61% Impervious Area	Capacity	(cts)	
Area (sf) CN Description	Paved park	75% Gras	75% Gras	Weighted Average	76.39% Per	23.61% Imp	Velocity	(tt/sec)	
CN			80	83 \	-		Slope	(ft/ft)	
rea (sf)	5,261	1,055	15,967	22,283	17,022	5,261		(feet)	
Ā							Tc	(min)	0.9

Subcatchment POST 2F: Wetland Area (WET)



(cfs)

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Summary for Subcatchment POST 2G: Post 2 (DP2-BY)

0.43 dfs @ 12.04 hrs, Volume= Runoff

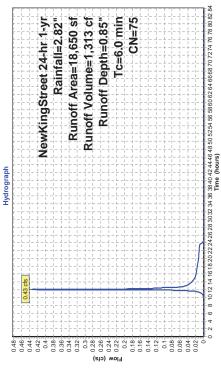
1,313 cf, Depth= 0.85"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-84.00 hrs, dt= 0.01 hrs NewKingStreet 24-hr 1-yr Rainfall=2.82"

Area (sf) CN Description	470 98 Paved parking, HSG D	4,180 61 >75% Grass cover, Good, HSG B	6,149 80 >75% Grass cover, Good, HSG D	7,851 77 Woods, Good, HSG D	18,650 75 Weighted Average	18,180 97.48% Pervious Area	470 2.52% Impervious Area	Tc Length Slope Velocity Capacity Description	(min) (feet) (ft/ft) (ft/sec) (cfs)	6.0 Direct Entry.
--------------------------	-----------------------------	--	--	-----------------------------	----------------------------	-----------------------------	---------------------------	---	-------------------------------------	-------------------

Subcatchment POST 2G: Post 2 (DP2-BY)

- Runoff



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NewKingStreet 24-hr 1-yr Rainfall=2.82" Printed 11/21/2016 utions LLC Page 14

Summary for Pond POST 2H: Flow Splitter

49,744 sf, 75.24% Impervious, Inflow Depth = 1.95" for 1-yr event	= 8,079 cf	= 8,079 cf, Atten= 0%, Lag= 0.0 min	= 8,079 cf	= 0 cf
75.24% Impervious	2.05 hrs, Volume=	2.74 cfs @ 12.05 hrs, Volume=	2.05 hrs, Volume=	0.00 hrs, Volume=
49,744 sf,	2.74 cfs @ 1	2.74 cfs @ 1	2.74 cfs @ 1	0.00 cfs @
Inflow Area =	II	Outflow =	II	П

Routing by Dyn-Stor-Ind method, Time Span= 0.00-84.00 hrs, dt= 0.01 hrs Peak Elev= 389.34' @ 12.05 hrs Flood Elev= 394.00'

Invert Outlet Devices	388.00' 12.0" Round Culvert to Pretreatment	L= 20.0' CPP, projecting, no headwall, Ke= 0.900	Inlet / Outlet Invert= 388.00' / 384.00' S= 0.2000 '/' Cc= 0.900	n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf	4.0' long Sharp-Crested Vee/Trap Weir Cv= 2.62 (C= 3.28)	15.0" Round Culvert to Wetland	L= 106.0' CPP, projecting, no headwall, Ke= 0.900	Inlet / Outlet Invert= 388.00' / 381.00' S= 0.0660 '/' Cc= 0.900	n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf
Invert	388.00				389.40'	388.00			
Device Routing	#1 Primary				Device 3	Secondary			
Device	#1				#5	#3			

Primary OutFlow Max=2.73 cfs @ 12.05 hrs HW=389.34' TW=385.27' (Dynamic Tailwater) —1=Culvert to Pretreatment (Inlet Controls 2.73 cfs @ 3.48 fps)

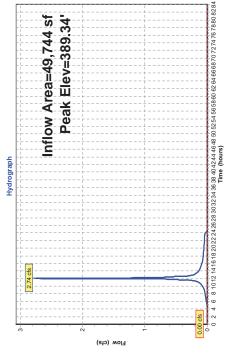
Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=388.00′ TW=378.00′ (Dynamic Tailwater)

—3=Culvert to Wetland (Controls 0.00 cfs)

—2=Sharp-Crested Vee/Trap Weir (Controls 0.00 cfs)

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Pond POST 2H: Flow Splitter



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Summary for Pond POST 2I: Pretreatment

65,243 sf, 65.82% Impervious, Inflow Depth = 1.75" for 1-yr event	9,521 of	9,503 cf, Atten= 79%, Lag= 17.0 min	9,503 cf
mpervious, Inflow [Volume=	Volume=	Volume=
5,243 sf, 65.82% I	4 cfs @ 12.05 hrs,	0.69 cfs @ 12.33 hrs, Volume=	9 cfs @ 12.33 hrs,
/ Area = 6	/ = 3.2	0.0 = 0.6	ary = 0.6
Inflov	Inflov	Outfl	Prim

Routing by Dyn-Stor-Ind method, Time Span= 0.00-84.00 hrs, dt= 0.01 hrs Peak Elev= 385.83' @ 12.48 hrs Surf.Area= 2,235 sf Storage= 3,113 cf

Plug-Flow detention time= 298.1 min calculated for 9,502 cf (100% of inflow) Center-of-Mass det. time= 297.3 min (1,122.2-824.9)

rismatic)Listed below (Recalc)							
tage Data (P	Cum.Store (cubic-feet)	0	1,475	3,511	6,157	9,152	
f Custom S	nc.Store bic-feet)	0	1,475	2,036	2,646	2,996	Invert Outlet Devices
9,152 c	၁)	1,220	1,730	2,341	2,951	3,040	Invert Ou
384.00	S						outing
#	Elevation (feet)	384.00	385.00	386.00	387.00	388.00	Device Routing
	#1 384.00' 9,152 cf Custom Stage Data (Prismatic)Listed below (Recalc)	384.00' Surf.Area (sq-ft)	384.00' Surf.Area (sq-ft) 1,220	384.00' Surf.Area (sq-ft) 1,220 1,730	384.00' Surf. Area (sq-ft) 1,220 1,730 2,341	384.00' Surf.Area (sq-ft) 1,220 1,730 2,341 2,951	384,00' Surf.Area (sq-ft) 1,220 1,730 2,341 2,951 3,040

liver Odiret Devices	384.00' 12.0" Round Culvert	L= 38.0' CPP, projecting, no headwall, Ke= 0.900	Inlet / Outlet Invert= 384.00 / 384.00 'S= 0.0000 '/ Cc= 0.900	n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf	0.5" Vert. Orifice/Grate X 16.00 columns	X 12 rows with 3.0" cc spacing $C = 0.600$		Limited to weir flow at low heads	10.0' long x 2.0' breadth Broad-Crested Rectangular Weir	Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00	2.50 3.00 3.50	Coef. (English) 2.54 2.61 2.61 2.60 2.66 2.70 2.77 2.89 2.88	2.85 3.07 3.20 3.32	
IIIVEIL	384.00				384.00		387.00		387.00					
WICE ROUING	#1 Primary				Device 1		Device 1		Primary					
a vice	#1				#5		#3		#4					

Primary OutFlow Max=0.69 cfs @ 12.33 hrs HVV=385.81' TVV=384.70' (Dynamic Tailwater)

1=Culvert (Passes 0.69 cfs of 3.14 cfs potential flow)

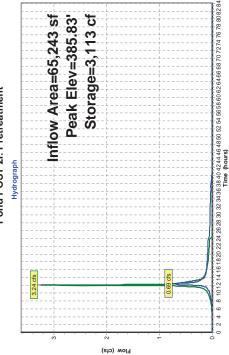
1=Calfice-fortate (Orifice Controls 0.69 cfs @ 3.93 fps)

1=3=Ritser Openning (Controls 0.00 cfs)

1=4=Broad-Crested Rectangular Weir (Controls 0.00 cfs)

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Pond POST 21: Pretreatment



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Summary for Pond POST 2J: Sand Filter

Inflow Area =	:a =	70,475 sf,	60.94% Impervious,	70,475 sf, 60.94% Impervious, Inflow Depth = 1.70" for 1-yr event	for 1-yr event
Inflow	II	0.74 cfs @	12.29 hrs, Volume=	9,990 of	
Outflow	II	0.12 cfs @	15.57 hrs, Volume=	9,991 cf, Atten	9,991 cf, Atten= 84%, Lag= 196.8 min
Primary	II	0.12 cfs @	15.57 hrs, Volume=	9,991 of	

Routing by Dyn-Stor-Ind method, Time Span= 0.00-84.00 hrs, dt= 0.01 hrs Peak Elev= 385.62' @ 15.57 hrs Surf.Area= 2,262 sf Storage= 2,928 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow) Center-of-Mass det. time= 282.7 min (1,392.7 - 1,110.0)

	9,806 cf Custom Stage Data (Prismatic)Listed below (Recalc)							
Description	Stage Data (Pris	Cum.Store (cubic-feet)	0	1,645	3,839	6,641	9,806	
ge Storage D	of Custom (Inc.Store cubic-feet)	0	1,645	2,194	2,802	3,166	Invert Outlet Devices
Invert Avail. Storage Storage Description	9)8'6	Surf.Area (sq-ft) (c	1,386	1,903	2,485	3,119	3,212	Invert (
Invert	384.00'	Sul						outing
Volume	#1	Elevation (feet)	384.00	385.00	386.00	387.00	388.00	Device Routing

			Cc = 0.900					
Invert Outlet Devices	381.50' 12.0" Round SF Outlet Culvert	L= 35.0' CPP, square edge headwall, Ke= 0.500	nlet / Outlet Invert= 381.50 / 380.00' S= 0.0429 '/ Cc= 0.900	n= 0.011, Flow Area= 0.79 sf	386.10' 48.0" x 48.0" Horiz. Overflow Grate C= 0.600	Limited to weir flow at low heads	1.750 in/hr Exfiltration over Horizontal area	Conductivity to Groundwater Elevation = 380.00'
Invert	381.50				386.10'		384.00'	
Device Routing	#1 Primary				#2 Device 1		#3 Device 1	
Device	#1				#5		#3	

Primary OutFlow Max=0.12 cfs @ 15.57 hrs HW=385.62 TW=378.55' (Dynamic Tailwater)

—1=SF Outlet Culvert (Passes 0.12 cfs of 7.19 cfs potential flow)

—2=Overflow Grate (Controls 0.00 cfs)

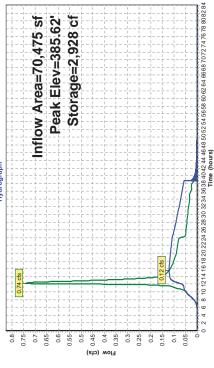
—3=Exfiltration (Controls 0.12 cfs)

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Pond POST 2J: Sand Filter

Hydrograph



Page 19 NewKingStreet 24-hr 1-yr Rainfall=2.82" Printed 11/21/2016

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Summary for Pond POST 2K: Wetland

for 1-yr event		87%, Lag= 164.9 min	
1.65" fo		tten=	
99,730 sf, 53.80% Impervious, Inflow Depth = 1.65"	13,675 cf	13,592 cf, A	13,592 cf
3% Impervious,	hrs, Volume=	0.17 cfs @ 14.79 hrs, Volume=	hrs, Volume=
, 53.80	12.04	14.79	14.79
99,730 sf,	1.37 cfs @	0.17 cfs @	0.17 cfs @
ea =	II	II	II
Inflow Area	Inflow	Outflow	Primary

Routing by Dyn-Stor-Ind method, Time Span= 0.00-84.00 hrs, dt= 0.01 hrs Peak Elev= 378.55' @ 14.79 hrs Surf.Area= 5,521 sf Storage= 2,836 cf

Plug-Flow detention time= 355.8 min calculated for 13,592 cf (99% of inflow) Center-of-Mass det. time= 345.8 min (1,589.3 - 1,243.5)

	Custom Stage Data (Prismatic)Listed below (Recalc)						
Avail. Storage Storage Description	n Stage Data (P	Cum.Store	(cubic-feet)	0	5,465	12,311	20,809
Storage		Inc.Store	(cubic-teet)	0	5,465	6,846	8,498
Storage	20,809 cf	<u>n</u>	idno)				
Avail.	2	Surf.Area	(sd-ft)	4,855	6,074	7,618	9,378
Invert	378.00′	Sur					
Volume	#1	Elevation	(teet)	378.00	379.00	380.00	381.00

6,846 12,311	8,498 20,809	Invert Outlet Devices	374.00' 15.0" Round Culvert	L= 40.0' CPP, square edge headwall, Ke= 0.500	Inlet / Outlet Invert= 374.00' / 373.00' S= 0.0250 '/' Cc= 0.900	n= 0.011, Flow Area= 1.23 sf	2.5" Vert. Low Flow Orifice C= 0.600	24.0" W x 4.0" H Vert. High Flow Orifice C= 0.600	60.0" x 60.0" Horiz. Overflow Grate C= 0.600	Limited to weir flow at low heads
7,618	9,378	Invert	374.00				378.00	378.50	380.50	
00	00	Device Routing	#1 Primary				Device 1	Device 1	Device 1	
380.00	381.00	Device	#				#5	#3	#4	

Primary OutFlow Max=0.17 cfs @ 14.79 hrs HW=378.55 TW=0.00 (Dynamic Tailwater)

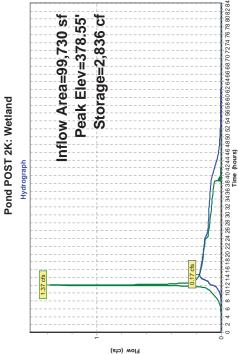
1=Culvert (Passes 0.17 cfs of 11.70 cfs potential flow)

1=Leuk Flow William (Orifice Controls 0.11 cfs @ 3.20 fps)

1=High Flow Orifice (Orifice Controls 0.06 cfs @ 0.69 fps)

4=Overflow Grate (Controls 0.00 cfs)

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Summary for Link POST 2L: DP2

118,380 sf, 45,72% Impervious, Inflow Depth > 1.51" for 1-yr event 0.50 cfs @ 12.05 hrs, Volume= 14,905 cf, Atten= 0%, Lag= 0.0 min

Inflow Area = Inflow = Primary =

Primary outflow = Inflow, Time Span= 0.00-84.00 hrs, dt= 0.01 hrs

Link POST 2L: DP2



Summary for Subcatchment POST 3: DP3

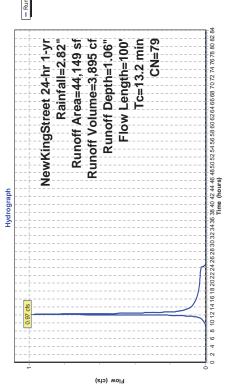
3,895 cf, Depth= 1.06" 0.97 cfs @ 12.14 hrs, Volume=

Runoff

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-84.00 hrs, dt= 0.01 hrs NewKingStreet 24-hr 1-yr Rainfall=2.82"

												P2= 3.44"			
												n = 0.400		P2= 3.44"	
												Inderbrush		n = 0.240	
		od, HSG B	od, HSG D						Slope Velocity Capacity Description		Sheet Flow,	Woods: Light underbrush n= 0.400 P2= 3.44"	Sheet Flow,	Grass: Dense n= 0.240 P2= 3.44"	
	Paved parking, HSG D	>75% Grass cover, Good, HSG B	75% Grass cover, Good, HSG D	Woods, Good, HSG B	Woods, Good, HSG D	verage	93.68% Pervious Area	6.32% Impervious Area	Capacity	(cts)					
Area (sf) CN Description	aved parki	75% Grass	75% Grass	loods, God	loods, God	Weighted Average	3.68% Per	.32% Impe	Velocity	(ft/sec)	0.12		0.17		
CN	98 P	61	80	25 V	77 W	79 W	0	9	Slope	(ft/ft)	84 0.0600		16 0.1130		100 Total
rea (sf)	2,789	386	11,371	303	29,300	44,149	41,360	2,789	Tc Length	(feet)	84		16		100
V									٦ ۲	(min)	11.6		1.6		13.2

Subcatchment POST 3: DP3



NewKingStreet 24-hr 2-yr Rainfall=3.44"

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NewKingStreet 24-hr 2-yr Rainfall=3.44"

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Summary for Subcatchment POST 1: DP1

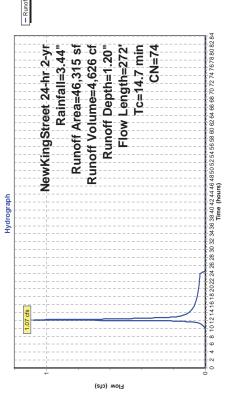
4,626 cf, Depth= 1.20" 1.07 cfs @ 12.17 hrs, Volume=

Runoff

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-84.00 hrs, dt= 0.01 hrs NewKingStreet 24-hr 2-yr Rainfall=3.44"

	>75% Grass cover, Good, HSG B	•75% Grass cover, Good, HSG D				a	Slope Velocity Capacity Description		Sheet Flow,	Woods: Light underbrush n= 0.400 P2= 3.44"	Shallow Concentrated Flow,	Woodland Kv= 5.0 fps	
	s cover, Go	s cover, Go	od, HSG B	od, HSG D	verage	rvious Are	Capacity	(cts)					
Area (sf) CN Description	75% Grass	75% Grass	Woods, Good, HSG B	Woods, Good, HSG D	Weighted Average	100.00% Pervious Area	Velocity	(ft/sec)	0.13		1.25		
CN	61 >	80 >	25 W	77 W	74 W	7	Slope	(ft/ft)	100 0.0720		172 0.0630		272 Total
rea (sf)	7,901	6,202	1,479	30,733	46,315	46,315	Tc Length	(feet)	100		172		272
Ā							Tc	(min)	12.4		2.3		14.7

Subcatchment POST 1: DP1



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Summary for Subcatchment POST 2A: Bioretention (BR)

0.12 cfs @ 12.03 hrs, Volume= Runoff

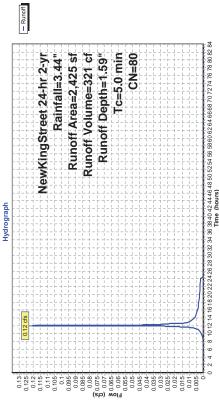
321 cf, Depth= 1.59"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-84.00 hrs, dt= 0.01 hrs NewKingStreet 24-hr 2-yr Rainfall=3.44"

Paved parking, HSG D >75% Grass cover, Good, HSG B Weighted Average 48.45% Pervious Area 51.55% Impervious Area CN 98 61 80 1,250 1,175 2,425 1,175 1,250 Area (sf)

Direct Entry, Capacity Description (cfs) Slope Velocity (ft/ft) (ft/sec) Length (feet) С (min)

Subcatchment POST 2A: Bioretention (BR)



NewKingStreet 24-hr2-yr Rainfall=3.44" Printed 11/21/2016 Page 25

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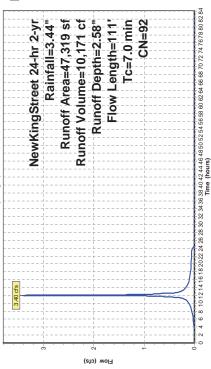
Summary for Subcatchment POST 2B: Flow Split Area (FS)

10,171 cf, Depth= 2.58" 3.40 cfs @ 12.05 hrs, Volume= Runoff

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-84.00 hrs, dt= 0.01 hrs NewKingStreet 24-hr 2-yr Rainfall=3.44"

		8.	D				tion		-low,	Grass: Short n= 0.150 P2= 3.44"	Shallow Concentrated Flow,	Short Grass Pasture Kv= 7.0 fps	
		od, HSG	od, HSG			38	Descrip		Sheet Flow,	Grass:	Shallov	Short G	
	Paved parking, HSG D	>75% Grass cover, Good, HSG B	>75% Grass cover, Good, HSG D	verage	23.54% Pervious Area	76.46% Impervious Area	Slope Velocity Capacity Description	(cts)					
CN Description	aved parki	75% Grass	75% Grass	Weighted Average	3.54% Per	3.46% Imp	Velocity	(t/sec)	0.24		1.15		
CN	98 P	61	80 >	92 W	6	7	Slope	(#/#)	100 0.0450		11 0.0270		111 Total
Area (sf)	36,178	3,635	7,506	47,319	11,141	36,178	Tc Length	(feet)	100		7		111
A							P.	(min)	8.9		0.2		7.0

Subcatchment POST 2B: Flow Split Area (FS)



NewKingStreet 24-hr 2-yr Rainfall=3.44" Printed 11/21/2016

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Summary for Subcatchment POST 2C: Pretreatment Area (PT)

0.73 cfs @ 12.04 hrs, Volume=

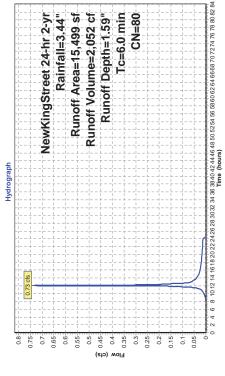
Runoff

2,052 cf, Depth= 1.59"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-84.00 hrs, dt= 0.01 hrs NewKingStreet 24-hr 2-yr Rainfall=3.44"

									λ',
		>75% Grass cover, Good, HSG B	>75% Grass cover, Good, HSG D			aa	Slope Velocity Capacity Description		Direct Entry,
	Paved parking, HSG D	s cover, Go	s cover, Go	verage	64.41% Pervious Area	35.59% Impervious Area	Capacity	(cfs)	
Area (sf) CN Description	aved parki	.75% Grass	.75% Grass	Weighted Average	4.41% Per	5.59% Imp	Velocity	(ft/sec)	
CN	98 F	61	80 >	80 V	9	ന	Slope	(ft/ft)	
rea (sf)	5,516	5,587	4,396	15,499	9,983	5,516	Tc Length	(feet)	
A							Tc	(min)	0.9

Subcatchment POST 2C: Pretreatment Area (PT)



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Summary for Subcatchment POST 2D: Sand Filter Area (SF)

0.25 cfs @ 12.04 hrs, Volume= Runoff

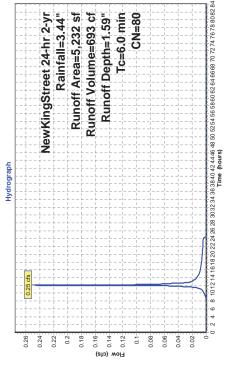
693 cf, Depth= 1.59"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-84.00 hrs, dt= 0.01 hrs NewKingStreet 24-hr 2-yr Rainfall=3.44"

	HSG D		Description	Direct Entry,
	ood, F	ea	Des	Dir
	s cover, G	ervious Are	Capacity (cfs)	
escription	80 >75% Grass cover, Good, HSG D	100.00% Pervious Area	Velocity Capacity (ft/sec) (cfs)	
CN	< 08	1	Slope (ft/ft)	
Area (sf) CN Description	5,232	5,232	Tc Length nin) (feet)	
Ā			T _C (min)	0.9

Subcatchment POST 2D: Sand Filter Area (SF)

- Runoff



NewKingStreet 24-hr 2-yr Rainfall=3.44"

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Summary for Subcatchment POST 2E: Planter Area (PLT)

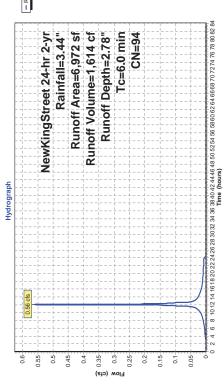
0.56 cfs @ 12.04 hrs, Volume= Runoff

1,614 cf, Depth= 2.78"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-84.00 hrs, dt= 0.01 hrs NewKingStreet 24-hr 2-yr Rainfall=3.44"

		>75% Grass cover, Good, HSG B	>75% Grass cover, Good, HSG D			aa	Tc Length Slope Velocity Capacity Description		Direct Entry
	Paved parking, HSG D	s cover, Go	s cover, Go	verage	21.83% Pervious Area	78.17% Impervious Area	Capacity	(cts)	
Description	aved parki	75% Grass	75% Grass	Weighted Average	1.83% Per	8.17% Imp	Velocity	(tt/sec)	
CN	98 F	61	80 >	94 V	8	7	Slope	(ft/ft)	
Area (sf)	5,450	75	1,447	6,972	1,522	5,450	Length	(feet)	
₹							Tc	(min)	6.0

Subcatchment POST 2E: Planter Area (PLT)



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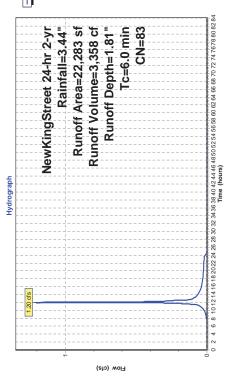
Summary for Subcatchment POST 2F: Wetland Area (WET)

3,358 cf, Depth= 1.81" 1.20 cfs @ 12.04 hrs, Volume= Runoff

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-84.00 hrs, dt= 0.01 hrs NewKingStreet 24-hr 2-yr Rainfall=3.44"

		B	D				ion		intry,
		od, HSG	od, HSG			ea	Descript		Direct Entry,
	Paved parking, HSG D	>75% Grass cover, Good, HSG B	>75% Grass cover, Good, HSG D	verage	76.39% Pervious Area	23.61% Impervious Area	Slope Velocity Capacity Description	(cfs)	
Area (sf) CN Description	aved park	75% Gras	75% Grass	Weighted Average	6.39% Per	3.61% Imp	Velocity	(ft/sec)	
CN	98 P	61	80 >	83 V	7	2	Slope	(ft/ft)	
ea (sf)	5,261	1,055	15,967	22,283	17,022	5,261	Tc Length	(feet)	
Ar							Tc	(min)	0.9

Subcatchment POST 2F: Wetland Area (WET)



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Summary for Subcatchment POST 2G: Post 2 (DP2-BY)

0.67 dfs @ 12.04 hrs, Volume=

Runoff

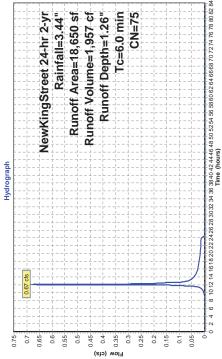
1,957 cf, Depth= 1.26"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-84.00 hrs, dt= 0.01 hrs NewKingStreet 24-hr 2-yr Rainfall=3.44"

Area (sf) CN Description	470 98 Paved parking, HSG D	4,180 61 >75% Grass cover, Good, HSG B	6,149 80 >75% Grass cover, Good, HSG D	7,851 77 Woods, Good, HSG D	18,650 75 Weighted Average	18,180 97.48% Pervious Area	470 2.52% Impervious Area	To Length Slope Velocity Capacity Description in) (feet) (fl/ft) (fl/sec) (cfs)	Direct Entry
Area (sf	470	4,18	6,14	7,85	18,65	18,18	47(Tc Leng (min) (fee	6.0

Subcatchment POST 2G: Post 2 (DP2-BY)

- Runoff



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Summary for Pond POST 2H: Flow Splitter

Routing by Dyn-Stor-Ind method, Time Span= 0.00-84.00 hrs, dt= 0.01 hrs Peak Elev= 389.51' @ 12.05 hrs Flood Elev= 394.00'

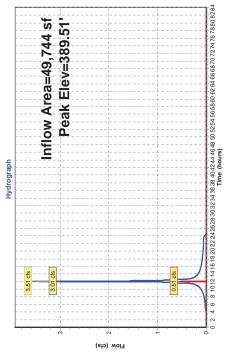
Invert Outlet Devices	388.00' 12.0" Round Culvert to Pretreatment	L= 20.0' CPP, projecting, no headwall, Ke= 0.900	Inlet / Outlet Invert= 388.00' / 384.00' S= 0.2000 '/' Cc= 0.900	n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf	4.0' long Sharp-Crested Vee/Trap Weir Cv= 2.62 (C= 3.28)	15.0" Round Culvert to Wetland	L= 106.0' CPP, projecting, no headwall, Ke= 0.900	Inlet / Outlet Invert= 388.00' / 381.00' S= 0.0660 '/' Cc= 0.900	n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf
Invert	388.00				389.40'	388.00			
Device Routing	#1 Primary				Device 3	Secondary			
Device	#1				#5	#3			

Primary OutFlow Max=3.01 cfs @ 12.05 hrs HW=389.51' TW=385.59' (Dynamic Tailwater) —1=Culvert to Pretreatment (Inlet Controls 3.01 cfs @ 3.83 fps)

Secondary OutFlow Max=0.50 cts @ 12.05 hrs HW=389.51' TW=378.41' (Dynamic Tailwater) = 3=Culvert to Wetland (Passes 0.50 cfs of 4.40 cfs potential flow) = 2=Sharp-Crested Vee/Trap Weir (Weir Controls 0.50 cfs @ 1.10 fps)

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Pond POST 2H: Flow Splitter



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- Inflow - Primary

Summary for Pond POST 2I: Pretreatment

65.243 sf, 65.82% Impervious, Inflow Depth = 2.29" for 2-yr event 3.73 cfs @ 12.04 hrs, Volume= 12,441 cf 0.88 cfs @ 12.29 hrs, Volume= 12,422 cf, Atten= 76%, Lag= 14.9 min 0.88 cfs @ 12.29 hrs, Volume= 12,422 cf Inflow Area =
Inflow =
Outflow =
Primary =

Routing by Dyn-Stor-Ind method, Time Span= 0.00-84.00 hrs, dt= 0.01 hrs Peak Elev= 386.23' @ 12.52 hrs Surf.Area= 2,483 sf Storage= 4,073 cf

Plug-Flow detention time= 347.9 min calculated for 12,422 of (100% of inflow) Center-of-Mass det. time= 346.9 min (1,163.4 - 816.4)

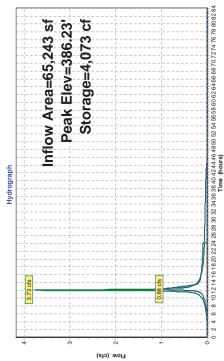
	9,152 cf Custom Stage Data (Prismatic)Listed below (Recalc)							
Storage Description	າ Stage Data (Pr	Cum.Store (cubic-feet)	0	1,475	3,511	6,157	9,152	
Storage	Custorr	Inc.Store (cubic-feet)	0	1,475	2,036	2,646	2,996	
Avail.Storage	9,152 cf	Ino (cubi						
Avail.		Surf.Area (sq-ft)	1,220	1,730	2,341	2,951	3,040	
Invert	384.00'	Su						
Volume	#1	Elevation (feet)	384.00	385.00	386.00	387.00	388.00	

Invert Outlet Devices	384.00' 12.0" Round Culvert L= 38.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invort= 384.00' 384.00' S= 0.0000 /" Cc= 0.900 n= 0.013 Corrupated PE smooth interior Flow Area= 0.79 ef	0.5" Vert. Orifice/Grate X 16.00 columns X 12 mws with 3 0" co. spacing C= 0.000	12.0" Horiz. Riser Opening C = 0.600	10.0' long x 2.0' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.56 Coef. (English) 2.54 2.61 2.61 2.60 2.66 2.70 2.77 2.89 2.88 2.85 3.07 3.20 3.32
Invert	384.00'	384.00′	387.00'	387.00'
Device Routing	#1 Primary	#2 Device 1	Device 1	Primary
Device	#1	#5	#3	#

Primary OutFlow Max=0.88 cfs @ 12.29 hrs HVV=386.19 TW=384.96' (Dynamic Tailwater)
1=Culvert (Passes 0.88 cfs of 3.31 cfs potential flow)
1=Culvert (Passes 0.88 cfs of 3.31 cfs potential flow)
1=2-prifice/Grate (Orifice Controls 0.88 cfs @ 4.47 fps)
1=3=Ritser Openning (Controls 0.00 cfs)
1=4-Broad-Crested Rectangular Weir (Controls 0.00 cfs)

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Pond POST 21: Pretreatment



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Summary for Pond POST 2J: Sand Filter

70,475 sf, 60.94% Impervious, Inflow Depth = 2.23" for 2-yr event	13,114 of	13,115 cf, Atten= 85%, Lag= 223.2 min	13,115 of
70,475 sf, 60.94% Impervious, II	0.96 cfs @ 12.24 hrs, Volume=	0.14 cfs @ 15.95 hrs, Volume=	0.14 cfs @ 15.95 hrs, Volume=
Inflow Area =	lnflow =	Outflow =	Primary =

Routing by Dyn-Stor-Ind method, Time Span= 0.00-84.00 hrs, dt= 0.01 hrs Peak Elev= 386.07' @ 15.95 hrs Surf.Area= 2,527 sf Storage= 4,006 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow) Center-of-Mass det. time= 335.1 min (1,482.4 - 1,147.2)

	9,806 of Custom Stage Data (Prismatic)Listed below (Recalc)							
Avail. Storage Storage Description	າ Stage Data (Pr	Cum.Store	0	1,645	3,839	6,641	908'6	
Storage	Custon	Inc.Store	0	1,645	2,194	2,802	3,166	
.Storage	9,806 cf	lnc (cubi						
Avail		Surf.Area	1,386	1,903	2,485	3,119	3,212	
Invert	384.00'	Su						
Volume	#1	Elevation (feet)	384.00	385.00	386.00	387.00	388.00	

			Cc = 0.900					
		Ke= 0.500	S = 0.0429'		C = 0.600		tal area	= 380.00'
Invert Outlet Devices	381.50' 12.0" Round SF Outlet Culvert	L= 35.0' CPP, square edge headwall, Ke= 0.500	Inlet / Outlet Invert= 381.50' / 380.00' S= 0.0429 '/' Cc= 0.900	n= 0.011, Flow Area= 0.79 sf	48.0" x 48.0" Horiz. Overflow Grate C= 0.600	Limited to weir flow at low heads	1.750 in/hr Exfiltration over Horizontal area	Conductivity to Groundwater Elevation = 380.00'
Invert	381.50				386.10'		384.00′	
Device Routing	#1 Primary				#2 Device 1		Device 1	
Device	#1				#5		#3	

Primary OutFlow Max=0.14 cfs @ 15.95 hrs HW=386.07 TW=378.56' (Dynamic Tailwater)

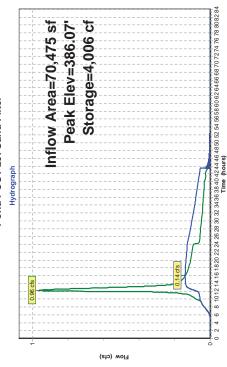
—1=SF Outlet Culvert (Passes 0.14 cfs of 7.63 cfs potential flow)

—2=Overflow Grate (Controls 0.00 cfs)

—3=Exfiltration (Controls 0.14 cfs)

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Pond POST 2J: Sand Filter



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Summary for Pond POST 2K: Wetland

99,730 sf, 53.80% Impervious, Inflow Depth = 2.19" for 2-yr event	18,189 cf	18,096 cf, Atten= 86%, Lag= 36.2 min	18,096 cf
99,730 sf, 53.80% Impervious,	2.33 cfs @ 12.04 hrs, Volume=	0.32 cfs @ 12.65 hrs, Volume=	0.32 cfs @ 12.65 hrs, Volume=
Inflow Area =	lnflow =	Outflow =	Primary =

Routing by Dyn-Stor-Ind method, Time Span= 0.00-84.00 hrs, dt= 0.01 hrs Peak Elev= 378.60 @ 12.65 hrs Surf.Area= 5,587 sf Storage= 3,135 cf

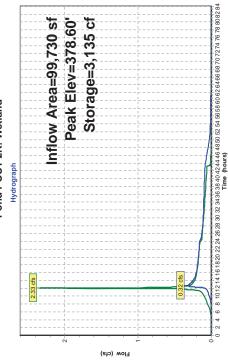
Plug-Flow detention time= 317.2 min calculated for 18,096 cf (99% of inflow) Center-of-Mass det. time= 308.1 min (1,607.6-1,299.5)

	Custom Stage Data (Prismatic)Listed below (Recalc)					
Storage Description	m Stage Data (P	Cum.Store	0	5,465	12,311	20,809
le Storag		Inc.Store	0	5,465	6,846	8,498
Avail.Storage	20,809 cf	٥	1	4	8	80
Invert Av	378.00′	Surf.Area	4,85	6,074	7,61	9,37
Volume	#1	Elevation	378.00	379.00	380.00	381.00

0 5,465 12,311 20,809		15.0" Round Culvert == 40.0' CPP, square edge headwall, Ke= 0.500	inlet / Outlet invert= $374.00' / 373.00'$ S= $0.0250'$ / Cc= 0.900 n= 0.011 , Flow Area= 1.23 sf	ifice C= 0.600	24.0" W x 4.0" H Vert. High Flow Orifice C= 0.600	erflow Grate C= 0.600 w heads
0 5,465 6,846 8,498 20,	Invert Outlet Devices	374.00' 15.0" Round Culvert L= 40.0' CPP, square e	Inlet / Outlet Invert= 374.00' / ; n= 0.011, Flow Area= 1.23 sf	2.5" Vert. Low Flow Orifice C= 0.600	24.0" W x 4.0" H Vert. H	60.0" x 60.0" Horiz. Overflow Grate C= 0.600 Limited to weir flow at low heads
4,855 6,074 7,618 9,378	Invert	374.00'		378.00	378.50	380.50
000	Device Routing	Primary		Device 1	Device 1	Device 1
378.00 379.00 380.00 381.00	Device	#1		#5	#3	#

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Pond POST 2K: Wetland



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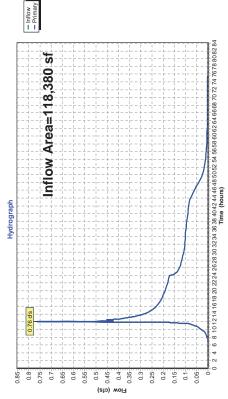
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Summary for Link POST 2L: DP2

118,380 sf, 45,72% Impervious, Inflow Depth > 2.03" for 2-yr event 0.76 cfs @ 12.04 hrs, Volume= 20,054 cf 20,4 ten= 0%, Lag= 0.0 min Inflow Area = Inflow = Primary =

Primary outflow = Inflow, Time Span= 0.00-84.00 hrs, dt= 0.01 hrs

Link POST 2L: DP2



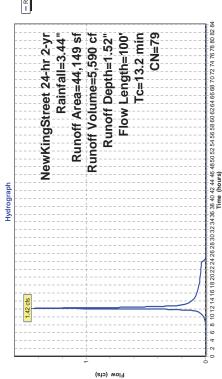
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Summary for Subcatchment POST 3: DP3

5,590 cf, Depth= 1.52" 1.42 dfs @ 12.13 hrs, Volume= Runoff Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-84.00 hrs, dt= 0.01 hrs NewKingStreet 24-hr 2-yr Rainfall=3.44"

		od, HSG B	od, HSG D						Slope Velocity Capacity Description		Sheet Flow,	Woods: Light underbrush n= 0.400 P2= 3.44"	Sheet Flow,	Grass: Dense n= 0.240 P2= 3.44"	
	Paved parking, HSG D	>75% Grass cover, Good, HSG B	>75% Grass cover, Good, HSG D	Woods, Good, HSG B	d, HSG D	/erage	93.68% Pervious Area	6.32% Impervious Area	Capacity	(cts)					
CN Description	aved parki	75% Grass	75% Grass	loods, God	Woods, Good, HSG D	Weighted Average	3.68% Per	.32% Impe	Velocity	(tt/sec)	0.12		0.17		
CN	98 P	61	80	25 V	77 W	79 W	0	9	Slope	(ft/ft)	84 0.0600		16 0.1130		100 Total
Area (sf)	2,789	386	11,371	303	29,300	44,149	41,360	2,789	Tc Length	(feet)	8		16		100
ď									Tc	(min)	11.6		1.6		13.2

Subcatchment POST 3: DP3



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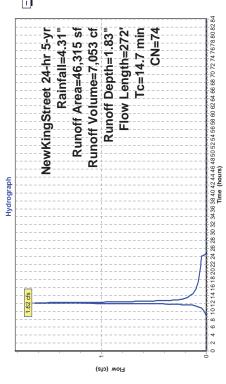
Summary for Subcatchment POST 1: DP1

7,053 cf, Depth= 1.83" 1.62 cfs @ 12.16 hrs, Volume= Runoff

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-84.00 hrs, dt= 0.01 hrs NewKingStreet 24-hr 5-yr Rainfall=4.31"

Description >75% Grass cover, Good, HSG B 775% Grass cover, Good, HSG D Woods, Good, HSG B Weidhied Average	· ·	Slope Velocity Capacity Description (ft/ft) (ft/sec) (ds)	Sheet Flow, Woods: Light underbrush n= 0.400 P2= 3.44"	Shallow Concentrated Flow, Woodland Kv= 5.0 fps	
Description 75% Grass cover, Go 75% Grass cover, Go 76% Grass Cover, Go Woods, Good, HSG B Woods, Good, HSG D	100.00% Pervious Area	Capacity (cfs)			
Area (sf) CN Description 7,901 61 >75% Grass cover, Gc 6,202 80 >75% Grass cover, Gc 1,479 55 Woods, Good, HSG B 30,733 77 Woods, Good, HSG D 46,315 74 Weighted Average	00.00% Pe	Velocity (ft/sec)	0.13	1.25	
CN 61 80 × 80 × 77 × 77 × 74 × 74 × 74 × 74 × 74 × 7	~	Slope (ft/ft)	100 0.0720	172 0.0630	272 Total
7,901 6,202 1,479 30,733 46,315	46,315	Tc Length nin) (feet)	100	172	272
₹		(min)	12.4	2.3	14.7

Subcatchment POST 1: DP1



NewKingStreet 24-hr 5-yr Rainfall=4.31"

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Summary for Subcatchment POST 2A: Bioretention (BR)

0.17 cfs @ 12.03 hrs, Volume= Runoff

465 cf, Depth= 2.30"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-84.00 hrs, dt= 0.01 hrs NewKingStreet 24-hr 5-yr Rainfall=4.31"

CN Description Area (sf)

	Paved parking, HSG D	>75% Grass cover, Good, HSG B	Weighted Average	48.45% Pervious Area	51.55% Impervious Area	
á		^		48	51	
5	98	61	80			
(ic) poil.	1,250	1,175	2,425	1,175	1,250	

Subcatchment POST 2A: Bioretention (BR)

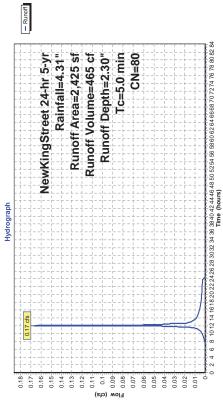
Direct Entry,

Capacity Description (cfs)

Slope Velocity (ft/ft) (ft/sec)

Length (feet)

Tc (min) 5.0



Printed 11/21/2016 NewKingStreet 24-hr 5-yr Rainfall=4.31"

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Summary for Subcatchment POST 2B: Flow Split Area (FS)

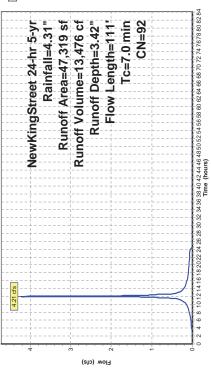
13,476 cf, Depth= 3.42" 4.21 cfs @ 12.05 hrs, Volume= Runoff

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-84.00 hrs, dt= 0.01 hrs NewKingStreet 24-hr 5-yr Rainfall=4.31"

HSG B HSG D		sscription	Sheet Flow, Grass: Short n= 0.150 P2= 3.44"	Shallow Concentrated Flow, Short Grass Pasture $Kv = 7.0 \text{ fps}$	
Description Paved parking, HSG D >75% Grass cover, Good, HSG B >75% Grass cover, Good, HSG D	Weighted Average 23.54% Pervious Area 76.46% Impervious Area	Slope Velocity Capacity Description (ft/ft) (ft/sec) (cfs)	ග ග	ග ග	
CN Description 98 Paved parkii 61 >75% Grass	Weighted Average 23.54% Pervious A 76.46% Impervious	Velocity (ft/sec)	0.24	1.15	
N 98 98		Slope (ft/ft)	100 0.0450	11 0.0270	111 Total
Area (sf) 36,178 3,635 7,506	47,319 11,141 36,178	Tc Length in) (feet)	100		111
Α		Tc (min)	6.8	0.2	7.0

Subcatchment POST 2B: Flow Split Area (FS)





NewKingStreet 24-hr 5-yr Rainfall=4.31" Printed 11/21/2016

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Summary for Subcatchment POST 2C: Pretreatment Area (PT)

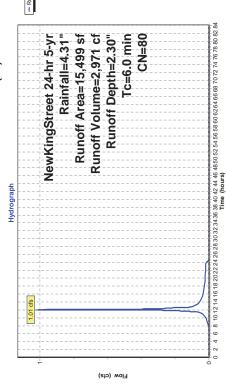
1.01 cfs @ 12.04 hrs, Volume= Runoff

2,971 cf, Depth= 2.30"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-84.00 hrs, dt= 0.01 hrs NewKingStreet 24-hr 5-yr Rainfall=4.31"

	HSG D	>75% Grass cover, Good, HSG B	>75% Grass cover, Good, HSG D	eß	s Area	ous Area	Slope Velocity Capacity Description	Direct Entry.
scription	Paved parking, HSG D	5% Grass co	5% Grass co	Weighted Average	64.41% Pervious Area	35.59% Impervious Area	Velocity Ca	(10360)
SN De	98 Pa	61 >7	80 >7	80 W	64	35	Slope	(1011)
Area (sf) CN Description		5,587	4,396	15,499	9,983	5,516	Tc Length	(1001)
Ā							T _C	6.0

Subcatchment POST 2C: Pretreatment Area (PT)



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Summary for Subcatchment POST 2D: Sand Filter Area (SF)

0.34 cfs @ 12.04 hrs, Volume=

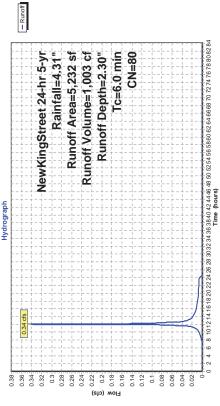
Runoff

1,003 cf, Depth= 2.30"

Runoff by SCS TR-20 method, UH-SCS, Weighted-CN, Time Span= 0.00-84.00 hrs, dt= 0.01 hrs NewKingStreet 24-hr 5-yr Rainfall=4.31"

	Area (sf) CN Description	80 >75% Grass cover, Good, HSG D	100.00% Pervious Area	Slope Velocity Capacity Description	(ft/ft) (ft/sec) (cfs)	Direct Entry,	
Area (sf) 5,232 5,232 Tc Length (min) (feet) 6.0	Area (sf)	5,232	5,232	Tc Length	(feet)	0.9	

Subcatchment POST 2D: Sand Filter Area (SF)



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Summary for Subcatchment POST 2E: Planter Area (PLT)

0.68 cfs @ 12.04 hrs, Volume=

Runoff

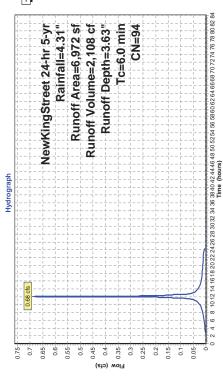
2,108 cf, Depth= 3.63"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-84.00 hrs, dt= 0.01 hrs NewKingStreet 24-hr 5-yr Rainfall=4.31"

	Description
)	CN
	Area (sf)

Direct Entry,					0.9
Slope Velocity Capacity Description (ft/ft) (ft/sec) (cfs)	Capacity (cfs)	Velocity (ft/sec)	Slope (ft/ft)	Tc Length nin) (feet)	Tc (min)
ea	78.17% Impervious Area	78.17% Imp	-	5,450	
	21.83% Pervious Area	21.83% Per	.,	1,522	
	verage	Weighted Average	94 \	6,972	
>75% Grass cover, Good, HSG D	s cover, Gc	75% Gras	80	1,447	
>75% Grass cover, Good, HSG B	s cover, Gc	•75% Gras	61	75	
	Paved parking, HSG D	aved park	98 F	5,450	

Subcatchment POST 2E: Planter Area (PLT)



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NewKingStreet 24-hr 5-yr Rainfall=4.31" Printed 11/21/2016

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Summary for Subcatchment POST 2F: Wetland Area (WET)

1.61 cfs @ 12.04 hrs, Volume=

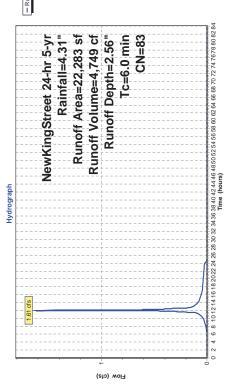
Runoff

4,749 cf, Depth= 2.56"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-84.00 hrs, dt= 0.01 hrs NewKingStreet 24-hr 5-yr Rainfall=4.31"

	, HSG D	>75% Grass cover, Good, HSG B	>75% Grass cover, Good, HSG D	age	us Area	vious Area	Slope Velocity Capacity Description	(cfs)	Direct Entry,
Description	Paved parking, HSG D	.75% Grass	.75% Grass	Weighted Average	76.39% Pervious Area	23.61% Impervious Area	Velocity	(t/sec)	
S	98 F	61	80 >	83 \	7	(/	Slope	(ft/ft)	
Area (sf)	5,261	1,055	15,967	22,283	17,022	5,261		(teet)	
⋖							TC	(min)	0.9

Subcatchment POST 2F: Wetland Area (WET)



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Summary for Subcatchment POST 2G: Post 2 (DP2-BY)

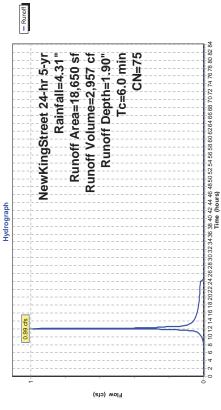
0.99 cfs @ 12.04 hrs, Volume= Runoff

2,957 cf, Depth= 1.90"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-84.00 hrs, dt= 0.01 hrs NewKingStreet 24-hr 5-yr Rainfall=4.31"

	Paved parking, HSG D	>75% Grass cover, Good, HSG B	>75% Grass cover, Good, HSG D	Woods, Good, HSG D	Average	97.48% Pervious Area	2.52% Impervious Area	Slope Velocity Capacity Description	(cfs)	Direct Entry,
Area (sf) CN Description	aved parkin	75% Grass	75% Grass	loods, Good	Weighted Average	7.48% Pervi	.52% Imper	Velocity	(ft/sec)	
CN	98 P	61	80	77 V	75 V	0	7	Slope	(ft/ft)	
ea (st)	470	4,180	6,149	7,851	18,650	18,180	470	Tc Lenath	(feet)	
Ā								Tc	(min)	0.9

Subcatchment POST 2G: Post 2 (DP2-BY)



NewKingStreet 24-hr 5-yr Rainfall=4.31"

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49,744 sf, 75.24% Impervious, Inflow Depth = 3.36" for 5-yr event 4.36 cfs @ 12.05 hrs, Volume= 13,941 cf, Atten= 0%, Lag= 0.0 min 3.14 cfs @ 12.05 hrs, Volume= 13,570 cf 1.22 cfs @ 12.05 hrs, Volume= 372 cf Summary for Pond POST 2H: Flow Splitter Inflow Area =
Inflow =
Outflow =
Primary =
Secondary =

Routing by Dyn-Stor-Ind method, Time Span= 0.00-84.00 hrs, dt= 0.01 hrs Peak Elev= 389.61' @ 12.05 hrs Flood Elev= 394.00'

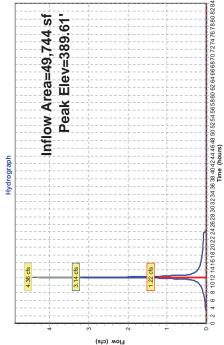
Invert Outlet Devices	388.00' 12.0" Round Culvert to Pretreatment	L= 20.0' CPP, projecting, no headwall, Ke= 0.900	Inlet / Outlet Invert= 388.00 / 384.00' S= 0.2000 '/' Cc= 0.900	n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf	389.40' 4.0' long Sharp-Crested Vee/Trap Weir Cv= 2.62 (C= 3.28)	15.0" Round Culvert to Wetland	L= 106.0' CPP, projecting, no headwall, Ke= 0.900	Inlet / Outlet Invert= 388.00 / 381.00' S= 0.0660 '/' Cc= 0.900	n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf
Invert	388.00				389.40'	388.00			
Device Routing	#1 Primary				Device 3	Secondary			
Device	#1				#5	#3			

Primary OutFlow Max=3.14 cfs @ 12.05 hrs HW=389.60' TW=385.98' (Dynamic Tailwater) —1=Culvert to Pretreatment (Inlet Controls 3.14 cfs @ 4.00 fps)

Secondary OutFlow Max=1.22 ds @ 12.05 hrs HW=389.60' TW=378.57' (Dynamic Tailwater) = 2=Culvert to Wetland (Passes 1.22 ds of 4.62 ds potential flow) = 2=Sharp-Crested Vee/Trap Weir (Weir Controls 1.22 ds @ 1.48 fps)

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Pond POST 2H: Flow Splitter



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Summary for Pond POST 2I: Pretreatment

65,243 sf, 65.82% Impervious, Inflow Depth = 3.04" for 5-yr event		16,521 cf, Atten= 74%, Lag= 15.0 min	16,521 of
sf, 65.82% Impervious,	15 cfs @ 12.04 hrs, Volume=	1.10 cfs @ 12.29 hrs, Volume=	1.10 cfs @ 12.29 hrs, Volume=
rea = 65,243	= 4.15 cfs (= 1.10 cfs (= 1.10 cfs (
Inflow A	Inflow	Outflow	Primary

Routing by Dyn-Stor-Ind method, Time Span= 0.00-84.00 hrs, dt= 0.01 hrs Peak Elev= 386.71' @ 12.56 hrs Surf.Area= 2,774 sf Storage= 5,324 cf

Plug-Flow detention time= 301.6 min calculated for 16,521 of (100% of inflow) Center-of-Mass det. time= 300.9 min (1,109.7 - 808.8)

tecalc)								
matic)Listed below (F								
tage Data (Pris	Cum.Store	(capic-leer)	1 475	1,4/5	3,511	6,157	9,152	
ાર Custom S	Inc.Store	capic-leer)	1 175	1,4/5	2,036	2,646	2,996	nvert Outlet Devices
			1,220	1,730	2,341	2,951	3,040	Invert
384.00	O)							outing
#1	Elevation (foot)	204 00	304.00	365.00	386.00	387.00	388.00	Device Routing
	#1 384.00' 9,152 cf Custom Stage Data (Prismatic)Listed below (Recalc)	384.00' Surf.Area	384.00' Surf.Area (sq-ft)	384.00' Surf.Area (sq-ft) 1,220	384.00' Surf.Area (sq-ft) 1,220 1,730	384.00' Surf. Area (sq-ft) 1,220 1,730 2,341	384.00' Surf.Area (sq-ft) 1,220 1,730 2,341 2,951	384.00' Surf.Area (sq-ft) 1,220 1,730 2,341 2,951 2,951 3,040

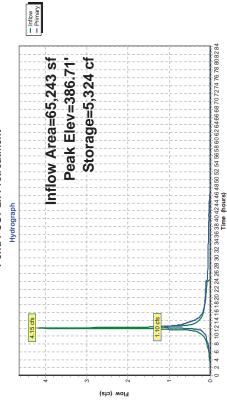
Invert Outlet Devices	384.00' 12.0" Round Culvert	L= 38.0' CPP, projecting, no headwall, Ke= 0.900	Inlet / Outlet Invert= 384.00' / 384.00' S= 0.0000 '/ Cc= 0.900	n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf	0.5" Vert. Orifice/Grate X 16.00 columns	X 12 rows with 3.0" cc spacing $C = 0.600$	12.0" Horiz. Riser Openning C= 0.600	Limited to weir flow at low heads		Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00	2.50 3.00 3.50	Coef. (English) 2.54 2.61 2.61 2.60 2.66 2.70 2.77 2.89 2.88	0.05 0.07 0.00
IIIVert	384.00				384.00′		387.00		387.00				
vice Routing	#1 Primary				Device 1		Device 1		Primary				
a Ne	#1				#2		#3		#4				

00.

NewKingStreet 24-hr 5-yr Rainfall=4.31"
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Pond POST 21: Pretreatment



Primary OutFlow Max=1.09 cfs @ 12.29 hrs HW=386.63 TW=385.38' (Dynamic Tailwater)

| Culvert (Passes 1.09 cfs of 3.34 cfs potential flow)
| Lacuivert (Orifice Controls 1.09 cfs @ 4.55 fps)
| Lastiser Openning (Controls 0.00 cfs)
| Lastiser Openning (Controls 0.00 cfs)

NewKingStreet 24-hr 5-yr Rainfall=4.31"

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Summary for Pond POST 2J: Sand Filter

Inflow Depth = 2.98" for 5-yr event	17,524 cf	17,525 cf, Atten= 39%, Lag= 43.5 min	17,525 cf
70,475 sf, 60.94% Impervious, Inflow Depth = 2.98"	1.21 cfs @ 12.24 hrs, Volume=	0.73 cfs @ 12.97 hrs, Volume=	0.73 cfs @ 12.97 hrs, Volume=
Inflow Area =	lnflow =	Outflow =	Primary =

Routing by Dyn-Stor-Ind method, Time Span= 0.00-84.00 hrs, dt= 0.01 hrs Peak Elev= 386.15' @ 12.97 hrs Surf.Area= 2,580 sf Storage= 4,219 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow) Center-of-Mass det. time= 285.7 min (1,380.3 - 1,094.6)

	9,806 cf Custom Stage Data (Prismatic)Listed below (Recalc)						
Avail. Storage Storage Description	າ Stage Data (Pri	Cum.Store (cubic-feet)	0	1,645	3,839	6,641	9,806
e Storage	f Custon	Inc.Store (cubic-feet)	0	1,645	2,194	2,802	3,166
ail.Storage	9,806 כ	9)					
Invert Av	384.00′	Surf.Area (sq-ft)	1,386	1,903	2,485	3,119	3,212
'n	384	E 🕾		0	0	0	0
Volume	#1	Elevation (feet)	384.00	385.00	386.00	387.00	388.00

			Cc = 0.900					
		, Ke= 0.500	S = 0.0429 '		C = 0.600		tal area	= 380.00′
Invert Outlet Devices	381.50' 12.0" Round SF Outlet Culvert	L= 35.0' CPP, square edge headwall, Ke= 0.500	Inlet / Outlet Invert= 381.50' / 380.00' S= 0.0429 '/ Cc= 0.900	n= 0.011, Flow Area= 0.79 sf	48.0" x 48.0" Horiz. Overflow Grate C= 0.600	Limited to weir flow at low heads	1.750 in/hr Exfiltration over Horizontal area	Conductivity to Groundwater Elevation = 380.00'
Invert	381.50				386.10'		384.00	
Device Routing	#1 Primary				Device 1		Device 1	
Device	#1				#2		#3	

Primary OutFlow Max=0.73 cfs @ 12.97 hrs HW=386.15 TW=378.69' (Dynamic Tailwater)

—1=SF Outlet Culvert (Passes 0.73 cfs of 7.70 cfs potential flow)

—2=Overflow Grate (Weir Controls 0.59 cfs @ 0.73 fps)

—3=Exfiltration (Controls 0.15 cfs)

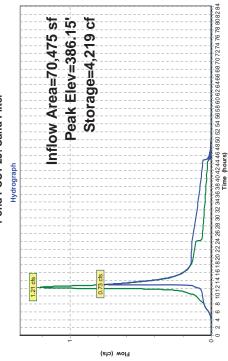
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- Inflow - Primary

Pond POST 2J: Sand Filter



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Summary for Pond POST 2K: Wetland

Routing by Dyn-Stor-Ind method, Time Span= 0.00-84.00 hrs, dt= 0.01 hrs Peak Elev= 378.72' @ 13.35 hrs Surf.Area= 5,727 sf Storage= 3,783 cf

Plug-Flow detention time= 253.5 min calculated for 24,657 of (100% of inflow) Center-of-Mass det. time= 246.0 min (1,461.2-1,215.2)

ption	20,809 of Custom Stage Data (Prismatic)Listed below (Recalc)	Cum.Store (cubic-feet)	0	5,465	12,311	20,809	
Avail. Storage Storage Description	Custom Stage	Inc.Store Cu cubic-feet) (cu	0	5,465	6,846	8,498	et Devices
Avail.Storage	20,809 cf	Ō)	4,855	6,074	318	9,378	Invert Outlet Devices
Invert	378.00′	Surf.Area (sq-ft)	4,8	9,0	7,6	0,6	outing
Volume	#1	Elevation (feet)	378.00	379.00	380.00	381.00	Device Routing

	374.00' 15.0" Round Culvert	L= 40.0' CPP, square edge headwall, Ke= 0.500	Inlet / Outlet Invert= 374.00' / 373.00' S= 0.0250 '/' Cc= 0.900	n= 0.011, Flow Area= 1.23 sf	2.5" Vert. Low Flow Orifice C= 0.600	24.0" W x 4.0" H Vert. High Flow Orifice C= 0.600	60.0" x 60.0" Horiz. Overflow Grate C= 0.600	Limited to weir flow at low heads	
200	374.00				378.00	378.50	380.50		
5000	#1 Primary				Device 1	Device 1	Device 1		
3	#1				#5	#3	#4		

Primary OutFlow Max=0.77 cts @ 13.35 hrs HW=378.72 TW=0.00' (Dynamic Tailwater)

1=Culvert (Passes 0.77 cts of 11.35 cfs potential flow)

1=Leuk Flow Wiftee (Orifice Controls 0.13 cts @ 3.76 fps)

1=High Flow Orifice (Orifice Controls 0.64 cts @ 1.49 fps)

4=Overflow Grate (Controls 0.00 cfs)

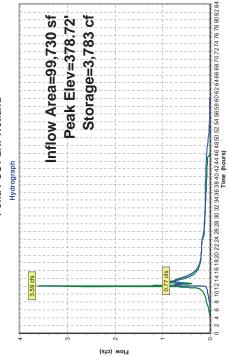
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- Inflow - Primary

Pond POST 2K: Wetland



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118,380 sf, 45.72% Impervious, Inflow Depth > 2.80" for 5-yr event 1.27 cfs @ 12.07 hrs, Volume= 27,614 cf 1.27 cfs @ 12.07 hrs, Volume= 27,614 cf, Atten= 0%, Lag= 0.0 min

Inflow Area = Inflow = Primary =

Primary outflow = Inflow, Time Span= 0.00-84.00 hrs, dt= 0.01 hrs

Link POST 2L: DP2

Hydrograph

Summary for Link POST 2L: DP2

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2.02 dfs @ 12.13 hrs, Volume=

Summary for Subcatchment POST 3: DP3

8,160 cf, Depth= 2.22" Runoff

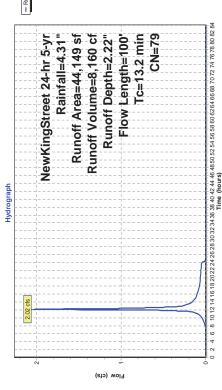
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-84.00 hrs, dt= 0.01 hrs NewKingStreet 24-hr 5-yr Rainfall=4.31"

Area (sf) CN Description 2,789 98 Paved parking, HSG D 2,789 98 Paved parking, HSG D 3,789 61 a 575% Grass cover, Good, HSG B 11,371 80 > 75% Grass cover, Good, HSG B 29,300 77 Woods, Good, HSG D 44,149 79 Weighted Average 41,360 93.68% Pervious Area 2,789 6.32% Impervious Area TC Length Slope Velocity Capacity Description (min) (feet) (fl/ft) (ft/sec) (cfs) 11.6 84 0.0600 0.12 Sheet Flow, Woods: Light underb Woods: Light underb 13.2 100 Total													Woods: Light underbrush n= 0.400 P2= 3.44"		240 P2= 3.44"	
2,789 2,789 3,386 11,371 303 29,300 44,149 41,360 2,789 Length (feet) 84 C			od, HSG B	od, HSG D					ď	Description		Sheet Flow,	Woods: Light underbi	Sheet Flow,	Grass: Dense n= 0.240 P2= 3.44"	
2,789 2,789 3,386 11,371 303 29,300 44,149 41,360 2,789 Length (feet) 84 C	ion	arking, HSG D	rass cover, Go	rass cover, Go	Good, HSG B	Good, HSG D	d Average	Pervious Area	npervious Area	ity Canacity	c) Capacity	12		17		
2,789 2,789 3,386 11,371 303 29,300 44,149 41,360 2,789 Length (feet) 84 C	Descript	Paved p	>75% G	>75% G	Woods,	Woods,	Weighte	93.68%	6.32% lr	Veloc	(ft/se					
2,78 (9 29,30 29,30 27,78 29,30 29,30 29,30 2,78 2,78 2,78 2,78 2,78 (16 (16 (16 (16 (16 (16 (16 (16 (16 (16	CN	86	61	80	22	77	79			S C C	##	0.0600		0.1130		Total
T Tc (min) 11.6 13.2	rea (sf)	2,789	386	11,371	303	29,300	44,149	41,360	2,789	prodp	(feet)	84		16		100
	∀									Ļ	(min)	11.6		1.6		13.2

Inflow Area=118,380 sf

Flow (cfs)

Subcatchment POST 3: DP3



NewKingStreet 24-hr 10-yr Rainfall=5.12" Printed 11/21/2016

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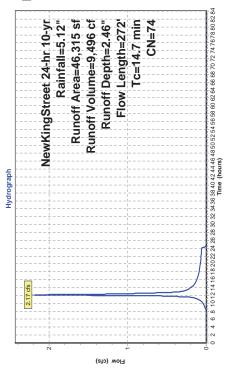
Summary for Subcatchment POST 1: DP1

9,496 cf, Depth= 2.46" 2.17 cfs @ 12.16 hrs, Volume= Runoff

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-84.00 hrs, dt= 0.01 hrs NewKingStreet 24-hr 10-yr Rainfall=5.12"

	od, HSG B	od, HSG D					Slope Velocity Capacity Description		Sheet Flow,	Woods: Light underbrush n=0.400 P2=3.44" Shallow Concentrated Flow, Woodland Kv=5.0 fps	
	>75% Grass cover, Good, HSG B	75% Grass cover, Good, HSG D	Woods, Good, HSG B	Woods, Good, HSG D	verage	100.00% Pervious Area	Capacity	(cfs)			
Area (sf) CN Description	75% Grass	75% Grass	oods, Goo	oods, Goo	Weighted Average	00.00% Pe	Velocity	(ft/sec)	0.13	1.25	
CN	61 >	80	25 W	77 W	74 W	Ξ			100 0.0720	172 0.0630	272 Total
rea (sf)	7,901	6,202	1,479	30,733	46,315	46,315	Tc Length	(feet)	100	172	272
⋖							Tc	(min)	12.4	2.3	14.7

Subcatchment POST 1: DP1



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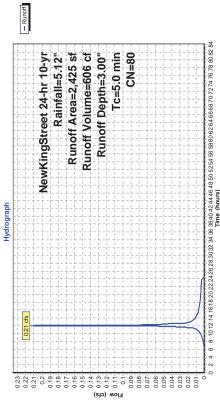
Summary for Subcatchment POST 2A: Bioretention (BR)

606 cf, Depth= 3.00" 0.21 cfs @ 12.03 hrs, Volume= Runoff

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-84.00 hrs, dt= 0.01 hrs NewKingStreet 24-hr 10-yr Rainfall=5.12"

CN Description		61 >75% Grass cover, Good, HSG B	80 Weighted Average	48.45% Pervious Area	51.55% Impervious Area	Slope Velocity Capacity Description (fl/ft) (fl/sec) (cfs)	
Area (sf)	1,250		2,425	1,175	1,250	Tc Length (min) (feet)	

Subcatchment POST 2A: Bioretention (BR)



NewKingStreet 24-hr 10-yr Rainfall=5.12" Printed 11/21/2016

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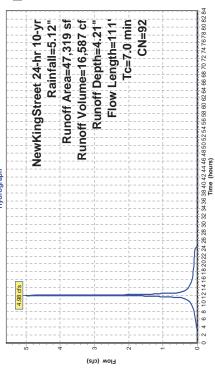
Summary for Subcatchment POST 2B: Flow Split Area (FS)

16,587 cf, Depth= 4.21" 4.98 cfs @ 12.05 hrs, Volume= Runoff

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-84.00 hrs, dt= 0.01 hrs NewKingStreet 24-hr 10-yr Rainfall=5.12"

										Grass: Short n= 0.150 P2= 3.44"	Shallow Concentrated Flow,	Short Grass Pasture Kv= 7.0 fps	
		>75% Grass cover, Good, HSG B	>75% Grass cover, Good, HSG D			aa	Slope Velocity Capacity Description		Sheet Flow,	Grass: Sho	Shallow Co	Short Grass	
	Paved parking, HSG D	s cover, Go	s cover, Go	verage	23.54% Pervious Area	76.46% Impervious Area	Capacity	(cts)					
Area (sf) CN Description	aved park	75% Gras	75% Gras	Weighted Average	3.54% Per	3.46% Imp	Velocity	(ft/sec)	0.24		1.15		
CN	98 P	61	.< 08	92 W	X	76		(ft/ft)	100 0.0450		11 0.0270		111 Total
rea (sf)	36,178	3,635	7,506	47,319	11,141	36,178	Tc Length	(feet)	100		11		111
A							Tc	(min)	6.8		0.2		7.0

Subcatchment POST 2B: Flow Split Area (FS)



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Summary for Subcatchment POST 2C: Pretreatment Area (PT)

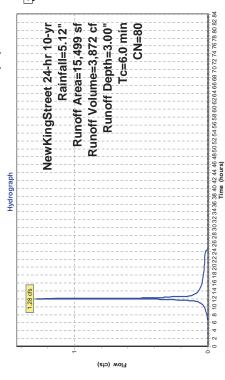
1.28 cfs @ 12.04 hrs, Volume= Runoff

3,872 cf, Depth= 3.00"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-84.00 hrs, dt= 0.01 hrs NewKingStreet 24-hr 10-yr Rainfall=5.12"

ription	Paved parking, HSG D	>75% Grass cover, Good, HSG B	>75% Grass cover, Good, HSG D	Weighted Average	64.41% Pervious Area	35.59% Impervious Area	locity Capacity Description	(tt/ft) (ft/sec) (cfs)	Direct Entry,
Descr	Pavec	>75%	>75%	Weigh	64.41	35.59	e Ve) (ft	
CN	86	61	80	80			Slop	(ft/fi	
Area (sf) CN Description	5,516	5,587	4,396	15,499	9,983	5,516	Tc Length	(feet)	
Α							Tc	(min)	0.9
				l					l

Subcatchment POST 2C: Pretreatment Area (PT)



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Summary for Subcatchment POST 2D: Sand Filter Area (SF)

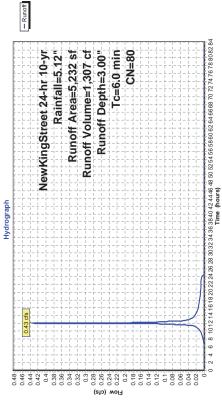
0.43 cfs @ 12.04 hrs, Volume= Runoff

1,307 cf, Depth= 3.00"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-84.00 hrs, dt= 0.01 hrs NewKingStreet 24-hr 10-yr Rainfall=5.12"

	80 >75% Grass cover, Good, HSG D	эа	Capacity Description (ds)	Direct Entry,
	s cover, G	ervious Are	Capacity (cfs)	
CN Description	75% Grass	100.00% Pervious Area	Velocity (ft/sec)	
CN	80 >	1	Slope (ft/ft)	
Area (sf)	5,232	5,232	Length (feet)	
Ā			Tc (min)	0.9

Subcatchment POST 2D: Sand Filter Area (SF)



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Summary for Subcatchment POST 2E: Planter Area (PLT)

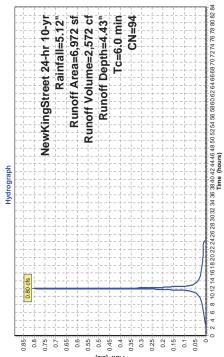
0.80 cfs @ 12.04 hrs, Volume= Runoff

2,572 cf, Depth= 4.43"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-84.00 hrs, dt= 0.01 hrs NewKingStreet 24-hr 10-yr Rainfall=5.12"

							C		try,
		od, HSG B	od, HSG D			aa	Descriptio		Direct Entry,
	Paved parking, HSG D	>75% Grass cover, Good, HSG B	>75% Grass cover, Good, HSG D	verage	21.83% Pervious Area	78.17% Impervious Area	Slope Velocity Capacity Description	(cts)	
Area (sf) CN Description	aved parki	75% Grass	75% Grass	Weighted Average	1.83% Per	8.17% Imp	Velocity	(t/sec)	
CN	98 F	61	80 >	94 V	0	7	Slope	(ft/ft)	
rea (sf)	5,450	75	1,447	6,972	1,522	5,450	Tc Length	(teet)	
V							Tc	(min)	0.9

Subcatchment POST 2E: Planter Area (PLT)



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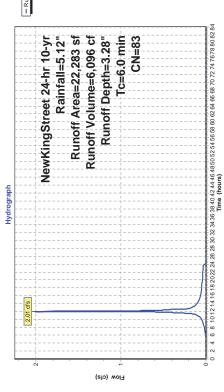
Summary for Subcatchment POST 2F: Wetland Area (WET)

6,096 cf, Depth= 3.28" 2.01 cfs @ 12.04 hrs, Volume= Runoff

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-84.00 hrs, dt= 0.01 hrs NewKingStreet 24-hr 10-yr Rainfall=5.12"

		B	D				tion		ntry
		od, HSG	od, HSG			эа	Descript		Direct Entry
	Paved parking, HSG D	>75% Grass cover, Good, HSG B	>75% Grass cover, Good, HSG D	verage	76.39% Pervious Area	23.61% Impervious Area	Slope Velocity Capacity Description	(cfs)	
Area (sf) CN Description	aved park	75% Grass	75% Grass	Weighted Average	3.39% Per	3.61% Imp	Velocity	(ft/sec)	
CN CN	98 Pa	61	80 >	83 W	76	8	Slope	(ft/ft)	
ea (st)	5,261	1,055	15,967	22,283	17,022	5,261	Tc Length	(feet)	
Ā							Tc	(min)	9

Subcatchment POST 2F: Wetland Area (WET)



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Summary for Subcatchment POST 2G: Post 2 (DP2-BY)

1.30 dfs @ 12.04 hrs, Volume=

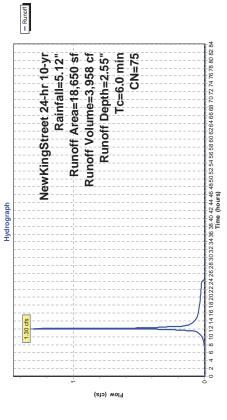
Runoff

3,958 cf, Depth= 2.55"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-84.00 hrs, dt= 0.01 hrs NewKingStreet 24-hr 10-yr Rainfall=5.12"

		>75% Grass cover, Good, HSG B	>75% Grass cover, Good, HSG D				æ	Slope Velocity Capacity Description		Direct Entry,
	Paved parking, HSG D	s cover, Go	s cover, Go	od, HSG D	verage	97.48% Pervious Area	2.52% Impervious Area	Capacity	(cfs)	
Area (sf) CN Description	aved parki	.75% Grass	.75% Grass	Woods, Good, HSG D	Neighted Average	17.48% Per	52% Impe	Velocity	(ft/sec)	
CN	98 F	61	80	/ //	75 \	O,	.,	Slope	(ft/ft)	
rea (sf)	470	4,180	6,149	7,851	18,650	18,180	470	Tc Length	(feet)	
A								JC	(min)	0.9

Subcatchment POST 2G: Post 2 (DP2-BY)



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Summary for Pond POST 2H: Flow Splitter

Inflow Depth = 4.15" for 10-yr event		17,193 cf, Atten= 0%, Lag= 0.0 min		722 cf
49,744 sf, 75.24% Impervious,	5.18 cfs @ 12.05 hrs, Volume=	5.18 cfs @ 12.05 hrs, Volume=	3.24 cfs @ 12.05 hrs, Volume=	1.93 cfs @ 12.05 hrs, Volume=
Inflow Area =	lnflow =	Outflow =	Primary =	Secondary =

Routing by Dyn-Stor-Ind method, Time Span= 0.00-84.00 hrs, dt= 0.01 hrs Peak Elev= 389.68' @ 12.05 hrs Flood Elev= 394.00'

Invert Outlet Devices	388.00' 12.0" Round Culvert to Pretreatment	L= 20.0' CPP, projecting, no headwall, Ke= 0.900	Inlet / Outlet Invert= 388.00 / 384.00 S= 0.2000 // Cc= 0.900	n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf	4.0' long Sharp-Crested Vee/Trap Weir Cv= 2.62 (C= 3.28)	15.0" Round Culvert to Wetland	L= 106.0' CPP, projecting, no headwall, Ke= 0.900	Inlet / Outlet Invert= 388.00 / 381.00 S= 0.0660 // Cc= 0.900	n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf
Invert	388.00				389.40'	388.00			
Device Routing	#1 Primary				Device 3	Secondary			
Device	#1				#2	#3			

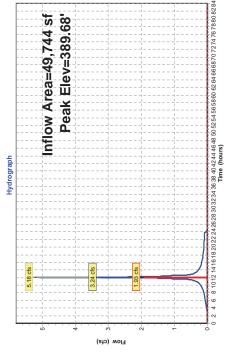
Primary OutFlow Max=3.24 cfs @ 12.05 hrs HW=389.68' TW=386.32' (Dynamic Tailwater) —1=Culvert to Pretreatment (Inlet Controls 3.24 cfs @ 4.13 fps)

Secondary OutFlow Max=1.92 ds @ 12.05 hrs HW=389.68' TW=378.72' (Dynamic Tailwater) = 3=Culvert to Wetland (Passes 1.92 ds of 4.79 ds potential flow) = 2=Sharp-Crested Vee/Trap Weir (Weir Controls 1.92 ds @ 1.73 fps)

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Pond POST 2H: Flow Splitter



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Summary for Pond POST 2I: Pretreatment

65,243 sf, 65.82% Impervious, Inflow Depth = 3.74" for 10-yr event	20,343 cf	20,323 cf, Atten= 66%, Lag= 21.3 min	
sf, 65.82% Impervious, Inf	1.52 cfs @ 12.04 hrs, Volume=	1.56 cfs @ 12.40 hrs, Volume=	1.56 cfs @ 12.40 hrs, Volume=
Area = 65,243	= 4.52 cfs (= '	II
Inflow,	Inflow	Outflow	Primary

Routing by Dyn-Stor-Ind method, Time Span= 0.00-84.00 hrs, dt= 0.01 hrs Peak Elev= 387.05' @ 12.43 hrs Surf.Area= 2,955 sf Storage= 6,294 cf

Plug-Flow detention time= 264.5 min calculated for 20,321 of (100% of inflow) Center-of-Mass det. time= 264.2 min (1,067.4 - 803.2)

	9,152 cf Custom Stage Data (Prismatic)Listed below (Recalc)							
escription	tage Data (Pri	Cum.Store (cubic-feet)	0	1,475	3,511	6,157	9,152	
Avail. Storage Storage Description	cf Custom S	Inc.Store (cubic-feet)	0	1,475	2,036	2,646	2,996	accived toland
	9,152	Surf.Area (sq-ft) (c	1,220	1,730	2,341	2,951	3,040	toka
Invert	384.00′	S						i i i
Nolume	#1	Elevation (feet)	384.00	385.00	386.00	387.00	388.00	Coiting C

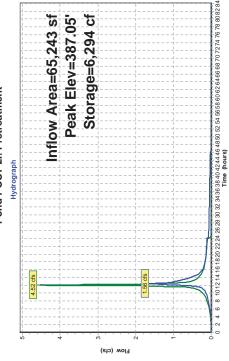
Invert Outlet Devices	384.00' 12.0" Round Culvert	L= 38.0' CPP, projecting, no headwall, Ke= 0.900	Inlet / Outlet Invert= 384.00' / 384.00' S= 0.0000 '/' Cc= 0.900	n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf	0.5" Vert. Orifice/Grate X 16.00 columns	X 12 rows with 3.0" cc spacing $C = 0.600$	12.0" Horiz. Riser Openning C= 0.600	Limited to weir flow at low heads	10.0' long x 2.0' breadth Broad-Crested Rectangular Weir	Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00	2.50 3.00 3.50	Coef. (English) 2.54 2.61 2.61 2.60 2.66 2.70 2.77 2.89 2.88	2.85 3.07 3.20 3.32
Invert	384.00				384.00'		387.00		387.00				
Device Routing	#1 Primary				Device 1		Device 1		Primary				
Device	#1				#2		#3		#4				

Primary OutFlow Max=1.55 cfs @ 12.40 hrs HW=387.05' TW=385.98' (Dynamic Tailwater)
1=Culvert (Passes 1.30 cfs of 3.08 cfs potential flow)
1=Califice/Grate (Orifice Controls 1.20 cfs @ 4.58 fps)
1=3=Riser Openning (Weir Controls 0.10 cfs @ 0.70 fps)
1=4=Broad-Crested Rectangular Weir (Weir Controls 0.25 cfs @ 0.54 fps)

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Pond POST 2I: Pretreatment

- Inflow - Primary



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Summary for Pond POST 2J: Sand Filter

70,475 sf, 60.94% Impervious, Inflow Depth = 3.68" for 10-yr event	21,630 cf		21,631 of
70,475 sf, 60.94% Impervious,	1.66 cfs @ 12.39 hrs, Volume=	1.42 cfs @ 12.57 hrs, Volume=	1.42 cfs @ 12.57 hrs, Volume=
Inflow Area =	lnflow =	Outflow =	Primary =

Routing by Dyn-Stor-Ind method, Time Span= 0.00-84.00 hrs, dt= 0.01 hrs Peak Elev= 386.18' @ 12.57 hrs Surf.Area= 2,602 sf Storage= 4,307 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow) Center-of-Mass det. time= 246.6 min (1,300.1 - 1,053.5)

	9,806 of Custom Stage Data (Prismatic)Listed below (Recalc)								
escription	tage Data (Pı	Cum.Store (cubic-feet)	0	1,645	3,839	6,641	9,806		
Avail. Storage Storage Description	cf Custom S	Inc.Store cubic-feet)	0	1,645	2,194	2,802	3,166	Invert Outlet Devices	
		Surf.Area (sq-ft)	1,386	1,903	2,485	3,119	3,212	Invert	
Invert	384.00			0	0	0	0	Routing	
Volume	#1	Elevation (feet)	384.00	385.00	386.00	387.00	388.00	Device Routing	

		Cc = 0.900					
	, Ke= 0.500	S = 0.0429 '/		C = 0.600		tal area	n = 380.00
381.50' 12.0" Round SF Outlet Culvert	L= 35.0' CPP, square edge headwall, Ke= 0.500	Inlet / Outlet Invert= 381.50' / 380.00' S= 0.0429 '/' Cc= 0.900	n= 0.011, Flow Area= 0.79 sf	~	Limited to weir flow at low heads	1.750 in/hr Exfiltration over Horizontal area	Conductivity to Groundwater Elevation = 380.00'
381.50				386.10'		384.00	
#1 Primary				Device 1		Device 1	
#1				#2		#3	

Primary OutFlow Max=1.42 cfs @ 12.57 hrs HW=386.18 TW=378.82' (Dynamic Tailwater)

—1=SF Outlet Culvert (Passes 1.42 cfs of 7.74 cfs potential flow)

—2=Overflow Grate (Weir Controls 1.27 cfs @ 0.95 fps)

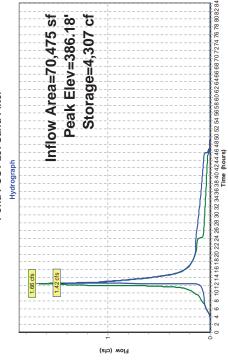
—3=Exfiltration (Controls 0.15 cfs)

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Pond POST 2J: Sand Filter



- Inflow - Primary



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Page 73 99,730 sf, 53.80% Impervious, Inflow Depth = 3.73" for 10-yr event 4.82 cfs @ 12.04 hrs, Volume= 31,020 cf 30,921 cf, Atten= 70%, Lag= 7.7 min 1.45 cfs @ 12.17 hrs, Volume= 30,921 cf, Atten= 70%, Lag= 7.7 min 1.45 cfs @ 12.17 hrs, Volume= 30,921 cf, Atten= 70%, Lag= 7.7 min 1.45 cfs @ 12.17 hrs, Volume= 30,921 cf, Atten= 70%, Lag= 7.7 min 1.45 cfs @ 12.17 hrs, Volume= 30,921 cf, Atten= 70%, Lag= 7.7 min 1.45 cfs @ 12.17 hrs, Volume= 30,921 cf, Atten= 7.7 min 1.45 cfs @ 12.17 hrs, Volume= 30,921 cf, Atten= 7.7 min 1.45 cfs @ 12.17 hrs, Volume= 1.45 cfs @ 12.17 hrs, Volum Summary for Pond POST 2K: Wetland NewKingS
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Routing by Dyn-Stor-Ind method, Time Span= 0.00-84.00 hrs, dt= 0.01 hrs Peak Elev= $378.85' \ @ 12.17$ hrs Surf.Area= 5,889 sf Storage= 4,558 cf

Inflow Area =
Inflow =
Outflow =
Primary =

Plug-Flow detention time= 213.6 min calculated for 30,921 of (100% of inflow) Center-of-Mass det. time= $207.1\,\mathrm{min}$ (1,357.7 - 1,150.6)

	20,809 cf Custom Stage Data (Prismatic)Listed below (Recalc)						
Avail. Storage Storage Description	n Stage Data (F	Cum.Store	(capic-leer)	0	5,465	12,311	20,809
Storage	Custor	Inc.Store	(capic-leer)	0	5,465	6,846	8,498
.Storage	20,809 cf	u ,	ano)				
Avail	7	Surf.Area	(sd-1t)	4,855	6,074	7,618	9,378
Invert	378.00'	Su					
Volume	#1	Elevation	(leer)	378.00	379.00	380.00	381.00

Invert Outlet Devices	374.00' 15.0" Round Culvert	L= 40.0 CPP, square edge neadwall, Re= 0.500 Inlet / Outlet Invert= 374.00 / 373.00 S= 0.0250 // Cc= 0.900	n= 0.011, Flow Area= 1.23 sf	2.5" Vert. Low Flow Orifice C= 0.600	24.0" W x 4.0" H Vert. High Flow Orifice C= 0.600	60.0" x 60.0" Horiz. Overflow Grate C= 0.600	Limited to weir flow at low heads
Invert	374.00'			378.00′	378.50′	380.50	
Device Routing	#1 Primary			Device 1	Device 1	Device 1	
Device	#1			#5	#3	#4	

Primary OutFlow Max=1.45 cts @ 12.17 hrs HW=378.85 TW=0.00' (Dynamic Tailwater)

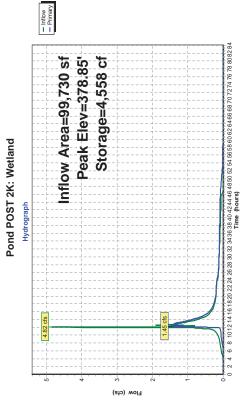
—1=Culvert (Passes 1.45 cts of 12.14 cfs potential flow)

—2=Low Flow Orifice (Orifice Controls 0.14 cts @ 4.15 fps)

—3=High Flow Orifice (Orifice Controls 1.31 cts @ 1.96 fps)

—4=Overflow Grate (Controls 0.00 fs)

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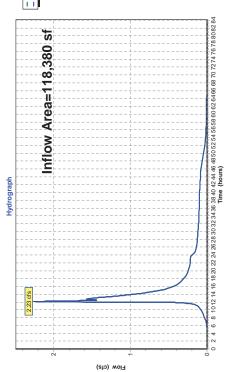
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Summary for Link POST 2L: DP2

118,380 sf, 45,72% Impervious, Inflow Depth > 3.54" for 10-yr event 2.23 cfs @ 12.09 hrs, Volume= 34,880 cf, Atten= 0%, Lag= 0.0 min Inflow Area = Inflow = Primary =

Primary outflow = Inflow, Time Span= 0.00-84.00 hrs, dt= 0.01 hrs





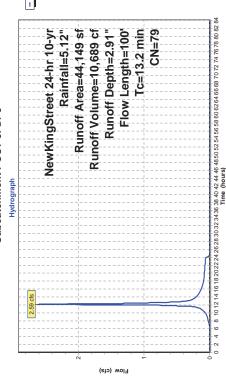
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Summary for Subcatchment POST 3: DP3

10,689 cf, Depth= 2.91" 2.59 dfs @ 12.13 hrs, Volume= Runoff Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-84.00 hrs, dt= 0.01 hrs NewKingStreet 24-hr 10-yr Rainfall=5.12"

												P2= 3.44"			
												n = 0.400		P2= 3.44"	
												Inderbrush		n = 0.240	
		od, HSG B	od, HSG D					_	Slope Velocity Capacity Description		Sheet Flow,	Woods: Light underbrush n= 0.400 P2= 3.44"	Sheet Flow,	Grass: Dense n= 0.240 P2= 3.44"	
	Paved parking, HSG D	>75% Grass cover, Good, HSG B	75% Grass cover, Good, HSG D	Woods, Good, HSG B	Woods, Good, HSG D	verage	93.68% Pervious Area	6.32% Impervious Area	Capacity	(cts)					
Area (sf) CN Description	aved parki	75% Grass	75% Grass	loods, God	loods, God	Weighted Average	3.68% Per	.32% Impe	Velocity	(ft/sec)	0.12		0.17		
CND	98 P	61	80	25 V	77 W	79 W	0	9	Slope	(ft/ft)	84 0.0600		16 0.1130		100 Total
rea (sf)	2,789	386	11,371	303	29,300	44,149	41,360	2,789	Tc Length	(feet)	84		16		100
Α									٦ ۲	(min)	11.6		1.6		13.2

Subcatchment POST 3: DP3



NewKingStreet 24-hr 25-yr Rainfall=6.43" Printed 11/21/2016 Page 77

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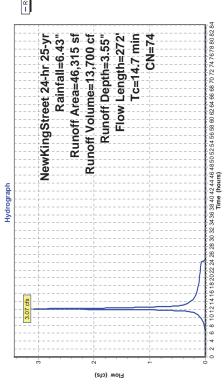
Summary for Subcatchment POST 1: DP1

13,700 cf, Depth= 3.55" 3.07 cfs @ 12.16 hrs, Volume= Runoff

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-84.00 hrs, dt= 0.01 hrs NewKingStreet 24-hr 25-yr Rainfall=6.43"

	>/3% Grass cover, Good, HSG B >75% Grass cover, Good, HSG D				σ.	Slope Velocity Capacity Description		Sheet Flow,	Woods: Light underbrush n= 0.400 P2= 3.44" Shallow Concentrated Flow,	Woodland Kv= 5.0 fps	
	s cover, Go s cover, Go	Woods, Good, HSG B	Woods, Good, HSG D	verage	100.00% Pervious Area	Capacity	(cts)				
Area (sf) CN Description	75% Grass 75% Grass	loods, Goo	loods, Goo	Weighted Average	00.00% Pe	Velocity	(ft/sec)	0.13	1.25		
S S	80 ×	25 W	V //	74 W	7		(ft/ft)	100 0.0720	172 0.0630		272 Total
rea (sf)	6,202	1,479	30,733	46,315	46,315	Tc Length	(feet)	100	172		272
₹						٦ ٦	(min)	12.4	2.3		14.7

Subcatchment POST 1: DP1



NewKingStreet 24-hr 25-yr Rainfall=6.43" Printed 11/21/2016

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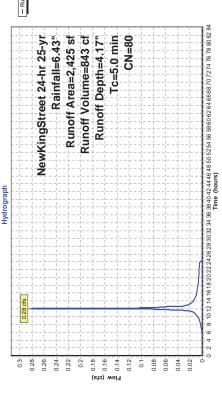
Summary for Subcatchment POST 2A: Bioretention (BR)

843 cf, Depth= 4.17" 0.28 cfs @ 12.03 hrs, Volume= Runoff

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-84.00 hrs, dt= 0.01 hrs NewKingStreet 24-hr 25-yr Rainfall=6.43"

		>75% Grass cover, Good, HSG B			ea	Slope Velocity Capacity Description		Direct Entry,
	98 Paved parking, HSG D	s cover, Go	verage	48.45% Pervious Area	51.55% Impervious Area	Capacity	(cfs)	
CN Description	aved parki	75% Grass	Weighted Average	8.45% Per	1.55% Imp	Velocity	(ft/sec)	
CN	98 F	61	80 V	4	2	Slope	(ft/ft)	
Area (sf)	1,250	1,175	2,425	1,175	1,250	Tc Length	(feet)	
∢						Tc	(min)	2.0

Subcatchment POST 2A: Bioretention (BR)



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Summary for Subcatchment POST 2B: Flow Split Area (FS)

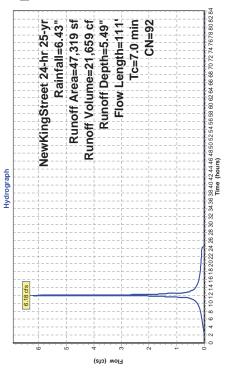
6.18 cfs @ 12.05 hrs, Volume= Runoff

21,659 cf, Depth= 5.49"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-84.00 hrs, dt= 0.01 hrs NewKingStreet 24-hr 25-yr Rainfall=6.43"

										Grass: Short n= 0.150 P2= 3.44"	Shallow Concentrated Flow,	Short Grass Pasture Kv= 7.0 fps	
		>75% Grass cover, Good, HSG B	>75% Grass cover, Good, HSG D			ea	Slope Velocity Capacity Description		Sheet Flow,	Grass: Short	Shallow Co	Short Grass	
	Paved parking, HSG D	s cover, Go	s cover, Go	verage	23.54% Pervious Area	76.46% Impervious Area	Capacity	(cts)					
Area (sf) CN Description	aved parki	75% Grass	75% Grass	Weighted Average	3.54% Per	3.46% Imp	Velocity	(ft/sec)	0.24		1.15		
CN	98 P	61	.< 08	92 W	X	2		(ft/ft)	100 0.0450		11 0.0270		111 Total
rea (sf)	36,178	3,635	7,506	47,319	11,141	36,178	Tc Length	(feet)	100		7		111
A							J _C	(min)	8.9		0.2		7.0

Subcatchment POST 2B: Flow Split Area (FS)



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Summary for Subcatchment POST 2C: Pretreatment Area (PT)

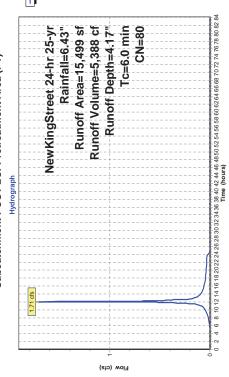
1.71 cfs @ 12.04 hrs, Volume= Runoff

5,388 cf, Depth= 4.17"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-84.00 hrs, dt= 0.01 hrs NewKingStreet 24-hr 25-yr Rainfall=6.43"

		3 B	3 D				otion		Entry
		od, HSG	od, HSG			a	Descrip		Direct Entry
	Paved parking, HSG D	>75% Grass cover, Good, HSG B	>75% Grass cover, Good, HSG D	verage	64.41% Pervious Area	35.59% Impervious Area	Slope Velocity Capacity Description	(cfs)	
escription	aved parki	75% Ġras	75% Grass	Weighted Average	4.41% Per	5.59% Imp	Velocity	(tt/sec)	
CND	98 P	61	80 >	80 W	ě	ਲੇਂ	Slope	(ft/ft)	
Area (sf) CN Description	5,516	5,587	4,396	15,499	9,983	5,516	Tc Length	(feet)	
V							Tc	(min)	0 9

Subcatchment POST 2C: Pretreatment Area (PT)



NewKingStreet 24-hr 25-yr Rainfall=6.43" Printed 11/21/2016

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Summary for Subcatchment POST 2D: Sand Filter Area (SF)

0.58 cfs @ 12.04 hrs, Volume= Runoff

1,819 cf, Depth= 4.17"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-84.00 hrs, dt= 0.01 hrs NewKingStreet 24-hr 25-yr Rainfall=6.43"

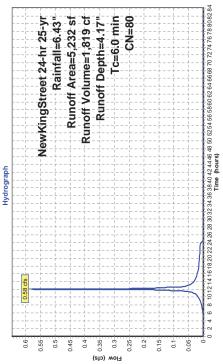
	>75% Grass cover, Good, HSG D	vious Area	Capacity Description (cfs)
Description	75% Grass	100.00% Pervious Area	Slope Velocity (ft/ft) (ft/sec)
S	80		Slope (ft/ft)
Area (sf)	5,232	5,232	Length (feet)
Ā			Tc (min)

Subcatchment POST 2D: Sand Filter Area (SF)

Direct Entry,

6.0

- Runoff



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Summary for Subcatchment POST 2E: Planter Area (PLT)

0.98 cfs @ 12.04 hrs, Volume= Runoff

3,325 cf, Depth= 5.72"

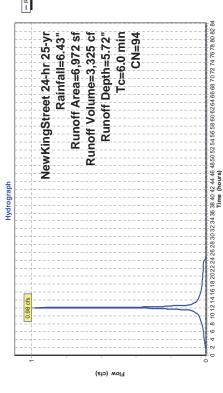
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-84.00 hrs, dt= 0.01 hrs NewKingStreet 24-hr 25-yr Rainfall=6.43"

S

Area (sf)

Direct Entry,					0.9
	(cts)	(tt/sec)	(ft/ft)	(feet)	(min)
Slope Velocity Capacity Description	Capacity	Velocity	Slope	Tc Length	Tc
ea	78.17% Impervious Area	8.17% Imp	7	5,450	
	21.83% Pervious Area	1.83% Per	7	1,522	
	verage	Weighted Average	94 V	6,972	
>75% Grass cover, Good, HSG D	s cover, Gc	75% Gras	80	1,447	
>75% Grass cover, Good, HSG B	s cover, Gc	75% Gras	61	75	
	Paved parking, HSG D	aved park	98 F	5,450	

Subcatchment POST 2E: Planter Area (PLT)



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Summary for Subcatchment POST 2F: Wetland Area (WET)

8,341 cf, Depth= 4.49" 2.63 cfs @ 12.04 hrs, Volume= Runoff

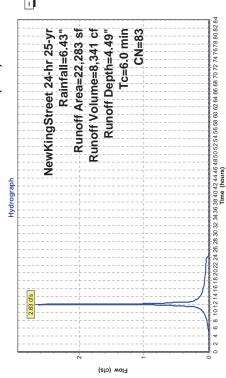
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-84.00 hrs, dt= 0.01 hrs NewKingStreet 24-hr 25-yr Rainfall=6.43"

()	od, HSG B od, HSG D			33	Slope Velocity Capacity Description (ft/ft) (ft/sec) (cfs)
ing, HSG D	s cover, Go s cover, Go	verage	vious Area	ervious Are	Capacity (cfs)
aved park	75% Gras: 75% Gras:	Veighted A	6.39% Per	3.61% Imp	Velocity (ft/sec)
98 P		83 V	7	2	Slope (ft/ft)
	1,055 15,967	22,283	17,022	5,261	Tc Length
					(min)
	1 86	98 61 80	98 F 61 × 80 ×	98 61 80 83	98 61 80 83

Subcatchment POST 2F: Wetland Area (WET)

Direct Entry,

6.0



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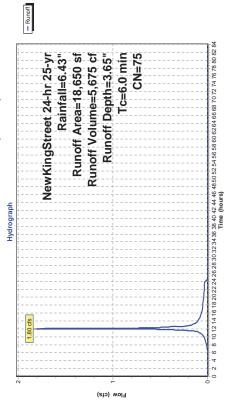
Summary for Subcatchment POST 2G: Post 2 (DP2-BY)

5,675 cf, Depth= 3.65" 1.80 cfs @ 12.04 hrs, Volume= Runoff

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-84.00 hrs, dt= 0.01 hrs NewKingStreet 24-hr 25-yr Rainfall=6.43"

Area (sf) CN Description	470 98 Paved parking, HSG D	61	149 80 >75% Grass cover, Good, HSG D	851 77 Woods, Good, HSG D	650 75 Weighted Average	180 97.48% Pervious Area	470 2.52% Impervious Area	ength Slope Velocity Capacity Description	(feet) (ft/ft) (ft/sec) (cfs)	Direct Entry.
S	86	61	80	77	75			Slop	(£	
Area (sf)	470	4,180	6,149	7,851	18,650	18,180	470	Tc Length	(min) (feet)	6.0

Subcatchment POST 2G: Post 2 (DP2-BY)



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Summary for Pond POST 2H: Flow Splitter

, Inflow Depth = 5.43" for 25-yr event		22,502 cf, Atten= 0%, Lag= 0.0 min		
49,744 sf, 75.24% Impervious, Inflow Depth = 5.43" for 2	6.44 cfs @ 12.05 hrs, Volume=	6.44 cfs @ 12.05 hrs, Volume=	3.38 cfs @ 12.05 hrs, Volume=	3.07 cfs @ 12.05 hrs, Volume=
Inflow Area =	lnflow =	Outflow =	Primary =	Secondary =

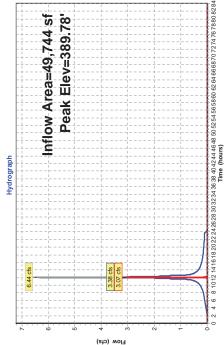
Routing by Dyn-Stor-Ind method, Time Span= 0.00-84.00 hrs, dt= 0.01 hrs Peak Elev= 389.78' @ 12.05 hrs Flood Elev= 394.00'

Invert Outlet Devices	388.00' 12.0" Round Culvert to Pretreatment	L= 20.0' CPP, projecting, no headwall, Ke= 0.900	Inlet / Outlet Invert= 388.00 / 384.00' S= 0.2000 '/' Cc= 0.900	n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf	389.40' 4.0' long Sharp-Crested Vee/Trap Weir Cv= 2.62 (C= 3.28)	15.0" Round Culvert to Wetland	L= 106.0' CPP, projecting, no headwall, Ke= 0.900	Inlet / Outlet Invert= 388.00 / 381.00 'S= 0.0660 '/' Cc= 0.900	n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf
Invert	388.00				389.40'	388.00			
Device Routing	#1 Primary				Device 3	Secondary			
Device	#1				#2	#3			

Primary OutFlow Max=3.38 cfs @ 12.05 hrs HW=389.78' TW=386.84' (Dynamic Tailwater) —1=Culvert to Pretreatment (Inlet Controls 3.38 cfs @ 4.30 fps)

Secondary OutFlow Max=3.05 ds @ 12.05 hrs HW=389.78' TW=378.90' (Dynamic Tailwater) = 3=Culvert to Wetland (Passes 3.05 ds of 5.01 ds potential flow) = 2=Sharp-Crested Vee/Trap Weir (Weir Controls 3.05 ds @ 2.02 fps)

Pond POST 2H: Flow Splitter



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Summary for Pond POST 2I: Pretreatment

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Pond POST 2I: Pretreatment

- Inflow - Primary

	243 sf	87.17	655 cl		· † · † · †	 	
	=65,	ev=3	e=6,			 	-
	Area	Ē	rage			 	-
	₹ 3	_{ea}	Sto			 	-
	nflo					 	-
nydioglaphi						 	
				-		 	-
				 		 	-
				 		 	ſ
cts			S				-
5.08 cfs							1
						 	-
-	υ	4		. б	. 2	 -	0

65,243 sf, 65,82% Impervious, Inflow Depth = 4.87" for 25-yr event 5.08 cfs @ 12.04 hrs, Volume= 26,483 cf 3.63 cfs @ 12.19 hrs, Volume= 26,462 cf, Atten= 29%, Lag= 9.1 min 3.63 cfs @ 12.19 hrs, Volume= 26,462 cf Routing by Dyn-Stor-Ind method, Time Span= 0.00-84.00 hrs, dt= 0.01 hrs Peak Elev= 387.17" @ 12.20 hrs Surf.Area= 2,966 sf Storage= 6,655 cf Inflow Area =
Inflow =
Outflow =
Primary =

Plug-Flow detention time= 218.1 min calculated for 26,462 cf (100% of inflow)

Center-of-Mass det. time= 217.6 min (1,013.4 - 795.8)	Avail. Storage Storage Description
Center-of-Mass det. time= 217.6 min (1,013.4 - 795.8)	Avail.Storage
-Mass det. t	Invert
Center-of	Volume

9,152 cf Custom Stage Data (Prismatic)Listed below (Recalc)

384.00

#1

9,152	2,996	3,040	388.00
6,157	2,646	2,951	387.00
3,511	2,036	2,341	386.00
1,475	1,475	1,730	385.00
0	0	1,220	384.00
(cubic-feet)	(cubic-feet)	(sd-ft)	(feet)
Cum.Store	Inc.Store	Surf.Area	Elevation

Invert Outlet Devices	384.00' 12.0" Round Culvert	L= 38.0' CPP, projecting, no headwall, Ke= 0.900	Inlet / Outlet Invert= 384.00 / 384.00' S= 0.0000 '/ Cc= 0.900	n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf	0.5" Vert. Orifice/Grate X 16.00 columns	X 12 rows with 3.0" cc spacing C= 0.600	12.0" Horiz. Riser Openning C= 0.600	Limited to weir flow at low heads	10.0' long x 2.0' breadth Broad-Crested Rectangular Weir	Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00	2.50 3.00 3.50	Coef. (English) 2.54 2.61 2.61 2.60 2.66 2.70 2.77 2.89 2.88	2.85 3.07 3.20 3.32
Invert	384.00				384.00′		387.00		387.00				
Device Routing	Primary				Device 1		Device 1		Primary				
Device	#1				#5		#3		#				

00.

Primary OutFlow Max=3.62 cfs @ 12.19 hrs HW=387.17 TW=386.24' (Dynamic Tailwater)

1=Culvert (Passes 187 cfs of 2.87 cfs potential flow)

1=Carrifice/Grate (Orifice Controls 1.16 cfs @ 4.43 ps)

1=Riser Openning (Weir Controls 0.71 cfs @ 1.34 ps)

4=Broad-Crested Rectangular Weir (Weir Controls 1.75 cfs @ 1.04 fps)

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Summary for Pond POST 2J: Sand Filter

Inflow Depth = 4.82" for 25-yr event	28,281 cf	28,281 cf, Atten= 6%, Lag= 3.3 min	
70,475 sf, 60.94% Impervious,	3.89 cfs @ 12.18 hrs, Volume= 28,281 cf	3.64 cfs @ 12.24 hrs, Volume=	3.64 cfs @ 12.24 hrs, Volume=
Inflow Area =	= molJul	Outflow =	Primary =

Routing by Dyn-Stor-Ind method, Time Span= 0.00-84.00 hrs, dt= 0.01 hrs Peak Elev= 386.26' @ 12.24 hrs Surf.Area= 2,653 sf Storage= 4,518 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow) Center-of-Mass det. time= 200.5 min (1,201.9 - 1,001.4)

Description	9,806 of Custom Stage Data (Prismatic)Listed below (Recalc)	Cum.Store (cubic-feet)	0	1,645	3,839	6,641	9,806
Avail. Storage Storage Description	Custom	Inc.Store cubic-feet)	0	1,645	2,194	2,802	3,166
.Storage	9,806 cf	ul (cub					
		Surf.Area (sq-ft)	1,386	1,903	2,485	3,119	3,212
Invert	384.00′	છ					
Volume	#1	Elevation (feet)	384.00	385.00	386.00	387.00	388.00

			Cc = 0.900					
		Ke= 0.500	S = 0.0429'		C = 0.600		tal area	= 380.00'
Invert Outlet Devices	381.50' 12.0" Round SF Outlet Culvert	L= 35.0' CPP, square edge headwall, Ke= 0.500	Inlet / Outlet Invert= 381.50' / 380.00' S= 0.0429 '/' Cc= 0.900	n= 0.011, Flow Area= 0.79 sf	48.0" x 48.0" Horiz. Overflow Grate C= 0.600	Limited to weir flow at low heads	1.750 in/hr Exfiltration over Horizontal area	Conductivity to Groundwater Elevation = 380.00'
Invert	381.50				386.10'		384.00′	
Device Routing	#1 Primary				#2 Device 1		Device 1	
Device	#1				#5		#3	

Primary OutFlow Max=3.64 cfs @ 12.24 hrs HW=386.26 TW=379.18' (Dynamic Tailwater)

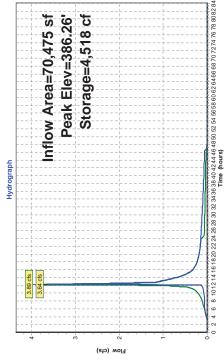
—1=SF Outlet Culvert (Passes 3.64 cfs of 7.81 cfs potential flow)

—2=Overflow Grate (Weir Controls 3.49 cfs @ 1.33 fps)

—3=Exfiltration (Controls 0.15 cfs)

Pond POST 2J: Sand Filter

- Inflow - Primary



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Summary for Pond POST 2K: Wetland

99,730 sf, 53.80% Impervious, Inflow Depth = 4.98" for 25-yr event	41,354 cf	41,254 cf, Atten= 59%, Lag= 29.6 min	41,254 of
99,730 sf, 53.80% Impervious,	6.77 cfs @ 12.04 hrs, Volume=	2.81 cfs @ 12.54 hrs, Volume=	2.81 cfs @ 12.54 hrs, Volume=
Inflow Area =	lnflow =	Outflow =	Primary =

Routing by Dyn-Stor-Ind method, Time Span= 0.00-84.00 hrs, dt= 0.01 hrs Peak Elev= 379.34" @ 12.54 hrs Surf.Area= 6,598 sf Storage= 7,614 cf

Plug-Flow detention time= 172.7 min calculated for 41,249 of (100% of inflow) Center-of-Mass det. time= 167.8 min (1,241.1 - 1,073.4)

matic)Listed below (Recalc)						
Stage Data (Pris	Cum.Store	0	5,465	12,311	20,809	
9 of Custom	Inc.Store	0	5,465	6,846	8,498	Invert Outlet Devices
	Surf.Area	4.855	6,074	7,618	9,378	Invert
#1 378.00		378.00	379.00	380.00	381.00	Device Routing
	#1 378.00' 20,809 cf Custom Stage Data (Prismatic)Listed below (Recalc)	378.00' Surf.Area	378.00' Surf.Area (sq-ft) 4.855	378.00' Surf.Area (sq-ft) 4,855 6,074	378.00' Surf.Area (sq-ft) 4,855 6,074 7,618	378.00' Surf.Area (sq-ft) 4855 6,074 7,618 9,378

	374.00' 15.0" Round Culvert	L= 40.0' CPP, square edge headwall, Ke= 0.500	Inlet / Outlet Invert= 374.00' / 373.00' S= 0.0250 '/' Cc= 0.900	n= 0.011, Flow Area= 1.23 sf	378.00' 2.5" Vert. Low Flow Orifice C= 0.600	24.0" W x 4.0" H Vert. High Flow Orifice C= 0.600	380.50' 60.0" x 60.0" Horiz. Overflow Grate C= 0.600
	374.00′				378.00′	378.50	380.50
)	#1 Primary				Device 1	Device 1	Device 1
	#1				#5	#3	#4

Primary OutFlow Max=2.81 cfs @ 12.54 hrs HW=379.34' TW=0.00' (Dynamic Tailwater)

1=Culvert (Passes 2.81 cfs of 12.83 cfs potential flow)

2=Low Flow Orifice Controls 0.18 cfs @ 5.35 fps)

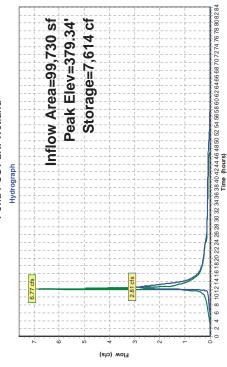
3=High Flow Orifice (Orifice Controls 2.63 cfs @ 3.94 fps)

4=Overflow Grate (Controls 0.00 cfs)

Limited to weir flow at low heads

Pond POST 2K: Wetland

- Inflow - Primary



NewKingStreet 24-hr 25-yr Rainfall=6.43" Printed 11/21/2016 Ibutions LLC Page 93

NewKingStreet 24-hr 25-yr Rainfall=6.43" Printed 11/21/2016

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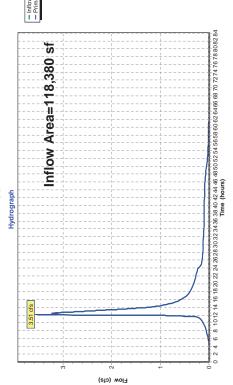
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Summary for Link POST 2L: DP2

118,380 sf, 45,72% Impervious, Inflow Depth > 4.76" for 25-yr event 3.51 cfs @ 12.06 hrs, Volume= 46,929 cf, Atten= 0%, Lag= 0.0 min Inflow Area = Inflow = Primary =

Primary outflow = Inflow, Time Span= 0.00-84.00 hrs, dt= 0.01 hrs

Link POST 2L: DP2



Summary for Subcatchment POST 3: DP3

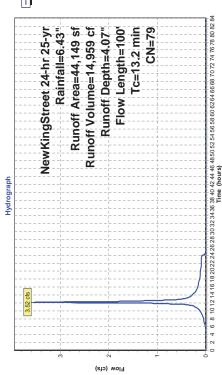
14,959 cf, Depth= 4.07" 3.52 dfs @ 12.13 hrs, Volume=

Runoff

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-84.00 hrs, dt= 0.01 hrs NewKingStreet 24-hr 25-yr Rainfall=6.43"

		od, HSG B	od, HSG D						Slope Velocity Capacity Description		Sheet Flow,	Woods: Light underbrush n= 0.400 P2= 3.44"	Sheet Flow,	Grass: Dense n= 0.240 P2= 3.44"	
	Paved parking, HSG D	>75% Grass cover, Good, HSG B	>75% Grass cover, Good, HSG D	Woods, Good, HSG B	od, HSG D	verage	93.68% Pervious Area	6.32% Impervious Area	Capacity	(cts)					
Area (sf) CN Description	aved parki	75% Grass	75% Grass	loods, God	Woods, Good, HSG D	Weighted Average	3.68% Per	.32% Impe	Velocity	(ft/sec)	0.12		0.17		
CN	98 P	61	. < 08	25 W	77 W	79 W	6	9	Slope	(ft/ft)	84 0.0600		16 0.1130		100 Total
rea (sf)	2,789	386	11,371	303	29,300	44,149	41,360	2,789	Tc Length	(feet)	84		16		100
∢									Tc	(min)	11.6		1.6		13.2

Subcatchment POST 3: DP3



NewKingStreet 24-hr 50-yr Rainfall=7.64"

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Summary for Subcatchment POST 1: DP1

#
Dep
Ç,
773
17,
Volume=
hrs,
16 F
12.16
(8)
cfs
3.91
II
Joff
Ru

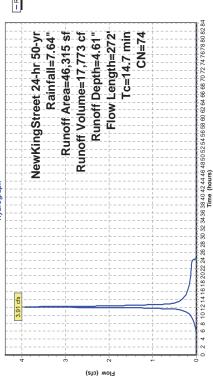
= 4.61"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-84.00 hrs, dt= 0.01 hrs NewKingStreet 24-hr 50-yr Rainfall=7.64"

	od, HSG B	od, HSG D					Slope Velocity Capacity Description		Sheet Flow,	Woods: Light underbrush n=0.400 P2=3.44" Shallow Concentrated Flow, Woodland Kv=5.0 fps	
	>75% Grass cover, Good, HSG B	75% Grass cover, Good, HSG D	Woods, Good, HSG B	Woods, Good, HSG D	verage	100.00% Pervious Area	Capacity	(cfs)			
Area (sf) CN Description	75% Grass	75% Grass	oods, Goo	oods, Goo	Weighted Average	00.00% Pe	Velocity	(ft/sec)	0.13	1.25	
CN	61 >	80	25 W	77 W	74 W	Ξ			100 0.0720	172 0.0630	272 Total
rea (sf)	7,901	6,202	1,479	30,733	46,315	46,315	Tc Length	(feet)	100	172	272
⋖							Tc	(min)	12.4	2.3	14.7

Subcatchment POST 1: DP1





NewKingStreet 24-hr 50-yr Rainfall=7.64"

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Summary for Subcatchment POST 2A: Bioretention (BR)

0.34 cfs @ 12.03 hrs, Volume=

Runoff

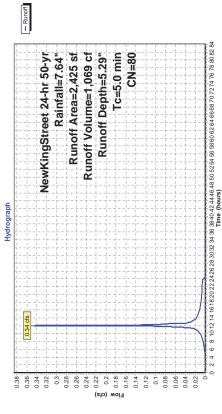
1,069 cf, Depth= 5.29"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-84.00 hrs, dt= 0.01 hrs NewKingStreet 24-hr 50-yr Rainfall=7.64"

Paved parking, HSG D >75% Grass cover, Good, HSG B Weighted Average 48.45% Pervious Area 51.55% Impervious Area CN 98 61 80 1,250 1,175 2,425 1,175 1,250 Area (sf)

Direct Entry, Capacity Description (cfs) Slope Velocity (ft/ft) (ft/sec) Length (feet) (min)

Subcatchment POST 2A: Bioretention (BR)



NewKingStreet 24-hr 50-yr Rainfall=7.64" Printed 11/21/2016

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Summary for Subcatchment POST 2B: Flow Split Area (FS)

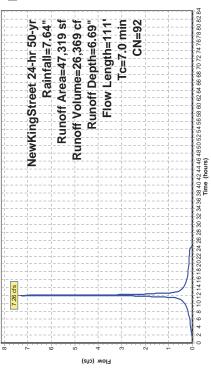
26,369 cf, Depth= 6.69" 7.26 cfs @ 12.05 hrs, Volume= Runoff

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-84.00 hrs, dt= 0.01 hrs NewKingStreet 24-hr 50-yr Rainfall=7.64"

	Paved parking, HSG D >75% Grass cover, Good, HSG B	>75% Grass cover, Good, HSG D			sa	Slope Velocity Capacity Description		Sheet Flow,	Grass: Short n= 0.150 P2= 3.44"	Shallow Concentrated Flow,	Short Grass Pasture Kv= 7.0 fps	
	Paved parking, HSG D >75% Grass cover, God	s cover, Gc	verage	23.54% Pervious Area	76.46% Impervious Area	Capacity	(cts)					
Description	aved parki 75% Grass	75% Gras	Weighted Average	3.54% Per	3.46% Imp	Velocity	(#/sec)	0.24		1.15		
CN		80	92 W	Ķ	Ž		(#/#)	100 0.0450		11 0.0270		111 Total
Area (sf)	36,178 3,635	7,506	47,319	11,141	36,178	Tc Length	(teet)	100		7		111
∢						Ľ.	(min)	8.9		0.2		7.0

Subcatchment POST 2B: Flow Split Area (FS)

Hydrograph



NewKingStreet 24-hr 50-yr Rainfall=7.64" Printed 11/21/2016

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Summary for Subcatchment POST 2C: Pretreatment Area (PT)

2.10 cfs @ 12.04 hrs, Volume=

Runoff

6,830 cf, Depth= 5.29"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-84.00 hrs, dt= 0.01 hrs NewKingStreet 24-hr 50-yr Rainfall=7.64"

		d, HSG B	d, HSG D				Description	Direct Entry,
	Paved parking, HSG D	>75% Grass cover, Good, HSG B	>75% Grass cover, Good, HSG D	verage	64.41% Pervious Area	35.59% Impervious Area	Slope Velocity Capacity Description (tt/ft) (ft/sec) (cfs)	_
Area (sf) CN Description	aved park	.75% Gras	.75% Gras	Weighted Average	4.41% Per	5.59% Imp	Velocity (ft/sec)	
CN	98 F	61	80 ×	80	v	(,)	Slope (ft/ft)	
rea (sf)	5,516	5,587	4,396	15,499	9,983	5,516	Tc Length	
⋖							(min)	0.9

Subcatchment POST 2C: Pretreatment Area (PT)

0 2 4 6 8 101214161820222426283032343838 0042444848505254565860626466687072747678808284 Runoff Area=15,499 sf Runoff Volume=6,830 cf CN=80 NewKingStreet 24-hr 50-yr Runoff Depth=5.29" Tc=6.0 min Rainfall=7.64" Hydrograph

Flow (cfs)

NewKingStreet 24-hr 50-yr Rainfall=7.64" Printed 11/21/2016

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Summary for Subcatchment POST 2D: Sand Filter Area (SF)

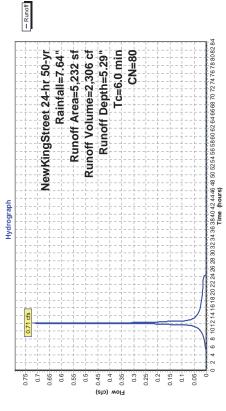
0.71 cfs @ 12.04 hrs, Volume= Runoff

2,306 cf, Depth= 5.29"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-84.00 hrs, dt= 0.01 hrs NewKingStreet 24-hr 50-yr Rainfall=7.64"

	80 >75% Grass cover, Good, HSG D	эа	Capacity Description (ds)	Direct Entry,
	s cover, G	ervious Are	Capacity (cfs)	
CN Description	75% Grass	100.00% Pervious Area	Velocity (ft/sec)	
CN	80 >	1	Slope (ft/ft)	
Area (sf)	5,232	5,232	Length (feet)	
Ā			Tc (min)	0.9

Subcatchment POST 2D: Sand Filter Area (SF)



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Summary for Subcatchment POST 2E: Planter Area (PLT)

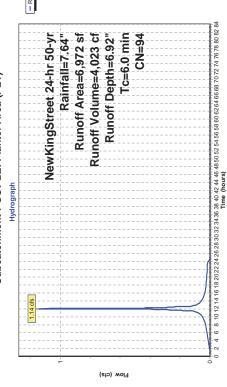
1.14 cfs @ 12.04 hrs, Volume= Runoff

4,023 cf, Depth= 6.92"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-84.00 hrs, dt= 0.01 hrs NewKingStreet 24-hr 50-yr Rainfall=7.64"

		d, HSG B	d, HSG D			a	Slope Velocity Capacity Description	Direct Entry
	Paved parking, HSG D	>75% Grass cover, Good, HSG B	>75% Grass cover, Good, HSG D	verage	21.83% Pervious Area	78.17% Impervious Area	Capacity	(CIS)
Area (sf) CN Description	aved parki	75% Grass	75% Grass	Weighted Average	1.83% Per	8.17% Imp	Velocity	(INSEC)
CN D	98 P	.<	.< 08	94 W	2	7	Slope	(IIVII)
ea (sf)	5,450	75	1,447	6,972	1,522		Tc Length	- 1
Ar							T _C	(11111)
,				1				

Subcatchment POST 2E: Planter Area (PLT)



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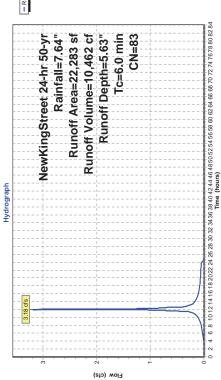
Summary for Subcatchment POST 2F: Wetland Area (WET)

10,462 cf, Depth= 5.63" 3.18 cfs @ 12.04 hrs, Volume= Runoff

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-84.00 hrs, dt= 0.01 hrs NewKingStreet 24-hr 50-yr Rainfall=7.64"

Area (sf) CN Description	98 Paved parking, HSG D	61 >75% Grass cover, Good, HSG B	80 >75% Grass cover, Good, HSG D	83 Weighted Average	76.39% Pervious Area	23.61% Impervious Area	Slope Velocity Capacity Description	(ft/ft) (ft/sec) (dfs)	Direct Entry,
Area (sf)	5,261	1,055	15,967	22,283	17,022	5,261	To Length	(min) (feet)	0.9

Subcatchment POST 2F: Wetland Area (WET)



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Summary for Subcatchment POST 2G: Post 2 (DP2-BY)

2.27 dfs @ 12.04 hrs, Volume=

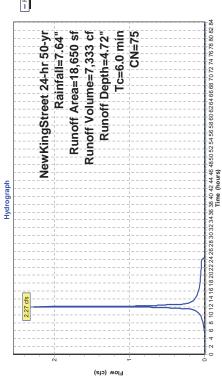
Runoff

7,333 cf, Depth= 4.72"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-84.00 hrs, dt= 0.01 hrs NewKingStreet 24-hr 50-yr Rainfall=7.64"

								_		iry,
		>75% Grass cover, Good, HSG B	>75% Grass cover, Good, HSG D				Œ	Slope Velocity Capacity Description		Direct Entry,
	Paved parking, HSG D	s cover, Go	s cover, Go	Woods, Good, HSG D	verage	97.48% Pervious Area	2.52% Impervious Area	Capacity	(cfs)	
CN Description	aved park	.75% Gras	.75% Grass	Voods, Goo	Weighted Average	17.48% Per	52% Impe	Velocity	(ft/sec)	
CN	98	61	80	77 \	75 \	O,	(1	Slope	(ft/ft)	
Area (sf)	470	4,180	6,149	7,851	18,650	18,180	470	Tc Length	(feet)	
×								J _C	(min)	0.9

Subcatchment POST 2G: Post 2 (DP2-BY)



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Summary for Pond POST 2H: Flow Splitter

49,744 sf, 75.24% Impervious, Inflow Depth = 6.62" for 50-yr event	7.59 cfs @ 12.05 hrs, Volume= 27,438 cf		@ 12.05 hrs, Volume= 25,286 cf	
49,744 sf,	7.59 cfs @	7.59 cfs @	3.48 cfs @	4 10 cfs @
Inflow Area =	lnflow =	Outflow =	Primary =	Secondary -

Routing by Dyn-Stor-Ind method, Time Span= 0.00-84.00 hrs, dt= 0.01 hrs Peak Elev= 389.86' @ 12.05 hrs Flood Elev= 394.00'

Invert Outlet Devices	388.00' 12.0" Round Culvert to Pretreatment	L= 20.0' CPP, projecting, no headwall, Ke= 0.900	Inlet / Outlet Invert= 388.00' / 384.00' S= 0.2000 '/' Cc= 0.900	n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf	4.0' long Sharp-Crested Vee/Trap Weir Cv= 2.62 (C= 3.28)	15.0" Round Culvert to Wetland	L= 106.0' CPP, projecting, no headwall, Ke= 0.900	Inlet / Outlet Invert= 388.00' / 381.00' S= 0.0660 '/ Cc= 0.900	n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf
Invert	388.00				389.40'	388.00			
Device Routing	#1 Primary				Device 3	Secondary			
Device	#1				#2	#3			

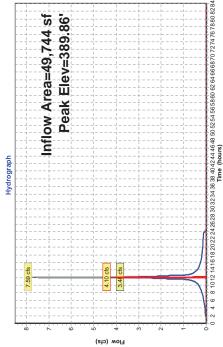
Primary OutFlow Max=3.48 cfs @ 12.05 hrs HW=389.86′ TW=387.19′ (Dynamic Tailwater) —1=Culvert to Pretreatment (Inlet Controls 3.48 cfs @ 4.43 fps)

Secondary OutFlow Max=4.09 ds @ 12.05 hrs HW=389.86' TW=379.06' (Dynamic Tailwater)

—3=Culvert to Wetland (Passes 4.09 ds of 5.18 ds potential flow)

—2=Sharp-Crested Vee/Trap Weir (Weir Controls 4.09 ds @ 2.22 fps)

Pond POST 2H: Flow Splitter



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Summary for Pond POST 2I: Pretreatment

65,243 sf, 65.82% Impervious, Inflow Depth = 5.91" for 50-yr event	32,117 of	32,096 cf, Atten= 11%, Lag= 3.2 min	32,096 cf
65,243 sf, 65.82% Impervious,	5.58 cfs @ 12.04 hrs, Volume=	4.96 cfs @ 12.09 hrs, Volume=	4.96 cfs @ 12.09 hrs, Volume=
Inflow Area =	lnflow =	Outflow =	Primary =

Routing by Dyn-Stor-Ind method, Time Span= 0.00-84.00 hrs, dt= 0.01 hrs Peak Elev= 387.22' @ 12.09 hrs Surf.Area= 2,971 sf Storage= 6,820 cf

Plug-Flow detention time= 187.8 min calculated for 32,096 cf (100% of inflow) Center-of-Mass det. time= 187.4 min (977.7 - 790.3)

	9,152 cf Custom Stage Data (Prismatic)Listed below (Recalc)							
scription	age Data (P	Cum.Store (cubic-feet)	0	1,475	3,511	6,157	9,152	
Avail. Storage Storage Description	ર્ત Custom St	Inc.Store cubic-feet)	0	1,475	2,036	2,646	2,996	Invert Outlet Devices
	9,152 (Surf.Area (sq-ft) (cu	1,220	1,730	2,341	2,951	3,040	Invert O
Invert	384.00'	Sur						outing
Volume	#1	Elevation (feet)	384.00	385.00	386.00	387.00	388.00	Device Routing

Invert Outlet Devices	384.00' 12.0" Round Culvert	L= 38.0' CPP, projecting, no headwall, Ke= 0.900	Inlet / Outlet Invert= 384.00 / 384.00' S= 0.0000 '/' Cc= 0.900	n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf	0.5" Vert. Orifice/Grate X 16.00 columns	X 12 rows with 3.0" cc spacing C= 0.600		Limited to weir flow at low heads	10.0' long x 2.0' breadth Broad-Crested Rectangular Weir	Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00	2.50 3.00 3.50	Coef. (English) 2.54 2.61 2.61 2.60 2.66 2.70 2.77 2.89 2.88	2.85 3.07 3.20 3.32	
Invert	384.00				384.00		387.00		387.00					
evice Routing	#1 Primary				Device 1		Device 1		Primary					
3VICe	#1				#5		#3		#4					

Primary OutFlow Max=4.95 cfs @ 12.09 hrs HW=387.22 TW=386.31' (Dynamic Tailwater)

1=Culvert (Passes 2.25 cfs of 2.86 cfs potential flow)

1=Carrifice/Grate (Orifice Controls 1.16 cfs @ 4.44 ps)

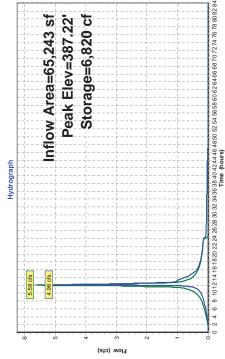
3=Riser Openning (Weir Controls 1.09 cfs @ 1.55 fps)

4=Broad-Crested Rectangular Weir (Weir Controls 2.70 cfs @ 1.21 fps)

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Pond POST 2I: Pretreatment

- Inflow - Primary



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Summary for Pond POST 2J: Sand Filter

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- Inflow - Primary

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Pond POST 2J: Sand Filter

0 2 4 6 8 101214161820222426283032343638404244648505254565860626466687072747678808264 Time (hours) Peak Elev=386.31 Inflow Area=70,475 sf Storage=4,649 cf Hydrograph Flow (cfs)

70,475 sf, 60.94% Impervious, Inflow Depth = 5.86" for 50-yr event 5.51 cfs @ 12.08 hrs, Volume= 34,402 cf 5.32 cfs @ 12.12 hrs, Volume= 34,403 cf, Atten= 3%, Lag= 1.9 min 5.32 cfs @ 12.12 hrs, Volume= 34,403 cf

Inflow Area =
Inflow =
Outflow =
Primary =

Routing by Dyn-Stor-Ind method, Time Span= 0.00-84.00 hrs, dt= 0.01 hrs Peak Elev= 386.31' @ 12.12 hrs Surf.Area= 2,684 sf Storage= 4,649 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow) Center-of-Mass det. time= 170.4 min (1,137.4 - 967.0)

	9,806 of Custom Stage Data (Prismatic)Listed below (Recalc)							
escription	stage Data (Pri	Cum.Store (cubic-feet)	0	1,645	3,839	6,641	908'6	
ge Storage D	cf Custom S	Inc.Store cubic-feet)	0	1,645	2,194	2,802	3,166	Invert Outlet Devices
Invert Avail. Storage Storage Description		Surf.Area (sq-ft) (c	1,386	1,903	2,485	3,119	3,212	Invert
Invert	384.00	Ø						outing
Volume	#1	Elevation (feet)	384.00	385.00	386.00	387.00	388.00	Device Routing

			Cc= 0.900					
		Ke= 0.500	S = 0.0429 '/		C = 0.600		tal area	= 380 00'
Invert Outlet Devices	381.50' 12.0" Round SF Outlet Culvert	L= 35.0' CPP, square edge headwall, Ke= 0.500	Inlet / Outlet Invert= 381.50' / 380.00' S= 0.0429 '/' Cc= 0.900	n= 0.011, Flow Area= 0.79 sf	386.10' 48.0" x 48.0" Horiz. Overflow Grate C= 0.600	Limited to weir flow at low heads	384.00' 1.750 in/hr Exfiltration over Horizontal area	Conductivity to Groundwater Fleyation = 380 00'
Invert	381.50				386.10'		384.00	
Device Routing	#1 Primary				#2 Device 1		#3 Device 1	
Device	#1				#5		#3	

Primary OutFlow Max=5.32 cfs @ 12.12 hrs HW=386.31' TW=379.41' (Dynamic Tailwater)

—=SF Outlet Culvert (Passes 5.32 cfs of 7.85 cfs potential flow)

—2=Overflow Grate (Weir Controls 5.16 cfs @ 1.51 fps)

—3=Exfiltration (Controls 0.15 cfs)

NewKingStreet 24-hr 50-yr Rainfall=7.64" Printed 11/21/2016 Intions LLC Page 109

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Summary for Pond POST 2K: Wetland

99,730 sf, 53.80% Impervious, Inflow Depth = 6.14" for 50-yr event			
99,730 sf, 53.80% Impervious,	12.07 cfs @ 12.07 hrs, Volume=	3.67 cfs @ 12.48 hrs, Volume=	3.67 cfs @ 12.48 hrs, Volume=
Inflow Area =	lnflow =	Outflow =	Primary =

Routing by Dyn-Stor-Ind method, Time Span= 0.00-84,00 hrs, dt= 0.01 hrs Peak Elev= 379.83' @ 12.48 hrs Surf.Area= 7,354 sf Storage= 11,030 cf

Plug-Flow detention time= 149.8 min calculated for 50,933 of (100% of inflow) Center-of-Mass det. time= 145.7 min (1,169.1 - 1,023.4)

	Custom Stage Data (Prismatic)Listed below (Recalc)						
Avail. Storage Storage Description	n Stage Data (P	Cum.Store	(cubic-feet)	0	5,465	12,311	20,809
Storage		Inc.Store	(cubic-teet)	0	5,465	6,846	8,498
Storage	20,809 cf	<u>n</u>	idno)				
Avail.	2	Surf.Area	(sd-tt)	4,855	6,074	7,618	9,378
Invert	378.00′	Sur					
Volume	#1	Elevation	(teet)	378.00	379.00	380.00	381.00

Invert Outlet Devices	374.00' 15.0" Round Culvert	L= 40.0' CPP, square edge headwall, Ke= 0.500	Inlet / Outlet Invert= 374.00' / 373.00' S= 0.0250 '/ Cc= 0.900	n= 0.011, Flow Area= 1.23 sf	2.5" Vert. Low Flow Orifice C= 0.600	24.0" W x 4.0" H Vert. High Flow Orifice C= 0.600	60.0" x 60.0" Horiz. Overflow Grate C= 0.600	Limited to weir flow at low heads
Invert	374.00′				378.00	378.50	380.50	
Device Routing	#1 Primary				Device 1	Device 1	Device 1	
Device	#1				#5	#3	#4	

Primary OutFlow Max=3.67 cfs @ 12.48 hrs HW=379.83 TW=0.00' (Dynamic Tailwater)

1=Culvert (Passes 3.67 cfs of 13.48 cfs potential flow)

1=Leuk Flow Piow Orifice (Orifice Controls 0.22 cfs @ 6.32 fps)

1=High Flow Orifice (Orifice Controls 3.46 cfs @ 5.19 fps)

4=Overflow Grate (Controls 0.00 cfs)

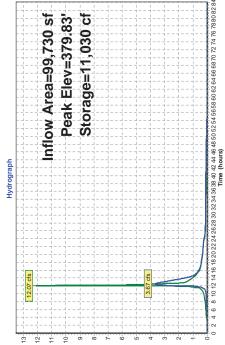
NewKingStreet 24-hr 50-yr Rainfall=7.64" Printed 11/21/2016

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- Inflow - Primary

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Pond POST 2K: Wetland



Flow (cfs)

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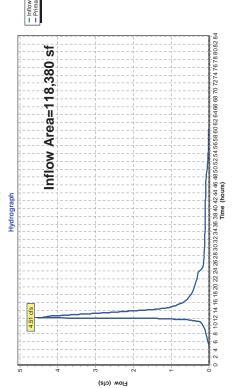
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Summary for Link POST 2L: DP2

118,380 sf, 45,72% Impervious, Inflow Depth > 5.91" for 50-yr event 4.51 cfs @ 12.07 hrs, Volume= 58,272 cf, Atten= 0%, Lag= 0.0 min Inflow Area = Inflow = Primary =

Primary outflow = Inflow, Time Span= 0.00-84.00 hrs, dt= 0.01 hrs

Link POST 2L: DP2



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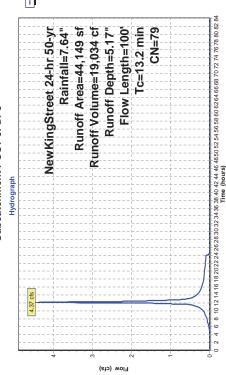
Summary for Subcatchment POST 3: DP3

19,034 cf, Depth= 5.17" 4.37 dfs @ 12.13 hrs, Volume= Runoff

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-84.00 hrs, dt= 0.01 hrs NewKingStreet 24-hr 50-yr Rainfall=7.64"

												Woods: Light underbrush $n=0.400 P2=3.44$ "		Grass: Dense n= 0.240 P2= 3.44"	
		>75% Grass cover, Good, HSG B	>75% Grass cover, Good, HSG D						Slope Velocity Capacity Description		Sheet Flow,	Woods: Ligh	Sheet Flow,	Grass: Dens	
	Paved parking, HSG D	s cover, Go	s cover, Go	Woods, Good, HSG B	Woods, Good, HSG D	verage	93.68% Pervious Area	6.32% Impervious Area	Capacity	(cts)					
Area (sf) CN Description	aved park	75% Grass	75% Grass	Voods, Goo	Voods, Goo	Weighted Average	3.68% Per	.32% Impe	Velocity	(tt/sec)	0.12		0.17		
CN	98 F	61	80	22 N	77 V	۸ 62	о	9	Slope	(#/#)	84 0.0600		16 0.1130		100 Total
rea (sf)	2,789	386	11,371	303	29,300	44,149	41,360	2,789	Tc Length	(teet)	8		16		100
Ā									<u>2</u> ((min)	11.6		1.6		13.2

Subcatchment POST 3: DP3



NewKingStreet 24-hr 100-yr Rainfall=9.08" Printed 11/21/2016

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Summary for Subcatchment POST 1: DP1

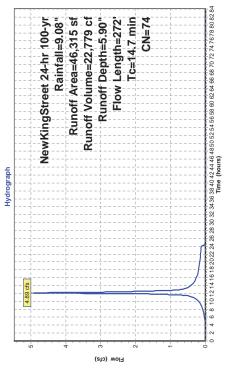
22,779 cf, Depth= 5.90" 4.89 cfs @ 12.15 hrs, Volume=

Runoff

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-84.00 hrs, dt= 0.01 hrs NewKingStreet 24-hr 100-yr Rainfall=9.08"

	>75% Grass cover, Good, HSG B	>75% Grass cover, Good, HSG D					Slope Velocity Capacity Description		Sheet Flow,	Woods: Light underbrush n= 0.400 P2= 3.44"	Shallow Concentrated Flow,	Woodland Kv= 5.0 fps	
	cover, Go	cover, Go	Woods, Good, HSG B	d, HSG D	verage	100.00% Pervious Area	Capacity	(cts)					
CN Description	75% Grass	75% Grass	loods, God	Woods, Good, HSG D	Weighted Average	00.00% Pe	Velocity	(tt/sec)	0.13		1.25		
CN	61 >	80	25 V	77 W	74 W	<u>~</u>	Slope	(ft/ft)	100 0.0720		172 0.0630		272 Total
Area (sf)	7,901	6,202	1,479	30,733	46,315	46,315	Tc Length	(feet)	100		172		272
Ā							J _C	(min)	12.4		2.3		14.7

Subcatchment POST 1: DP1



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Summary for Subcatchment POST 2A: Bioretention (BR)

0.42 cfs @ 12.03 hrs, Volume=

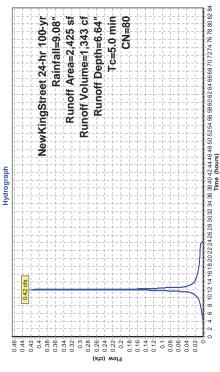
Runoff

1,343 cf, Depth= 6.64"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-84.00 hrs, dt= 0.01 hrs NewKingStreet 24-hr 100-yr Rainfall=9.08"

80 80 98	Slope Velocity Capacity Description (ft/ft) (ft/sec) (cfs)	Direct Entry,
1,250 1,175 2,425 1,175 1,250	nc Length (min) (feet)	5.0

Subcatchment POST 2A: Bioretention (BR)



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Summary for Subcatchment POST 2B: Flow Split Area (FS)

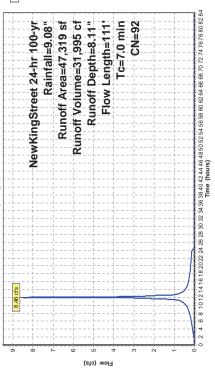
31,995 cf, Depth= 8.11" 8.46 cfs @ 12.05 hrs, Volume= Runoff

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-84.00 hrs, dt= 0.01 hrs NewKingStreet 24-hr 100-yr Rainfall=9.08"

									٨,	Grass: Short n= 0.150 P2= 3.44"	Shallow Concentrated Flow,	Short Grass Pasture Kv= 7.0 fps	
		>75% Grass cover, Good, HSG B	>75% Grass cover, Good, HSG D			ea	Slope Velocity Capacity Description		Sheet Flow,	Grass: Sho	Shallow C	Short Gras	
	Paved parking, HSG D	s cover, Go	s cover, Go	verage	23.54% Pervious Area	76.46% Impervious Area	Capacity	(cts)					
Area (sf) CN Description	aved park	75% Gras	75% Grass	Weighted Average	3.54% Per	3.46% Imp	Velocity	(ft/sec)	0.24		1.15		
CN	98 P	61	.< 08	92 W	X	76		(ft/ft)	100 0.0450		11 0.0270		111 Total
rea (sf)	36,178	3,635	7,506	47,319	11,141	36,178	Tc Length	(feet)	100		7		111
A							Tc	(min)	6.8		0.2		7.0

Subcatchment POST 2B: Flow Split Area (FS)





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Summary for Subcatchment POST 2C: Pretreatment Area (PT)

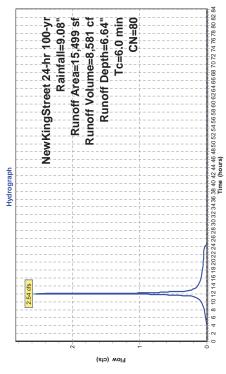
2.54 cfs @ 12.04 hrs, Volume= Runoff

8,581 cf, Depth= 6.64"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-84.00 hrs, dt= 0.01 hrs NewKingStreet 24-hr 100-yr Rainfall=9.08"

		>75% Grass cover, Good, HSG B	>75% Grass cover, Good, HSG D			ea	Tc Length Slope Velocity Capacity Description		Direct Entry,
	Paved parking, HSG D	s cover, Go	s cover, Go	verage	64.41% Pervious Area	35.59% Impervious Area	Capacity	(cfs)	
Area (st) CN Description	aved parki	.75% Grass	.75% Grass	Weighted Average	4.41% Per	5.59% Imp	Velocity	(t/sec)	
CN	98 F	61	80 >	80 Λ	9	(*)	Slope	(ft/ft)	
rea (st)	5,516	5,587	4,396	15,499	9,983	5,516	Length	(feet)	
¥							T _C	(min)	0.9

Subcatchment POST 2C: Pretreatment Area (PT)



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Summary for Subcatchment POST 2D: Sand Filter Area (SF)

0.86 cfs @ 12.04 hrs, Volume=

Runoff

2,897 cf, Depth= 6.64"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-84.00 hrs, dt= 0.01 hrs NewKingStreet 24-hr 100-yr Rainfall=9.08"

Description >75% Grass cover, Good, HSG D 100.00% Pervious Area Capacity (cfs) Velocity (ft/sec) Description Slope (ft/ft) 80 S Length (feet) Area (sf) 5,232 5,232 2 (min) 6.0 Subcatchment POST 2D: Sand Filter Area (SF)

Direct Entry,

- Runoff

0 2 4 6 8 10121416182022242628330323438584042444648505254565860626466687072747678808284 Time (hours) Runoff Volume=2,897 cf Runoff Area=5,232 sf Runoff Depth=6.64" Tc=6.0 min CN=80 NewKingStreet 24-hr 100-yr Rainfall=9.08" Hydrograph 0.2 0.95 0.8 0.75 0.65 0.65 0.5 0.45 0.35 0.3 0.55 (cfs)

NewKingStreet 24-hr 100-yr Rainfall=9.08"

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Summary for Subcatchment POST 2E: Planter Area (PLT)

1.32 dfs @ 12.04 hrs, Volume=

Runoff

4,855 cf, Depth= 8.36"

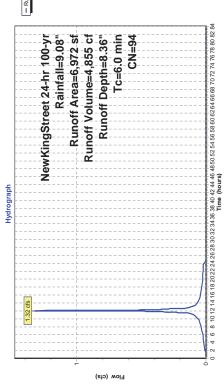
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-84.00 hrs, dt= 0.01 hrs NewKingStreet 24-hr 100-yr Rainfall=9.08"

S

Area (sf)

Direct Entry					0.9
Describaci	capacity (cfs)	(ft/sec)	(ff/ft)	(feet)	(min)
Velocity Capacity Description	Capacity	Velocity	Slope	Lenath	L L
ea	78.17% Impervious Area	78.17% Imp		5,450	
	21.83% Pervious Area	1.83% Pel	.,	1,522	
	verage	Weighted Average	94 \	6,972	
>75% Grass cover, Good, HSG D	s cover, Gc	.75% Gras	80	1,447	
>75% Grass cover, Good, HSG B	s cover, Gc	.75% Gras	61	75	
	Paved parking, HSG D	aved park	98 F	5,450	

Subcatchment POST 2E: Planter Area (PLT)



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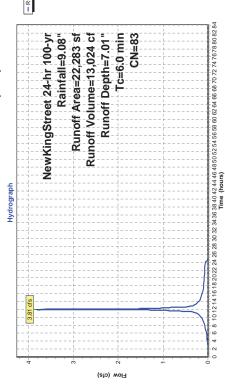
Summary for Subcatchment POST 2F: Wetland Area (WET)

13,024 cf, Depth= 7.01" 3.81 cfs @ 12.04 hrs, Volume= Runoff

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-84.00 hrs, dt= 0.01 hrs NewKingStreet 24-hr 100-yr Rainfall=9.08"

		>75% Grass cover, Good, HSG B	>75% Grass cover, Good, HSG D			sa sa	Tc Length Slope Velocity Capacity Description		Direct Entry,
	Paved parking, HSG D	s cover, Go	s cover, Go	verage	76.39% Pervious Area	23.61% Impervious Area	Capacity	(cts)	
CN Description	aved parki	.75% Grass	.75% Grass	Weighted Average	6.39% Per	:3.61% Imp	Velocity	(ft/sec)	
S	98 F	61	80 >	83 \	7	N	Slope	(ft/ft)	
Area (sf)	5,261	1,055	15,967	22,283	17,022	5,261	Length	(feet)	
⋖							ΤC	(min)	0.9

Subcatchment POST 2F: Wetland Area (WET)



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Summary for Subcatchment POST 2G: Post 2 (DP2-BY)

2.80 cfs @ 12.04 hrs, Volume= Runoff

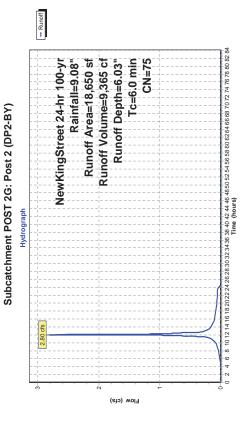
9,365 cf, Depth= 6.03"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-84.00 hrs, dt= 0.01 hrs NewKingStreet 24-hr 100-yr Rainfall=9.08"

		В	۵				
CN Description	Paved parking, HSG D	>75% Grass cover, Good, HSG B	>75% Grass cover, Good, HSG D	Woods, Good, HSG D	Weighted Average	97.48% Pervious Area	2.52% Impervious Area
S	86	61	80	77	75		
Area (sf)	470	4,180	6,149	7,851	18,650	18,180	470

Slope Velocity Capacity Description (ft/ft) (ft/sec) (cfs) Length (feet)

Direct Entry, Tc (min) 6.0



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Summary for Pond POST 2H: Flow Splitter

Inflow Area =	49,744 sf, 75.24% Impervious,	49,744 sf, 75.24% Impervious, Inflow Depth = 8.04" for 100-yr event
Inflow =	8.86 cfs @ 12.05 hrs, Volume=	33,338 cf
II	6.00 CIS @ 12.05 IIIS, VOIUITIE=	33,336 ci, Atteri= 076, Lag= 0.0
Primary =	3.59 cfs @ 12.05 nrs, volume=	30,157 cf
Secondary II	5.27 cfs @ 12.05 hrs \/olime=	2 20 2

Routing by Dyn-Stor-Ind method, Time Span= 0.00-84.00 hrs, dt= 0.01 hrs Peak Elev= 389.94' @ 12.05 hrs Flood Elev= 394.00'

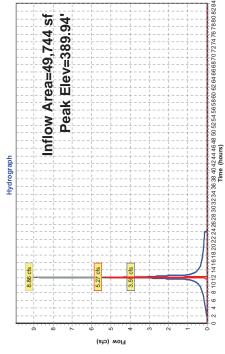
Invert Outlet Devices	388.00' 12.0" Round Culvert to Pretreatment	L= 20.0' CPP, projecting, no headwall, Ke= 0.900	Inlet / Outlet Invert= 388.00' / 384.00' S= 0.2000 '/' Cc= 0.900	n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf	4.0' long Sharp-Crested Vee/Trap Weir Cv= 2.62 (C= 3.28)	15.0" Round Culvert to Wetland	L= 106.0' CPP, projecting, no headwall, Ke= 0.900	Inlet / Outlet Invert= 388.00 / 381.00 S= 0.0660 Cc= 0.900	n= 0.013 Corrugated PE. smooth interior. Flow Area= 1.23 sf
Invert	388.00				389.40'	388.00			
Device Routing	#1 Primary				Device 3	Secondary			
Device	#1				#5	#3			

Primary OutFlow Max=3.59 cfs @ 12.05 hrs HW=389.94° TW=387.25° (Dynamic Tailwater) —1=Culvert to Pretreatment (Inlet Controls 3.59 cfs @ 4.57 fps)

Secondary OutFlow Max=5.25 ds @ 12.05 hrs HW=389.94' TW=379.51' (Dynamic Tailwater) = 3=Culvert to Wetland (Passes 5.25 ds of 5.36 ds potential flow) = 2=Sharp-Crested Vee/Trap Weir (Weir Controls 5.25 ds @ 2.41 fps)

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Pond POST 2H: Flow Splitter



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Summary for Pond POST 2I: Pretreatment

Inflow Area =	II	65,243 st,	65.82% In	pervious,	65,243 st, 65.82% Impervious, Inflow Depth = 7.13" for	3" for 100-yr event
flow	II	6.12 cfs @	12.04 hrs,	Nolume=	38,738 cf	
Outflow	II	5.86 cfs @	12.07 hrs,	Volume=	38,718 cf, Ai	tten= 4%, Lag= 1.6 min
Primary	II	5.86 cfs @	12.07 hrs.	Volume=	38.718 cf	

Routing by Dyn-Stor-Ind method, Time Span= 0.00-84.00 hrs, dt= 0.01 hrs Peak Elev= 387.26 @ 12.07 hrs Surf.Area= 2.974 sf Storage= 6.920 cf

Plug-Flow detention time= 163.6 min calculated for 38,718 cf (100% of inflow) Center-of-Mass det. time= 163.2 min ($948.3 \cdot 785.0$)

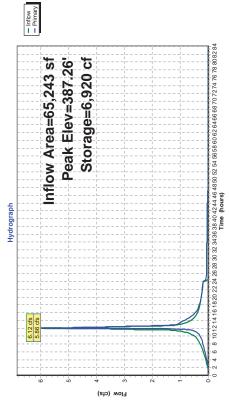
	()							
scription	9,152 cf Custom Stage Data (Prismatic)Listed below (Recalc)	Cum.Store	0	1,475	3,511	6,157	9,152	
Avail.Storage Storage Description	f Custom Sta	Inc.Store	0	1,475	2,036	2,646	2,996	Invert Outlet Devices
Avail.Storage	9,152 c	Surf.Area		1,730	2,341	2,951	3,040	Invert
Invert	384.00'	Su						outing
Volume	#1	Elevation (feet)	384.00	385.00	386.00	387.00	388.00	Device Routing

Invert Outlet Devices	384.00' 12.0" Round Culvert	L= 38.0' CPP, projecting, no headwall, Ke= 0.900	Inlet / Outlet Invert= 384.00' / 384.00' S= 0.0000 '/' Cc= 0.900	n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf	0.5" Vert. Orifice/Grate X 16.00 columns	X 12 rows with 3.0" cc spacing C= 0.600	12.0" Horiz. Riser Openning C= 0.600	Limited to weir flow at low heads	10.0' long x 2.0' breadth Broad-Crested Rectangular Weir	Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00	2.50 3.00 3.50	Coef. (English) 2.54 2.61 2.61 2.60 2.66 2.70 2.77 2.89 2.88	2.85 3.07 3.20 3.32
Invert	384.00				384.00'		387.00		387.00				
Device Routing	#1 Primary				Device 1		Device 1		Primary				
Device	#1				#5		#3		#4				

Primary OutFlow Max=5.85 cts @ 12.07 hrs HW=387.26' TW=386.34' (Dynamic Tailwater)
1=Culvert (Passes 2.51 cts of 2.85 cts potential flow)
1=CarlifeoForate (Ordice Controls 1.17 cts @ 4.46 fps)
1=3=Ritser Openning (Weir Controls 1.34 cts @ 1.66 fps)
1=4=Broad-Crested Rectangular Weir (Weir Controls 3.35 cfs @ 1.30 fps)

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Pond POST 2I: Pretreatment



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Summary for Pond POST 2J: Sand Filter

70,475 sf, 60.94% Impervious, Inflow Depth = 7.09" for 100-yr event		6.53 cfs @ 12.08 hrs, Volume= 41,615 cf, Atten= 2%, Lag= 1.2 min	
60.94% Imp	12.06 hrs, V	12.08 hrs, V	12.08 hrs, V
70,475 sf,	6.66 cfs @	6.53 cfs @	6.53 cfs @
Inflow Area =	lnflow =	Outflow =	Primary =

Routing by Dyn-Stor-Ind method, Time Span= 0.00-84.00 hrs, dt= 0.01 hrs Peak Elev= 386.35' @ 12.08 hrs Surf.Area= 2,704 sf Storage= 4,736 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow) Center-of-Mass det. time= $146.2~{\rm min}~($ 1,084.9 - 938.7)

	9,806 cf Custom Stage Data (Prismatic)Listed below (Recalc)						
Avail. Storage Storage Description	า Stage Data (P	Cum.Store (cubic-feet)	0	1,645	3,839	6,641	908'6
Storage	f Custon	Inc.Store cubic-feet)	0	1,645	2,194	2,802	3,166
il.Storage	9,806 כ	no)					
		Surf.Area (sq-ft)	1,386	1,903	2,485	3,119	3,212
Invert	384.00	Ø					
Volume	#1	Elevation (feet)	384.00	385.00	386.00	387.00	388.00

			Cc = 0.900					
		Ke= 0.500	S = 0.0429'		C = 0.600		tal area	= 380.00'
Invert Outlet Devices	381.50' 12.0" Round SF Outlet Culvert	L= 35.0' CPP, square edge headwall, Ke= 0.500	Inlet / Outlet Invert= 381.50' / 380.00' S= 0.0429 '/' Cc= 0.900	n= 0.011, Flow Area= 0.79 sf	48.0" x 48.0" Horiz. Overflow Grate C= 0.600	Limited to weir flow at low heads	384.00' 1.750 in/hr Exfiltration over Horizontal area	Conductivity to Groundwater Elevation = 380.00'
Invert	381.50				386.10'		384.00′	
Device Routing	#1 Primary				#2 Device 1		#3 Device 1	
Device	#1				#5		#3	

Primary OutFlow Max=6.53 cfs @ 12.08 hrs HW=386.35 TW=379.73' (Dynamic Tailwater)

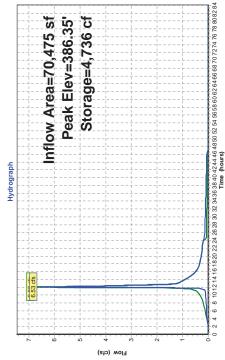
—1=SF Outlet Culvert (Passes 6.53 cfs of 7.88 cfs potential flow)

—2=Overflow Grate (Weir Controls 6.38 cfs @ 1.62 fps)

—3=Exfiltration (Controls 0.15 cfs)

Pond POST 2J: Sand Filter

- Inflow - Primary



NewKingStreet24-hr 100-yr Rainfall=9.08" Printed 11/21/2016

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NewKingStr
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Summary for Pond POST 2K: Wetland

99,730 sf, 53.80% Impervious, Inflow Depth = 7.54" for 100-yr event	62,674 cf	62,573 cf, Atten= 73%, Lag= 26.5 min	62,573 of
99,730 sf, 53.80% Impervious,	16.54 cfs @ 12.05 hrs, Volume=	4.41 cfs @ 12.49 hrs, Volume=	4.41 cfs @ 12.49 hrs, Volume=
Inflow Area =	lnflow =	Outflow =	Primary =

Routing by Dyn-Stor-Ind method, Time Span= 0.00-84,00 hrs, dt= 0.01 hrs Peak Elev= 380.35 % 12.49 hrs Surf.Area= 8,238 sf Storage= 15,105 $\rm cd$

Plug-Flow detention time= 132.6 min calculated for 62,573 of (100% of inflow) Center-of-Mass det. time= 129.0 min (1,111.7 - 982.7)

	20,809 cf Custom Stage Data (Prismatic)Listed below (Recalc)						
escription	tage Data (I	Cum.Store (cubic-feet)	0	5,465	12,311	20,809	
Avail.Storage Storage Description	f Custom S	Inc.Store cubic-feet)	0	5,465	6,846	8,498	Invert Outlet Devices
torage	o 608'	no)					Ŏ Ł
	20	Surf.Area (sq-ft)	4,855	6,074	7,618	9,378	Inve
Invert	378.00′	S					Routing
Volume	#1	Elevation (feet)	378.00	379.00	380.00	381.00	Device Routing

lively Caulet Devices	374.00' 15.0" Round Culvert	L= 40.0' CPP, square edge headwall, Ke= 0.500	Inlet / Outlet Invert= 374.00 / 373.00 S= 0.0250 // Cc= 0.900	n= 0.011, Flow Area= 1.23 sf	2.5" Vert. Low Flow Orifice C= 0.600	24.0" W x 4.0" H Vert. High Flow Orifice C= 0.600	60.0" x 60.0" Horiz. Overflow Grate C= 0.600	Limited to weir flow at low heads	
וואפור	374.00				378.00	378.50	380.50		
Device bound	#1 Primary				Device 1	Device 1	Device 1		
2000	#1				#5	#3	#4		

Primary OutFlow Max=4.41 cfs @ 12.49 hrs HW=380.35 TW=0.00' (Dynamic Tailwater)

1-Culvert (Passes 4.41 cfs of 14.14 cfs potential flow)

1-ELOW Flow Orifice (Orifice Controls 0.25 cfs @ 7.22 fps)

1-3-High Flow Orifice (Orifice Controls 4.17 cfs @ 6.25 fps)

1-3-High Flow Grate (Controls 0.00 cfs)

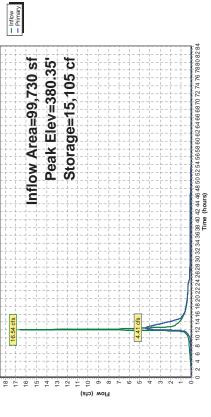
NewKingStreet 24-hr 100-yr Rainfall=9.08" Printed 11/21/2016

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Pond POST 2K: Wetland

Hydrograph



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NewKingStreet 24-hr 100-yr Rainfall=9.08" Printed 11/21/2016

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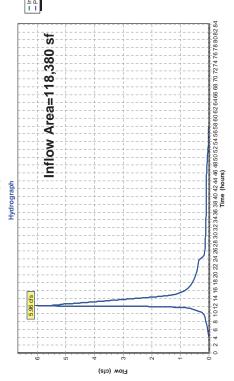
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Summary for Link POST 2L: DP2

118,380 sf, 45,72% Impervious, Inflow Depth > 7.29" for 100-yr event 5.96 cfs @ 12.06 hrs, Volume= 71,939 cf, Atten= 0%, Lag= 0.0 min Inflow Area = Inflow = Primary =

Primary outflow = Inflow, Time Span= 0.00-84.00 hrs, dt= 0.01 hrs

Link POST 2L: DP2



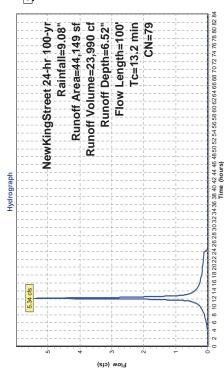
Summary for Subcatchment POST 3: DP3

23,990 cf, Depth= 6.52" 5.34 dfs @ 12.13 hrs, Volume= Runoff

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-84.00 hrs, dt= 0.01 hrs NewKingStreet 24-hr 100-yr Rainfall=9.08"

	J, HSG D	>75% Grass cover, Good, HSG B	>75% Grass cover, Good, HSG D	, HSG B	, HSG D	arage	ous Area	ious Area	Slope Velocity Capacity Description	(cfs)	Sheet Flow,	Woods: Light underbrush n= 0.400 P2= 3.44"	Sheet Flow,	Grass: Dense n= 0.240 P2= 3.44"	
Area (sf) CN Description	Paved parking, HSG D	75% Grass	75% Grass	Woods, Good, HSG B	Woods, Good, HSG D	Weighted Average	93.68% Pervious Area	6.32% Impervious Area	Velocity	(ft/sec)	0.12	!	0.17		
CN	98 P	61	. < 08	25 W	77 W	79 W	ග	9	Slope	(ft/ft)	84 0.0600		16 0.1130		100 Total
rea (sf)	2,789	386	11,371	303	29,300	44,149	41,360	2,789	Tc Length	(feet)	84		16		100
Ā									Tc	(min)	11.6		1.6		13.2

Subcatchment POST 3: DP3



SWPPP APPENDIX G

EROSION AND SEDIMENT CONTROL INSPECTION REPORT

Park Place at Westchester Airport North Castle, NY

Project Name:	Date:	
Project Number:	Logged by:	
Weather:		

SITE PLAN/SKETCH

Provide a concise sketch indicating construction activities, location and description of stormwater runoff from the site, stabilization activities, and soil erosion and sediment control BMPs. Indicate BMPs improperly installed or in need of repair. The inspector shall notify the contractor(s) and subcontractor(s) of necessary repairs of BMPs required within one business day of this inspection.

Maintain Water Quality

[]

[]

[]

Yes	No	NA	
[]	[]	[]	Is there an increase in turbidity causing a substantial visible contrast to natural conditions?
[]	[]	[]	Is there residue from oil and floating substances, visible oil film, or globules or grease?
[]	[]	[]	All disturbance is within the limits of the approved plans.
[]	[]	[]	Have receiving lake/bay, stream, and/or wetland been impacted by silt from project?
Hous	ekeepi	ng	
1. Ge	neral S	ite Cond	itions
Yes	No	NA	
[]	[]	[]	Is construction site litter and debris appropriately managed?
[]	[]	[]	Are facilities and equipment necessary for implementation of erosion and sediment control in working order and/or properly maintained?
[]	[]	[]	Is construction impacting the adjacent property?
[]	[]	[]	Is dust adequately controlled?
2. Te	mporar	y Stream	Crossing
Yes	No	NA	
[]	[]	[]	Maximum diameter pipes necessary to span creek without dredging are installed.
[]	[]	[]	Installed non-woven geotextile fabric beneath approaches.
[]	[]	[]	Is fill composed of aggregate (no earth or soil)?
			Rock on approaches is clean enough to remove mud from vehicles & prevent

sediment from entering stream during high flow.

Runoff Control Practices

1. Excavation Dewatering

Yes	No	NA	
[]	[]	[]	Upstream and downstream berms (sandbags, inflatable dams, etc.) are installed per plan.
[]	[]	[]	Clean water from upstream pool is being pumped to the downstream pool.
[]	[]	[]	Sediment laden water from work area is being discharged to a silt-trapping device.
[]	[]	[]	Constructed upstream berm with one-foot minimum freeboard.
2. Lev	el Spre	eader	
Yes	No	NA	
[]	[]	[]	Installed per plan.
[]	[]	[]	Constructed on undisturbed soil, not on fill, receiving only clear, non-sediment laden flow.
[]	[]	[]	Flow sheets out of level spreader without erosion on downstream edge.
3. Inte	ercepto	r Dikes a	and Swales
Yes	No	NA	
[]	[]	[]	Installed per plan with minimum side slopes 2H:1V or flatter.
[]	[]	[]	Stabilized by geotextile fabric, seed, or mulch with no erosion occurring.
[]	[]	[]	Sediment-laden runoff directed to sediment trapping structure.
4. Sto	ne Che	ck Dam	
Yes	No	NA	
[]	[]	[]	Is channel stable (the flow is not eroding soil underneath or around the structure)?
[]	[]	[]	Check is in good condition (rocks in place and no permanent pools behind structure).
[]	[]	[]	Has accumulated sediment been removed?

5. Ro	ck Out	let Prote	ction
Yes	No	NA	
[]	[]	[]	Installed per plan.
[]	[]	[]	Installed concurrently with pipe installation.
Soil S	Stabiliz	ation	
1. To	psoil ar	nd Spoil	Stockpiles
Yes	No	NA	
[]	[]	[]	Stockpiles are stabilized with vegetation and/or mulch.
[]	[]	[]	Sediment control is installed at the toe of the slope.
2. Re	vegetat	ion	
Yes	No	NA	
[]	[]	[]	Temporary seeding and mulch have been applied to idle areas.
[]	[]	[]	4 inches minimum of topsoil has been applied under permanent seeding.
Sedir	nent C	ontrol	
1. Sta	bilized	Constru	action Entrance
Yes	No	NA	
[]	[]	[]	Stone is clean enough to effectively remove mud from vehicles.
[]	[]	[]	Installed per standards and specifications?
[]	[]	[]	Does all traffic use the stabilized entrance to enter and leave site?
[]	[]	[]	Is adequate drainage provided to prevent ponding at entrance?
2. Sil	t Fence	;	
Yes	No	NA	
[]	[]	[]	Installed on Contour, 10 feet from toe of slope (not across conveyance channels).
[]	[]	[]	Joints constructed by wrapping the two ends together for continuous support.
[]	[]	[]	Fabric buried 6 inches minimum.
۲٦	[]	[]	Posts are stable, fabric is tight and without rips or fraved areas.

Sediment accumulation is % of design capacity.

3. Sto	m Dra	in Inlet	Protection (Use for Stone & Block; Filter Fabric; Curb; or, Excavated practices)
Yes	No	NA	
[]	[]	[]	Installed concrete blocks lengthwise so open ends face outward, not upward.
[]	[]	[]	Placed wire screen between No. 3 crushed stone and concrete blocks.
[]	[]	[]	Drainage area is 1acre or less.
[]	[]	[]	Excavated area is 900 cubic feet.
[]	[]	[]	Excavated side slopes should be 2:1.
[]	[]	[]	2" x 4" frame is constructed and structurally sound.
[]	[]	[]	Posts 3-foot maximum spacing between posts.
[]	[]	[]	Fabric is embedded 1 to 1.5 feet below ground and secured to frame/posts with staples at max 8-inch spacing.
[]	[]	[]	Posts are stable, fabric is tight and without rips or frayed areas. Sediment accumulation % of design capacity.
4. Ten	nporar	y Sedime	ent Trap
Yes	No	NA	
[]	[]	[]	Outlet structure is constructed per the approved plan or drawing.
[]	[]	[]	Geotextile fabric has been placed beneath rock fill. Sediment accumulation is % of design capacity.
5. Ten	nporar	y Sedimo	ent Basin
Yes	No	NA	
[]	[]	[]	Basin and outlet structure constructed per the approved plan.
[]	[]	[]	Basin side slopes are stabilized with seed/mulch.
[]	[]	[]	Drainage structure flushed and basin surface restored upon removal of sediment basin facility. Sediment accumulation is % of design capacity.
Note:	Not	all erosio	on and sediment control practices are included in this listing. Add additional pages t

Note: Not all erosion and sediment control practices are included in this listing. Add additional pages to this list as required by site specific design.

Construction inspection checklists for post-development stormwater management practices can be found in the SWPPP.

RECOMMENDATIONS					

b. Modifications to the SWPPP (To be completed as described below)

The Operator 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 and as required by this permit; or
 - b. Achieving the general objectives of controlling pollutants in stormwater discharges from permitted construction activity; and
- 3. Additionally, the SWPPP shall be amended to identify any new contractor or subcontractor that will implement any measure of the SWPPP.

forms is accurate and complete.

MODIFICATION & REASON:					
	X .				
Qualified Inspector (print name)	Date of Inspection				
Qualified Professional (print name)	Qualified Professional Signature				
The above signed acknowledges that, to the best of his/	her knowledge, all information provided on the				

SWPPP APPENDIX H

INSPECTION AND MAINTENANCE FORMS FOR POST-CONSTRUCTION PRACTICES:

STORMWATER WETLAND
BIORETENTION BASIN

STORMW	ATER WETLAND	
Project Name:	Location:	
Site Status:	Weather Condition:	
Inspector: Date:	Time:	
Maintenance Item	Satisfactory/ Unsatisfactory	Comments
Embankment and emergency spillway (Ann	ual, 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/downstream		
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		
10. Emergency spillway clear of obstructions and debris		
Riser and principal spillway (Annual)		
Type: Reinforced concrete		
Corrugated pipe		
1. Low flow orifice obstructed		
2. Low flow trash rack.		

STORMW	STORMWATER WETLAND								
Project Name:	Location:								
Site Status:	Weather Condition:								
Inspector: Date:	Time:								
Maintenance Item	Satisfactory/ Unsatisfactory	Comments							
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 (exposed rebar)									
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									

STORMWATER WETLAND								
Project Name:	Location:							
Site Status:	Weather Condition:							
Inspector: Date:	Time:							
Maintenance Item	Satisfactory/ Unsatisfactory	Comments						
Permanent Pool (monthly)								
1. Undesirable vegetative growth								
2. Floating or floatable debris removal required								
3. Visible pollution								
4. Shoreline problem								
Sediment Forebay	,							
1.Sedimentation noted								
2. Sediment cleanout when depth < 50% design depth								
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								
Condition of Outfalls (Annual, After Majo	r Storms)							
1. Riprap failures								
2. Slope erosion								
3. Storm drain pipes								
4. Endwalls / Headwalls								

STORMW	ATER WETLAND	
Project Name:	Location:	
Site Status:	Weather Condition:	
Inspector: Date:	Time:	
Maintenance Item	Satisfactory/ Unsatisfactory	Comments
Other (monthly)		
1. Encroachment on pond, wetland or easement area		
2. Complaints from residents		
3.Aesthetics		
a. Grass growing required		
4. Conditions of maintenance access routes.		
5. Signs of hydrocarbon build-up		
6. Any public hazards (specify)		
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.		

STORMWATER WETLAND							
Project Name: Location:							
Site Status:	Weather						
Inspector:	Date: Time:						
Maintenance Item	1	Satisfactory/ Unsatisfactory	Comments				
Comments:							
Actions to be Taken:							
Actions to be Taken.							

BIORET	ENTION AREA	
Project Name:	Location:	
Site Status:	Weather Condition:	
Inspector: Date:	Time:	
Maintenance Item	Satisfactory/ Unsatisfactory	Comments
1. Debris Cleanout (Monthly)		
Bioretention and contributing areas clean of debris		
No dumping of yard wastes into practice		
Litter (branches, etc.) have been removed		
2. Vegetation (Monthly)		
Plant height not less than design water depth		
Fertilized per specifications		
Plant composition according to approved plans		
No placement of inappropriate plants		
Grass height not greater than 6 inches		
No evidence of erosion		
3. Check Dams/Energy Dissipaters/Sumps (A	nnual, After Major Storms)	
No evidence of sediment buildup		
Sumps should not be more than 50% full of sediment		
No evidence of erosion at downstream toe of drop structure		
4. Dewatering (Monthly)		
Dewaters between storms		
No evidence of standing water		
5. Sediment Deposition (Annual)		
Area clean of sediments		

BIORETENTION AREA							
Location:							
Weather Condition:							
Time:							
Satisfactory/ Unsatisfactory	Comments						
Major Storms)							
	Location: Weather Condition: Time: Satisfactory/ Unsatisfactory						

SWPPP APPENDIX I

POLLUTANT LOADING CALCULATIONS



										Total Phosphorus (T	P) Loading			Soluble Phosphorus	(SP) Loading	
			Basin Cover	age Area		Impervious Cover	Runoff	Annual	Weighted Phosphorus Concentration (C)	Annual Load (L) ²	SMP Pollutant Removal	Reduced Annual	Soluble Phosphorus	Annual Load (L) ²	SMP Pollutant Removal Efficiency	Reduced Annual Load
	Basin	Total	Impervious	Lawn	Woods	Ratio (I)	Coefficient (Rv)	Runoff (R) ¹	(mg/L)	(kg/yr)	Efficiency (E') ³	Load (L')	Concentration (C) ⁵	(kg/yr)	(E') ³	(L')
		(sq-ft)	(sq-ft)	(sq-ft)	(sq-ft)	[5] = [2] / [1]	[6] = 0.05 + 0.9*[5]	(in)	[8]=([2]*[16]+[3]*[17]+	[9] = 0.103*[7]*[8]	(%)	(kg/yr)	(mg/L)	[13] = 0.103*[7]*[12]	(%)	(kg/yr)
		[1]	[2]	[3]	[4]			[7] = 48.6*0.9*[6]	[4]*[18])/[1]	*([1]/43,560)	[10]	[11] = [9]-[9]*[10]	[12]	*([1]/43,560)	[14]	[15] = [13]-[13]*[14]
									PRE-D	EVELOPMENT						
	DP1	72,263	14,681	7,586	49,996	0.203	0.233	10.2	0.27	0.47	0%	0.47	0.18	0.31	0%	0.31
	DP2	61,327	12,522	7,833	40,972	0.204	0.234	10.2	0.28	0.41	0%	0.41	0.18	0.27	0%	0.27
	DP3	70,999	17,673	20,913	32,413	0.249	0.274	12.0	0.37	0.74	0%	0.74	0.18	0.36	0%	0.36
	Total	204,589	44,876	36,332	123,381	-	-	-	-	1.61	-	1.61	-	0.94	-	0.94
									POST-I	DEVELOPMENT						
	DP1	46,315	0	14,104	32,211	0.000	0.050	2.2	0.28	0.07	0%	0.07	0.18	0.04	0%	0.04
	BR	2,425	1,250	1,175	0	0.515	0.514	22.5	0.54	0.07	94%	0.00	0.18	0.02	21%	0.02
	FS	47,319	36,178	11,140	0	0.765	0.738	32.3	0.52	1.88	82%	0.34	0.18	0.65	27%	0.47
	PLT	6,972	5,450	1,522	0	0.782	0.754	33.0	0.52	0.28	100%	0.00	0.18	0.10	27%	0.07
<u>6</u>	PT	15,449	5,516	9,983	0	0.357	0.371	16.2	0.56	0.33	82%	0.06	0.18	0.11	27%	0.08
	SF	5,232	0	5,232	0	0.000	0.050	2.2	0.59	0.02	57%	0.01	0.18	0.00	25%	0.00
	WET	22,283	5,261	17,022	0	0.236	0.262	11.5	0.57	0.34	57%	0.15	0.18	0.11	25%	0.08
	DP2-BY	18,650	470	10,329	7,851	0.025	0.073	3.2	0.40	0.06	0%	0.06	0.18	0.03	0%	0.03
	DP3	44,148	2,785	11,761	29,602	0.063	0.107	4.7	0.29	0.14	0%	0.14	0.18	0.09	0%	0.09
	Total	208,793	56,910	82,268	69,664	-	-	-	•	3.19	-	0.82		1.15		0.88

Total Phosphorus Concentrations (C) based on Land Coverage⁴

Land Cover	Impervious [16]	Developed Open Space (Lawn) [17]	Forest (Woods) [18]
TP Concentration (C) (mg/L)	0.50	0.59	0.15

¹ - R = P x Pj x Rv, where P = annual rainfall (48.6 inches for Westchester as reported by EOHWC SRPDM*) and Pj = fraction of rainfall that produces runoff, typically 90%.

AKRF Engineering, P.C.

 $^{^{2}}$ - Simple Method Equation, L = 0.103 x R x C x A where 0.103 is a conversion factor (EOHWC SRPDM*).

 $^{^{3}}$ - Refer to enclosed Table 3 for SMP Pollutant Removal Efficiency calculations.

 $^{^4}$ - Phosphorus Concentrations obtained from Table 2 of EOHWC SRPDM* (enclosed Reference 1).

⁵ - Soluble Phosphorus Concentrations for "Commercial" land use obtained from Table 10.1 of NYS SMDM (2015) (enclosed Reference 2).

^{* -} East of Hudson Watershed Corporation's Stormwater Retrofit Project Design Manual (EOHWC SRPDM).

Table 2: TSS and TN Loading Calculations

								Total Suspended Solids (TSS) Loading			Total Nitrogen (TN) Loading				
		Basin Cove	erage Area		Impervious	Runoff	Annual	Weighted TSS Concentration (C)	Annual Load (L) ²	SMP Pollutant Removal	Reduced Annual	Weighted TN Concentration (C)	Annual Load (L) ²	SMP Pollutant Removal	Reduced Annual
Basin	Total (sq-ft) [1]	Impervious (sq-ft) [2]	Lawn (sq-ft) [3]	Woods (sq-ft) [4]	Cover Ratio (I) [5] = [2] / [1]	Coefficient (Rv) [6] = 0.05 + 0.9*[5]	Runoff (R) ¹ (in) [7] = 48.6*0.9*[6]	(mg/L) [8]=([2]*[16]+[3]*[18]+ [4]*[20])/[1]	(kg/yr) [9] = 0.103*[7]*[8] *([1]/43,560)	Efficiency (E') ³ (%) [10]	Load (L') (kg/yr) [11] = [9]-[9]*[10]	(mg/L) [12]=([2]*[17]+[3]*[19]+ [4]*[21])/[1]	(kg/yr) [13] = 0.103*[7]*[12] *([1]/43,560)	Efficiency (E') ³ (%) [14]	Load (L') (kg/yr) [15] = [13]-[13]*[14]
	PRE-DEVELOPMENT PRE-DEVELOPMENT														
DP1	72,263	14,681	7,586	49,996	0.203	0.233	10.2	91	158	0%	158	2.30	4.01	0%	4.01
DP2	61,327	12,522	7,833	40,972	0.204	0.234	10.2	103	153	0%	153	2.48	3.68	0%	3.68
DP3	70,999	17,673	20,913	32,413	0.249	0.274	12.0	196	395	0%	395	3.81	7.67	0%	7.67
Total	204,589	44,876	36,332	123,381	-	-	-	-	706	-	706	-	15.35	-	15.35
								POST-DEVE	LOPMENT						
DP1	46,315	0	14,104	32,211	0.000	0.050	2.2	209	50	0%	50	3.70	0.89	0%	0.89
BR	2,425	1,250	1,175	0	0.515	0.514	22.5	296	38	98%	1	5.49	0.71	72%	0.20
FS	47,319	36,178	11,140	0	0.765	0.738	32.3	149	537	96%	21	3.75	13.54	48%	7.04
PLT	6,972	5,450	1,522	0	0.782	0.754	33.0	138	75	96%	3	3.63	1.97	48%	1.03
PT PT	15,449	5,516	9,983	0	0.357	0.371	16.2	392	233	96%	9	6.63	3.93	48%	2.05
SF	5,232	0	5,232	0	0.000	0.050	2.2	602	16	72%	5	9.10	0.25	24%	0.19
WET	22,283	5,261	0	17,022	0.236	0.262	11.5	30	18	72%	5	1.51	0.91	24%	0.70
DP2-BY	18,650	470	10,329	7,851	0.025	0.073	3.2	349	49	0%	49	5.65	0.79	0%	0.79
DP3	44,148	2,785	11,761	29,602	0.063	0.107	4.7	186	91	0%	91	3.45	1.68	0%	1.68
Total	208,793	56,910	65,246	86,686	-	-	-	-	1107	-	234		24.67		14.55

Pollutant Concentrations (C) based on Land Coverage⁴

	Commercial Roof (Impervious)			awns .awn)	Landscaping (Woods)		
Land Cover	TSS [16]	TN [17]	TSS [18]	TN [19]	TSS [20]	TN ⁵ [21]	
Concentration (C) (mg/L)	9	2.1	602	9.1	37	1.33	

¹ - R = P x Pj x Rv, where P = annual rainfall (48.6 inches for Westchester as reported by EOHWC SRPDM*) and Pj = fraction of rainfall that produces runoff, typically 90%.

 $^{^{2}}$ - Simple Method Equation, L = 0.103 x R x C x A where 0.103 is a conversion factor (EOHWC SRPDM*).

 $^{^{3}}$ - Refer to enclosed Table 3 for SMP Pollutant Removal Efficiency calculations.

⁴ - Pollutant concentrations obtained from Table A.2 of Appendix A of the NYS Stormwater Management Design Manual (2001) (enclosed Reference 3).

⁵ - Table A.2 does not list a TN concentration for "Landscaping." Value taken from Table 1 of the National Stormwater Quality Database, version 1.1 (2004) for "Open Space" (enclosed Reference 4).

^{* -} East of Hudson Watershed Corporation's Stormwater Retrofit Project Design Manual (EOHWC SRPDM).



Park Place Table 3: SMP Efficiency Calculations

Stormwater Management		SMP Polluta Efficier		
Practice (SMP)	TP ¹	SP ²	TSS ²	TN ²
	(%)	(%)	(%)	(%)
Stormwater Wetland	57%	25%	72%	24%
Surface Sand Filter	59%	3%	86%	32%
Stormwater Planter ³	100%	3%	86%	32%
Bioretention Basin	65%	-9%	59%	46%

Effective Efficiency for Treatment Practices in Series:

 $E' = E_1 + (1 - E_1)E_2 + (1 - (E_1 + (1 - E_1)E_2))E_3$

Paris	Turney Control	Treatment Series Pollutant Removal Efficiency (E')				
Basin	Treatment Series	TP	SP	TSS	TN	
		(%)	(%)	(%)	(%)	
	E ₁ - Bioretention Basin					
BR	E ₂ - Sand Filter	94%	21%	98%	72%	
	E ₃ - Stormwater Wetland					
FC	E ₁ - Sand Filter	020/	27%	96%	400/	
FS	E ₂ - Stormwater Wetland	82%			48%	
DT	E ₁ - Sand Filter	020/	270/	0.00/	400/	
PT	E ₂ - Stormwater Wetland	82%	27%	96%	48%	
DIT	E ₁ - Sand Filter	1000/	270/	0.60/	400/	
PLT	E ₂ - Stormwater Wetland	100%	27%	96%	48%	
SF	E ₁ -Stormwater Wetland	57%	25%	72%	24%	
WET	E ₁ -Stormwater Wetland	57%	25%	72%	24%	

 $^{^{1}}$ - Efficiency values obtained from Table 4 of EOHWC SRPDM* (enclosed Reference 1).

 ² - Efficiency values obtained from Median Values from Tables 3, 4 & 5 of the Center for Watershed Protection's National Pollutant Removal Performance Database, version 3 (Sept. 2007) (enclosed Reference 5).

³ - Stormwater Planter considered a "Filtering Practice" for SP, TSS & TN removal efficiencies. Considered a "Green Infrastructure" for TP removal efficiency.

^{* -} East of Hudson Watershed Corporation's Stormwater Retrofit Project Design Manual (EOHWC SRPDM).



EAST OF HUDSON WATERSHED CORPORATION

Stormwater Retrofit Project Design Manual

Revision: 1 -- March 5, 2015

Simple Method: L = 0.103(R)(C)(A)

Where:

L = Annual load (kg/yr)

R = Annual Runoff (inches)

C = Pollutant Concentration (mg/l)

A = Contributing Area (acres)

0.103 = Unit Conversion factor

And where:

R = (P)(Pi)(Rv)

P = Annual Rainfall (inches)

Pj = Fraction of rainfall producing Runoff = 0.9

Rv = Runoff Coefficient where <math>Rv = 0.05 + 0.9(Ia)

Where Ia = Impervious fraction

Table 2: Phosphorus Loading Coefficients (C)

Land Use	Phosphorus Concentration (C) (mg/L)
Residential	0.41
Impervious	0.50
Commercial	0.34
Industrial	0.45
Actively Grazed Pasture	0.40
Forest	0.15
Developed Open Space*	0.59

^{*} e.g. golf courses, parks, cemeteries, single houses with large lawns.

Table 3: Annual Rainfall Depth (P)

County	P (in)
Dutchess	45
Putnam	45
Westchester	48.6

The engineer shall use the following reduction values to determine the estimated phosphorus removal associated with the proposed retrofit practice:

Table 4: SRP Phosphorus Removal Efficiency

Retrofit Type	Phosphorus Reduction (%)
Micropool Extended Detention Pond	40
Wet Pond	49
Wet Extended Detention Pond	55
Multiple Pond System	76
Pocket Pond	67
Shallow Wetland	43
ED Shallow Wetland	39
Pond/Wetland System	56
Pocket Wetland	57
Infiltration Trench	68
Infiltration Basin	50
Dry Well	50
Surface Sand Filter	59
Underground Sand Filter	59
Perimeter Sand Filter	41
Organic Filter	61
Bioretention	65
Dry Swale	50
Wet Swale	28
Green Infrastructure*	*See Below
Cartridge System	40
Hydrodynamic Separators**	10
Channel Stabilization	See Channel Stabilization Below

^{*}Green Infrastructure (GI) practices are to be designed in accordance with the NYSDEC Stormwater Management Design Manual and other design criteria provided by EOHWC. The phosphorus removal efficiency for GI SRP's (including subsurface infiltration) is equal to the percentage of the WQv being treated in the SRP. Thus, 100% treatment of the WQv yields 100% phosphorus removal efficiency for the SRP.

^{**}Hydrodynamic Separators are not a preferred SRP based on the low phosphorus removal efficiency.



New York State

Stormwater Management Design Manual

January 2015

Originally Prepared by:
Center for Watershed Protection
8391 Main Street
Ellicott City, MD 21043

Updated by:
New York State
Department of Environmental Conservation
625 Broadway
Albany, NY 12233



New York State Stormwater Management Design Manual

Chapter 10: Enhanced Phosphorus Removal Supplement

Section 10.1 Introduction and Overview

residential and commercial areas is particulate, with larger fractions of particulate bound phosphorus likely to be found in industrial and open space areas. The National Stormwater Quality Database (NSQD) reported total and dissolved phosphorus as follows:

Table 10.1 Phosphorus Concentrations by Land Use						
	Residential	Commercial	Industrial	Open Space		
Average Total P,	0.41 (963)	0.34 (446)	0.45 (434)	0.59 (46)		
mg/L (# of obs)						
Average Dissolved P, mg/L (# of obs)	0.20 (738)	0.18 (323)	0.16 (325)	0.16 (44)		
Approximate % Dissolved:	49	53	36	27		
Approximate % Particulate:	51	47	64	73		

Note: parentheses represent number of samples used to derive average.

Sources of Phosphorus

Natural phosphorus-bearing minerals are the chief source of phosphorus for industrial and agricultural purposes. The inorganic phosphate and organophosphate components of total phosphorus are typically derived from soil, plant and animal material. In nature, phosphorus has almost no gaseous forms, and so the major transport mechanism is typically by water flow. Nevertheless, significant amounts can be transported via the atmosphere, associated with dusts.

Significant traditional point sources of phosphorus include food-processing industries, sewage treatment plants, leachate from garbage tips and intensive livestock industries (e.g., animal feedlots, dairy operations, horse pastures and large poultry operations). Diffuse sources of phosphorus, although some (e.g., urban, industrial and construction) are now considered point sources from a regulatory standpoint, are often better described as nonpoint. Inorganic phosphate and organophosphate components of total phosphorus associated with undisturbed and agricultural land uses are primarily due to the use of fertilizers and manures and, to a lesser extent, the use of phosphorus-containing pesticides on agricultural lands.

In urban and suburban rainfall runoff, phosphorus sources include detergents, fertilizers, natural soil, flame retardants in many applications (including lubricants), corrosion inhibitors and plasticizers. In areas with high phosphorus content in soils, deposition of sediment due to construction or other land-



New York State

Stormwater Management Design Manual

October 2001

Prepared by Center for Watershed Protection 8391 Main Street Ellicott City, MD 21043

For: New York State Department of Environmental Conservation 625 Broadway Albany, NY 12233



George E. Pataki, Governor Erin M. Crotty, Commissioner



Appendix /	Δ
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	Table A.2	Pollutant	Concentr	ations from	n Source A	reas	
Constituent	TSSt	TP ¹	TN ³	F Coli ¹	Cu ¹	Pb.	Zn¹
	mg/l	mg/L	mg/l	1,000 col/ ml	ug/l	ug/l	ug/l
Resid Roof	19	0.11	1.5	0.26	20	21	312
Comm Roof	9	0.14	2.1	1.1	7	17	256
Indust Roof	17	-	-	5.8	62	43	1,390
C/R Parking	27	0.15	1.9	1.8	51	28	139
Indust Parking	228	-	-	2.7	34	85	224
Res Street	172	0.55	1.4	37	25	51	173
Comm Street	468	-		12	73	170	450
Rural Highway	51	-	22	<u>-</u>	22	80	80
Urban Highway	142	0.32	3.0	•	54	400	329
Lawns	- 602	2.1	9.1	24	17	17	50
Landscaping	37	•	-	94	94	29	263
Driveway	173	0.56	2.1	17	17	•	107
Gas Station	31	-		•	88	80	290
Auto Recycler	335	-	*	-	103	182	520
Heavy Industrial	124	•	-	-	148	290	1600

^{1:} Claytor and Schueler (1996)

^{2:} Average of Steuer et al. (1997), Bannerman (1993) and Waschbusch (2000)

^{3:} Steuer et al. (1997)

The National Stormwater Quality Database (NSQD, version 1.1)

February 16, 2004

Robert Pitt, Alex Maestre, and Renee Morquecho Dept. of Civil and Environmental Engineering University of Alabama Tuscaloosa, AL 35487

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This paper, or earlier versions, have been presented (or are scheduled) for the following conferences, and has been published in the associated conference proceedings:

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World Water and Environmental Resources Congress, Salt Lake City, UT. ASCE. June 2004
Water Environment Federation Technical Exposition and Conference, Los Angeles. Oct 2003
South Pacific Stormwater Conference, Auckland Regional Council, New Zealand. June 2003
National Stormwater Coordinators Meeting, US EPA, Austin, TX. April 2003
National Conference on Urban Stormwater, Chicago Botanical Gardens and US EPA, Chicago, February 2003
Conference on Stormwater and Urban Water Systems Modeling, CHI and EPA, Toronto, Ontario. February 2003

Table 1. Summary of Avail	Fecal	Fecal	Total	Total E.	·		Nitrogen,	-					
	Coliform (mpn/100	Strep. (mpn/100	Coliform (mpn/10	Coli (mpn/100		N02+NO3	Total Kjeldahl	Phos., filtered	Phos., total	Sb, total As,		As, iltered	Be, total
	mL)	mL)	0 mL)	mL)	NH3 (mg/L)		(mg/L)	(mg/L)	(mg/L)	(ug/L) (ug/		ug/L)	(ug/L)
Mixed Industrial (252)													
Number of observations	115	5 70	39)	125	5 213	3 190	5 21	5 21	7	101		
% of samples above detection	95.7	97.1	l 89.7	,	31.2	98.6	93.9	9 87.	.0 96.	3	86.1		
Median	3033	10000	16000)	0.43	0.57	7 1.0	0.0	0.2	0	3.0		
Coefficient of variation	2.5	5 2.6	3 2.4	ļ	0.7	0.7	7 1.	5 2.	.2 1.	5	0.9		
Institutional (18)													
Number of observations					18	3 18	3 18	3 1	7 1	7			
% of samples above detection					88.9	100) 100	82.	4 94.	1			
Median					0.31	0.6	3 1.3	5 0.1	3 0.18	8			
Coefficient of variation					0.5	0.6	6 0.	5 0.	.5 1.0	0			
Freeways (185)													
Number of observations	49	25	5 16	5 1	3 79	25	5 12	5 2	2 12	8	61	7	2
% of samples above detection	100	100	100) 10	0 87.3	96.0	96.8	95.	5 99.2	2	55.7	50.	0
Median	1700	17000	50000	190	0 1.07	0.28	3 2.0	0.2	0.2	5	2.4	1.	4
Coefficient of variation	2.0	1.2	2 1.5	5 2.	.2 1.3	3 1.2	2 1.4	4 2.	.1 1.	8	0.7	2.	0
Mixed Freeways (20)													
Number of observations	16	5 12	2			14	4 10	5 1	3 1	4	15		
% of samples above detection	81.3	93.8	3			100) 100) 10	0 10	0	80		
Median	730	19000)			0.6	5 1.0	6 0.0	0.2	6	3.0		
Coefficient of variation	2.0) 1.1	<u> </u>			0.7	7 0.9	9 0.	.8 0.	8	0.7		
Open Space (68)													
Number of observations	23	3 22	2		32	2 44	4 4	5 4	4 4	6	19		
% of samples above detection	91.3	90.9)		18.8	84.1	1 71.	1 79.	.6 84.	8	31.6		
Median	7200	24900)		0.18	0.59	9 0.74	4 0.1	3 0.3	1	4.0		
Coefficient of variation	1.1	1.0)		1.24	0.9	9 0.9	9 0.	.9 3.	5	0.4		
Mixed Open Space (159)													
Number of observations	95	5 75	5		71	172	2 14	4 14	8 17	3	88		
% of samples above detection	97.9	100)		22.5	97.7	7 91.0	0 85.	.8 96.	5	44.3		
Median	2600	21000)		0.51	0.7	7 + 1.12	2 0.0	9 0.2	7	3.0		
Coefficient of variation	2.3	3 2.4	1		1.2	2 0.8	3 1.:	3 1.	.1 1.	0	0.9		



National Pollutant Removal Performance Database

Version 3

September, 2007



8390 Main Street, 2nd Floor Ellicott City, MD 21043 410.461.8323 FAX 410.461.8324 www.cwp.org www.stormwatercenter.net

The National Pollutant Removal Performance Database v. 2 was recently updated to include an additional 27 studies published through 2006. The updated database was statistically analyzed to derive the median and quartile removal values for each major group of stormwater BMPs. The data are presented as box and whisker plots for the various pollutants found in stormwater runoff.

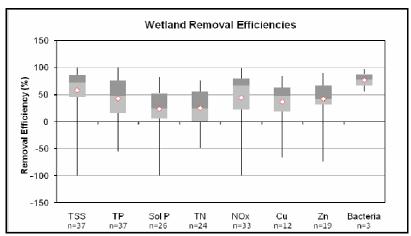


Figure 3. Wetland Removal Efficiencies

Table 3. Wetland Removal Efficiency Statistics								
	TSS	TP	Sol P	TN	NO _x	Cu	Zn	Bacteria
Median	72	48	25	24	67	47	42	78
Min	-100	-55	-100	-49	-100	-67	-74	55
Max	100	100	82	76	99	84	90	97
Q1	46	16	6	0	22	18	31	67
Q3	86	76	53	55	80	63	68	88
Number	37	37	26	24	33	12	19	3

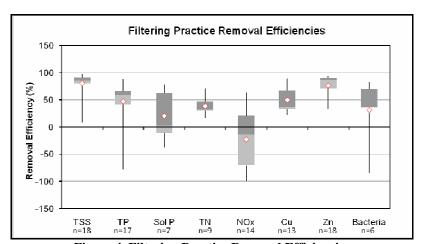


Figure 4. Filtering Practice Removal Efficiencies

Table 4. Filtering Practice Removal Efficiency Statistics								
	TSS	TP	Sol P	TN	NO _x	Cu	Zn	Bacteria
Median	86	59	3	32	-14	37	87	37
Min	8	-79	-37	17	-100	22	33	-85
Max	98	88	78	71	64	90	94	83
Q1	80	41	-11	30	-70	33	71	36
Q3	92	66	63	47	21	67	91	70
Number	18	17	7	9	14	13	18	6

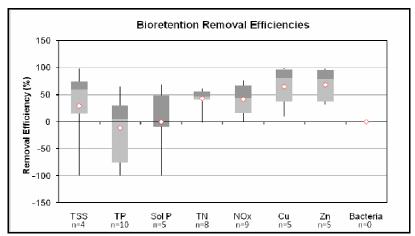


Figure 5. Bioretention Removal Efficiencies

Table 5. Bioretention Removal Efficiency Statistics								
	TSS	TP	Sol P	TN	NO _x	Cu	Zn	Bacteria
Median	59	5	-9	46	43	81	79	N/A
Min	-100	-100	-100	-2	0	9	31	N/A
Max	98	65	69	61	76	99	98	N/A
Q1	15	-76	-9	40	16	37	37	N/A
Q3	74	30	49	55	67	97	95	N/A
Number	4	10	5	8	9	5	5	0

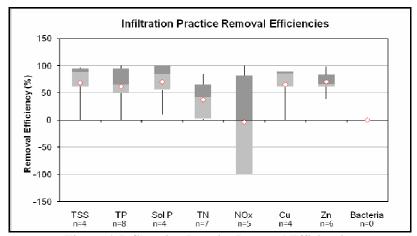


Figure 6. Infiltration Practice Removal Efficiencies

Table 6. Infiltration Practice Removal Efficiency Statistics								
	TSS	TP	Sol P	TN	NO _x	Cu	Zn	Bacteria
Median	89	65	85	42	0	86	66	N/A
Min	0	0	10	0	-100	0	39	N/A
Max	97	100	100	85	100	89	99	N/A
Q1	62	50	55	2	-100	62	63	N/A
Q3	96	96	100	65	82	89	83	N/A
Number	4	8	4	7	5	4	6	0

SWPPP APPENDIX J

USDA WEB SOIL SURVEY



Natural Resources Conservation

Service

A product of the National Cooperative Soil Survey, a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local participants

Custom Soil Resource Report for Westchester County, New York

11 New King Street



Preface

Soil surveys contain information that affects land use planning in survey areas. They highlight soil limitations that affect various land uses and provide information about the properties of the soils in the survey areas. Soil surveys are designed for many different users, including farmers, ranchers, foresters, agronomists, urban planners, community officials, engineers, developers, builders, and home buyers. Also, conservationists, teachers, students, and specialists in recreation, waste disposal, and pollution control can use the surveys to help them understand, protect, or enhance the environment.

Various land use regulations of Federal, State, and local governments may impose special restrictions on land use or land treatment. Soil surveys identify soil properties that are used in making various land use or land treatment decisions. The information is intended to help the land users identify and reduce the effects of soil limitations on various land uses. The landowner or user is responsible for identifying and complying with existing laws and regulations.

Although soil survey information can be used for general farm, local, and wider area planning, onsite investigation is needed to supplement this information in some cases. Examples include soil quality assessments (http://www.nrcs.usda.gov/wps/portal/nrcs/main/soils/health/) and certain conservation and engineering applications. For more detailed information, contact your local USDA Service Center (http://offices.sc.egov.usda.gov/locator/app?agency=nrcs) or your NRCS State Soil Scientist (http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/contactus/?cid=nrcs142p2_053951).

Great differences in soil properties can occur within short distances. Some soils are seasonally wet or subject to flooding. Some are too unstable to be used as a foundation for buildings or roads. Clayey or wet soils are poorly suited to use as septic tank absorption fields. A high water table makes a soil poorly suited to basements or underground installations.

The National Cooperative Soil Survey is a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local agencies. The Natural Resources Conservation Service (NRCS) has leadership for the Federal part of the National Cooperative Soil Survey.

Information about soils is updated periodically. Updated information is available through the NRCS Web Soil Survey, the site for official soil survey information.

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How Soil Surveys Are Made

Soil surveys are made to provide information about the soils and miscellaneous areas in a specific area. They include a description of the soils and miscellaneous areas and their location on the landscape and tables that show soil properties and limitations affecting various uses. Soil scientists observed the steepness, length, and shape of the slopes; the general pattern of drainage; the kinds of crops and native plants; and the kinds of bedrock. They observed and described many soil profiles. A soil profile is the sequence of natural layers, or horizons, in a soil. The profile extends from the surface down into the unconsolidated material in which the soil formed or from the surface down to bedrock. The unconsolidated material is devoid of roots and other living organisms and has not been changed by other biological activity.

Currently, soils are mapped according to the boundaries of major land resource areas (MLRAs). MLRAs are geographically associated land resource units that share common characteristics related to physiography, geology, climate, water resources, soils, biological resources, and land uses (USDA, 2006). Soil survey areas typically consist of parts of one or more MLRA.

The soils and miscellaneous areas in a survey area occur in an orderly pattern that is related to the geology, landforms, relief, climate, and natural vegetation of the area. Each kind of soil and miscellaneous area is associated with a particular kind of landform or with a segment of the landform. By observing the soils and miscellaneous areas in the survey area and relating their position to specific segments of the landform, a soil scientist develops a concept, or model, of how they were formed. Thus, during mapping, this model enables the soil scientist to predict with a considerable degree of accuracy the kind of soil or miscellaneous area at a specific location on the landscape.

Commonly, individual soils on the landscape merge into one another as their characteristics gradually change. To construct an accurate soil map, however, soil scientists must determine the boundaries between the soils. They can observe only a limited number of soil profiles. Nevertheless, these observations, supplemented by an understanding of the soil-vegetation-landscape relationship, are sufficient to verify predictions of the kinds of soil in an area and to determine the boundaries.

Soil scientists recorded the characteristics of the soil profiles that they studied. They noted soil color, texture, size and shape of soil aggregates, kind and amount of rock fragments, distribution of plant roots, reaction, and other features that enable them to identify soils. After describing the soils in the survey area and determining their properties, the soil scientists assigned the soils to taxonomic classes (units). Taxonomic classes are concepts. Each taxonomic class has a set of soil characteristics with precisely defined limits. The classes are used as a basis for comparison to classify soils systematically. Soil taxonomy, the system of taxonomic classification used in the United States, is based mainly on the kind and character of soil properties and the arrangement of horizons within the profile. After the soil scientists classified and named the soils in the survey area, they compared the

Custom Soil Resource Report

individual soils with similar soils in the same taxonomic class in other areas so that they could confirm data and assemble additional data based on experience and research.

The objective of soil mapping is not to delineate pure map unit components; the objective is to separate the landscape into landforms or landform segments that have similar use and management requirements. Each map unit is defined by a unique combination of soil components and/or miscellaneous areas in predictable proportions. Some components may be highly contrasting to the other components of the map unit. The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The delineation of such landforms and landform segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, onsite investigation is needed to define and locate the soils and miscellaneous areas.

Soil scientists make many field observations in the process of producing a soil map. The frequency of observation is dependent upon several factors, including scale of mapping, intensity of mapping, design of map units, complexity of the landscape, and experience of the soil scientist. Observations are made to test and refine the soil-landscape model and predictions and to verify the classification of the soils at specific locations. Once the soil-landscape model is refined, a significantly smaller number of measurements of individual soil properties are made and recorded. These measurements may include field measurements, such as those for color, depth to bedrock, and texture, and laboratory measurements, such as those for content of sand, silt, clay, salt, and other components. Properties of each soil typically vary from one point to another across the landscape.

Observations for map unit components are aggregated to develop ranges of characteristics for the components. The aggregated values are presented. Direct measurements do not exist for every property presented for every map unit component. Values for some properties are estimated from combinations of other properties.

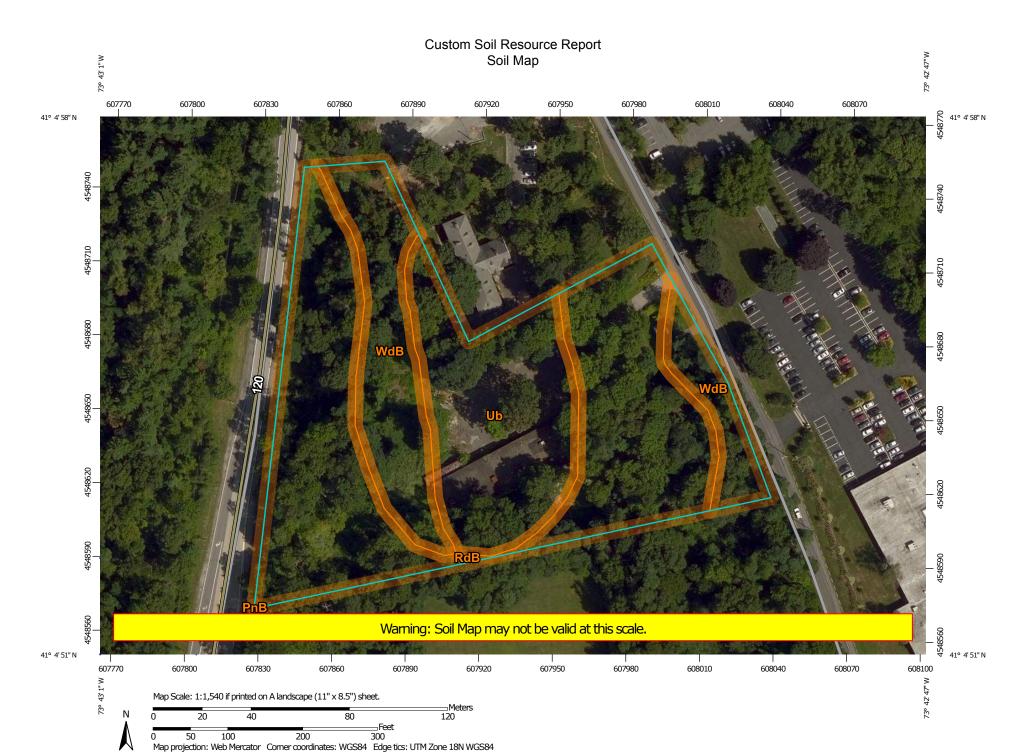
While a soil survey is in progress, samples of some of the soils in the area generally are collected for laboratory analyses and for engineering tests. Soil scientists interpret the data from these analyses and tests as well as the field-observed characteristics and the soil properties to determine the expected behavior of the soils under different uses. Interpretations for all of the soils are field tested through observation of the soils in different uses and under different levels of management. Some interpretations are modified to fit local conditions, and some new interpretations are developed to meet local needs. Data are assembled from other sources, such as research information, production records, and field experience of specialists. For example, data on crop yields under defined levels of management are assembled from farm records and from field or plot experiments on the same kinds of soil.

Predictions about soil behavior are based not only on soil properties but also on such variables as climate and biological activity. Soil conditions are predictable over long periods of time, but they are not predictable from year to year. For example, soil scientists can predict with a fairly high degree of accuracy that a given soil will have a high water table within certain depths in most years, but they cannot predict that a high water table will always be at a specific level in the soil on a specific date.

After soil scientists located and identified the significant natural bodies of soil in the survey area, they drew the boundaries of these bodies on aerial photographs and identified each as a specific map unit. Aerial photographs show trees, buildings, fields, roads, and rivers, all of which help in locating boundaries accurately.

Soil Map

The soil map section includes the soil map for the defined area of interest, a list of soil map units on the map and extent of each map unit, and cartographic symbols displayed on the map. Also presented are various metadata about data used to produce the map, and a description of each soil map unit.



MAP LEGEND

Area of Interest (AOI)

Area of Interest (AOI)

Soils

Soil Map Unit Polygons

-

Soil Map Unit Lines

Soil Map Unit Points

Special Point Features

(0)

Blowout

 \boxtimes

Borrow Pit Clay Spot

Ж

Closed Depression

×

Gravel Pit

...

Gravelly Spot

0

Landfill Lava Flow



Marsh or swamp

Mine or Quarry

......

20

Miscellaneous Water

0

Perennial Water

 \vee

Rock Outcrop

+

Saline Spot Sandy Spot

...

Severely Eroded Spot

\rightarrow

Sinkhole

30

Slide or Slip Sodic Spot 8

Spoil Area Stony Spot



Very Stony Spot



Wet Spot Other



Special Line Features

Water Features

Streams and Canals

Transportation

Rails

~

Interstate Highways

~

US Routes
Major Roads

~

Local Roads

Background

Pa.

Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:12,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service Web Soil Survey URL: http://websoilsurvey.nrcs.usda.gov Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Westchester County, New York Survey Area Data: Version 11, Sep 25, 2015

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Jul 21, 2014—Aug 27, 2014

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Westchester County, New York (NY119)					
Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI		
PnB	Paxton fine sandy loam, 3 to 8 percent slopes	0.0	0.0%		
RdB	Ridgebury loam, 3 to 8 percent slopes	2.9	51.6%		
Ub	Udorthents, smoothed	1.4	25.6%		
WdB	Woodbridge loam, 3 to 8 percent slopes	1.3	22.8%		
Totals for Area of Interest		5.6	100.0%		

Map Unit Descriptions

The map units delineated on the detailed soil maps in a soil survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions, along with the maps, can be used to determine the composition and properties of a unit.

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

Most minor soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, components. They may or may not be mentioned in a particular map unit description. Other minor components, however, have properties and behavioral characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, components. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas are identified by a special symbol on the maps. If included in the database for a given area, the contrasting minor components are identified in the map unit descriptions along with some characteristics of each. A few areas of minor components may not have been observed, and consequently they are not mentioned in the descriptions, especially where the pattern was so complex that it was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or landform segments that

have similar use and management requirements. The delineation of such segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, however, onsite investigation is needed to define and locate the soils and miscellaneous areas.

An identifying symbol precedes the map unit name in the map unit descriptions. Each description includes general facts about the unit and gives important soil properties and qualities.

Soils that have profiles that are almost alike make up a *soil series*. Except for differences in texture of the surface layer, all the soils of a series have major horizons that are similar in composition, thickness, and arrangement.

Soils of one series can differ in texture of the surface layer, slope, stoniness, salinity, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Alpha silt loam, 0 to 2 percent slopes, is a phase of the Alpha series.

Some map units are made up of two or more major soils or miscellaneous areas. These map units are complexes, associations, or undifferentiated groups.

A *complex* consists of two or more soils or miscellaneous areas in such an intricate pattern or in such small areas that they cannot be shown separately on the maps. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas. Alpha-Beta complex, 0 to 6 percent slopes, is an example.

An association is made up of two or more geographically associated soils or miscellaneous areas that are shown as one unit on the maps. Because of present or anticipated uses of the map units in the survey area, it was not considered practical or necessary to map the soils or miscellaneous areas separately. The pattern and relative proportion of the soils or miscellaneous areas are somewhat similar. Alpha-Beta association, 0 to 2 percent slopes, is an example.

An *undifferentiated group* is made up of two or more soils or miscellaneous areas that could be mapped individually but are mapped as one unit because similar interpretations can be made for use and management. The pattern and proportion of the soils or miscellaneous areas in a mapped area are not uniform. An area can be made up of only one of the major soils or miscellaneous areas, or it can be made up of all of them. Alpha and Beta soils, 0 to 2 percent slopes, is an example.

Some surveys include *miscellaneous areas*. Such areas have little or no soil material and support little or no vegetation. Rock outcrop is an example.

Westchester County, New York

PnB—Paxton fine sandy loam, 3 to 8 percent slopes

Map Unit Setting

National map unit symbol: 2t2qp

Elevation: 0 to 1,570 feet

Mean annual precipitation: 36 to 71 inches
Mean annual air temperature: 39 to 55 degrees F

Frost-free period: 140 to 240 days

Farmland classification: All areas are prime farmland

Map Unit Composition

Paxton and similar soils: 80 percent Minor components: 20 percent

Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Paxton

Setting

Landform: Drumlins, ground moraines, hills

Landform position (two-dimensional): Backslope, summit, shoulder Landform position (three-dimensional): Side slope, crest, nose slope

Down-slope shape: Linear, convex Across-slope shape: Convex

Parent material: Coarse-loamy lodgment till derived from gneiss, granite, and/or

schist

Typical profile

Ap - 0 to 8 inches: fine sandy loam
Bw1 - 8 to 15 inches: fine sandy loam
Bw2 - 15 to 26 inches: fine sandy loam
Cd - 26 to 65 inches: gravelly fine sandy loam

Properties and qualities

Slope: 3 to 8 percent

Depth to restrictive feature: 18 to 39 inches to densic material

Natural drainage class: Well drained

Runoff class: Medium

Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately

low (0.00 to 0.14 in/hr)

Depth to water table: About 18 to 37 inches

Frequency of flooding: None Frequency of ponding: None

Salinity, maximum in profile: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)

Available water storage in profile: Low (about 3.1 inches)

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 2s

Hydrologic Soil Group: C Hydric soil rating: No

Minor Components

Woodbridge

Percent of map unit: 9 percent

Landform: Drumlins, ground moraines, hills

Landform position (two-dimensional): Backslope, footslope, summit

Landform position (three-dimensional): Side slope

Down-slope shape: Concave Across-slope shape: Linear Hydric soil rating: No

Ridgebury

Percent of map unit: 6 percent

Landform: Depressions, ground moraines, drainageways, hills
Landform position (two-dimensional): Toeslope, backslope, footslope
Landform position (three-dimensional): Base slope, head slope, dip

Down-slope shape: Concave Across-slope shape: Concave

Hydric soil rating: Yes

Charlton

Percent of map unit: 5 percent

Landform: Hills

Down-slope shape: Linear Across-slope shape: Linear Hydric soil rating: No

RdB—Ridgebury loam, 3 to 8 percent slopes

Map Unit Setting

National map unit symbol: bd9c Elevation: 50 to 1,000 feet

Mean annual precipitation: 46 to 50 inches
Mean annual air temperature: 46 to 52 degrees F

Frost-free period: 115 to 215 days

Farmland classification: Farmland of statewide importance

Map Unit Composition

Ridgebury, somewhat poorly drained, and similar soils: 50 percent

Ridgebury, poorly drained, and similar soils: 35 percent

Minor components: 15 percent

Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Ridgebury, Somewhat Poorly Drained

Setting

Landform: Hills, till plains, drumlinoid ridges

Landform position (two-dimensional): Footslope, summit Landform position (three-dimensional): Base slope

Down-slope shape: Concave

Across-slope shape: Linear

Parent material: Loamy till derived mainly from granite, gneiss, and schist

Typical profile

H1 - 0 to 8 inches: loam

H2 - 8 to 26 inches: gravelly fine sandy loam

H3 - 26 to 60 inches: gravelly loam

Properties and qualities

Slope: 3 to 8 percent

Depth to restrictive feature: 14 to 30 inches to densic material

Natural drainage class: Somewhat poorly drained

Capacity of the most limiting layer to transmit water (Ksat): Moderately low to

moderately high (0.06 to 0.20 in/hr)

Depth to water table: About 6 to 18 inches

Frequency of flooding: None Frequency of ponding: None

Available water storage in profile: Low (about 3.4 inches)

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 3w

Hydrologic Soil Group: B/D Hydric soil rating: No

Description of Ridgebury, Poorly Drained

Setting

Landform: Hills, till plains, drumlinoid ridges

Landform position (two-dimensional): Footslope, summit Landform position (three-dimensional): Base slope

Down-slope shape: Concave Across-slope shape: Linear

Parent material: Loamy till derived mainly from granite, gneiss, and schist

Typical profile

H1 - 0 to 8 inches: loam

H2 - 8 to 26 inches: gravelly fine sandy loam

H3 - 26 to 60 inches: gravelly loam

Properties and qualities

Slope: 3 to 8 percent

Depth to restrictive feature: 14 to 30 inches to densic material

Natural drainage class: Poorly drained

Capacity of the most limiting layer to transmit water (Ksat): Moderately low to

moderately high (0.06 to 0.20 in/hr)

Depth to water table: About 0 to 12 inches

Frequency of flooding: None Frequency of ponding: None

Available water storage in profile: Low (about 3.4 inches)

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 3w

Hydrologic Soil Group: B/D Hydric soil rating: Yes

Minor Components

Sun

Percent of map unit: 5 percent Landform: Depressions Hydric soil rating: Yes

Leicester

Percent of map unit: 3 percent Hydric soil rating: No

Woodbridge

Percent of map unit: 3 percent Hydric soil rating: No

Paxton

Percent of map unit: 2 percent Hydric soil rating: No

Ridgebury, very stony

Percent of map unit: 2 percent Hydric soil rating: No

Ub—Udorthents, smoothed

Map Unit Setting

National map unit symbol: bd7f Elevation: 50 to 2,400 feet

Mean annual precipitation: 46 to 50 inches
Mean annual air temperature: 46 to 52 degrees F

Frost-free period: 115 to 215 days

Farmland classification: Not prime farmland

Map Unit Composition

Udorthents, smoothed, and similar soils: 80 percent

Minor components: 20 percent

Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Udorthents, Smoothed

Typical profile

H1 - 0 to 4 inches: gravelly loam H2 - 4 to 70 inches: very gravelly loam

Properties and qualities

Slope: 0 to 8 percent

Depth to restrictive feature: 40 to 60 inches to lithic bedrock

Natural drainage class: Moderately well drained

Capacity of the most limiting layer to transmit water (Ksat): Moderately low to high

(0.06 to 5.95 in/hr)

Depth to water table: About 18 to 48 inches

Frequency of flooding: None Frequency of ponding: None

Calcium carbonate, maximum in profile: 15 percent Available water storage in profile: Low (about 4.6 inches)

Minor Components

Urban land

Percent of map unit: 5 percent Hydric soil rating: Unranked

Udorthents, wet substratum

Percent of map unit: 5 percent

Hydric soil rating: No

Charlton

Percent of map unit: 2 percent

Hydric soil rating: No

Riverhead

Percent of map unit: 2 percent

Hydric soil rating: No

Sun

Percent of map unit: 2 percent Landform: Depressions Hydric soil rating: Yes

Leicester

Percent of map unit: 2 percent

Hydric soil rating: No

Hollis

Percent of map unit: 2 percent

Hydric soil rating: No

WdB—Woodbridge loam, 3 to 8 percent slopes

Map Unit Setting

National map unit symbol: 2w688

Elevation: 0 to 1,280 feet

Mean annual precipitation: 36 to 71 inches Mean annual air temperature: 39 to 55 degrees F

Frost-free period: 145 to 240 days

Farmland classification: All areas are prime farmland

Map Unit Composition

Woodbridge, loam, and similar soils: 85 percent

Minor components: 15 percent

Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Woodbridge, Loam

Setting

Landform: Drumlins, ground moraines, hills

Landform position (two-dimensional): Summit, backslope, footslope

Landform position (three-dimensional): Side slope, crest

Down-slope shape: Convex Across-slope shape: Linear

Parent material: Coarse-loamy lodgment till derived from gneiss, granite, and/or

schist

Typical profile

Ap - 0 to 6 inches: loam

Bw1 - 6 to 18 inches: gravelly loam Bw2 - 18 to 29 inches: gravelly loam Cd - 29 to 65 inches: gravelly loam

Properties and qualities

Slope: 3 to 8 percent

Depth to restrictive feature: 20 to 39 inches to densic material

Natural drainage class: Moderately well drained

Runoff class: Very high

Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately

low (0.00 to 0.14 in/hr)

Depth to water table: About 18 to 30 inches

Frequency of flooding: None Frequency of ponding: None

Salinity, maximum in profile: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)

Available water storage in profile: Low (about 4.7 inches)

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 2w

Hydrologic Soil Group: C/D Hydric soil rating: No

Minor Components

Paxton

Percent of map unit: 7 percent

Landform: Drumlins, ground moraines, hills

Landform position (two-dimensional): Shoulder, summit, backslope

Landform position (three-dimensional): Crest, side slope

Down-slope shape: Linear, convex Across-slope shape: Convex

Hydric soil rating: No

Ridgebury

Percent of map unit: 7 percent

Landform: Depressions, drumlins, ground moraines, drainageways, hills

Landform position (two-dimensional): Toeslope, footslope Landform position (three-dimensional): Base slope, head slope

Down-slope shape: Concave Across-slope shape: Concave

Hydric soil rating: Yes

Sutton

Percent of map unit: 1 percent Landform: Ground moraines, hills

Landform position (two-dimensional): Footslope Landform position (three-dimensional): Base slope

Down-slope shape: Concave Across-slope shape: Linear

Soil Information for All Uses

Soil Properties and Qualities

The Soil Properties and Qualities section includes various soil properties and qualities displayed as thematic maps with a summary table for the soil map units in the selected area of interest. A single value or rating for each map unit is generated by aggregating the interpretive ratings of individual map unit components. This aggregation process is defined for each property or quality.

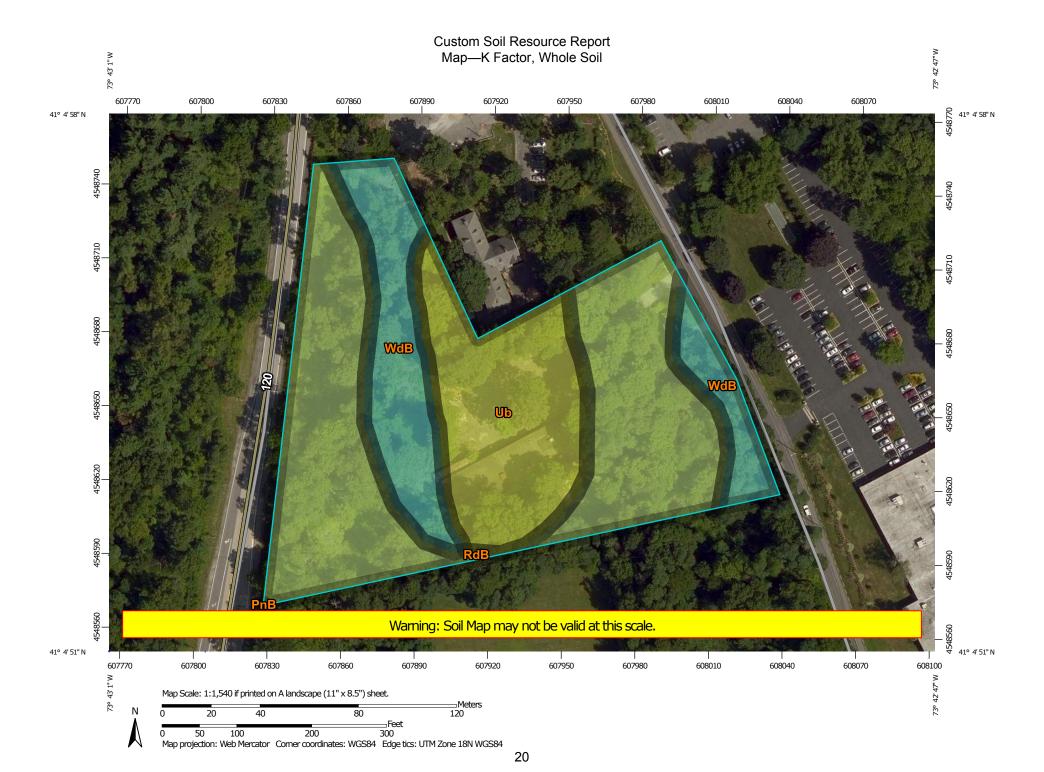
Soil Erosion Factors

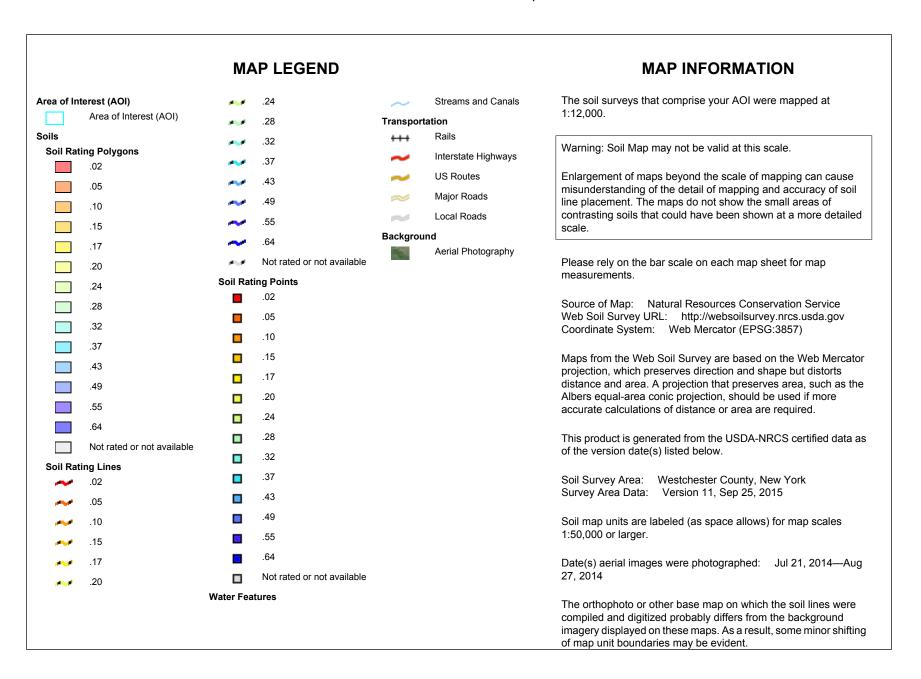
Soil Erosion Factors are soil properties and interpretations used in evaluating the soil for potential erosion. Example soil erosion factors can include K factor for the whole soil or on a rock free basis, T factor, wind erodibility group and wind erodibility index.

K Factor, Whole Soil

Erosion factor K indicates the susceptibility of a soil to sheet and rill erosion by water. Factor K is one of six factors used in the Universal Soil Loss Equation (USLE) and the Revised Universal Soil Loss Equation (RUSLE) to predict the average annual rate of soil loss by sheet and rill erosion in tons per acre per year. The estimates are based primarily on percentage of silt, sand, and organic matter and on soil structure and saturated hydraulic conductivity (Ksat). Values of K range from 0.02 to 0.69. Other factors being equal, the higher the value, the more susceptible the soil is to sheet and rill erosion by water.

"Erosion factor Kw (whole soil)" indicates the erodibility of the whole soil. The estimates are modified by the presence of rock fragments.





Table—K Factor, Whole Soil

K Factor, Whole Soil— Summary by Map Unit — Westchester County, New York (NY119)				
Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
PnB	Paxton fine sandy loam, 3 to 8 percent slopes	.28	0.0	0.0%
RdB	Ridgebury loam, 3 to 8 percent slopes	.24	2.9	51.6%
Ub	Udorthents, smoothed	.20	1.4	25.6%
WdB	Woodbridge loam, 3 to 8 percent slopes	.32	1.3	22.8%
Totals for Area of Interest		5.6	100.0%	

Rating Options—K Factor, Whole Soil

Aggregation Method: Dominant Condition
Component Percent Cutoff: None Specified

Tie-break Rule: Higher

Layer Options (Horizon Aggregation Method): Surface Layer (Not applicable)

Soil Qualities and Features

Soil qualities are behavior and performance attributes that are not directly measured, but are inferred from observations of dynamic conditions and from soil properties. Example soil qualities include natural drainage, and frost action. Soil features are attributes that are not directly part of the soil. Example soil features include slope and depth to restrictive layer. These features can greatly impact the use and management of the soil.

Hydrologic Soil Group

Hydrologic soil groups are based on estimates of runoff potential. Soils are assigned to one of four groups according to the rate of water infiltration when the soils are not protected by vegetation, are thoroughly wet, and receive precipitation from long-duration storms.

The soils in the United States are assigned to four groups (A, B, C, and D) and three dual classes (A/D, B/D, and C/D). The groups are defined as follows:

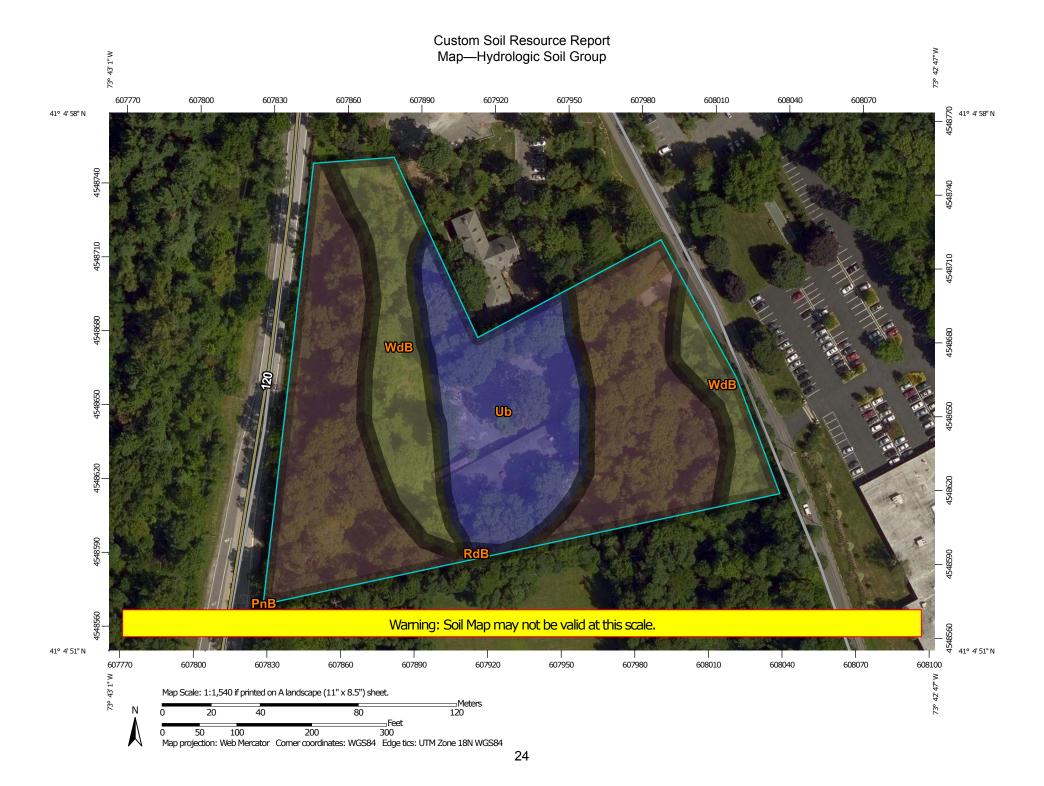
Group A. Soils having a high infiltration rate (low runoff potential) when thoroughly wet. These consist mainly of deep, well drained to excessively drained sands or gravelly sands. These soils have a high rate of water transmission.

Group B. Soils having a moderate infiltration rate when thoroughly wet. These consist chiefly of moderately deep or deep, moderately well drained or well drained soils that have moderately fine texture to moderately coarse texture. These soils have a moderate rate of water transmission.

Group C. Soils having a slow infiltration rate when thoroughly wet. These consist chiefly of soils having a layer that impedes the downward movement of water or soils of moderately fine texture or fine texture. These soils have a slow rate of water transmission.

Group D. Soils having a very slow infiltration rate (high runoff potential) when thoroughly wet. These consist chiefly of clays that have a high shrink-swell potential, soils that have a high water table, soils that have a claypan or clay layer at or near the surface, and soils that are shallow over nearly impervious material. These soils have a very slow rate of water transmission.

If a soil is assigned to a dual hydrologic group (A/D, B/D, or C/D), the first letter is for drained areas and the second is for undrained areas. Only the soils that in their natural condition are in group D are assigned to dual classes.



MAP LEGEND MAP INFORMATION The soil surveys that comprise your AOI were mapped at 1:12,000. Area of Interest (AOI) С Area of Interest (AOI) C/D Warning: Soil Map may not be valid at this scale. Soils D Soil Rating Polygons Not rated or not available Enlargement of maps beyond the scale of mapping can cause Α misunderstanding of the detail of mapping and accuracy of soil line **Water Features** A/D placement. The maps do not show the small areas of contrasting Streams and Canals soils that could have been shown at a more detailed scale. В Transportation B/D ---Rails Please rely on the bar scale on each map sheet for map measurements. Interstate Highways C/D **US Routes** Source of Map: Natural Resources Conservation Service Web Soil Survey URL: http://websoilsurvey.nrcs.usda.gov Major Roads Coordinate System: Web Mercator (EPSG:3857) Not rated or not available -Local Roads Soil Rating Lines **Background** Maps from the Web Soil Survey are based on the Web Mercator Α projection, which preserves direction and shape but distorts Aerial Photography distance and area. A projection that preserves area, such as the A/D Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required. This product is generated from the USDA-NRCS certified data as of the version date(s) listed below. Soil Survey Area: Westchester County, New York Survey Area Data: Version 11, Sep 25, 2015 Not rated or not available Soil map units are labeled (as space allows) for map scales 1:50,000 **Soil Rating Points** or larger. A/D Date(s) aerial images were photographed: Jul 21, 2014—Aug 27, 2014 В B/D The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting

of map unit boundaries may be evident.

Table—Hydrologic Soil Group

Hydrologic Soil Group— Summary by Map Unit — Westchester County, New York (NY119)				
Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
PnB	Paxton fine sandy loam, 3 to 8 percent slopes	С	0.0	0.0%
RdB	Ridgebury loam, 3 to 8 percent slopes	B/D	2.9	51.6%
Ub	Udorthents, smoothed	В	1.4	25.6%
WdB	Woodbridge loam, 3 to 8 percent slopes	C/D	1.3	22.8%
Totals for Area of Interest			5.6	100.0%

Rating Options—Hydrologic Soil Group

Aggregation Method: Dominant Condition
Component Percent Cutoff: None Specified

Tie-break Rule: Higher

SWPPP APPENDIX K

2008 MELICK-TULLY AND ASSOCIATES PRELIMINARY SOILS AND FOUNDATION INVESTIGATION

SWPPP APPENDIX L

2015 INFILTRATION TESTS AND TEST PIT SOIL TESTING LOCATION MAP



Project Name:	Park Place	Date:	12/16/2015
Project Address:	11 New King Street, North Castle, NY	Project No.:	80202

Infiltration Tests

Pre-Soak: 10:00 AM 12/15/2015

Hole No.: 1 **Hole No.:** 2 **Test Date** 12/16/2015 **Test Date** 12/16/2015 6" 6" Hole Dia.: Hole Dia.: 30" 30" Depth: Depth:

Elevation: 1.5' below grade **Elevation:** 0.25' below grade

Drop Drop Time Time (in) (in) 9:00 8:55 10:00 30.00 9:55 24.50 10:45 30.00 10:55 22.25 11:25 30.00 11:55 20.75 12:05 12:55 20.25 30.00

Rate: 45 in/hr Rate: 20.25 in/hr

Test Pit

Name: TP2015-1

DepthDescription0' - 8'Fill8' - 16'Native Soil

Mottling: None Water: None



GENERAL NOTES

- 1. SURVEY INFORMATION SHOWN IS BASED ON TOPOGRAPHIC AND UTILITY SURVEY PERFORMED OCTOBER 2008 BY CONTROL POINT ASSOCIATES. ELEVATIONS SHOWN ARE REFERRED TO NGVD 1929. ALL VALUES SHOWN ARE IN ENGLISH UNITS. EXISTING UNDERGROUND UTILITIES, AS SHOWN ON THIS DRAWING, HAVE BEEN DETERMINED BY STANDARD SURVEY METHODS AND AVAILABLE UTILITY RECORDS. NEITHER THE EXACT LOCATION NOR THE INFORMATION GIVEN FOR THESE EXISTING UTILITIES IS GUARANTEED TO BE COMPLETE OR CORRECT.
- 2. THE EXISTING UTILITIES SHOWN ON THE SURVEY WERE TAKEN FROM THE BEST AVAILABLE INFORMATION AND ARE NOT GUARANTEED TO BE ACCURATE. FIELD CONDITIONS MAY VARY. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO CONTACT THE LOCAL UTILITY COMPANIES THAT HAVE SUBSURFACE INSTALLATIONS IN THE AREA OF WORK FOR THIS CONTRACT AND DIRECT THEM TO HAVE THEIR FACILITIES MARKED OUT PRIOR TO COMMENCING WORK.
- 3. CONTRACTOR TO REFER TO THE GEOTECHNICAL INVESTIGATION REPORTS DATED NOVEMBER 6, 2008 PREPARED BY MELICK-TULLEY AND ASSOCIATES, P.C., FOR INFORMATION ON SUBSURFACE SOIL CONDITIONS.
- 4. SITE EXCAVATION: ALL EXCAVATED SOIL SHALL BE STOCKPILED IN CONFORMANCE WITH THE EROSION AND SEDIMENT CONTROL DETAILS. ALL NYSDEC AND USEPA REGULATIONS FOR REMOVAL OF CONTROLLED FILL SHALL BE ADHERED TO.
- 5. CONTRACTOR TO INSTALL TEMPORARY SITE CONSTRUCTION FENCE AROUND PERIMETER OF WORK AREA PRIOR TO START OF CONSTRUCTION.
- 6. SITE SHALL BE WATERED DOWN DURING CONSTRUCTION TO MINIMIZE DUST. THIS ACTIVITY SHALL BE PERFORMED BY THE CONTRACTOR AS DEFMED NECESSARY BY THE ENGINEER.
- 7. ALL DEMOLITION, GRADING, AND TREE REMOVAL PROCEDURES, PERMITS AND APPROVALS SHALL BE IN ACCORDANCE WITH NYSDEC
- AND/OR OTHER APPROPRIATE AUTHORIZING AGENCIES AND ARE THE RESPONSIBILITY OF THE CONTRACTOR.

 8. THE CONTRACTOR IS TO EXERCISE EXTREME CASE WHEN PERFORMING ANY WORK ACTIVITIES ADJACENT TO BUILDING WALLS, TO
- REMAIN IN PLACE. ALL UNSUITABLE MATERIAL, CONSTRUCTION DEBRIS, ETC. SHALL BE PROPERLY REMOVED AND DISPOSED OF OFF-SITE IN ACCORDANCE WITH ALL APPLICABLE CODES, ORDINANCES AND LAWS.
- 9. THE CONTRACTOR SHALL PRESERVE ALL NATURAL SITE FEATURES. AS LITTLE VEGETATIVE COVER SHALL BE REMOVED AS NECESSARY.
 ANY DISTURBED AREA SHALL BE IMMEDIATELY STABILIZED BY ROLLED EROSION CONTROL PRODUCT.
- 10. ALL EXISTING TREES AND VEGETATION TO REMAIN SHALL BE PROTECTED BY THE CONTRACTOR. ANY DAMAGED TREES AND/OR VEGETATION SHALL BE REPLACED IN KIND AT THE EXPENSE OF THE CONTRACTOR.
- 11. THE CONTRACTOR SHALL TAKE APPROPRIATE MEASURES TO ENSURE THE SAFETY OF HIS EMPLOYEES AND GENERAL PUBLIC, STRUCTURAL/SITE FEATURES TO REMAIN, ADJACENT PROPERTIES & PUBLIC RIGHT-OF-WAY'S DURING ALL CONSTRUCTION AND REMOVAL ACTIVITIES IN ACCORDANCE WITH FEDERAL, STATE AND LOCAL CODES AND REGULATIONS. THE OWNER AND PROJECT ENGINEER ASSUME NO RESPONSIBILITIES FOR THE CONTRACTOR'S SAFETY PROGRAM AND PROCEDURES IN CONNECTION WITH THE WORK.
- 12. PRIOR TO THE ISSUANCE OF A CERTIFICATE OF OCCUPANCY BY THE BUILDING INSPECTOR, AN "AS-BUILT" PLAN SHOWING THE INSTALLED AND COMPLETED IMPROVEMENTS (ABOVE AND BELOW GRADE), CERTIFIED BY A NEW YORK STATE LICENSED LAND SURVEYOR SHALL BE PREPARED AT THE SOLE EXPENSE OF THE CONTRACTOR. SAID AS-BUILT PLAN SHALL BE PROVIDED TO THE BUILDING INSPECTOR AND PROJECT ENGINEER DOCUMENTING SATISFACTORY COMPLETION OF ALL APPROVED AND AUTHORIZED CONSTRUCTION ACTIVITIES AND ZONING COMPLIANCE.
- 13. WETLAND BOUNDARY DELINEATED BY KELLARD SESSIONS CONSULTING, P.C. BASED ON SITE VISIT DATED DECEMBER 23, 2010. WETLAND BOUNDARY TO BE FIELD VERIFIED AND SURVEY LOCATED IN THE SPRING 2011.

DEMOLITION NOTES

- 1. CONTRACTOR TO FIELD-VERIFY ALL REMOVAL QUANTITIES.
- 2. ALL DEMOLITION DEBRIS SHALL BE PROPERLY HANDLED AND DISPOSED OF IN ACCORDANCE WITH NYSDEC WESTCHESTER COUNTY AND LOCAL REGULATIONS.
- 3. EXISTING SANITARY SEWER SHOULD BE CAPPED AT THE BUILDING AND AT THE EXISTING SANITARY MANHOLE AT SITE ENTRANCE. SEWER SHALL BE REMOVED IN ACCORDANCE WITH DRAWINGS AND DETAILS. APPROXIMATELY 330 LF OF SANITARY FORCEMAIN TO BE REMOVED. CONTRACTOR TO FIELD VERIFY LOCATION OF SANITARY FORCE MAIN AND ALL APPURTENANCES.
- 4. EXISTING SANITARY SEWER CONNECTION TO BE CAPPED IN CONFORMANCE WITH TOWN AND WESTCHESTER COUNTY DEPARTMENT OF HEALTH REQUIREMENTS.
- 5. EXISTING SANITARY PUMP CHAMBER TO BE DEMOLISHED AND REMOVED IN CONFORMANCE WITH WESTCHESTER COUNTY DEPARTMENT OF HEALTH REQUIREMENTS. PRIOR TO DEMOLITION, THE CONTRACTOR SHALL DISMANTLE AND CLEAN OUT THE EXISTING PUMP CHAMBER IN CONFORMANCE WITH ALL LOCAL AND STATE REQUIREMENTS.
- 6. EXISTING SANITARY FORCEMAIN TO BE CAPPED IN CONFORMANCE WITH TOWN AND WESTCHESTER COUNTY DEPARTMENT OF HEALTH REQUIREMENTS. THE FORCEMAIN IS TO BE REMOVED AND DISPOSED IN ACCORDANCE WITH WESTCHESTER DEPARTMENT OF HEALTH AND NYSDEC REGULATIONS.
- 7. APPROXIMATELY 30 LF GRAVITY SANITARY SEWER BETWEEN PUMP CHAMBER AND BUILDING CONNECTION TO BE REMOVED.
- 8. EXISTING UTILITIES SHALL BE CAPPED 10' BEYOND BUILDING FOUNDATION PRIOR TO BUILDING DEMOLITION BY A LICENSED PLUMBER AND ELECTRICIAN. CONTRACTOR IS RESPONSIBLE FOR COORDINATING WITH ALL UTILITY PROVIDERS.
- 9. EXISTING ELECTRICAL AND COMMUNICATION LINES TO BE DISCONNECTED IN ACCORDANCE WITH ASSOCIATED UTILITY PROVIDER CONTRACTOR IS RESPONSIBLE FOR COORDINATING WITH APPLICABLE UTILITY PROVIDERS.
- 10. EXISTING TRANSFORMER TO BE REMOVED IN ACCORDANCE WITH CON-ED REQUIREMENTS. CONTRACTOR IS RESPONSIBLE FOR
- COORDINATING WITH CON-ED. ASSOCIATED CONCRETE PAD AND ASSOCIATED CONDUITS TO BE DEMOLISHED AND REMOVED.
- 11. EXISTING ONE-STORY CONCRETE BUILDING AND ASSOCIATED SLATE PATIO AND WALKWAYS TO BE DEMOLISHED AND REMOVED.
- 12. EXISTING MODULAR TRAILER TO BE DISCONNECTED FROM ALL UTILITY CONNECTIONS AND REMOVED FROM SITE.
- 13. WELL DECOMMISSIONING SHALL BE IN ACCORDANCE WITH WESTCHESTER COUNTY DEPARTMENT OF HEALTH. THE CONTRACTOR IS RESPONSIBLE FOR SECURING A NYSDEC REGISTERED WELL DRIVER TO PERFORM THE WELL ABANDONMENT / DECOMMISSIONING. NYSDEC WELL DRIVER SHALL PROVIDE DETAILS OF WELL DECOMMISSIONING TO WESTCHESTER COUNTY DEPARTMENT OF HEALTH IN WRITING PRIOR TO STARTING OF WORK.
- 14. WHERE EXISTING OR ASPHALT CONCRETE PAVEMENT ARE REMOVED, THE CONTRACTOR SHALL SAWCUT AND NEATLY TRIM EDGE OF REMAINING PAVEMENT BEFORE INSTALLING NEW PAVEMENT.
- 15. EXISTING UNDERGROUND PETROLEUM STORAGE TANKS (2) TO BE FIELD LOCATED BY CONTRACTOR. TANK REMOVAL SHALL BE PERFORMED IN ACCORDANCE WITH WESTCHESTER COUNTY REGULATION AS WELL AS NYSDEC REQUIREMENTS.
- 16. CONTRACTOR TO FIELD VERIFY LOCATION OF EXISTING ABANDONED SANITARY ABSOPRTION FIELDS. EXISTING PIPE, GRAVEL AND ASSOCIATED APPURTENANCES SHALL BE REMOVED AND DISPOSED OF IN ACCORDANCE WITH WCDOH AND NYSDEC REQUIREMENTS. SURROUNDING SOIL SHOULD BE TESTED AND DISPOSED IN ACCORDANCE WITH NYSDEC REQUIREMENTS.

CONSTRUCTION NOTES

- 1. THE CONTRACTOR SHALL REVIEW THE SEQUENCE OF CONSTRUCTION PLAN AND EROSION AND SEDIMENT CONTROL PLAN TO INCLUDE WORK STAGING AND A TEMPORARY METHOD OF COLLECTING AND CONVEYING DRAINAGE DURING CONSTRUCTION INCLUDING EROSION AND SEDIMENT CONTROL PRACTICES. THE SEQUENCE OF CONSTRUCTION SHALL BE SUBMITTED FOR REVIEW TO AKRF ENGINEERING PRIOR TO THE PRE-CONSTRUCTION MEETING.
- 2. CONTRACTOR IS RESPONSIBLE FOR OBTAINING ALL NECESSARY CONSTRUCTION PERMITS AND APPROVALS PRIOR TO COMMENCING WORK.
- 3. PRIOR TO STARTING ANY CONSTRUCTION ACTIVITY THE CONTRACTOR SHALL COORDINATE AND ATTEND A PRECONSTRUCTION MEETING WITH AKRF ENGINEERING.
- 4. CONTRACTOR SHALL EXAMINE AND FIELD VERIFY ALL EXISTING AND GIVEN DIMENSIONS AND CONDITIONS WITH THOSE SHOWN ON THE PLANS. IN CASE OF ANY DISCREPANCY, CONTRACTOR SHALL IMMEDIATELY NOTIFY THE PROJECT ENGINEER.
- 5. THE LOCATIONS OF ALL EXISTING UNDERGROUND UTILITIES SHOWN ARE APPROXIMATE. THE CONTRACTOR IS RESPONSIBLE FOR FIELD VERIFICATION OF LOCATION AND EXTENT OF ALL UTILITIES PRIOR TO COMMENCING CONSTRUCTION.
- 6. CONTRACTOR RESPONSIBLE FOR COORDINATING WITH PROPER UTILITY COMPANY OR AGENCY FOR DISCONNECTING SERVICES, RELOCATING SERVICES, AND PROVIDING NEW SERVICES WITHIN THE PROJECT AREA.
- 7. WHERE CONSTRUCTION, INCLUDING UTILITY LINES, CROSSES OR IS ADJACENT TO EXISTING UTILITY LINES (FUEL, WATER, SEWER, TELECOMMUNICATION, GAS OR ELECTRIC), CONTRACTOR SHALL DIG TEST PITS AND CAREFULLY HAND EXCAVATE SO AS TO LOCATE, MARK, AND PROTECT THE UTILITY LINES AGAINST DISTURBANCE OR DAMAGE.
- 8. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ADEQUATELY BRACING AND PROTECTING ALL WORK DURING CONSTRUCTION AGAINST DAMAGE, BREAKAGE, COLLAPSE, DISTORTIONS AND OFF ALIGNMENTS ACCORDING TO CODES AND STANDARDS OF GOOD PRACTICE.
- 9. CONTRACTOR IS RESPONSIBLE FOR PROVIDING ALL LABOR, EQUIPMENT, AND MATERIALS AS REQUIRED FOR THE IMPROVEMENT WORK SHOWN WITHIN THE PROJECT AREA.
- 10. THE TOP ELEVATION OF ALL EXISTING HANDHOLES, MANHOLES, CATCH BASINS, VALVE BOXES, AND FILL CAPS COVERS LOCATED WITHIN THE CONSTRUCTION AREA SHALL BE RESET AND BE MADE FLUSH WITH THE PROPOSED GRADE.
- 11. CONTRACTOR TO SUBMIT SHOP DRAWINGS FOR ALL PRODUCTS (I.E. PIPES, STRUCTURES, ETC.) INCLUDING MATERIAL SPECIFICATIONS FOR ROCK, FILL MATERIAL, EROSION CONTROL MAT, SILT FENCE, AND PAVEMENT SECTION. ALL SITE-RELATED SHOP
- WHERE MANUFACTURER'S NAMES AND PRODUCT NUMBERS ARE INDICATED ON DRAWINGS, IT SHALL BE CONSTRUED TO MEAN THE ESTABLISHMENT OF QUALITY AND PERFORMANCE STANDARDS OF SUCH ITEMS. ALL OTHER PRODUCTS MUST BE SUBMITTED TO THE ENGINEER FOR APPROVAL BEFORE THEY SHALL BE DEEMED EQUAL.
- 13. ALL FINISH GRADING IS TO BE DONE SO AS TO ENSURE POSITIVE DRAINAGE TOWARD THE APPROPRIATE CATCH BASINS.

DRAWINGS SUBMITTED TO THE ENGINEER SHALL BEAR THE APPROVAL STAMP OF GENERAL CONTRACTOR.

- 14. ALL SITE SIGNAGE AND PAVEMENT MARKINGS SHALL CONFORM TO THE LATEST NATIONAL MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (M.U.T.C.D.)
- 15. UNLESS OTHERWISE SPECIFIED OR INDICATED ALL CONCRETE SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH @28 DAYS OF 4.000 PSI.
- 16. UNSUITABLE MATERIAL, CONSTRUCTION DEBRIS, ETC. SHALL BE PROPERLY REMOVED AND DISPOSED OF OFF-SITE IN ACCORDANCE WITH APPLICABLE STATE AND LOCAL CODES, ORDINANCES, AND LAWS.
- 17. IN AREAS DEEMED AS FULL DEPTH ASPHALT PAVEMENT REPLACEMENT, EXISTING ASPHALT PAVEMENT SHALL BE ENTIRELY REMOVED AND DISPOSED OF BY THE CONTRACTOR IN CONFORMANCE WITH NYSDEC AND TOWN CODE. THE SUBGRADE SHALL BE PREPARED AND BROUGHT TO THE REQUIRED ELEVATION PRIOR TO CONSTRUCTING BASE AND TOP COURSE.
- 18. ALL EXCAVATION SHALL BE PROPERLY BACKFILLED IN 12" LIFTS OR LESS WITH CLEAN FILL AND COMPACTED TO MINIMUM 95% PROCTOR (IN PAVED AREAS) OF THEIR MAXIMUM DRY DENSITY AS DETERMINED BY ASTM D-1557 TEST PROCEDURE. THE CONTRACTOR SHALL BE RESPONSIBLE FOR COMPACTION TESTING AND SHALL SUBMIT SUCH REPORT AND VERIFICATION TO PROJECT ENGINEER
- 19. A MINIMUM OF TWELVE (12) INCHES OF ENVIRONMENTALLY CLEAN TOP SOIL SHALL BE USED ON ALL EXPOSED GROUND SURFACES, INCLUDING LANDSCAPED AREAS.
- 20. HIGH DENSITY POLYETHYLENE (HDPE) PIPE SHALL BE HANCOR (BLUE SEAL) AND FITTINGS SHALL HAVE SMOOTHED INTERIOR AND CORRUGATED EXTERIOR. THE BELL-AND-SPIGOT HDPE PIPING NETWORK SHALL BE JOINED USING WATERTIGHT CONNECTIONS IN ACCORDANCE WITH THE REQUIREMENTS OF ASTM D3212. ELASTOMERIC SEALS (GASKETS) MADE OF POLYISOPRENE AND MEETING THE REQUIREMENTS OF ASTM F477 SHALL SHOW NO VISIBLE LEAKS WHEN TESTED UNDER A 10 FT. HYDROSTATIC WATER TEST. PROVIDE THOSE BY HANCOR CO. OR OTHER MANUFACTURER THAT CAN PROVIDE WATERTIGHT JOINTS.
- 21. THE ENGINEER SHALL NOT BE RESPONSIBLE FOR CONSTRUCTION METHODS AND MEANS FOR COMPLETION OF THE WORK DEPICTED ON THESE PLANS, NOR FOR ANY CONFLICTS AND/OR REVISIONS WHICH RESULT FROM THE SAME. THE CONTRACTOR SHALL BE RESPONSIBLE FOR DETERMINING METHODS AND MEANS OF COMPLETION OF THE WORK PRIOR TO THE COMMENCEMENT OF CONSTRUCTION AND NOTIFY THE PROJECT ENGINEER WHEN A CONFLICT IS IDENTIFIED.
- 22. CONTRACTOR TO COMPLY WITH THE FOLLOWING EARTHWORK MATERIAL GUIDELINES:
- 22.A. FILL AND BACKFILL: ONLY ENVIRONMENTALLY CLEAN MATERIAL (I.E., MATERIAL THAT HAS BEEN TESTED AND FOUND TO CONTAIN LEVELS OF SEMI-VOLATILE ORGANIC COMPOUNDS OR INORGANIC ANALYTES THAT DO NOT EXCEED NYSDEC TAGM HWR-4046 RECOMMENDED SOIL CLEANUP OBJECTIVES AND NOT DETECTABLE VOLATILE ORGANIC COMPOUNDS) SHALL BE USED AS FILL AND BACKFILL. COMPOSITION SHALL CONSIST OF SAND, GRAVEL, CRUSHED STONE, CRUSHED GRAVEL OR A MIXTURE OF THESE. MATERIAL SHALL NOT CONTAIN SALTS OR FOREIGN MATERIALS OF ANY KIND. THESE FIL MATERIALS SHALL CONTAIN NO PARTICLES EXCEEDING 4" IN THE LARGEST DIMENSION. NO MORE THAN 30% OF THE MATERIAL SHALL BE RETAINED ON A 3/4" SIEVE. THE MATERIAL PASSING THE 3/4" SIEVE SHALL CONTAIN, BY WEIGHT, NO MORE THAN 40% PASSING THE NO. 100 SIEVE, NOR 12% PASSING THE NO. 200 SIEVE.
- 22.B. <u>AGGREGATE BASE:</u> AGGREGATE BASE COURSE UNDER PAVEMENT SHALL BE COMPOSED OF CRUSHED LEDGE ROCK OR TALUS, ROUGHLY CUBICAL OR PYRAMIDAL IN SHAPE, AND SAND MEETING THE GRADATION AND SOUNDNESS REQUIREMENTS OF NEW YORK STATE DOT, ITEM 3.04.02, TYPE 2. MATERIAL SHALL BE UNIFORM IN QUALITY AND FREE OF WOOD, LOAM, CLAY, DIRT, ROOTS, BARK, AND ANY OTHER EXTRANEOUS MATERIAL.
- 23. FIELD QUALITY CONTROL TESTING SHALL BE PERFORMED BY THE CONTRACTOR AT THE CONTRACTOR'S EXPENSE AND THE RESULTS ARE TO BE FURNISHED TO PROJECT ENGINEER FOR REVIEW AND APPROVAL.

TESTS:

- 23.A. SIEVE ANALYSIS: THE CONTRACTOR SHALL PERFORM SIEVE ANAYLSIS IN ACCORDANCE WITH ASTM D422 ON FILL AND AGGREGATE MATERIALS AT THE SITE PRIOR TO PLACEMENT IN ORDER TO VERIFY CONFORMANCE WITH THE REQUIREMENTS.
- 23.B. FIELD DENSITY TESTS: PERFORM IN-PLACE FIELD DENSITY TESTS IN ACCORDANCE WITH ASTM D1557 PROCEDURES.
 - 26.B.1. EXISTING SUBGRADE ONE FIELD DENSITY TEST FOR EACH 2000 SQ. FT., BUT IN NO CASE LESS THAN THREE TESTS.

26.B.2. FILL AREAS - FOR EACH LIFT (FILL TO BE PLACED IN LIFTS NO GREATER THAN 6"), ONE FIELD DENSITY TEST FOR EACH 2000 SQ. FT., BUT IN NO CASE LESS THAN TWO TESTS.

UTILITY NOTES

SANITARY SEWERS

- 1. EXISTING UTILITY LOCATIONS SHOWN ON THE COMPOSITE UTILITY PLAN ARE APPROXIMATE, IT IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR TO DETERMINE EXACT LOCATION AND ELEVATION OF ALL EXISTING UNDERGROUND UTILITIES PRIOR TO COMMENCING CONSTRUCTION.
- 2. SANITARY SEWERS SHALL BE CLEANED AND FLUSHED UPON CONSTRUCTION COMPLETION.
- 3. THE CONTRACTOR SHALL EXERCISE CAUTION WHEN REGARDING OVER EXISTING/NEW UTILITIES INCLUDING, BUT NOT LIMITED TO
- 4. THE SANITARY MANHOLE COVERS ARE TO BEAR THE INSCRIPTION "SANITARY"

STORM AND SANITARY SEWERS, WATER MAINS, GAS AND ELECTRIC LINES.

- 5. NO SANITARY SEWER MAIN WITHIN THE PROJECT SITE SHALL BE ACTIVATED UNTIL AN EXFILTRATION/INFILTRATION TEST IS MADE AND HAS MET REQUIREMENTS AND STANDARDS SET FORTH BY THE TOWN ENGINEER. ALL SEWER PIPES MUST MEET AN INFILTRATION TEST RATE OF ONE HUNDRED (100) GALLONS PER DAY/MILE/INCH DIAMETER, OR ANY OTHER REQUIREMENT SET FORTH BY THE TOWN ENGINEER.
- 6. EXFILTRATION/INFILTRATION TESTS SHALL BE OBSERVED AND CERTIFIED TO THE TOWN ENGINEER AND DEVELOPER'S LICENSED PROFESSIONAL ENGINEER
- 7. THE SANITARY SEWER FORCE MAIN SHALL BE 4" PVC. CONTRACTOR TO REFER TO MEP/ARCHITECTURAL DRAWINGS FOR LOCATION OF SANITARY EJECTOR PUMP AND DETAIL.

ELECTRIC

- 1. CONTRACTOR TO FIELD VERIFY ALL EXISTING BURIED UTILITIES INCLUDING ELECTRIC.
- 2. CONTRACTOR SHALL COORDINATE WITH CONSOLIDATED EDISON (CON-ED) REGARDING THE REMOVAL OF ANY UTILITY POLES, TRANSFORMERS, CONDUITS, AND OVERHEAD WIRES.
- 3. CONTRACTOR SHALL COORDINATE WITH CON-ED REGARDING THE PROPOSED CONNECTIONS FROM EXISTING OVERHEAD WIRES, AND PROPOSED UTILITY POLE.
- 4. PROPOSED TRANSFORMER AND ASSOCIATED PAD SHALL BE CONSTRUCTED IN ACCORDANCE WITH CON-ED.

TOWN OF NORTH CASTLE

GENERAL NOTES

- 1. INSPECTION OF EROSION CONTROLS BY THE TOWN ENGINEER IS REQUIRED PRIOR TO ANY EXCAVATION
- 2. ALL DRAINAGE FACILITIES SHALL BE INSPECTED PRIOR TO BACKFILLING BY THE TOWN ENGINEER. (FOR ANY PROPOSED SUBSURFACE STORMWATER TREATMENT)
- 3. SOIL TESTING DATA IS REQUIRED TO BE SUBMITTED.
- 4. INSPECTION OF SUBSURFACE DRAINAGE SYSTEMS SHALL BE INSPECTED BY THE TOWN ENGINEER PRIOR TO BACKFILLING.
- 5. PUBLIC ROADWAYS SHALL BE PROTECTED FROM MACHINERY AND DEBRIS.
- 6. ANY CHANGES, ALTERATIONS, AND/OR MODIFICATIONS SHALL BE REVIEWED AND APPROVED BY THE BUILDING INSPECTOR AND/OR TOWN ENGINEER, PRIOR TO PERFORMING SUCH WORK.

EROSION & SEDIMENT CONTROL NOTES

- 1. CONTRACTOR IS RESPONSIBLE CONTRACTOR IS RESPONSIBLE FOR IMPLEMENTING ALL OF THE EROSION AND SEDIMENT CONTROL PRACTICES IN ACCORDANCE WITH THE STORMWATER POLLUTION PREVENTION PLAN (SWPPP).
- 2. CONTRACTOR IS RESPONSIBLE TO EVALUATE AND IMPLEMENT ADDITIONAL EROSION AND SEDIMENT CONTROL MEASURES AS REQUIRED TO MEET THE OBJECTIVES OF THE TOWN, NYSDEC AND NYCDEP REGULATIONS.
- 3. CONTRACTOR IS REQUIRED TO HAVE A NYSDEC CERTIFIED TRAINED CONTRACTOR ON-SITE RESPONSIBLE FOR THE IMPLEMENTATION OF THE SWPPP.
- 4. CONTRACTOR IS RESPONSIBLE FOR INSTALLATION, INSPECTION, AND MAINTENANCE OF ALL EROSION AND SEDIMENT CONTROL MEASURES SHOWN ON THE PLANS AND AS DIRECTED BY THE ENGINEER.
- 5. CONTRACTOR IS RESPONSIBLE TO INSTALL EROSION AND SEDIMENT CONTROL PRACTICES PRIOR TO ANY SOIL DISTURBANCE AND TO MAINTAIN THEM UNTIL PERMANENT PROTECTION IS ESTABLISHED. EROSION AND SEDIMENT CONTROL MEASURES MUST BE INSTALLED IN ACCORDANCE WITH THE CURRENT EDITION OF THE NEW YORK STATE STANDARDS AND SPECIFICATIONS FOR EROSION AND SEDIMENT CONTROL ("BLUE BOOK").
- 6. THE CONTRACTOR SHALL PRESERVE ALL NATURAL SITE FEATURES. AS LITTLE VEGETATIVE COVER SHALL BE REMOVED AS NECESSARY. ANY DISTURBED AREAS SHALL BE IMMEDIATELY STABILIZED BY ROLLED EROSION CONTROL PRODUCT.
- 7. CONTRACTOR IS RESPONSIBLE TO INSPECT THE EROSION AND SEDIMENT CONTROL MEASURES AND THAT THEY BE MAINTAINED IN GOOD WORKING ORDER AT ALL TIMES.
- 8. CONTRACTOR IS RESPONSIBLE TO TEMPORARILY STABILIZE DISTURBED AREAS IN ACCORDANCE WITH NEW YORK STATE STANDARDS AND SPECIFICATIONS FOR EROSION AND SEDIMENT CONTROL, NO LATER THAN 7 DAYS AFTER CONSTRUCTION ACTIVITY IN THE AREA HAS CEASED.
- 9. CONTRACTOR IS RESPONSIBLE TO KEEP PUBLIC RIGHTS-OF-WAY ALONG SITE BOUNDARIES CLEAR OF SOIL AND DEBRIS AND IS RESPONSIBLE FOR ANY STREET CLEANING NECESSARY DURING THE COURSE OF THE PROJECT.
- 10. THE SITE SHALL BE WATERED DOWN DURING CONSTRUCTION TO MINIMIZE DUST. THIS ACTIVITY SHALL BE PERFORMED BY THE CONTRACTOR AS DEEMED NECESSARY BY THE ENGINEER. CONTRACTOR IS RESPONSIBLE FOR DUST CONTROL THROUGHOUT CONSTRUCTION PERIODS AND UNTIL SITE IS PERMANENTLY STABILIZED.
- 11. CONTRACTOR IS RESPONSIBLE TO REMOVE EROSION AND SEDIMENT CONTROL MEASURES AFTER THE DISTURBED AREAS HAVE BEEN PERMANENTLY STABILIZED, I.E. GREATER THAN 80% VEGETATIVE COVER.
- 12. AREAS DISTURBED BY CONSTRUCTION SHALL BE SEEDED & MULCHED UNLESS OTHERWISE NOTED. AFTER FINAL GRADING AND CLEANUP OF ALL DISTURBED AREAS, CONTRACTOR SHALL ESTABLISH A STAND OF GRASS BY SEEDING AND MULCHING AS PER THE VEGETATIVE PLAN. THE CONTRACTOR SHALL WATER THE SEEDED AREAS TO MAINTAIN MOISTURE LEVELS FOR OPTIMUM GROWTH FOR A PERIOD NO LESS THAN TWO (2) WEEKS.
- 13. CONTRACTOR IS RESPONSIBLE FOR INSTALLING AND MAINTAINING A CONCRETE TRUCK WASH OUT STATION. THE FACILITY SHALL BE WATERTIGHT. WASTE WATER SHALL NOT BE PERMITTED TO ENTER INTO ENVIRONMENTALLY SENSITIVE RESOURCES.

SEQUENCE OF CONSTRUCTION ACTIVITIES

SEQUENCE I: (LIMIT OF DISTURBANCE = 1.4 AC)

- 1. A PRE CONSTRUCTION MEETING SHALL BE HELD WITH REPRESENTATIVES OF NYCDEP, CERTIFIED PROFESSIONAL TRAINED CONTRACTOR. THE TOWN, AND THE ENGINEER PRIOR TO ANY SITE DISTURBANCE.
- 2. PRIOR TO CLEARING AND GRUBBING ACTIVITIES THE CONTRACTOR SHALL INSTALL STABILIZED CONSTRUCTION ENTRANCE/EXIT AND STAGING AREAS AS SHOWN ON THE PLAN.
- 3. INSTALL SILT FENCE AS INDICATED ON THE EROSION AND SEDIMENT CONTROL PLAN.

SHALL NOT BE PERFORMED UNTIL TEMPORARY SEDIMENT TRAP IS INSTALLED.

- 4. DISCONNECT ALL UTILITY CONNECTIONS TO EXISTING ONE STORY BUILDING.
- 5. RAZE EXISTING BUILDING AND ASSOCIATED APPURTENANCES IN ACCORDANCE WITH DEMOLITION PLAN. PAVEMENT DEMOLITION
- 6. CLEAR AND GRUB IN AREA OF SEQUENCE I TEMPORARY SEDIMENT TRAP. ANY TOPSOIL SHALL BE STOCKPILED ON-SITE AS SHOWN ON
- 7. ROUGH GRADE PROPOSED TEMPORARY SEDIMENT TRAP AND ASSOCIATED STORMWATER STRUCTURES. INSTALL 6" OF TOPSOIL, SEED, AND STABILIZE WITH ROLLED EROSION CONTROL PRODUCT (RECP).
- 10. INSTALL PERIMETER DIKE/SWALE STARTING WITH POSITIVE DRAINAGE TO THE TEMPORARY SEDIMENT TRAP AS SHOWN ON PLAN.
- 11. INSTALL CHECK DAMS IN THE PERIMETER SWALE.
- 12. BEGIN PAVEMENT DEMOLITION. STABILIZE STAGING AREAS.
- 13. SOIL STOCKPILE SHOULD BE LOCATED ON GRASSY AREAS IN ACCORDANCE WITH DETAIL.
- 14. BEGIN CLEARING AND GRUBBING IN THE AREA OF THE PROPOSED BUILDING FOOTPRINT. STOCKPILE FILL MATERIAL IN DESIGNATED AREA AS SHOWN ON PLAN.
- 15. BEGIN CONSTRUCTION OF BUILDING FOUNDATION AT THE WESTERLY PORTION (REAR OF BUILDING) AND PROCEED WITH EXCAVATION TOWARDS THE EASTERLY PORTION (FRONT OF BUILDING).
- 16. STOCKPILE SHALL BE A TEMPORARY STAGING AREA FOR SOIL EXPORT AND MAY MOVE THROUGHOUT THE DURATION OF EXCAVATION AS NECESSARY.

SEQUENCE II: (LIMIT OF DISTURBANCE = 2.0 AC)

- CLEAR AND GRUB IN AREA OF SEQUENCE II TEMPORARY SEDIMENT TRAP.
- 2. ROUGH GRADE PROPOSED TEMPORARY SEDIMENT TRAP AND ASSOCIATED STORMWATER STRUCTURES. INSTALL 6" OF TOPSOIL, SEED, AND STABILIZE WITH ROLLED EROSION CONTROL PRODUCT (RECP).
- 3. INSTALL PERIMETER DIKE/SWALE STARTING WITH POSITIVE DRAINAGE TO THE TEMPORARY SEDIMENT TRAP AS SHOWN ON THE PLAN.
- 4. INSTALL CHECK DAMS IN THE PERIMETER SWALE.
- 5. INSTALL SUMP PIT WITHIN THE BUILDING FOUNDATION. CONNECT SUMP PIT TO A DEWATERING BAG ABOVE THE SEDIMENT TRAP. ALL SEDIMENT LADEN WATER SHALL BE DIRECTED TO THE TEMPORARY SEDIMENT TRAP.
- 6. CONTRACTOR TO CONTINUE EXCAVATION WITHIN THE EASTERLY PORTION OF THE BUILDING FOUNDATION (FRONT OF BUILDING).
- 7. ONCE INTERIOR EXCAVATION IS COMPLETED, THEN THE CONTRACTOR IS TO BEGIN STABILIZING THE EXCAVATION BY POURING THE CONCRETE FOUNDATION AND SLAB.
- 8. ONCE FOUNDATION IS COMPLETE, BACKFILL AND FOUNDATION AND STABILIZE

SEQUENCE III: (LIMIT OF DISTURBANCE = 2.4 AC)

- 1. ONCE BUILDING EXCAVATION IS STABILIZED, BEGIN INSTALLATION OF STORMWATER STRUCTURES AND PIPING.CONTRACTOR IS TO BEGIN WITH THE DOWNSTREAM STRUCTURES AND PROCEED UPSTREAM.
- 2. IMMEDIATELY INSTALL INLET PROTECTION ONCE INLET STRUCTURE BEGINS TO RECEIVE A TRIBUTARY AREA.
- INSTALL PROPOSED UTILITIES.
- 4. MAINTAIN SUMP PIT AND DEWATERING BAG UNTIL EXCAVATION COVERED.
- 5. SEQUENCE III TEMPORARY SEDIMENT TRAP CAN BE LIMITED TO AREA OF PROPOSED PRETREATMENT BASIN.
- 6. CLEAR AND GRUB IN AREA OF POCKET WETLAND. ANY TOPSOIL SHALL BE STOCKPILED ON-SITE AS SHOWN ON THE DRAWING.
- 7. STABILIZE SLOPES WITH ROLLED EROSION CONTROL PRODUCT (RECP).
- CONSTRUCT PAVED SURFACES.
- 9. ONCE BUILDING AND PAVED SURFACES ARE COMPLETE, COMPLETE FINAL GRADING IN ADJACENT AREAS. STABILIZE WITH ROLLED EROSION CONTROL PRODUCT.
- 10. COMPLETE FINAL GRADING IN BASINS AND INSTALL VEGETATION IN ACCORDANCE WITH LANDSCAPE PLAN.
- 11. ONCE FINAL GRADE IS ACHIEVED IN PROPOSED LANDSCAPED AREAS TEMPORARY SEEDING AND MULCHING SHALL BE DONE IMMEDIATELY.
- 12. INSTALL SAND FILTER OFFLINE. DO NOT CONNECT UNTIL TRIBUTARY AREA IS CONSIDERED STABILIZED.
- 13. STORMWATER WETLAND TO BE COMPLETED ONCE TRIBUTARY AREA IS STABILIZED. TEMPORARY OUTLET CAN BE REMOVED ONCE WETLAND VEGETATION IS PLANTED.
- 14. CLEAN ALL INLET STRUCTURES OF SEDIMENT AND DEBRIS.
- 15. REMOVE SILT FENCE AND REMAINING EROSION AND SEDIMENT CONTROLS

PARK DI ACE

11 New King Street

11 New King Street LLC 11 New King Street, White Plains, NY 10604

Town of North Castle, New York



AKRF ENGINEERING, P.C. 34 SOUTH BROADWAY WHITE PLAINS, NY 10601 Tel:(914) 949-7336 Fax:(914) 949-7559

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PROJECT NORTH

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4 08-21-11 REVISION PER DEIS COMMENTS

6 10-15-14 FEIS SUBMISSION

3 01-24-11 REVISION PER DEIS COMMENTS
2 10-26-10 DEIS SUBMISSION
1 06-15-09 SITE PLAN SUBMISSION

Sheet Title

NOTES PLAN

Job No.
2007-0632

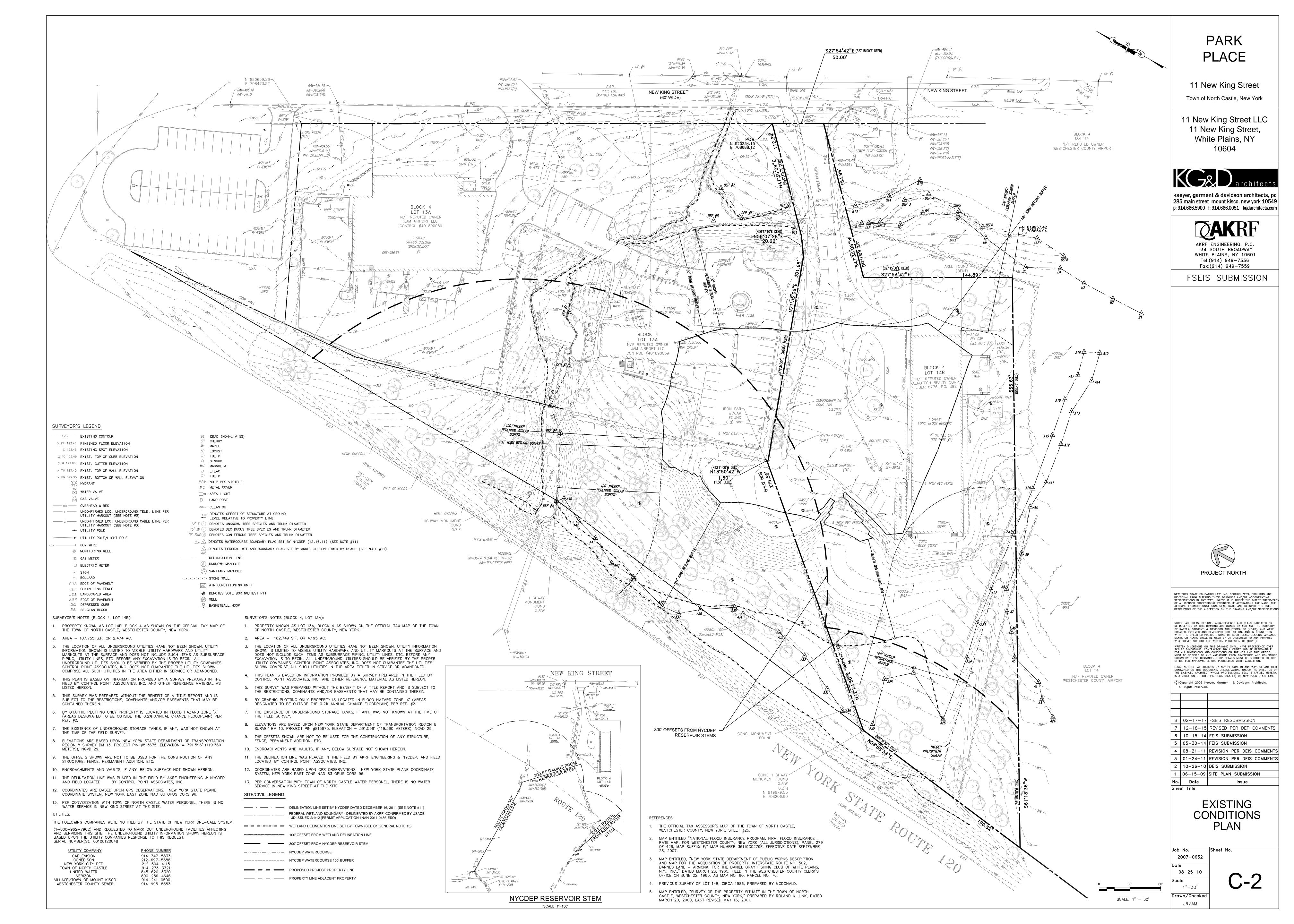
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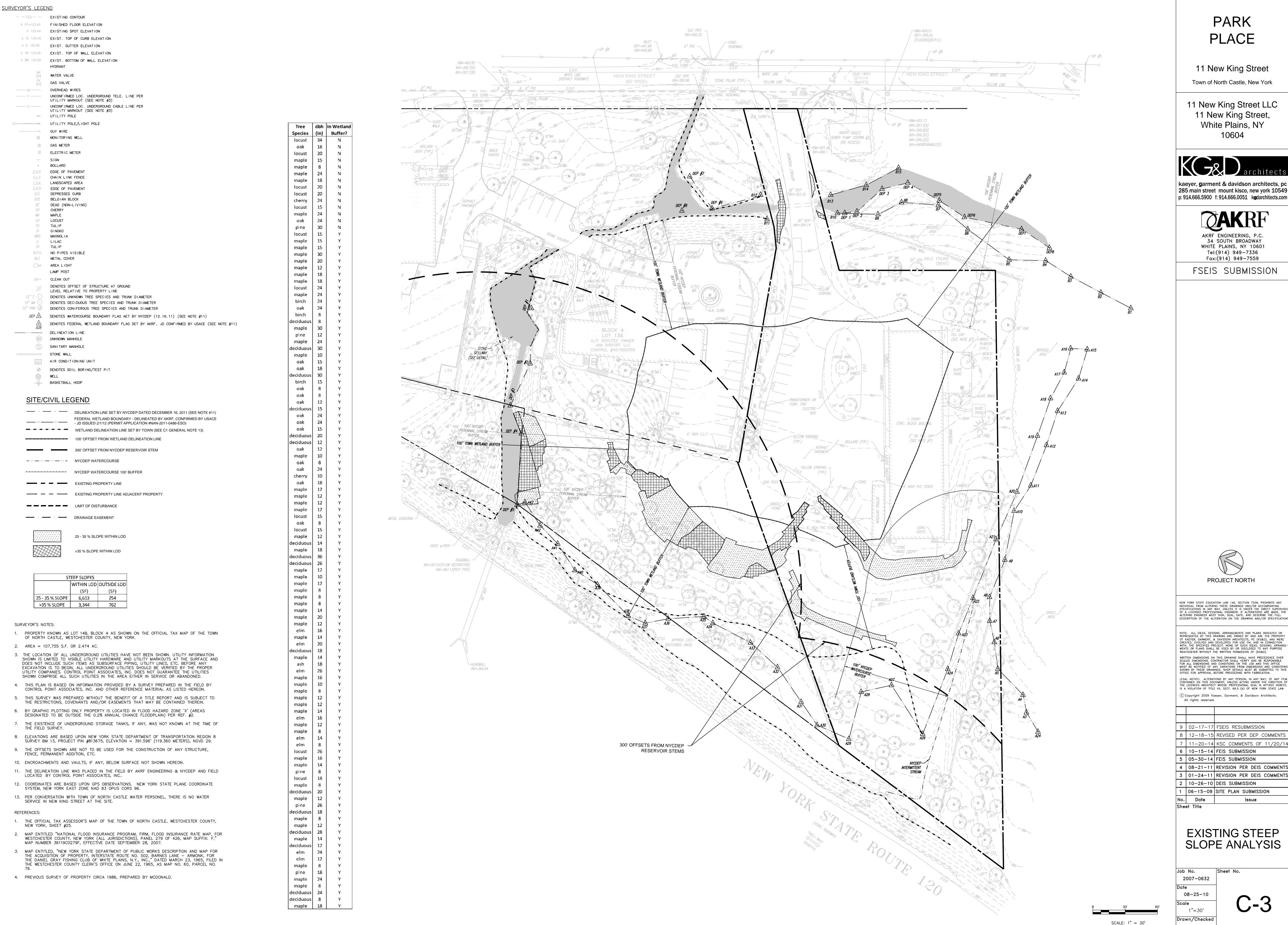
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7 | 11-20-14 KSC COMMENTS OF 11/20/14 6 10-15-14 FEIS SUBMISSION 5 | 05-30-14 | FEIS SUBMISSION

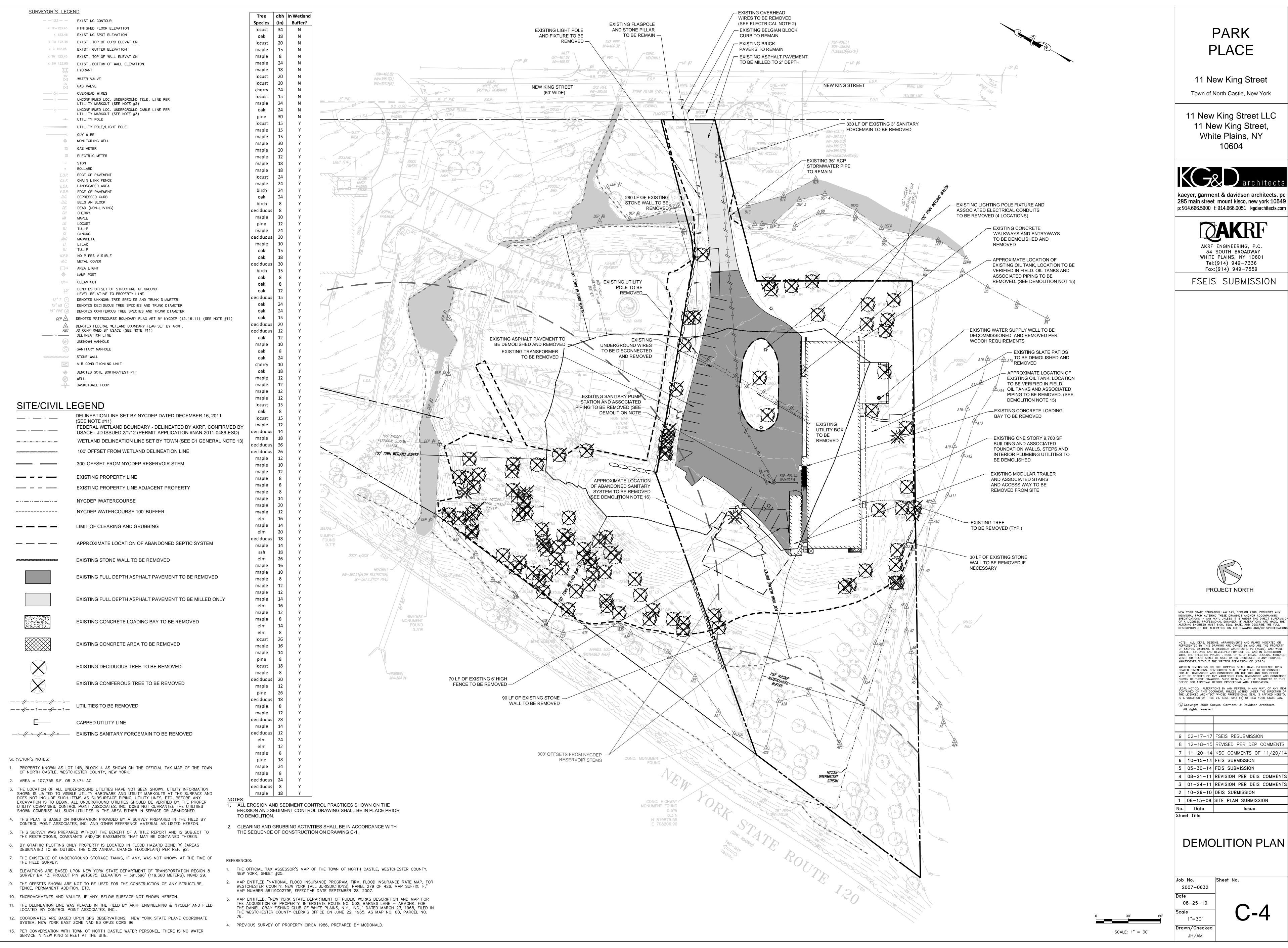
4 08-21-11 REVISION PER DEIS COMMENTS 3 | 01-24-11 | REVISION PER DEIS COMMENTS

2 10-26-10 DEIS SUBMISSION 1 | 06-15-09 | SITE PLAN SUBMISSION

EXISTING STEEP SLOPE ANALYSIS

Sheet No. 2007-0632 08-25-10

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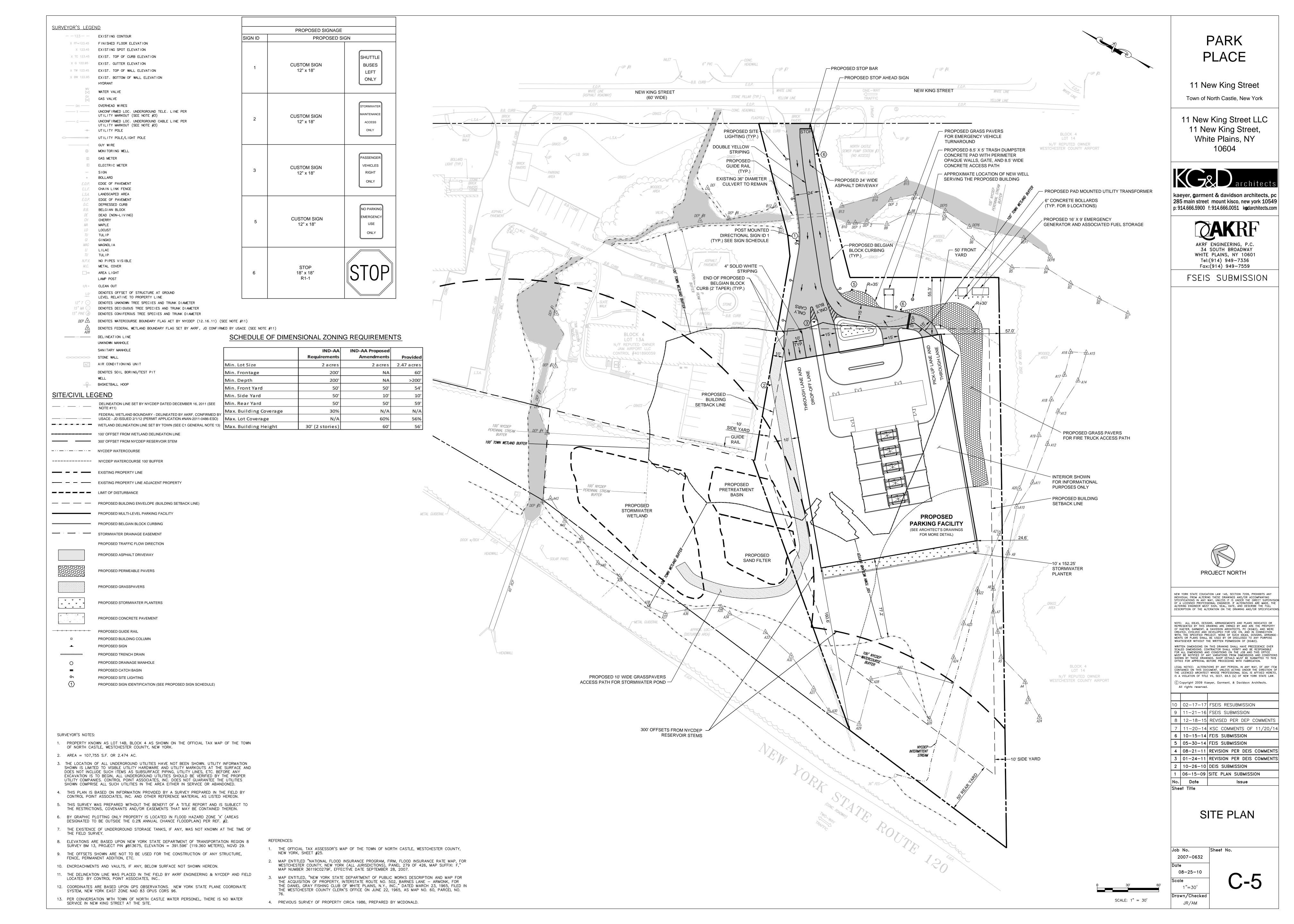
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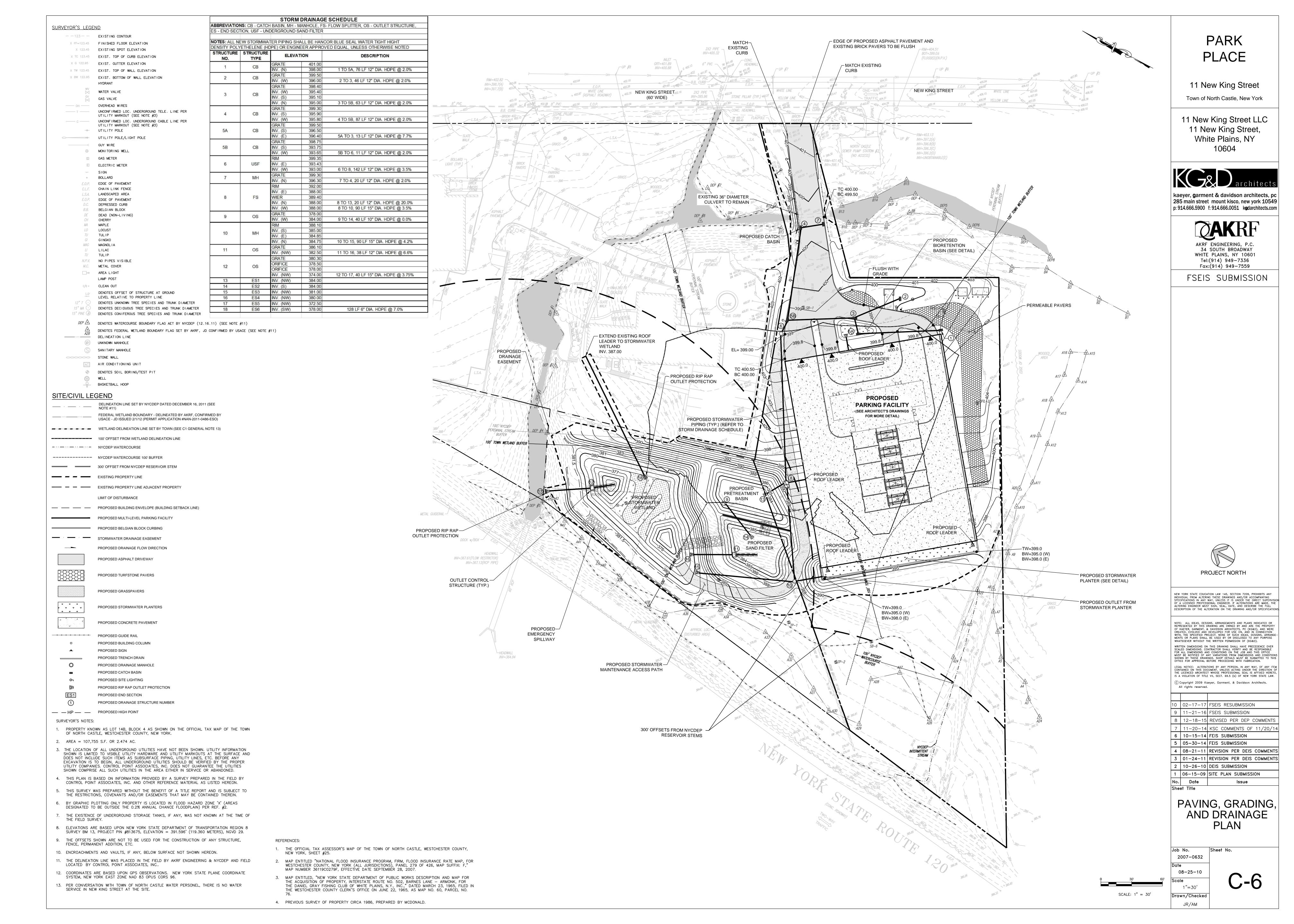
7 | 11-20-14 KSC COMMENTS OF 11/20/1

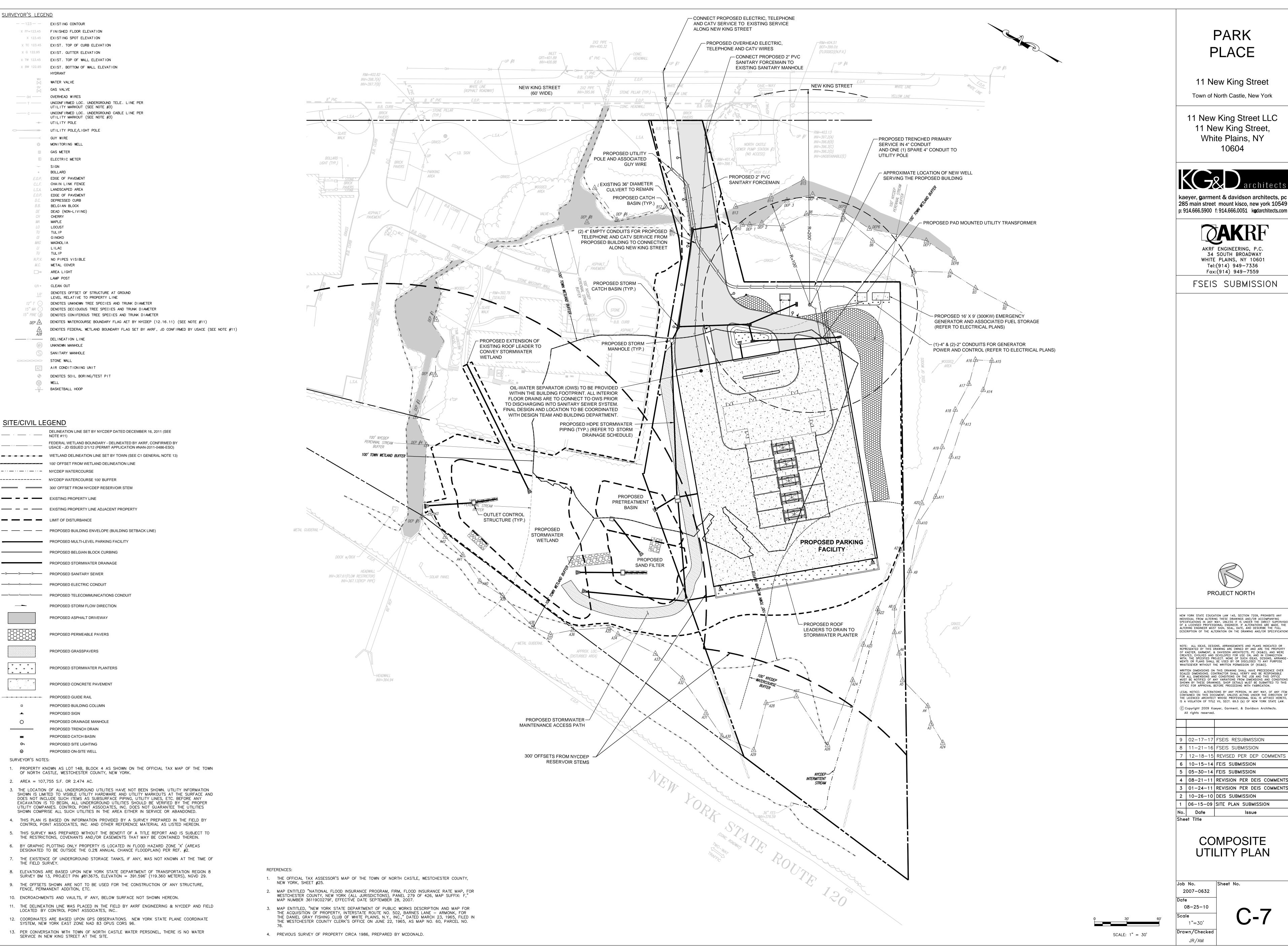
3 01-24-11 REVISION PER DEIS COMMENTS

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DEMOLITION PLAN







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7 | 12-18-15 | REVISED PER DEP COMMENTS 6 | 10-15-14 | FEIS SUBMISSION 5 | 05-30-14 | FEIS SUBMISSION

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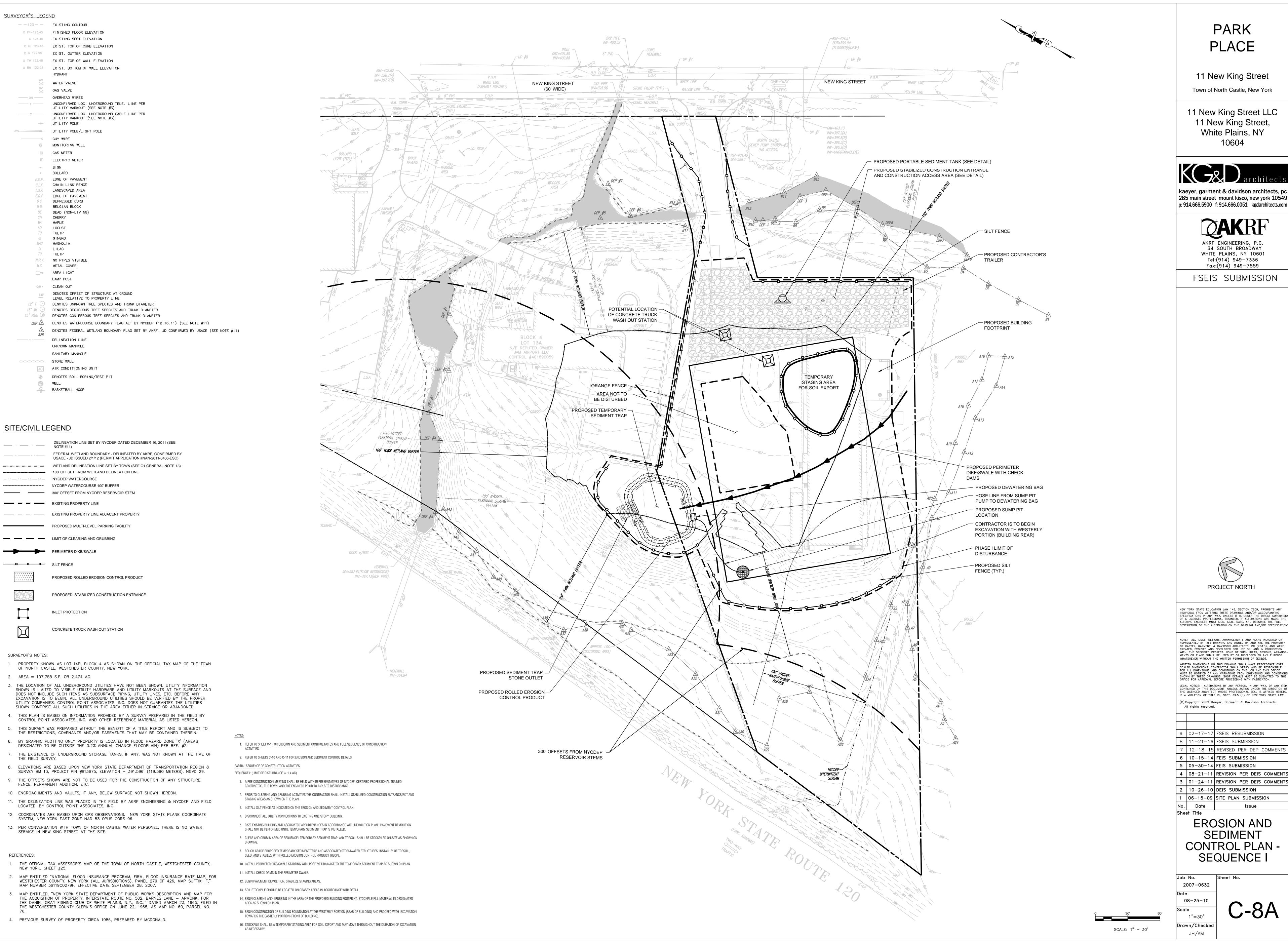
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COMPOSITE **UTILITY PLAN**

Job No. Sheet No. 2007-0632 08-25-10 1"=30'

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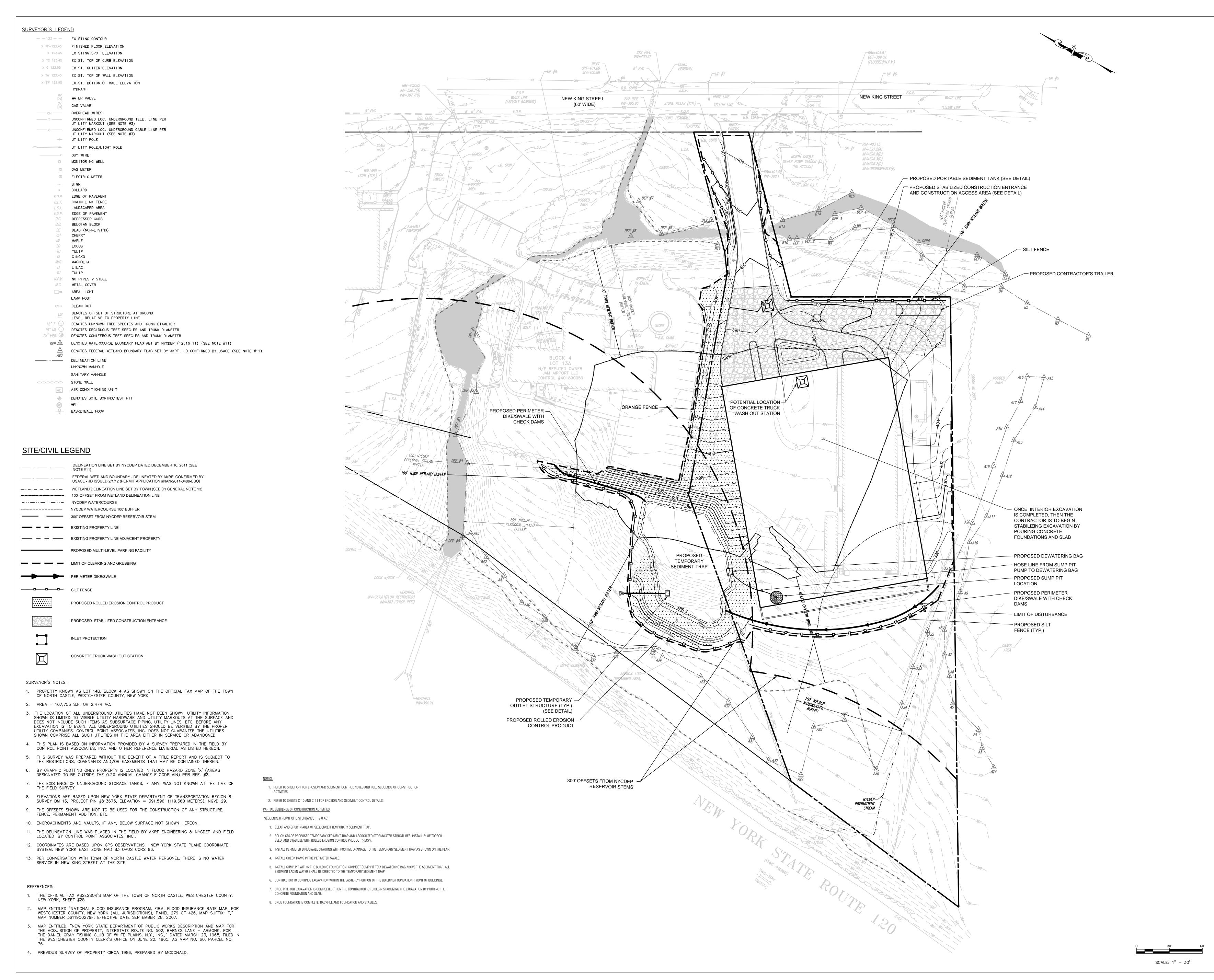
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7	12-18-15	REVISED PER DEP COMMENTS
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5	05-30-14	FEIS SUBMISSION
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3	01-24-11	REVISION PER DEIS COMMENTS

2 10-26-10 DEIS SUBMISSION 1 | 06-15-09 | SITE PLAN SUBMISSION

SEDIMENT CONTROL PLAN -SEQUENCE I



11 New King Street

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11 New King Street LLC 11 New King Street, White Plains, NY 10604



kaeyer, garment & davidson architects, pc 285 main street mount kisco, new york 10549 p: 914.666.5900 f: 914.666.0051 kgdarchitects.com



Fax:(914) 949-7559

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7 12-18-15 REVISED PER DEP COMMENTS

6 10-15-14 FEIS SUBMISSION
5 05-30-14 FEIS SUBMISSION

4 08-21-11 REVISION PER DEIS COMMENTS
3 01-24-11 REVISION PER DEIS COMMENTS
2 10-26-10 DEIS SUBMISSION

2 10-26-10 DEIS SUBMISSION
1 06-15-09 SITE PLAN SUBMISSION
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Date Issue

EROSION AND
SEDIMENT
CONTROL PLAN SEQUENCE II

Job No.
2007-0632

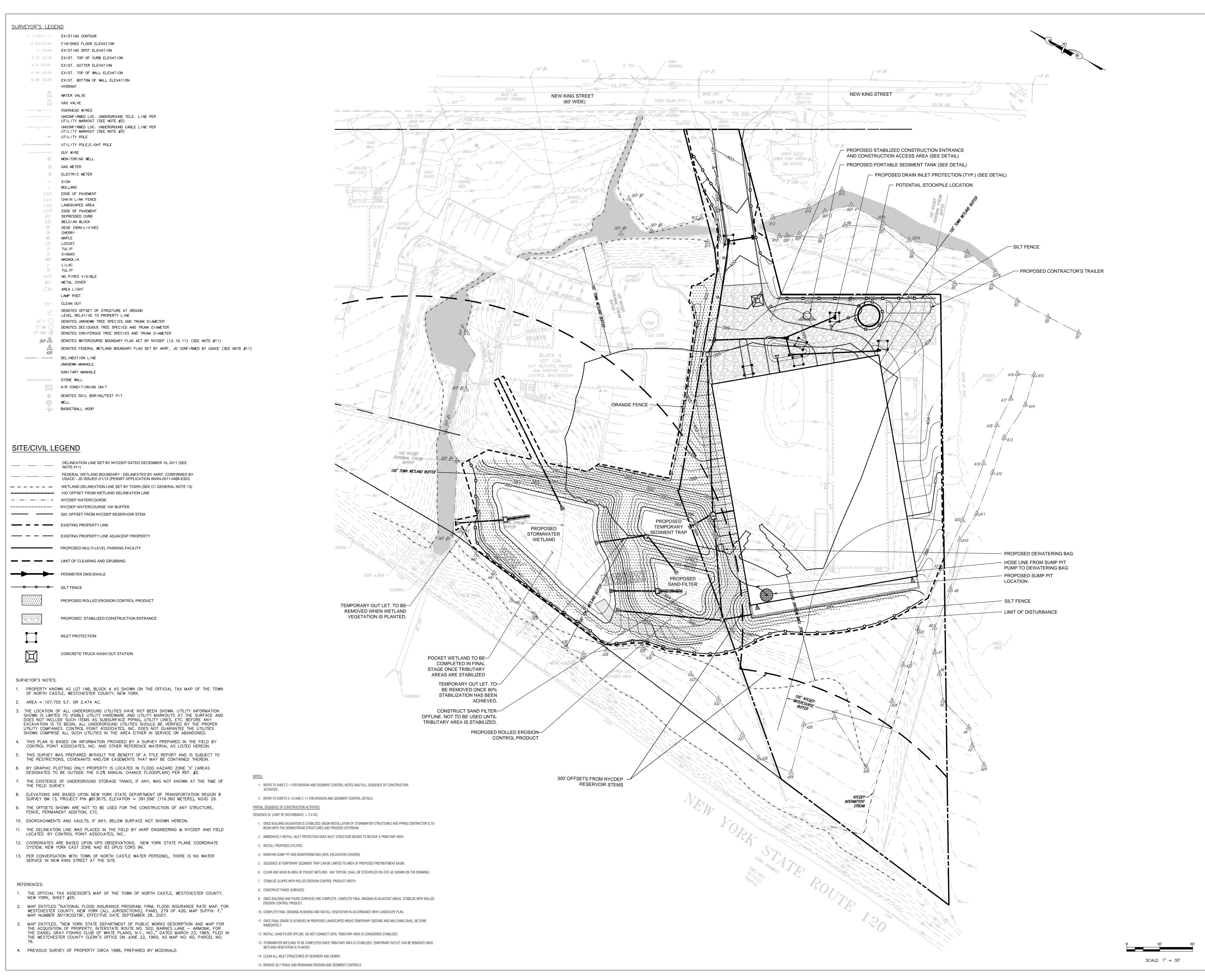
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08-25-10

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6 | 10-15-14 FEIS SUBMISSION 5 | 05-30-14 | FEIS SUBMISSION 4 | 08-21-11 | REVISION PER DEIS COMMENTS

3 | 01-24-11 | REVISION PER DEIS COMMENTS 2 | 10-26-10 | DEIS SUBMISSION

1 | 06-15-09 | SITE PLAN SUBMISSION

EROSION AND

SEDIMENT CONTROL PLAN -**SEQUENCE III**

Job No. Sheet No. 2007-0632 08-25-10 Drawn/Checked

JH/AM

PLANT LISTS

PLAND PLANT LIST						
SYM.	QTY. BOTANICAL NAME	COMMON NAME	SIZE	ROOT	SPACING	COMMENTS
ARGE DECIDUOUS TREES		- In	Tall 2 (51) 24			T
AR	Acer rubrum	Red Maple	2" - 2 1/2" CAL	B&B		FULL, DENSE, BALANCED SHAPE
LS	Liquidambar styraciflua	Sweetgum	2" - 2 1/2" CAL	B&B		FULL, DENSE, BALANCED SHAPE
QB	Quercus bicolor	Swamp White Oak	2" - 2 1/2" CAL	B&B	AS SHOWN	FULL, DENSE, BALANCED SHAPE
ERGREEN TREES	<u> </u>					
JV	Juniperus virginiana	Eastern red cedar	7'-8' HT.			FULL, DENSE, BALANCED SHAPE
PS PS	Pinus strobus	Eastern white pine	8'-10' HT.	B&B	AS SHOWN	FULL, DENSE, BALANCED SHAPE
MALL DECIDUOUS TREES	A i i i	le	D) AOLUT	0.00	AC CHOILIN	MULTICITA DALANCED ELLI DOANGUIN
AC	Amelanchier canadensis	Serviceberry	8'-10' HT.	B&B		MULTISTEM, BALANCED, FULL BRANCHIN
CF CP	Cornus florida	Flowering dogwood	2" - 2 1/2" CAL	B&B		FULL, DENSE, BALANCED SHAPE
CP CIPLIOUS SUBURS	Crataegus phenopyram	Washington hawthorn	2" - 2 1/2" CAL	вяв	AS SHOWN	FULL, DENSE, BALANCED SHAPE
CIDUOUS SHRUBS	A 1 1 12 12 10 111 11 1 1 1		2.4112011.1.7	CONT	10.51101411	ELLI DENGE DALANCED CHARE
AA	Aronia arbutifolia 'Brilliantissima'	Red Chokecherry 'Brilliantissima'	24" -30" HT	CONT		FULL, DENSE, BALANCED SHAPE
AM	Aronia melanocarpa 'Morton'	Black Chokeberry	24" -30" HT			FULL, DENSE, BALANCED SHAPE
CAh	Clethra alnifolia 'Humming Bird'	Summersweet 'Humming Bird'	24" -30" HT	CONT		FULL, DENSE, BALANCED SHAPE
CSc	Cornus sericea 'Cardinal'	Red Osier Dogwood 'Cardinal'	24" -30" HT	CONT		FULL, DENSE, BALANCED SHAPE
FG	Fothergilla gardenii	Dwarf Forthergilla	24" -30" HT	CONT		FULL, DENSE, BALANCED SHAPE
HQa	Hydrangea quercifolia 'Alison'	Oak-Leaf Hydrandea 'Alison'	24" -30" HT	CONT		FULL, DENSE, BALANCED SHAPE
IVj	Ilex verticillata 'Jim Dandy'	Jim Dandy Winterberry	24" -30" HT	CONT		MALE POLINATOR, BALANCED SHAPE
IVr	Ilex verticillata 'Red Sprite'	Red Sprite Winterberry	24" -30" HT			FULL, DENSE, BALANCED SHAPE
ltV	Itea virginica 'Henry's Garnet'	Virginia Sweetspire 'Henry's Garnet'	24" -30" HT	CONT		FULL, DENSE, BALANCED SHAPE
LB	Lindera benzoin	Spicebush	30"-36" HT	CONT		FULL, DENSE, BALANCED SHAPE
POs	Physocarpus opulifolius 'Snowfall'	Ninebark	30"-36" HT	CONT		FULL, DENSE, BALANCED SHAPE
RA	Rhus aromatica 'Gro-Low'	Fragrant Sumac	24" -30" HT	CONT		FULL, DENSE, BALANCED SHAPE
SA	Spirea alba	Meadowsweet	24" -30" HT			FULL, DENSE, BALANCED SHAPE
VA	Viburnum acerifolium	Mapleleaf Viburnum	30"-36" HT			FULL, DENSE, BALANCED SHAPE
VD VD	Viburnum dentatum	Arrowwood Viburnum	30"-36" HT	CONT	AS SHOWN	FULL, DENSE, BALANCED SHAPE
ERGREEN SHRUBS	Tu. et i		0011001111		40.01401111	Termi Benes Barranges guase
IG	llex Glabra	Inkberry	30"-36" HT			FULL, DENSE, BALANCED SHAPE
IGc	Ilex Glabra 'compacta'	Compact Inkberry	30"-36" HT			FULL, DENSE, BALANCED SHAPE
JVg	Juniperus virginiana 'Grey Owl'	Grey Owl Red Cedar	24" -30" HT			FULL, DENSE, BALANCED SHAPE
RM	Rhododendron maximum	Rosebay Rhododendron	30"-36" HT	CONT	AS SHOWN	FULL, DENSE, BALANCED SHAPE
NES	Commission discussion	T	2.04	CONT	21.0.6	TRAIN ON COFFICEREN
cam	Campsis radicans	Trumpet Vine	3 GAL	CONT	3' O.C.	TRAIN ON GREENSCREEN
par RENNIALS AND GROUND	Parthenocissus quinquefolia	Virginia Creeper	3 GAL	CONT	3' O.C.	TRAIN ON GREENSCREEN
I		Mild gingor	2" PLUG	FLATS	10" O.C	T
asa	Asarum canadense Asclepias incarnata	Wild ginger Swamp milkweed	2" PLUG	FLATS	10 O.C 12" O.C	
asc	Echinacea purpurea 'Mangus'	Magnus Purple Coneflower		CONT	12 O.C 12" O.C	
ech		- -	1 GAL		6" O.C.	
pac phl	Pachysandra procumbens Phlox divaricatus	Allegheny Spurge	2" PLUG 1 QT	FLATS CONT	18" O.C.	<u> </u>
rud	Rudbeckia fulgida	Creeping phlox Black Eyed Susan		CONT	18 O.C 12" O.C	
ASSES AND FERNS	nuubeekia luigiua	Diack Eyeu Susaff	1 GAL	CONT	12 0.0	+
	Caray amphihala	Crook Sadaa	2" DLUC	EI ATĈ	12" O.C.	
carA	Carex amphibola Carex lurida	Creek Sedge	2" PLUG	FLATS CONT	12" O.C.	+
carL	Carex iurida Chrysogonum virginianum 'Allen Bu	Shallow Sedge ish' Goldenstar	1 QT 2" PLUG	FLATS	9" O.C.	
chy			†			+
ono	Onoclea sensibilis	Sensitive Fern	2" PLUG	FLATS	12" O.C. 18" O.C.	
pan pol	Panicum virgatum Polystichum acrostichoides	Switchgrass Christmas Fern	2" PLUG 2" PLUG	FLATS FLATS	18" O.C.	

SYM.	QTY. BOTANICAL NAME	COMMON NAME	SIZE	ROOT	SPACING	COMMENTS
ORETENTION PLANTER	(front of building)			•		
MALL DECIDUOUS TREES						
AC	Amelanchier canadensis	Serviceberry	8'-10' HT.	B&B	AS SHOWN	MULTISTEM, BALANCED SHAPR
ECIDUOUS SHRUBS				•		
AM	Aronia melanocarpa 'Morton'	Black Chokeberry	24" -30" HT	CONT	AS SHOWN	FULL, DENSE, BALANCED SHAPE
PF	Potentilla Fruitocosa	Bush Cinquefoil	3 GAL	CONT	AS SHOWN	FULL, DENSE, BALANCED SHAPE
VD	Viburnum dentatum	Arrowwood Viburnum	30"-36" HT	CONT	AS SHOWN	FULL, DENSE, BALANCED SHAPE
ERENNIALS, GROUNDCO\	/ERS, GRASSES, FERNS					
carS	Carex stricta	Tussock Sedge	2" PLUG	FLATS	12" O.C.	PLANT AT LOWER ELEVATIONS
des	Deschampsia cespitosa	Tuft Hair Grass	2" PLUG	FLATS	12" O.C.	
iri	Iris versicolor	Northern	2" PLUG	FLATS	12" O.C.	
jun	Juncus effusus	Soft Rush	2" PLUG	FLATS	12" O.C.	PLANT AT LOWER ELEVATIONS
TORMWATER PLANTER (back of building)					
ECIDUOUS SHRUBS						
CAh	Clethra alnifolia 'Humming Bird'	Summersweet 'Humming Bird'	24" -30" HT	CONT	AS SHOWN	FULL, DENSE, BALANCED SHAPE
IVj	llex verticillata 'Jim Dandy'	Jim Dandy Winterberry	24" -30" HT	CONT	AS SHOWN	MALE POLINATOR, BALANCED SHAPE
IVr	llex verticillata 'Red Sprite'	Red Sprite Winterberry	24" -30" HT	CONT	AS SHOWN	FULL, DENSE, BALANCED SHAPE
ItV	Itea virginica 'Henry's Garnet'	Virginia Sweetspire 'Henry's Garnet'	24" -30" HT	CONT	AS SHOWN	FULL, DENSE, BALANCED SHAPE
ERENNIALS, GROUNDCO\	/ERS, GRASSES, FERNS					
asc	Asclepias incarnata	Swamp milkweed	2" PLUG	FLATS	12" O.C.	
carS	Carex stricta	Tussock Sedge	2" PLUG	FLATS	12" O.C.	
eut	Eutrochium purpureum	Joe Pye Weed	2" PLUG	FLATS	24" O.C.	
jun	Juncus effusus	Soft Rush	2" PLUG	FLATS	12" O.C	PLANT AT LOWER ELEVATIONS
rud	Rudbeckia fulgida	Black Eyed Susan	1 GAL	CONT	12" O.C	

SYM.		REA PLANT LIST	COMMON NAME	SIZE	ROOT	SPACING*	CONTRACTO				
SYIVI. ECIDUOUS TREES	QTY.	BOTANICAL NAME	COMMON NAME	SIZE	TROOT	SPACING"	COMMENTS				
QB		Quercus bicolor	Swamp white oak	1" CAL	hararaa	20'-0" O.C.	1				
CIDUOUS SHRUBS		Quercus bicolor	Swamp write oak	I CAL	pareroo	20-0 O.C.	1				
		Alnus serrulata	Smooth Alder	TUBELINGS	FLATS	4'-0" O.C.	1				
asc CAm		Cornus amonum	Silky Dogwood	TUBELINGS	FLATS	4'-0" O.C.					
IVi		Ilex verticillata 'Jim Dandy'	Jim Dandy Winterberry	TUBELINGS	FLATS	†	MALE POLINATOR				
IVr		Ilex verticillata 'Red Sprite'	Red Sprite Winterberry	TUBELINGS	FLATS	4'-0" O.C.	WALLFOLINATOR				
RV		Rhododendron viscosum	Swamp azalea	TUBELINGS	FLATS	-					
RENNIALS, GROUND	OVERS GE		Swarrip azarea	TOBELINGS	TEATS	4-0 O.C.	1				
asc		Asclepias incarnata	Swamp milkweed	2" PLUG	FLATS	12" O.C.	1				
carS		Carex stricta	Tussock Sedge	2" PLUG	FLATS	12 O.C. 12" O.C.	PLANT AT LOWER ELEVATIONS				
carV		Carex vulpinoidea	Fox Sedge	2" PLUG	FLATS	12" O.C.	TEAT AT LOWER ELEVATIONS				
jun		Juncus effusus	Soft Rush	2" PLUG	FLATS	12" O.C.	PLANT AT LOWER ELEVATIONS				
ono		Onoclea sensibilis	Sensitive Fern	2" PLUG	FLATS	12" O.C.	TEANT AT LOWER LLEVATIONS				
		<u> </u>			+	!					
scr Scirpus cyperinus Woolgrass 2" PLUG FLATS 12" O.C. WETLAND BUFFER EHNANCEMENT AREA PLANT LIST											
		·	CONANGON 4/444F	CLTE	T DOOT	CDACUNCT	COA MATAUTO				
SYM. ECIDUOUS TREES	QTY.	BOTANICAL NAME	COMMON NAME	ŞIZE	ROOT	SPACING*	COMMENTS				
AR		Acer rubrum	Dod Manla	1" CAL	В&В	20' -0" O.C.	T				
BA		<u>+</u>	Red Maple Yellow Birch	TUBELINGS		10'-0" O.C.					
QP		Betula alleghaniensis	Pin Oak	1" CAL		20' -0" O.C.	1				
rubs		Quercus palustris	PIII Oak	I CAL	I DØD	20 -0 O.C.	1				
AA		Aronia arbutifolia	Red Chokecherry	18"-24" HT	CONT	AS SHOWN	1				
CA		Clethra alnifolia	Summersweet	TUBELINGS		AS SHOWN					
CAm		Cornus amonum	Silky Dogwood	TUBELINGS	FLATS	 					
CR		<u>†</u>	Red-Pinicled Dogwood	TUBELINGS	FLATS	4'-0" O.C.	1				
LB		Cornus racemosa Lindera benzoin	Spicebush	TUBELINGS		AS SHOWN					
VD		Viburnum dentatum	Arrowwood Viburnum	TUBELINGS	+	AS SHOWN					
SC		Sambucus canadensis	Elderberry	TUBELINGS	FLATS	4'-0" O.C.					
VC SC		Vaccinium corymbosom	Highbush Blueberry	TUBELINGS	FLATS	 					
VL VL		Viburnum lentago	Nannyberry	TUBELINGS		5'-0" O.C.					
RENNIALS, GROUNDO	OVERS GE	. •	паннурену	TOBELINGS	TLENIS	3 -0 O.C.					
	JOVENS, GI	·	Lance Leaved Goldenrod	2" PLUG	flat	12" O.C.	1				
euG		Euthamia graminifolia Panicum virgatum	- +	2" PLUG	flat	12 O.C. 12" O.C.	1				
pan		Solidago gigantea	Switchgrass Giant Goldenrod		+	 					
sol		racing and an armaa	waan waneemaa	2" PLUG	flat	12" O.C.					

		STO	DRMWATER TRANSITION I	PLUG MIX									P
	SYM. MIX-TRNS	% IN MIX 30.00%	BOTANICAL NAME Penstemon digitalis	White bear	OMMON NAME dtongue	011	6" PVC \						PL
		20.00%	Carex vulpinoidea Potentilla fructicosa	Fox Sedge Bushy cinc		OH		-402-	-OH	ONE-WAY	NEW KING	-OH -OH	
			Asclepias incarnata ris versicolor EROSION CONTROL SEED	Swamp mil Blue flag ir		NEW KING STF (60' WIDE		//	403	ONE—WAY TRAFFIC	TO:	S STREET (AD6)	11 New
	SYM. MIX-BIOR	% IN MIX	BOTANICAL NAME 27:Retention Basin Wildlife Mix	C	DMMON NAME	401			402	4037	(5)	~	Town of Nor
		30.00%	Carex vulpinoidea Panicum clandestinum 'Tioga'	Fox Sedge Deertongu		399 398		-400 -300		102		· 	11 New K
		20.00%	Elymus virginicus Carex Iurida	Virginia W Lurid (Shal	ildrye Iow) Sedge								11 New
		4.00%	Agrostis perennans Verbena hastata	Autumn Be Blue Verva		335	30-	33/11 + E			/		White
		3.00%	luncus effusus Scirpus atrovirens Carex lupulina	Soft Rush Green Bulr Hop Sedge			394	A month	4400 L				
		1.00%	Scirpus cyperinus Aster umbellatus	Woolgrass				185 N		-399			KG&
		30.00%	Mimulus ringens Asclepias incarnata		nmed Monkeyflower	-393-			* ************************************				kaeyer, g arment
	MIX-EC	ERNMX-1	STORMWATER BASIN SEE 31(-1 or -2): Native Steep Slope		or Grain Rye		3917					307	285 main street m p: 914.666.5900 f: 93
		24.20%	Avena sativa/Secale cereale Sorgastrum nutans	Oats or Ry	j	390	-392- -393- -394- -395-	393					
		4.50%	Elymus virginicus Agrostis perennans Elymus virginicus	Virginia Wi Autumn Be Canada Wi	ntgrass		396	396 397 398		402	402-		
		3.00%	Andropogon gerardii 'Praroe Vie Chamaecrista fasciculata		n		1389	+	-401		03	-401-	AKRF EN 34 SO WHITE P
		2.00%	Echinacea purpurea Panicum virgatum, 'Shawnee'		s 'Shawnee'	3 3 3				400	401		Tel:(9 ⁻ Fax:(9
		1.50%	Agrostís scabra Coreopsis lanceolata	Ticklegrass Lanceleaf (3				+ 3 = + 3 = = = = = = = = = = = = = = =	+++++++++++++++++++++++++++++++++++++++	‡+	FSEIS
		1.00%	Fridens flavus Helianthus helianthoides Rudbekia hirta	Purpletop Oxeye Sun Blackeyed					399				\
		0.70%	Lespedeza virginica Liatris spicata	Slender Bu Marsh Blaz	shclover	395		8) <u>}</u>
		0.40%	Monarda fistulosa Symphotrichum novae-angliae	Wild Berga New Engla	nd Aster				399	+ + +		+	
		•	Pycnanthemum tenuifolium	Slender Mo	untainmint			69.4s	103	+			
% IN MIX	HIGH/LOW MAF BOTANICAL NAME		COMMON NAME	SPACING*		393		######################################		BIORETENTION	BASIN	++	
25% Acorus o		Swee	t Flag	18" O.C.		393		100		SCREENS MOU	OCATED AT GREEN NTED ON BUILDING	++	
25% Scirpus o	ium purpureum cyperinus otrichum novae-angliae	Woo	ye Weed grass England aster	18" O.C. 18" O.C. 18" O.C.			399	+	19 4 V v v V v v V v v v V v v v	\ FOR LOCATION		++	
	IG MIX FOR 6" TO 18" WA	TER DEPTH	v Arum	18" O.C.							ROL BLANKET AND ROL SEED MIX FOR ZATION.	++	
25% Scghoen	noplectus americanus noplectus tabernaemontar	Three	e Square Bull Rush Stem Bull Rush	18" O.C.	+		399———			STORMWATER	TRANSITION PLUG MIX	401	\
25% Spatgani *Plant in same sp	nium pecies clusters of 5 to 7 pl	Burre ugs	eed	18" O.C.				+ 1					2
					180		++					+	}
						377	+						
						MICRO		STORMWATER	VVVVV	401_		1	X
						POOL		BASIN SEED	396				; ;
				MARSH PLUG MIX 6"-18" WATER TH					395				
			HIGH	I MARSH PLUG MIX 0-6" WATER DEPTH		+			393	STORMWATER	PLANTER		f
			'EADWALL —				FOREBAY	STORMWATER BASIN SEED		////		+ +	
											A Marian	+ + + + + + + + + + + + + + + + + + + +	\(\frac{1}{2}\)
				ACO NO.							+	+ + + + + + + + + + + + + + + + + + + +	PROJ
				/8			+++++++++++++++++++++++++++++++++++++++		90 ++	+ Manual X X X	Trimmer x x		
	LEGEND		/						+	X X X X X X X X X X X X X X X X X X X	VD BUFFER * * * * *		NEW YORK STATE EDUCATION INDIVIDUAL FROM ALTERING TH SPECIFICATIONS IN ANY WAY, OF A LICENSED PROFESSIONAL ALTERING ENGINEER MUST SIG
	(\cdot)	EXISTING DE	CIDUOUS TREE							X X X X ENHA	NCEMENT * * * * * * * * * * * * * * * * * * *	* * * * * * * * * * * * * * * * * * * *	DESCRIPTION OF THE ALTERAT
ITS		EXISTING EV	ERGREEN TREE						***	* * * * * * * * * * * * * * * * * * * *	* * * * * * * * * * * * * * * * * * * *	* * * * * * * * * * * * * * * * * * * *	NOTE: ALL IDEAS, DESIGNS, REPRESENTED BY THIS DRAWIN OF KAEYER, GARMENT, & DAV CREATED, EVOLVED AND DEVE WITH, THE SPECIFIED PROJECT MENTS OR PLANS SHALL BE U WHATSOEVER WITHOUT THE WI
	+ Johnson	PROPOSED [DECIDUOUS TREE								* * * *	X X X X X X X X X X X X X X X X X X X	WRITTEN DIMENSIONS ON THIS
	33 + xx	PROPOSED E	EVERGREEN TREE								* * * *	* * *	SCALED DIMENSIONS. CONTRAC FOR ALL DIMENSIONS AND CO MUST BE NOTIFIED OF ANY V/ SHOWN BY THESE DRAWINGS. OFFICE FOR APPROVAL BEFOR
		PROPOSED [DECIDUOUS SHRUBS								* * *	* /// /	LEGAL NOTICE: ALTERATIONS CONTAINED ON THIS DOCUMEN THE LICENCED ARCHITECT WHO IS A VIOLATION OF TITLE VII,
	©	PROPOSED E	EVERGREEN SHRUBS								ETLAND ANCEMENT		© Copyright 2009 Kaeyer, All rights reserved.
ONS	A A	PROPOSED \	/INES						100		AREA		0 11 01 10 50
ONS	7 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9		ACCESS ROAD GRASS PAVERS TO BE TRIX UPLAND SEED MIX BY NEW ENGLA										9 11-21-16 FS 8 12-18-15 RE
		PLANTS, INC	OR APPROVED EQUAL VER PLUG MIX, SPECIFIC SPECIES TO E					No.					7 11-20-14 KS 6 10-15-14 FEI
ITS		PRIOR TO SIT	E PLAN REVIEW					'C'N		379-			5 05-30-14 FEI 4 08-21-11 RE
	· ·	NOTE #11) FEDERAL WE	I LINE SET BY NYCDEP DATED DECEME TLAND BOUNDARY - DELINEATED BY A	KRF, CONFIRMED BY	PLANT MATERIA		LV DEFORE NO. "	TDEFO CHALL BE BUG To	TOP.	The state of the s			3 01-24-11 REY 2 10-26-10 DE
		USACE - JD IS	SSUED 2/1/12 (PERMIT APPLICATION #N	IAN-2011-0486-ESO)	RETAIN AS MANY FIB BALL OF EARTH OF T	RUBS SHALL BE DUG IMMEDIATE BROUS ROOTS AS POSSIBLE. BA THE MINIMUM SPECIFIED SIZE (2)	LLED AND BURLAPPED TR 3"), SECURELY HELD IN PL	EES SHALL HAVE A SOLID ACE BY UNTREATED BURLAP	T	36", FES-			1 06-15-09 SIT
			FROM WETLAND DELINEATION LINE		ASSOCIATION OF NU OTHERWISE SPECIFI		RDS FOR NURSERY STOC	K, 1996 EDITION, UNLESS	Conc	row A The	大		Sheet Title
			ERMITTENT STREAM 50' BUFFER FROM NYCDEP RESERVOIR STEM		DEVELOPED BRANCH TREES, FREE FROM I	E TYPICAL OF THEIR SPECIES OF HES AND A FIBROUS ROOT SYST DEFECTS, DISFIGURING KNOTS,	EM. THEY SHALL BE SOUI SUNSCALD, INJURIES, AB	ND, HEALTHY, VIGOROUS RASIONS OF THE BARK,		The desired to			LANDS
			OPERTY LINE		PLANT DISEASES, INS SINGLE, STRAIGHT T	SECT EGGS, BORERS AND ALL F RUNK AND BE BRANCHED AT LE AVE A LEADER, THE LEADER SH	ORMS OF INFESTATIONS. AST FIVE FEET FROM THE	ALL TREES SHALL HAVE A		~ [OUN		LANDS
			OPERTY LINE ADJACENT PROPERTY MULTI-LEVEL PARKING FACILITY		3. NO PLANT SUBSTITU ARCHITECT OR, THE	ITIONS WILL BE ACCEPTABLE UN CONSULTING ARBORIST.THE PI SPECT PLANT MATERIAL FOR AC	ILESS APPROVED BY THE ROJECT LANDSCAPE ARCH	HITECT OR THE CONSULTING			1 E		05-
			BELGIAN BLOCK CURBING		4. TREE STAKING, GUY LANDSCAPE ARCHITE	WIRES AND WRAP SHALL NOT E ECT OR PROJECT ARBORIST IN E REMOVED PRIOR TO FINAL AC	BE USE UNLESS DIRECTED THE FIELD. IF USED, ALL T	BY THE PROJECT REE STAKING, GUY WIRES					Job No. Sh 2007-0632
	· ·	STORMWATE PROPOSED S	R DRAINAGE EASEMENT SIGN		AFTER PLANTING. 5. REFER TO THE "WET	LAND AND WETLAND BUFFER EI	NHANCEMENT PLAN' GUIDA	ANCE DOCUMENT FOR ALL				1802	Date 08-25-10
ty of plants required					ENHANCEMENT AREA 6. ALL WOODY AND HEI	RBACEOUS PLANT MATERIAL FO	OR STORMWATER MANAGE	EMENT AREAS AND WETLAND				ó 30, eō,	Scale 1"=30'
					PINELAND NURSERIE	ENHANCEMENTS AREAS SHALL ES, NEW WNGLAND WETLAND PL ALL BE PURCHASED FROM ERNS	ANTS, INC. OR APPROVED	EQUAL.				SCALE: 1" = 30'	Drawn/Checked
							,						i I

PARK PLACE

11 New King Street Town of North Castle, New York

11 New King Street LLC 11 New King Street, White Plains, NY 10604



AKRF ENGINEERING, P.C. 34 SOUTH BROADWAY WHITE PLAINS, NY 10601 Tel:(914) 949-7336 Fax:(914) 949-7559

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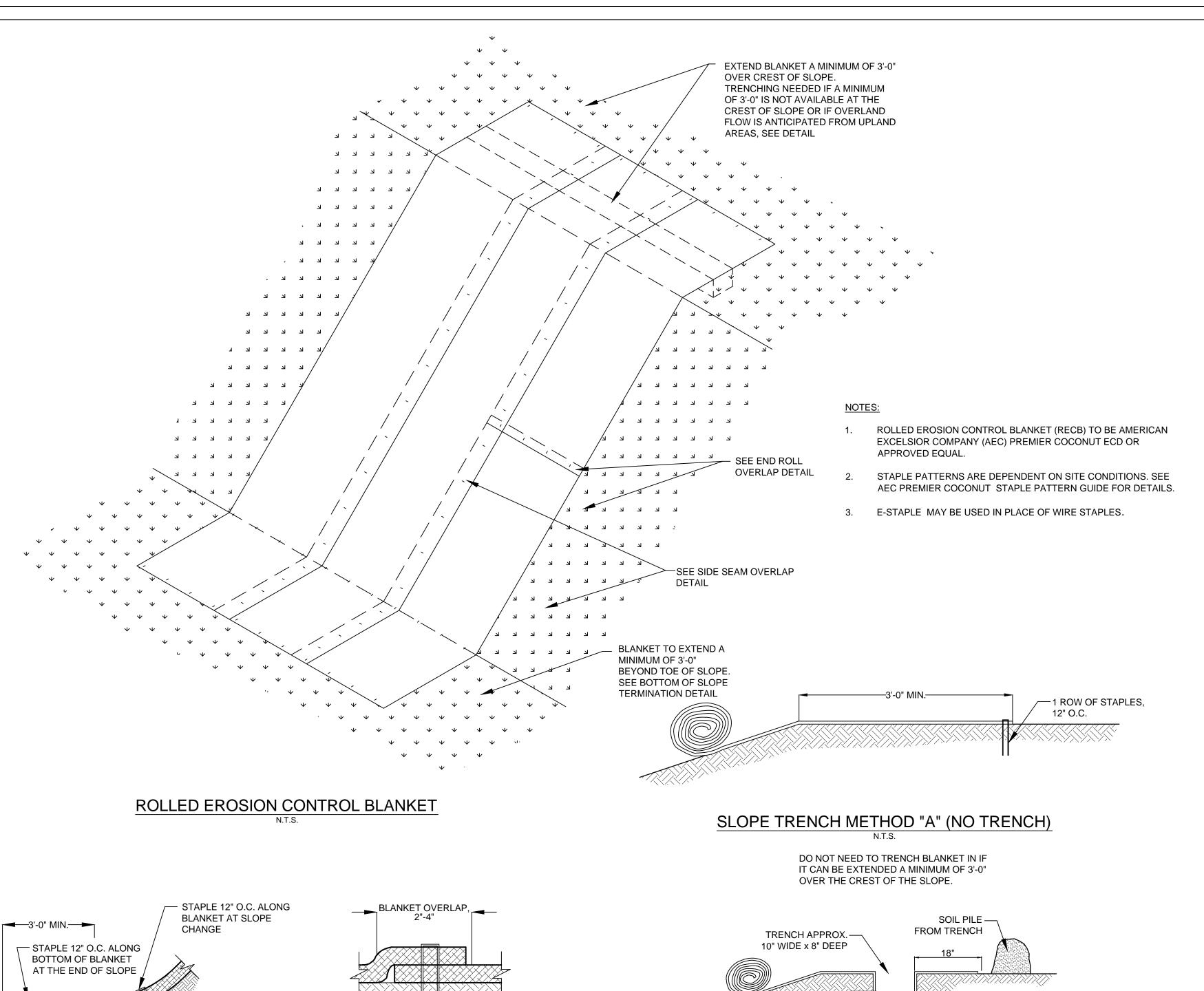
| 11-21-16 | FSEIS SUBMISSION | 12-18-15 | REVISED PER DEP COMMENTS

11-20-14 KSC COMMENTS OF 11/20/14 10-15-14 FEIS SUBMISSION

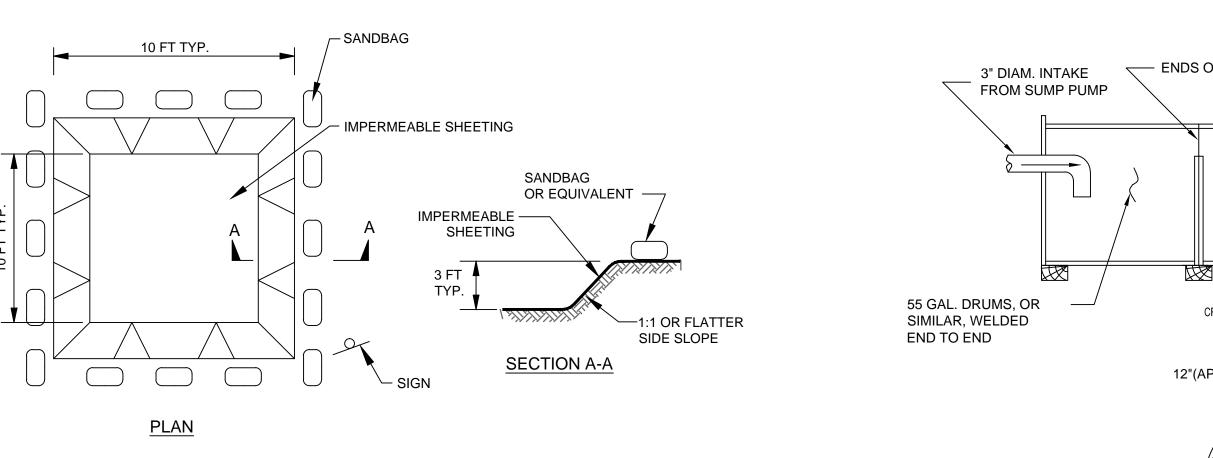
05-30-14 FEIS SUBMISSION 08-21-11 REVISION PER DEIS COMMENTS

01-24-11 REVISION PER DEIS COMMENTS 10-26-10 DEIS SUBMISSION 06-15-09 SITE PLAN SUBMISSION

LANDSCAPE PLAN



ROW OF STAPLES, -SLOPE TO PROTECT 2 ROWS OF STAPLES, - STAPLES ARE THROUGH STAGGERED, 6" O.C., BOTH BLANKETS. EA. DIR. 2 ROWS OF STAPLES 4" APART, STAGGERED, 6" O.C. STAPLES TO BE PLACED CLOSE TO EDGE OF BLANKET-LAPS OVER DOWNSLOPE BLANKETS IN A SHINGLE AFFECT. SOIL FILLED FROM SOIL PILE SLOPE TRENCH METHOD "C"



SIDE SEAM OVERLAP STAPLE DETAIL

END SEAM OF BLANKETS OVERLAP 2"-4".

PLACE STAPLES, ONE ON EACH CORNER OF BLANKET, 12" O.C. ALONG BLANKET END

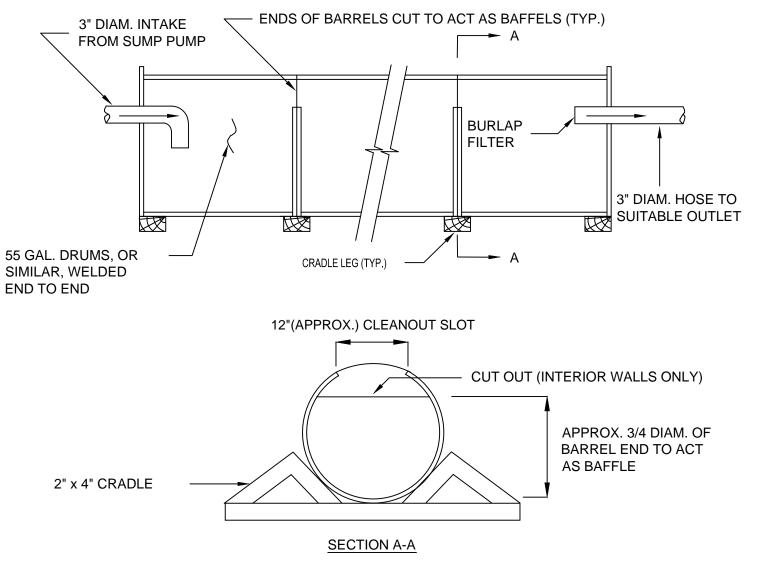
THROUGH BOTH BLANKETS. UPSLOPE BLANKET

CONSTRUCTION SPECIFICATIONS

END ROLL OVERLAP

- 1. LOCATE WASHOUT STRUCTURE A MINIMUM OF 50 FEET AWAY FROM OPEN CHANNELS, STORM DRAIN INLETS, SENSITIVE AREAS, WETLANDS, BUFFERS AND WATER COURSES AND AWAY FROM CONSTRUCTION TRAFFIC. 2. SIZE WASHOUT STRUCTURE FOR VOLUME NECESSARY TO CONTAIN WASH WATER AND SOLIDS AND MAINTAIN AT LEAST 4 INCHES OF FREEBOARD. TYPICAL DIMENSIONS ARE 10 FEET X 10 FEET X 3 FEET DEEP.
- 3. PREPARE SOIL BASE FREE OF ROCKS OR OTHER DEBRIS THAT MAY CAUSE TEARS OR HOLES IN THE LINER. FOR LINER, USE 10 MIL OR THICKER UV RESISTANT, IMPERMEABLE SHEETING, FREE OF HOLES AND TEARS OR OTHER DEFECTS THAT COMPROMISE IMPERMEABILITY OF THE MATERIAL. 4. PROVIDE A SIGN FOR THE WASHOUT IN CLOSE PROXIMITY TO THE FACILITY.
- 5. KEEP CONCRETE WASHOUT STRUCTURE WATER TIGHT. REPLACE IMPERMEABLE LINER IF DAMAGED (E.G., RIPPED OR PUNCTURED). EMPTY OR REPLACE WASHOUT STRUCTURE THAT IS 75 PERCENT FULL, AND DISPOSE OF ACCUMULATED MATERIAL PROPERLY. DO NOT REUSE PLASTIC LINER. WET-VACUUM STORED LIQUIDS THAT HAVE NOT EVAPORATED AND DISPOSE OF IN AN APPROVED MANNER. PRIOR TO FORECASTED RAINSTORMS, REMOVE LIQUIDS OR COVER STRUCTURE TO PREVENT OVERFLOWS. REMOVE HARDENED SOLIDS. WHOLE OR BROKEN UP, FOR DISPOSAL OR RECYCLING, MAINTAIN RUNOFF DIVERSION AROUND EXCAVATED WASHOUT STRUCTURE UNTIL STRUCTURE IS REMOVED.

EXCAVATED CONCRETE WASHOUT STATION



CONSTRUCTION SPECIFICATIONS

- 1. CLEAN OUT THE SEDIMENT TANK WHEN ONE THIRD (1/3) FILLED WITH SILT. 2. STEEL DRUMS ARE USED AS AN EXAMPLE DUE TO THEIR READY AVAILABILITY. ANY TANKS MAY BE USED, PROVIDING THAT THE VOLUME REQUIREMENTS ARE MET.
- TRAPPING DEVICE OR AS APPROVED BY THE INSPECTOR. PORTABLE SEDIMENT TANK N.T.S. - ADAPTED FROM: NYSDEC STANDARDS & SPECIFICATIONS

FOR EROSION & SEDIMENT CONTROL

3. ALL SEDIMENT COLLECTED IN THE TANK SHALL BE DISPOSED OF IN A SEDIMENT

SEEDING: TIME

SPRING/SUMMER/ RYEGRASS (ANNUAL OR 30 LBS. PER ACRE (1 LB./1000 SF) EARLY FALL PERENNIAL) LATE FALL/ CERTIFIED 'AROOSTOOK' 100 LBS. PER ACRE (2.5 LBS. /1000 S.F.)

MULCHING:

EARLY WINTER

QUANTITY

PRODUCTS APPROVED FOR EROSION CONTROL

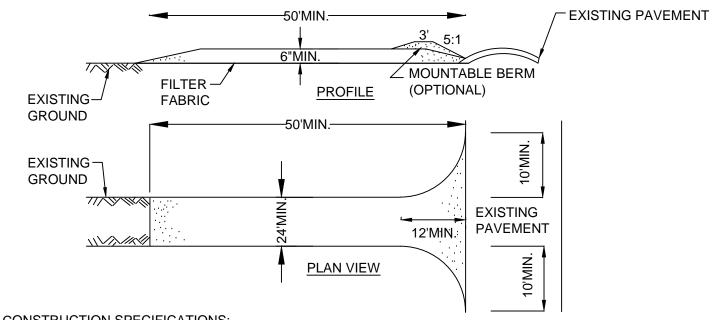
3. RECP MAY BE USED IN LIEU OF MULCHING

WINTER RYE

(CEREAL RYE)

ANY SEEDING TIME HAY OR STRAW 2 TONS PER ACRE (90 LBS. PER 1000 S.F.)

- AREAS WHERE WIND AND CONCENTRATED WATER ARE CONCERNS WILL REQUIRE MULCH ANCHORING PRODUCTS TO BE USED FOR MULCH ANCHORING ARE WOOD FIBER HYDROMULCH OR OTHER SPRAYABLE
- TEMPORARY SEEDING AND MULCHING SCHEDULE



STONE SIZE - USE 1-4 INCHES STONE, OR RECLAIMED OR RECYCLED CONCRETE EQUIVALENT. LENGTH - NOT LESS THAN 50 FEET

THICKNESS - NOT LESS THAN SIX (6) INCHES.

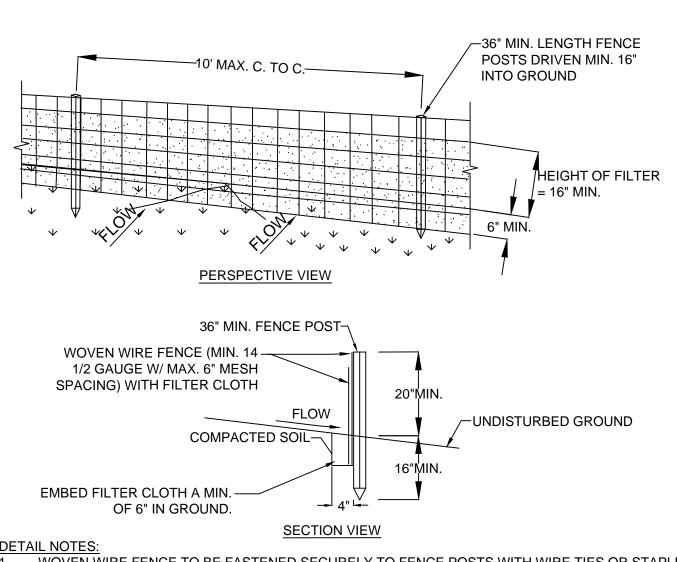
WIDTH - TWELVE (12) FOOT MINIMUM, BUT NOT LESS THAN THE FULL WIDTH AT POINTS WHERE INGRESS OR EGRESS OCCURS. TWENTY-FOUR (24) FOOT IF SINGLE ENTRANCE TO SITE. FILTER FABRIC - WILL BE PLACED OVER THE ENTIRE AREA PRIOR TO PLACING OF STONE. SURFACE WATER - ALL SURFACE WATER FLOWING OR DIVERTED TOWARD CONSTRUCTION ENTRANCES

SHALL BE PIPED ACROSS THE ENTRANCE. IF PIPING IS IMPRACTICAL, A MOUNTABLE BERM WITH 5:1 SLOPES WILL BE PERMITTED MAINTENANCE - THE ENTRANCE SHALL BE MAINTAINED IN A CONDITION WHICH WILL PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO PUBLIC RIGHTS-OF-WAY, ALL SEDIMENT SPILLED, DROPPED, WASHED OR

TRACTED ONTO PUBLIC RIGHTS-OF-WAY MUST BE REMOVED IMMEDIATELY. WHEN WASHING IS REQUIRED, IT SHALL BE DONE ON AN AREA STABILIZED WITH STONE AND WHICH DRAINS INTO AN APPROVED SEDIMENT TRAPPING DEVICE.

PERIODIC INSPECTION AND NEEDED MAINTENANCE SHALL BE PROVIDED EVERY 7 CALENDAR DAYS AND AFTER EACH RAINFALL EVENT.

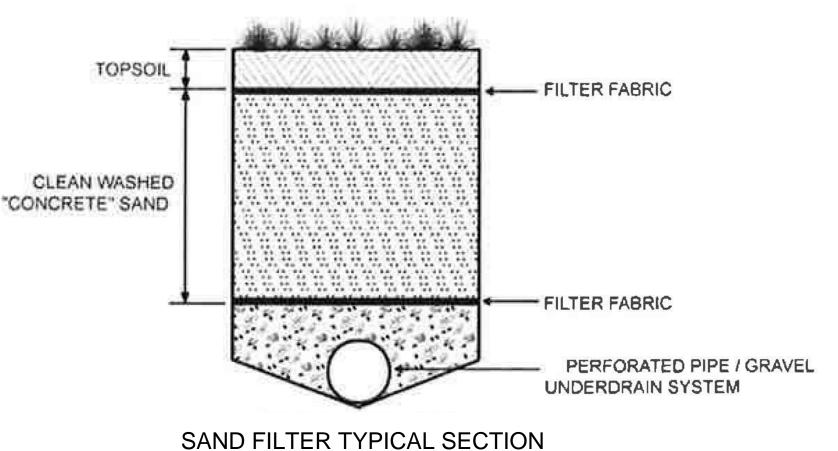
STABILIZED CONSTRUCTION ENTRANCE/EXIT



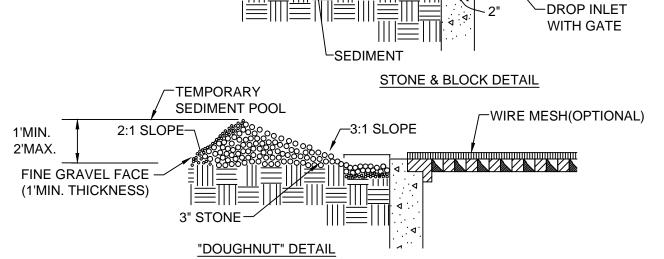
WOVEN WIRE FENCE TO BE FASTENED SECURELY TO FENCE POSTS WITH WIRE TIES OR STAPLES. POSTS SHALL BE STEEL EITHER "T" OR "U" TYPE OR HARDWOOD.

FILTER CLOTH TO BE TO BE FASTENED SECURELY TO WOVEN WIRE FENCE WITH TIES SPACED EVERY 24" AT TOP AND MID SECTION. FENCE SHALL BE WOVEN WIRE, 6" MAXIMUM MESH WHEN TWO SECTIONS OF FILTER CLOTH ADJOIN EACH OTHER THEY SHALL BE OVER-LAPPED BY SIX

INCHES AND FOLDED. FILTER CLOTH SHALL BE EITHER FILTER X, MIRAFI 100X, STABILINKA T140N, OR PREFABRICATED UNITS SHALL BE GEOFAB, ENVIROFENCE, OR APPROVED EQUIVALENT MAINTENANCE SHALL BE PERFORMED AS NEEDED AND MATERIAL REMOVED WHEN "BULGES" DEVELOP



DEWATERING--CONCRETE BLOCK STONE & BLOCK PLAN VIEW GRAVEL FILTER TEMPORARY SEDIMENT POOL-__DEWATERING SCREEN 2'MAX.



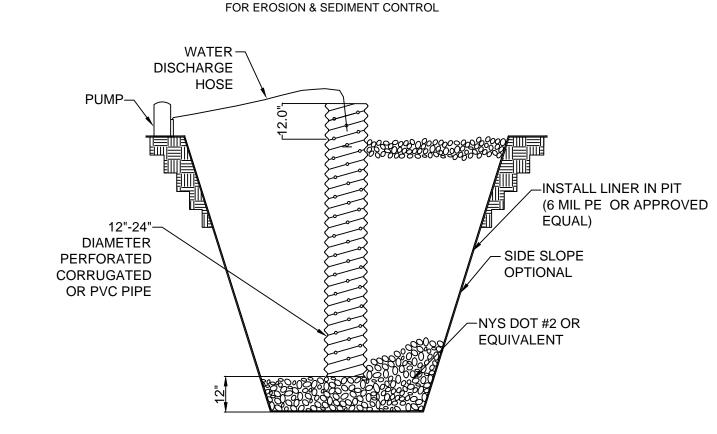
THIS INLET PROTECTION STRUCTURE IS ONLY TO BE USED IN AREAS WHERE PAVEMENT HAS

- YET TO BE STABILIZED. LAY ONE BLOCK ON EACH SIDE OF THE STRUCTURE ON ITS SIDE FOR DEWATERING. FOUNDATION SHALL BE 2 INCHES MINIMUM BELOW REST OF INLET AND BLOCKS SHALL BE
- PLACED AGAINST INLET FOR SUPPORT. HARDWARE CLOTH OR 1/2" WIRE MESH SHALL BE PLACED OVER BLOCK OPENINGS TO
- SUPPORT STONE. USE CLEAN STONE OR GRAVEL 1/2-3/4 INCH IN DIAMETER PLACED 2 INCHES BELOW TOP OF

THE BLOCK ON A 2:1 SLOPE OR FLATTER.

FOR STONE STRUCTURES ONLY, A 1 FOOT THICK LAYER OF THE FILTER STONE WILL BE PLACED AGAINST THE 3 INCH STONE AS SHOWN ON THE DRAWINGS. 6 MAXIMUM DRAINAGE AREA 1 ACRE

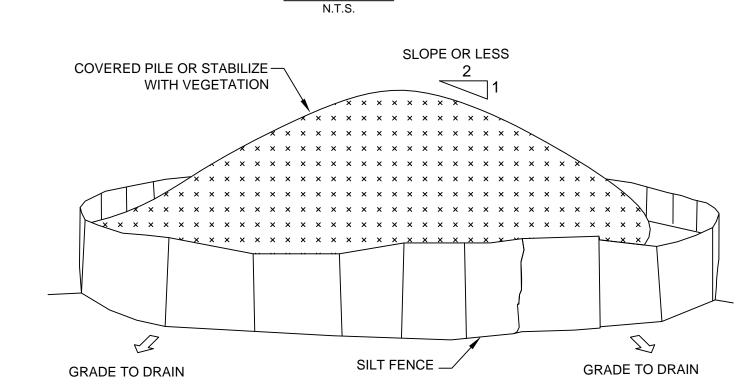
STONE AND BLOCK DROP INLET PROTECTION N.T.S. ADAPTED FROM: NYSDEC STANDARDS & SPECIFICATIONS



SUMP PIT TO BE USED IN COORDINATION WITH ANTI-TRACKING/DECONTAMINATION PAD.

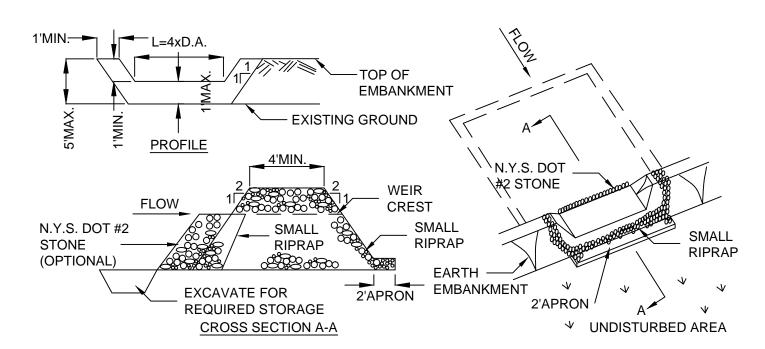
- PIT DIMENSIONS ARE OPTIONAL THE STANDPIPE SHOULD BE CONSTRUCTED BY PERFORATING A 12-24" DIAMETER CORRUGATED
- OR PVC PIPE. A BASE OF 2" AGGREGATE SHOULD BE PLACED IN THE PIT TO A DEPTH OF 12". AFTER INSTALLING THE STANDPIPE, THE PIT SURROUNDING THE STANDPIPE SHOULD BE BACKFILLED
- THE STANDPIPE SHOULD EXTEND 12-18" ABOVE THE LIP OF THE PIT. WATER TO BE PLACED IN DOT APPROVED CONATINER FOR OFF SITE DISPOSAL

SUMP PI



- THIS DETAIL IS TO BE USED ONLY FOR CLEAN, TESTED MATERIAL STOCKPILING.
- AREA CHOSEN FOR SOIL STOCKPILE SHALL BE DRY AND STABLE MAXIMUM SLOPE OF SOIL STOCKPILE SHALL BE 2:1
- PRIOR TO DISTURBING FILL MATERIAL, EACH PILE SHALL BE SURROUNDED BY SILT FENCING. 5. UPON COMPLETION OF FILL MATERIAL GRADING, EACH PILE SHALL BE COVERED OR STABILIZED WITH
- 6. SEGREGATE CERTIFIED CLEAN MATERIALS FROM OTHER MATERIALS WHEN STOCKPILING.

SOIL STOCKPILE DETAIL



OPTION: A ONE FOOT LAYER OF N.Y.S. DOT #2 STONE MAY BE PLACED ON THE UPSTREAM SIDE OF THE RIPRAP INPLACE OF THE EMBEDDED FILTER CLOTH. THE FILL MATERIAL FOR THE EMBANKMENT SHALL BE FREE OF ROOTS AND OTHER WOODY VEGETATION AS WELL AS OVER-SIZED STONES, ROCKS, ORGANIC MATERIAL OR OTHER OBJECTIONABLE MATERIAL. THE EMBANKMENT SHALL BE COMPACTED BY TRAVERSING WITH EQUIPMENT WHILE IT IS BEING CONSTRUCTED. THE STONE USED IN THE OUTLET SHALL BE SMALL RIPRAP 4"-8" ALONG WITH A 1' THICKNESS OF 2" AGGREGATE PLACED ON THE UP-GRADE SIDE ON THE SMALL RIPRAP OR EMBEDDED FILTER CLOTH IN THE RIPRAP. SEDIMENT SHALL BE REMOVED AND TRAP RESTORED TO ITS ORIGINAL DIMENSIONS WHEN THE SEDIMENT HAS ACCUMULATED TO 1/2 THE DESIGN DEPTH. THE STRUCTURE SHALL BE INSPECTED AFTER EACH RAIN AND REPAIRS MADE AS NEEDED.

STONE OUTLET SEDIMENT TRAP (ST-IV)

CONSTRUCTION OPERATIONS SHALL BE CARRIED OUT IN SUCH A MANNER THAT EROSION AND WATER POLLUTION IS MINIMIZED.

PARK PLACE

11 New King Street Town of North Castle, New York

11 New King Street LLC 11 New King Street, White Plains, NY



p: 914.666.5900 f: 914.666.0051 kadarchitects.com AKRF ENGINEERING, P.C.

> WHITE PLAINS, NY 10601 Tel:(914) 949-7336 Fax:(914) 949-7559

34 SOUTH BROADWAY

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1 12-18-15 REVISED PER DEP COMMENTS 6 | 10-15-14 | FEIS SUBMISSION 5 | 05-30-14 | FEIS SUBMISSION

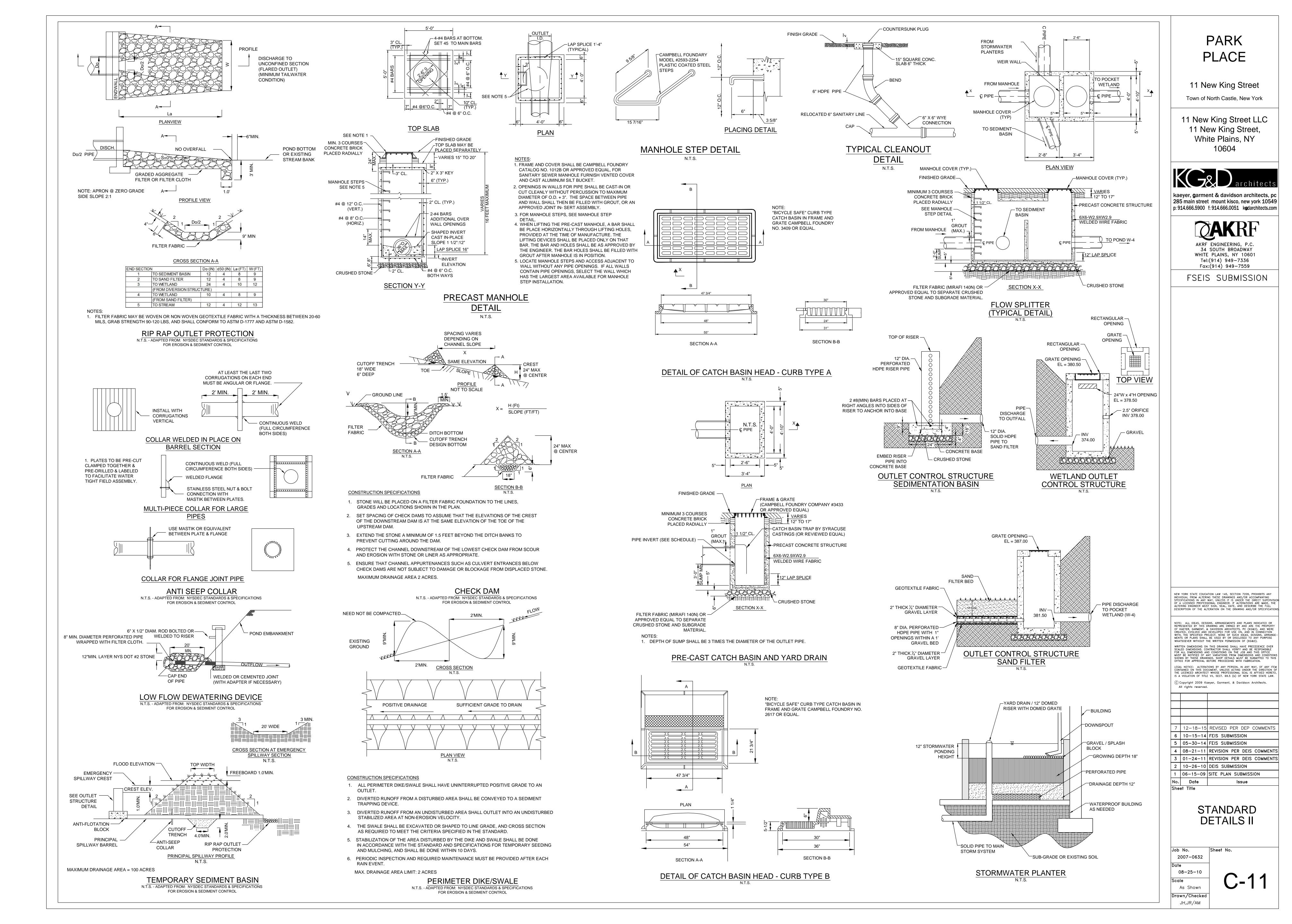
4 | 08-21-11 REVISION PER DEIS COMMENTS │ 3 │01−24−11│REVISION PER DEIS COMMENTS | 2 | 10-26-10|DEIS SUBMISSION

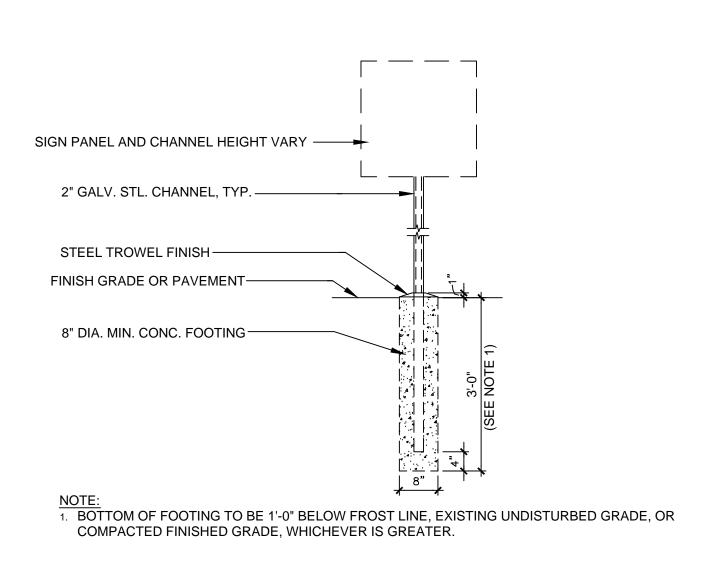
1 |06-15-09|SITE PLAN SUBMISSION Sheet Title

STANDARD

Job No. Sheet No. 2007-0632 Date 08-25-10 Scale As Shown Drawn/Checked

JH/AM





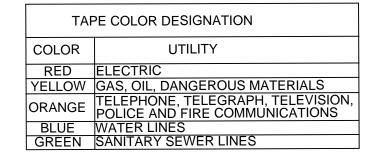
SIGNPOST DETAIL

INSTALL 6" WIDE, BLUE MAGNETIC UNDERGROUND MARKING _LABELED "CAUTION, BURIED PIPELINE BACKFILL & COMPACT-(SEE SPECS FOR BELOW" @ 18" DEPTH APPROVED MATERIAL) — CONCRETE OR ASPHALT PAVEMENT WIRE TRACER — CRUSHED STONE BASE COURSE, NYSDOT ITEM 304-09 COMPACTED GRANULAR LINE OF EXCAVATION BACKFILL (SEE SPECS) -NEW STORM OR UTILITY MAIN

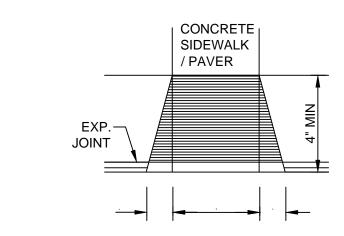
AND BACKFILL MATERIAL NOTE: GAS, WATER, AND SANITARY SEWER PIPE REQUIRE THE COLORED TAPE AND TRACER WIRE. REFER TO THE TABLE FOR COLOR DESIGNATION.

INSTALL FILTER FABRIC (140N-MIRAFI) OR APPROVED

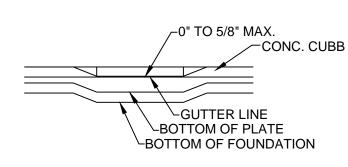
EQUAL, TO SEPARATE SUBGRADE



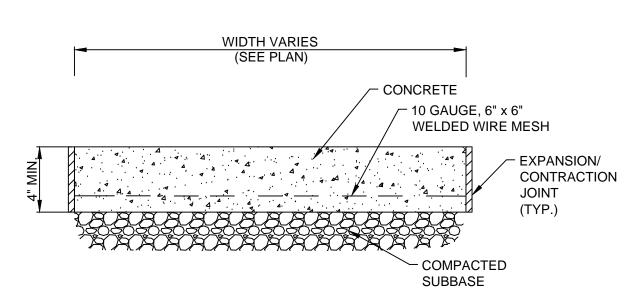
TYPICAL TRENCH DETAIL



SIDEWALK/ PEDESTRIAN RAMPS



SIDEWALK/ PEDESTRIAN RAMP ELEVATION

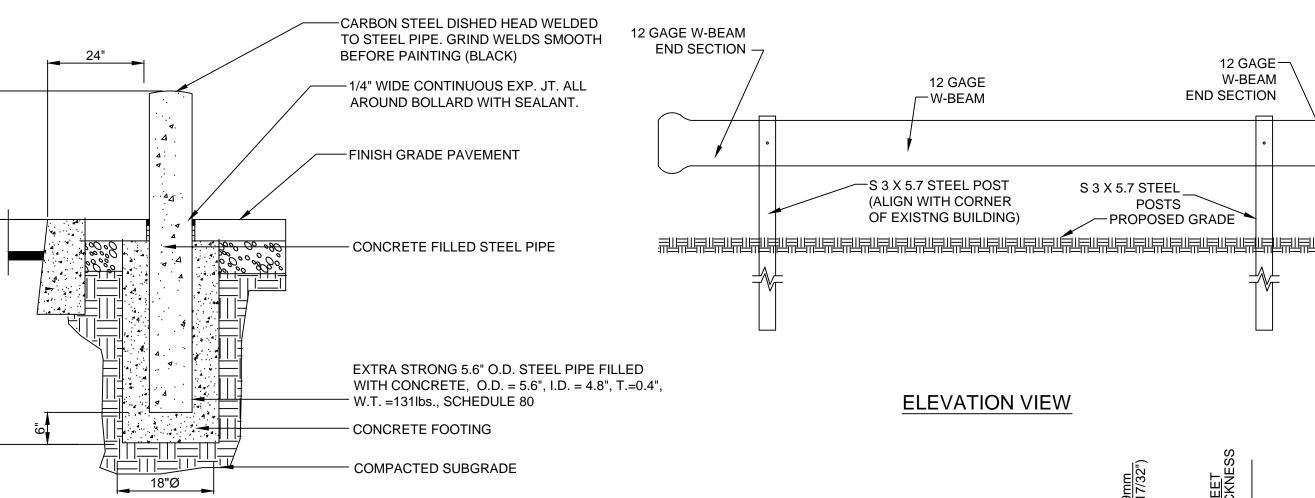


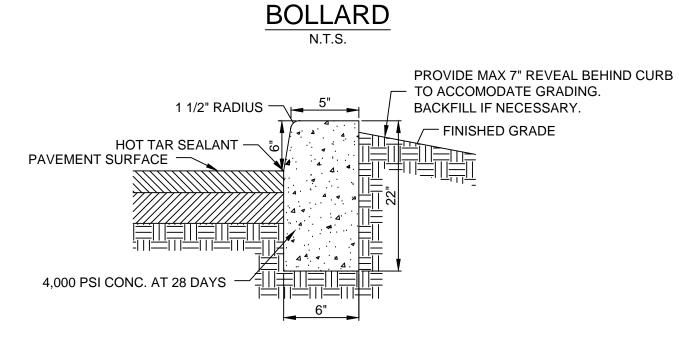
CONCRETE RAMP / PAD FOR EMERGENCY EXIT & REFUSE AREA

N.T.S.

EXPANSION/CONTRACTION JOINT NOTES:

- 1. EXPANSION JOINTS SHALL BE PROVIDED AT EQUAL DISTANCES OF NO MORE THAN 20 FEET. ALL EXISTING AND PROPOSED BUILDINGS, CURBING AND EXISTING PAVEMENT JOINTS SHALL BE FILLED WITH PREFORMED EXPANSION JOINT FILLER, 1/2" THICK. THE JOINT SHALL BE RECESSED 1/4" FROM THE TOP OF THE SLAB.
- TOOLED CONTRACTION JOINTS SHALL BE PROVIDED AT EQUAL DISTANCES OF NO MORE THAN 5 FEET. JOINTS SHALL BE SPACED TO RESULT IN A NEAT AND ORDERLY ARRAY OF CONCRETE PAVERS.

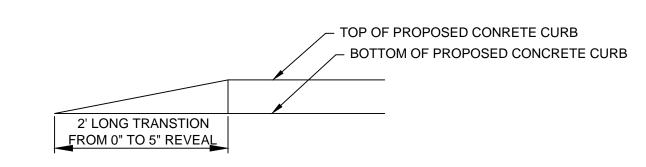




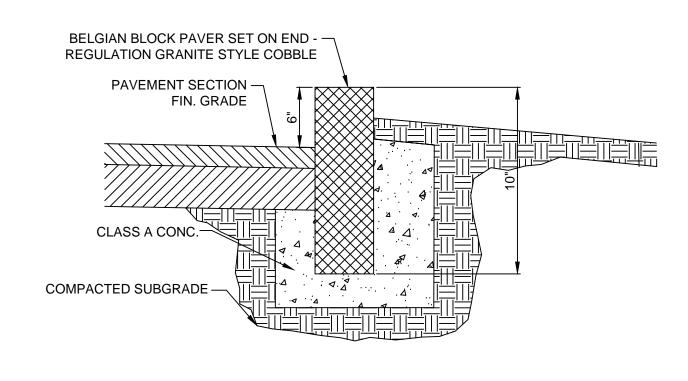
DETAIL NOTES:

- 1. ANY EXCAVATION BELOW DESIRED GRADE DUE TO OVER EXCAVATION OR WET SOIL CONDITIONS SHALL BE BACKFILLED WITH \(\frac{3}{4}\)" CLEAN CRUSHED STONE. ALL SUBGRADES SHALL BE APPROVED BY THE ENGINEER PRIOR TO POURING.
- 2. EXPANSION JOINTS SHALL BE PROVIDED AT EQUAL DISTANCES OF NOT MORE THAN 20', ALL PC AND PT POINTS, AND ALL STORM SEWER INLETS. JOINTS SHALL BE FILLED WITH PREFORMED EXPANSION JOINT FILLER, $\frac{1}{2}$ THICK. THE JOINT SHALL BE RECESSED ¹/₄" FROM THE TOP AND THE FRONT OF THE CONCRETE

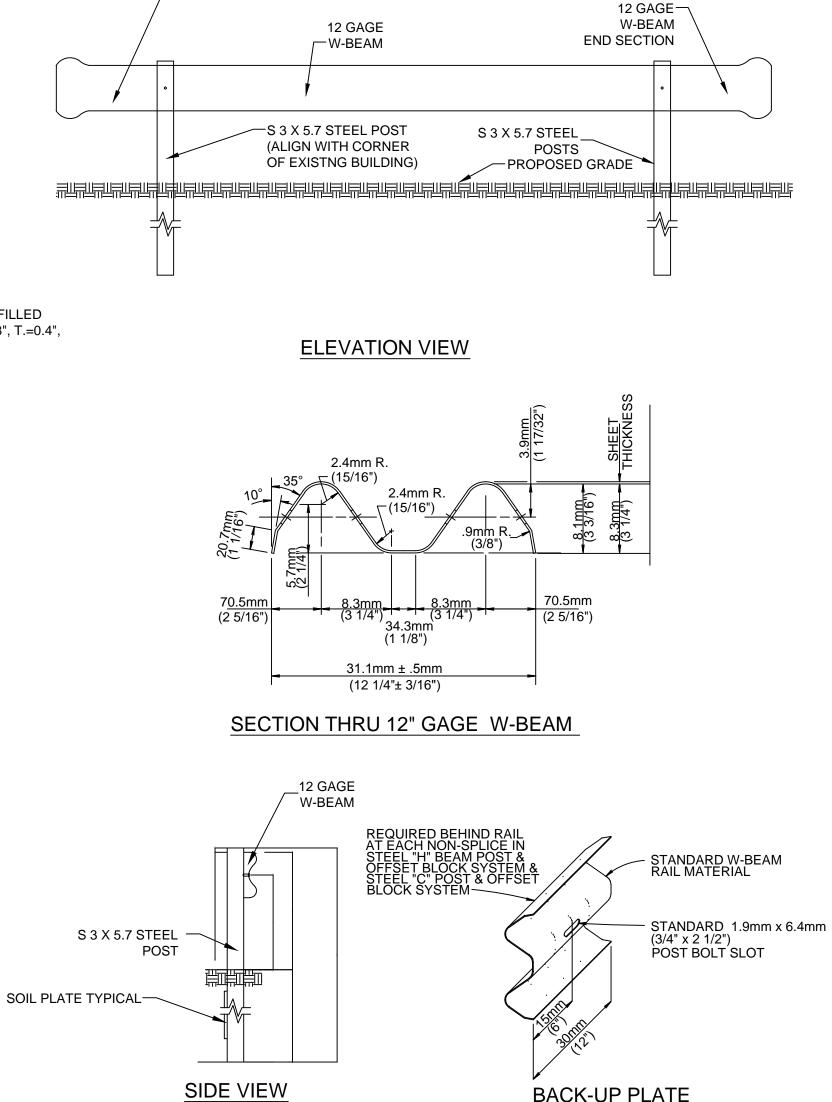
6" CONCRETE CURB



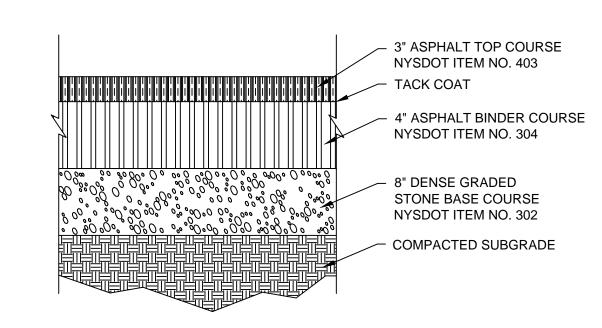
CONCRETE CURB TRANSITION DETAIL



BELGIAN BLOCK DETAIL

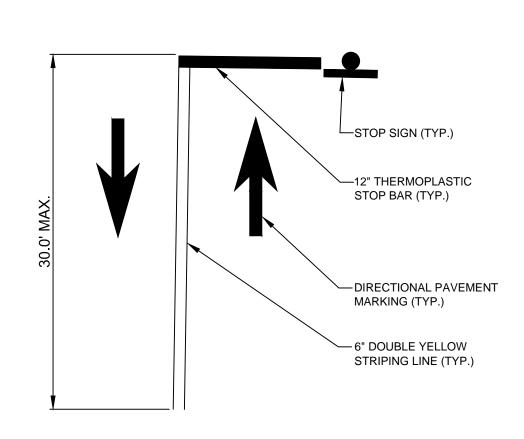


W-BEAM GUIDE RAIL

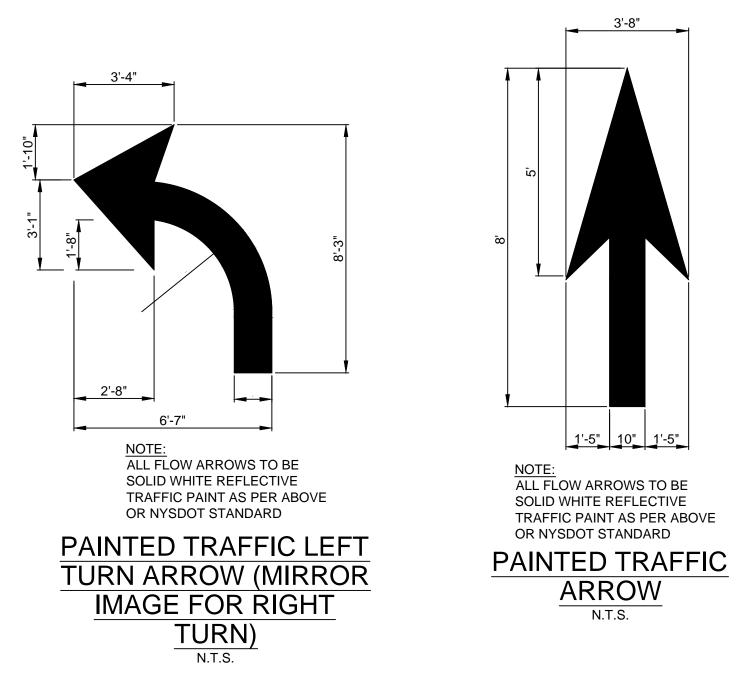


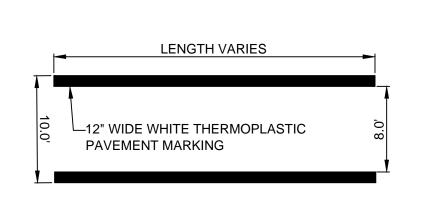
BACK-UP PLATE

TYPICAL ASPHALT PAVEMENT SECTION

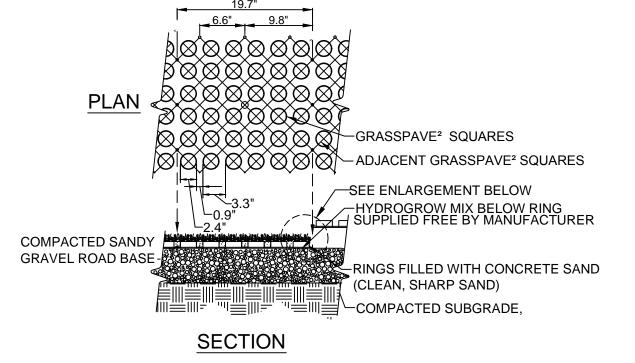


TYPICAL STOP BAR DETAIL





CROSSWALK DETAIL



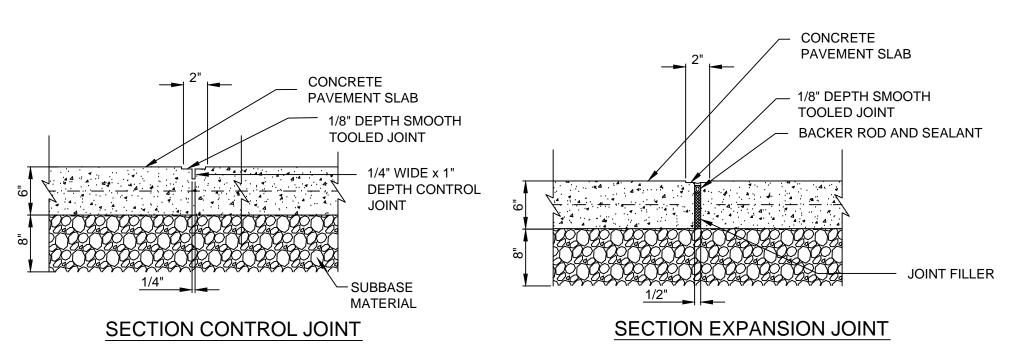
TOP OF GRASS ROOT MASS 1/4" ABOVE TOP OF RING

- COMPACTED SANDY GRAVEL BASE COURSE (VARIES PER LOADING REQUIREMENTS)

NOTE: GRASS/PLANT TYPES SHALL BE SPECIFIED BY A LANDSCAPE ARCHITECT OR LANDSCAPE DESIGNER

UNIT SIZE- 20" X 20" X 1" UNIT WEIGHT- 18 OZ. OR 4.5 POUNDS STRENGTH- 5720 PSI 95% MODIFIED PROCTOR DENSITY- 6 INCHES TO 12 INCHES (DEPTH OF BASE COURSE TO BE DETERMINED BY ON-SITE ENGINEER)

GRASSPAVE DETAIL INVISIBLE STRUCTURES,INC.



CONCRETE PAVEMENT DETAIL

11 New King Street Town of North Castle, New York

PARK

PLACE

11 New King Street LLC 11 New King Street, White Plains, NY



kaeyer, garment & davidson architects, pc 285 main street mount kisco, new york 10549 p: 914.666.5900 f: 914.666.0051 kgdarchitects.com

> AKRF ENGINEERING, P.C. 34 SOUTH BROADWAY WHITE PLAINS, NY 10601 Tel:(914) 949-7336 Fax:(914) 949-7559

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6 | 10-15-14 | FEIS SUBMISSION 5 05-30-14 FEIS SUBMISSION 4 08-21-11 REVISION PER DEIS COMMENTS

7 | 11-21-16 | FSEIS SUBMISSION

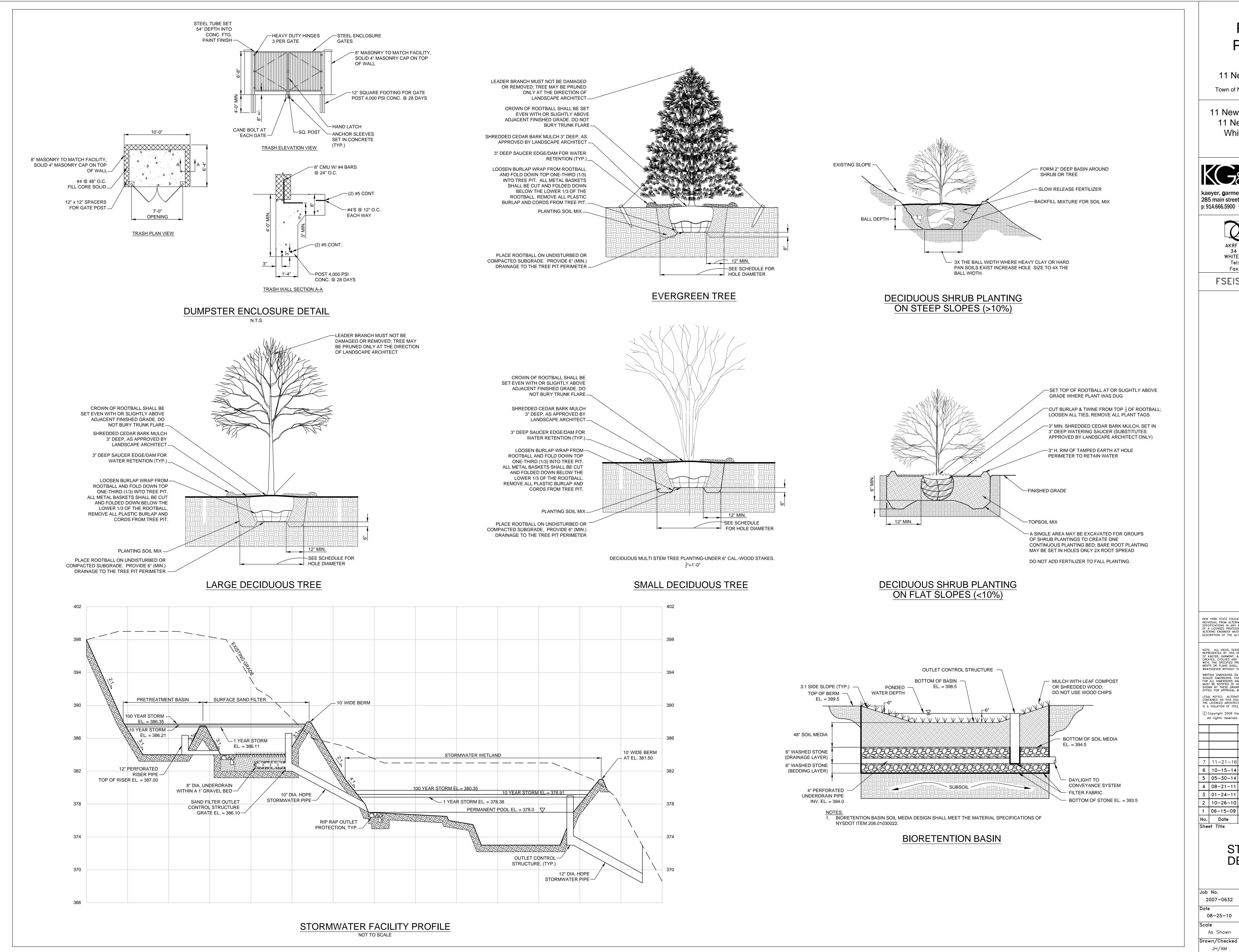
3 01-24-11 REVISION PER DEIS COMMENTS 2 10-26-10 DEIS SUBMISSION 1 | 06-15-09 | SITE PLAN SUBMISSION

> STANDARD **DETAILS III**

Sheet No. Job No. 2007-0632 08-25-10 As Shown

Drawn/Checked JH/AM

Sheet Title



11 New King Street Town of North Castle, New York

11 New King Street LLC 11 New King Street, White Plains, NY 10604



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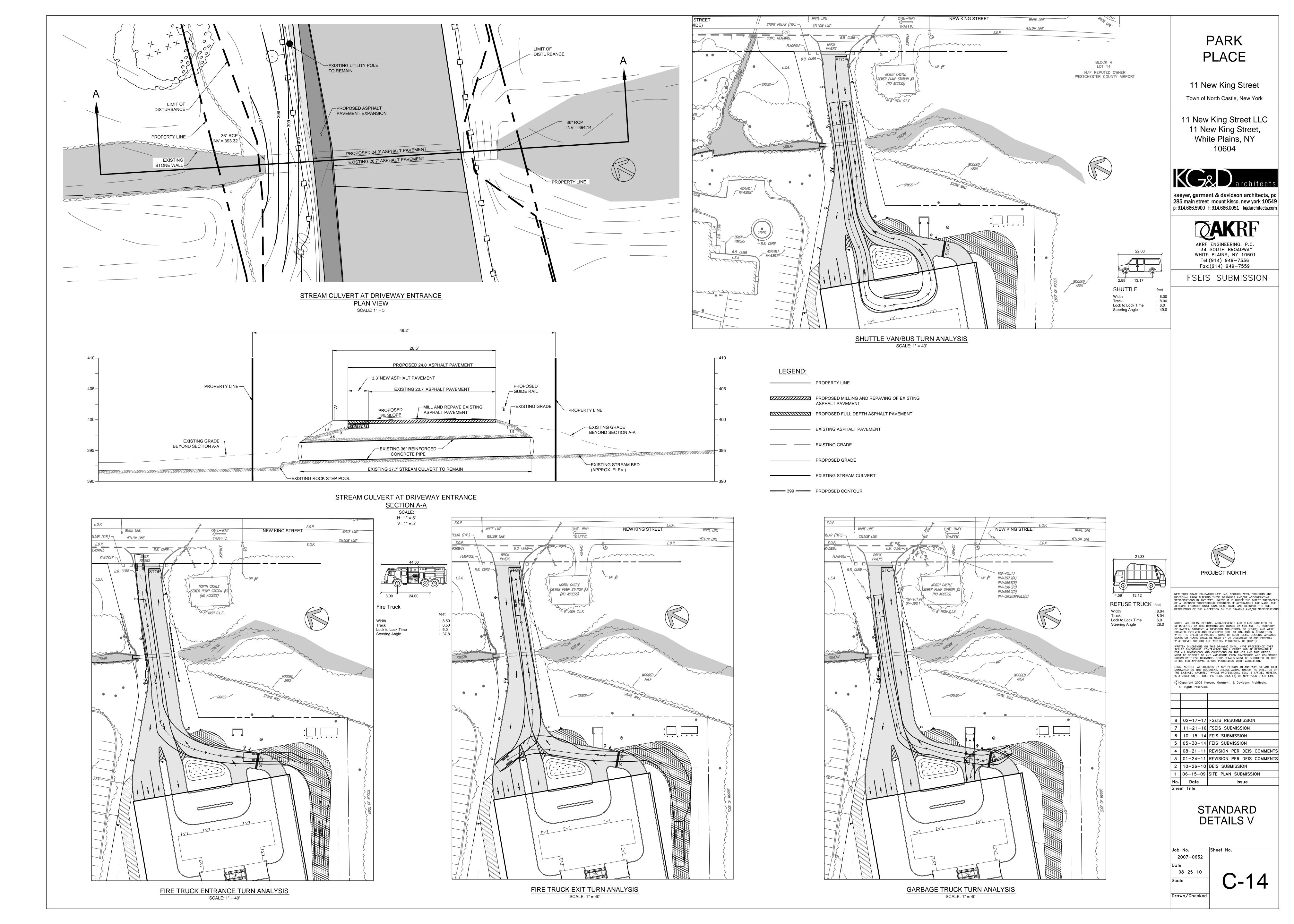
7 | 11-21-16 | FSEIS SUBMISSION 6 10-15-14 FEIS SUBMISSION 5 | 05-30-14 | FEIS SUBMISSION

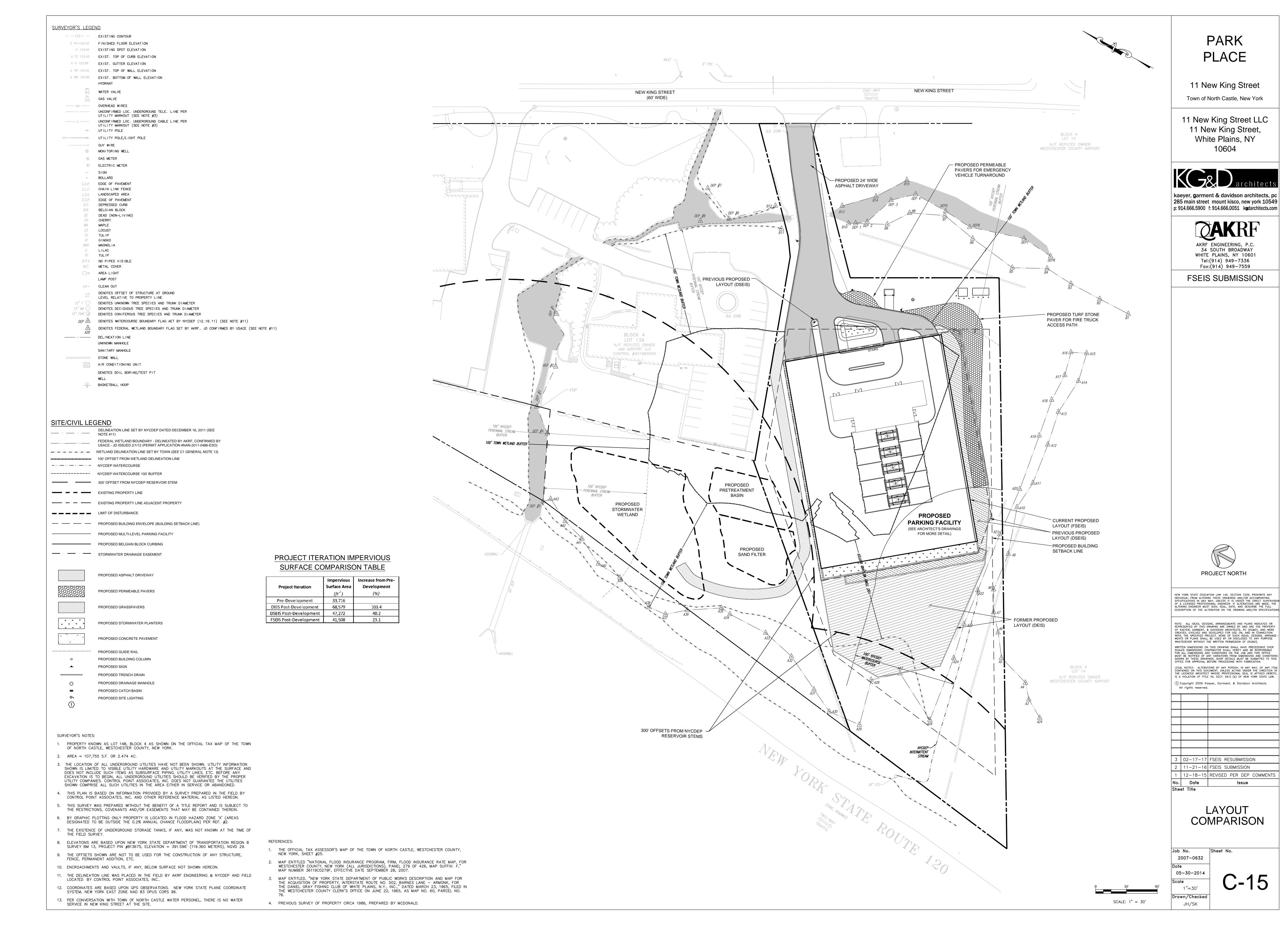
4 08-21-11 REVISION PER DEIS COMMENTS 3 01-24-11 REVISION PER DEIS COMMENTS 2 10-26-10 DEIS SUBMISSION

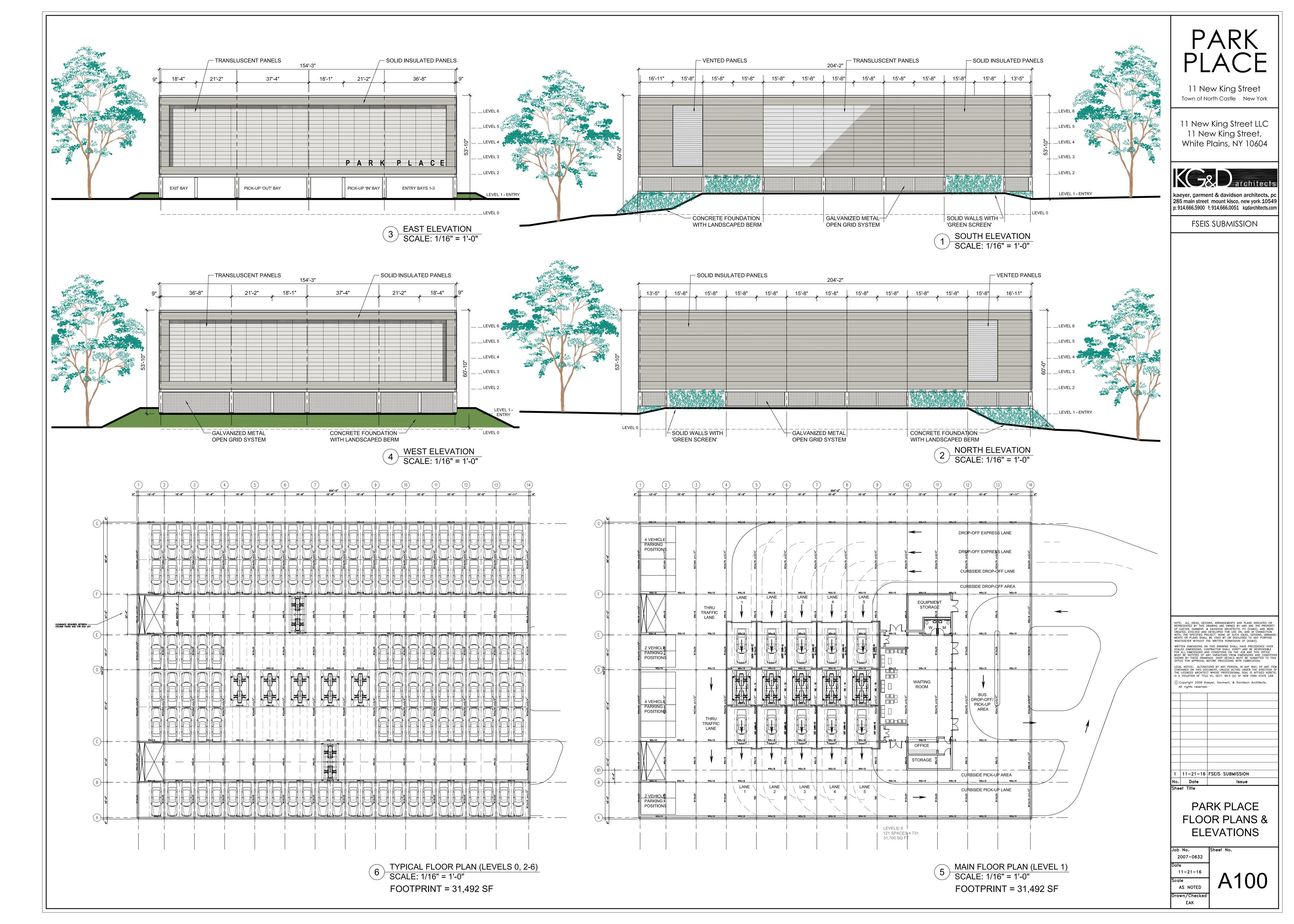
1 06-15-09 SITE PLAN SUBMISSION Sheet Title

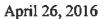
> STANDARD **DETAILS IV**

Job No. 2007-0632 08-25-10











Emily Lloyd Commissioner

Paul V. Rush, P.E. Deputy Commissioner Bureau of Water Supply prush@dep.nyc.gov

465 Columbus Avenue Valhalla, NY 10595 T: (914) 742-2001 F: (914) 742-2027 Mr. Adam Kaufman, Director of Planning Town of North Castle 17 Bedford Road Armonk, NY 10504-1898

Re: Park Place at Westchester Airport DSEIS

11 New King Street

Town of North Castle, Westchester County

Tax map#: 119.-03-1-1 & 118.02-2-3 DEP Log #:2008-KE-2045-SO.1

Dear Mr. Kaufman and Members of the Planning Board:

The New York City Department of Environmental Protection (DEP) has received the Draft Supplemental Environmental Impact Statement (DSEIS), dated March 2016 and accepted by the Planning Board on March 21, 2016, for the above referenced action.

The proposed project lies entirely within the drainage basin of the Kensico Reservoir, which is part of the New York City (NYC) water supply system. The NYC water supply system serves more than half of the population of New York State and is renowned for the high quality of drinking water that it provides. DEP has invested more than \$1.7 billion over the past two decades to preserve and enhance the water quality of this supply. DEP regularly reviews development proposals within NYC's watershed to ensure that there are no adverse impacts to water quality.

DEP has carefully considered the responses in the submitted document and site plans prepared by KG&D Architects & AKRF, Inc., last revised December 18, 2015. Although an overall reduction in the building footprint of the parking garage structure and the number of parking spaces is now shown in comparison to the original project, the overall increase of new impervious surface exceeds 40% of the existing surface area of impervious surface within the limiting distance of the regulated watercourse. As DEP previously stated in its letter dated August 17, 2015, the Rules and Regulations for the Protection from Contamination, Degradation, and Pollution of the New York City Water Supply and Its Sources (Watershed Regulations) allow for up to a 25% expansion conditioned on DEP approval of a Stormwater Pollution Prevention Plan (SWPPP). Furthermore, some of the responses are not accurate, as outlined below, and as such, the project as proposed, neither avoids nor mitigates to the greatest extent possible the potential adverse water quality impacts associated with the propose action. As such, DEP cannot support a finding to approve this action under SEQRA as further detailed below. The following are the DSEIS responses, in no specific order, and DEP's assessment of the information presented:

- 1. Although the DSEIS mentions the infiltration rates in the pervious areas, a plan showing the location of the deep hole infiltration tests performed in the vicinity of the proposed stormwater planters/pavers was not included in the submission. Without this information, DEP is unable to determine whether the soils beneath the proposed planters are suitable for infiltration of runoff or to verify that there is adequate clearance from the proposed bottom of the practice to groundwater, ledge or bedrock in order to ensure that the system will function long-term. This omission is fundamental as it has not been demonstrated that the stormwater quantity reduction can be achieved. Additionally, a revised green infrastructure calculation showing the proposed volume reduction was not provided and a detail of the stormwater planters was not included for validation.
- 2. DSEIS Response 7: The project sponsor has not demonstrated how the runoff reduction volume requirement for this project is being met. It is unclear whether the one-year, 24-hour water quality storm volume was used for the stormwater planter sizing calculations. Without clarification, DEP cannot determine whether even the minimum runoff reduction sizing requirement has been achieved. If the entire one-year storm volume is not flowing into the proposed planters, runoff reduction credit cannot be claimed. It appears that the planters are undersized and will be subject to overflow in the one-year, 24-hour storm event, thereby potentially resulting in erosion and sedimentation within the adjacent areas. Moreover, the roof area from which the planters are tributary was not revised to reflect the current footprint in the volume calculations, and the division of roof runoff to each of the planters is not indicated. As such, the project sponsor has failed to demonstrate that the proposed stormwater planters alone can satisfy even the minimum runoff reduction volume recommended by the New York State Design Manual (NYSDM) and by incorporation, the Watershed Regulations.
- 3. DSEIS Response 6: The pollutant loading analysis provided is fundamentally flawed and cannot be relied upon to reasonably represent conditions that exist at the site or that will result from construction of the proposed action. Further, the level of detail provided in the documentation is not sufficient to support the validity of the parameters used in the analysis. Based on these factors, the analysis cannot be relied upon in quantifying potential impacts to land and water from increases in pollutant loads or in demonstrating adequate mitigation. Without a reasonable analysis that is supported by currently accepted data and literature, as stated above, DEP cannot support a finding to approve this action under SEORA. The following bullets are provided to support this conclusion:
 - The pre- and post-development drainage area maps provided are at an inadequate scale and do not provide sufficient detail regarding existing and proposed surface coverage to demonstrate that pollutant loading coefficients are representative of the land use and that imperviousness has been reasonably estimated.
 - When applying the Simple Method, the Runoff Coefficient, Rv, is estimated using the formula Rv = 0.05 + 0.009(I). "I" is the percent of site imperviousness. The footnotes provided in the analysis indicate the percent impervious that was assumed for each land cover type. The percent of site imperviousness must not be assumed; it must be calculated based on the amount of impervious surface within the subject

drainage area. In addition, the assumptions are unreasonable. For example, "grass" cannot be assumed to be 25% to 35% imperviousness. In fact, for application of the Simple Method "grass" is typically considered 0% imperviousness. The applicant may have erroneously assumed that "I" is synonymous to "la" which is the Initial Abstraction in the TR-20 hydrology model.

- The coefficients are not applied appropriately for the Simple Method. Mean Concentration of Pollutant (C) is a pollutant concentration value for the specified land use. For appropriate use of the Simple Method, a C value that best represents the characteristic of the subject drainage area must be used. A land use area cannot be subdivided into its components (roof, pavement, grass, forest, etc.) and have a C value for each of these components. The land use category already accounts for the applicable components associated with that category in establishing its C value.
- The CPSWQ Exam Review Course Workbook is not an adequate source for referencing pollutant concentration values. To begin with, the citation is incorrect, as the table within the workbook properly cites the source of the information. More significantly, coefficients can be derived from data collected more recently using sources such as the National Stormwater Best Management Practice (BMP) database which includes significantly more data points and rigorous statistical analysis. Finally, sources such as the stormwater database provide justification for more specific land use types. Paved parking area may not have the same land use as a highway; therefore, the highway C value cannot be used for a paved parking area; grass areas associated with residential lawns have different coefficients than those on commercial sites, etc.
- The National Stormwater BMP database has been updated many times since the March 2000 edition cited in the analysis. Later editions include additional monitoring data, types of practices, and, in some cases, concentrations and removal efficiencies associated with additional pollutants of concern. It is unclear why an outdated source was used for this analysis and is unreasonable, given the availability of additional data.
- The analysis assumes 20% and 25% biological oxygen demand (BOD) removal
 efficiency for the stormwater management practices but provides no supporting
 documentation for this assumption. Absent this documentation, the assumption
 cannot be accepted as reasonable.
- 4. Moreover, it must be noted that the direct response to Comment 6 in Section C of the DSEIS is not acceptable. The response indicates that dissolved phosphorus will be removed by plant uptake in the pocket wetland yet provides no reference or documentation to support this claim, which is not widely supported in available literature. Furthermore, the response indicates that the paired practices will provide more than the minimum code requirements. In fact, two practices in series is considered the minimum requirement of the Watershed Regulations for drainage areas that are 20% or more impervious. As stated in DEP's original comment, regulatory compliance represents a minimum code requirement and does not constitute appropriate mitigation under SEQRA.

- 5. DSEIS Response 4: The revised construction sequence, although expanded, does not address DEP's prior comment concerning a construction sequence which can reasonably anticipate the means, methods and steps required to avoid adverse water quality impacts. Specific examples of which include, but are not limited to, the following:
 - The new sequence does not incorporate the demolition phase of the project and the corresponding detailed sequence of erosion and sediment control practices.
 - The new sequence is vague in addressing the order for converting the proposed temporary sediment trap to the final stage pocket wetland and sand filter.
 Furthermore, upon completion of the construction phase, conversion of the temporary trap to a permanent practice is often difficult and not necessarily always successful.
- 6. DSEIS Response 7: Rather than address DEP's concern regarding post-development increases in runoff volumes at design point #2, the project sponsor again cites stormwater regulatory requirements for mitigating peak flows but not of increases in runoff volumes. As previously stated, regulatory compliance, in this case mitigation of peak discharges, represents a minimum code requirement. It is not a substitute for taking a "hard look" at adverse impacts associated with the Kensico Reservoir that serves on average, 90% of the water supply for 8.4 million New York City consumers and several municipalities in Westchester County. Increases in runoff volume often result in significantly longer discharge periods, leading to impacts to land and water from saturated channel beds and/or erosion of stream banks. The response does not constitute a reasonable attempt at analyzing the impacts of the increased runoff volumes.
- 7. DSEIS Response 8: The DSEIS indicates that structural limitations preclude the use of a green roof. At a meeting with the project sponsor in April 2010, DEP informed the project sponsor that by incorporating a green roof, the requirement for a variance from Section 18-39 (a)(4)(iii) of the Watershed Regulations would be eliminated. Rather than make the necessary structural changes to the building design, stormwater runoff from the roof is instead directed to stormwater planters. To reiterate, review of the supporting calculations indicates that the stormwater planters are undersized for the tributary area. Undersized practices have been known to malfunction through several mechanisms such as scouring, flushing of filter media, and plant die-off. As designed, these practices do not meet minimum regulatory standards much less demonstrate mitigation of potential impacts.
- 8. DSEIS Response 9: DEP previously commented that 14,000 square feet of wetland and buffer enhancement may not adequately mitigate the proposed impacts. Due to a reduction in the building footprint, the area available for enhancement increased by 19,500 square feet. When considering only new impervious surfaces in the buffer, this is a mitigation ratio of 1.28:1; however, the project sponsor did not include the creation of stormwater features as permanent buffer disturbance. When factoring in new impervious surfaces and stormwater features, the total area of new disturbance is 57,327 square feet, which renders the proposed mitigation ratio to 0.34:1. Given that the grading and construction activities will result in a permanent change in the buffer conditions, the stormwater features should

be included in the total acreage of disturbance. In addition, the likelihood of maintaining less than 5% coverage by invasive species throughout the entire 19,500 square foot mitigation area is highly uncertain, given the challenges that invasive species pose, particularly in an urbanized landscape; therefore, DEP maintains that the proposed mitigation remains inadequate for the project impacts.

This claim is further substantiated regarding this concern as it relates to the Landscape Plan on drawing C-9:

- Although quantities of area appear to have been calculated for purposes of wetland and
 wetland buffer mitigation, it does not appear that this has translated into plant
 quantities for restoring those and other areas. The plans do not indicate whether there
 will be sufficient quantities of plants to capture each proposed planting area with
 vegetation as quantities of plants and seed mixes for each planting zone and the areas
 that are meant for cover was not provided for review.
- The Stormwater Planter Vegetation plant palette is virtually all wetland plant species. Although stormwater planter designs vary by whether they retain or allow flow-through of stormwater, the intention of many stormwater planter systems is to retain quantities of water temporarily during heavy precipitation events but to allow smaller events to flow through the surface to an underlying sand layer and the native soil during normal events (see NYSDEC guidance about green infrastructure practices at: http://www.dec.ny.gov/docs/water-pdf/swdm2010chptr5.pdf). Plant materials must tolerate both occasional inundation and drought conditions during the growing season and may best consist of plants normally found in a floodplain in our region. It has not been demonstrated that there are sufficient quantities of plants that will tolerate both periodic flooding and seasonal drought nor was a detail provided regarding planter construction or planting media. Again, this omission is compounded with the lack of information discussed in comment #1 above.

In conclusion, the proposed action remains an overzealous approach to development given the existing site constraints and potential for adverse impacts to water quality in Kensico Reservoir, particularly on property where a viable opportunity for sensible redevelopment exists. The project sponsor's assertion that further reductions or alternatives are not economically feasible and would not achieve the desired economic benefit is not a compelling argument given the potential for significant environmental impacts posed by this action.

DEP respectfully submits this letter to the Board as Lead Agency in the coordinated SEQRA review. You may reach the undersigned at cgarcia@dep.nyc.gov or (914) 773-4455 with any questions or if you care to discuss the matter further.

Sincerely,
Cypthin Lacia

Cvnthia Garcia

SEQRA Coordination Section

C: SEQRA Unit, ACOE

- D. Whitehead, NYSDEC
- E. Burroughs, WCDP
- J. Nash, AKRF Engineering, P.C.
 D. Warne, Assistant Commissioner DEP
- P. Bein, Watershed Inspector General



TOWN OF NORTH CASTLE WESTCHESTER COUNTY 17 Bedford Road Armonk, New York 10504-1898

PLANNING DEPARTMENT Adam R. Kaufman, AICP Director of Planning

Telephone: (914) 273-3542 Fax: (914) 273-3554 www.northcastleny.com

To: North Castle Planning Board

From: North Castle Planning Department

Kellard Sessions, Consulting Town Engineer

Date: March 18, 2016

Subject: Park Place at Westchester Airport SDEIS – Completeness Review [09-032]

The Planning Department and Town Engineer have reviewed the revised SDEIS submission for the above-referenced projected dated March 2016 to determine its adequacy in regard to scope and content based on the March 9, 2015 Positive Declaration and February 2016 Planning Department, Town Engineer and Planning Board completeness review comments.

It is noted that the SEQRA regulations require that a supplemental EIS be subject to the full procedures required for any other EIS. Accordingly, the Planning Board will need to review the draft supplemental EIS to determine whether the document is adequate for public review; once the draft supplemental EIS is accepted, the Planning Board must notice and conduct a public review period; the Planning Board has previously determined to conduct a hearing on the supplement; the lead agency must respond to comments on the SDEIS and prepare a final supplemental EIS including comments plus responses; the Planning Board will then need to file notice of the completion of the document; finally, the Planning Board will must then make their findings.

As previously stated, the SDEIS proposed a further reduced Proposed Action in an effort to mitigation potential significant adverse environmental impacts. Specifically, the size of the garage has been reduced from 1,450 spaces in the DEIS, to 1,380 spaces in the FEIS and is now proposed at 980 spaces in the SDEIS.

We offer the following comments on the adequacy of the resubmitted SDEIS:

- 1. Page 7 and Comment 40 of the SDEIS contains a discussion of the FAA Determination of No Hazard to Air Navigation and associated Advisory Recommendation. The SDEIS should be revised to state that the Lead Agency will need to determine whether there are any significant adverse impacts associated with permitting this type of discouraged use within the RPZ.
- 2. Page 3 1st paragraph "park" should be revised to state "part" and "dripping" should be revised to state "drippings."

- 3. Page 6 "This road widening is required to provide a uniform driveway width..." should be replaced with "A portion of the proposed increase in impervious surface within the 100-foot limiting distance is required for road widening to provide a uniform...
- 4. Response 9 should be revised to replace "The proposed Wetland and Buffer Enhancement Plan..." with "In the Applicant's opinion, the proposed Wetland and Buffer Enhancement Plan..."
- 5. Response 16 should be revised to replace "Therefore, it is not a "loss" of buffer..." with "In the Applicant's opinion, therefore, it is not a "loss" of buffer..."
- 6. Response 18 should be revised to include a period before "Considering the Town requirements..."
- 7. Response 48 should be revised to replace "The Erosion and Sediment Control Plan has been revised and, is compliant with..." with "The Erosion and Sediment Control Plan has been revised and, in the Applicant's opinion, is compliant with..."

With the above minor changes, the Planning Department and Town Engineer feel that the resubmitted document adequately addresses the issues raised in previous reviews and suggests that the Planning Board issue a Notice of Completeness and schedule a public hearing for the SDEIS. SEQRA requires that a notice of public hearing be published at least 14 calendar days in advance of the public hearing and that the public hearing commence no less than 15 calendar days or no more than 60 calendar days after the Planning Board determines the document complete.

Adam R. Kaufman, AICP Director of Planning

 $F: \label{lem:comments} F: \label{lem:comments} In uary 2016 2nd Completeness Review of SDEIS - Airport Garage. doc$

TECHNICAL COMMENTS OF DONALD LAKE, P.E., PREPARED ON BEHALF OF THE OFFICE OF THE WATERSHED INSPECTOR GENERAL CONCERNING THE DRAFT SUPPLEMENTAL ENVIRONMENTAL IMPACT STATEMENT FOR THE PARK PLACE AT WESTCHESTER AIRPORT PROJECT

April 26, 2016

The WIG Office submitted comments to the Planning Board concerning the DEIS for this project on June 1, 2011 and the FEIS on February 19, 2015. The March 2016 draft supplemental environmental impact statement (DSEIS) partially addresses our previous comments and those of others. However it does not include a revised project design and stormwater pollution prevention plan (SWPPP), which are needed to fully address our comments.

I reviewed the following documents concerning the DSEIS for the Park Place at Westchester Airport project:

- 1. DSEIS Park Place at Westchester Airport, March 2016, by AKRF, Inc. This includes Appendices A through F.
- 2. Revised FEIS Submission Drawings located as Appendix C, Drawings, in Appendix G of the FEIS dated 12/9/14, as follows:
 - a. C-1, Notes Plan, 12/18/15
 - b. C-2, Existing Condition Plan, 12/18/15
 - c. C-3, Existing Steep Slope Analysis, 12/18/15
 - d. C-4, Demolition Plan, 12/18/15
 - e. C-5. Site Plan. 12/18/15
 - f. Paving, Grading, and Drainage Plan, 12/18/15
 - g. Composite Utility Plan, 12/18/15
 - h. C-8a, Erosion and Sediment Control Plan-Sequence 1, 12/18/15
 - i. C-8b, Erosion and Sediment Control Plan-Sequence 2, 12/18/15
 - j. C-8c, Erosion and Sediment Control Plan-Sequence 3, 12/18/15
 - k. C-9, Landscape Plan, 12/18/15
 - 1. C-10, Standard Details I, 12/18/15
 - m. C-11, Standard Details II, 12/18/15
 - n. C-12, Standard Details III, 10/15/14
 - o. C-13, Standard Details IV, 10/15/14
 - p. C-14, Standard Details V, 10/15/14
 - q. C-15, Layout Comparison, 12/18/15
 - r. A-3, Elevations/Buildings Section, 4/21/15

Part I of these technical comments addresses those of our previous comments that were not adequately addressed in the DSEIS. Part II discusses the revised pollutant loading analysis included in the DSEIS. Part III provides additional technical comments on the Project.

As discussed below, among other problems with the DSEIS, the sponsor has chosen not to supply the necessary details to complete a thorough review of the stormwater issues at the site until the final site plan design and review stage. Accordingly, the latest draft of the SWPPP, which is found in Appendix G of the FEIS, needs to be retitled as a Preliminary SWPPP. This SWPPP should be revised in accordance with the comments below and made subject to further public review under SEQRA.

I. Prior WIG Comments That Have Not Been Satisfactorily Addressed

1. <u>Water Resource Encroachment:</u> WIG 6/1/11 comments, items II-21, 24, 25, and WIG 2/19/15 comments, item III.1. These comments are discussed in the DSEIS, Comments 16 and 17, page 17, Section C, DSEIS.

This issue has not been fully addressed. Although overall project disturbances have been reduced, there is still a significant amount of new impervious area proposed at the site and within the New York City Department of Environmental Protection (DEP) regulated watercourse buffer. As shown in Table I, page 4, of the DSEIS, the planned increase in impervious area at the site substantially exceeds 25% of the existing condition. DEP regulations prevent the creation of new impervious areas within the buffer for the on-site watercourse. *See* DEP Watershed Rules and Regulations, Section 18-39.a.4.iii. The Project needs to be scaled down further to comply with the regulations.

2. <u>Hydrology:</u> WIG 2/19/15 comments, items 2a, 2b and 2c, discussed in the DSEIS, Comments 18 and 19.

The sponsor used the USDA Soil Conservation Service Type 3 rainfall distribution in the DSEIS, but this is no longer valid in New York. The hydrology should be recalculated to insure that the project is properly sized for the current rainfall data.

3. <u>Inconsistencies between Drawings & HydroCAD Analysis:</u> WIG 2/19/15 comments, item 3, discussed in the DSEIS, Comment 20.

Although this issue was addressed in the DSEIS, it most probably will need to be addressed in the FEIS once the hydrologic analysis is corrected (see technical comment 2 above).

- 4. <u>Comments Deferred to Site Plan Review</u>: A significant number of previous WIG comments have not been answered. The DSEIS states that they will be addressed later on as part of the site plan review. These unaddressed comments are:
 - a. WIG 6/1/11 comments, item 11, Temporary conveyances (DSEIS, Comment 27)
 - b. WIG 6/1/11 comments, item 12, Curve number (DSEIS, Comment 28)
 - c. WIG 6/1/11 comments, item 13, Structural details table (DSEIS, Comment 29)
 - d. WIG 6/1/11 comments, item 14, Flow splitter detail (DSEIS, Comment 30)
 - e. WIG 6/1/11 comments, item 15, Stormwater planters (DSEIS, Comment 31)
 - f. WIG 6/1/11 comments, item 16, Pocket wetland profile (DSEIS, Comment 32)
 - g. WIG 6/1/11 comments, item 17, RRv calculations (DSEIS, Comment 33)
 - h. WIG 6/1/11 comments, item 18, Tc Flow path (DSEIS, Comment 34)
 - i. WIG 6/1/11 comments, item 19, Kv and n values (DSEIS, Comment 35)
 - j. WIG 6/1/11 comments, item 20, Sand filter pre-treatment (DSEIS, Comment 36)
 - k. WIG 2/19/15 comments, item 3b, Quality control check (DSEIS, Comment 21)
 - 1. WIG 2/19/15 comments, item 8, Structure Type ES6 (DSEIS, Comment 26).

Many of the engineering processes, calculations and details that the Sponsor wishes to defer until site plan review after the SEQRA process affect design balance and the proper proportioning of the project. Without the missing information it is not possible "to connect the dots" and make sure that what is being proposed will actually perform as required. If changes are necessary at the final step, due to unanticipated constraints, criteria for prevention of pollution may be compromised and an inadequate option accepted. The needed information listed above should have been available as part of the DSEIS and appurtenant documents so a full review could have been completed. Because the Sponsor did not provide this information for the DSEIS, it should be subject to further review and comment by the public.

II. Pollutant Loading & Stormwater Retrofits, (WIG 2/19/15 comments, item 4. DSEIS, Comment 22).

This issue has been partially addressed, but cannot be resolved until missing design details are provided. A revised pollutant loading analysis, dated 12/30/15, was submitted to us in April 2016 as Appendix B of the DSEIS. Instead of using the outdated values presented in Appendix B of the DSEIS, I completed an analysis of the site using updated event mean concentration values and pollutant removal rates (see March 5, 2015 East of Hudson Watershed Corporation Stormwater Retrofit

Project Design Manual). I also corrected the annual rainfall amount and adjusted the Rv value to 0.95 for impervious area instead of 0.932 used in Appendix B. With two stormwater management practices arranged in series (a sand filter with a pocket wetland) to receive stormwater runoff from five of the eleven post-developed subareas, and a pocket wetland for two others, there is a significant reduction of total phosphorus from the existing condition. Individually, the sand filter has a total phosphorus removal allowance of 59%, and a pocket wetland has a 57% removal allowance. Together in series they have a calculated total phosphorus removal rate of 82%. My calculations show an existing total phosphorus load equal to 9.25 pounds; a post-developed load of 11.64 pounds; and a post-developed load with a stormwater management program treatment equal to 5.20 pounds. This is a 44% reduction from the existing condition. No pollutant reduction consideration was allowed for the green infrastructure practices, stormwater planters or porous pacers, since supporting sizing calculations were not provided. (These practices may not be able to treat the full water quality volume draining to them.)

The foregoing analysis assumes that all stormwater management practices will be designed to the criteria required in the current New York State Stormwater Design Manual (January 2015). But we do not know whether this is the case because the design details needed to prove it have not been provided. Specifically, the entire list of design information in Section I.4.above (other than items I.4.a. and I.4.k) are needed. These should be included in a revised SWPPP made subject to public comment.

III. Additional Technical Comments

- 1. Note 6 for Construction Sequence 3 on both Engineering Drawings C-1 and C-8C in Appendix C, Drawings of Appendix G, of the FEIS labeled Stormwater Pollution Plan Summary, refers to a wet pond. This notation needs to be changed to Pocket Wetland.
- 2. Engineering Drawing C-13 in Appendix C, Drawings, as noted above, shows an elaborate profile for a wet pond stormwater practice. However this stormwater practice has been replaced by a pocket wetland system. The profile for a wet pond stormwater practice needs to be replaced with a profile for the designed pocket wetland system on Engineering Drawing C-13.

Comments of the Office of the Watershed Inspector General

Draft Supplemental Environmental Impact Statement
Park Place at Westchester Airport
Town of North Castle
Westchester County, New York

April 26, 2016

The Office of the Watershed Inspector General (WIG or WIG Office)¹ respectfully submits these comments on the draft supplemental environmental impact statement (DSEIS) concerning Park Place at Westchester Airport (Park Place or Project). Park Place entails construction of an automated parking facility at a site only six hundred feet from New York City's Kensico Reservoir within the Town of North Castle. The WIG Office submits these comments because construction and development of Park Place could result in significant adverse impacts to the Kensico Reservoir, a critically important component of the City's drinking water supply system.²

To mitigate these risks, the Project design and stormwater pollution prevention plan (SWPPP) need to be modified, subject to further public review and comment. As discussed below and in the attached technical comments by the WIG's expert, Donald Lake, P.E., the Project would create new impervious surfaces within the buffer of an on-site watercourse. The watercourse is located only several hundred feet upstream of the Kensico Reservoir, and the proposed incursion into its buffer breaches the Watershed Rules and Regulations of the New York City Department of Environmental Protection (DEP). In addition, the SWPPP is incomplete and preliminary because the Sponsor has not supplied important design details. Accordingly, the Sponsor has not met its burden to show that the Project will prevent stormwater pollution of the Kensico Reservoir as required by law.

¹ The position of WIG was established by the New York City Watershed Memorandum of Agreement and implemented through successive Executive Orders of four governors, most recently pursuant to 9 NYCRR § 8.2, "to enhance current efforts to protect the New York City drinking water supply from activities that have the potential to adversely affect the New York City Watershed reservoirs and tributaries." See 9 NYCRR §§ 5.86, 6.5, 8.2. The WIG reviews and comments on development projects within the Watershed pursuant to the WIG's obligation to "recommend legislative, regulatory and management practice changes . . . relating to the use, operation and protection of the Watershed." 9 NYCRR §§ 5.86, 6.5, 8.2.

 $^{^2}$ These comments follow previous WIG comments filed with the Town of North Castle Planning Board concerning the Project's DEIS on June 1, 2011, and FEIS on February 19, 2015.

I. The Overriding Importance of the City's Kensico Reservoir

The Kensico Reservoir is an extraordinarily critical component of New York City's unfiltered drinking water supply system. All water collected by the City in its West-of-Hudson Catskill and Delaware watersheds empties into the Reservoir. This means that between 90 and 100 percent of the water consumed by approximately 9 million New Yorkers each day is stored in the Reservoir before it is distributed to consumers following disinfection. Keeping Kensico Reservoir water clean is of the utmost priority, and new development projects within the Reservoir's watershed must be strictly scrutinized to ensure that they do not pollute the water.³

Construction and development projects adjacent to the Kensico Reservoir, such as Park Place, may result in stormwater runoff containing various pollutants, including suspended sediment, which contributes to turbidity (murkiness) in the water and serves as a carrier of other pollutants, such as nutrients, metals, organic compounds, and pathogens. Turbidity is not only associated with the transportation of pollutants; it also shelters pathogens from exposure to attack by chlorine, a disinfectant routinely used in the Kensico Reservoir to protect public health. In addition, the organic particles that contribute to turbidity can also combine with chlorine to create disinfection by-products which may increase the risk of cancer or early term miscarriage for people drinking the water.⁴

The potential for harm to water quality in the Kensico Reservoir is heightened by the fact that its water is unfiltered. Pursuant to the federal Safe Drinking Water Act, 42 U.S.C. § 300f et seq. (Act), the Environmental Protection Agency (EPA) promulgated the Surface Water Treatment Rule, which requires that a public drinking-water system maintain clean water either by installing a filtration system or by meeting criteria, including a "watershed control program," to protect the quality of the water in the absence of filtration. See 40 C.F.R. §§ 141.70, 141.71. Water from the Kensico Reservoir has remained unfiltered, pursuant to a series of filtration avoidance determinations issued by EPA and the New York State Department of Health (DOH) under the Act and the New York Public Health Law. Those determinations require New York City to control its watershed by acquiring land, implementing its Watershed Rules and Regulations, and

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³ New York City's remaining surface water supply comes from the Croton watershed. Because of widespread development in that watershed, the City has had to build a filtration plant for Croton water.

⁴ See National Research Council, "Watershed Management for Potable Water Supply: Assessing the New York City Strategy" (2000) at 2, 5-6, 102-05, 109.

developing a variety of other programs intended to keep the water clean and safe.

The Act strictly regulates discharges of turbid water and pathogens into the Reservoir. It restricts turbidity in the "raw water" (before entry into the distribution system) to no more than 5 nephelometric turbidity units. See 40 CFR § 141.71(a)(2). In addition, because of the health risks associated with pathogens in a drinking water supply, EPA requires that each unfiltered water system meet strict requirements "ensuring that the system is not a source of a waterborne disease outbreak." 40 C.F.R. § 141.71. Violations of the Act's standards concerning turbidity and pathogens could provide grounds for DOH, which holds primacy in enforcing filtration avoidance requirements, to require the City to filter the Kensico Reservoir's water. Constructing a filtration plant would be extremely burdensome for City and State taxpayers, costing well over 10 billion dollars.

II. The Project Should be Modified and Made Subject to Further Public Review

The WIG previously participated in SEQRA review of the Project through comments on the DEIS and the FEIS. While the Sponsor has adequately addressed some of the WIG's previous comments, significant problems remain.

a. <u>Impervious Surfaces in the Watercourse Buffer</u>

As Mr. Lake explains in his attached comments, Park Place in its present version would increase impervious areas within the DEP-regulated watercourse buffer in breach of DEP's Watershed Rules and Regulations. The Sponsor is seeking a variance from DEP excusing its noncompliance. The WIG Office believes that a variance should be denied. Impervious surfaces are generally excluded from watercourse buffers because they facilitate increased downstream flow of polluted stormwater runoff. A variance here would be especially inappropriate given the watercourse's location, just several hundred feet upstream of the critically important Kensico Reservoir. Moreover, the Sponsor acquired the site at its own risk. It was certainly on notice that applicable regulations prohibited creating impervious surfaces in watercourse buffers. Nevertheless, it invested in the Park Place development despite the patent financial risks. Accordingly, the Sponsor cannot complain of any hardship in having to comply with the regulations.

b. The SWPPP for Park Place is Deficient and Should be Revised with Further Public Review Under SEQRA

As explained in detail in our technical comments, the SWPPP for Park Place is incomplete and preliminary because the Sponsor has chosen not to address at this time important engineering processes, calculations and details that are required by the DEC SPDES General Permit for Stormwater Activity from Construction Activity, Permit No. GP-0-15-002 (effective January 29, 2015) (General Permit). The Sponsor wishes to defer developing this information and providing it to the Planning Board and the public until the site plan review stage, after the SEQRA process (with its opportunity for public comment) has concluded.

But without this information, the Sponsor cannot demonstrate, and the Planning Board cannot find, that the Project will prevent stormwater pollution of the Kensico Reservoir as required by applicable State technical standards for erosion and sediment control and stormwater management. The missing information, assuming it is eventually provided, may well disclose further deficiencies in the SWPPP whose correction may require significant changes to the Project design as well as to the SWPPP itself.

The SWPPP should be revised to provide the missing information, in accordance with our technical comments. Environmental review under SEQRA must be comprehensive; it must cover all "relevant areas of environmental concern." Har Enterprises v. Town of Brookhaven, 74 N.Y.2d 524, 529 (1989). In the context of a development project in a very sensitive watershed, such as Park Place, SEQRA review must thoroughly address pollution impacts that "might adversely affect nearby water supplies." Inland Vale Farm Co. v. Stergianopoulis, 65 N.Y.2d 718, 720 (1985). That thorough review must encompass environmental impacts relating to stormwater. Matter of Pheasant Meadow Farms, Inc. v. Town of Brookhaven, 31 A.D.3d 770 (2d Dep't 2006).

SEQRA requires that the lead agency take a "hard look" at the potential environmental impacts of its discretionary actions. Jackson v. New York State Urban Dev. Corp., 67 N.Y.2d, 400, 417 (1986). A hard look is not taken when a planning board defers review of information essential for assessing the project's potential environmental impacts to a later stage in the approval process. Penfield Panorama Area Community, Inc. v. Town of Penfield Planning Board, 253 A.D.2d 342, 349-50 (3d Dep't 1999). As the court found in Penfield Panorama, the necessary information should be made available as part of the SEQRA process to avoid shielding it from public scrutiny. Id. This principle applies especially where, as in Town of Red Hook v. Dutchess County Resource Recovery Agency, "various issues with respect to

water concededly require further study." *Id.*, 146 Misc.2d 723, 728-29 (Sup. Ct. Dutchess Cty. 1990) (FEIS and findings statement annulled).

* * * *

In conclusion, the WIG Office respectfully recommends that impervious areas should be removed from the watercourse buffer and that the SWPPP be revised to reflect needed information required by State law. All these changes should be subject to public review and comment under SEQRA.

Respectfully submitted,

Philip Bein

Watershed Inspector General

Scientist

New York State Attorney General's Office

The Capitol Albany, New York 12224 (518) 776-2413 Charles Silver Ph.D.

Charles Silver, Ph.D.

Watershed Inspector General

New York State Attorney General's Office The Capitol Albany, New York 12224 (518) 776-2395

Attachment



Robert P. Astorino County Executive

County Planning Board

April 18, 2016

Adam R. Kaufman, AICP Director of Planning Town of North Castle 17 Bedford Road Armonk, NY 10504-1898

Subject: Referral File No. NOC 16-003 — Park Place at Westchester Airport

Draft Supplemental Environmental Impact Statement

Zoning Text Amendments, Site Plan & Special Permit

Dear Mr. Kaufman:

The Westchester County Planning Board has received a draft supplemental environmental impact statement (SEIS) (dated accepted March 21, 2016) prepared pursuant to the NYS Environmental Quality Review Act (SEQR) for the above referenced actions. Included as an appendix to the draft SEIS are site plans, dated revised December 18, 2015.

The proposed development involves the construction of a privately-owned automated parking garage on a 3.3-acre site located at 11 New King Street, to the north of the Westchester County Airport. The site contains one tax lot (2.47 acres) and a 0.87-acre portion of an adjacent lot that will be used for the construction of stormwater management infrastructure by way of a drainage easement. The site currently contains a 9,700 square foot office building which would be demolished. The site is encumbered with a significant amount of wetlands, as well as a watercourse which drains to the Kensico Reservoir (Rye Lake) through the rear (west side) of the site.

While the project was initially proposed as a 1,450 space automated parking garage with a car wash, the project has been revised further to reduce the building footprint so as to not encroach on any of the onsite wetlands. As a result, the car wash is no longer proposed and the garage has been reduced to 980 spaces. Building height has also been reduced from to 53 feet from 56 feet initially proposed. Some initially proposed green building elements, such as a rooftop solar array, are no longer proposed.

The applicant is petitioning the Town for an amendment to the text of the Zoning Ordinance to allow parking structures in the Industrial AA (IND-AA) zoning district as a special permit use. The petition also proposes raising the maximum allowable building height in the IND-AA district to 60 feet, where 30 feet is the current maximum. If the zoning amendments are approved, the applicant would then proceed with site plan and special permit applications.

Fax. (914) 995-9098

Website: westchestergov.com

Telephone: (914) 995-4400

Referral File No. NOC 16-003 — Park Place at Westchester Airport Draft Supplemental Environmental Impact Statement

April 18, 2016

Page 2

The County Planning Board has reviewed the draft SEIS under the provisions of Section 239 L, M and N of the General Municipal Law and Section 277.61 of the County Administrative Code.

Our review continues to find significant concerns about the compatibility of the proposed development with the need to protect people and property on the ground within certain zones around the airport. We consider it incumbent upon the Town of North Castle to place these concerns in the forefront when making decisions about what land uses should be permitted in runway protection zones. As the sole entity with land use authority at this location, it is the Town's responsibility to ensure that its land use controls and decisions protect public safety.

The County Planning Board's review raises serious concerns about the prudence of amending the Town Zoning Ordinance to allow the processing of the proposed development. We offer the following comments:

1. Location within runway protection zone for Westchester County Airport. As we noted previously in several of our previous response letters to this proposal, the location of the proposed parking garage is within the runway protection zone (RPZ) for runway 16 at the County Airport. Because the County is responsible as a sponsor for grants received from the FAA, the FAA has recommended that the County take action to the extent reasonable to discourage development within the RPZ.

We call your attention to the attached letter submitted to you from Peter Scherrer, Airport Manager of the Westchester County Airport.

2. Wetland, stormwater and water quality impacts. While the draft SEIS responds to a number of our concerns with respect to wetland, stormwater and water quality issues, the stormwater management plan continues to show extensive site disturbance within wetland buffer areas. Because the site is in close proximity to the Kensico Reservoir and contains a watercourse which drains directly to the reservoir, the Town must take a hard look at the impacts to water quality before issuing approvals for the proposed plans.

Thank you for calling this matter to our attention.

Respectfully,

WESTCHESTER COUNTY PLANNING BOARD

Edward Buroughs, AICP

Commissioner

EEB/LH

cc: Cynthia Garcia, Bureau of Water Supply, SEQR Coordination Section, NYC DEP Christoper Lee, NYS Department of Transportation, Region 8



Victor Sapienza Acting Commissioner

Paul V. Rush, P.E. Deputy Commissioner Bureau of Water Supply prush@dep.nyc.gov

465 Columbus Avenue Valhalla, NY 10595 T: (914) 749-5255 F: (914) 749-5477

March 27, 2017

Mr. Adam Kaufman, Director of Planning Town of North Castle 17 Bedford Road Armonk, NY 10504-1898

Re: Park Place at Westchester Airport Draft FSEIS
11 New King Street
Town of North Castle, Westchester County
Tax map#: 119.-03-1-1 & 118.02-2-3
DEP Log #:2008-KE-2045-SO.1

Dear Mr. Kaufman and Members of the Planning Board:

The New York City Department of Environmental Protection (DEP) has received the Draft Final Supplemental Environmental Impact Statement (FSEIS), prepared by AKRF, Inc., last revised February 2017 for the above-referenced action.

DEP appreciates the early opportunity to review the submitted documents that included an Excerpt and Stormwater Pollution Prevention Plan (SWPPP) prepared by AKRF, Inc., last revised December 2016. Based upon this review, DEP offers the following comments in order of responses:

- 1. With regard to the footnote on page 1-2 of the Draft FSEIS, DEP would like to further explain the applicable sections of the *Rules and Regulations for the Protection from Contamination, Degradation, and Pollution of the New York City Water Supply and Its Sources* (Watershed Regulations). Section 18-39 (a) (1) of the Watershed Regulations generally prohibits locating new impervious surfaces within 100 feet of watercourses and wetlands. As previously discussed, an exemption from this prohibition is provided in Section 18-39 (a) (4) (iii) of the Watershed Regulations that allows for an expansion of impervious surfaces provided they do not exceed 25% of the area of the existing impervious surfaces at that commercial, institutional, municipal, industrial, or multi-family residential facilities if any part of the expansion is within the limiting distance.
- 2. Expansion of newly proposed impervious surfaces includes all impervious surfaces proposed outside the footprint of the existing impervious surface, not simply the net difference between pre- and post-development conditions. For the purposes of determining the percent expansion of impervious surface, the new impervious cover for all phases of the project, both on and off-site, must be considered. This information is not clearly presented in the submission and

currently is unknown. The Draft FSEIS and plans shows a net increase of impervious surface in the post-development condition that is outlined in Table 1-1 Summary of Project Modifications. It is imperative that DEP's perspective on this is clearly understood. In order to analyze and compare the total allowable impervious area correctly, the following information is required:

- A comprehensive tabulation of impervious areas that will be redeveloped with currently impervious areas,
- Impervious areas that will be converted to pervious cover, and
- Existing pervious areas that are to become impervious areas.
- A color coded overlay plan with this tabulation detail would better explain to the agency whether a variance request is needed or not.

Utilizing the tabular information, the amount of pervious area that will be converted to impervious area must then be compared to the amount of existing impervious area to determine the amount of the proposed expansion. This information will be the basis in determining whether a variance request is necessary.

DEP recognizes that the proposed parking garage structure has been reduced in size, yet the final jurisdictional determination cannot be made without this information.

- 3. Response to DEP Comment 61references Appendix K, yet the results of the soil borings were not provided. Please include the requested information in order to verify the depth and separation of groundwater and bedrock.
 - Also, in reference to the response to Comment 61, the detail for the proposed flow through planter must show the minimum width associated with this practice.
- 4. With regard to the response to Comment 62, it should be noted that runoff reduction must be applied to each subcatchment prior to discharge into a standard stormwater management practice, unless that standard practice has runoff reduction capability per the *New York State Stormwater Management Design Manual* (Design Manual). Please have the project sponsor demonstrate that runoff reduction is provided for each subcatchment rather than for the overall site.
- 5. As previously requested, please have the project sponsor provide a larger scale drainage area map in order to assess the hydrologic and pollutant loading characteristics based on the existing and proposed surface coverage. Please note that while the East of Hudson Watershed Corporation (EOHWC) Manual may apply to stormwater retrofit projects, it may not be appropriate for use in estimating pollutant loading or removal efficiency for new development or redevelopment projects; therefore, the response to comment 64 cannot be accepted. Without a reasonable analysis based on an acceptable reference source, DEP cannot support a finding to approve this action under SEQRA. The bullets provided in the previous DEIS comment 63 must be addressed appropriately and demonstrate adequate mitigation.

- 6. With regard to the response to Comment 65, some post development drainage areas that will be 20% or more impervious in the post development scenario do not include two stormwater management practices in series as required to capture and treat the newly proposed impervious surfaces in cases where the green infrastructure practice applied does not fully reduce the water quality volume generated in the drainage area. For example, in post development subcatchment areas 2E and 2B do not appear to be fully treated as per the Watershed Regulations and Design Manual.
- 7. The construction sequence must include appropriate steps necessary for the removal of contaminated soils. The demolition phase must include details on the method for soil remediation upon completion of the removal of contaminated soil that are keyed to appropriate erosion and sediment control practices.
- 8. As designed, the proposal indicates that the runoff volumes at design points DP3 and DP1 will be significantly reduced post development while volumes at DP2 will significantly increase. As such, it must be demonstrated that the impacts to receiving waters (e.g., changes to the hydrologic regime, wetland plants, habitat, etc.) have been adequately assessed and appropriate mitigation provided.

Thank you again for your consideration. You may reach the undersigned at <u>cgarcia@dep.nyc.gov</u> or (914) 749-5302 with any questions or if you care to discuss the matter further.

Sincerely, Cypethen Lances

Cynthia Garcia, Supervisor

SEQRA Coordination Section

C: J. Seeney, P.E., AKRF Engineering, P.C.

D. Warne, Assistant Commissioner DEP

P. Bein, Watershed Inspector General

Sierra Club

Lower Hudson Group New York State Airport Committee Chair Ted Anderson

April 24, 2016

Mr. Adam Kaufman, AICP Director of Planning Town of North Castle 17 Bedford Road Armonk, New York 10504-1898

Re: Park Place at Westchester Airport; 11 New Kings Street, North Castle, New York

Dear Mr. Kaufman, Mr. Delano chair and members of the North Castle Planning Board:

We address you today regarding our concern about the proposed construction of a 980 space Parking Complex. We are representing the New York State Sierra Club. As citizens and tax payers we all use this drinking water from the Kensico-Rye Reservoir which can be severely affected by building this parking complex.

The property is next to the Westchester County Airport, which already has a parking garage with 1250 spaces. The applicant gives the reason for an amendment to Zoning ordinance "to address the shortage of parking at Westchester County Airport". According to the airport manager there is no need for additional spaces.

The Westchester County Airport is on the shores of the Kensico-Rye Reservoir. We know that with today's environmental laws this airport would have not have been allowed to be built. With the stress of additional construction in the Kensico-Rye Reservoir watershed the reservoir's capacity to assimilate pollution will have reached a tipping point forcing a water filtration plant to be mandated. Former Department of environment protection Water Commissioner Christopher Ward has stated that this proposed parking garage would add significantly to that stress.

Three governing bodies our own Westchester County Legislature, The New York State Assembly and New York State Senate have all passed resolutions calling for the non expansion of the Westchester Count Airport including its parking.

This proposed parking garage goes against the combined wisdom of federal agencies and our local and state legislatures and many environmental organizations concerned with the protection of our Kensico's critical drinking water supply.

A hydro-geologist, Peter Dermody clearly stated that this proposed project, in the town of New Castle is in a designated wetland buffer area within the 300 foot protection zone around the Kensico-Rye Reservoir system operated by New York City Department of Environmental Protection.

This King Street proposed parking construction will require the disregard of layers of protective environmental regulations. These have been established for the protection of water quality within the wetland buffers of the reservoir. The proposed detention basin built in the wetland buffer zone, will concentrate the contaminants into the wetland's ground water and thus the reservoir.

According to SEQRA regulations and case law (see documented Richard Lippes legal brief pages 3-5 attached) only the North Castle Town Board has the ultimate decision making power and therefore only this body has the authority to undertake both investigation and decision making under SEQRA law.

It is our conclusion that this proposed King Street parking complex while not directly on airport property will be built solely to promote greater parking to the airport, encourage airport expansion and gravely increasing the threat to the Kensico-Rye Reservoir water quality forcing the EPA to rescind our prized filtration avoidance declaration.

The New York State Sierra Club Airport Committee recommend strongly a no-build outcome.

Sincerely,

Chair of the New York Sierra Club Airport Committee

Co-chair Sierra Club Lower Hudson Group **Executive Committee** Lower Hudson Group

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April 25, 2016

Chairman John Delano and Members of the Planning Board Town of North Castle 17 Bedford Road Armonk, NY 106504

Re: Park Place at Westchester County Airport - Draft Supplemental Environmental Impact Statement

Dear Chairman Delano and Members of the Board,

Cleary Consulting has been retained by the Sierra Club to review and comment on the Draft Supplemental Environmental Impact Statement (DSEIS) prepared by AKRK (March 2016) for the Park Place at Westchester County Airport.

The Project Review History section of the DSEIS indicates that the Planning Board directed the applicant to prepare the supplemental document to address 5 specific topics, as follows:

- 1. Obtain a new Federal Aviation Administration (FAA) "Determination of No Hazard" for the project. The previous determination expired, new rules governing development within the Runway Protection Zone (RPZ) have been issued, and the proposed height of the garage has been increased. Note: A new FAA Determination of No Hazard was received by the sponsor.
- 2. Address project elements and airport safety with respect to bird attraction associated with stormwater mitigation practices and sun glare from proposed rooftop-mounted solar panels.
- 3. Correctly identify the 'limiting distance' to the NYCDEP-mapped intermittent stream as 100 feet and potential adverse impacts from construction within this distance.
- 4. Issues raised in correspondence from Westchester County, NYCDEP, and the Watershed Inspector General. Note: Responses to these issues are included herein.
- 5. Prepare a new alternative for review where no portion, or a reduced portion, of the proposed garage building is located within the 100-foot limiting distance to the NYCDEP intermittent stream.

It is important to note that the Planning Board as Lead Agency has not yet adopted Findings. The submission by the applicant of the DSEIS does not supersede or eliminate the extensive concerns expressed during the prior review of the DEIS and FEIS, rather it merely supplements that review with new

studies addressing issues that were either overlooked or inadequately studied initially. It is therefore necessary to reemphasize the fundamental overall objections to the project before addressing the specific topics addressed in the DSEIS.

It is also useful to note the range and intensity of critical comments already generated concerning the project from organizations such as:

- Federal Aviation Administration
- New York State Department of Health
- New York State Office of Parks, Recreation and Historic Preservation
- Westchester County Board of Legislators
- Westchester County Planning Board
- New York City Department of Environmental Protection
- Office of the Watershed Inspector General
- Town of Greenwich
- Riverkeeper
- Sierra Club
- Croton Watershed Clean Water Coalition
- Natural Resources Defense Council
- Town of North Castle Conservation Board

This list does not include the numerous private property owners and entities that delivered critical comments ranging from Morgan Manhattan Storage Company to the Sisters of Charity. It is clear that extensive and broad opposition to this project exists.

A. GENERAL COMMENTS:

1. Need for and Size of the Proposed Parking Garage

A review of the DEIS, FEIS and SDEIS reveals general assertions that the existing 1,051 space parking garage located across from the airport terminal building is inadequate and does not meet the needs of airport passengers, and as such there is a <u>need</u> to construct additional parking. No supporting justification for the need of the new garage was addressed in the DEIS. Only after considerable comment during the public review of the DEIS, did the applicant attempt to address this deficiency by submitting a parking demand study, which was included in Appendix E of the FEIS¹. A careful review of the Walker report reveals that the most basic assumptions built into the parking demand analysis are questionable. As such, the FEIS fails to provide a persuasive and definitive argument for the need for the new parking garage. For example:

a. Walker's main assumption regarding the adequacy of the existing parking garage is flawed. Walker contends that the terminal building was originally proposed to be twice the size of

¹ Estimate for Potential Parking Demand for Prospective New Garage to Serve Westchester County Airport, Carl Walker, Inc., November 11, 2011.

the current facility, but was reduced in size due to public resistance and the stipulated ceiling of 240 passengers per half-hour. The reduced terminal size resulted in a corresponding reduction in the size of the parking garage. Parking demand is not a function of the size of the airport terminal building (as might be the case for other land uses, like an office building) but rather the parking demand is directly related to the number of passengers traveling in and out of the airport (which is legally capped at 240 passengers per half-hour). That limiting threshold has not increased, so why has the parking demand increased? Has the number of passengers per half-hour increased above the stipulated cap?

- b. Walker surveyed the utilization of the parking spaces in the existing airport terminal garage on two days in August of 2011. The garage was 96% full (with 46 open available spaces) on a Tuesday and 90% full (with 109 open available spaces) on a Wednesday. From this limited survey, Walker concluded that there is a need for an additional parking garage of over 1,000 spaces. How such a seemingly exaggerated conclusion was reached, was not specified. Furthermore, it could obviously be just as easily argued that the existing parking garage is properly sized, and adequately accommodates all passengers, with excess capacity of more than 100 spaces left over.
- c. The Walker study reveals that the airport's overflow lot was "not in operation" during their site visit, so it's operational characteristics could not be surveyed. Could it be because the overflow lot was not needed, and the existing parking garage and other methods of providing passenger access to and from the airport were adequately dealing with the existing demand?
- d. Another factor often cited as the basis for the need for an additional parking facility are passenger satisfaction surveys. These surveys indicate the need for more parking as the number one airport complaint. However, the method of providing that parking was not addressed. Obviously, every traveler would prefer a fairly priced parking space, located directly next to the terminal. However, if given the choice of a parking space in a remote parking garage, priced to meet private market demand, requiring a shuttle bus trip to get to the terminal, would that same traveler find that solution to be as suitable as the first choice?
- e. The Walker Study builds numerous assumptions into is projection of the demand for the new parking structure. Some are unsubstantiated and simply illogical. For example, Walker estimates that <u>30%</u> of passengers currently using the existing parking garage adjacent to the airport terminal building, will elect to utilize the new proposed off-site parking garage. They

claim this will be due to the "pricing advantage" and "better weather protection."

It is highly unlikely that a new, private, market-rate, state-of-the-art, automated parking facility will afford any "pricing advantage" over a public facility operated under the auspices of the Westchester County Government (and subject to public disclosure and bidding laws). And the claim of better weather protection is truly mystifying. A vehicle is either inside or outside. Presumably this applies to the existing single deck of roof-top parking (which is uncovered). Finally, it is hard to understand how anyone would actually prefer to park in a remote off-site lot, instead of within main parking facility, located adjacent to the terminal.

f. Numerous comments in the project record point to the conclusion that the proposed parking facility is effectively an expansion of the airport to private property located outside the airport grounds.

The response to this comment in the FEIS defaults to referencing the 2004 "Terminal Capacity Agreement" which limits the operating capacity of the airport to 240 passengers per half hour. Strict enforcement of this capacity threshold is critical to the well being of the areas surrounding the airport. However, if the infrastructural capacity of the airport is expanded to functionally accommodate higher operating capacity volumes, violations of the threshold capacity become much more likely. If you build it...

g. Correspondence from the County Board of Legislators (4/28/11) submitted in opposition to the project during the DEIS comment period included the following comment:

"Resolution No. 245-2003 specifically state the policy of the Westchester County Board of Legislators is an continues to be one of supporting no increase in the total capacity of the Airport's runways, taxiways, ramps, gates, hangers, terminal, **motor vehicle parking areas**, or access roads, in order that we may protect our fragile environmental, including the drinking water for almost nine million people..."

The proposed project is in direct conflict with this County resolution.

h. The FEIS notes "The proposed parking facility will be a privately owned and operated facility and would operate independently of Westchester County Airport." This statement is completely disingenuous. The parking facility would be constructed to support airport operations and 100 percent of its spaces would

be devoted to travelers and employees of the airport. There is no demand whatsoever for a private parking garage of the size proposed for any other uses in the area of the site. The garage is clearly intended soley for the airport, and as such is plainly an expansion of the airport's operational infrastructure

- i. The DEIS indicates that the "lack of parking has long been cited as one of Westchester County Airport's greatest deficiencies" and refers the reader to Appendix C. Appendix C consists of a 2010 press release from Westchester County concerning holiday travel, and a 2007 article from the Greenwich Times reporting on several disgruntled travelers experiences in being forced to park at remote lots instead of the main garage, and how that caused unanticipated travel delays. These sources hardly justify the need to construct a new parking facility.
- j. The discussion of the project need in the original DEIS indicates that "Existing parking provisions frequently do not meet existing demand" and that "... parking facilities are routinely at or near capacity, particularly during peak holiday travel periods." These conditions however, are not explained or quantified. How often does demand exceed capacity? By how much? If parking is unavailable and additional vehicle trips are necessary to accommodate pick-ups and drop offs, does that necessarily create an adverse impact on the roadway network given the fact that arrival and departure trips would typically be separated by multiple days when compared to the probably adverse impacts created by the construction of the parking facility on a significantly environmentally constrained site?
- k. It is also noted that the project need discussion in the DEIS indicates that the County Bee Line Bus System discontinued a direct airport service with the Airlink Shuttle "...due to low ridership." If indeed airport parking is so limited and problematic, it would be logical to conclude travelers would seek out alternative methods of getting to the airport (such as a direct bus connection). Discontinuing services seems to undermine arguments that parking is inadequate.
- 1. If, as noted in the DEIS, the additional parking would not encourage additional growth of the airport and the airport and County have an ordinance in place to limit expansion, why has the parking demand (and the consequential need for an additional parking facility) increased? What has changed?
- m. The FEIS indicates that "The proposed parking structure would also provide those travelling from the airport the opportunity to reserve a parking space in advance, thus giving certainty that parking would be available." It would appear obvious that such

a system of advance reservation could be implemented at the existing airport parking facilities, without extending the airport operations onto private lands outside of the airport grounds.

n. The evaluation of alternatives in an EIS is one of the most important aspects of the entire environmental assessment and requisite "hard look."

The DEIS did a particularly poor job of evaluating alternatives to the proposed parking garage. Most significantly, it did not explore alternatives that would involve locations on the grounds of the airport itself. The applicant responds to this by stating in the FEIS:

"Analyzing expansion of parking at Westchester County Airport on County-owned land is outside the purview and responsibility of the Applicant. The Applicant can only propose development on land which it owns or has rights to. The project site is the only parcel within the vicinity of the airport to which the Applicant has any proprietorship and would be the only practical location for the Applicant to develop supplemental parking to support existing demand at the airport."

This response fails to acknowledge the Lead Agency's responsibility to evaluate the overall impact of the proposed development. If the applicant's site is so physically unsuitable for the proposed use, the Lead Agency need not be cowed into approving the project simply because the applicant does not own or control all of the more viable sites site where the project might be more appropriate. If that were the case, the consideration of alternatives for any project would be a ridiculous hollow exercise. If indeed adverse impacts are identified on the subject site (as have been identified for this project) logical alternatives must be considered.

While the applicant does not control land within the Westchester County Airport, it is by any measure, a fair and logical question to ask if the parking (that according to the applicant is apparently needed to support airport operations) can and should be provided on the airport grounds. There is no other demand for the proposed parking facility than the demand generated by the airport.

2. Location of the Project in the Runway Protection Zone

The proposed action requires the Town to modify its land use and zoning regulations to accommodate a project that appears to completely inconsistent with a host of long term planning, environmental protection and public safety policies, laws and

provisions. Perhaps the most notable is the project's location with the Runway Protection Zone (RPZ) of Runway 16.

a. In the FEIS, the applicant notes that while the site is indeed located within the RPZ, it is not in the central portion of the RPZ. As such, uses that are compatible with normal airport operations should be allowed.

The FEIS does not address the fact that the zoning regulations governing development within the RPZ are proposed to be changed by the applicant. The permitted building height would be doubled, coverage would be doubled, FAR requirements eliminated, etc. It is unclear if the "No Hazard" determination issued by the FAA properly took these factors into account.

Regardless, proposing the construction of a large structure within a designated Runway Protection Zone represents at its most basic level, poor planning, and a potential hazard to public safety, that could easily, and properly, be avoided.

b. In the FEIS the applicant asserts that the parking facility is a "compatible land use" by indicating that it would not "...adversely affect flight operations in that which creates or contributes to a flight hazard. One that would attract birds would be considered an incompatible land use."

Anyone who has ever parked in an open parking garage can attest to the desirability of these structures for roosting birds. The location of the garage next to the extensive avian habitat surrounding the Reservoir exacerbates the likelihood that the garage will very likely attract large numbers of birds. The original proposal even included a car wash, very likely to remove bird droppings found on returning travelers vehicles.

Once again, the location of the facility is so poorly conceived; it would be difficult to identify a worse location for the garage.

3. Location of the Parking Structure within the Kensico Reservoir Drainage Basin

The proposed project is located within the Kensico Reservoir drainage basin of the New York City Water Supply Watershed. The New York City Department of Environmental Protection (DEP) has expresses serious concerns about the project's impacts.

The Kensico Reservoir is the terminal reservoir for the Catskill and Delaware Aqueducts, and is the last stop before unfiltered drinking water enters into the distribution system for New York City. Development in the Reservoir Basin threatens the discharge of additional turbidity and pathogens, among other pollutants to that waterbody. According to the DEP, "...given the sensitivity of the

Kensico reservoir as the terminal reservoir, new development is generally disfavored in the Kensico basin, and any development that is approved must achieve compliance with strict and heightened pollutant control criteria."

- a. The proposed project calls for modifying local zoning laws to allow for the development of a facility that is located in an area where development is specifically discouraged, and where potential adverse impacts could impact millions of New Yorkers.
- b. The applicant contends that by complying with the stormwater design criteria of the NYSDEC's Stormwater Design Manual and the NYCDEPs Watershed Rules and Regulations, adequate mitigation will be assured. This position fails to address the most obvious mitigation measure, which are alternatives to the proposed action that do not physically impact the Reservoir Basin.

4. Proposed Zoning Amendment

The proposed parking facility is prohibited in the IND-AA zoning district. Significant amendments would be necessary to accommodate the proposed project. The Westchester County Planning Board stated that "The County Planning Board's review raises serious concerns about the wisdom of amending the Town Zoning Ordinance to allow the processing of the proposed development."

This position is not surprising, as the project violates the Town's Comprehensive Plan, is prohibited by the existing zoning, would be inconsistent with FAA policies, NYC watershed rules, and likely result in numerous adverse environmental impacts.

a. It would be difficult to establish how the proposed zoning amendment does not constitute "spot zoning." The proposed zoning text amendments would be very narrowly applicable, in all likelihood to only the subject site and would allow for a level of development that is entirely inconsistent with other development in the surrounding area.

One need only review the zoning changes proposed to understand the implications of the amendments on the character of the surrounding area; a 100 percent increase in allowable height, from 30' to 60', a 100 percent increase in allowable building coverage, from 30% to 60%, the complete elimination of the Floor Area Ratio control for a parking garage, and the reduction of the side yard setback requirement from 50' to 10'.

Establishing parking structures as a permitted principal use, subject to approval of a special permit, further reinforces the

spot zoning argument. Not only would parking structures be geographically limited within the IND-AA district, but they would be even further limited by the special permit criteria, to essentially just the subject site.

b. The FEIS indicates that the proposed zoning text amendment has been modeled after the text amendment adopted by the Town Board to enable the construction of a parking structure for MBIA. This position touches the heart of the issue in dispute here. The MBIA parking structure serves as a supportive *accessory use* to an office building.

The proposed zoning amendments would allow for a parking structure to be constructed as a <u>principal use</u> – and not as a supportive accessory use. If indeed the zoning amendment is intended to support a new principal use – then the zoning amendments would allow for the construction of an independent facility that is so completely out of character with the surrounding area, and manifestly contrary to the existing IND-AA zoning controls, as to be clearly inconsistent with the Town's zoning hierarchy – essentially spot zoning.

If, on the other hand (which is the obvious situation here) the parking garage is being constructed to support the operation of the Westchester County Airport (i.e. an accessory use to the airport), then the project represents an illegal expansion of airport operations, in clear violation of the Terminal Capacity Agreement.

c. The applicant argues in the FEIS that a parking garage would be consistent with the other permitted uses in the IND-AA district. From strictly a "use" perspective, this may be true. This argument however, fails to take into account the size, scale and magnitude of the type of parking garage that could be constructed. Under the proposed zoning amendments, which would increase certain elements of the parking structure by 100%, the comparative impacts of such a structure would be significant, and clearly inconsistent.

5. Conflict with Town of North Castle Comprehensive Plan

New York's zoning enabling statute requires that zoning laws be adopted in accordance with a comprehensive plan. The comprehensive plan should provide the backbone for the local zoning law. The proposed amendments to the IND-AA zone would undermine a critical policy established in North Castle's Comprehensive Plan.

a. The Comprehensive Plan establishes that "Any expansion of the airport is not recommended." As noted above, any argument that the proposed parking facility is not an expansion of the airport is disingenuous at best. Clearly the parking garage is

intended exclusively for use by airport passengers and employees, and is proposed on private property outside of the existing airport grounds.

b. Because the proposed zoning amendments are inconsistent with the Comprehensive Plan, the proper procedure for the Town to follow would be to first **amend the Comprehensive Plan**, before adopting the proposed zoning allowing for the development of the parking facility.

Aside from being the proper procedural route <u>required</u> to adopt the proposed zoning, amending the Comprehensive Plan to provide clear and unambiguous policy and land use guidance, with the input of the community as a whole, is simply good planning.

6. Site Development Constraints

As documented in great detail in the DEIS, FEIS and DSEIS, the site for the proposed parking facility is environmentally constrained. Development will encroach into Town regulated wetland buffers, and will impact a perennial stream that wraps around the site, which is tributary to the Kensico Reservoir as well as an intermittent stream along the site's southern boundary.

The wetland buffer encroachment is prohibited, and would require the issuance of a Town Wetland Permit. Additionally, in accordance with the NYC Watershed Rules and Regulations, an expansion of impervious surfaces in excess of 25% within the 100-foot limiting distance of a regulated watercourse is also prohibited. The applicant is seeking a variance from the Watershed Rules and Regulations §18-39(a)(4)(iii) to allow for this expansion of impervious surfaces. The site also contains soils exhibiting various degrees of constraints as well as steeply sloping topography.

Summarizing these points simply illustrates the fact that if all of the incompatible land use policy issues, and zoning issues and legal issues were adequately addressed, the development of the site as proposed would still be problematic due to the site's environmental constraints.

7. Visual Impacts

The applicant provided visual impact analyses that depict views of the project from various locations. The applicant contends that the project would not exceed any of the thresholds established in the NYSDEC publication "Assessing and Mitigating Visual Impacts" so the project would not result in an adverse visual impact. This DEC publication focuses on blocking views of specifically designated visual resources. No such resources surround the project site, but that misses the point. The project involves not only the construction of the parking garage, but the amendment of existing zoning regulations,

modifications of land use policies, various environmental permits for prohibited activities and a DEP variance. The issue of concern relates to permitting all of these modifications permits and amendments, to then allow for a structure that would impact the visual *character* of the area.

By all measures, the action would certainly impact the visual character of the area, and would do so negatively.

8. Traffic Impacts

Project related traffic impacts represent another serious concern, warranting the serious reconsideration of the project.

- a. The traffic analysis for the project concludes that the project will result in an overall reduction in vehicle trips on the surrounding roadway networks. This claim is based on the assumption that by driving to the airport and parking, a passenger is creating only 1 inbound vehicle trip, compared to an inbound and outbound trip created by a limousine bringing that same passenger to the airport. This fails to account for the fact that very often limousines carry multiple passengers to and from the airport. Also, limousines will often deliver one passenger to the airport, and will thereafter pick-up a different passenger for separate outbound trip. The claim of a trip reduction is questionable and unsubstantiated.
- b. Providing a greater range of more effective multi-modal transportation options for passengers to move to and from the airport is a far more environmentally sustainable approach, when compared to simply building more parking spaces to make individual private passenger vehicle trips more convenient.
- c. It is noted that 3 critical intersections would operate a failing levels-of-service F upon completion of the project. In fact, in the case of the southbound I-684 ramp, the 33% increase in the delays is so great, the resulting traffic queue cannot even be calculated by standard traffic engineering models. Mitigation will not improve this condition.
- d. The geographic boundaries of the traffic study were limited, and should be expanded to more accurately reflect overall traffic operation conditions. For example Purchase Street (NYS Rte 120) carries a significant volume of traffic, both local and regional, to and from the airport (including traffic to the SUNY Purchase remote airport parking lot). The Purchase Street/Anderson Hill Road intersection operates at certain times at LOS F. The traffic issues in the area extend beyond the small area already evaluated by the applicant.

B. <u>COMMENTS RELATED TO THE DRAFT SUPPLEMENTAL</u> ENVIRONMENTAL IMPACT STATEMENT

- 1. (Page 3) The description of the automated vehicle storage system indicates that it will utilize a "lift and shuttle" system operated by chains, pulleys and electric motors. Hydraulic lifts and hydraulic fluid "are not anticipated to be part of the process." A brief review of these systems indicates that most in fact operate hydraulically. What assurances exists that proposed chain and pulley system would not be replaced by a hydraulic system? The implications of hydraulic fluid leaking or being discharged into the Kensico Reservoir watershed are obvious. Explicitly prohibiting this from occurring by preventing the installation of a hydraulic system would appear to be necessary.
- 2. (Page 4) Table 1 illustrates the modifications made to the project resulting in reductions in the scale of the project. While these reductions represent obvious incremental improvements, it is important to not loose sight of the overall project related impacts. The current plan will still disturb 73% of the site, with most of the on-site wetland buffer and DEP watercourse buffer being impacted.
- 3. (Page 6) The DSEIS indicates that "Further reducing the building footprint to eliminate the need for a NYCDEP variance is not economically feasible as it would require further reductions below the current 980 parking space size."
 - What is the basis for this conclusion? How small would the parking garage need to be to avoid the need for the DEP variance? Simply because the garage has already been reduced in size, doesn't obviate the obligation to comply with all applicable regulations, including the DEP prohibition of constructing new impervious surfaces within 100' of a watercourse.
- 4. (Page 6) The DSEIS states that "Design of the proposed garage is constrained by footprint and height limitations". This statement leads to the obvious conclusion that the site is too small and physically unsuitable for the development of a facility of the size and scale proposed by the applicant.
- 5. (Page 6) The 3rd paragraph on this page reads: "The Lead Agency will need to determine whether the project should be revised to reduce project impacts so that a NYCDEP variance would not be required..." based upon the extensive record complied for this project, it would be quite difficult for the Lead

Agency to find any documented justification for a DEP variance.

The applicant's argument for the variance consists of the following statement: "Further reducing the building footprint to eliminate the need for a NYCDEP variance is not economically feasible as it would require further reductions below the current 980 parking space design." No economic pro-forma has been submitted addressing the projects viability. Moreover, no documented need for 980 parking spaces was provided. The economic feasibility argument is hollow, without a sound economic basis.

6. (Page 7) – The FAA's Advisory Recommendation indicates that "...while it is desirable to clear all objects from the RPZ, some uses are permitted, provided they do not attract wildlife..." it continues "...Automobile parking facilities, although discouraged, may be permitted..."

As noted earlier in this memorandum, the proposed location of the parking facility in the RPZ is simply bad planning, and is discouraged by the FAA. Moreover, such a facility may be acceptable *if* it does not attract wildlife. A cursory review of the problems faced by parking facility managers reveals that pest birds have long been a challenging problem.

Birds often find refuge in parking garages, and this is a common nuisance problem for garage operators and patrons alike. Non-migratory birds such as pigeons, starlings and sparrows find parking garages suitable for nesting, roosting and landing, which creates several problems and concerns for parking garages and those who are responsible for their maintenance and management. These pest birds find parking garages to be suitable due to their protection from the outside elements and an ample food supply from garbage containers and on occasion, patrons feeding them. Bird droppings not only deface vehicles parked in the garage, but also pose several health and safety risks for the individuals themselves. When these birds do take flight, they often do so in large groups, which pose a hazard to pedestrians, vehicles and most significantly in this instance, aircraft.

7. (Page 7) – In the discussion of pollutant loading assessment, the DSEIS details various methods that are proposed to mitigate pollutant loading from the site, post development. It is stated that currently no stormwater quality or quantity treatment exists on the site, and untreated stormwater flows directly unabated into the Kensico Reservoir. While no active stormwater management practices are present on the site, the existing natural features on the site, including the wetland,

wetland buffer, watercourse and it's buffer area, as well as the existing grassed and pervious portion of the site, all serve to treat, filter, and slowdown stormwater.

In the last few years, the DEP has constructed 5 stormwater management projects on the west side of the Kensico Reservoir to mitigate the impacts of pollutant runoff and turbidity in the Reservoir. Combined, these projects represent a significant capital outlay of public funds and a commitment of City resources to preserve and protect a vital resource. It is difficult to see how the DEP could in any instance, authorize the issuance of a variance to the Watershed Rules and Regulations to support a private development project that so flagrantly violates the well conceived long term planning goals of so many different overlapping layers of local, county state and federal government.

- 8. (Page 8 Comment 1) The exact extent of the "limiting distance disturbance" should be accurately and clearly defined. This response shifts this issue to the DEP, and suggests that the variance will resolve the issue. In fact, the Lead Agency must also address this issue, and the overall environmental impacts of disturbances to this specially regulated area.
- 9. (Page 8 Comment 1) It is noted that the DEP indicated that a Negative Declaration from the Lead Agency would be needed before the necessary variance could be granted. It is obvious that a Negative Declaration will not be issued in this instance, but rather the Lead Agency will issue a Findings Statement. What would happen if the Findings include conditions that the DEP finds unacceptable? What if the Lead Agency were to determine that the project would not have an adverse environmental impact, yet the DEP finds that there would be adverse impacts. Would the DEP be <u>required</u> to issue the variance against their will? Would the DEP (an Involved Agency) be bound by the Lead Agency's Findings?
- 10. (Page 11 Comment 5) The response indicates that Temporary Sediment Basin 2 will not be used until the final phase of construction, and as such the storage volume above the ground water level will be sufficient. If so, then why is this basin needed? Will it be constructed with the other basins, and if so, how would it be prevented from functioning until the final phase of construction?
- 11. (Page 11- Comment 6) The DEP expressed concern over the applicant's minimal approach to address pollutant removal, noting, "... regulatory compliance represents a minimum code requirement and does not constitute appropriate mitigation under SEORA."

The applicant has not modified the water quality treatment facilities, but rather provided a more complete and detailed explanation of the facility that the DEP initially found to be inadequate.

12.(Page 11 – Comment 7) – The DEP expressed concerns about the adverse impacts of post development increases in stormwater volume. The applicant has indicated that "Reduction of volume of runoff from the larger storm events would require infiltration practices which are not able to be supported by the site soils."

This represents yet another example of the physical unsuitability of the site to support the project as currently proposed.

- 13. (Page 12 Comment 8) It is unclear why the applicant has discarded the green roof suggestion, which the DEP advocated.
- 14. (Page 13 Comment 9) The DEP questioned whether the area of proposed wetland mitigation was adequate compared to the area of wetland/buffer disturbance.

While the area of wetland buffer loss has been reduced to 15,150 square feet and a mitigation area of 19,500 square feet is proposed, the 2:1 mitigation requirement established in §340: Wetlands and Watercourse Protection *is not* met. The applicant has indicated that he is willing to provide additional off-site wetland buffer mitigation at a location of the Town's choosing. This suggestion, like many others offered by the applicant, reinforces the fact that the site is simply unsuitable for the proposed use, as it cannot physically support all of the necessary improvements required mitigate adverse impacts and otherwise support the project.

- 15.(Page 14 Comment 10) The DEP objected to the use of chemical methods to remove invasive species. The applicant responded by indicating that only NYSDEC approved herbicides would be used. Certainly the DEP assumed that any herbicides applied would be approved by the DEC, and not some illegal chemical. The applicant's clarification that they would indeed use only legal herbicides does not address the objection to the use of chemicals in the first place.
- 16. (Page 17 Comment 17) the Watershed Inspector General's observation that the Town does not permit stormwater treatment facilities in the designated wetland buffer, is addressed by indicating that they are "temporary" and will eventually become fully vegetated. In fact, the stormwater

treatment facilities are not temporary, but are permanent stormwater management facilities – and not natural wetland buffer areas.

17. (Page 17 – Comment 18) – In addressing the percent increase of impervious surface within 100' of a watercourse, the Watershed Inspector General indicates that their office is "...aware of no reason why a variance to this prohibition should be granted. This the Project should be scaled down or reconfigured to exclude disturbances and new impervious areas from Town and DEP buffer areas."

The applicant's response to this overwhelmingly critical comment is to note the relatively modest reductions made to the size of the project, and that any further reduction would "not be economically feasible." No technical justification for the variance has been put forward by the applicant.

- 18. (Page 18 Comment 18) The Watershed Inspector General pointed out that the rainfall data used by the applicant is no longer valid in New York State. Rather than complying with the proper data input suggested by the WIG, the applicant argues that the Soil Conservation Service rainfall curve they used is actually more conservative. Once again, the WIG presumably knew this when the comment was offered, but the applicant elected to ignored this, instead of redoing the analysis as suggested by the WIG.
- 19. (Page 20 Comment 22) the Watershed Inspector General has noted that the applicant is deferring the consideration of retrofitting impervious areas. The applicant has indicated that those options "would be considered" during the site plan review phase. The applicant fails to recognize that these options are mitigation measures necessary to address adverse environmental impacts, and as such should be addressed at this stage of the project review.
- 20. (Page 26 Comment 41) The Westchester County Planning Department also expressed concern about the potential for the proposed facility attracting birds due to the stormwater planters. The applicant dismisses this concern, but the concern is warranted, particularly in concert with comment #6 above.
- 21. (Page 27 Comment 42) The Westchester County Planning Department raised concern over glare associated with rooftop solar panels. The applicant agreed to comply with FAA guidelines, but did not offer anything specific. Generalized compliance with a federal guideline that is subject to change is a difficult, and weak mitigation measure to include in the

Findings Statement. It would be much more effective (and enforceable) to include specific limitations and restrictions.

A review of the SEQRA record for the proposed action, taken in its entirety and in context, reveals how extraordinarily inappropriate the proposed parking facility is at the subject site. The facility would violate the 2004 Terminal Capacity Agreement by expanding airport facilities to the subject site, is located in the Airport's Runway Protection Zone, where it is "desirable to clear all objects", in the Kensico Reservoir Drainage Basin where "new development is disfavored", in an area where the Town of North Castle Comprehensive Plan indicates that "any expansion of the airport is not recommended", in a zone where the use is prohibited, and its scale and mass would exceed the existing zoning controls by 100% in several key areas, the proposed solution to which is to "illegally "spot zone" the site, on property that is extremely environmentally constrained, for a project that would result in definable adverse stormwater, traffic and visual impacts. All of this for a project for which a specific demand has not been accurately documented.

It is respectfully requested that the Lead Agency takes these factors into consideration when compiling the SEQRA Findings.

Sincerel

Patrick Cleary, AICP, CEP, PP, LEED AP

Cleary Consulting

Richard J. Lippes, Esq, Attorneys for the Sierra Club



April 26, 2016

Chairman John Delano Town of North Castle Planning Board Town Hall Annex 17 Bedford Road Armonk, NY 10504

Re: Comments on Park Place Draft Supplemental Environmental Impact Statement

Dear Chairman Delano and Members of the Planning Board:

Riverkeeper, Inc. submits the following comments on the Draft Supplemental Environmental Impact Statement ("Draft SEIS") for Park Place at Westchester Airport. The Draft SEIS evaluates a modified version of the proposed multi-level automated parking garage that was evaluated by the Planning Board in a Final Environmental Impact Statement ("Final EIS") last year. The proposed project site is located adjacent to the Kensico Reservoir, part of the New York City drinking water supply system that holds unfiltered water for millions of New Yorkers.

While we are pleased that the proposed project has been scaled back to eliminate direct wetland disturbance, we remain highly concerned about harm to the water quality of the Kensico Reservoir. The proposed project would still result in significant disturbance of critical wetland and watercourse buffer areas within close proximity to the Reservoir. The project fails to describe adequate mitigation measures for these buffer encroachments, and is missing numerous pieces of information critical to evaluating mitigation measures for stormwater runoff. Runoff from the parking facility and its service roads will carry sand, oil, grease, hydrocarbons and other contaminants, degrading water quality in the on-site wetland, watercourse, and ultimately the Kensico Reservoir. It is also important to note that several agencies and organizations are on record expressing significant concerns with the project, including the Office of the Watershed Inspector General and Westchester County Airport, discussed below.

Given the deficiencies in the Draft SEIS and the significant harm to the water quality of the Kensico Reservoir likely to result, the Planning Board may not certify that the project proposed in the Draft SEIS is the alternative that best minimizes significant environmental impacts pursuant to the State Environmental Quality Review Act ("SEQRA"), N.Y. E.C.L. §§ 8-0101, et seq. In order comply with SEQRA, the Board must require a revised or second SEIS that evaluates a scaled-down or alternative site project that eliminates encroachment on wetland and watercourse buffers and results in no increase in stormwater runoff reaching the Kensico Reservoir, or select the No Action alternative and deny project approval.

Riverkeeper is a member-supported watchdog organization dedicated to defending the Hudson River and its tributaries and protecting the drinking water supply of nine million New York City and Hudson Valley residents. As a signatory to the New York City Watershed Agreement, we have a commitment to ensure that development projects in the watershed do not adversely impact the surface water resources that provide drinking water to consumers. Accordingly, Riverkeeper is very concerned with any project in the New York City watershed that proposes potentially significant disturbance of streams, wetlands, or their buffers.

I. Project and Site Description

The applicant, 11 New King Street, LLC, is currently proposing a 980-lot parking structure with a footprint of 37,444 square feet ("sf"). While this represents a scaled-back version of the preferred project set forth in the Final EIS,¹ the proposed project still includes significant disturbance and expansion of impervious surface in both a New York City Department of Environmental Protection ("NYCDEP") regulated watercourse buffer and a Town regulated wetland buffer. The applicant proposes to increase impervious surface within the NYCDEP watercourse buffer by 5,993 sf, or approximately 40% over existing conditions. In the Town wetland buffer, the proposed project would increase impervious surface by 15,150 sf, more than double the area under existing conditions.² The applicant is also proposing additional disturbance of 42,177 sf of the Town wetland buffer for placement of stormwater controls and landscaping.³

This extensive wetland and watercourse buffer encroachment is particularly concerning given the extremely sensitive nature of the project site. The proposed

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Final Environmental Impact Statement for Park Place at Westchester Airport (Jan. 2015).

² Draft Supplemental Environmental Impact Statement for Park Place at Westchester Airport (Mar. 2016) ("Draft SEIS"), at 4.

³ *Id.*, at 13-14.

project site is located approximately 600 feet from Rye Lake, which is part of the Kensico Reservoir system.⁴ The Kensico Reservoir is the terminal reservoir for the Catskill Watershed, which typically supplies 40% of the 1.2 billion gallons of unfiltered drinking water daily to nine million New York City and upstate consumers. The Kensico Reservoir is classified by New York State as a Class AA fresh surface water – which is the state's highest water quality classification standard – suitable for use as "a source of water supply for drinking, culinary or food processing purposes; primary and secondary contact recreation; and fishing." 6 N.Y.C.R.R. § 935.6, Table I; 6 N.Y.C.R.R. § 701.5 & 701.6.

The Kensico is also the source water reservoir from which NYCDEP collects and analyzes samples for compliance with drinking water quality standards set forth in the federal Safe Drinking Water Act. Failure to comply with those standards as a result of sedimentation or nutrient loading in the Kensico Reservoir could require the City to construct and operate a \$10-billion filtration plant, which would impose an enormous financial burden on drinking water consumers.

II. The Proposed Project is Likely to Significantly Harm Water Resources and Must be Scaled Back or Denied.

In addition to mandates established by the Town Code and NYC Watershed Rules and Regulations, discussed below, the Planning Board has a responsibility under SEQRA to take a hard look at the proposed project and choose the alternative that best minimizes environmental impacts. N.Y. E.C.L. § 8-0109(1); 6 N.Y.C.R.R. § 617.11(d). See also Jackson v. New York State Urban Dev. Corp., 494 N.E.2d 429, 436 (N.Y. 1986) ("An agency may not approve an action unless it makes 'an explicit finding that ... consistent with social, economic and other essential considerations, to the maximum extent practicable, adverse environmental effects revealed in the environmental impact statement process will be minimized or avoided.'") (internal citations omitted). As currently configured, the proposed project is likely to result in significant harm to the water quality of the Kensico Reservoir, which provides unfiltered drinking water to millions of New Yorkers. As such, Planning Board cannot certify under SEQRA that the proposed project is the alternative that best avoids or minimizes environmental impacts.

A. The Town must prohibit further disturbance of the regulated on-site wetland and watercourse buffers.

Due to the sensitivity of the Kensico Reservoir, its close proximity to the proposed project site, and the existing disturbed areas of the Town regulated wetland

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Draft Environmental Impact Statement for Park Place at Westchester Airport (Mar. 2011), at 6-5.

buffer and the NYCDEP regulated watercourse buffer, the Town must prohibit any additional disturbance of the existing buffers.

It is imperative to avoid further disturbance of the buffer zones that protect aquatic resources on the proposed project site. Vegetated buffers provide transitional areas that intercept stormwater from upland habitat before it reaches wetlands or other aquatic habitat. Water quality benefits of buffer zones include reducing thermal impacts (shade), nutrient uptake, providing infiltration, reducing erosion, and restoring and maintaining the chemical, physical and biological integrity of water resources. Buffers also filter sediment, pesticides, heavy metals and other pollutants from stormwater and reduce nutrient loadings to wetlands by uptake in vegetation and denitrification.⁵ These processes protect streams and wetlands from excessive loadings and enable them to perform similar functions without overloading contaminants. Buffers also function to store water and reduce peak runoff velocities during storm events and provide unique recreation, academic and aesthetic opportunities. In addition, buffers provide habitat for flora and fauna and corridors for wildlife to move between larger sections of habitat.

Town regulated wetland buffer

In order to disturb wetland buffer area as proposed, the applicant must demonstrate that buffer impacts and/or losses are unavoidable and have been minimized to the maximum extent practicable. Town of North Castle Town Code § 340-8(D). This includes establishing that the proposed disturbance is compatible with the public health and welfare, and that there are not feasible on-site or off-site alternatives, which would include density reductions and alterations in site layout to avoid wetland buffer impacts. *Id.* The applicant is required to take "all reasonable measures" to minimize such impacts. *Id.* at 340-8(C).

Rather than meeting this standard – and the SEQRA standard that requires a hard look at mitigation measures and selection of the alternative that best minimizes significant environmental impacts – the applicant merely asserts that the proposed project is the "economically feasible" alternative.⁶ The applicant then goes on to request that the Planning Board approve the proposed project with admittedly deficient wetland buffer mitigation, discussed below.⁷

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U.S. Army Corps of Engineers, Buffer Strips for Riparian Zone Management 2 (1991), available at http://www.hydroqual.com/projects/riparian/USACE_publication_1991.pdf.

⁶ Draft SEIS, at 6.

⁷ *Id.*, at 13-14.

Given recent correspondence from the Westchester County Airport questioning the need for the proposed project and identifying off-site alternatives, there is significant doubt about the applicant's claims that the project as configured in the Draft SEIS is the only feasible alternative. According to Airport Manager Peter Scherrer, "[t]here is no need for the proposed project in terms of airport parking." Mr. Scherrer cites several reasons for the lack of need for the proposed project, including that passenger loads at the airport have steadily declined since 2011, there are existing public parking facilities, and the airport has not experienced a public parking problem. He also notes that "should a future need for additional airport parking arise, there is ample opportunity to provide such parking at the airport."

The Planning Board must take a hard look at other available alternatives – including a scaled-back project that avoids disturbing wetland and watercourse buffers, off-site alternatives, and the no action alternative. The Planning Board cannot approve the project as proposed in the face of another viable alternative that would prevent impairing critical buffer areas so close to a major source of unfiltered drinking water.

The applicant's proposal to site stormwater basins in the wetland buffer adjacent to the proposed parking garage is also flawed. Siting stormwater management practices in buffers displaces significant buffer area and impairs buffer function by clearing trees, sacrificing hydrology above the practice, altering existing wetland hydrology and increasing thermal impacts. This is recognized in Town regulation, which generally does not permit disturbance of wetland buffer areas for "creating ponds or stormwater detention basins." Town Code § 340-8(C).

For these reasons, the disturbance of buffers to site stormwater management infrastructure should be avoided, especially in the instant case when the wetland in question is positioned to provide water quality benefits to the Kensico Reservoir and a significant area of its buffer has already been disturbed. Additional practices that impair buffer function include the application of landscaping chemicals, clearing of healthy vegetation, construction activities, and siting landscaped areas, roads and other impervious surfaces adjacent to buffers. These practices can increase the discharge of sediment, nutrients and other contaminants into buffers and thereby compromise their ability to intercept and retain stormwater runoff before it enters wetlands or other aquatic systems.

⁸ Letter from Peter Scherrer, Airport Manager, to Town of North Castle Planning Board re Park Place at Westchester County Airport (Apr. 11, 2016).

Id.

Draft SEIS, at 17.

Finally, the Planning Board must require the applicant to develop a legally binding wetland buffer maintenance and management plan that will ensure the buffer area will function indefinitely as intended. This plan will ensure the long-term protection and stability of the adjacent wetland, and should provide ongoing, regular and periodic maintenance for as long as the original naturally existing wetland remains functional.

NYCDEP regulated watercourse buffer

In accordance with the NYC Watershed Rules and Regulations, the applicant is prohibited from constructing the project with the proposed 40% increase in impervious surface within a NYCDEP regulated watercourse buffer. R.C.N.Y. § 18-30(a)(iii). This increase in impervious surface is disallowed due precisely to the importance of buffer areas to protecting water quality discussed above. The need for buffer protection is heightened in sensitive locations like the one at issue here, where any degradation in water quality will directly impact a source of unfiltered drinking water.

The fact that the applicant has applied to NYCDEP for a variance from this requirement does not mitigate the Planning Board's responsibility under SEQRA to ensure that the least environmentally harmful alternative is selected. The Planning Board cannot defer its responsibilities or simply point to regulatory compliance as a substitute for mitigation. During the EIS process, the Planning Board must evaluate potentially significant adverse environmental impacts and proposed mitigation, and make its own determination regarding whether or not those impacts will be avoided or minimized in compliance with SEQRA.

It is also important to note that NYCDEP does not have to grant the requested variance, and in fact should not do so in compliance with SEQRA and its own regulations covering variances. In order to receive a variance under the NYC Watershed Rules and Regulation, the applicant must demonstrate that the request relief is the "minimum necessary," proposed mitigation will be adequate to "avoid contamination," and that compliance with the rules without the variance would create a "substantial hardship." R.C.N.Y. § 18-61(a)(1). The SEQRA record fails to demonstrate that a variance from the prohibition against increasing impervious surface in a watercourse buffer by 40% is the "minimum necessary" and the applicant has failed to propose adequate mitigation measures for such an increase. The Draft SEIS proposes no enhancement or other mitigation measures for the buffer of the NYCDEP regulated watercourse on the project site, yet proposes the addition of 5,993 sf of impervious area to the existing 7,704 sf of impervious area in its buffer. Further, the applicant has not demonstrated that it would suffer substantial hardship in the absence of the variance: it

Draft SEIS, at 4.

has merely asserted that further reducing the footprint of the proposed project is not "economically feasible," ¹² a statement that is contradicted by the Westchester County Airport's own representation that additional parking is not needed.

The large proposed addition of impervious surface risks substantially increasing contaminated stormwater runoff and impairing the natural proactive buffer of a watercourse that is located dangerously close to a sensitive water supply. The Planning Board must require the applicant to eliminate plans that increase impervious surface in the NYCDEP regulated watercourse buffer.

B. The proposed buffer mitigation measures are inadequate to protect the on-site wetland from further degradation.

The applicant's Wetland and Wetland Buffer Enhancement Plan (Enhancement Plan) is inadequate to protect the existing wetland and will result in further degradation of the wetland and its buffer. ¹³ Under existing conditions, the wetland buffer now has 12,316 sf of impervious surface disturbance. ¹⁴ Under developed conditions, the current Draft SEIS proposes the addition of 15,150 sf of new impervious area for a total of 27,466 sf. ¹⁵ To mitigate the impacts of increased impervious area, the applicant proposes to enhance 19,500 sf of combined wetland and buffer areas by removing invasive plant species. This represents a 1.3:1 ratio of enhancement area to disturbed wetland + buffer areas and conflicts with the Town of North Castle's Wetlands and Watercourse Protection Law, which requires a 2:1 ratio. Town Code § 340-9(A)(1).

The applicant must also clarify the proposed mitigation ratio. Depending on how it is calculated, the applicant is proposing wetland buffer mitigation that ranges from 0.28:1 – which is grossly inadequate – to 1.3:1, which is still insufficient to protect wetland resources and comply with Town requirements. As set forth in the record, and as a matter of law, the proposed mitigation is wholly inadequate.

The practice of combining areas of wetland and buffer enhancement to satisfy compensatory mitigation requirements for buffer disturbance fails to protect the wetland in question. Under existing conditions the wetland has no disturbance, ¹⁶ yet the fact that a significant area of the wetland is dominated by invasive species targeted

¹² *Id.*, at 6.

¹³ *Id.*, App.D.

¹⁴ *Id.*, Table 1, Summary of Project Modifications, at 4.

¹⁵ *Id.*

¹⁶ *Id., supra* note 3.

for removal indicates that wetland functions have degraded where invasives have established. The buffer zone is the wetland's first line of defense against flooding, sedimentation, and nutrient and chemical loading. Under existing conditions, the wetland buffer is already impacted by 12,316 sf of impervious surface and is failing to protect its adjacent wetland from degradation. Now the applicant proposes to increase impervious area in an already-degraded buffer by 15,150 sf. The practice of enhancing the buffer while further reducing it with added impervious area will not enhance or sustain protection of the wetland. It is counterproductive to simultaneously enhance wetland functions and impair the wetland buffer functions.

Neither is the applicant's suggestion that it is open to off-site mitigation sufficient. ¹⁷ Mitigation plans must be detailed in the Draft SEIS, not vaguely raised for possible future consideration. In order to satisfy SEQRA, proposed mitigation must be evaluated in an EIS in sufficient detail to allow the public and involved agencies the opportunity to understand and review and for the Planning Board to determine whether or not such plans contain adequate mitigation for identified environmental impacts. N.Y. E.C.L. § 8-0109(2); 6 N.Y.C.R.R. § 617.9(b). *See also Webster Associates v. Town of Webster*, 451 N.E.2d 189, 192 (N.Y. 1983) ("the omission of a required item from a draft EIS cannot be cured simply by including the item in the final EIS"). The mention of possible off-site mitigation without detail in the Draft SEIS does not satisfy this requirement.

The Town of North Castle regulates activities in wetland and watercourse buffers areas of 100 feet in width. Town Code § 340-3. The fact that the on-site wetland buffer has already been compromised by the addition of impervious area and no longer meets even the accepted minimum width requirements for water quality protection prescribed by land use planners and regulators emphasizes the importance of avoiding further encroachment into the wetland buffer and protecting the remaining buffer with robust stormwater controls to benefit water quality.¹⁸

Further encroachment into the Town regulated 100-foot wetland buffer will reduce the functional size of the buffer and further impair its ability to protect the

Draft SEIS, at 14.

One hundred feet is considered the *minimum* buffer width recommended for water quality protection. *See* Schueler, T., Site Planning for Urban Stream Protection, Metropolitan Washington Council of Governments 111 (1995); U.S. Environmental Protection Agency, Draft National Management Measures to Control Nonpoint Source Pollution from Urban Areas 3-17 (2002), available at https://www.epa.gov/sites/production/files/2015-09/documents/urban_guidance_0.pdf; Environmental Law Institute, Conservation Thresholds for Land Use Planners 20 (2003) https://www.eli.org/sites/default/files/eli-pubs/d13-04.pdf; and Fischer, R., and J. Fischenich, Design Recommendations for Riparian Corridors & Vegetated Buffer Strips, U.S. Army Engineer Research and Development Center 4 (2000) https://el.erdc.usace.army.mil/elpubs/pdf/sr24.pdf.

wetland. Even if both the buffer and wetland are enhanced initially, over time the reduced buffer area will fail to provide adequate water quality protection for the wetland.

C. The Draft SEIS does not contain sufficient information to evaluate whether or not the proposed stormwater controls are adequate to protect water quality.

According to comments submitted by the Office of the Watershed Inspector General, the Stormwater Pollution Prevention Plan ("SWPPP") submitted by the applicant as part of the Draft SEIS lacks several pieces of information critical to determining the effectiveness of the proposed stormwater controls, including "important engineering processes, calculations and details that are required by the DEC SPDES General Permit for Stormwater Activity from Construction Activity, Permit No. GP-0-15-002." As discussed above, SEQRA requires a detailed analysis of mitigation measures in an EIS. The analysis must be sufficient to evaluate the effectiveness of the mitigation measures proposed and allow the lead agency and the public the opportunity to determine the extent to which significant environmental impacts will be avoided or minimized. *See* N.Y. E.C.L. § 8-0109(2); 6 N.Y.C.R.R. § 617.9(b).

Given the numerous deficiencies in the SWPPP, the Planning Board and the public are unable to evaluate the effectiveness of the proposed mitigation measures and the impact of stormwater runoff on the Kensico Reservoir. Should the Planning Board decide not to choose the No Action alternative and deny the proposed project, the SWPPP must be substantially revised and made available for public review and comment along with a scaled-back or alternative site project in a revised or second supplemental EIS.

III. The Wetland and Wetland Buffer Enhancement Plan Should Incorporate Integrated Pest Management ("IPM") Practices to Reduce or Eliminate the Use of Chemical Pesticides and Herbicides Where Practicable.

Due to the project site's proximity to the Kensico Reservoir, it is imperative that the application of pesticides, herbicides and fertilizers is minimized to the maximum extent practicable to protect water quality. The Enhancement Plan outlines the proposed strategy to eliminate and control the establishment of invasive plant species by invasive plant removal and native plant augmentation.²⁰ The Enhancement Plan proposes that "[n]on-chemical means of control [e.g., hand pulling, gutting or grubbing] are generally preferred, but in some cases the use of chemical controls will be

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Comments of the Office of the Watershed Inspector General, Draft Supplemental Environmental Impact Statement, Park Place at Westchester Airport (Apr. 26, 2016).

Draft SEIS, App. D, Wetland and Wetland Buffer Enhancement Plan, at 1.

necessary..."²¹ The Enhancement Plan recommends the application of herbicides glyphosate or triclopyr to control invasive plants when necessary.²² The Enhancement Plan further proposes that in general, "native plants do not require the use of insecticides or fungicides. However, if pesticides are required, pesticides labeled for aquatic use will be used."²³

Integrated Pest Management uses natural physical and biological methods in addition to low-toxicity chemicals to control insect pests, invasive plant species, and for soil amendment. The Enhancement Plan should include and require an IPM plan to further reduce pesticide and herbicide use within the Kensico Watershed. It also should require licensed applicators to employ chemical measures only as a last resort to enhance water quality protection. The New York State Department of Environmental Conservation publishes a Pest Management Resource List on its website, with links to various IPM programs.²⁴

The Enhancement Plan also proposes that "[d]epending on site condition and performance of the installed vegetation, native trees and shrubs may benefit from a twice yearly application of a slow release or organic fertilizer for two years after planting." Any application of fertilizer should be supported by soil testing and other best management practices required in a nutrient management plan to minimize nutrient loading of receiving waters during stormwater runoff. The phosphorus contained in fertilizer is the primary nutrient available to algae, which can proliferate to degrade water quality in ponds, lakes and reservoirs. Rather than speculating that vegetation "may benefit from a twice yearly application of slow release or organic fertilizer," the applicant should develop a nutrient management plan that requires a licensed applicator to manage fertilizer use based on soil analysis and individual plant requirements.

IV. Conclusion

The Planning Board cannot certify that the project described in the DSEIS is the alternative that best minimizes significant environmental impacts. It must comprehensively evaluate a scaled-down or off-site alternative that eliminates wetland and watercourse buffer encroachment and results in no addition of pollutants from

²¹ *Id.*

²² Id.

²³ *Id.*, at 11.

NYS Dept. of Environmental Conservation, Pest Management Resource List, http://www.dec.ny.gov/chemical/42925.html.

²⁵ *Id*.

stormwater runoff to the Kensico Reservoir, or select the No Action alternative and deny the proposed project.

Sincerely,

Misti Duvall Staff Attorney William Wegner Staff Scientist

William Wegner





Airport Advisory Board

Jay T. Pisco, P. E. Commissioner Department of Public Works & Transportation

April 22, 2016

Honorable John Delano, Chairman and Members of the Planning Board Town of North Castle 15 Bedford Road Armonk, NY 10504

RE: Park Place at Westchester County Airport;

Draft Supplemental Environmental Impact Statement (DSEIS)

Dear Honorable Chairman and Members of the Board:

This letter of comment is submitted by the Members of the Airport Advisory Board (AAB) concerning the proposed 980 vehicle parking garage at 11 New King Street, North Castle, New York, a/k/a/ Park Place at Westchester County Airport.

The Airport Advisory Board members do not believe that there is a need or justification to construct an additional public parking facility to serve the airport patrons. Over the past several years, public parking has not been an issue, especially during the heavy holiday travel periods where the existing public parking garage and long-term parking lot has had excess parking capacity.

The AAB Members acknowledge and support the comments identified in the Airport Manager's letter of April 11, 2016 to the North Castle Planning Board (attached for convenience). The letter sets forth the data that clearly shows the lack of need for an off-site vehicle parking facility, and the concern for the safety of Runway 16/34.

We respectfully request that the Members of the Planning Board vote to deny the construction of the parking facility, based on the lack of necessity and the safety issues related to Runway 16/34.

Respectfully yours,

Donald Heithaus

Chairman, Airport Advisory Board

240 Airport Road, Suite 202 White Plains, New York 10604

Telephone: (914)995-4856

Fax: (914) 995-3980

Attachment

cc:

Adam R. Kaufman, AICP, Town of North Castle Planner
Roland Baroni, Esq.
Kevin McManus, P.E.
Edward Buroughs, Chairperson, County Planning Dept.
Cynthia Garcia, NYC Dept. of Environmental Protection
Michael Sassi, P.E., NYS Department of Transportation
Jay T. Pisco, Commissioner, Westchester County Department
of Public Works & Transportation
Kevin Roseman, Traffic Engineer, Westchester County Dept.
of Public Works & Transportation
Evelyn Martinez, NY District Manager, Federal Aviation
Administration, Eastern Region

Gil Neumann, Acting Branch Manager, Planning and
Programming, Federal Aviation Administration
Philip Bein, Assistant Attorney General, Watershed Inspector
General, Environmental Protection Bureau

Charles Silver, Ph.D., Watershed Inspector General Scientist, Environmental Protection Bureau Kevin J. Plunkett, Deputy County Executive

Christine Sculti, Chief Advisor, Office of the County Executive

akaufman@northcastleny.com rbaroni@prodigy.net mcmanus.associates@gmail.com eeb6@westchestergov.com cgarcia@dep.nyc.gov michaelsassi@dot.ny.gov

jpisco@westchestergov.com

Kmr5@westchestergov.com

evelyn.martinez@faa.gov

gil.neumann@faa.gov

Philip.bein@ag.ny.gov

Charles.silver@ag.ny.gov kplunkett@westchestergov.com CASculti@westchestergov.com

LIPPES & LIPPES

ATTORNEYS AT LAW 1109 Delaware Avenue Buffalo, New York 14209-1601 Telephone: (716) 884-4800 Fax No.: (716) 884-6117

RICHARD J. LIPPES, ESQ.

RLIPPES@LIPPESLAW.COM

APR 2 6 2016

April 25, 2016

Mr. Adam Kaufman, AICP Director of Planning Town of North Castle 17 Bedford Road Armonk, New York 10504-1898

Re: Park Place at Westchester Airport;

11 New Kings Street, North Castle, New York

Dear Mr. Kaufman:

These comments are submitted on behalf of the Sierra Club. The Sierra Club, founded in 1895, is the oldest continuing Environmental organization in the Country. It has extensive membership throughout the Country, including in New York State, Westchester County and the Town of North Castle.

INTRODUCTION

On March 28, 2011, the Town of North Castle Planning Board, ostensibly as Lead Agency for the proposed action pursuant to the New York State Environmental Quality Review Act ("SEQRA"), issued a Notice of Completion with respect to a Draft Environmental Impact Statement ("DEIS") submitted by 11 New King Street, LLC ("Applicant"). The DEIS was submitted for a proposed project denominated "Park Place at Westchester Airport," essentially for the construction of a parking garage.

In response to various comments received by both the public, concerned environmental organizations, and various involved and interested agencies, the Town of North Castle Planning Board, on March 9, 2015, determined that a Supplemental Draft Environmental Impact Statement needed to be prepared. In response, a Supplemental Draft Environmental Impact Statement was prepared by the applicant, who apparently in response to the above indicated comments, reduced the proposed parking facility footprint to 37,444 sq. ft., with 980 parking spaces, from the previously proposed parking structure which would have had a footprint of approximately 45,000 sq. ft. and was designed for 1,380 automobiles.

In response to the original Draft Environmental Impact Statement, on May 31, 2011, I submitted comments on behalf of the Sierra Club concerning the DEIS. Those comments of May 31, 2011 should be considered fully adopted in this letter, and to the extent that they are not repeated, should still be considered part of the record to be responded to in the Final Environmental Impact Statement and Findings Statement.

However, certain of the salient issues raised in the May 31, 2011 comments, need repeating in these comments, especially where those issues were not dealt with or otherwise satisfactorily developed in the Supplemental Draft Environmental Impact Statement.

POINT I

PROCEDURAL ISSUES

The Town Planning Board Lacks Jurisdiction to Act as Lead Agency

As pointed out in the May 31, 2011 comments, it is certainly no reflection on the quality and competency of the North Castle Town Planning Board, but in actuality the Planning Board is not the proper entity to conduct environmental review of this action because it is not an "involved agency" and, therefore, cannot be the "lead agency" under SEQRA.

SEQRA regulations define "Lead Agency" as "an *involved* agency principally responsible for undertaking, funding or *approving* an action, and therefore responsible for determining whether an environmental impact statement is required in connection with the action, and for the preparation and filing of the statement if one is required." 6 NYCRR 617.2(u) (emphasis added).

An "involved agency" is also a term defined by SEQRA regulations: "Involved agency' means an agency that has jurisdiction by law to fund, approve or directly undertake an action. If an agency will ultimately make a discretionary decision to fund, approve or undertake an action, then it is an 'involved agency'...." 6 NYCRR 617.2(s).

In the first instance, having the status of an "involved agency" is an indispensible qualification of being the "lead agency." Here, however, as detailed below, the Planning Board is not an "involved agency" because it cannot be said that the Planning Board "will ultimately make a discretionary decision to fund, *approve* or undertake an action" in connection with the project. "Approval" is defined as "a discretionary decision by an agency to issue a permit, certificate, license, lease or other entitlement or to otherwise authorize a proposed project or activity." 6 NYCRR 617.2(e).

As mentioned, since the lead agency must be an involved agency, this requirement is jurisdictional, and the consequences of proceeding without jurisdiction would be a total lack of legal effect of any decision made by the Planning Board. See, Young v. Board of Trustees of the Village of Blasdell, 221 A.D.2d 975, 634 N.Y.S.2d 605 (4th Dept. 1995). To avoid wasted effort and resources, a new lead agency should be designated.

SEQRA directs that the lead agency be re-established either by agreement among involved agencies or by requesting that the DEC Commissioner designate the lead agency. See, ECL 8-0111(6) ("In the event that there is a question as to which is the lead agency, any agency may submit the question to the commissioner and the commissioner shall designate the lead agency, giving due consideration to the capacity of such agency to fulfill adequately the requirements of this article"); 6 NYCRR 617.6(b)(6).

The North Castle Town Board has Primary Approval Responsibility

Even if the Town Planning Board were an "involved agency" for purposes of the proposed project, SEQRA and its regulations require that the agency having primary approval responsibility act as lead agency for purposes of conducting the environmental review. Here, given that the Applicant submitted a zoning petition seeking to amend the North Castle Zoning Code to the allow the erection of a parking garage in an IND-AA area, the Town Code dictates that the Town Board has primary approval responsibility.

As recognized in section 213-68 of the Town Zoning Code, New York Town Law section 265 requires that changes or amendments to the town's zoning code be made by the Town Board in accordance with the procedures set forth in section 265. The proposed project cannot proceed without an amendment of the Town Zoning Code. Should the Town Board amend the Zoning Code, the Planning Board would not be responsible for any discretionary decisions or approvals. The Amendment would make the Town Board the approval authority for the Special Permit Application and, pursuant to the Town Code, the Town Board's Special Permit review would obviate the need for Site Plan review from the Planning Board. See, Town Code § 213-34.

Accordingly, under the present circumstances, and unless it develops at some point that another involved agency should be designated, the Town Board must assume lead agency status for purposes of SEQRA review, and the Board cannot delegate that responsibility to an agency that does not have primary approval authority. In that regard, the Practice Commentary accompanying ECL 8-0111 is particularly instructive:

In DEC Declaratory Ruling 8-01 (Martin S. Baker, et al.) (1984), the Department ruled that a municipality may not delegate to an agency without decision-making power the role of permanent lead agency. This ruling follows the decisions in Glen Head-Glenwood Landing Civic Council, Inc. v. Town of Oyster Bay, 88 A.D.2d 484, 453 N.Y.S.2d 732 (2nd Dept. 1982) and Save the Pine Bush, Inc. v.

Planning Bd. of City of Albany, 96 A.D.2d 986, 466 N.Y.S.2d 828 (3rd Dept.), appeal dismissed 61 N.Y.2d 668, 472 N.Y.S.2d 89, 460 N.E.2d 230, leave to appeal denied 61 N.Y.2d 602, 472 N.Y.S.2d 1025, 460 N.E.2d 231 (1983). In both those cases a municipality sloughed off on its environmental advisory board the function of preparing EISs, although that agency lacked the authority to render land-use decisions. The courts held SEQRA responsibility must remain where decision-making power rests. To hold otherwise would surely subvert a chief purpose of SEQRA — to ensure that those making decisions with environmental consequences themselves weigh those consequences. Municipal officials may not do the bureaucratic equivalent of Groucho Marx telling his butler, "Go run around the park; I need the exercise."

Those who fail to learn from history are, says the adage, doomed to repeat it, and the City of New York, having not learned the lesson of Glen Head and Save the Pine Bush, paid the price in Coca-Cola Bottling Co. of New York v. Board of Estimate of City of New York, 72 N.Y.2d 674, 536 N.Y.S.2d 33, 532 N.E.2d 1261 (1988). The Court of Appeals there invalidated the City's practice of shunting environmental review to its departments of environmental protection and city planning in a case where the relevant decision, authorizing the sale of city-owned land, was to be made by the former Board of Estimate. Neither of the two agencies that performed the environmental review was the responsible decisionmaking agency, the court noted. The Court roundly criticized the City for "transgress[ing] SEQRA's spirit, as well as its form," by "allow[ing] the Board of Estimate -- the governmental entity responsible for the final policy decision to proceed with a project -to be insulated from consideration of environmental factors." 72 N.Y.2d at 681-82.

As in the *Coca-Cola* case, the court condemned the practice of foisting environmental quality review onto an agency which lacks decision-making power in *Martin v. Koppelman*, 124 A.D.2d 24, 510 N.Y.S.2d 881 (2nd Dept. 1987). The Appellate Division there annulled resolutions of the Suffolk County Legislature that were based on negative declarations adopted by the county's Council on Environmental Quality. The resolutions authorized appropriating funds to expand parking facilities at several railroad stations as part of an electrification project. The court held that, just as in the *Glen Head* case, the county legislature had improperly delegated SEQRA authority to an agency without the power to make the actual decisions on the land use in question. The county's attempt

to fund parking areas along the electrified railroad line without proper environmental review was unplugged.

The appellate division reminded us once again that a lead agency must itself weigh a project's environmental impacts. In Penfield Panorama Area Community, Inc. v. Town of Penfield Planning Bd., 253 A.D.2d 342, 688 N.Y.S.2d 848 (4th Dept. 1999), the planning board approved a subdivision including two apartment houses on condition that the developer obtain a site remediation plan that met the approval of DEC and the county health department. But the board's EIS, though it acknowledged that hazardous waste deposited on the site was one of the board's "primary areas of concern," failed to further concern itself with the issue. As the court held, a lead agency may not blithely identify, then waltz away from, a serious environmental impact. The town was obliged to genuinely consider the presence of the hazardous waste before authorizing residential construction on the site, and to minimize its impacts (see ECL § 8-0109[1], [8] and the Commentary at C8-0109:2). Simply advising the developer to seek some answers from other agencies, while allowing the development to proceed, vitiates both the letter and spirit of SEQRA.

Additionally, it is noteworthy that the Town Board will be responsible for approvals with respect to matters involving the use of wetlands, whether under Freshwater Wetlands review or under other authority. See, e.g., Town Code section 205-5(C). The project also includes a request for a Tree Removal Permit, the authority over which lies with the Building Inspector (who has not been identified as an involved agency), not with the Planning Board. See, Town Code section 192-2.

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The proper designation of the Town Board as the Lead Agency for this proposed project is not only necessary, it is particularly significant because of the nature of the environmental impacts involved and the broad scope of Town planning policies and principles that must be considered.

Referral to Westchester County Planning Department

It is worth noting at this phase of review that, at the appropriate time, when the lead agency has a "full record" (including all environmental review documents and an FEIS), a referral with respect to the proposed zoning amendment must be made to the Westchester County Planning Department, as required under General Municipal Law 239-m. The County may issue a recommendation, at which point the Town Board would need a majority-plus-one vote in order to pass the amendment. In the event the County does not issue a recommendation within 30 days, the Town could act on a majority vote.

The DEIS and SDEIS Omits Facts Regarding Wetlands Subject to Regulation

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The DEIS and SDEIS fails to acknowledge that there is a second stream located on the project site and thereby omits information that would bring parts of the project under the jurisdiction of the Department of Environmental Protection ("DEP"). The DEIS and SDEIS acknowledges the presence of "[t]wo streams [that] occur on the project site," one of which it refers to as a "perennial stream," the other of which it says is an "ephemeral drainage channel that is infrequently flooded." Both of these streams are DEP watercourses. In figure 8-2 of the DEIS, it is evident that there are two streams designated by Westchester County that pass through the project site and flow to the Kensico Reservoir. DEIS Figure 8-1, the National Wetland Inventory mapped wetlands, also shows a second stream along the southern boundary of the Project Site.

Indeed, the Town's Wetland Consultant states that this second stream is "a regulated watercourse": "Water was observed within the channel located to the south of the proposed parking garage (partially off-site) and therefore this channel will be ponsidered a regulated watercourse. This determination is based, in part, on the fact that water flow was present more than 48 hours after a rain event." Memorandum to Planning Board from David J. Sessions, RLA, AICP, dated Dec. 29, 2010.

Contrary to the DEIS and SDEIS assertion that this "secondary drainage feature does not demonstrate perennial or intermittent flow," Mr. Sessions' observation that the stream exhibited water flow more than 48 hours after a rain event clearly demonstrates that the second watercourse at the southern portion of the site constitutes an Intermittent Stream under the DEP's Watershed Regulations (section 18-16(a)(63). Accordingly, the DEIS fails to properly acknowledge that the DEP has jurisdiction over the second stream.

The DEIS and SDEIS asserts further that the secondary stream "would not be directly affected by the development of the project." The DEIS neglects to mention, however, that the proposed parking garage would effectively eliminate the stream's protective buffer areas and probably disturb the stream directly, which is suggested by figure 8-4 in the DEIS. Indeed, the Town Wetland Consultant stated that, "given the proximity of the proposed improvements to the wetland boundary line, it does not appear feasible to construct the building without directly impacting/disturbing the wetland proper." Memorandum to the Planning Board from David J. Sessions, Ri A, AICP, dated Dec. 10, 2010, at 10.

The approach taken by the Applicant in the DEIS and SDEIS is contrary to the Town's own Freshwater Wetlands Law, which expressly states that, "[t]he establishment of regulatory and conservation practices for these [wetland] areas serves to protect the Town by insuring review and regulation of any activity near or on the wetlands that might adversely affect the public health, safety and welfare." Town Code section 209-3(A)(3). The DEIS and SDEIS should not attempt to avoid the regulatory review applicable to wetlands, especially when those wetland areas are in close proximity to Kensico Reservoir.

A Second Kensico Reservoir Stem

The DEIS does not show the limiting distance from the second Reservoir Stem affecting the site. DEIS Figures 8-1 and 8-2 show two streams that exit the site and immediately enter the Kensico Reservoir. Section 18-16(a)(95) of the Watershed Regulations define a Reservoir Stem as "any watercourse segment which is tributary to a reservoir and lies within 500 feet or less of the reservoir." The DEIS has erroneously omitted information demonstrating the location of the 300-foot buffer from the second Reservoir Stem in relation to the project site. This omission is likely due to the prohibition against the construction of impervious surfaces within 300 feet of a reservoir stem, as set forth in section 18-39(a)(1) of the Watershed Regulations.

The DEIS incorrectly asserts that there is a way around the required buffer area, relying on a limited exception for the expansion of impervious surfaces in buffer areas for existing commercial facilities, which is provided for by Watershed Regulation 18-39(a)(4)(iii). The exception does not apply to the proposed project because the exception applies only to "existing" facilities, not to new construction that takes the place of the existing use at the project site. Another reason why the exception does not apply is that the project would add impervious surfaces to the buffer areas in excess of 25% of the existing use.

Consequently, the Applicant would need to seek a variance from the DEP under Watershed Regulation 18-61. The DEIS is inadequate in that regard, since it does not demonstrate factually that the proposed project could satisfy any of the requirements for a DEP variance, such as:

[d]emonstrate that the variance requested is the minimum necessary to afford relief;

[d]emonstrate that the activity as proposed includes adequate mitigation measures to avoid contamination to or degradation of the water supply which are at least as protective of the water supply as the standards for regulated activities set forth in [the Watershed Regulations]; [or]

[d]emonstrate that . . . compliance [with the Watershed Regulations] would create a substantial hardship due to site conditions or limitations.

Watershed Regulations, 18-61(a)(1) (see DEP Comments, infra, at p. 13-15).

As discussed substantively below, the DEIS fails to articulate mitigation measures with respect to wetlands impacts sufficient to demonstrate that such measures would "protect the watershed just as much as compliance with the regulation from which the applicant seeks a variance." See, Nilsson v. D.E.P., 8 N.Y.3d 398, 834 N.Y.S.2d 688, 690 (2007) ("[B]efore it grants a variance, DEP must be persuaded that the applicant's proposed mitigation measures will protect the watershed just as much as compliance with the regulation from which the applicant seeks a variance."

Nor would the Applicant qualify for a "hardship" variance. The DEIS shows one project alternative in which compliance with Watershed Regulations appears feasible. DEIS at 18-29 to 18-34 & fig. 18-5, Alternative "D," envisions a "no wetland impacts" Project, which apparently is considered to avoid both Town and DEP regulated buffers. If it is possible that the Applicant can comply with the Watershed Regulations, in order to obtain a "hardship" variance, it must be demonstrated that compliance would be "prohibitively expensive." See, Nilsson, 834 N.Y.S.2d at 691.

Here, however, the DEIS does not contend that Alternative "D" would be prohibitively expensive: "Alternative D would result in economic benefits during construction and during annual operations." Likewise, the DEIS does not contend that, in the absence of a variance from the DEP, compliance with the regulations would cause the Applicant "substantial hardship."

Inadequacy of Project Alternatives

Section 617.9 of the SEQRA regulations promulgated by the DEC, entitled "Preparation and Content of Environmental Impact Statements," provides detailed instructions and guidelines for the EIS process. Particularly for projects like the one proposed, which involve highly sensitive environmental areas, it is essential that, in the first instance, the contents of the EIS comply with 6 NYCRR 617.9(b)(5)(iii), which requires that all draft EISs include: "a statement and evaluation of the potential significant adverse environmental impacts at a level of detail that reflects the severity of the impacts and the reasonable likelihood of their occurrence."

As the Planning Board and Town Board have already seen, the proposed "Park Place at Westchester Airport" project continues to garner widespread criticism for the failure of the DEIS to comply with section 617.9(b)(5)(iii). The Sierra Club must join in that criticism. The substantive issues in that regard are discussed below. Without a complete and accurate "evaluation of the potential significant adverse environmental impacts" of the project, the foundation for SEQRA review is jeopardized. One consequence of this inadequacy of the DEIS is the obfuscation of another indispensible component of compliance with the SEQRA review process – the consideration of project alternatives.

Section 617.9(b)(5)(v) of DEC regulations requires that the DEIS include:

The subsection continues, in pertinent part: "The draft EIS should identify and discuss the following only where applicable and significant: ([a]) reasonably related short-term and long-term impacts, cumulative impacts and other associated environmental impacts. ([b]) those adverse environmental impacts that cannot be avoided or adequately mitigated if the proposed action is implemented; ([c]) any irreversible and irretrievable commitments of environmental resources that would be associated with the proposed action should it be implemented; ([d]) any growth-inducing aspects of the proposed action; ([e]) impacts of the proposed action on the use and conservation of energy (for an electric generating facility, the statement must include a demonstration that the facility will satisfy electric generating capacity needs or other electric systems needs in a manner reasonably consistent with the most recent state energy plan); ([f]) impacts of the proposed action on solid waste management and its consistency with the state or locally adopted solid waste management plan; ..."

a description and evaluation of the range of reasonable alternatives to the action that are feasible, considering the objectives and capabilities of the project sponsor. The description and evaluation of each alternative should be at a level of detail sufficient to permit a comparative assessment of the alternatives discussed. The range of alternatives must include the no action alternative. The no action alternative discussion should evaluate the adverse or beneficial site changes that are likely to occur in the reasonably foreseeable 6 NYCRR future, in the absence of the proposed action. 617.9(b)(5)(v).

As expressed in the "2010 SEQRA Handbook" (3rd Edition 2010), published by the DEC Division of Environmental Permits, the purpose of this regulation is to evoke an investigation into "means to avoid or reduce one or more indentified potentially adverse environmental impacts" - "The greater the impacts, the greater the need to discuss alternatives."

Apart from a "no action alternative," the DEIS and SDEIS reviews only alternative size parking facilities. There is no discussion of alternative uses presently permitted in accordance with the principal uses in the IND-AA Zoning District. This is a critical omission.

Since the regulations state that the EIS should "evaluate all reasonable alternatives," the applicant should evaluate alternatives consistent with the current permitted use - even if the alternative use is different in nature from the project proposed. As indicated in the 2010 SEQR Handbook, "[c]onsideration of an entirely different use or action may be reasonable ... [when | the proposed action does not conform to the current zoning of the site, in which case comparison to the use allowed under the existing zoning may be informative."

Of particular importance in consideration of alternatives to the proposed project is the application of the Freshwater Wetlands Act, ECL Article 24. Given the critical nature of the potential impacts upon wetlands, steep slopes, water courses, wetland buffers, the Kensico Watershed, and ultimately the Kensico Reservoir, the DEIS must take into consideration that, under ECL Article 24, certain freshwater permits may be granted only if the proposed action is "the only practical alternative that could accomplish the applicant's objective and [there is] no practical alternative on a site that is not a freshwater wetland or adjacent area." See, 6-NYCRR 663.5(e)(2), 662.6(b)(4); and see, 6 NYCRR 63.5(f)(2) (defining "practical alternative").

Another significant omission from the DEIS and SDEIS is directly related to the reasons given for the construction of parking garage in the first instance. The DEIS and SDEIS should contain a discussion of a non-parking alternative for the site, because evidence suggests that airport parking is available at SUNY Purchase, which includes or would include a shuttle between the SUNY Purchase parking areas and the Westchester County Airport. Given the applicant's claim for the need for additional airport parking at

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peak travel times, it is likely that parking availability on the SUNY Purchase campus would be sufficient to handle that need.

The omission of the alternatives mentioned above is a sufficient basis for rejecting the DEIS in this instance.

On April 12, 2016 to the New York City Department of Environmental Protection on the second page starting with the lack of project need and the second of the second o

The Lack of Project Need

The Sponsor asserts that the project proposal to construct 980 parking spaces in a five story parking structure is needed to service parking needs at the Westchester County Airport. This allegation is based upon a two (2) day analysis conducted in August 2011. The Sponsor never contacted the Westchester County Airport to verify the premise for the proposal. In fact, the Sponsor's two (2) day analysis failed to include 150 spaces in the airport north lot which was not open on the date of the Sponsor's analysis. Accordingly, on the dates in August 2011 regarding which the Sponsor reports on parking space occupation at the airport, approximately 10% of the spaces were vacant in the airports 1,050 car parking garage and 100% of the 150 spaces in the Airport's North Lot. Parenthetically, since 2011 there has been a steady decrease in passenger loads. Since 2011, passenger loads at the Westchester County Airport have dropped 500,000 per year down from a high in 2011 of 2 Million to 1.5 Million per year. (See, Journal News, April 10, 2016, Bigger Planes Land Westchester Airport at Crossroads, page 1).

Contrary to the Sponsor's allegation of project need, the County of Westchester reports that there is a steady decline of passenger loads, ample parking at the Westchester County Airport, and that, if a need does arise, expanded parking may be provided at the airport itself. See, April 11, 2016 Letter of Peter Scherrer, Westchester County Airport Manager to John Delano, Chairman of North Castle Planning Board.

The U.S. Department of Transportation 2016 Report of NY Metro Regional Airport Data confirms the decline in passenger flights at the Westchester County Airport:

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And the second of the second o 2011 1,923,000 passengers per year

1,735,000 passengers per year 2012

2013 1,477,000 passengers per year
 2014 1,489,000 passengers per year

2015 1,490,000 passengers per year

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(See, also, Id.)

This comparative analysis falls far short of any findings that reasonable rangeable alternatives have been considered in neither the DEIS or SDEIS. Moreover, due to the fact that it has now been conclusively shown that there is no need for additional parking to service the Westchester County Airport, such lack of need should have been included in the DEIS or SDEIS when considering the "no build" alternative.

An example is found in a similar case: Village of Ossining v. Planning Board No. 88-16248 (N.Y. Sup. Ct. Aug. 10, 1989). In Village of Ossining, supra, the developer proposed to build 55 single family homes on 53.5 acres of which 17 homes were to be built on 13 acres of watershed land. A swale to divert surface runoff and a curtain drain to prevent pollutants from entering the reservoir via groundwater was proposed. The Planning Board approved the proposal. The Village of Ossining challenged the approval on the basis of failure to properly evaluate a cluster plan which would locate all homes outside the watershed area. The court agreed and criticized the Board for ignoring any particular alternative which provided for a layout outside the watershed. The Court concluded that the Board had failed to take a "hard look." Ossining, No. 88-16248 at 10-11.

The result of Ossining, supra, is that all agencies, as stewards of the water, are required to consider alternatives which acknowledge that watershed lands deserve and require greater consideration under SEQRA. In Ossining, the Court required the Board to review non-watershed alternatives even through not proposed by the Applicant or studied by the Board as an alternative.

In the Park Place Parking Garage EIS, the Sponsor has failed to provide an alternative analysis which evokes non-significant watershed impacts such as "No Need, "No Build."

The DEIS and SDEIS Failure to Fully Address the Effect of a Zoning Amendment and Growth-Inducing Aspects of the Proposed Project

The DEIS and SDEIS fail to give proper consideration to the wide range of potential effects that would result from the granting of the Applicant's petition for an amendment of the Town's Zoning Code. Such an amendment would open up the area to additional uses and would have growth-inducing impacts beyond the immediate effect upon activity at the Westchester Airport.²

The law is settled that, "[t]o comply with SEQRA, the Town Board must consider the environmental concerns that are reasonably likely to result from, or are dependent on, [proposed zoning] amendments." Eggert v Town Bd. of Town of Westfield, 217 A.D.2d 975, 630 N.Y.S.2d 179, 181 (4th Dept. 1995); accord, Fisher v. Giuliani, 280 A.D.2d 13,

² The proposed zoning amendment would alter dramatically the nature of the existing IND-AA zoned area. For example, accommodating the proposed project would: double the maximum allowable height, from 30 feet to 60 feet; double the maximum allowable building coverage, from 30% to 60%; eliminate the Floor Area Ration (FAR) requirement; and reduce the side yard set back, from 50° to 10°.

720 N.Y.S.2d 50 (1st Dept. 2001); Brew v Hess, 124 A.D.2d 962, 508 N.Y.S.2d 712 (3d Dept. 1986). "[T]he decision to amend [a] zoning ordinance commit[s] the Town Board to a definite course of future conduct by permitting previously prohibited uses subject to obtaining a special use permit." Eggert, 630 N.Y.S.2d at 181. Accordingly, "[t]o comply with SEQRA, the Town Board [is] required to address the potential environmental effects of the amendments, at least on a conceptual basis." Id., at 181. "A municipality should consider the most intensive uses allowable under the proposed zoning to judge potential impacts." "SEQRA Handbook," at 182.

The DEIS contains only one rather sparse paragraph addressed to these issues (DEIS, at 22-2), in which it states: "[s]ince adjacent existing parcels that meet the [prescribed] development criteria are substantially developed, no significant growth-inducing aspects are anticipated from the proposed zoning amendment." Without more, the DEIS is woefully insufficient to meet the "hard look" standard for review of potential environmental impacts.

It is not mere speculation to anticipate the precedential effect of a zoning amendment. The effect also reaches beyond the immediate area, since an amendment may impact other zoning districts within the Town. For example, since the requested amendment would establish a maximum height and coverage allowance beyond what is permissible in any district in the town, future development likely will expect equivalent allowances for their projects. The DEIS is silent regarding these concerns.

U.S. Army Corps of Engineers Review

The DEIS raises a question with respect to the need for review by the U.S. Army Corps of Engineers ("ACOE") of potential environmental impacts of the project on federally protected wetlands. While the DEIS states that the Applicant may obtain a Nationwide Permit from the ACOE (DEIS at 1-2), it is likely that individualized review by the ACOE will be necessary and that such permit will be unavailable.

The DEIS recognizes ACOE jurisdiction over wetlands at the site, including Wetlands "A" ("Forested wetlands, a perennial stream, and an additional drainage feature were found to constitute regulated surface water resources at the Town and Federal level"). However, the ACOE have not yet confirmed the boundaries of resources under its jurisdiction.

The Project purportedly would impact approximately 0.13 acres of regulated wetlands, since a portion of the garage would be located in Wetland "A" (DEIS fig. 8-4). The DEIS incorrectly assumes the availability of Nationwide Permit 39 (for Commercial and Institutional Developments involving less than ½ acre of disturbance). General

The regulation quoted above (footnote 1) expressly directs consideration of any "growth-inducing aspects of the proposed project" associated with potential adverse environmental impacts, but a zoning change adds another dimension to this concern, since it sets a precedent. As observed in the DEC SEQRA Handbook: "Keep in mind that rezoning itself may be more significant from the standpoint of SEQR than the individual permitting of projects since a zoning change triggers a change in the allowable use of land and ostensibly individual projects consistent with that change will be considered in the future in the rezoned area."

Condition 19 of the Nationwide Program disallows certain Nationwide Permits (including NWP 39) in Designated Critical Resources Waters "for any activity within, or directly affecting, critical resource waters, including wetlands adjacent to such waters." 72 Fed. Reg. 11092, 11193 (March 12, 2007). The East of Hudson Watershed (including the Kensico Reservoir Watershed) has been designated as Critical Resource Waters (DEP, Wetlands in the Watersheds of the New York City Water Supply System, at 19), which means that "individual, project-specific permits are required for many activities."

Under the individualized "Public Interest Review" conducted by the ACOE, (33 CFR § 320.4(a)), "[t]he decision whether to issue a permit will be based on an evaluation of the probable impacts, including cumulative impacts, of the proposed activity and its intended use on the public interest." The DEIS does not contain a basis for meeting the criteria for such a permit.

The ACOE regulations specifically apply to "[w]etlands [that are] considered to perform functions important to the public interest," which include those at the project site. "Wetlands the destruction or alteration of which would affect detrimentally natural drainage characteristics, sedimentation patterns, salinity distribution, flushing characteristics, current patterns, or other environmental characteristics," and "Wetlands which serve significant water purification functions." 33 C.F.R. § 320.4(b)(2).

Because the proposed project would have adverse impacts upon natural drainage characteristics, sedimentation patterns, and other environmental characteristics of wetlands connected to the Kensico Reservoir, the ACOE likely would be compelled to deny the permit request.⁴

Additionally, the DEC would need to make an individualized Water Quality Certification determination for purposes of an ACOE permit, pursuant to the federal Clean Water Act. As discussed in Keating v. F.E.R.C., 927 F.2d 616, 622 (D.C. Cir. 1991), "The states remain, under the Clean Water Act, the 'prime bulwark in the effort to abate water pollution,' and Congress expressly empowered them to impose and enforce water quality standards that are more stringent than those required by federal law [citations omitted]."

In enacting the Clean Water Act, Congress expressly declared its intention that states have the "primary" responsibility for preventing water pollution within their jurisdictions:

It is the policy of the Congress to recognize, preserve, and protect the primary responsibilities and rights of States to prevent, reduce, and eliminate pollution, to plan the development and use (including restoration, preservation, and enhancement) of land and water resources, and to consult with the Administrator in the exercise of his authority under this chapter.

33 U.S.C. § 1251(b). As noted in <u>Keating</u>, "One of the *primary mechanisms* through which the states may assert the broad authority reserved to them is the certification requirement set out in section 401 of the Act." 927 F.2d at 622.

The Project's ACOE application would be subject to review under the National Environmental Policy Act ("NEPA").

Since the DEC will afford a Water Quality Certification only if it can determine that the project will not violate relevant regulatory requirements intended to preserve water quality (6 NYCRR 608.9), the DEIS should contain a discussion of the proposed project's ability to satisfy each of the listed criteria.

POINT II

SUBSTANTIVE ISSUES

The DEIS And SDEIS Understates the Project's Most Significant Adverse
Impacts on Wetlands and the Region's Potable Water Supply

As indicated in our May 31, 2011 comments, at the outset, we note that this discussion is presented with the awareness of the nature of the growing criticism of the proposed project, as well as the authoritative bases and sources of opposition, with which the Sierra Club fundamentally agrees. The threat to the Kensico Watershed is too great. And notwithstanding the attempts by the drafters of the DEIS to persuade that this project will actually improve the environmental quality of the project area, there are simpler, more direct, and less risky means to accomplish that goal.

As mentioned previously, we retained Dermody Consulting to conduct a review of the DEIS and have received the comments of Peter Dermody, a principal hydrogeologist, who has opined on the insufficiency of the DEIS. Ultimately, he concludes that the proposed parking garage would have a cumulative impact and cause further degradation of the water quality in the Kensico Watershed and thus in the Kensico Reservoir. At our request, Mr. Dermody has sent his comments directly to the Board.

We also have obtained a copy of the comments sent to you by the NYC Department of Environmental Protection ("DEP"), in a letter dated May 23, 2011. DEP reviewed the site plan and the DEIS, as a result of which DEP expresses a wide range of "concerns about potential water quality impacts resulting from the project":

In particular, DEP is concerned about the project's potential for turbidity and increased pollutant loading, particularly phosphorus, in to the Kensico reservoir, disturbance of steep slopes and wetland buffers, and the lack of "green infrastructure" practices. The location of certain stormwater management practices within wetland/watercourse areas may degrade the buffer's beneficial water quality attributes. Further, there is a lack of information regarding mitigation of groundwater and stormwater impacts, construction and sequencing and various other concerns detailed below.

Without repeating all of the lengthy analysis set forth in its letter, we adopt DEP's comments and incorporate them herein as our own. That being said, and acknowledging that there will be some repetition at, we offer the following for the Board's consideration.

The Town Planning Board, the Town Board, and the Town Conservation Board obviously are well aware of the environmentally sensitive nature of the Kensico Watershed and the staggering importance of maintaining water quality in the Kensico Reservoir - the source of drinking water for millions of New Yorkers, including those within the local area. After all, one of the reasons the Planning Board issued a Positive Declaration requiring the EIS is that "[t]he proposed construction is to occur wholly within the Kensico Reservoir Watershed."

Indeed, it may fairly be said that the Town's commitment to environmental protection is truly impressive. One example is the creation of the Kensico Watershed Improvement Committee ("KWIC"), in which the Town partnered with five major corporations on Route 120 for the express purpose of "protect[ing] the Kensico Reservoir from potential water quality threats associated with the corporate and roadway uses in the King Street Corridor" - the precise location of the proposed project. This committee authored the "King Street Corridor Management Plan" in 2001, in which it very pertinently states, "careful planning for new development [is one of two] extremely important components of the management plan." As such, one would expect the project sponsors to be familiar with the Plan and to discuss the project's consistency with the Plan's objectives. Unfortunately, the DEIS contains no reference to the Committee or to the Plan.

The Impacts on Natural Resources

Even after considering the changes made by the project sponsor concorning the reduction in size and footprint of the parking facility, and the other proposed changes, the impacts on natural resources will still be significant. For example, the Town of North Castle - designated wetlands will be at adversely affected. Likewise, 100 foot wetland buffer area will also be disturbed. The project still requires encroachment within the 300 foot protection zones around the New York City Department of Environmental Protection reservoir stem, and the proposed projects still threatens the New York State Department of Environmental Conservation Class A greens that are present at the north, south and west site boundaries. In addition, the projects still proposes to convey stormwater generated on the pervious parking areas to stormwater basins that will be constructed. These basins will include a detention basin for the settling of suspended sediment and a sand filter basin. The stormwater will then be directed to a wetland that is still to be constructed, and the location of which has still not been indicated.

It is a well established fact that parking lot stormwater runoff contains numerous petroleum constituents and toxic chemicals associated with antifreeze. Overtime, these contaminants accumulate in the area where they are discharged. The detention basins and wetlands that are proposed to be constructed will be in an area where the dept to groundwater is very shallow. Therefore, the contamination that will be directed to the detention basins and wetlands has a high potential to percolate downward through the soil and impact the groundwater. Groundwater will flow and discharge to the adjacent streams Kensico Reservoir.

The DEP, in its letter, states that the proposed stormwater control measures will not mitigate the project's effect on groundwater because those measures ameliorate "only a limited subset of the range of functions provided by the lost wetland and cannot be considered true mitigation for the loss of the wetland's other functions." Other inadequacies of the DEIS mentioned by the DEP include: the absence of a discussion of how stormwater control measures will mitigate increases of dissolved phosphorus; the failure to address additional pollutants, such as nitrogen, suspended solids, "biological oxygen demand," and "fecal coliform loading;" and pre- and post-development drainage area maps for analysis of the significant quantity of new impervious surfaces. The DEP goes even further in stating "DEP consistently discourages" stormwater management practices within 100 feet of a wetland buffer and, therefore, "it is recommended that the applicant choose an alternative that avoids all impacts to the wetland and wetland buffer."

Application of the Town's Freshwater Wetlands Law

It is likely that the Town Board will deny a Wetlands Permit for the Project. In adopting North Castle's Freshwater Wetlands and Drainage Law, the Town Board stated that "[w]etland areas should be protected from encroachment, spoiling, polluting, or obliteration stemming from . . . commercial development . . and/or disregard for natural resources." Town Code § 209-3(A)(1).

The Freshwater Wetlands Law (Town Code § 209-3(A)(1)) recognizes that wetlands provide multiple beneficial functions, including: "[p]roviding drainage, flood control, and natural storage for water;" "[p]rotecting and purifying surface and subsurface water resources by sediment trapping, nutrient removal and chemical and biological detoxification;" "[r]echarging, storing groundwater (including aquifers and surface waters,) and maintaining stream flow;" and "[m]itigating the effects of erosion by serving as natural sedimentation areas and filter basins." The Freshwater Wetlands Law requires that the Town Board "shall deny the permit if":

The proposed activity *may* threaten public health and safety
... can cause nuisances, impair public rights to the enjoyment of public waters ... or violate other federal, state or local laws and regulations [or] It finds that the detriment to the public good by the factors listed in this section would occur on the issuance of the permit outweighs the nonmonetary public benefits associated with the activity.

Town Code, § 209-7(B)(3). In the absence of much more developed mitigation measures, the proposed project clearly violates the threshold set in this section. Accordingly, the Board would be constrained to deny the issuance of a wetlands permit.

The DEIS asserts that the project's wetland buffer "disturbances are primarily for the proposed construction of the stormwater management basins." In fact, more than half of the proposed parking facility would be located within the 100-foot buffer zone. The DEP already has articulated that the DEIS is inadequate in dealing with the

functional value of the buffers that the project would eradicate. Contrary to the justification given in the DEIS,⁵ the Project would triple the amount of impervious surfaces in the buffer area. There are presently 12,132 square feet of impervious surfaces in the buffer. The Project would add 21,354 square feet of impervious surfaces to the buffer area, for a total of 33,486 square feet.

As the Town Wetland Consultant has observed, "this section completely downplays the extent of improvements proposed within the wetland buffer, proximity of these improvements to the wetland boundary line and potential impacts." (Memorandum to the Planning Board from David J. Sessions, RLA, AICP, dated Dec. 10, 2010, at 2.)

Moreover, both the DEIS and SDEIS were accepted as complete without a final wetland analysis. In the absence of new information that will be obtained in the Spring of 2011, the public are denied the opportunity to comment or object to the new information. See, Citizens Against Rerail Sprawal ex rel. Ciancio v. Giza, 280 A.D.2d 234, 722 N.Y.S.2d 645 (4th Dep't 2001). The boundaries of all streams and wetlands were field-delineated in the spring and fail of 2008. The Town inspected the wetland boundary in December 2010 and subsequently made preliminary modifications to the boundary. The wetland boundary is expected to be confirmed in the growing season (i.e., spring 2011). However, potential impacts were assessed based on the preliminary Town-delineated wetland boundary.

Significant Potential Adverse Traffic Impacts

The SDEIS does not add a further traffic impacts study concerning the reduced size and number of parking spaces now being proposed. Therefore, the only traffic study available was done for the DEIS, which evaluates the Existing Conditions, No Build Conditions, and Build Conditions of the proposed project. The TIS considers trip generation, project generated distribution patterns, parking, and site circulation characteristics associated with the construction of a proposed 1,450 space park-and-fly parking structure on New King Street. Traffic counts were conducted at the airport during the 2008 and 2009 Thanksgiving Holidays (peak travel periods). It is claimed that the parking demand at the airport during peak travel periods currently exceeds its parking capacity.

The TIS found that the construction of the Park Place garage would provide relief to the existing high demand for airport parking by providing an additional 1,450 parking spaces. The greater availability of parking would encourage many travelers who currently take taxis, limousines, or are dropped off/picked up at the airport to drive themselves to the airport, thus reducing the number of trips to the airport. The DEIS submits that drivers would also spend less time traveling between the various airport parking facilities looking for parking spaces. It is further claimed that the usage of the Park Place garage would also reduce the number of vehicle trips actually entering the airport terminal area

⁵ (See DEIS at 8-14 "At the present time, the existing impervious surface and lawn in the wetland buffer is 35,269 square feet (12,132 square feet impervious + 23,137 square feet of lawn. This is similar to the impervious surface and porous pavers proposed in the wetland buffer which is 39,255 square feet." (emphasis added).)

as a limited number of shuttle buses would transport passengers from the Park Place garage to the airport terminal. As demonstrated by the trip generation calculations included in Chapter 13, "Traffic and Transportation," the DEIS states that the result will be an overall reduction in the number of vehicle trips across the traffic network. Therefore it is claimed that there are no adverse traffic impacts that would require mitigation.

The Town's traffic consultants, Frederick P. Clark Associates, Inc. (FP Clark), conducted a supplemental traffic analysis to confirm the results of the TIS. The supplemental analysis considered a worst-case scenario whereby the proposed project would attract new travelers to Westchester County Airport, potentially increasing traffic in the study area. The FP Clark study concluded that even with this conservative analysis (i.e., a net increase in traffic), the proposed project would not result in significant adverse traffic impacts (see Appendix J for the TIS and supplemental analysis).

A previously indicated, the project is conceptually incompatible with the policy against growth or expansion of the Westchester Airport. The DEIS contends that the project would result in a reduction of vehicle trips to and from the airport. The Town's traffic consultant rejected this contention, noting that "the proposed Garage may increase demand and result in travelers now having the option of driving to the Airport for flights." (F.P. Clarke Letter at 8.) Mr. Clarke concludes that "the proposed facility could generate 200 new vehicle trips, plus 18 shuttle bus trip ends and 195 vehicle trip ends plus 18 shuttle bus trip ends during weekday morning and afternoon peak hours, respectively."

Based on the Town Consultant's projections, the Project would exacerbate existing "F" Level of Service (LOS) levels at three critical intersections: Airport Road and Route 120; Airport Road and the I-684 northbound ramps, and Airport Road and the I-684 southbound ramps. The Town's Comprehensive Plan already expresses concerns that the "Route 120 at Airport Access Road/I-684 Interchange 2" suffers from "[I] imited traffic capacity – high traffic volume."

The New York <u>City Environmental Quality Review (CEQR) Technical Manual</u> establishes a standard for determining whether an intersection would be "significantly impacted" by traffic from a project and require mitigation. As the <u>CEQR Manual notes</u>, LOS F describes unacceptable, failing conditions: "LOS F typically describes ever increasing delays as queues begin to form. This is considered to be unacceptable to most drivers. This condition often occurs with oversaturation, i.e., when arrival flow rates exceed the capacity of the intersection."

The CEOR Technical Manual establishes that a three (3) second delay increase at an existing LOS F intersection poses a significant impact that must be mitigated. (See CEQR Technical Manual at 16-53 (stating that at signalized intersections, "[f]or a lane group with LOS F under the No-Action condition, an increase in projected delay of 3.0 or more seconds should be considered significant... For unsignalized intersections the same criteria as for signalized intersections would apply.")

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The requisite mitigation would, at a minimum, compel the Applicant to bring conditions at the three LOS F intersections to within 3 seconds of the No-Build condition. The CEOR Manual establishes that appropriate mitigation requires that "Action-with-Mitigation" condition produces insignificant LOS degradation as compared to the "No-Action" condition. A 3 second delay at an LOS F intersection is deemed significant. Thus, mitigation must make the "build" condition have an insignificant impact (i.e., less than 3 seconds).

The DEIS simply fails to analyze or propose adequate mitigation of these conditions and is therefore deficient. These omissions make it impossible for SEQRA review under the hard look standard. The project's significant adverse traffic impacts are a critical defect. SEQRA requires that the DEIS explore all means necessary to mitigate a project's significant adverse impacts to the maximum extent practicable. See 6 NYCRR 617.11(d).

POINT III ZONING AND LAND USE ISSUES

a property of the second of th In light of all of the foregoing concerns identified with respect to the DEIS, we must oppose the Applicant's request for an amendment to the Town's Zoning Code to permit the construction of a parking garage in the IND-AA zoned area. Although we anticipate addressing our concerns to the Town Board, we take this opportunity to make our position clear. Obviously, the zoning amendment is indispensible for the proposed project to proceed. However, based on the information available to date, both the DEIS and SDEIS provides neither sufficient analysis nor sufficient mitigation of adverse environmental impacts upon the Kensico Watershed to justify the threats posed by the project.

The Town of North Castle Comprehensive Plan

Any zoning change must be in accordance with a comprehensive plan (Town Law Section 263). The Town of North Castle Comprehensive Plan Update, adopted in 1996, states, in pertinent part, at page IV-41:

> Due to the importance of preserving the residential character of the Town and minimizing the impact of airport. disturbance on neighboring residential communities, any expansion of the airport facilities and services leading to increased commercial flights and related noise is not recommended.

For reasons already stated, the proposed zoning amendment is inconsistent with the goals and objectives of the Town's Comprehensive Plan, as well as other regional laws and policies, including Resolution 245-2003 of the Westchester County Board of Legislators, N.Y.S. Assembly Resolution N. 1654, N.Y.S. Senate Resolution No. J5435m, which opposes any land use change which would tend to support an increase in the size of the Airport.

Spot Zoning

Similarly, in an effort to downplay the growth-inducing impacts of the Amendment, the DEIS effectively concedes that the Applicant's goal is to engage in illegal "spot zoning." As the Board knows, spot zoning is "the process of singling out a small parcel of land for a use classification totally different from that of the surrounding area for the benefit of the owner of such property and to the detriment of other owners."

Yellow Lantern Kampground v. Town of Cortlandville, 279 A.D. 2d 6, 716 N.Y.S.2d 786, 788-89 (3d Dept. 2000), quoting Rodgers v. Village of Tarrytown, 302 N.Y. 115, 96 N.E.2d 731 (1951). The ultimate test is "whether the change is other than part of a well-considered and comprehensive plan calculated to serve the general welfare of the community." Yellow Lantern, 716 N.Y.S.2d at 789 (citation omitted).

The DEIS essentially admits that the Applicant's goal is to single out the Site. The DEIS asserts that the Site would be the only parcel that could benefit from the proposed zoning change. (See DEIS at 22-2.) Moreover, the proposed Zoning Amendment is inconsistent with the Town's Comprehensive Plan. As the DEIS recognizes, "North Castle opposes any expansion of the airport." (DEIS at 3-5.) The Town's Comprehensive Plan unequivocally states that "any expansion" of the Airport is not recommended, stating at IV-41:

Due to the importance of preserving the residential character of the Town and minimizing the impact of airport disturbance on neighboring residential communities, any expansion of the airport facilities and services leading to increased flights and related noise is not recommended.

The Lead Agency should consider the propriety of the Applicant's effort to single out its Site for special classification solely for its own benefit, and to the detriment of other owners.

Segmentation

Since a portion of 7 New King Street (Lot 13 A) owned by JAM Airport, LLC is being used for the project, in addition to a subdivision approval for Lot 13 A [discussed above], the DEIS should address what is contemplated for the balance of Lot 13 A and its subdivision. 6 N.Y.C.R.R. Sections 617.2 (ag) and 617.3 (g)(1).

The Project Site

There are two parcels which are in the application to achieve the 30% maximum coverage requirement: 11 King Street, Parcel 14 B which is also known on the tax assessment map as Section 3 Block 14, lot 14 B which appears to be owned by 11 New King Street, LLC, which is 2.47 acres; and, a 0.87 acre portion of 7 New King St., which

is 2.47 acres; and, a 0.87 acre portion of 7 New King St., which is a 4.20 acre parcel owned by Jam Airport LLC known on the tax assessment map as section 3, Block 4, Lot 13 A.

Since Lot 14 B is within the 300 foot buffer from the Reservoir and another portion is in a Town regulated wetland as well as a Federal watercourse, and steep slope which only permits 25% of the land area in such regulated areas to be used for purposes of FAR it is apparent that 0.86 acre of Lot 13 A owned by Jam Airport LLC was needed to achieve the combined land area of 3.34 to achieve the FAR of 267,000 square feet.

"Open Area Development"

Section 213.21 of the Town of North Castle Zoning Code requires 200 feet of street frontage on Old King Street. The Project Site has only 24 feet of frontage or 12% of the required frontage or an 88% reduction or variance from the requirement. Footnote "O" to the 200 frontage requirement states "These requirements may be varied or reduced in connection with the approval of the site plan by the Planning Board where the size and/or shape of existing lots may warrant or require it." In addition to a potential invalid usurpation of powers of the zoning board, this lack of frontage nevertheless constitutes an "open area development" under NY Town Law section 280-a. (For a general discussion of Open Area Developments, see Albert J. Pirro, Jr., "The Open Development Area As A Planning and Zoning Device." The Westchester County Bar Journal, Spring 1988).

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NY Town Law section 280-a defines the word "access" to mean that the plot on which such structure is proposed to be erected directly abuts on a street or highway and has sufficient frontage "to allow the ingress and egress of fire trucks, ambulances, police cars and other emergency vehicles, and, a frontage of fifteen feet shall presumptively be sufficient for that purpose." Town Law section 280-a (5). Consequently, Town Law section 280-a mandates the provision of improved and adequate access as issuance of a building permit. The constitutionality of section 280-a was sustained in *Brons v. Smith* 304 NY 164, 169-170 (1952).

The issuance of a building permit has two prerequisites. First, the street or highway must meet the requirements of section 280-a(1); and second, must be suitably improved or such improvements must be bonded. NY Town Law section 280-a(1). The mandate that the street or highway be suitably improved must comply with standards or specifications of the Town Board. NY Town Law section 280-a(2). An appeal from a denial of the building permit may, pursuant to NY Town Law section 280-a(3) to the Zoning Board of Appeals which Board must use the same standards referred to in NY Town Law section 267-b(3), the "balancing of hardship" standard and criteria therein.

An alternative to the access requirements of Town Law sections 280-a(1) and (2) exist where the Town Board has, by resolution created one or more "open development areas" pursuant to section 280-a(4). However, not only must the resolution include the subject property as an "open development area" but the resolution must first be referred to the Planning Board by the Town Board for a recommendation. Only after this process is complete is the Planning Board authorized to provide special limitations prescribed by

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general or special rules of the Planning Board. Worthington v. Planning Board of the Town of Carmel, 131 A.D.2d 466, 515 NYS2d 880 (2d Dep't 1987).

"Flag Lot" Frontage on Old King Street

The Site Plan indicates that the Project Site is a "Flag Lot" (See DEIS Figure 2-3). While the Zoning Code of the Town of North Castle does not prohibit developments on "flag lots", it remains that the IND-AA Zone requires 50 feet of frontage along Old King Street where the subject site only has 24 feet which is the only access point to the project designed to accommodate airport passenger vehicles entering and exiting the site as well as the projected 14 bus trips to and from the airport during am and pm peak hours.

Further, the 24 foot access frontage runs 240 feet to the majority of the project site where the 267,000 square foot parking structure with accommodation for 1.450 vehicles will be housed. Importantly, the access drive is over a regulated culvert which appears to be a protected watercourse.

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While fifteen (15) feet has under NY Town Law section 280-a is presumptively adequate frontage for an "Open Development Area" there remains a need for approval by either the North Castle Town Board or the Zoning Board which sets forth approval standards for an "Open Development Area" in either instance. This is not discussed in the DEIS.

Inadequate Aesthetic or Visual Analysis

As indicated above, the visual impact of the 56-foot high structure was limited in the DEIS to ¼ mile. The SDEIS did not provide any further analyses in this regard. Because the structure will impact homes on Old King Street and in Greenwich, the DEIS provides insufficient analysis of the project's potential adverse visual impacts. All visual impacts—the change in physical appearance of the project site, the height of the proposed structure, and the proposed screening—are lawful concerns that the DEIS should address.

The existing character of the immediate study area, which is dominated by office buildings and transportation uses (I-684 and Westchester County Airport), does not excuse the absence of a discussion in the DEIS of the visual impacts upon other zoned areas and potential from vantage points such as Greenwich, CT. The landscape plan along property boundaries does not shield the building at a height anything close to 56 feet.

Finally, it should be noted that visual impacts may form the basis of a denial for SEQRA review purposes. See, Lane Construction Corp. v. Cahill, 270 A.D.2d 609, 704 N.Y.S.2d 687 (3d Dept. 2000).

Adverse Impacts on Greenwich

The DEC has clearly indicated that municipalities have the responsibility to consider impacts of a proposal, even if they fall outside their jurisdictional boundaries:

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Does a municipal board have to consider extraterritorial environmental impacts, for example: impacts occurring in an adjoining municipality?"

Yes. For example, a planning board reviewing a cellular communications tower visible from a neighboring community should consider the aesthetac impact of the tower on the neighboring community. [Another] example would be a community reviewing a shopping plaza that generates traffic on an adjoining community's roadway system. In that case, the host community's review should consider the traffic on the adjoining community.

(SEQR Handbook at 177.) The DEIS, however, trivializes the visual and community character impacts the Project would have on the nearby residential community in Greenwich.

The DEIS irrationally downplays, for example, the Project's visual impacts on the proximate residential community, stating that "[t]here are also some nearby residential uses, but these uses are typically found interspersed among dense vegetation that would screen views of the parking facility." (DEIS at 4-2). It similarly states that the homes on King Street "are generally surrounded by dense vegetation and allow for few if any views of the project site and existing buildings." (DEIS at 4-4.) The DEIS provides no analyses to support these statements.

The DEIS, for example, provides no photo-simulation to show how the Project would appear from King Street in Connecticut. It also does not consider conditions during winter/leaves off condition, when the vegetation that ostensibly provides screening is not there.

The reality is that this nearly sixty foot (60') Project would loom over the residences on King Street in Greenwich year round. Obviously, this impact would be compounded if other projects seek to develop in the IND-AA District in line with the expanded bulk requirements under the proposed zoning amendment.

The DEIS also ignores the community character impacts the Project would have on the adjacent residential community in Greenwich. It incorrectly states, for example, that "[t]he area immediately surrounding the project site is dominated by transportation, business, and commercial land uses," completely ignoring area residents. (DEIS at 3-1.) In contrast, the DEIS is sensitive to North Castle's desire to protect its single family residential neighborhoods, noting that "the Town desires to protect the qualities of a rural community or 'quiet suburb', characterized largely by low- to medium-density single —family neighborhoods." (DEIS at 3-5.) It is unclear why the immediately proximate residential neighborhood in Greenwich does not deserve the same consideration.

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POINT IV

INADEQUACIES IN BOTH THE DEIS AND SDEIS

Of primary concern, is the numerous issues that are not responded to in either the DEIS or the SDEIS, since the project applicant has deferred consideration of these issues to the site plan review. However, the whole purpose of the lead agency requiring an Environmental Impact Statement, is so that the lead agency will have before it all of the identified environmental issues, so that the lead agency can take a hard look at those issues and assure that significant adverse environmental consequences can be avoided, and where they cannot be avoided, are mitigated to the greatest extent practicable. These issues are deferred to a later date, and not included in the DEIS or in the SDEIS as well. Since that information is not available to the lead agency, therefore the lead agency cannot take a hard look at those issues. Just as surely, the public is also denied the ability to review those deferred issues, so that the public can appropriately provide comments concerning those issues.

Therefore, for example the following issues have been deferred to site plan review and approval:

- The sponsors' proposal for placement of plants species is not addressed, and there is no specific planting plan provided concerning the wetland and wetland buffer enhancement area, which has been deferred for consideration at the site plan approval stage.
- The details of the site hydrology and design analysis have been deferred to site plan review.
- Stormwater engineering design details have been deferred to site plan approval. Investigations of options for retrofitting impervious areas have been deferred until the final SWPP.
- The structural details for outlets structures within the stormwater control system have been deferred until site plan review.
- The design and required correction of the flow splitter is deferred until site plan review.
- The planter details are deferred until site plan review.
- The location of the pocket wetland is deferred until site plan review.
- Engineering details regarding soil is deferred until site plan review.
- The Tc flow path is deferred until site plan review.

Besides these issues that have been deferred to site plan review, there are a number of other inadequacies to the DEIS and SDEIS that have been indicated by various involved agencies. For example, although the sponsor provides a revised construction sequence, the construction of the building foundation proceeds without first constructing a sand filter. Other inadequacies include the following:

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- While the Department of Environmental Protection and the project sponsor continue to be at odds concerning the removal of 40% total phosphorus or the dissolved fraction of the total phosphorus, neither the DEIS nor SDEIS does address other pollutants.
- The Department of Environmental Protection quoted that the project results in a 88%, 49% and 61% in runoff volume above pre-development levels for the one year, ten year and 100 year floods over 24 hour storms respectively. However, in looking at the storms that have occurred during the 21st century to date, what once was considered 100 year storms seem to be occurring at a much greater regularity. Neither the DEIS nor the SDEIS accounts for this possibility.
- While the Department of Environmental Protection requested the utilization of more intensive green roof stormwater infiltration to enhance the stormwater management capability of the project, the project sponsor has refused to utilize such green roof technology.
- The project sponsors wetland buffer enhancement planting mitigation ratio of 1:3:1 was below the Town's 2:1 mitigation requirement, and as previously indicated, has deferred the off-site location for planting mitigation.

CONCLUSION

Every involved and interested agency, including the County of Westchester Legislature, the County of Westchester Planning Department, the New York City Department of Environmental Protection, and others have commented negatively concerning this project. Likewise, the Sierra Club, as well as other individual members of the public, all commented negatively concerning this project. The growth inducing aspects of this project are contrary to the Westchester County policy concerning non-expansion of the airport. Finally, as indicated, there is simply no need for additional parking.

For all the foregoing reasons, it is respectfully submitted that this project, proposed to be built on such sensitive land nearby Kensico Reservoir, should not be approved by the Town of North Castle Planning Board, and should not even be considered for approval until an adequate Environmental Impact Statement is prepared. However, if the Board of North Castle Planning Board still believes that the Environmental Impact Statements are adequate, it is further respectfully submitted that the only appropriate choice is to deny the project sponsor's proposed alternative, and to adopt a no-build alternative. Eleven New King Street is simply not the place to site a large parking garage.

Respectfully submitted,

LIPPES & LIPPES

RICHARD J. LIPPES,
Attorneys for the Sierra Club

RJL/mtp

cc: Town of North Castle Town Board
Town Hall
15 Bedford Road
Armonk, New York 10504

Ms. Cynthia Garcia
New York City Department of Environmental Protection
SEQRA Coordination Section
465 Columbus Avenue, Suite 350
Valhalla, New York 10595

William Gorton, PE
New York State Department of Transportation
Region 8
Eleanor Roosevelt State Office Building
4 Burnett Boulevard
Poughkeepsie, New York, 12603

John Fava, Chairman
Town of North Castle Conservation Board
Town Hall Annex
17 Bedford Road
Armonk, New York 10504

Ed Burroughs, Commissioner
Westchester County Department of Planning
Michaelian Office Building
148 Martine Avenue, Room 432
White Plains, New York 10601-4704

Michael Smith, Westchester County Board of Legislators 800 Michaelian Office Building 148 Martine Avenue White Plains, New York 10601

Philip Bein, Assistant Attorney General
Watershed Inspector General
Environmental Protection Bureau

Charles Silver, Ph.D.
Watershed Inspector General Scientist
Environmental Protection Bureau

the transfer to the

LIPPES & LIPPES ATTORNEYS AT LAW

1109 Delaware Avenue Buffalo, New York 14209-1601

Telephone: (716) 884-4800 Fax No.: (716) 884-6117

RICHARD J. LIPPES, ESQ.

RLIPPES@LIPPESLAW.COM

February 26, 2016

Honorable John Delano, Chairman and Members of the Planning Board Town of North Castle 15 Bedford Road Armonk, New York 10504

Re:

Park Place at Westchester County Airport; Draft Supplemental Environmental Impact Statement (DSEIS)

Dear Honorable Chairman and Members of the Board:

These comments are submitted on behalf of the Sierra Club. The Sierra Club founded in 1895, is the oldest continuing environmental organization in the country. It has extensive membership throughout the country, including in New York State, Westchester County and the Town of North Castle.

This memorandum addresses the issue of completeness of the DSEIS presently before the North Castle Planning Board on February 29, 2016 for acceptance of the DSEIS as complete. The document remains inadequate and/or incomplete for review by the public and involved agencies at a public hearing.

General Observations

The Applicant states that the parking facilities at the airport are at 90% capacity and there is a need for additional parking to accommodate airport passengers. To date the Applicant has not, in view of the significant impact to the Kensico Reservoir and its buffer areas, examined that the need, if any, can be accommodated by an expansion of parking at the airport itself. This alternative would pose substantially fewer environmental impacts and would alleviate concerns about the geographic expansion of the airport.

In this regard, the search for possible alternatives to the proposed plan has "been characterized as the 'heart of the SEQRA process'." Shawangunk Mtn. Envtl. Ass'n. v. Planning Board of Town of Gardiner, 157 A.D.2d 273, 557 N.Y.S.2d 495, 497 (3d Dept. 1990); see, also, Dubois v. U.S. Dept. of Agric., 102 F.3d 1273, 1287 (1st Cir. 1996) ("the 'existence of a viable but unexamined alternative renders an environmental impact statement inadequate'."). In this regard, the County Airport, as an alternate site, though not owned by Applicant, warrants a complete analysis of additional parking at the airport itself. See, e.g., Horn v. Int'l. Business Machines Corp., 110 A.D.2d 87, 493 N.Y.S.2d 184, 192 (2d Dept. 1985) appeal denied 67 N.Y.2d 602 (1986).

Upon review of the DSEIS prepared for Park Place at Westchester Airport, the document cannot be declared complete because the Project Sponsor's SDEIS has failed to adequately address fundamental design flaws and moreover has failed to adequately respond to comments raised by involved agencies. In general, the Project Sponsor has failed to provide adequate level of detail on stormwater management and other so-called environmental mitigation measures while claiming that the design is sensitive to the critical nature of the property's proximity to a direct tributary to the Kensico Reservoir. The Project Sponsor's deferral of these critical measures until site plan review is inappropriate. This needs to be addressed and studied at this time to deal with fundamental design matters upon which the validity of the proposed project is based.

The Sponsor asserts that the beneficial impacts of the construction of the proposed storm water facility far outweigh any adverse environmental impacts in that those impacts will largely be mitigated by measures which continue to be unidentified in the DFEIS. The Sponsor simply states that the engineering controls will be discussed at the time of site plan approval. In this regard, the DSEIS violates the fundamental concept that environmental review be undertaken at the earliest possible opportunity.

The Project Sponsor has submitted an incomplete representation of the of the project's mitigation measures. Section 4.11 of the New York State Storm Water Design Manual includes "fleet storage areas (buses, trucks, etc.)" as a "Stormwater Hotspot". Given the proposed storage of 980 cars in a concentrated location and the associated pollutant loading of those cars and operational components of the facility this appears to be an irresponsible proposal with respect to the critical nature of the site's proximity to the Kensico Reservoir. However, at a minimum, the Project Sponsor should have provided adequate design details relating to the proposed project and specifically how those details will mitigate the impacts associated with the proposed project, especially when the request for those details was made by the agency that is charged with protecting the Kensico Reservoir.

The Project Sponsor has submitted an incomplete representation of the requested alternative design. The New York City DEP has made very clear that the "Watershed Regulations generally prohibit the construction of new impervious surfaces within 100 feet of a DEP-flagged watercourses"...and ..."that the project should be scaled down...to exclude...new impervious areas from ...DEP buffer areas." The Project Sponsor merely represents that the proposed project related impervious surface has been reduced from prior proposals (only doubling the amount of existing impervious surface in the buffer) and that a variance will be

required. There is no representation or justification of, or for, the granting of a variance by the NYCDEP. Further, since the inclusion of the proposed impervious surface is so closely tied to the proposed design, the Project Sponsor has presented no alternative means of constructing the project without the variance. It is unclear and not supported in the DSEIS that the NYCDEP would have any justification for granting the variance especially in consideration that the NYCDEP has already gone on record stating that such impervious surfaces should be eliminated.

The Project Sponsor has submitted a serious continuing concern of the Federal Aviation Administration's August 18, 2015 "Determination of No Hazard to Air Navigation" correspondence. The FAA correspondence relates to air navigation and is not an endorsement of the proposed use, or the safety of the proposed use, within the Runway Protection Zone (RPZ) for the only instrument rated approach to the airport. The FAA's letter states that because the property is not the airport owner, "...recommendations are issued to inform the sponsor of the inadvisability of the project from the standpoint of safety to personnel and property (emphasis added)." The Project Sponsor represents that because the proposed action will not result in the congregation of people, but "...only small groups of people...," the FAA would have no objection to the proposed structure. The FAA's letter does not support the Project Sponsor's representation. Furthermore, in the context of this discussion, the Project Sponsor fails to identify the origin of the RPZ, why it is shaped the way it is and how its dimensions are determined. Perhaps if the DSEIS more adequately included a discussion of the RZP dimensions and geometry which are based upon aircraft crash data, the FAA's alert of the inadvisability of the project would be more appropriately assessed.

Access to the project site is from a driveway between New King Street and the property. The driveway is approximately 21 feet wide and spans a NYSDEC regulated Class A watercourse. It is only wide enough for one vehicle at a time. The Sponsor proposed to expand the driveway to 24 feet. Sponsor does not address whether the 24 foot wide proposal adequately accommodates vehicles ingressing and egressing simultaneously or emergency vehicles. The impacts to this Class A watercourse are not addressed other to say it will be "bridged." The DSEIS does not address in its response to the DEP how this bridge will be managed during stormwater runoff or pollutants from snow reduction chemicals.

The proposed DSEIS does not discuss in detail engineering controls to prevent contaminants from entering the Kensico Reservoir. This requires a complete description of any operation, maintenance and monitoring requirements including the mechanisms that will be used to continually implement, maintain, monitor and enforce such controls. These long term maintenance and monitoring must include the inspection of the hydraulic systems within the structure and the periodic testing of groundwater for contaminants.

While the Sponsor indicates that it would place a storm water retention facility within a buffer area of the Kensico Reservoir, it has not identified an off-site location to which the storm water retention facility will deposit. Under these circumstances, the Sponsor has not developed a viable site management plan to provide for the operation and maintenance of the components of its proposed storm water retention facility.

With regard to the proposed development of a storm water facility in a buffer area next to the Kensico Reservoir the Sponsor indicates that there is presently no storm water control at the site and that the proposed storm water facility in the buffer area is actually an improvement in safeguarding contaminants running into the Kensico Reservoir. However, what the Sponsor fails to explain that there is no evidence that the present existing 9,000 square foot building on the site releases any contaminants into the Kensico Reservoir. Accordingly, there may in fact be no need for a particular storm water control at this site at this time. Rather, it is obvious that the proposed development of the 53 foot high parking facility, operated with hydraulic mechanisms, and increasing the impervious area on the site of necessity does require storm water control and other engineering controls to prevent contaminants from running into the Kensico Reservoir. Accordingly, there is not empirical evidence in the record that the present site requires a storm water retention facility to prevent contaminants from eliminating into the reservoir.

The Sponsor has admitted that the parking system within the structure will be operated by hydraulics. Information regarding the chemical identity and quantity of the hydraulic liquid products to be used is non-existent. To the extent the hydraulic fluids constitute hazardous substances and/or hazardous wastes, DEC permitting will be implicated for management, as well as DOH health concerns for health and safety. An explanation of the life-cycle of the hydraulic liquids, from delivery through disposal is necessary. The delivery, frequency of delivery, storage before and after use, use, disposal and spill precautions are management issues that must to be discussed and a determination reached <u>now</u> as to whether the risks of this type development are outweighed by the dangers posed this critically sensitive watershed.

Planning Board Direction to Sponsor

On March 9, 2015, the Planning Board directed the Sponsor to address the following issues which were not addressed, or inadequately addressed, in the DSEIS. The response to comments in the DSEIS are still not addressed, or inadequately addressed in each of the following instances:

- 1. Obtain a new Federal Aviation Administration (FAA) "Determination of No Hazard" for the project. The previous determination expired, new rules governing development within the Runway Protection Zone (RPZ) have been issued and the proposed height of the garage has been increased. Note: A new FAA Determination of No Hazard was received and a copy is included herein.
- 2. Address project elements and airport safety with respect to bird attraction associated with stormwater mitigation practices and sun glare from proposed rooftop-mounted solar panels have been eliminated.
 - 3. N/A.
- Issues raised in correspondence from Westchester County, NYCDEP, and the Watershed Inspector General.

5. Prepare a new alternative for review where no portion, or a reduced portion, of the proposed garage building is located within the 100-foot limiting distance to the NYCDEP intermittent stream.

The Sponsor has reduced the proposed parking facility footprint to 37,444 square feet with 980 parking spaces. Notwithstanding, proposed impervious surfaces at 11 King Street (Lot 14B) as 40.5%. Accordingly, the project proposes an expansion of impervious surfaces within 100 feet of a watercourse that exceeds 25% of the area of the existing impervious surfaces at 11 King Street and a variance is required by the NYC Department of Environmental Protection (DEP). See, Section 18-39(a)(4)(iii) of the Watershed Regulations.

Specific Defects and/or Inadequacies in DSEIS

(a) Responses to the February 12, 2015 Letter of DEP

The response to the February 12, 2015 comments from the DEP are not adequate or <u>otherwise</u> incomplete. The following numbers correspond to DEP Comments and the Sponsor's Response as set forth in the DSEIS pages 6, et seq.

- 1. In Table 1-11 it remains unclear what is meant by "limiting distance disturbance."
- 2. Limiting distance disturbance is not defined.
- 3. N/A.
- 4. Although the Sponsor provides a revised construction sequence, the construction of the building foundation proceeds without <u>first</u> constructing a sand filter. Further, the Sponsor proposes to utilize a pocket wetland to accept runoff from the sand filter. This measure does not address early construction activities or other measures required by a SPDES construction permit.
- 5. The Sponsor does not adequately address the DEP concerns. Sediment Basin No. 2, which will be used during the final phase of construction will not function as intended because the bottom excavation penetrates the seasonably high water table which was witnessed in deep test pit excavation conducted by DEP.
- 6. The DEP and the Sponsor continue to be at odds regarding the removal of 40% total phosphorus or the dissolved fraction of the total phosphorus. Further, the DSEIS still does not address or assess pollutants such as TN, BOD and TSS in the DSEIS.
- 7. The DEP noted that the project results in an 88%, 49% and 61% in runoff volume above pre-development levels for the 1 year, 10 year and 100 year, 24 hour storms respectively. Sponsor admits this cannot be remedied by stating that infiltration practices to address these increases cannot be supported by site soils. The project Sponsor's statement that stormwater facilities in a series design are effective for removing dissolved phosphorus remains unsupported in the design and information provided in the DSEIS.

- 8. DEP has requested the utilization of more intensive green roof stormwater infiltration to enhance the stormwater management capability of the project. The Sponsor has refused to utilize a green roof "due to structural limitations."
- 9. The Sponsor's wetland/buffer enhancement planting mitigation ratio of 1:3:1 is below the Towns 2:1 mitigation requirement. In addition to this defect, the Sponsor has not identified an off-site location for a planting mitigation.

Comment No. 9, Page 10. Propose 19,500 square feet of wetland buffer enhancement planting which is a mitigation ratio of 1:3:1 which is less than the Town Codes 2:1 mitigation requirement. The Sponsor states a willingness to provide additional "offsite" wetland buffer mitigation at a location of the Town's choosing. As the Sponsor acknowledges, Section 209-9 of the Town Code explicitly states that 2:1 buffer mitigation is required "unless the approval authority determines that such mitigation is not feasible." No such determination has been made by the Town, nor can it be. Just because the project has already been reduced in size there is no reason it cannot be further reduced, or even more appropriately, given the critically sensitive watershed, deemed totally incompatible with the site and denied. Moreover, there is no authority for providing mitigation measures at a different location of the Town's choosing. The very reason for the Town Code is to protect this site's stormwater impacts on the watershed and no other.

- 10. The Sponsor admits use of chemical methods for removal of invasive species which results in extensive chemical application within a wetland and buffer in close proximity of the Kensico Reservoir. The Sponsor's proposed chemical methods over a 14,000 square foot area does not adequately address whether any chemical application should be permitted next to this major water drinking source.
- 11. The DFEIS does not adequately address protection of native species or the monitoring of same.
- 12. The Sponsor does not discuss enforcement of the monitoring of the amount of invasive species. Rather, it simply defers this issue to working with the Town Planning and Building Department during the site plan approval process.
 - 13. N/A.
- 14. The Sponsor's proposal for placement of plant species is still not addressed in the DSEIS. The Sponsor admits no specific planting plan is provided in the Wetland and Wetland Buffer Enhancement Areas. Rather, the Sponsor indicates this will be resolved during site plan approval.
 - 15. N/A.

(b) Responses to Comments from the NYS Watershed Inspector General ("WIG")

The following responses are inadequate and/or incomplete.

16. The WIG stated its position that no variance should be issued by the DEP in view of the extremely sensitive location of the site and proposed large encroachment within the buffer. The Sponsor's response is inadequate in the fact that although the footprint has been reduced, the project still requires a variance.

In response to the comment that the parking facility would increase by over 400% of the amount of impervious surface within the 100 foot buffer of a DEP regulated intermittent stream (from approximately 2,043 square feet to 10,413 square feet, Sponsor responds that the proposed footprint of the building was reduced to 5,993 square feet. The increase is still over 200% more than that which currently exists, still unacceptable given the general prohibition of the construction of any amount of impervious surface within 100 feet of a watercourse, especially such a sensitive watershed at issue here. The proposed construction should simply be denied as incompatible with the location situated next to the Reservoir.

The project has not eliminated the construction of stormwater practices within the 100 foot Town of North Castle wetland buffer. The Sponsor's response is that this impervious surface within the DEP 100 foot limiting distance be reduced to 13,697. While reduced, this does not address the comment of WIG. The DSEIS continues to assert that the details of the site hydrology and design analysis will be addressed during site plan review while the WIG finds that they must be addressed in the SEIS (sizing, placement and sequencing of practices impact the amount of disturbance).

- 17. The WIG commented that the hydrologic analysis is flawed in that the Northeast Regional Climate Center rainfall data values were not incorporated into the Hydro CAD file. The Sponsor does not adequately address this comment; rather, the Sponsor simply indicates the method it used is conservative.
- 18. The WIG corrected the soil type identified by the Sponsor and requested that the hydrology be recalculated. No recalculation was done by the Sponsor.
 - 19. N/A.
- 20. The Sponsor's position that stormwater engineering design details will be discussed during site plan approval is inadequate since the issue is critical during the SEQRA review process.
- 21. The WIG commented that investigation of options for retrofitting impervious areas should not be deferred until the final SWPPP. The Sponsor does not address this request and continues to defer such issues until the final SWPPP.

In response to the comment that the Sponsor should be required to investigate options for retrofitting impervious areas and include them in the final SWPPP, the Sponsor states it is

"sensitive to the fact that much of the adjacent Lot 13A, which they need for the project, was developed without concern for water quality as it predates the regulations. To address these concerns, Sponsor proposes to incorporate treatment of only approximately 11,000 square feet of impervious surface. The Sponsor needs this property for the proposed development. The entirety of Lot 13A's impervious surfaces need to be addressed now, not later. If not feasible, then neither is the development and it should be denied. Moreover, the Sponsors approach fails to acknowledge that the project exacerbates Lot 13A's development without concern for water quality by its refusal to meet the Town Code 2:1 buffer mitigation and in excess of a 200% increase in impervious surface on the proposed development site.

- 22. N/A.
- 23. N/A.
- 24. N/A.
- 25. WIG comment regarding removal of certain outlets and re-routing to a sediment basin are noted but not addressed as an environmental issue. The Sponsor simply states it will defer this issue until site plan approval.
- 26. The WIG requested calculations on a 100 year storm event. The calculations were not done; rather, the Sponsor states that such calculations would not have a substantive impact on the site plan layout. Further, the WIG's request for specific dimensions for a perimeter dike swale were ignored by the Sponsor and deferred until site plan approval.
- 27. The WIG recommends a curve number of 98 to size the erosion and sediment controls for all areas. The Sponsor states it doesn't affect the layout of the proposed site plan.
- 28. The WIG notes that validation of the post-development design Hydro CAD routings cannot be made without structural details for outlet structures within the Stormwater Control System. The Sponsor states this doesn't affect the layout of the proposed site plan and structural details will be provided during site plan review.
- 29. Again a required correction identified by the WIG in the flow splitter is deferred until site plan and not corrected.
- 30. Again a required correction identified by the WIG in the planter details are deferred until site plan and not corrected.
- 31. Again a required correction identified by the WIG in the elevation correction in the pocket wetland is deferred until site plan and not corrected.
- 32. Again a required correction identified by the WIG in the engineering details regarding soil depth is deferred until site plan and not corrected.

- 33. Again a required correction identified by the WIG in the Tc flow path is deferred until site plan and not corrected.
- 34. Again a required correction identified by the WIG in the certain mannings coefficients is deferred until site plan and not corrected.
- 35. Again a required correction identified by the WIG in the stormwater engineering design details deferred until site plan and not corrected.
 - 36. N/A.
- 37. Again a required correction identified by the WIG in the additional retrofits of impervious areas of Lot 13A are required to increase phosphorus removal.
- 38. Again a required correction identified by the WIG in rooftop runoff from the masonry building on Lot 13A, as well as, runoff from other impervious surfaces on Lot 13A should be captured and treated.

(c) Responses to February 11, 2015 Comment from the Westchester County Department of Planning

The following responses are inadequate and/or incomplete.

39. The FAA, on August 18, 2015, issued a "determination of no hazard to air navigation" however, the FAR did state that the proposed structure is within the Runway Protection Zone (RFZ) of the Westchester County Airport Runway 16/3. Notwithstanding, where, as here, the structure results in a congregation of people within the RPZ, the FAA has, in its August 18, 2016 determination, recommended that the project is inadvisable from the standpoint of safety to personnel and property. See, August 18, 2015 FAA Determination, p. 1 of 5, Exhibit E to DSEIS. Under SEQRA public safety is a significant environmental impact which the Sponsor cannot avoid. With 980 vehicles and drivers at the parking structure it is certainly a congregation of people within the RPZ.

Further, the FAA Determination had expired on January 19, 2016 unless the Sponsor has filed for a construction permit with the FCC. There is nothing in the record indicating that such a filing was made.

- 40. The Sponsor's treatment of the risk of airplane bird strikes is that a substantial net reduction in lawn area in project proposal will decrease the habitat preferred by Canadian Geese. This is not explained except in conjectural terms.
 - 41. It is unclear whether Sponsor presently includes solar panels in its project.
- 42. The statement that Westchester County, in a meeting with Sponsor and County DPW, expressed no concern over restriping of the Airport Access Road (Co. Route 135), east of

NYS Route 120 to create 2 receiving lanes and a road permit is undocumented. The only written communication remains the County's February 11, 2015 communication.

- 43. The County notes there will be extensive site disturbance within wetland buffers. The Sponsor simply repeats prior observations that this project will be the first to improve in New King Street property to treat stormwater runoff.
- 44. The County's concern regarding denuding the forested embankment which provides a natural buffer rather than a man made system which requires proper site and environmental conditions, design, construction and long term maintenance is ignored. This is coupled by the Sponsor's constant deferral of proper engineering controls until site plan review which obviates an environmental review at the earliest possible time.
- 45. Complete details specific to the stormwater plantings, although requested by the County are deferred until site plan review.
 - 46. N/A.
 - 47. N/A.
 - 48. N/A.

(d) Responses to the February 2, 2015 Comments of NYSDOT

The following response is inadequate and/or incomplete.

49. Sponsor indicates that a Highway Work Permit is required from NYSDOT. No permit application has been submitted by the Sponsor for approvals of any work to be performed in the ROW including permanent improvements. Accordingly, there is no way to review the environmental impact of the proposed work plan which requires approval by the NYSDOT.

Conclusion

For each of the reasons set forth above, the DSEIS remains incomplete and further review to correct deficiencies, and/or inadequacies, are required.

Very truly yours,

LIPPES & LIPPES

RICHARD J. LIPPES,

Attorneys for the Sierra Club

RJL/mtp

cc: Adam R. Kaufman, AICP, Town of North Castle Planner
Roland Baroni, Esq.
Kevin McManus, P.E.
Edward Buroughs, Chairperson, County Planning Dept.
Cynthia Garcia, NYC Dept. of Environmental Protection
Michael Sassi, P.E., NYS Department of Transportation
Jay T. Pisco, Commissioner, Westchester County Department
of Public Works & Transportation
Kevin Roseman, Traffic Engineer, Westchester County Dept.
of Public Works & Transportation
Evelyn Martinez, NY District Manager, Federal Aviation
Administration, Eastern Region

Philip Bein, Assistant Attorney General, Watershed Inspector General, Environmental Protection Bureau Charles Silver, Ph.D., Watershed Inspector General Scientist, Environmental Protection Bureau

akaufman@northcastleny.com rbaroni@prodigy.net mcmanus.associates@gmail.com eeb6@westchestergov.com cgarcia@dep.nyc.gov michaelsassi@dot.ny.gov

jpisco@westchestergov.com

Kmr5@westchestergov.com

Philip.bein@ag.ny.gov

Charles.silver@ag.ny.gov



Westchester County Airport

240 Airport Road, Suite 202 White Plains, New York 10604 Tel 914.995.4850 Fax 914.995.3980 www.ayports.com APR 2 6 2016

April 11, 2016

Honorable John Delano, Chairman and Members of the Planning Board Town of North Castle 15 Bedford Road Armonk, New York 10504

Re: Park Place at Westchester County Airport;

Draft Supplemental Environmental Impact Statement (DSEIS)

Dear Honorable Chairman and Members of the Board:

This letter is submitted for your review in regards to the proposed 980-vehicle parking garage at 11 New King Street, North Castle, New York, a/k/a, Park Place at Westchester County Airport. We have been advised that the Draft Supplemental Environmental Impact Statement (DSEIS) is scheduled for a public hearing on Monday, April 11, 2016.

We offer the Airport comments as the County of Westchester is listed as an Involved Agency under this environmental review process.

The modified Park Place proposes a 980-vehicle parking structure to be built in a structure which is larger than the original application. The application only analyzes parking facilities of different sizes for the project site. No other alternatives are provided such as office or warehouse space. The DSEIS does not address the "no build" alternative in view that sufficient parking spaces presently exist at the Westchester County Airport. The following empirical data establishes that there is no need for the proposed project in terms of airport parking. Further, it should be noted that should a future need for additional airport parking arise, there is ample opportunity to provide such parking at the airport.

- Current public parking facilities consist of 1,051 vehicle spaces in the parking garage, and 150 vehicle long-term parking spaces located in the northeast section of the airport.
- The airport has not experienced a public parking problem over the past six years, as
 passenger loads have steadily declined since 2011 and passengers have utilized other
 means of transportation to/from the airport. This is evident during the holiday period,
 which consists of 67 days in which the airlines do not have any passenger restrictions.
 During these holiday periods, the airport has ample public parking as vacation travelers
 are mainly dropped off at the Terminal Building.

- Under the current Terminal Use Restrictions, Air Carriers are unable to increase the size and seating of their aircraft due to the lack of available passenger allocations in various half-hour slot times. It also has resulted in our inability to attract new air carrier operators, or for our existing air carriers to increase service to other destinations.
- The current level of flights at the airport is 72 daily flights, 46 flights on Saturday, and 54 flights on Sunday. Daily passenger loads can widely fluctuate between 1,500 to 6,184 passengers per day. Based on daily travel demands, reduced weekend flight schedule, seasonal flight reductions, severe weather conditions, flight crews' availability, aircraft maintenance, and flight cancellations. The approximately 6,184 passenger seats being utilized today is significantly less than full capacity levels we have experienced in the past.
- Proposed modifications to the Terminal Use Agreement are pending before the
 Westchester County Board of Legislators (BOL). In the event the BOL approves the
 proposed modifications, the effects on changes to the Air Carrier operations or the
 number of passengers would not be immediate. Any projected service increase could
 take several years, along with the necessary upgrades to our Terminal Facility.

More importantly, the location of the parking structure within the Runway 16/34 Runway Protection Zone (RPZ) is of greater concern. While the Federal Aviation Administration (FAA) had conducted an aeronautical study of the proposed structure, with a determination of no hazard to air navigation, the FAA did take issue with the parking structure location within the Runway 16/34 RPZ.

The FAA RPZ Advisory Recommendation states: While the structure does not constitute a hazard to air navigation, it would be located within the Runway Protection Zone (RPZ) of the Westchester County Airport (HPN) Runway 16/34.

Structures, which will result in the congregation of people within a RPZ, are strongly discouraged in the interest of protecting people and property on the ground. In cases where the airport owner can control the use of the property, such structures are prohibited. In cases where the airport owner exercises no such control, advisory recommendations are issued to inform the sponsor of the inadvisability of the project from the standpoint of safety to personnel and property.

Therefore, we are requesting that the Planning Board strongly consider the implications to Runway 16/34. It is also important to recognize that Runway 16 is our only runway with a full instrument landing system. The parking structure location may impact any future rule changes made by the FAA concerning runway safety requirement of air navigation standards for our instrument landing system.

Your consideration in this matter is greatly appreciated in protecting the capacity and operational integrity of the airport.

Very truly yours,

Peter Scherrer Airport Manager

ce: Adam R. Kaufman, AICP, Town of North Castle Planner Roland Baroni, Esq. Kevin McManus, P.E.

> Edward Buroughs, Chairperson, County Planning Dept. Cynthia Garcia, NYC Dept. of Environmental Protection Michael Sassi, P.E., NYS Department of Transportation

Jay T. Pisco, Commissioner, Westchester County Department of Public Works & Transportation

Kevin Roseman, Traffic Engineer, Westchester County Dept. of Public Works & Transportation

Evelyn Martinez, NY District Manager, Federal Aviation Administration, Eastern Region

Gil Neumann, Acting Branch Manager, Planning and Programming, Federal Aviation Administration

Philip Bein, Assistant Attorney General, Watershed Inspector General, Environmental Protection Bureau

Charles Silver, Ph.D., Watershed Inspector General Scientist, Environmental Protection Bureau

akaufman@northcastleny.com rbaroni@prodigy.net mcmanus.associates@gmail.com eeb6@westchestergov.com

cgarcia@dep.nyc.gov michaelsassi@dot.ny.gov

jpisco@westchestergov.com

Kmr5@westchestergov.com

evelyn.inartinez@faa.gov

gil.neumann@faa.gov

Philip.bein@ag.ny.gov

Charles, silver@ag,ny.gov



ALBERT J. PIRRO, JR.

ONE NORTH LEXINGTON AVENUE WHITE PLAINS, NEW YORK 10601 914-287-6444 • FAX 914-287-6443 ajp@pirrogroup.com • www.pirrolaw.com

April 26, 2016

Honorable John Delano, Chairman and Members of the Planning Board Town of North Castle 15 Bedford Road Armonk, New York 10504

Re: Park Place at Westchester County Airport

Dear Honorable Chairman and Members of the Board:

The project site is located in the Town of North Castle which is in the Croton Watershed. The Watershed is a source of drinking water for New York City and approximately 800,000 Westchester residents. The Watershed has been designated by New York State and the Army Corp. of Engineers as "Critical Resource Waters."

The Town of North Castle is a signatory to the 1997 New York City Watershed Memorandum of Agreement ("MOA") and monitors and participates in the environmental review of development projects, such as Park Place Parking Garage, which may impact water quality in the Watershed.

North Castle, as with all signatories to the MOA, is charged with the duty of reviewing and monitoring the impacts associated with development such as erosion, flooding, impervious surfaces, construction on steep slopes, impacts to wetlands and wetland buffers and its effects on the water quality. Further, North Castle has agreed, as a signatory, to protect the Watershed from violations of the Federal Clean Water Act ("CWA") (Section 303[d][1][A]) and the State Water Quality Standards ("WQS") (6 NYCRR Part 700). Further, the Watershed regulations require that the Stormwater Pollution Prevention Plan ("SPPP") shall include an analysis of phosphorous runoff, before and after the activity (WR & R Section 18-39[c][1]).

A review of the proposed activity and the previous comments from the New York City Department of Environmental Protection, the New York State Watershed Inspector General and others, clearly indicate that there are significant impacts to the Watershed, not the least of which is, the failure to properly estimate the pre-development phosphorus level discharge from the site and the post-development discharge phosphorus level from the site.

As a signatory to the MOA the Town of North Castle has a higher duty and obligation to the parties to the MOA and its intended beneficiaries water quality, and those drinking unfiltered water.

The proposed project with its numerous impacts to the Watershed are only justified by the Park Place Parking Garage as a source of revenue to the Town of New Castle (the allegation of "need" for more parking has been thoroughly disputed by the Westchester Airport Manager and the Airport Advisory Committee.) Greed is hardly a justification for an environmental finding that the proposal will not have any adverse environmental impacts. Indeed, the project sponsor has advised the Board it will not build a "no buffer impact" or "lesser buffer impact" alternative due to lack of economic return.

Under the circumstances it is respectfully requested that the board issue a Findings Statement which makes a determination that the project not be carried out due to adverse environmental impacts which cannot be mitigated.

Very truly yours,

AJP:dat

cc: Adam R. Kaufman, AICP, Town of North Castle Planner Roland Baroni, Esq.

Kevin McManus, P.E.

Richard Lippes, The Sierra Club

Patrick Cleary, P.E.

Edward Buroughs, Chairperson, County Planning Dept.

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of Public Works & Transportation

Kevin Roseman, Traffic Engineer, Westchester County Dept. of Public Works & Transportation

Evelyn Martinez, NY District Manager, Federal Aviation Administration, Eastern Region

Gil Neumann, Acting Branch Manager, Planning and Programming, Federal Aviation Administration

Philip Bein, Assistant Attorney General, Watershed Inspector General, Environmental Protection Bureau

Charles Silver, Ph.D., Watershed Inspector General Scientist, Environmental Protection Bureau

akaufman@northcastleny.com

rbaroni@prodigy.net

mcmanus.associates@gmail.com

rlippes@lippeslaw.com

cleary@optononline.net

eeb6@westchestergov.com

cgarcia@dep.nyc.gov

michaelsassi@dot.ny.gov

jpisco@westchestergov.com

Kmr5@westchestergov.com

evelyn.martinez@faa.gov

gil.neumann@faa.gov

Philip.bein@ag.ny.gov

Charles.silver@ag.ny.gov

www.northcastleny.com

From: thomas dagostino [mailto:tadesq@gmx.com]

Sent: Monday, April 11, 2016 1:47 PM

To: Planning External Account <planning@northcastleny.com>

Subject: Proposed automated airport parking facility

Dear Board Members,

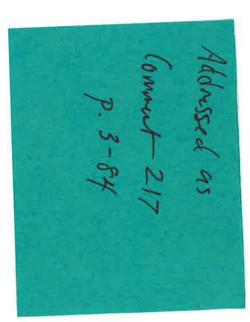
chose to remain here becasue of the quality of life the Town affords to residents not the convenience of an airport. of parking available at nearby SUNY Purchase with shuttle service to the airport. My family has lived in North Castle since 1979. We moved and passenger capacity were then in existence however they all agreed to the current limitations. A new parking facility is not needed, there is plenty need for modernization and quality of life for residents of the surrounding communities. The parties were aware that larger planes with more of the terminal and parking garage were limited to their current capacities. The limits were intentional to preserve the balance between the surrounding communities. As part of a compromise between all parties, proponents of expansion as well as opponents, the number of gates, size replacement of the old Quonset Hut teminal and contruction of the new terminal and parking structure took into consideration the concerns of the is that this project is part of a larger plan for expansion of the Airport's passenger capacity being proposed by the County. Negotiations for I am writing to express my concern over the proposed automated airport parking facility that is on this evening's agenda. Specifically, my concern

Thank you,

Thomas D'Agostino

87 Cloverdale Avenue

N White Plains, NY 10603



ORIGINAL

PUBLIC HEARING

TOWN OF NORTH CASTLE PLANNING BOARD

RE: DRAFT SUPPLEMENTAL ENVIRONMENTAL IMPACT STATEMENT (DSEIS) Prepared in Connection with the Proposed Airport Parking Garage - Park Place Multi-Level Automated Parking Structure at 11 New King Street, in the Town of North Castle

BEFORE: TOWN OF NORTH CASTLE PLANNING BOARD

HELD AT: TOWN OF NEW CASTLE

TOWN HALL

15 Bedford Road

Armonk, New York 10504

ON: April 11, 2016 AT: 7:00 P.M.

1	
2	
3	
4	
5	APPEARANCES:
6	
7	
8	TOWN OF NORTH CASTLE PLANNING BOARD:
9	JOHN DELANO, CHAIRMAN
10	Adam Kaufman, Town Planner
11	Jim Jensen
12	Christopher Carthy
L3	Michael Pollock
L 4	Roland Baroni, Town Counsel
L 5	
L 6	
L7	
L8	
L 9	ALSO PRESENT:
20	
21	Joseph Cermele Consulting Town Engineer
22	Valerie Desimone
23	Planning Board Secretary
24	
25	

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1	
2	CHAIRMAN DELANO: Good evening
3	everybody. Welcome to the April 11, 2016 meeting of
4	the North Castle Planning Board.
5	Do we have any Conservation Board
6	members here tonight?
7	VALERIE DESIMONE: Just looking
8	around, I didn't see any.
9	CHAIRMAN DELANO: Any other
10	members on any other boards in town visiting this
11	evening? No. Let's move on. We could take care of
12	a couple of issues with our minutes.
13	(Whereupon there were some topics
14	discussed at this time.)
15	CHAIRMAN DELANO: Next we have
16	another public hearing. It's on 11 New King Street
17	parking garage at 11 New King Street. We will read
18	the Notice of Public Hearing.
19	"Please take notice that the
20	Planning Board of the Town of North Castle, New York
21	will hold a public hearing regarding the Draft
22	Supplemental Environmental Impact Statement or the
23	DSEIS prepared in connection with the proposed
24	Airport Parking Garage - Park Place multi-level

automated parking structure at 11 New King Street in

25

1	the Town of North Castle, Westchester County to
2	provide parking for users of the Westchester County
3	Airport where there is an existing shortage of
4	parking.
5	"The DSEIS studies new information
6	associated with the recently updated FAA
7	regulations, bird attraction, and New York City DEP
8	variances needed for proposed impervious surfaces
9	within the New York City DEP 100-foot limiting
10	distance, comments from the New York City DEP,
11	Westchester County and the Watershed Inspector
12	General.
13	"The public hearing will be held
14	at the Town of North Castle Town Hall, 15 Bedford
15	Road, Armonk, New York 10504 on Monday, April 11,
16	2016 at 7:00 P.M. or shortly thereafter.
17	"DOCUMENTS AVAILABLE FOR REVIEW:
18	The DSEIS can be viewed on the Town of North
19	Castle's website."
20	I might as well read the address
21	that's here for those of you that want to take note.
22	It's
23	"hhtp://www.northcastleny.com/planning/pages/park-
24	place-at-westchester-airport-documents or in person
25	at the North Castle Town Hall at the Planning

1	Department, 17 Bedford Road, Armonk, New York
2	between the hours of 8:30 A.M. and 4:30 P.M. or at
3	either of the North Castle Library branches.
4	"All interested parties are
5	invited to attend and be heard. Written comments on
6	the DSEIS will be accepted until 15 days after the
7	close of the public hearing and should be addressed
8	at the Planning Board, Town of North Castle, Town
9	Hall Annex, 17 Bedford Road, Armonk, New York
10	10504."
11	Mr. Null, good evening.
12	ATTORNEY NULL: Members of the
13	Board, William Null from Cuddy & Feder here on
14	behalf of 11 King Street, LLC.
15	With me is Nanette Bourne AKRF;
16	and Jeff Brown, the principal of 11 New King Street.
17	As you correctly noted, we are
18	here on a Draft Supplemental Environmental Impact
19	Statement, DSEIS; and Final Environmental Impact
20	Statements were completed and circulated several
21	years ago.
22	The application for the amendment
23	to the zoning ordinance to create a special permit
24	use of a parking facility in the IND-AA district was
25	submitted in June of 2009. So we have been working

1	on this with you for quite awhile now, and the
2	issues have narrowed as we have gone along.
3	The Draft Supplemental
4	Environmental Impact Statement was intended to
5	respond to certain comments made at the end
6	following the completion of the FEIS, the Final
7	Environmental Impact Statement.
8	And Nanette is going to walk
9	through those details. During the process, as I was
10	saying, we requested the amendment to the zoning
11	ordinance for a special permit for a parking
12	facility.
13	In addition, the Environmental
14	Review includes potential impacts related to the
15	adoption of that special permit, the issuance of it
16	for a parking facility and site plan approval as
17	well.
18	So we have been evaluating the
19	actual project and project details; and as we have
20	been going along, the project size and scale has
21	been reduced over time in response to a number of
22	different comments.
23	I think I am going to let Nanette
24	walk you through the details now, but we look
25	forward to addressing any questions that come up.

1	NANETTE BOURNE. Good evening.
2	For the benefit of the Planning Board as well as the
3	public here, I am invited to participate in the
4	public hearing process.
5	I'd like to put the project in
6	context with where we started and where we are right
7	now.
8	We started this project by
9	submitting an application in the fall of 2009 for a
10	project that included an automated parking facility.
11	The project was scoped in November of 2009.
12	There were a Draft
13	Environmental Impact Statement was prepared, and it
14	was accepted as complete by the Planning Board in
15	March of 2011.
16	A public hearing was held in May
17	of 2011, and we proceeded to begin preparation of
18	the Final Environmental Impact Statement.
19	The project was put on hold at
20	that time while the applicant proceeded to obtain a
21	drainage easement from the abutting neighbor.
22	That drainage easement was
23	received; and in the following year, we proceeded to
24	complete the Final Environmental Impact Statement,
25	and it was accepted as complete this last year.

1	And during the Final Environmental
2	Impact Statement review process, in the circulation
3	of the FEIS document, there were several comments
4	submitted in response to that, and the Board elected
5	to request that a Supplemental Environmental Impact
6	Statement be prepared, and that is the subject of
7	this environmental public hearing this evening.
8	So the purpose of tonight is to
9	allow the public to share comments and to provide
10	comments on the process, to have those comments
11	formally recorded, and, subject to the closing of
12	this, for us to respond to public comments in a
13	Final Environmental Impact Statement Final
14	Supplemental Environmental Impact Statement.
15	As from the very beginning of this
16	project, we have had several development project
17	goals, and one is to alleviate the parking shortage
18	at WCA that are created have been created by
19	existing conditions.
20	The second is to create a
21	sustainably designed facility that alleviates
22	existing detrimental environmental conditions, and
23	this becomes a central and very important point in
24	this project, and that is for it to be fully

understood that right now there is no stormwater

25

1	treatment of quality or quantity of water from the
2	New King Street area.
3	So all of the properties along
4	that street, the runoff runs off the site either
5	across 684 or under 684 and goes into Kensico River
6	Kensico Reservoir; and we intend to, as part of
7	this, to treat that, and we are treating as much as
8	we can treat given the topography of the site.
9	Finally it has been expressed by
10	the Town that if they intend on increasing tax
11	ratables, and we recognize that this is an
12	opportunity to do so.
13	So our history, again, just to
14	repeat, we started in 2011. The DEIS was accepted
15	as complete. The public hearing was held in May of
16	2011.
17	The FEIS was started. It was
18	placed on hold in 2013, pending the final filing of
19	a drainage easement. It was resumed in 2014.
20	In January of 2015, the Planning
21	Board accepted the FEIS as complete, and it was
22	circulated to involve agencies.
23	Several of those involved agencies
24	made comments. Those comments were received from
25	the New York State Watershed Inspector General, from

1	Westchester County Department of Planning, from New
2	York City Department of Environmental Protection,
3	and from the Town of North Castle.
4	The Planning Board directed the
5	applicant to respond to limited and certain and very
6	specific comments in a Supplemental Environmental
7	Impact Statement, which we did so.
8	There were several rounds of
9	reviews until the Planning Board did accept it as
10	complete in March of 2016, and a public hearing was
11	scheduled for this evening.
12	So what were the comments that
13	required that Supplemental Environmental Impact
14	Statement?
15	They were very specific and very
16	focused, and I'm sure you can't read them because
17	the type is quite small. So I will go through them
18	very quickly, because they are limited.
19	One is that it was recognized that
20	our FAA permit regarding snow hazard had expired in
21	August of 2014, and we were requested to obtain a
22	new one, which we did.
23	Second is that there were issues
24	concerning airport safety having to do with with
25	birds as well as solar installations.

1	We did address the bird issue
2	which didn't exist, and we took the solar panels off
3	the roof.
4	Thirdly, there was references
5	concerning the hundred-foot limiting distance that
6	needed to be clarified, which we clarified.
7	Fourth is that there was
8	substantial correspondence from the Watershed
9	Inspector General concerning certain issues, some
10	having to do with pollutant loading, others having
11	to do with details.
12	We responded to each and every
13	comment from the Inspector General with regards to
14	the impact of the project.
15	We requested that specific details
16	concerning the size of planters and so forth be
17	postponed until we are part of the site plan review
18	process, but we tried to respectfully address each
19	and every comment to the extent that we could.
20	We also addressed the comments
21	regarding pollutant loading that were made by the
22	New York City Department of Environmental
23	Protection.
24	Finally we were asked to prepare a
25	new alternative where there was no portion, or at

1	least a reduced portion of the project within the
2	buffers and the setbacks, which we did, and I'll get
3	to that in just a minute.
4	So starting with the last one
5	about reducing the impact, first of all, we reduced
6	the footprint by 26 percent from what we had
7	originally proposed.
8	We reduced the number of parking
9	spaces by 32 percent. We reduced the building
10	height by five percent. We reduced the limits of
11	disturbance area by 13 percent.
12	We reduced the excavated material
13	by a hundred percent. We reduced the overall
14	impervious surface and that is within wetland
15	buffers; we have no disturbance in any of the Town
16	wetlands by 33 percent; and, again, we have no
17	wetland disturbance.
18	As part of this process, we
19	proceeded to obtain a we realized we needed a
20	variance from New York City DEP.
21	We submitted an application for a
22	variance, and the New York City DEP began a review
23	of that variance.
24	When they were notified that we
25	were providing we were asked to prepare a

1	Supplemental Environmental Impact Statement, they
2	said that they were going to postpone further review
3	until the DSEIS was accepted as complete, which the
4	Planning Board did last month; and once it was
5	accepted as complete, we could re-submit the DSEIS
6	and ask for DEP to resume a review of our variance
7	request.
8	Again, we received the FAA
9	determination on August 18, 2015. The FAA again
10	issued a determination of no hazard to air
11	navigation for the proposed project.
12	Going back to the basics of the
13	site, the site consists of 3.67 acres in two
14	parcels.
15	The primary parcel that will
16	contain the proposed parking facility is 2.4 acres;
17	and the adjacent parcel, which will contain the
18	drainage facility, is 1.2 acres.
19	Currently on the site is a
20	9700 square-foot building. As Bill said, the zoning
21	is IND-AA. There are town-regulated wetlands that
22	surround the site, and there is a New York City DEP
23	water course that goes around the site as well.
24	This is a rendering of the
25	project. You can see that the entrance will be from

1	King Street, and this is an illustration of what it
2	will look like when it is constructed.
3	We have paid close attention to
4	the landscaping on the urban design components that
5	will really make this project an amenity, and
6	beneficial, and visually attractive.
7	We will include surrounding the
8	site with swamp white oak, river birch, red maple,
9	and other canopy trees to screen the building.
10	We will use native and
11	non-invasive plantings. We will have stormwater
12	planters collecting roof runoff.
13	There will be vines planted on the
14	building in like the Green Screens that will grow up
15	on the side of the building.
16	We will have erosion control
17	blankets and erosion control plantings to stabilize
18	the slopes to minimize the impact during
19	construction.
20	And we will have a series of
21	stormwater transition plantings to make sure that
22	there is minimal runoff, and destruction, and
23	problematic runoff into the reservoir.
24	And we will have an invasive
25	species management plan to very carefully select our

1	invasive species that are eroding the quality of the
2	functioning of the wetlands.
3	Again, the proposed building
4	footprint, as you can see, has been reduced
5	significantly. The area in magenta is the original
6	size building that was 50,915 square feet.
7	We reduced it back to the area
8	that is represented by the orange/yellow color, and
9	that was reduced to 44,000 square feet in the FEIS;
10	and as a result of the request by the Planning
11	Board, in the Supplemental Environmental Impact
12	Statement, we have further reduced the size of the
13	building to 37,444 thousand square feet.
14	As reduced, the project will have
15	980 parking spaces, again with a 37,000 square-foot
16	building footprint.
17	There will be five interior levels
18	with a height of 53 feet. There will be stormwater
19	quality and quantity on two untreated lots which
20	will not only treat the acreage on our site, but
21	over 10,000 square feet of property that's on the
22	adjacent property.
23	There will be provided a clean
24	shuttle service to the terminal. And the site, as
25	we all know, is immediately adjacent to the airport,

and we will utilize the existing industrial zoning on the site.

The environmental concerns that we have been focused on through the entire process of this project is to improve stormwater quality and quantity, to reduce traffic impacts and exhaust emissions, to have no wetland impacts, to minimize wetland buffer impact and, in fact, enhance them; to increase tax revenue, to respond to the existing demand for airport parking, and to create an example of sustainable and beneficial design engineering for a Westchester project.

Environmental Impact Statement, we have focused review on those limited items that I spoke about, and we have included those items as they relate to land use, zoning, and public policy, visual resources and cultural resources, natural resources, topography, community facilities and services, infrastructure, and utilities, traffic and transportation; and the alternative we look at became our reduced proposed project, which is the reduced project.

Just to remind you, related to the- - what the Planning Board is reviewing tonight,

1	there are two Town Board actions, and that includes
2	a text amendment to the I-AA zoning for a special
3	permit and a special permit and site plan approval
4	by the Planning Board.
5	And thank you very much for
6	letting us go through this again and put this in
7	context. It's been a multi-year process, and we are
8	very pleased with the project as it's come out.
9	We think that we have respectfully
10	and honestly addressed the comments, the concerns;
11	and we are very proud of what we have put together
12	and very pleased that the runoff that is currently
13	untreated and unimpeded is going to receive at least
14	some treatment going into the reservoir.
15	CHAIRMAN DELANO: Thank you. Do
16	we have a comment from Mr. Null further before we
17	do the unthinkable?
18	ATTORNEY NULL: Just to highlight,
19	the reason for the project back in '09 was based
20	upon extensive studies concluding that there was
21	then in '09 an existing need for additional parking.
22	The airport itself was
23	significantly underserved for the traffic that it
24	was then experiencing.
25	Most people don't feel confident

1	that they can rely upon having a parking space when
2	they drive to the airport, and many people,
3	therefore, take car services or have friends or
4	family drop them off.
5	When you have a friend, or family,
6	or car service drop you off, you've got four trips
7	instead of two trips if you aren't the driver
8	yourself.
9	So overall, the traffic analysis
10	has addressed that. It was carefully scrutinized by
11	the Town's planning consultants and traffic
12	consultants as far as that went.
13	So what we are looking to do is to
14	meet an existing need, an existing need even based
15	back seven years ago, and to provide full treatment
16	for the building that we are constructing as well as
17	providing water quality and quantity treatment for
18	the adjacent lot.
19	The other thing is that because
20	it's an automated facility, you would not have
21	vehicles driving around and the air pollution
22	typically associated with vehicles driving around in
23	a self-park facility.
24	So the way the parking facility

operates is that someone would drive into a portal,

25

1	turn the car off, and it would be essentially taken
2	out on a pallet mechanically and placed on
3	essentially a storage rack until it's needed again,
4	all that computerized, low-life, low energy, and no
5	air pollution.
6	So people take their keys, the
7	cars are secure, and we think we are meeting a need
8	in the area and in an environmentally sensitive way.
9	We appreciate your time, and we
10	know the purpose of the hearing is to let the public
11	be heard as well.
12	CHAIRMAN DELANO: Thank you. On
13	that note, we are going to did we want to wait
14	to hear from the public before you put your two
15	cents in?
16	On that note, I think we will open
17	it up to the public. We ask when speakers come up
18	and acknowledge you, kindly state your name and
19	spell it for the record.
20	We have a stenographer this
21	evening. We want to get the record clear and
22	concise.
23	We also ask that you keep your
24	comments germane to the subject matter of the Draft
25	Supplemental Environmental Impact Statement.

1	That's what we are here for this
2	evening. We are not here to go back to square one.
3	We are not here to talk about what your County Board
4	legislators are doing or trying to do.
5	Believe me, all the surrounding
6	towns are on top of the County to do whatever it is
7	they are contemplating in the proper fashion. At
8	least that's my understanding from the resolution
9	that our Town Board adopted. I assume it's going on
10	in the other towns. That's the impression I get.
11	We don't want to go back to square
12	one and talk about waving flags and stuff. We want
13	to get down to the subject matter and keep to this
14	DSEIS, Draft Supplemental Environmental Impact
15	Statement so we can get this thing buttoned up, the
16	application; and I guess it is already moving
17	forward with the City.
18	You picked your project back up in
19	moving the stormwater. No matter what this Board
20	here does, the applicant cannot turn around and put
21	a shovel in the ground.
22	The zoning is not in place for the
23	project that's proposed. Okay? That's going to be
24	a Town Board action that will be if this Board
2.5	comes up and makes

1	Once we close the supplemental
2	process and we come up with environmental findings,
3	if they are favorable to the applicant's project,
4	they will move, and there will be zoning issues
5	discussed at the Town Board hearing.
6	If ultimately this Board comes up
7	with environmental findings that aren't favorable
8	from where the applicant sits, the applicant
9	obviously is going to have to draw back and punt, or
10	abandon the project, or come back with another use
11	or some other different approach.
12	So no one needs to feel like we
13	are trying to jam something down our throats. It's
14	been a very careful methodical process. We are
15	dotting all the I's and also being fair to the
16	applicant at the same time.
17	With that in mind, leave us move
18	forward.
19	ROBERT PORTO: Okay. I'll try to
20	stay within the bounds.
21	CHAIRMAN DELANO: First you have
22	to identify yourself.
23	ROBERT PORTO: My name is Robert
24	Porto. I live in Harrison Harrison, New York.
25	This is a big issue. This is a

1	real big issue. You know, I intend to make this
2	public because people use the water that this is
3	going to be built next to.
4	This is the last place that you
5	want to put a thousand-car parking garage. I mean
6	you are dealing with DEP. I mean that should give
7	you an indication of how dicey this is. It's our
8	water supply.
9	The problem is that I washed my
10	face with this water this morning. Now they are
11	claiming and brushed my teeth; and my grandson
12	was in the bathtub with it.
13	They are claiming that it's
14	actually going to make the water better, and I don't
15	believe that.
16	If this bottle of water is from
17	the Kensico today and this bottle of water was from
18	Kensico a year from now, say this was built, which
19	one would you think would be cleaner?
20	CHAIRMAN DELANO: I got to stop
21	you right here. I am getting a little upset. We
22	have had we have had bottles of water here
23	before. Okay?
24	We are here to talk about the
25	Draft Supplemental Environmental Impact Statement

1	and the subject matter that is discussed herein.
2	So if you can tell us what page
3	and what comment you are talking about where you
4	think the applicant or this Planning Board has not
5	thoroughly addressed the items that were raised for
6	discussion herein, we would be more than happy to
7	take it and get it on the record.
8	But, you know, you are going back
9	to square one which is something something I
10	asked you to not do.
11	And I share your concern. I also
12	consume water from the Kensico. I washed I
13	washed more than my face this morning.
14	ROBERT PORTO: Good.
15	CHAIRMAN DELANO: I brushed my
16	teeth. I had my grandson, you know, take a bath in
17	my house. I gave this water to my wife's dogs. If
18	I kill them, I am in big trouble.
19	ROBERT PORTO: I feel like this is
20	a little bit of a coverage statement saying if you
21	approve it, there is other hurdles, and I kind of
22	take offense. I think this should be stopped right
23	now.
24	CHAIRMAN DELANO: We have an
25	application before us. Property owners have the

1	right to make the application.
2	There is a process. He is going
3	through the process. We can't we can't say,
4	"No. Forget about it. Get out of here," without
5	going through the process. That's what we are
6	trying to do is go through the process.
7	If we were saying, you know,
8	"Mr. Null, and Nanette" I forgot your name
9	"Kim, pick up all your papers and go play ball
10	somewhere else. We don't want your parking garage,
11	you don't think we would be sued? They would sue
12	the pants off of us.
13	We are giving them the process.
14	This Board has yet to make after this process,
15	we have to make a determination of finding a fact
16	concerning the DEIS
17	ROBERT PORTO: There is no reason
18	for you to give the applicant what they are asking
19	for. You won't be sued if you don't, and that's the
20	bottom line.
21	It's the last place you want a
22	parking garage, and it's two-fold. It's a point
23	source of pollution because it's, like, so close to
24	all the waterways, and the reservoirs, and stuff
25	like that.

1	The DEP is on it. 60-foot high
2	buildings.
3	CHAIRMAN DELANO: 53.
4	ROBERT PORTO: A thousand cars.
5	CHAIRMAN DELANO: And 980 cars.
6	ROBERT PORTO: 980.
7	CHAIRMAN DELANO: We can't have
8	people getting on the microphone and spewing out
9	false statements.
10	ROBERT PORTO: You are right, you
11	are right. I mean the car difference is
12	significant, and I apologize for that. 980 cars.
13	You know the game. They ask for
14	twice what they want. But this is a 61-foot
15	building very close to my reservoir.
16	CHAIRMAN DELANO: It's 53. It was
17	just up on the screen. It's 53 feet. Do you want
18	time to sit down and fix your notes?
19	ROBERT PORTO: I thought it was
20	tomorrow night. I'm just a regular guy. I'm not a
21	professional. I am not getting paid for this. I
22	came all the way from Harrison.
23	CHAIRMAN DELANO: We are not
24	getting paid for it.
25	ROBERT PORTO: Please stop it. I

1	don't mean to get you upset. I have come a long
2	way. I am not a professional.
3	It's not going to make the water
4	better. I just don't buy that one.
5	CHAIRMAN DELANO: We can't accept
6	a request to please stop it. We have to go through
7	the process.
8	ROBERT PORTO: Thank you.
9	CHAIRMAN DELANO: Thank you for
10	coming. I remember your bottles.
11	Would you like to come up and
12	speak the young lady behind you.
13	MISTI DUVALL: So thank you very
14	much for the opportunity to speak this evening. My
15	name is Misti Duvall, and I'm a staff attorney with
16	Riverkeeper.
17	Riverkeeper is a member-supported
18	watchdog dedicated to defending the Hudson River and
19	the drinking water for Hudson Valley residents.
20	We are a signatory to the New York
21	City Watershed Agreement; and, as such, we have a
22	commitment to ensure that development projects that
23	are in the New York City watershed do not adversely
24	impact the surface water resources that provide
25	unfiltered drinking water to consumers.

1	And so I am going to be following
2	up with detailed written comments in the next two
3	weeks, by the 26th. I am going to keep my remarks
4	tonight fairly brief.
5	CHAIRMAN DELANO: And on point.
6	MISTI DUVALL: And on point.
7	CHAIRMAN DELANO: Excellent.
8	MISTI DUVALL: I think you'll
9	probably hear from a lot of people here today it's
10	very important to take a close look at the project
11	because of the sensitive location near to Kensico.
12	It's an unfiltered water supply.
13	It supplies 95 percent of the drinking water in
14	White Plains. It supplies a lot of your drinking
15	water as well.
16	And while we do appreciate that
17	the project has been scaled back, and I appreciate
18	the supplemental review and the chance to take
19	another look, we are still very concerned about the
20	amount of disturbance to both the buffer of the DEP
21	regulated water course and the Town-regulated
22	wetland.
23	So as proposed in the DSEIS,
24	combined with the current impervious surfaces that
25	are located in these two buffer areas, the project,

1	if built, would combine to create almost an acre of
2	impervious surface, and both of those very sensitive
3	buffer areas.
4	I know you are aware that this
5	construction in the DEP regulated water sourse
6	buffer area requires a variance from the City, and
7	the increase is larger than what is normally around
8	under the New York City watershed regulations which
9	is a concern for us and we think needs to be looked
10	at very carefully.
11	We are also concerned that in
12	addition to the impervious areas that's going to be
13	in both of these buffers, the applicant is still
14	proposing almost an acre of disturbance within the
15	wetland buffer, and so some of that disturbance is
16	going to be in the form of stormwater basins, and my
17	understanding is the rest is going to be in the form
18	of landscaping.
19	The applicant has proposed
20	mitigation for the wetland buffer impacts that
21	ranges from moderate to grossly inadequate,
22	depending on how it's calculated.
23	So there are two different
24	calculations in the FEIS, one based on mitigation if

only the impervious surfaces in the wetland buffer

25

1	are taken into account, and then one that's based on
2	mitigation if all the disturbance is taken into
3	account. That's the impervious area.
4	The stormwater-based, and the
5	landscaping construction going on with only the
6	impervious areas, the proposed mitigation is
7	1.3 to 1; and if you take into account all of the
8	disturbance, it's 0.28 to 1; and those are under,
9	and the second one quite far under the Town
10	Regulation which are 2 to 1 mitigation.
11	This is something that's really
12	important because wetlands provide a very important
13	function in helping filter and clean the water; and
14	if this is in this location where the water is going
15	into a very important source of drinking water
16	supply, I want to make sure that the function of the
17	wetland isn't degraded.
18	And to that end, we are also very
19	concerned about the proposed use of stormwater
20	infrastructure controls within a wetland buffer.
21	That's something that is generally not appropriate.
22	It can degrade wetland function
23	and often isn't an adequate means of stormwater
24	treatment and control. It's something we very, very
25	highly encourage be taken out of the wetland buffer.

1	And so with that, I just want to
2	reiterate that again we are very happy to see that
3	the project has been scaled back; but at this point,
4	I don't think it's been scaled back far enough.
5	It needs to be additionally moved
6	out of both buffers; and to the extent that there is
7	some limited disturbance of the wetland buffer, it
8	really needs to be at least a 2 to 1 ratio. Thank
9	you.
10	CHAIRMAN DELANO: Thank you, young
11	lady. Next.
12	SUSAN LEIFER: My name is Susan
13	Leifer. I've been very involved in the airport and
14	keeping the Kensico clean.
15	As you know, the airport itself is
16	an anomaly. There is no place else in the United
17	States where you have an airport so close to a major
18	drinking water, and this is a major unfiltered
19	drinking water; and one of the rules of SEQR is you
20	need to consider not doing something if there is no
21	need.
22	And I would contend right now,
23	since the number of passengers has severely dropped
24	from 2011, there is no need there is plenty of
25	parking.

1	There is no need to build this,
2	and there is no reason to build in the watershed if
3	there is no need to build it; and I think that has
4	not been properly discussed nor looked at.
5	And that was the original premise
6	that they had, that there is a big need for it. It
7	is not true. The airport manages very well during
8	the seven days when it's an unlimited number of
9	passengers.
10	You are doubling, almost doubling
11	I won't be as precise you are almost
12	doubling the number of parking spaces, and there is
13	absolutely no need for it.
14	And if that turns out that there
15	is not really a need for it, why are you using this
16	kind of a building in the wetlands? There is no
17	need to build in the wetlands.
18	When the DEP says it's a hundred
19	feet, that's because they are trying to accommodate,
20	but initially it was a 500-foot, and they are well
21	within that.
22	And building the detention basin
23	within the wetland site doesn't double the amount of
24	protection you have. It limits it and changes it
25	from one to the other, and I don't know that the

1	detention basins are more efficacious than wetlands.
2	CHAIRMAN DELANO: We are not
3	building they are not proposing to build wetland
4	detention basins. They are not proposing to build
5	stormwater detention basins in the wetland.
6	If anything, they are a wetland
7	buffer, not in the wetland. And there was something
8	else you said, but
9	SUSAN LEIFER: You have not
10	discussed the "no need." There is no need for this.
11	The parking is fine.
12	CHAIRMAN DELANO: The no-build
13	alternative.
14	SUSAN LEIFER: Yes.
15	CHAIRMAN DELANO: We have had
16	conversations in this room with the applicant
17	concerning the no-build alternative, and their
18	answer is that if they can't build it, they are not
19	going to do the project.
20	SUSAN LEIFER: Say again.
21	CHAIRMAN DELANO: If the
22	applicant is forced to further cut back the project
23	to the point where there is absolutely zero buffer
24	impact, then it's not feasible for the applicant to
25	construct the project because it would be

1	inconsequential, but they believe they need to make
2	a
3	SUSAN LEIFER: Why are you
4	building a parking lot that's not needed, possibly
5	to influence the wetlands?
6	CHAIRMAN DELANO: The question is
7	Is the applicant parking lot still really needed
8	because it's been since 2009 since some sort of
9	determination was made?
10	SUSAN LEIFER: In 2011, you had
11	peak passengers at the airport, and we are quite a
12	bit down.
13	CHAIRMAN DELANO: Okay.
14	SUSAN LEIFER: Okay.
15	CHAIRMAN DELANO: Thank you. This
16	gentleman over here.
17	TIM HALPERN: Members of the Town
18	Board, Planning Board, thank you for your service,
19	community members, my name is Tim Halpern.
20	My family formerly lived at
21	One Banksville Road in Armonk, New York.
22	CHAIRMAN DELANO: Your last name?
23	TIM HALPERN: H-A-L-P-E-R-N.
24	CHAIRMAN DELANO: Thank you.
25	Sir.

1	TIM HALPERN: I'll keep my
2	comments very brief. I live in the Waccabuc area
3	now. We moved out of Armonk in 1992.
4	The reason at that time was for my
5	family. We found that Armonk was becoming too loud,
6	too crowded, too dirty.
7	You are right. Everybody has a
8	right to process here. I don't dispute that. But
9	my story is a real quick one. It's very personal.
10	I'm a guy who, you know, built a
11	little park back where Schultz (phonetic spelling)
12	used to be. I did a Boy Scouts service project in
13	town. It was called Whippoorwill Ridge Park.
14	Does anybody remember that park?
15	It was a beautiful park. This was during the John
16	Lombardi era.
17	CHAIRMAN DELANO: That's a long
18	era.
19	TIM HALPERN: The net result was
20	this was a beautiful Boy Scout park, and it was
21	destroyed. It was made into condominiums.
22	It was 70 acres, a lovely place.
23	It's gone now. It's a real estate development.
24	As you consider your important
25	decision, just ask yourself what do you want Armonk

1	to be and what do you want it to become? That's
2	really where it's going.
3	Where I live now in South Salem,
4	we have about 15 planes an hour flying over our
5	house, many of which are at a thousand feet or
6	lower.
7	If the flight path, the flight
8	vector, gets changed and you have to deal with that
9	in Armonk, in Waccabuc, and South Salem, is that
10	going to be good when you want to play with your
11	grandchildren outdoors?
12	When you look at the letter from
13	Peter Shier (phonetic spelling) that says there will
14	be no need for this increased capacity, you want to
15	make a business, that's great, but at what price?
16	The price is you are selling out what's left of
17	Armonk.
18	With all due respect, you know,
19	it's sort of sad. It's just kind of sad. I still
20	love this town; but we left because there was just
21	not a lot of natural open, quiet green space left.
22	And what's going to happen is that
23	as Rob Astorino and Jet Blue are floating proposals
24	to increase air traffic by 25 percent over all of
25	our houses, 25 percent, this parking garage is

1	supporting that.
2	It's a slippery slope. Put in the
3	parking garage, it probably isn't really needed, and
4	next thing you know, you've got a good case to
5	what? increase air traffic by 25 percent.
6	Good. Okay.
7	At the end of the day, you may not
8	care about an Eagle Scout I made Eagle Scout
9	protecting Armonk, making it a beautiful place. You
10	don't have to care about my sentimental value of the
11	Town. I'm not invested in Armonk anymore.
12	I think what you might want to
13	care about, you know, a generation is going to go
L 4	pretty quickly. What's your legacy? What do you
15	want to leave the next people?
16	White Plains is a great place, but
17	it's not Armonk. Do you want Armonk to become White
L8	Plains?
19	In the time that I've left the
20	Town, that's how it's tracking; and you are not
21	going to stop the massive population explosion
22	that's coming up here. No one is going to stop
23	that. It's not going to be stopped.
2.4	But if there was a negative about
>5	the predecessors during the Lombardi era it was

1	basically they took a short-term view.
2	If you go down to a place like
3	Hilton Head, South Carolina, that's a place where
4	they have really done a great job with town
5	management. It's really beautiful. The environment
6	is pristine and intact.
7	New Milford, Connecticut, not so
8	lucky. Not well planned. So, you know, it's your
9	game to play, but it's going to affect all the
10	towns. It's going to drive up the airplane traffic
11	all over the place.
12	And, you know, Armonk used to be a
13	really beautiful place, it really was; and there is
14	parts of it that are still beautiful, but it's kind
15	of hanging on for dear life.
16	I came. My friend Erika Johnson
17	came. She lives in town. Just a generation is
18	going to go really quickly.
19	What do you want to leave your
20	children and your grandchildren? Do you want
21	something special in Armonk to be left, or you
22	don't? Because that's where you are going.
23	I'm Tim Halpern. I thank you for
24	your service. I do appreciate it.
25	CHAIRMAN DELANO: Thank you,

1	Mr. Halpern.
2	ROLAND BARONI: The Whippoorwill
3	Park still exists, and it's still 70-plus acres.
4	TIM HALPERN: I can't find the
5	entrance to it anymore.
6	ATTORNEY BARONI: It's right on
7	Old 22.
8	CHAIRMAN DELANO: Okay. That's
9	from the Town Attorney. So
10	TIM HALPERN: Okay.
11	CHAIRMAN DELANO: You, sir, do you
12	want to come up.
13	RICHARD CONRAD: Good. My name is
14	Richard Conrad. I come here representing myself as
15	a Town resident.
16	I'm on the Airport Advisory Board
17	and the Air Board, and I've been watching this
18	development now for quite some time; and I also
19	operate airplanes at Westchester Airport. So I
20	kind of eat, live, and breathe the airport.
21	I live approximately eight miles
22	away from the airport as well. I'd like to
23	reiterate some of the comments that have been made
24	is that the need for this project, I think the Board
25	members of the Airport Advisory Board do not see a

1	need for this project.
2	Again, Susan's point about at
3	least a 30 percent reduction in the flights in and
4	out of Westchester going on today, this proposal
5	that Mr. Astorino is making with regards to
6	increasing passenger count, it's just a question of
7	changing a small airplane to a bigger airplane, so
8	that within one hour, you can have two airplanes
9	leave at one time rather than one big airplane and a
10	tiny little airplane.
11	So I don't know where it has any
12	significance whatsoever because you are trading a
13	small airplane for a big airplane. That doesn't
14	make I don't see that's significant.
15	CHAIRMAN DELANO: We are not here
16	to talk about Mr. Astorino.
17	RICHARD CONRAD: Please. So I
18	want to make it clear that, one, the Advisory Board
19	is against this project because there is ample
20	parking at the airport; and clearly, the master plan
21	influences what these people are trying to do
22	because if the master plan opens up let's make
23	an example.
24	The first level of the parking
25	garage that's there currently, let's say they open

1	that all up to the rental car agencies, and
2	Mr. Cappelli will build two or three more stories,
3	then that's it.
4	So really it comes down to really
5	what's the purpose of this monstrosity being put in
6	an area where, one, traffic is ridiculous as it is?
7	The way the traffic leaves the airport out of
8	New King Street is already a mess as it is.
9	The State was the State was
10	supposed to change the whole exit and entry into the
11	airport, and that hasn't been done.
12	So I think that the creation of
13	this thing will cause a lot of problems for our
14	town; and as a town member and a user of the
15	airport, I think it's a big mistake, and I think it
16	is unnecessary.
17	So based on what I can see, I just
18	don't see this project having any merit whatsoever;
19	and then if they do have it, I don't think it's
20	necessarily for parking.
21	Maybe it's for warehousing of
22	things because if they can't fill the 980 cars, what
23	are they going to fill it with?
24	And already SUNY Purchase, they
25	are not full. They have plenty of space for parking

1	cars. So I just don't see this purpose.
2	And if there is an answer to this,
3	the answer is building a bigger garage at the
4	airport, and also that revenue goes to the airport.
5	In this current proposal, there is
6	absolutely no revenue that goes to the airport.
7	Actually, it goes to our Town which is not
8	necessarily a bad thing for revenue for our Town,
9	but it doesn't do anything for the airport.
10	And I think to sum up, I just
11	don't think really see this being necessary.
12	The growth of the airport, as a master plan, I think
13	will influence this project tremendously, and
14	probably a decision should not even be made until a
15	master plan has been public because that will change
16	everything.
17	CHAIRMAN DELANO: Well, that's a
18	decision for the Town Board. You mentioned the
19	Airport Advisory Board or Committee.
20	RICHARD CONRAD: Yes.
21	CHAIRMAN DELANO: Is that the
22	Town's Advisory Board?
23	RICHARD CONRAD: No. It's the
24	County.
25	CHAIRMAN DELANO: You also

1	mentioned that not only you but that the
2	Advisory Board doesn't feel this project is
3	necessary.
4	RIOCHARD CONRAD: No.
5	CHAIRMAN DELANO: Can that Board
6	issue something in writing on a piece of paper and
7	get it to us so that we know what the feeling of
8	that Board is.
9	RICHARD CONRAD: I will talk to
10	them on the 27th.
11	CHAIRMAN DELANO: That's going to
12	be past our comment period, is it not? It would be
13	nice to have something like that in the record
14	before the close of our comment period.
15	RICHARD CONRAD: Okay.
16	CHAIRMAN DELANO: Okay? So
17	RICHARD CONRAD: And I'm also
18	as I said, I was nominated to the Airport Committee
19	from this Town.
20	CHAIRMAN DELANO: Okay.
21	RICHARD CONRAD: That's why I am
22	there, and also to represent this Town with the
23	airport.
2.4	So thank you very much.
2.5	CHAIRMAN DELANO: Thank you Sir

1	GEORGE KLEIN: Esteemed Board, my
2	name is George Klein, and I live in Ossining, and
3	I'm representing the Sierra club.
4	All the previous speakers stole
5	practically all of my points. The only thing I can
6	say is that looking through this project from the
7	through the lense of segmentation, we see three
8	we see a hole, an integrated hole, an expansion.
9	The upcoming master plan for the
10	airport is expected to propose physical expansion at
11	the airport, perhaps raise the terminal and other
12	facilities, County Executive Astorino's proposal for
13	expanding the number of passengers through the
14	airport, and now the parking garage.
15	So when you look at it in its
16	totality, it's expansion, and expansion is not in
17	the interest of this community, and its citizens,
18	and property values, and tranquility. That's it.
19	CHAIRMAN DELANO: Thank you. I
20	will mention that it's the representation by the
21	applicant, I think the understanding of the Board,
22	or some of us anyway, that this project is not going
23	to cause more flights or less flights at the
24	airport.
25	That really is up to County

1	Government. Okay? So I think there was an
2	inference there.
3	Anyone else care to speak on
4	behalf of the public or from the audience?
5	No, nobody else. Going once,
6	going twice, sold.
7	Does anyone on the Board have
8	anything further that they would like to add to the
9	record?
10	STEVE SAURO: No.
11	JIM JENSEN: I'll wait till the
12	26th until the comment period closes, until the
13	comments come in.
14	CHAIRMAN DELANO: Nothing else to
15	go in tonight?
16	ATTORNEY BARONI: The hearing will
17	be closed, so you won't have an opportunity, because
18	the next step after the close of the comment period
19	will be for the applicant to prepare the final
20	document based on answers to the questions.
21	CHAIRMAN DELANO: We have got to
22	get you on tonight, or you've got to submit it. We
23	don't have another meeting.
24	ADAM KAUFMAN: He can submit it
25	in writing.

1	VALERIE DESIMONE: April 25th,
2	the day before.
3	CHAIRMAN DELANO: Do you want to
4	talk? You got to come back up. You got to come to
5	a microphone. Please. Thank you.
6	RICHARD CONRAD: Look, it's been a
7	long time in coming, and it needs to be thought
8	through. I would hope that your comment period could
9	be extended to a month, 30 days. It would give the
10	DEP more time. It would give citizens more time.
11	I don't know if you can control
12	that, but I was asking you the Airport Advisory
13	Committee can have everyone can have the time to
14	meet and get back to you.
15	It's kind of rushed considering
16	that it's taken forever. You are now compressing
17	the end of it. I was wondering if you could extend
18	it to 30 days.
19	CHAIRMAN DELANO: Well, I'll ask
20	the Board to consider that once we get down the road
21	here.
22	You got nothing to do tonight?
23	JIM JENSEN: No.
24	CHAIRMAN DELANO: Do you want to
25	say something? It's got to come in in writing just

Т	like the rest of us. The public hearing gets closed
2	tonight. Chris.
3	CHRISTOPHER CARTHY: What is the
4	next step for the applicant? You are with the DEP.
5	When do you expect to hear from them?
6	ATTORNEY NULL: The DEP will not
7	be able to issue any decision unless and until you
8	issue findings with regard to the application. So
9	you are Lead Agency, and Lead Agency needs to adopt
10	findings before any other agency can act.
11	The DEP has said to us they needed
12	the DSEIS, they needed the Supplemental
13	Environmental Impact Statement, and they need the
14	Final Statement from the Planning Board before they
15	will actually act.
16	CHRISTOPHER CARTHY: How long do
17	you think it will take them to come back to us once
18	they do have it?
19	ATTORNEY NULL: I don't think
20	there is anything in regulations with regard to it.
21	It would be speculation.
22	I don't think they have a time
23	frame in a variance application like other approvals
24	or
25	CHAIRMAN DELANO: This whole

1	project is on the variance.
2	CHRISTOPHER CARTHY: It hinges on
3	the DEP variance. To the point that the DEP will
4	have quite a say in this project, the people who are
5	concerned about the water quality issues, certainly
6	the DEP's rendering is going to have a substantial
7	review of this project.
8	And if the DEP rejects this
9	application, that will speak to the argument; and if
10	it accepts the application, another argument
11	that will speak to the argument, you know.
12	CHAIRMAN DELANO: It's really an
13	unfortunate thing. You have the outside agencies
14	like the DEP, the DEC.
15	Oftentimes they won't review an
16	application, let alone render a decision on the
17	application, until an environmental determination
18	has been made.
19	CHRISTOPHER CARTHY: That's my
20	only comment, John.
21	CHAIRMAN DELANO: DEP is geared up
22	and if they are they going to wait till the
23	statement comes
24	ATTORNEY NULL: They began looking
25	at it. They needed the Supplemental Environmental

1	Impact Statement which they received; and they will
2	need the Final the Supplemental Final
3	Environmental Impact Statement as well as your Final
4	Statement, and they will be able to act.
5	CHAIRMAN DELANO: Michael,
6	anything tonight?
7	MICHAEL POLLOCK: Nothing tonight.
8	CHAIRMAN DELANO: All right.
9	STEVE SAURO: Because we are still
10	in the public forum is there anything here that
11	you wanted to collect, or do you want to digest and
12	get it in writing?
13	Attorney NULL: I think it's best
14	if we answer the questions in written form in the
15	Final Environmental Impact Statement.
16	I think that the we have said
17	before that we disagree with the notion that this is
18	like a field of dreams, that if we build it, it will
19	somehow affect the airport's volume.
20	We are addressing a need, and we
21	think that need still exists. We understand that we
22	may need to put something in the Supplemental Final
23	as well.
24	We think the way we are designing
25	the water quality and quantity treatment is

1	appropriate, and sensitive, and consistent with
2	regulations, and that it will improve water quality.
3	And I understand that there may be
4	people that disagree, but we have got studies that
5	we have included and analyses that we have included,
6	and we will follow up with that as well.
7	STEVE SAURO: Thank you.
8	CHAIRMAN DELANO: All right.
9	JIM JENSEN: The comment period is
10	people may be how are those addressed? What
11	happens next?
12	ADAM KAUFMAN: The final FEIS.
13	CHAIRMAN DELANO: They are given
14	to the applicant. It's turned into a Final.
15	ADAM KAUFMAN: The applicant will
16	prepare the draft of that document, and we will
17	review it making sure the responses to those
18	questions are to our satisfaction.
19	ATTORNEY NULL: To the point about
20	timing, this has been a completely narrowing sort of
21	review.
22	They are very definitive requests
23	that were asked at the tail end of the Final
24	Environmental Impact Statement that we responded to.
25	There has been time between the

1	acceptance of the Draft Supplemental Environmental
2	Impact Statement and tonight's hearing.
3	So there will be a month period of
4	time between the time that you accept it and the
5	document was circulated for comments to come in,
6	which I think is a fair amount of time for people
7	who are already familiar with what the questions
8	were to begin with.
9	So we respectfully submit that the
10	time period allotted is more than ample to
11	accommodate responses to the limited questions
12	addressed in the Supplemental Draft Environmental
13	Impact Statement.
14	CHAIRMAN DELANO: Anything else,
15	gentlemen? Okay. What's your pleasure with respect
16	to the public hearing?
17	CHRISTOPHER CARTHY: I make a
18	motion to close the public hearing.
19	CHAIRMAN DELANO: Do we have a
20	second?
21	STEVE SAURO: I second.
22	CHAIRMAN DELANO: All in favor?
23	(Whereupon all Planning Board
24	Members said "Aye.")
25	CHAIRMAN DELANO: The hearing is

1	closed.
2	ATTORNEY NULL: Thank you. And
3	the comment period is the 26th?
4	CHAIRMAN DELANO: The comment is
5	15 days from today.
6	ATTORNEY NULL: Thank you very
7	much. We look forward to working with you.
8	CHAIRMAN DELANO: The question was
9	raised by one of the audience tonight as to whether
10	or not the comment period could be extended.
11	We had an agency request
12	previously, and we told them "No" because you are
13	the one that basically made us do the Supplemental.
14	So we did it.
15	The applicant did his homework.
16	You do yours. They did theirs, as far as I know.
17	Is everybody okay with the 15-day
18	comment period? Is there anybody on the Board that
19	feels differently?
20	CHRISTOPHER CARTHY: I'm okay with
21	this. The way we see it, we need the time to go
22	or the DEP, for them to really render their opinion.
23	I think the DEP it is
24	essential to the DEP to get this document as soon as
25	possible so they can start moving forward and make a

1	rendering.
2	ADAM KAUFMAN:: They have the
3	document. Which document are you talking about?
4	CHRISTOPHER CARTHY: They won't
5	act until they get the Final.
6	ADAM KAUFMAN: Until the
7	findings.
8	CHAIRMAN DELANO: Get to the
9	Final.
10	CHRISTOPHER CARTHY: I think we
11	would be holding up that Final if we extended the
12	period, would we not?
13	ADAM KAUFMAN: You do have to
14	shift it.
15	CHAIRMAN DELANO: Push them out
16	further. Is everyone good with the 15-day comment
17	period?
18	STEVE SAURO: I think it's been
19	circulated out there long enough. 15 days more is
20	appropriate.
21	MICHAEL POLLOCK: I'm fine with
22	it.
23	CHAIRMAN DELANO: It looks like
24	it's 15 days.

1	ATTORNEY NULL: Thank you very
2	much.
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4	(Whereupon the hearing on
5	11 New King Street Proposal was adjourned
6	at 8:15 P.M.)
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3	STATE OF NEW YORK
4	COUNTY OF WESTCHESTER
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6	I, DIANNE HILLMAN, a shorthand reporter and
7	Notary Public within and for the State of New York,
8	do hereby certify:
9	That the Public Hearing hereinbefore set forth is
10	a true record.
11	I further certify that I am not related to any of
12	the parties to this action by blood or marriage and
13	that I am in no way interested in the outcome of
14	this matter.
15	IN WITNESS WHEREOF, I have hereunto set my hand
16	this <u>20</u> day of <u>April</u> , 2016.
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18	Deaune Hellinger
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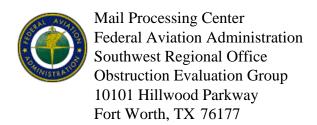
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Aeronautical Study No. 2015-AEA-4116-OE Prior Study No. 2011-AEA-2804-OE

Issued Date: 03/14/2017

Kim Frank 11 New King Street LLC 2337 Philmont Ave Huntingdon Valley, PA 19006

** Extension **

A Determination was issued by the Federal Aviation Administration (FAA) concerning:

Structure: Building Park Place - Parking Garage (pt 3)

Location: North Castle, NY

Latitude: 41-04-53.29N NAD 83

Longitude: 73-42-55.37W

Heights: 404 feet site elevation (SE)

51 feet above ground level (AGL) 455 feet above mean sea level (AMSL)

In response to your request for an extension of the effective period of the determination, the FAA has reviewed the aeronautical study in light of current aeronautical operations in the area of the structure and finds that no significant aeronautical changes have occurred which would alter the determination issued for this structure.

Accordingly, pursuant to the authority delegated to me, the effective period of the determination issued under the above cited aeronautical study number is hereby extended and will expire on 09/14/2018 unless otherwise extended, revised, or terminated by this office. You must adhere to all conditions identified in the original determination.

This extension issued in accordance with 49 U.S.C., Section 44718 and, if applicable, Title 14 of the Code of Federal Regulations, part 77, concerns the effect of the structure on the safe and efficient use of navigable airspace by aircraft and does not relieve the sponsor of compliance responsibilities relating to any law, ordinance, or regulation of any Federal, State, or local government body.

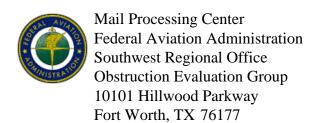
If we can be of further assistance, please contact our office at (404) 305-6531. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2015-AEA-4116-OE.

Signature Control No: 258694600-325298381 (EXT)

Darin Clipper Specialist

Additional information for ASN 2015-AEA-4116-OE

Current FAA policy is that only one extension, and for a maximum of 18 months, will be granted. If construction has not begun within the valid period of this extension, it will be necessary to submit a new FAA Form 7460-1, Notice of Construction or Alteration, a minimum of 45 days before construction is expected to begin. If aeronautical study then indicates that further study would be necessary, the process could take an additional 90-120 days to complete.



Aeronautical Study No. 2015-AEA-4118-OE Prior Study No. 2011-AEA-2806-OE

Issued Date: 03/14/2017

Kim Frank 11 New King Street LLC 2337 Philmont Ave Huntingdon Valley, PA 19006

** Extension **

A Determination was issued by the Federal Aviation Administration (FAA) concerning:

Structure: Building Park Place - Parking Garage (pt 5)

Location: North Castle, NY

Latitude: 41-04-55.80N NAD 83

Longitude: 73-42-54.36W

Heights: 404 feet site elevation (SE)

51 feet above ground level (AGL) 455 feet above mean sea level (AMSL)

In response to your request for an extension of the effective period of the determination, the FAA has reviewed the aeronautical study in light of current aeronautical operations in the area of the structure and finds that no significant aeronautical changes have occurred which would alter the determination issued for this structure.

Accordingly, pursuant to the authority delegated to me, the effective period of the determination issued under the above cited aeronautical study number is hereby extended and will expire on 09/14/2018 unless otherwise extended, revised, or terminated by this office. You must adhere to all conditions identified in the original determination.

This extension issued in accordance with 49 U.S.C., Section 44718 and, if applicable, Title 14 of the Code of Federal Regulations, part 77, concerns the effect of the structure on the safe and efficient use of navigable airspace by aircraft and does not relieve the sponsor of compliance responsibilities relating to any law, ordinance, or regulation of any Federal, State, or local government body.

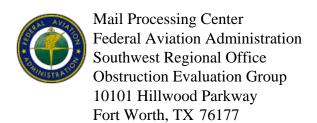
If we can be of further assistance, please contact our office at (404) 305-6531. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2015-AEA-4118-OE.

Signature Control No: 258694602-325298382 (EXT)

Darin Clipper Specialist

Additional information for ASN 2015-AEA-4118-OE

Current FAA policy is that only one extension, and for a maximum of 18 months, will be granted. If construction has not begun within the valid period of this extension, it will be necessary to submit a new FAA Form 7460-1, Notice of Construction or Alteration, a minimum of 45 days before construction is expected to begin. If aeronautical study then indicates that further study would be necessary, the process could take an additional 90-120 days to complete.



Aeronautical Study No. 2015-AEA-4114-OE Prior Study No. 2011-AEA-2792-OE

Issued Date: 03/14/2017

Kim Frank 11 New King Street LLC 2337 Philmont Ave Huntingdon Valley, PA 19006

** Extension **

A Determination was issued by the Federal Aviation Administration (FAA) concerning:

Structure: Building Park Place - Parking Garage (pt 2)

Location: North Castle, NY

Latitude: 41-04-53.33N NAD 83

Longitude: 73-42-54.87W

Heights: 404 feet site elevation (SE)

51 feet above ground level (AGL) 455 feet above mean sea level (AMSL)

In response to your request for an extension of the effective period of the determination, the FAA has reviewed the aeronautical study in light of current aeronautical operations in the area of the structure and finds that no significant aeronautical changes have occurred which would alter the determination issued for this structure.

Accordingly, pursuant to the authority delegated to me, the effective period of the determination issued under the above cited aeronautical study number is hereby extended and will expire on 09/14/2018 unless otherwise extended, revised, or terminated by this office. You must adhere to all conditions identified in the original determination.

This extension issued in accordance with 49 U.S.C., Section 44718 and, if applicable, Title 14 of the Code of Federal Regulations, part 77, concerns the effect of the structure on the safe and efficient use of navigable airspace by aircraft and does not relieve the sponsor of compliance responsibilities relating to any law, ordinance, or regulation of any Federal, State, or local government body.

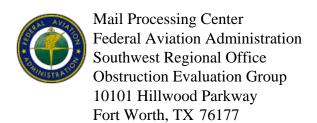
If we can be of further assistance, please contact our office at (404) 305-6531. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2015-AEA-4114-OE.

Signature Control No: 258694594-325298383 (EXT)

Darin Clipper Specialist

Additional information for ASN 2015-AEA-4114-OE

Current FAA policy is that only one extension, and for a maximum of 18 months, will be granted. If construction has not begun within the valid period of this extension, it will be necessary to submit a new FAA Form 7460-1, Notice of Construction or Alteration, a minimum of 45 days before construction is expected to begin. If aeronautical study then indicates that further study would be necessary, the process could take an additional 90-120 days to complete.



Aeronautical Study No. 2015-AEA-4117-OE Prior Study No. 2011-AEA-2805-OE

Issued Date: 03/14/2017

Kim Frank 11 New King Street LLC 2337 Philmont Ave Huntingdon Valley, PA 19006

** Extension **

A Determination was issued by the Federal Aviation Administration (FAA) concerning:

Structure: Building Park Place - Parking Garage (pt 4)

Location: North Castle, NY

Latitude: 41-04-54.50N NAD 83

Longitude: 73-42-56.60W

Heights: 404 feet site elevation (SE)

51 feet above ground level (AGL) 455 feet above mean sea level (AMSL)

In response to your request for an extension of the effective period of the determination, the FAA has reviewed the aeronautical study in light of current aeronautical operations in the area of the structure and finds that no significant aeronautical changes have occurred which would alter the determination issued for this structure.

Accordingly, pursuant to the authority delegated to me, the effective period of the determination issued under the above cited aeronautical study number is hereby extended and will expire on 09/14/2018 unless otherwise extended, revised, or terminated by this office. You must adhere to all conditions identified in the original determination.

This extension issued in accordance with 49 U.S.C., Section 44718 and, if applicable, Title 14 of the Code of Federal Regulations, part 77, concerns the effect of the structure on the safe and efficient use of navigable airspace by aircraft and does not relieve the sponsor of compliance responsibilities relating to any law, ordinance, or regulation of any Federal, State, or local government body.

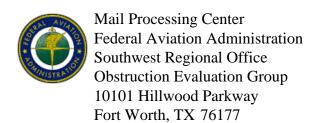
If we can be of further assistance, please contact our office at (404) 305-6531. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2015-AEA-4117-OE.

Signature Control No: 258694601-325298384 (EXT)

Darin Clipper Specialist

Additional information for ASN 2015-AEA-4117-OE

Current FAA policy is that only one extension, and for a maximum of 18 months, will be granted. If construction has not begun within the valid period of this extension, it will be necessary to submit a new FAA Form 7460-1, Notice of Construction or Alteration, a minimum of 45 days before construction is expected to begin. If aeronautical study then indicates that further study would be necessary, the process could take an additional 90-120 days to complete.



Aeronautical Study No. 2015-AEA-4115-OE Prior Study No. 2011-AEA-2803-OE

Issued Date: 03/14/2017

Kim Frank 11 New King Street LLC 2337 Philmont Ave Huntingdon Valley, PA 19006

** Extension **

A Determination was issued by the Federal Aviation Administration (FAA) concerning:

Structure: Building Park Place - Parking Garage (pt 1)

Location: North Castle, NY

Latitude: 41-04-54.42N NAD 83

Longitude: 73-42-52.98W

Heights: 404 feet site elevation (SE)

51 feet above ground level (AGL) 455 feet above mean sea level (AMSL)

In response to your request for an extension of the effective period of the determination, the FAA has reviewed the aeronautical study in light of current aeronautical operations in the area of the structure and finds that no significant aeronautical changes have occurred which would alter the determination issued for this structure.

Accordingly, pursuant to the authority delegated to me, the effective period of the determination issued under the above cited aeronautical study number is hereby extended and will expire on 09/14/2018 unless otherwise extended, revised, or terminated by this office. You must adhere to all conditions identified in the original determination.

This extension issued in accordance with 49 U.S.C., Section 44718 and, if applicable, Title 14 of the Code of Federal Regulations, part 77, concerns the effect of the structure on the safe and efficient use of navigable airspace by aircraft and does not relieve the sponsor of compliance responsibilities relating to any law, ordinance, or regulation of any Federal, State, or local government body.

If we can be of further assistance, please contact our office at (404) 305-6531. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2015-AEA-4115-OE.

Signature Control No: 258694595-325298385 (EXT)

Darin Clipper Specialist

Additional information for ASN 2015-AEA-4115-OE

Current FAA policy is that only one extension, and for a maximum of 18 months, will be granted. If construction has not begun within the valid period of this extension, it will be necessary to submit a new FAA Form 7460-1, Notice of Construction or Alteration, a minimum of 45 days before construction is expected to begin. If aeronautical study then indicates that further study would be necessary, the process could take an additional 90-120 days to complete.

WETLAND AND WETLAND BUFFER ENHANCEMENT PLAN

Introduction

Due to the construction of the proposed automated parking facility and the requirements of stormwater management, much of the project site at 11 New King Street would be disturbed, cleared of existing vegetation and regraded. Much of the undisturbed area is wetland and wetland buffer. Based on site inspection invasive plant cover in these undisturbed areas on the project site is close to 50%.

Invasive species are typically non-native plants which disrupt the natural balance of an ecosystem by outcompeting with native plants for nutrients, water or sunlight. These plant species, which are foreign to the region, may have been imported from other countries for ornamental gardening or agricultural purposes. Having escaped from cultivation and with no natural predators these species have become naturalized in the region. The lack of natural controls allows these species to become dominant, reducing biodiversity and thereby degrading habitats. Controlling invasive plant populations is important to regain ecological stability, maintain habitat for native wildlife and reduce negative impacts on the nearby resources.

the applicant is planning measures intended to improve the quality of the natural resources remaining on the project site as mitigation for disturbance within the wetlands buffer area. The information and guidelines in this document outline invasive removal activity and native plant augmentation to be conducted as part of the proposed project. These guidelines would be used in the field by the project ecologist who would supervise all activity beyond the project's limit-of-disturbance line and within enhancement areas (see Figure 1-4).

The goal of this enhancement plan is to reverse the degradation of the wetland ecology typical of disturbed land. The intent is to increase the ecological function of the existing wetland through intervention. The plan's objective is to eliminate, or significantly reduce, the *target species*- the non-native, invasive species currently found on the project site- and to reintroduce appropriate native plant species. The augmentation of the native species population, in conjunction with removal of invasive species and up to 5 years of monitoring, will provide an advantage to the native species types to regain dominance.

Clearing of invasive species and replanting with native plants is to take place only where necessary. All existing native plants and non-target species vegetation in the undisturbed portions of the project site will be protected during the enhancement activities. The activities described in this enhancement plan are in addition to the proposed project. As part of the proposed project construction (separate from the Wetland and Wetland Buffer Enhancement Plan activities) all unpaved but regraded areas of site will be planted, using exclusively native plant species, to address a variety of site design goal including aesthetic concerns, wetland functionality and erosion control. The plantings specified for the area within the project limit-of-disturbance is shown in drawing C-9: Landscape Plan.

Discussion of use of Herbicides

Non-chemical means of control are generally preferred, but in some cases the use of chemical controls will be necessary to significantly reduce or eliminate invasive species from the designated areas. An herbicide-based approach may be required to control an infestation that has become well established or widespread. Glyphosate or triclopyr may be used for the control of some of the target species. Glyphosate has low oral toxicity (acute or chronic) to humans or other animals but some formulations are irritating to skin or eyes. Glyphosate does not persist or

bioaccumulate in the environment. The oral toxicity of triclopyr is fairly low relative to other pesticides, but not as low as that of glyphosate. Amine-based triclopyr formulations are corrosive and damaging to eyes and skin. Toxicity to birds and fish is relatively low, although ester formulations are more toxic to fish than amine formulations or the parent acid of triclopyr. Both Glyphosate and triclopyr are approved by the United States Environmental Protection Agency (EPA) for use in aquatic/wetlands systems.

Extent of Enhancement Activities

As shown in Drawing C-9 and Figure 1-4, the enhancement plan would apply to undisturbed areas of the site - i.e. those areas not cleared and regraded for the proposed project. The area shown for proposed wetland enhancement is approximately 20,000 SF and the area shown for proposed wetland buffer enhancement is approximately 8,000 SF. The exact location and extent of wetland and wetland buffer enhancement activities would be as directed by the project ecologist based on field conditions.

Invasive Plant Removal

The invasive plants will be removed by hand with cutting tools and digging to remove root mass. As discussed in detail below, several of these plants must be disposed of offsite to prevent spread of remnant seed and vegetative re-growth of rhizomes. Limited use of herbicide may be required for plant species that are less likely to be successfully eradicated by hand-removal alone. The determination as to whether and when to use herbicide and its application in the field would be made by the project ecologist in consultation with the licensed landscape professional who would conduct the application. The landscape professional must be licensed in the application of all herbicides used.

The predominant non-native, invasive plants found onsite and to be removed during the wetland and wetland buffer enhancement activities are listed below. For each target species a brief description is provided along with details on preferred removal techniques, alternative removal techniques, and a recommended schedule of removal activities.

TARGET SPECIES: HERBACEOUS PLANTS

Common Reed (Phragmites australis)

Description: *Phragmites* is a perennial grass that can grow to 14 feet in height. It is capable of vigorous vegetative reproduction and often forms dense, virtually monospecific stands. *Phragmites* is most commonly found in freshwater wetlands but it readily invades salt marshes that have been degraded by some type of flow restriction.

Preferred Removal Strategy: Cutting and Pulling

Hand-pulling, though labor intensive, is an effective technique for controlling *Phragmites* in small areas with sandy soils. When cutting, *Phragmites* stems should be cut below the lowest leaf, leaving a 6" or shorter stump. Hand-held cutters and gas-powered hedge trimmers work well. String Trimmers with a circular blade have been found to be particularly efficient but may cause physical injuries to equipment operators. Cut or pulled material should be removed from the site and composted or allowed to decay on the upland. Some patches may be too large to cut by hand, but repeated cutting of the perimeter of a stand can prevent vegetative expansion.

Cutting or pulling treatments need to be repeated annually. The best time to cut *Phragmites* is at the end of July. Cutting at other times may increase stand density.

Alternate Removal Strategy: Herbicides

Glyphosate should be sprayed in September or October just before the plants begin to senesce (i.e. consolidate above-ground water and nutrients from the stems to the rhizome complex). It is recommended to use glyphosate with a surfactant to better penetrate the leaf coating. Repeated treatments will likely be necessary. If the plants are too tall to spray, cut back in mid summer and apply glyphosate when regrowth reaches 2 to 3 ft tall. Choose Rodeo formulation for applications in standing water or along a shoreline (a permit from New York State Department of Environmental Protection (DEP) is required for any pesticide application to a body of water). After 2 or 3 weeks following application of glyphosate, cut or mow down the stalks to stimulate the emergence and growth of other plants previously suppressed.

RODEO [glyphosate (53.8%)]: 2 fl. oz./gal]

Garlic Mustard (Alliaria officinalis)

Description: naturalized European biennial herb that typically invades partially shaded forested and roadside areas. It is capable of dominating the ground layer and excluding other herbaceous species. Plants die after producing seeds, which typically mature and disperse in August. Normally its seeds are dormant for 20 months and germinate the second spring after being formed. Seeds remain viable for up to 5 years.

Preferred Removal Strategy: Cutting and Pulling

Hand pulling is an effective method for removing small populations of garlic mustard, since plants pull up easily in most forested habitats. Plants can be pulled during most of the year. However, if plants have capsules present, they should be bagged and disposed of to prevent seed dispersal. Care should be taken to minimize soil disturbance but to remove all root tissues. Soil disturbance can bring garlic mustard seeds to the surface, thus creating a favorable environment for their germination. To avoid this, soil should be tamped down firmly after removing the plant. Re-sprouting is uncommon but may occur from mature plants not entirely removed.

Cutting is effective for medium- to large-sized populations depending on available time and labor resources. Cut stems when in flower (late spring/early summer) at ground level either manually (with clippers or a scythe) or with a motorized string trimmer. This technique will result in almost total mortality of existing plants and will minimize re-sprouting. Dormant seeds in the soil are unaffected by this technique due to minimal disturbance of the soil. However, as viable seeds may be produced from cut stems, they should be removed from the site when possible. Cuttings should be conducted annually until the seed bank is depleted.

Alternate Removal Strategy: Herbicides

Garlic mustard is a biennial that spreads only by seed. The post-emergence herbicides listed below should be applied after seedlings have emerged, but prior to flowering of second-year plants. None of these herbicides will affect subsequent seedling emergence of garlic mustard or other plants.

SAFER Superfast Weed & Grass Killer [potassium salts of fatty acids]: Ready-to-use spray FINALE [glufosinate-ammonium (11.33%)]: 3 fl. oz./gal

Japanese Knotweed (Polygonum cuspidatum)

Description: an herbaceous perennial which forms dense clumps 1-3 meters (3-10 feet) high. Knotweed reproduces via seed and by vegetative growth through stout, aggressive rhizomes. It spreads rapidly to form dense thickets that can alter natural ecosystems. Japanese knotweed can tolerate a variety of adverse conditions including full shade, high temperatures, high salinity, and drought. It is found near water sources, in low-lying areas, waste places, and utility rights of way. It poses a significant threat to riparian areas, where it can survive severe floods.

Preferred Removal Strategy: Cutting and Pulling

Grubbing is appropriate for very small populations or in environmentally sensitive areas where herbicides cannot be used. Typically, the entire plant, including roots and runners, is removed with an appropriate digging tool. Care must be taken not to spread rhizome fragments. Juvenile plants can be hand-pulled depending on soil conditions and root development. Any portions of the root system not removed will potentially re-sprout. All plant parts, including mature fruit, should be bagged and disposed of in the trash to prevent reestablishment.

Repeated cutting may be effective in eliminating Japanese knotweed, but this strategy must be carried out for several years to obtain success. Generally, knotweed is cut close to the ground at least three times a year to effect control. Cutting stems over time results in a significant reduction of rhizomatous reserves. Manual control is labor intensive, but where populations are small and isolated or in environmentally sensitive areas, it may be a good option.

Alternate Removal Strategy: Herbicides

Triclopyr will kill the top growth within a few days, but Japanese knotweed may re-sprout following treatment. Residual effects on emergence and growth the following year are variable.

Glyphosate applied in spring or early summer may stunt or yellow growth, but knotweed will generally recover and continue growing. Glyphosate treatments in late summer or early fall are much more effective in preventing re-growth of Japanese knotweed the following year.

Late June – Cut or mow down stalks.

Allow knotweed to regrow.

After August 1, spray knotweed with RODEO [glyphosate (53.8%)]: 2 fl. oz./gal]

Established stands of Japanese knotweed are difficult to eradicate even with repeated glyphosate treatments. Adequate control is usually not possible unless the entire stand of knotweed is treated (otherwise, it will re-invade via creeping rootstocks from untreated areas). However, glyphosate treatments will greatly weaken the plant and prevent it from dominating a site.

Both mechanical and herbicidal control methods require continued treatment to prevent reestablishment of knotweed. Reintroducing native plants as competitors may be an alternative to continued treatment. However, more research needs to be done on which native species might be effective competitors and how they should be reintroduced.

Target Species: Invasive Woody Plant Species

Japanese Honeysuckle (Lonicera japonica)

Description: commonly found along roadsides, forest edges, and in abandoned fields as it quickly invades natural areas after disturbances. Japanese honeysuckle spreads by seeds, rhizomes, and runners. It can quickly cover small trees, either stunting their growth or killing them completely. Dense growth of the species will also reduce light available to other species, deplete soil moisture nutrients, and may cause trees to topple due to the weight of its vines.

Preferred Removal Strategy: Hand-pulling

For small patches, repeated pulling of entire vines and root systems may be effective. Seedlings and young plants can be hand pulled when the soil is moist by holding low on the stem to remove the whole plant along with its roots. Frequently monitoring is necessary to identify and remove any new plants. Twining vines should be cut and removed to prevent them from girdling and killing shrubs and other plants. An effective method for removal of patches of honeysuckle covering the ground is to lift up and hold a portion of the vine mass with a rake and have a chain saw operator cut the stems low to the ground. Plants can also be grubbed out using a digging tool, taking care to remove all roots and runners.

Alternate Removal Strategy: Herbicides

Japanese honeysuckle leaves continue to photosynthesize long after most other plants have lost their leaves. This allows for application of herbicides when many native species are dormant. For effective control with herbicides, healthy green leaves must be present at application time and temperatures must be sufficient for plant activity. Several systemic herbicides (e.g., glyphosate and triclopyr) move through the plant to the roots when applied to the leaves or stems and have been used effectively on Japanese honeysuckle. A 2.5% rate of glyphosate mixed with water and an appropriate surfactant should be applied to foliage from spring through fall. Alternatively, a 2% concentration of triclopyr plus water can be applied to foliage by thoroughly wetting the leaves but not to the point of drip-off. A coarse, low-pressure spray should be used. Repeat applications may be needed. Treatment in the fall, when many non-target plants are going dormant, is best. Also, a 25% glyphosate or triclopyr solution mixed with water can be applied to cut stem surfaces any time of year as long as the ground is not frozen.

Foliar sprays:

RODEO [glyphosate (53.8%)]: 2 fl. oz./gal BRUSH-B-GON [triclopyr (8%)]: 4 fl. oz./gal

Japanese Barberry (Berberis thunbergii)

Description: a multi-branched dense shrub that can grow to 2.5 m (8 ft) in height. Shiny green to burgundy leaves are alternate along its thorny stems. Solitary yellow flowers bloom from March to April, and the fruit is a round or elliptical red berry. Japanese barberry is a popular landscape shrub that has escaped into many natural areas, and can grow in dense thickets in the understory of woods and forests. It is a prolific seed producer, and numerous birds eat and subsequently disperse the seeds.

Preferred Removal Strategy: Pulling by hand or weed wrench, or mowing/cutting

Hand pulling can effectively control small populations of Japanese barberry, since it can be done during most of the year and plants pull up easily in most forested habitats. To avoid injury from the sharp spines, heavy gloves and long-sleeved shirt are recommended. Barberry breaks bud early in the spring, thus it is easy to see in springtime before other deciduous plants leaf out. If plants have fruit present, they should be bagged and disposed of to prevent seed dispersal. Care should be taken to minimize soil disturbance. If lacking berries, uprooted shrubs can be piled and left as cover for small animals. For larger shrubs, a weed wrench provides the necessary leverage to pull up the plant by its roots and also minimizes contact with the thorny stems.

Repeated mowing or cutting will control the spread of Japanese barberry but will not eradicate it. Stems should be cut at least once per growing season as close to ground level as possible. Hand cutting of established clumps is difficult and time consuming due to the prolific thorns.

Alternate Removal Strategy: Herbicides

Japanese barberry breaks bud earlier in the spring than most woody species. Thus, it is possible to selectively spray its young leaves before other woody species have produced leaves. For such early season treatments, triclopyr is usually more effective than glyphosate. Wait until significant leaf expansion to ensure sufficient absorption of triclopyr. From mid summer to fall, both glyphosate and triclopyr are effective when applied as foliar sprays or as cut stump treatments.

Foliar spray:

BRUSH-B-GON [triclopyr (8%)]:

4 fl. oz./gal

Cut-stump treatment: Undiluted

Multiflora Rose (Rosa multiflora)

Description: a large, dense shrub that has escaped from ornamental and conservation plantings to become a serious invasive plant problem across the eastern half of the U.S. It invades natural areas, pastures, and light gaps in forests. Multiflora rose spreads quickly and may grow 1 to 2 feet per week to form impenetrable thickets of thorny stems.

Preferred Removal Strategy: Cutting or grubbing

Cutting method is appropriate for small initial populations and for environmentally sensitive areas where herbicides cannot be used. Repeated cutting will control the spread of multiflora rose, but will not eradicate it. Stems should be cut at least once per growing season as close to ground level as possible. Hand cutting of established clumps is difficult and time consuming due to the long arching stems and prolific thorns.

Pulling, grubbing, or removing individual plants is effective when plants are small. Use a digging tool to remove the entire plant. Special care should be taken to ensure that all roots are removed to prevent their resprouting. If plants develop from severed roots these should be removed as well.

Alternate Removal Strategy: Herbicides

Multiflora rose is susceptible to both glyphosate and triclopyr. Triclopyr can be applied starting in spring before or during flowering. Glyphosate is most effective when applied after flowering

(early summer) until early fall. Cut-stump treatments with both herbicides also provide control, but cutting stumps in established thickets is very difficult because of the numerous thorny branches.

BRUSH-B-GON [triclopyr (8%)]:

Foliar spray: 4 fl. oz./gal

Cut-stump treatment: Undiluted

Oriental Bittersweet (Celastrus orbiculatus)

Description: a deciduous woody vine that can reach 19 m (60 ft) in height, and can grow to 10 cm (4 in) in diameter. It is a serious threat to plant communities due to its high reproductive rate, long-range dispersal, ability to root sucker, and rapid growth rate. Climbing vines severely damage or kill trees and shrubs by constricting and girdling stems, and by blocking sunlight. Oriental bittersweet has a wide range of habitat preferences including roadsides, thickets, young forests and dunes. It is shade tolerant, readily germinating and growing under a closed forest canopy. Seeds are dispersed readily by birds and small mammals.

Preferred Removal Strategy: Cutting or Grubbing

Cut climbing or trailing vines as close to the root collar as possible. Cutting will reduce seed production and strangulation of surrounding woody vegetation. Oriental bittersweet will resprout unless cut so frequently that its root stock is exhausted. Treatment should begin early in the growing season and be repeated at 2-week intervals until autumn.

Grubbing is carried out by using a "pulaski" or similar digging tool to remove the entire plant, including all roots and runners. Juvenile plants can be hand pulled depending on soil conditions and root development. Any portions of the root system not removed will potentially re-sprout.

All plant parts, including mature fruit, should be bagged and disposed of in a trash dumpster to prevent reestablishment.

Alternate Removal Strategy: Herbicides

Young vines or low-growing patches can be sprayed with triclopyr any time during active growth. Larger vines or vines that have climbed high into trees should be cut or girdled just above ground level in summer or early fall. Paint undiluted triclopyr into the freshly cut surfaces of the stump. Repeated applications may be necessary to eliminate re-sprouting.

BRUSH-B-GON [triclopyr (8%)]: Foliar spray: 4 fl. oz./gal.

Cut-stump treatment: Undiluted

Porcelainberry (Ampelopsis brevipedunculata)

Description: a deciduous, woody vine. It twines with the help of non-adhesive tendrilsand closely resembles native grapes. Porcelain-berry spreads by seed and through vegetative means. The colorful fruits, each with two to four seeds, attract birds and other small animals that eat the berries and disperse the seeds in their droppings. The seeds of porcelainberry germinate readily to start new infestations. Porcelainberry is often found growing in riparian areas downstream from established patches, suggesting they may be dispersed by water also. The taproot of

porcelain-berry is large and vigorous. Resprouting will occur in response to cutting of aboveground portions.

Preferred Removal Strategy: Hand Pulling

Hand pulling of vines in the fall or spring will prevent flower buds from forming the following season. Where feasible, plants should be pulled up by hand before fruiting to prevent the production and dispersal of seeds. If the plants are pulled while in fruit, the fruits should be bagged and disposed of. For vines too large to pull out, cut them near the ground and repeat cutting of regrowth as necessary. Because the roots of porcelain-berry plants often merge with shrubs or other desirable vegetation, this type of manual removal is difficult in well established patches without damaging the desirable vegetation as well.

Alternate Removal Strategy: Herbicides

From summer to fall, apply a water-based solution of 2.5% Garlon® 3A (triclopyr amine) to foliage or cut plants first, allow time for regrowth and then reapply the mixture. Smaller infestations can be controlled to some extent with spot applications of glyphosate to leaves, used sparingly to avoid contact of desirable plants with spray. Cut the vines back during the summer and allow to re-sprout before applying herbicide, or apply glyphosate to leaves in early autumn.

To control climbing vines, cut large stems close to ground level and immediately treat the stump tops with Garlon 3A or a glyphosate herbicide with a 25-percent solution (3 quarts per 3-gallon mix). ORTHO Brush-B-Gon, Enforcer Brush Killer, and Vine-X are effective undiluted for treating cut-stumps and available in retail garden stores (safe to surrounding plants). For large vines, make stem injections using Arsenal AC*, Garlon 3A, or a glyphosate herbicide.

Herbicide treatment is most effective when applied toward the end of the growing season when plants are actively transporting nutrients from stems and leaves to the root system. Follow-up treatments may be needed in subsequent years to remove plants which have sprouted from seeds remaining in the soil.

Additional Removal Information

Because porcelainberry vines can grow up to 15 ft. in a single growing season, especially when rainfall is abundant, and seed may be viable in the soil for several years, effective control requires dedicated follow-up. Treatment measures often must be repeated during the growing season and for several years afterwards to fully eradicate the plant. Prevention of flowering, fruiting and production of mature seeds will help reduce its spread. Chemical control in combination with manual and mechanical methods is effective and likely to be necessary for large infestations.

Wineberry or Wine Raspberry (Rubus phoenicolasius)

Description: a perennial shrub with long, arching canes up to 9 feet long. It produces a large number of fruits that are readily eaten and dispersed by birds to forme dense, impenetrable thickets, crowding out native vegetation. It also spreads when tips of the canes touch the soil and take root. It can thrive in disturbed areas, wetlands, forest edges, floodplains, open canopy woodlands and roadsides. It can rapidly form dense monotypic thickets that crowd out native vegetation. Since the fruits are tasty, it is often not recognized as a problem. Copious fruit production and subsequent bird-dispersal contribute to its spread across the landscape.

Preferred Removal Strategy: Hand Pulling

No tools are necessary for hand removal of wineberry other than gloves to protect from thorns. The easiest time to remove this plant is in the fall or winter after a rain when the soil is moist. The stem should be grasped near the base to remove the entire root system. Broken roots left in place will likely re-grow. It is recommended to pull in series of tugs rather than one strong pull to achieve greater root removal.

Alternate Removal Strategy: Herbicide

A cut stump application of glyphosate or triclopyr in the fall is recommended when necessary

HABITAT ENHANCEMENT / AUGMENTATION OF NATIVE SPECIES

The primary objective of the revegetation effort will be to create a foundation for long term stability of a productive wetland ecology. The initial planting must address erosion control issues while providing an environment which gives an advantage to the establishment of native species.

Based on site inspection, the cover of invasive plants in portions of the site's buffer and wetland areas approaches 50%. Clearing of invasive species and replanting with native plants is proposed only where necessary. This is a conservative estimate used to approximate plant cover/density and costs required to implement the initial replanting of the site after selective removal of invasive species has occurred. As shown in Sheet C-9, this amounts to approximately 4000 square feet of invasive plant removal in the wetlands buffer and 10,000 square feet of invasive plant removal in the wetland. These areas will be re-vegetated with native plant seedlings and plant-plugs soon after removals are complete for erosion control and habitat restoration.

Both woody plants and herbaceous species appropriate for the site conditions will be specified. There is an opportunity to collect desirable species from areas of the project which will be excavated and /or regraded prior to site demolition. The project ecologist will be on site to direct collection activities. All collected plant material must be replanted immediately or stored in appropriate conditions to maintain its viability.

Additional plant material will be required to supplement the collected material and to introduce natives species not currently found on the project site. Herbaceous plant material will be specified in a variety of sizes for each species; in small containers and plugs. Depending on the species, the vegetation will be planted at 6" to 2'-0" on-center to provide uniform cover of the enhancement area within the first year of growth. Woody plant materials will be specified in a variety of types and sizes; containerized plant and live stakes. Planting of all herbaceous materials will take place in the spring. Containerized trees and shrubs will take place either spring or fall. Live stakes of shrubs will be planted during the shrub's dormant season.

A list of appropriate plants to be used during the enhancement effort is provided below.

Wetland Enhancement Plant List:

Tussock Ssedge (Carex stricta)

Fox Sedge (Carex vulpinoides)

Soft Rush (Juncus effusus)

Woolgrass (Scirpus cyperinus)

Park Place at Westchester Airport FEIS

Swamp Milkweed (Asclepias incarnata)

Pale False Mannagrass (Glyceria pallida)

Three Square (Scirpus americanus)

Sensitive Fern (Onoclea sensibilis) FACW

Smooth Alder (Alnus serrulata)

Redosier Dogwood (Cornus stolonifera) FACW+

Winterberry (Ilex verticillata) FACW+

Swamp Azalea (Rhododendron viscosum) FACW+

Swamp White Oak (Quercus bicolor) FACW+

Wetland Buffer Enhancement Plant List:

Red Chokeberry (Aronia arbutifolia) FACW

Sweet Pepperbush (Clethra alnifolia) FAC+

Silky Dogwood (Cornus amomum) FACW

Spicebush (Lindera benzoin) FACW-

Arrowwood (Viburnum dentatum) FAC

Elderberry (Sambucus canadensis) FACW-

Highbush blueberry (Vaccinium corymbosom) FACW-

Red Maple (Acer rubrum) FAC

Green Ash (Fraxinus pennsylvanica) FACW

Sweetgum (Liquidambar styraciflua) FAC

Nannyberry (Viburnum lentago) FAC

Pin Oak (Quercus palustris) FACW

Bayberry (Myrica pensylvanica) FAC

New York Fern (Thelypteris noveboracensis) FAC

Lance leaved goldenrod (Euthamia graminifolia) FAC

giant goldenrod (Solidago gigantea) FACW

Switchgrass (Panicum virgatum) FAC

Yellow birch (Betula alleghaniensis) FAC

Topsoil

Any existing topsoil which exhibits the presence of invasive species should not be reused within the enhancement area. If additional topsoil is required will be brought in from an approved source and free of any undesirable materials. Topsoil placed in the wetland enhancement areas

should not be rolled or compacted. If the topsoil is rolled or compacted with smooth-wheeled equipment that results in a smooth, planar surface for the topsoil, the surface must then be scarified prior to planting.

Watering

Newly planted vegetation in the enhancement areas should be monitored for up to 5 years. Irrigation is important during the first growing season for plant establishment. During the first 3 to 5 years trees and shrubs should be irrigated during the dry periods and mulchs to retain moisture. Native grasses and wildflowers need no supplemental irrigation.

Pest control

Generally, native plants do not require the use of insecticides or fungicides. However, if pesticides are required, pesticides labeled for aquatic use will be used. Label directions for application, usage and disposal will be followed. Fencing and or bird mesh will be installed and maintained for a minimum of five years to deter grazing by wildlife.

Fertilizing

In general, fertilizers are not needed or recommended for herbaceous wetland vegetation projects. Depending on site condition and performance of the installed vegetation, native trees and shrubs may benefit from a twice yearly application of a slow release or organic fertilizer for two years after planting.

Maintenance Practices

The pruning of native trees and shrubs is not required. Native grasses will benefit from a once yearly high mowing or string line trimming. Consistent and on-going monitoring and maintenance will be critical to identify and mitigate problems in the post-construction period. A five year monitoring period will be required to ensure the success of the initial enhancement plantings in taking hold and occupying the growing space. During this period subsequent invasive plant removal will likely occur.

Successful "filling" of the growing space by the enhancement plant can itself help prevent recolonization by invasive plant species. Annual monitoring and all subsequent removal activities will be overseen by the project ecologist on all occasions. The techniques employed to remove invasive plants, and the decision to use herbicide, will be re-evaluated annually. Based on annual monitoring and an assessment of invasive plant presence, the techniques will be adjusted as necessary to maximize invasive plant removal while minimizing negative effects to the site's wetlands and existing native flora/fauna. The project ecologist will provide a letter report to the Town Planning Department documenting the monitoring and maintenance activities that occur each year. This report will provide photographs of the enhancement areas, details on plant survival, and cover estimates for any re-colonization of invasive plants.