Application for Project Development Review

Bridges
BY EPOCH
MEMORY CARE ASSISTED LIVING

Development Area B of the University Station project
within the University Avenue Mixed Use District

Submitted by ND Acquisitions LLC
November 8, 2013

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Tab 1:
Project Information Form and Signature Page

General application information for the Applicant and project:

Name of Applicant:	ND Acquisitions LLC d/b/a: National Development – Newton Lower Falls, MA Epoch Senior Living – Waltham, MA
Address of Applicant:	2310 Washington Street Newton Lower Falls, MA 02462
Contact information for Applicant:	Name: Steve Senna Title: Vice President, National Development Phone: 617-953-4699 Email: ssenna@natdev.com
Owner (if other than the Applicant):	Westwood Marketplace Holdings LLC
	Name: John E. Twohig, Esq. Title: Attorney for the Owner Phone: (617) 482-1776 Email: jtwohig@goulstonstorrs.com Name: Paul S. Cincotta Title: Project Manager Phone: (617) 243-7841 E-Mail: pcincotta@nedevelopment.com
Description of project site:	Approximately 3.33 acres of land within Development Area B, as shown on the Master Development Plan approved at the Special Town Meeting on May 6, 2013, within the University Avenue Mixed Use District. The project site will be created by recorded ANR plan on or about the date construction commences.

Description of proposed development:	Bridges at University Station will measure approximately 32 feet (two stories) in height and include approximately 61,000 square feet of gross floor area. The community will consist of four identical wings (two on the ground floor and two on the 2nd floor) that will include resident apartments and shared dining areas, libraries, and living rooms and activity areas, and a central core that will include a kitchen, administrative offices and shared amenities such as a lobby and main activity room, all as more fully set forth in the Narrative Statement behind Tab 2.
Description of proposed parking:	Approximately 65 parking spaces adjacent to the building with access to and from University Avenue. Bicycle racks for approximately 10 bicycles will also be provided near the front of the building.
Waivers from Rules and Regulations requested:	None
Supporting application materials	Please see the foregoing Table of Contents and narrative statement and plans provided with this application.
Application fee:	Calculated as 61,000 square feet of construction x $0.05 = $3,050.

Signature of the Applicant:

ND Acquisitions LLC

Name: Theodore R. Tye
Title: Executive Vice President

Date: November 6, 2013

TAB 2:
Narrative Statement

The Bridges at University Station project (the "Project") is located within Development Area B as shown on the Master Development Plan approved at the Special Town Meeting on May 6, 2013. The Master Development Plan shows a building and parking field in this location, and various reports submitted to the Town in connection with the Master Development Plan (including a traffic impact study and supplemental memoranda) describe and analyze impacts of the building in this location.

As described in more detail below, we believe the Project is consistent with the Master Development Plan, these reports and memoranda, and the zoning and general planning principles for University Station. Parts A and B below provide a Project overview, technical information and reports on traffic, utilities, and other Project features, and additional information required by the Rules and Regulations of the University Avenue Mixed Use District. Part C below summarizes this information and the Project's compliance with the design and performance standards set forth in Section 9.8.11 of the Zoning Bylaw.

A. Overview of the Project

1. Project Description

The Project consists of the development of a two-story building measuring approximately 32 feet in height, with approximately 61,000 square feet of floor area, on a parcel measuring approximately 3.33 acres. This parcel will be created by a recorded ANR plan on or about the date construction of the building commences.

ND Acquisitions LLC is an affiliate of National Development. In addition to being a partner in the University Station Master Development Plan, National Development has a joint venture with Epoch Senior living – one of the most-well respected operators of senior housing and skilled nursing facilities in Massachusetts – to develop senior housing projects throughout southern New England. Bridges at University Station will be a state-of-the-art assisted living residence that will be developed, owned and operated by National Development and EPOCH Senior Living (collectively referred to herein as the "Applicant") in a joint venture. The two firms have developed more than 35 senior housing developments, including three recent projects as joint-venture partners – Waterstone at Wellesley, Bridges at Hingham and Bridges at Westford. The Project's architect is CBT Architects, one of the area's most experienced and well-respected architectural firms focusing on multi-family housing and assisted living residential communities. For Bridges at University Station, the Applicant has developed and is proposing a building design that will create an attractive "home-like" residential setting that will help ensure the comfort and safety of every resident.

As envisioned in the Master Development Plan, based both on the nature of the proposed use as well as the proposed low-scale residential design of the project, Bridges at University is a low-impact, high-quality development that is particularly well-suited for the subject site. As outlined in detail below, the design of Bridges at University Station is consistent with all of the relevant requirements of the Town of Westwood's Zoning Bylaw, in particular Section 9.8 – the University Avenue Mixed Use District (UAMUD).

The mission of Bridges at University Station will be to provide residents with a secure setting and the appropriate level of services that allows each resident to maximize his or her quality of life. The Project's residents will enjoy comfortable apartments and beautiful surroundings both inside and outside of the building. As described below in more detail or shown on the attached plans, the Project will feature a variety of common area amenities, such as shared dining areas, living rooms, lounges and libraries, beauty/barber salons, a health/wellness suite and central activity areas. The floor plans listed behind Tab 6 show the proposed layout of these various spaces.

The Project will consist of 64 assisted living apartments separated into four (4) distinct "households" of 16 units. The interior program and design for the Project is based on current industry-best practices and incorporates design features consistent with the latest research regarding how best to protect and enhance the health and well-being of people with memory care needs. The guiding principle of the design is to make the Project look and function in each of its "household" wings as much like a single-family home and family unit as reasonably possible**.**

The 16 units that make up each household will consist of 14 private studio apartment units and 2 companion apartment units. Based on this unit mix, the Project will have a total of 72 bedrooms.

	Residents per Unit	*# of Units*	*# of Residents*
Studios	*1*	*56*	*56*
Companion Units	*2*	*8*	*16*
Total		***64***	***72***

Resident units will be small apartments with private bathrooms, but will not have private cooking or dining areas. While all four households will share a core building area that will house centralized reception, social, kitchen, staff and administrative spaces, each household will have its own residential common activity and dining areas. In addition, each household will have direct access to secure outside space – a courtyard on the ground floor and a roof deck on the 2nd floor. A central kitchen located in the core of the building will prepare three meals per day for each resident with delivery and service to each of the household dining areas. The building will total approximately 61,000 gross SF on two floors (excluding the 2nd floor roof deck).

The proposed ground floor courtyard/gardens and roof deck are designed specifically for residents with memory care needs and will be carefully programmed, secured and maintained. The proposed site plan includes parking for 65 cars in two separate parking areas along the north and east sides of the property. While none of the residents will have cars, the proposed parking count is consistent with the industry standard to provide approximately one space per bed in order to accommodate parking demand during staff shift changes and peak visitor periods. Other

site improvements include a front porch flanked by a decorative trellis, native and adapted drought-tolerant trees and other landscaping, attractive residential-style site lighting and sidewalks/pathways connecting the Project to the pedestrian circulation system for University Station.

2. Site Layout and Exterior Architectural Design

The following design considerations guide the layout used for the assisted living development in the Master Development Plan: the need to provide an attractive front door and "edge of development" along the access drive frontage while maintaining some visibility through the Well-head park to University Avenue, and the desire to shield the Project's courtyard and the neighboring Well-head park from the nearby railroad tracks. The Project fully respected these design objectives and the proposed site plan layout for the Project is consistent with the layout shown on the Master Development Plan.

As demonstrated in the enclosed site layout drawings (see Sheet L-201), the evolution of the site design from the Master Development Plan to the Project allows the Applicant not only to ensure the proposed site plan's consistency with the overall University Station design goals, but also to incorporate important safety and emergency services design features (e.g., access for fire department vehicles). Consistent with these goals, the Applicant has added a driveway/parking area along the entire eastern side of the building to provide enhanced access for emergency response vehicles to the rear of the building, as well as to facilitate access to the loading and trash management areas. At the request of the Fire Chief, this eastern parking area now leads to an emergency fire lane that is connected to the park pathways to allow for fire truck access around all sides of the facility in a major emergency. In addition, the Applicant has reviewed the proposed site plan with the Fire Department and has coordinated all driveways with the Fire Department vehicle turning movement requirements.

As described above, other site improvements proposed by the Applicant include a secure courtyard for its residents, which the Applicant has carefully programmed and designed for the specific needs of its residents, as well as key pedestrian connection points from the Project site to the rest of the University Station project.

The exterior architectural design of Bridges at University Station is guided by two central design principles: (1) to use exterior materials, colors and massing that will complement the other uses and building designs within the University Station Master Development Plan; (2) to make a clear architectural statement that reinforces the residential character and mission of a building that will serve as a *home* to its residents.

Bridges at University Station's exterior design uses as a reference point some of the best design details and features of the exceptionally high quality of the Town of Westwood's traditional single-family housing stock. As demonstrated in the elevations and renderings for the project, the Applicant and its design team have, at the same time, made every effort to ensure that the Project relates to the specific architectural context of the site, including the neighboring park, and complies with all of the relevant requirements of the UAMUD design standards.

The following is a brief description of the Project's compliance with the relevant architectural and planning objectives established in the UAMUD:

- *Exterior materials:* The Project will be sided with a combination of clapboard and shingles made of cementious materials that provide the look and feel of traditional materials with superior durability. The design for the Project employs a variety of traditional New England architectural elements, including trim detail at the eaves and around each window opening and a standing-seam metal roof that will be used to mark the building's main entrance. This entrance will be further marked and celebrated with an attractive front porch colonnade as well as a flanking decorative trellis. In addition, the Project will use raised panels in the doors at the front façade and architectural moldings/trim through the building facades in order to reinforce the residential design and use of the building. The color palette of the building will be neutral and understated, and consistent with colors used throughout the UAMUD.

- *Façade treatment:* As demonstrated in the enclosed elevation drawing (see Sheet A-301), the massing and façade design – in terms of both materials and detailing – makes use of some of the same design techniques as many of the area's most attractive, high-quality single-family residential homes. Each of the building's two "wings" are defined by a series of protruding "bays" which extend out from the façade and are capped with gabled roof elements. Each façade of the building is detailed and articulated with a well-defined foundation, modulated wall elements, and a pitched roof.

- *Relationship among structures and components:* The Project's entrance and main façade faces the Development Area B access drive. As indicated above, a secure resident courtyard is planned for the southwest portion of the site where the Project abuts the Well-head park. The trash enclosure and other supporting components to the back-of-house operations of the building are appropriately located and shielded in the northeast corner of the site along the railroad right-of-way. Subtle modulations of the Project's exterior materials and forms not only differentiate both floor levels but also create a sense of architectural continuity with the landscape. At the front façade, stone and clapboard at the ground level subtly contrast with upper level shingle siding to keep the building "grounded" in the landscape and give the building a sense of human scale that can be perceived inside and out.

- *Detailing:* The Project's overall design unity is achieved by an understated approach to detailing the transitions between different materials, components, and volumetric forms, allowing the building to be comprehended easily as a whole. For example, the windows are laid out in a traditional "punched opening" pattern and will be made of fiberglass with attractive divided lights. Most of the building's windows will include transoms and all of the windows will be accented with decorative residential wood (or wood-looking) trim. Exterior siding trim boards further integrate the framing of windows and proportioning of façade elements, minimizing strong contrasts while achieving overall architectural legibility and coherence.

- *Rooftop:* The Project, as designed, has a traditional pitched roof, which will be finished with high quality composite shingle materials throughout, with the exception of a small area of traditional standing seam metal roofing (similar in style and color to lead-coated

copper), which is used to highlight the main entrance of the building, and a small portion of flat roof, which sits above the main kitchen in the core area of the building.

B. Technical Information and Reports

1. Traffic Impacts

The proposed project is located at the building known as Assisted Living Building S on the Master Development Plan. Assisted Living Building S is situated along the east side of University Avenue approximately 1,300 feet south of Green Lodge Street. Vehicles access this building by a driveway which intersects the east side of University Avenue opposite the North Site Drive.

As part of the University Station planning process, a Traffic Impact Study dated November 2012 (the "November 2012 TIS") and supporting memoranda addressing comments raised by the Town's traffic peer review consultant were submitted to and approved by the Town. These documents included detailed traffic impact analyses and a comprehensive transportation improvement program, the elements of which are designed to accommodate ~~for~~ the project within the confines of the transportation infrastructure. These documents included peak hour traffic volume projections and analyses for a 100-unit-senior adult housing community (Institute of Transportation Engineers (ITE) Land Use Code (LUC) 252 - Senior Adult Housing – Attached), which was to occupy Building S. As currently proposed, Building S will be reconstituted to encompass a 64-bed assisted living facility. Table 1 summarizes and compares the traffic characteristics of the 100-unit senior housing community as assessed in the November 2012 TIS to those of the currently proposed 64-bed assisted living facility (ITE LUC 254, Assisted Living).

As can be seen in Table 1, the currently proposed Assisted Living facility is expected to generate approximately four additional trips during the morning peak hour when compared to the previously proposed 100-unit senior housing community, with six additional trips expected during the afternoon peak hour and nine fewer trips expected during the Saturday peak hour. The small increase in trips during the weekday peak hours results from additional employees and caregivers that are typically associated with the function of an assisted living facility. This increase is considered nominal and will not result in a material increase in the relative impact of the project from that which was assessed in the November 2012 TIS and for which appropriate mitigation measures have been developed and committed to as a part of the project.

Table 1 Trip Generation Comparison

			AM Peak Hour			PM Peak Hour			Saturday Peak Hour		
Description	**Size**		**In**	**Out**	**Total**	**In**	**Out**	**Total**	**In**	**Out**	**Total**
LUC 254 - Assisted Living[1]	64	beds	6	3	9	6	8	14	10	11	21
LUC 252 Sr. Adult Housing-Attached[2]	100	units	2	3	5	5	3	8	14	16	30
Difference			4	0	4	1	5	6	-4	-5	-9

[1]Source: Land Use Code (LUC) 254 – Assisted Living, Institute of Transportation Engineers' publication *Trip Generation*, 8th Edition, 2008.
[2]Source: Traffic Impact Study (Tetra Tech/VAI, November-2012).

2. Utilities

- *Water Usage:* The Bridges at University Station will receive water from the Dedham-Westwood Water District's main water service system located in University Avenue. An eight-inch water line will connect to an existing twelve-inch main located in University Avenue and will extend down the shared Development Area B access drive into the Project site. Fire hydrants will be provided on site and the final count and location will be coordinated with the Fire Chief. Preliminary discussions with the Fire Chief have indicated the need for 2 hydrants as shown in the enclosed plans.

  The Master Development Plan anticipated 251,354 gallons per day of water demand (as noted in the approved Water Budget Report last revised April 18, 2013), with 15,000 gallons per day allocated to the Bridges at University Station site based on an assumption that it would include 100 units. As the design of the Bridges at University Station building has advanced including a reduction to 64 units, water demands are anticipated to be approximately 10,800 gallons per day per Title V's 150 gallons per day per bed standard for elderly housing, and significantly less based on actual usage at the Applicant's comparable facilities. The Applicant will make a good faith effort to use Water Sense (or equivalent) fixtures where reasonably possible without compromising the health and operational requirements of the assisted living facility. In any case, with the reduction from 100 to 64 units (or 72 beds), Bridges at University Station's water usage will be consistent with (or actually lower than) the Master Development Plan.

- *Wastewater Generation:* The Bridges at University Station building will discharge wastewater to the fourteen-inch sewer main located within University Avenue. The Master Development Plan anticipated up to 15,000 gallons per day of wastewater to be generated by the Bridges at University Station use. Actual wastewater generation is anticipated to be 10,800 gallons per day, less than previously estimated, resulting in a lower wastewater impact. Wastewater will be discharged by an eight-inch line within the shared access drive with a minimum slope of 0.5%. As required by the Wastewater Operations and Maintenance Manual, the sewer service will be video inspected for the first two years to confirm that the sewer service is operating in a satisfactory manner.

- *Electrical Service:* Electrical service will be provided by NStar from University Avenue by means of an underground ductbank. The transformer is anticipated to be located along the east side of the building (facing the CSX railroad corridor) and will not be visible from University Avenue, the Well-head park or the shared Development Area B access drive.

- *Gas service:* Gas service will be provided by NStar from its main line in University Avenue. Actual gas pressure requirements will be determined once the gas distribution system and mechanical equipment design for the building is fully developed.

- *Telephone and Cable Service:* Telephone and cable television service will be provided by Verizon from University Avenue by means of an underground duct bank. This arrangement is consistent with the Master Development Plan.

3. Stormwater Management

The stormwater management system for the Bridges at University Station is consistent with the system approved as part of the Master Development Plan review process. Minor modifications to the overall stormwater management system were made to accommodate the Bridges at University Station development program. The impervious area associated with the Bridges at University Station can be accommodated by the stormwater management system approved as part the Master Plan as documented below.

Stormwater from the Bridges at University Station rooftop is still collected in a series of roof drains and directed to a subsurface infiltration basin (Basin 60P) located in the Village/Retail Area. The majority of the surface runoff generated from the parking areas and associated landscaping is also collected, treated, and conveyed to Basin 60P. Runoff from paved surfaces is still directed to a Stormceptor stormwater quality unit prior to discharge into the infiltration basin.

Basin 60P remains designed as a Stormtech infiltration system, consistent with the Stormwater Master Plan. Given the fluid nature of the final Village/Retail area layout, only a portion of Infiltration Basin 60P will be constructed. The portion of the basin that will be constructed is of sufficient size to allow the complete recharge of the first 2.0 inches of rainfall to prior to a discharge through the basin outlet piping, consistent with the approved Master Plan. An updated HydroCAD analysis is provided to demonstrate compliance with this key element of the approved Stormwater Master Plan. Because the Village/Retail area will not be built out as part of this PDR, an updated hydrologic analysis of Point of Analysis 4 is not warranted as a majority of the watershed will remain pervious.

In addition to maintaining consistency with the approved Stormwater Master Plan infiltration requirements, the Bridges at University Station has a small area of parking that will be directed to Point of Analysis 2, due to elevation constraints. The parking area is located in the southeast portion of the site, adjacent to the proposed building. Consistent with MassDEP requirements and the approved Master Plan, stormwater will receive 80% pre-treatment for TSS removal by incorporating a Stormceptor water quality inlet upstream of the point of connection that ultimately discharges to Point of Analysis 2. The approved Stormwater Master Plan did not consider impervious area from Building S being directed to Point of Analysis 2. Therefore hydrologic calculations have been provided under Tab 5 that indicated that peak discharge rates are substantially consistent with the approved Stormwater Master Plan. Table 1 and 2 below indicates consistency.

Table 1 – Comparison of Pre/Post Development Peak Runoff Rates

Point of Analysis	2-Year Storm			10-Year Storm			25-Year Storm			100-Year Storm		
	Pre (cfs)	Post (cfs)	Δ	Pre (cfs)	Post (cfs)	Δ	Pre (cfs)	Post (cfs)	Δ	Pre (cfs)	Post (cfs)	Δ
POA 2 (Masterplan)	134.99	65.53	-69.46	220.48	131.18	-89.30	256.27	172.25	-84.02	263.47	221.74	-41.73
POA 2 (Current Proposal)	134.99	66.74	-68.25	220.48	138.22	-82.26	256.27	182.25	-74.02	263.47	214.43	-49.04

Table 2 - Comparison of Pre/Post Development Runoff Volumes

Point of Analysis	2-Year Storm			10-Year Storm			25-Year Storm			100-Year Storm		
	Pre (ac-ft)	Post (ac-ft)	Δ	Pre (ac-ft)	Post (ac-ft)	Δ	Pre (ac-ft)	Post (ac-ft)	Δ	Pre (ac-ft)	Post (ac-ft)	Δ
POA 2 (Masterplan)	13.202	6.878	-6.324	23.520	14.277	-9.243	30.851	20.276	-10.575	40.804	29.070	-11.734
POA 2 (Current Proposal)	13.202	6.280	-6.922	23.520	13.884	-9.636	30.851	19.908	-10.943	40.804	28.644	-12.160

Calculations demonstrating the above results are attached to this application behind Tab 5. As shown above, the Stormwater Management system is in conformance with the approved Master Development Plan documents and further stormwater mitigation is not warranted.

4. Water Quality

The Stormwater Management system has been designed in accordance with the "Critical Areas" standards in the Massachusetts Department of Environmental Protection Stormwater Management Policy. Specifically, all stormwater collected from pavement areas will be routed through deep sump hooded catch basins and a Stormceptor sized to remove 75% TSS prior to discharging into an infiltration practice. Infiltration practices are also highly recommended for use in critical areas and the project has incorporated infiltration measures into the proposed design, consistent with the Stormwater Master Plan.

In addition to the stormwater quality measures discussed above, the Applicant has agreed to reconsider its typical design for emergency power service. Based on early input from Town Staff, the Project will provide emergency power by using a natural gas-powered emergency generator in lieu of a liquid petroleum powered generator.

5. Landscape Architecture

The landscaping for the Project site is consistent with the approved Master Development Plan:

- The total quantity of proposed shade, ornamental, and evergreen trees on the current plan is significantly more than what was proposed on the Master Development Plan.

- The on-center spacing of parking lot trees has remained the same.

- Much greater detail in plant species has been developed for the site, as shown on the plant schedule on the drawings included with this application.

6. Site Lighting

Site lighting for the Project has been designed in accordance with the Site Lighting plans dated April 17, 2013. Minimum and maximum light levels are within the acceptable ranges as well as the Uniformity Ratio.

The Project's exterior lighting will be limited to only: shielded parking lot lights at the front and secondary parking areas, code-required shielded entry lights over each egress door of the building, and standard residential post-lanterns within the fenced-in resident courtyard.

For the parking lot lights, the Applicant is considering LED fixtures as an alternative to traditional metal halide fixtures. A determination will be made once pricing is received from contractors. Should LED lighting be chosen, designs will ensure that the light temperature is consistent with the overall University Station development.

7. Sustainability and Greenhouse Gas Strategies and Initiatives

The Town of Westwood has adopted the Massachusetts Stretch Building Code. By adhering to the Stretch Code, the Project will result in energy conservation of 20% or more as compared to current baseline building code requirements. The Applicant and its design team have a long and successful track record of developing environmentally friendly projects and are committed to creating a project at University Station that complies with the Master Development Plan's sustainability goals. Specific strategies and initiatives include the following:

Site Strategies

- *Alternate transportation:* The Applicant will provide exterior bicycle rack and an employee changing room.

- *Heat island reduction:* The Project's large landscaped courtyard and its 2nd floor roof deck will help reduce heat islands and minimize impacts on the microclimate. All aspects of the building and courtyard design, including the front porch, front trellis, shaded courtyard patios, solariums and roof decks, will take into account the sensitivity of typical residents to light glare and intense heat.

- *Pollution prevention during construction:* To minimize the amount of construction debris that enters streams and waterways and to protect the environment from pollution, the Applicant will adhere to the requirements of the U.S. EPA Stormwater Construction General Permit.

Water Efficiency

- *Water use reduction:* Consistent with the stretch code, the Applicant will pursue several strategies to reduce water consumption by more than 20% compared to baseline building code requirements.

- *Sensible landscaping practices:* By using drought-tolerant, indigenous plantings as well as drip irrigation systems and "smart" irrigation controls the Applicant is able to significantly reduce water consumption used in landscaping.

Energy Conservation

- *Enhanced construction administration of MEP building systems:* As part of the full design for the Project, the Applicant will be engaging its MEP engineers to produce an energy model for the building in order to ensure specific compliance with the stretch code. The Applicant intends to engage a third-party HVAC commissioning agent to perform a series of design reviews, construction-progress field reviews and an intensive commissioning /start up process to verify that the Project's energy related systems are installed and calibrated to perform according to the Project's requirements.

- *Refrigerant management:* To help reduce stratospheric ozone depletion the Applicant has a policy of zero-use of chlorofluorocarbon (CFC) based refrigerants in building heating, ventilating, air conditioning, and refrigeration systems.

- *Optimization of energy performance:* The Applicant's design team will be using sophisticated computer-simulated energy modeling software to test various aspects of the design of the Project in order to ensure that the Project goals and code compliance are met with respect to energy performance and limiting environmental and economic impacts associated with excessive energy use. By using strategies such as high-efficiency light fixtures, occupant sensors to control lighting, high-efficiency HVAC units, the Applicant will be able to improve energy performance by over 20% compared to baseline standards.

- *Energy performance verification:* The Applicant's on site facility management team will make use of the Project's ATS system (automatic temperature control system) software to monitor and manage the HVAC system after opening to verify that the mechanicals are operating efficiently and using as little energy as possible.

Building Materials and Resources

- *Construction and post-consumer waste management:* The Applicant will recycle discarded construction materials whenever reasonably feasible. In addition, Epoch Senior Living's standard operating policies include recycling programs that help minimize the flow of trash into landfills and incinerators.

- *Recycled content:* The Applicant is committed to working with its design team to incorporate materials into the building design that are made of recycled materials.

- *Regional materials:* The Applicant is committed to working with its design team to incorporate materials into the building design that are regionally manufactured to help reduce the environmental impact resulting from transportation and to help support the use of local resources.

Indoor Air Quality

- *Increased ventilation:* Bridges at University Station facilities are designed to ensure a generous flow of fresh air into the buildings, including operable windows thoroughout.

- *Low-emitting materials:* The Applicant is dedicated above all else to the health and well-being of its residents. The Applicant is committed to investigating lower VOC (Volatile Organic Compound) substitutes for its standard building materials and products (paints, carpeting, glues, cleaners, etc.) in order to minimize VOC off-gassing and ensure that the facility provides a comfortable and safe environment in which to live and work.

8. Air Quality and Noise Impacts

Air quality for the project is consistent with Master Development Plan. Projected vehicle trips are essentially consistent with approved trip generations associated with the Master Development Plan as described above. Additional air quality impacts will not be created by the proposed use.

Similarly, noise impacts from the project are consistent with Master Development Plan, including a prohibition on the unloading of delivery trucks between 12:00 AM and 4:00 AM.

9. Additional Information

Additional technical information required by the Rules and Regulations but not otherwise addressed herein includes:

- *Subsidy Agreements:* The Project does not include any governmental subsidy arrangements.

- *Construction Schedule:* Subject to receipt of necessary permits and approvals, the Applicant anticipates commencing construction of the Project in the Spring of 2014. The construction period will likely be approximately 13 months, with completion in the Spring of 2015. The foregoing is subject to change based on field conditions and other unforeseen circumstances.

- *Fill Removal Calculations:* The Project will not require removal of any fill from the site. In order to achieve final grades, some soil materials will be moved onto the site from other Master Development Plan areas that have surplus fill material.

C. Compliance with Design and Performance Standards

As described above and shown on the attached plans, and summarized briefly in this Section C, the Applicant believes the Project complies with the design and performance standards set forth in Section 9.8.11 of the Zoning Bylaw:

- *Building Design:* As described in Section A(2) above, the Project will create an interesting, attractive presence at the southeastern side of the site. Exterior walls will include a combination of durable materials including stone, shingles and clapboards. As shown on the elevations included behind Tab 6, the building facades contain a variety of materials, windows, and articulations to enhance the interest and appearance of the building. The design is intended to complement the overall design and planning work for the University Station project.

- *Visual Mitigation and Screening of Infrastructure Elements:* Infrastructure and service areas have been carefully located to minimize visual and other impacts. The driveway along the eastern side of the building will facilitate access to back-of-house operations, including fenced-in areas for trash management, the electrical transformer and the emergency generator.

- *Utilities:* The plans listed behind Tab 6 include a utility plan that shows service lines leading to the building. As described in Section B(2), water will be provided from the Dedham-Westwood Water District's main water service system in University Avenue, and wastewater will be discharged to the main line located in University Avenue. In both cases, these utility services will be made through private lines in the access drive that will serve the Project and the neighboring portion of Development Area B. Electrical, telephone, and cable service will be provided by means of underground duct banks.

- *Land Uses and Common Areas:* The Project includes areas for pedestrians (and biycle riders) around the front of the building and a sidewalk to enable pedestrians to travel to common areas and open spaces within the University Station project.

- *Street Design:* As shown on the plans and consistent with the Master Development Plan, the building will be served by a shared access drive along with the rest of Development Area B and interior parking areas have been designed to provide sufficient area for driving, turning, and maneuvering. As indicated in Section A(2), the Applicant has coordinated with the Fire Chief on the driveway design and provided information on turning movements along this driveway to the Fire Chief.

- *Circulation, Traffic Impact & Public Street Access:* As described in more detail in Section B(1), the Project is consistent with the traffic impact study and supporting materials submitted to the Town and its traffic peer review consultant. These materials formed the basis for traffic improvements and mitigation measures to be provided for the

University Station project to ensure that roadways can accommodate traffic from the project, including the Bridges at University Station facility.

- *Public Safety:* The Project includes adequate water supply distribution, storage, and access for fire protection. As described in Section A(2), the Applicant has coordinated with the Fire Chief on the driveway design and included a driveway along the eastern side of the building to accommodate access for emergency response vehicles. In addition, the Project design incorporates several design elements that will ensure that visits to the facility by Town public safety officials will be safe and efficient, including the size and location of the vehicle drop off area and the number and size of the elevators.

- *Stormwater Management:* Section B(3) contains detailed information on the Project's stormwater management system, which is consistent with the system approved as part of the Master Development Plan review process. Stormwater from the roof top and runoff generated from the parking and landscaped areas are directed to a subsurface infiltration basin. This application includes drainage calculations behind Tab 5.

- *Outdoor Lighting:* The plans listed behind Tab 6 include a lighting plan with detailed information on outdoor lighting. The lighting plan has been designed in accordance with the Site Lighting plans dated April 17, 2013.

- *Mixed Uses and Activities:* The Project provides and complements the range of uses envisioned for the University Station project, including commercial, residential, and office uses.

- *Energy Efficiency:* As described in more detail in Section B(7), the Applicant intends to adopt numerous strategies to improve the energy efficiency of its building, including the use of high-efficiency light fixtures and sensors, use of high-efficiency HVAC units and ATS controls, and HVAC commissioning.

- *Sustainability:* As described in more detail in Section B(7), the Applicant has also adopted numerous strategies to preserve natural resources.

- *Public Gathering Areas:* As indicated above, the Project includes areas for pedestrians to travel from the building to public gathering areas and other open spaces to be included in the University Station project.

- *Air Quality, Noise, Vibration, Etc.:* Air quality, noise, and vibration impacts are consistent with those described in the Master Development Plan. The Applicant has adopted design strategies to minimize such impacts, including locating most of the mechanical equipment inside the building's mechanical room and attics wherever feasible.

- *Construction Solid Waste Management:* The Applicant and/or its contractor will make arrangements for disposal of tree stumps and construction debris, and for appropriate storage, screening, and securing of such materials prior to removal.

- *Water Quality:* As described in Section B(4), the Applicant has designed the stormwater management system in accordance with the "Critical Areas" standard of MassDEP's Stormwater Management Policy. The system includes infiltration measures as well as collection and routing of stormwater to remove 80% TSS prior to discharge.

- *Spill Prevention and Response:* The Applicant will operate in accordance with relevant sections of the Operations and Maintenance Plan developed for the University Station project. The Operations and Maintenance Plan includes an Emergency Response and Spill Containment Plan which identifies measures for preventing and responding to potential releases, discharges, and spills of oil or hazardous materials.

- *Water Efficiency:* As described in Section B(7), the Applicant will pursue several strategies to reduce water consumption by more than 20% compared to code requirements. Such strategies include use of high efficiency, low-flow plumbing fixtures (where appropriate given the operational needs of memory care assisted living), "smart" irrigation controls, and other sensible landscaping practices.

Tab 3:
Table of Development Data

Pursuant to Section 6.11 of the Rules and Regulations for the University Avenue Mixed Use District, the following table summarizes development data for the project.

Note that parcel boundaries for the Bridges at University Station site are generally shown on the Master Development Plan and have been further refined during the planning process. The parcel boundaries creating a 3.33-acre lot will be established by recording a plan on or about the date construction commences.

Development Feature	Existing Pre-Development Conditions	Requirement in Zoning Bylaw	Proposed for PDR Development
Total PDR Development area and individual lot area	No separate Bridges at University Station parcel	Minimum lot area 15,000 sq. ft.	3.33 acres
Lot frontage	No separate Bridges at University Station parcel	50 feet	50 feet
Lot width	No separate Bridges at University Station parcel	None	420 feet
Yard setbacks	N/A; parcel not developed	None	Front yard 375 feet Side yard 4'6" feet Rear yard 72 feet
Building height	N/A; parcel not developed	60 feet (subject to footnotes in Sec. 9.8.7.1)	32 feet
Area designated as permanent open space	N/A; parcel not developed	26 acres district-wide	N/A
Area and percentage of non-wetland lot area	N/A; no separate Bridges at University Station parcel	None	3.33 acres, or 100%
Area and percentage building coverage	N/A; parcel not developed	None	33,950 square feet (0.7 acres) or 23%
Area and percentage of impervious surface	N/A; parcel not developed	104 acres (80%) district-wide	85,580 sf (1.96 acres) or 59%

Development Feature	Existing Pre-Development Conditions	Requirement in Zoning Bylaw	Proposed for PDR Development
Landscaped area	N/A; parcel not developed	None	54,200 sf (1.2 acres) or 37%
Gross floor area, net floor area, and Floor Area Ratio (FAR) of non-residential buildings	N/A; parcel not developed	2.1 million square feet, equivalent to an 1.0 FAR, district-wide	.42
Number of bedrooms per dwelling unit	N/A; parcel not developed	N/A for assisted living use	N/A
Number of dwelling units and dwelling unit density per acre	N/A; parcel not developed	N/A for assisted living use	N/A
Number of Affordable Housing units, as defined in Section 2.0 of the Zoning Bylaw	N/A; parcel not developed	N/A for assisted living use	N/A
Number of Moderate Income Housing units, as defined in Section 2.0 of the Zoning Bylaw	N/A; parcel not developed	N/A for assisted living use	N/A
Number of dwelling units restricted or intended for senior housing	N/A; parcel not developed	N/A	64
Number of parking spaces, including designated handicapped spaces	N/A; parcel not developed	6,020 district-wide	65 spaces, including 4 handicap spaces
Number of bicycle parking spaces, including bicycle racks, storage containers, and interior accommodations	N/A; parcel not developed	Not specified	Racks to be provided near the building entrance for 10 bicycles
Number of loading bays	N/A; parcel not developed	Must be adequate for uses with more than 10,000 s.f. of floor area	Loading will be accommodated on the east side of the building
Length of streets and ways	N/A; parcel not developed	Not specified	No new public streets are required; see plans regarding the shared Development Area B access drive

Tab 4:
List of Required Permits and Copies of Permits Obtained

Permits Obtained:

- Town Meeting approval of Zoning Bylaw Section 9.8 – *on file with Town Clerk*
- Town Meeting approval of University Avenue Mixed Use District Master Development Plan – *on file with Town Clerk*
- Development Agreement with the Town of Westwood – *on file with the Town Clerk*
- MEPA Certificate from the Secretary of Energy and Environmental Affairs – *see attached*
- Order of Conditions from the Westwood Conservation Commission – *see attached (University Station plans to be provided to the Conservation Commission)*

Permits to be Obtained:

- Water, sewer and similar connection permits, building permit and customary construction-related permits from the Building Department, Department of Public Works, and other agencies
- NPDES general permit coverage

The Commonwealth of Massachusetts
Executive Office of Energy and Environmental Affairs
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August 16, 2013

CERTIFICATE OF THE SECRETARY OF ENERGY AND ENVIRONMENTAL AFFAIRS
ON THE
NOTICE OF PROJECT CHANGE

PROJECT NAME	: University Station (formerly Westwood Station)
PROJECT MUNICIPALITY	: Westwood
PROJECT WATERSHED	: Boston Harbor
EEA NUMBER	: 13826
PROJECT PROPONENT	: Westwood Marketplace Holdings LLC
DATE NOTICED IN MONITOR	: July 10, 2013

Pursuant to the Massachusetts Environmental Policy Act (MEPA) (G.L.c.30, ss. 61-62I) and Section 11.10 of the MEPA regulations (301 CMR 11.00), I have reviewed the Notice of Project Change (NPC) and hereby determine that this project **does not require** the preparation of an Environmental Impact Report (EIR).

Project History

An Expanded Environmental Notification Form (EENF) was filed for this project in June 2006 with a request for the preparation of a Single EIR. The request for a Single EIR was denied and a scope for a Draft EIR (DEIR) was issued on September 29, 2006. The Proponent prepared and filed a DEIR in January 2007 that was determined to adequately and properly comply with MEPA and its regulations. A scope for a Final EIR (FEIR) was issued on April 6, 2007. The FEIR was submitted in September 2007 and found to adequately and properly comply with MEPA and its regulations in a MEPA Certificate dated on November 1, 2007. The MEPA review process was completed by the former developer for the project, Cabot, Cabot & Forbes

(CCF). Subsequent to completion of MEPA review, CCF obtained an Order of Conditions and completed permitting with the Town of Westwood and State Agencies. CCF commenced work, including (i) site clearing, (ii) demolition of existing structures and improvements on the property; and (iii) commencement of a new arterial boulevard to be known as Westwood Station Boulevard. According to the NPC, CCF eventually determined the previously approved project was not economically feasible due to changes in the economic climate in 2008-2009.

The Proponent acquired the property in April 2012 and has performed substantial site stabilization, utility improvements, clearing, and demolition consistent with the existing approvals. The Proponent has also worked with local officials and State Agencies to refine the previously approved project into the new proposed development plan. The Town of Westwood, through Town Meeting, adopted a new section to the Westwood Zoning Bylaw entitled, "University Avenue Mixed Use District (UAMUD). This overlay district regulates the development and operation of the project. The Town of Westwood also approved a Master Development Plan for the project that established parameters such as building heights, uses, etc. The Proponent has entered into a Development Agreement with the Town of Westwood and a Cooperation Agreement with the Town of Canton.

Previously Reviewed Project

As described in the FEIR, the previous project (the Prior Project) and phasing plan were as follows:

- Phase 1 included approximately 657,000 gross square feet (gsf) of residential space (495 units), 1.348 million gsf of retail/restaurant space, 230,000 gsf of hotel space (328 rooms), 125,000 gsf of general office space, 50,000 gsf of utility space, 33,000 gsf of fitness space, and 12,000 gsf of public safety/community space. Total development in Phase 1 was approximately 2.455 million gsf.
- Phases 2 and 3 included approximately 675,000 gsf of residential space (505 units) and 1.383 million gsf of general office space. The total development area in Phases 2 and 3 was approximately 2.058 million gsf.

The Prior Project was located on a 141-acre project site, with 19.6 acres of new impervious area proposed (for a site total of 99.9 acres). Overall building area was 4.513 gsf, with up to 1,000 housing units, with maximum building heights ranging from 70 to 120 feet.[1] Wetland resource area impacts were estimated at 2,670 sf of Bordering Vegetated Wetlands (BVW) and 504 linear feet (lf) of inland Bank. Unadjusted average daily vehicle trips (adt) on a weekday were estimated at 65,496, while unadjusted Saturday adt were estimated at 78,004.[2] The Prior Project included 12,116 shared parking spaces, primarily in structured facilities, with access to the site provided from the Blue Hill Drive/University Avenue interchange on Route 128 and from Canton Street/Dedham Street via a proposed new exit ramp onto Dedham Street from Interstate 95 (I-95) northbound. Based upon MassDEP Title 5 water usage and wastewater generation rates, the Prior Project required 502,050 gallons per day (GPD) to meet domestic

[1] Maximum building height was restricted to no higher than elevation 178.5 above North American Vertical Datum of 1988 (NAVD88).
[2] These numbers are consistent with the trip generation methodology approved by the Massachusetts Department of Transportation (MassDOT) for the NPC. The 2007 FEIR presented 54,232 weekday adt and 57,842 adt on Saturday based on 2007 FEIR trip generation methodology.

water demand and would generate 452,551 gpd of wastewater. The Prior Project also included the construction of a new arterial roadway (Westwood Station Boulevard) to serve as an alternative access route.

Currently Proposed Project

The Current Project is in the same location as the Prior Project with a slightly reduced development area totaling approximately 130 acres. An 11-acre parcel (consisting of the State Street Bank property at 105 Rosemont Road) has been excluded from the Current Project area. The Current Project includes development of approximately 2.1 million gsf in multiple buildings. Specifically the Current Project includes:

i. Approximately 750,000 gsf of retail/service or restaurant/entertainment uses;
ii. Approximately 325,000 gsf of office or research and development (R&D) space;
iii. Approximately 650 residential units;
iv. A hotel with approximately 160 rooms; and
v. An assisted living/memory care facility with approximately 100 units.

The Current Project will create 6.5 acres of new impervious area, have no direct wetland resource area impacts, and will limit building heights to between 60 and 80 feet.[3] Unadjusted weekday traffic is estimated at 43,515 adt, with unadjusted Saturday traffic estimated at 58,298 adt. Approximately 5,596 parking spaces will be provided in a combination of structured and surface parking. Potable water demand and wastewater generation are projected at 255,720 gpd, each. The Current Project does not include the construction of Westwood Station Boulevard. Instead, the Proponent will reconstruct, widen, and signalize University Avenue as a median divided boulevard-like frontage road with coordinated signals to improve traffic flow. Local access to and from the project site will be primarily along Blue Hill Drive, University Avenue, and Canton Street. Traffic improvements are detailed later in the traffic and transportation section of this Certificate. The Current Project also includes approximately 14 acres of open space with public access, pathways for pedestrian use, and landscaping and other design features. The project site is located near the southern portion of the Neponset River Reservation and the western portion of the Blue Hills Reservation. The project site is also proximate to the Fowl Meadow Area of Critical Environmental Concern (ACEC).

The Current Project is proposed in various development areas. These "Core Development Areas" are described as follows:

Core Development Area 1 – consisting of typical shopping center uses, this area includes primary anchor retail tenants separated by common public gathering spaces, a variety of small, medium, and large-scale retail, office and service uses, and restaurant and entertainment uses. Surface parking is provided.

[3] Maximum building height was restricted to no higher than elevation 178.5 above North American Vertical Datum of 1988 (NAVD88).

Core Development Area 2 – consisting of a mixture of uses, this area includes a small retail component together with a rental residential development containing two buildings with a total of 330 units and an associated parking garage.

Core Development Areas 3 and 4– these smaller development areas will include restaurant and entertainment uses, potentially including both sit down and over-the-counter service restaurants.

Four additional "Development Areas" are proposed as part of the Current Project. According to the NPC, subject to market demand and leasing opportunities, an office/R&D development is proposed just north of Core Development Area 1 (Development Area A). South of University Avenue, a mixed-use, transit-oriented, village-like development with residential uses, including an assisted living/memory care facility, structured parking, and a hotel integrated with retail/service and restaurant/entertainment uses and office/R&D (Development Area B) is proposed at the northeast end closest to the Massachusetts Bay Transportation Authority (MBTA) commuter rail station. Primarily retail/commercial/fitness uses are allowed at the southeastern end of the Project Site (Development Areas C and D).

Jurisdiction and Permitting

This project was subject to MEPA review and the preparation of a mandatory EIR because it requires State Agency Actions and will create ten (10) or more acres of impervious area (301 CMR 11.03(1)(a)(2)), generate 3,000 or more new adt on roadways providing access to a single location (301 CMR 11.03(6)(a)(6)) and includes the construction of 1,000 or more new parking spaces at a single location (301 CMR 11.03(6)(a)(7)). The project will require a Vehicular Access Permit, Traffic Signal Permit and an Approval for Construction on Former Railroad Land from MassDOT (formerly the Executive Office of Transportation and Construction (EOTC)). The project will also require an Amended Sewer Extension/Connection Permit and potentially an Air Quality Permit (under 310 CMR 7.00) for heating boilers and emergency generators from the Massachusetts Department of Environmental Protection (MassDEP). The project may require an 8(m) Permit from the Massachusetts Water Resources Authority (MWRA). The project will require a Construction General Permit under the National Pollutant Discharge Elimination System (NPDES) program from the United States Environmental Protection Agency (EPA). An Order of Conditions has been issued by the Westwood Conservation Commission and remains in effect.

Because the project may seek Financial Assistance from the Commonwealth in the form of Infrastructure Investments Incentive Program (I-Cubed) funding, MEPA jurisdiction is broad in scope. Therefore, MEPA jurisdiction extends to all aspects of the project that are likely, directly or indirectly, to cause Damage to the Environment as defined in the MEPA regulations.

Review of the NPC

General

The NPC included a project history and description of the Prior Project and the Current Project, including a comparison of project impacts in tabular format, associated site plans, and a discussion of the significance of the proposed project change. The Current Project is substantially smaller in scope that the Prior Project and therefore will generally result in less environmental impacts. The NPC demonstrated that the Current Project will not result in any new significant environmental impacts beyond those documented and analyzed in the original MEPA filings. The NPC discussed the ongoing outreach conducted for the project with MassDOT, MBTA, the Dedham-Westwood Water District (DWWD), the Neponset River Watershed Association (NWRA), the Massachusetts Department of Conservation and Recreation (DCR), and the Massachusetts Department of Energy Resources (DOER).

Traffic and Transportation

The NPC included a Traffic Impact Study (TIS) prepared in accordance with Executive Office of Energy and Environmental Affairs (EEA)/MassDOT Guidelines for Environmental Impact Report /Environmental Impact Statement Traffic Impact Assessments. The TIS was also prepared in consultation with the Towns of Westwood, Canton, Norwood and Dedham, MassDOT, the Central Transportation Planning Staff (CTPS) of the Boston Metropolitan Planning Agency (Boston MPO), and the MBTA. The TIS provided an updated transportation analysis based upon the proposed project changes and allowed for a comparison of traffic impacts between the Prior Project and the Current Project using identical projection methodologies.

The TIS described existing conditions in the study area (expanded at the request of MassDOT, Westwood and Canton since the 2007 FEIR), data collection efforts, public transportation options, and motor vehicle crash data. An analysis of MassDOT crash rate data indicated that five intersections in Westwood, three in Canton, and one in Norwood have crash rates that exceed the MassDOT Statewide or District crash rates. Future traffic conditions were projected to both 2017 and 2022 in an effort to coincide the regional traffic infrastructure improvements planned by MassDOT – some of which are expected to be complete by 2017 while others will not be completed until 2022. Traffic volumes in the 2017 No-Build and 2022 No-Build Conditions include existing traffic reassigned to account for the changes in roadway network connections, new traffic resulting from general traffic growth in the study area, and background traffic growth related to known foreseeable development projects, including, in some instances, reoccupation of existing vacant buildings.

The 2017 and 2022 Build Conditions reflect all traffic from the respective No-Build Conditions plus project-related traffic volumes. Project-related traffic characteristics were developed following the methodology pre-approved by MassDOT and using trip generation rates from the Institute of Transportation Engineers (ITE). Adjustments were applied to the base ITE-trip generation calculations to account for travel mode selection, internal trips, pass-by trips and diverted linked trips. The TIS concluded that adjusted traffic trips on a typical weekday

generated by the project will be 33,700 adt, while on Saturday the project will generate an estimated 46,900 adt. The NPC included a table comparing projected trip generations, by use, in the Prior Project and the Current Project. Overall weekday and Saturday traffic trips, as well as trips during the AM, PM and Saturday peak hours, are all lower in the Current Project than the Prior Project. For comparative purposes and clarity, the NPC also included a table comparing projected trip generation between the 2007 FEIR and the Current Project using the TIS methodology from the 2007 FEIR, which used different ITE land use codes and aggressive credits when adjusting trips to reflect mode share, pass-by and internal trips.

The TIS included a traffic operations analysis for the study area intersections, rotaries, and ramp junctions under 2012 Existing, 2017 and 2022 No-Build, and 2017 and 2022 Build traffic volume conditions. The addition of traffic to the study area from the Current Project will result in the degradation from level-of-service (LOS) D or better to LOS E/F conditions at eight out of 40 locations under 2017 Build Condition and at ten locations under the 2022 Build Condition. Specific mitigation measures to address LOS and safety concerns at study area intersections are included in the mitigation portion of this Certificate. The NPC included conceptual design plans of proposed on-site and off-site transportation improvements showing that they are generally consistent with a Complete Streets design approach and provide adequate and safe accommodation for all roadway users, including pedestrians, bicyclists and public transit riders.

Concurrent with the development of the Current Project, MassDOT is proposing two key projects that will assist in the mitigation of site-generated traffic. These two projects are:

- I-95/University Avenue/Blue Hill Drive – modifications to this interchange will be conducted as part of the I-95/I-93 Interchange Improvement Project in Canton. The initial phase of the project will reconstruct the I-95 southbound off-ramp to Blue Hill Drive to improve safety, lengthen queue storage, and increase capacity by re-aligning the ramp and extending its terminus to the University Avenue/Green Lodge Street intersection. The improvements would include site access improvements to the 400 Blue Hill Drive property as well as the Route 128 Commuter Rail Station and Parking Garage entrances;
- Canton Street/University Avenue - improvements to this intersection are also proposed as part of the I-95/I-93 Interchange Improvement Project in Canton. This project consists of geometric improvements and the addition of exclusive turn lanes. This project is listed on the Boston MPO's Transportation Improvement Plan (TIP) for the 2014 federal fiscal year.

As noted in the mitigation section of this Certificate and the draft Section 61 Findings, the Proponent has committed to implement these projects, or portions thereof, should these MassDOT projects not advance in accordance with the expected construction periods represented in the NPC. As necessary, the Proponent will provide design and permitting assistance, fund, or construct these improvements (or portions thereof) in coordination with MassDOT. This commitment will ensure that the Current Project will be appropriately mitigated given the constraints of the roadway network prior to occupancy, and includes restrictions on project development until appropriate infrastructure improvements are in place.

MassDOT is also planning improvements along the Dedham Street Corridor as part of the I-95/I-93 Interchange Improvement Project. These improvements include the construction of the I-95 northbound off-ramp to Dedham Street, widening the Dedham Street Corridor from two to four lanes between its interchange with I-95 and University Avenue, the reconstruction of the bridges over the Neponset River and the MBTA railroad tracks, traffic signalization and geometric improvements at several intersections, and provision of bicycle and pedestrian accommodations. These planned improvements are not expected to be implemented prior to the initial site occupancy of the University Station project. The NPC included an analysis demonstrating that the Dedham Street Corridor can accommodate the full development program with the completion of only the Canton Street/University Avenue intersection reconstruction project, as currently planned by MassDOT. However, MassDOT continues to have concerns about traffic operations in conjunction with peak construction activities during the I-95/I-93 Interchange Project. Therefore, the Proponent will commit to a comprehensive mitigation program for the Dedham Street Corridor upon implementation of the first project phase (600,000 gsf retail and 350 residential units). The Proponent will work with MassDOT to establish the monitoring protocol and the Proponent should commit to delay occupancy of project elements beyond the a MassDOT-established threshold until such a time that the MassDOT Dedham Street Improvements are implemented or appropriate interim mitigation measures are committed to and implemented by the Proponent. I expect that the results of this monitoring effort and any Proponent-related improvements will be coordinated between MassDOT, the Proponent and the Towns of Westwood and Canton.

As noted by MassDOT, the Proponent will be required to complete a Road Safety Audit (RSA) for each State highway location where safety improvements are proposed. The RSA will help the Proponent further assess safety conditions and provide the opportunity to incorporate both MassDOT and community concerns prior to the implementation of any improvements. As recommended by MassDOT, I urge the Proponent to also complete an RDA for local intersections improved in conjunction with the project.

The study area is served by several forms of public transportation including MBTA Commuter Rail Service, MBTA bus service, Amtrak inter-city rail service, and shuttle services administered by the Neponset Valley Transportation Management Association (NVTMA). The TIS concluded that sufficient capacity is afforded in the overall transit system to accommodate the projected increase in ridership associated with the project.

The Current Project also includes a series of pedestrian and bicycle improvements. Pedestrian improvements include the construction of sidewalk and pedestrian promenade areas within the project site, lighting enhancements, Americans with Disabilities Act (ADA) accessibility measures, construction of crosswalks and pedestrian warning signs in accordance with the Manual on Uniform Traffic Control Devices (MUTCD), upgrades to pedestrian traffic signal equipment and pedestrian phase timing at signalized intersections, and connections to the MBTA's Westwood/Route 128 Station from the project site by way of the Green Lodge Street underpass alignment. Bicycle improvements include installation of bicycle racks throughout the project site, installation of bicycle detection systems at modified or new signalized intersections, accommodation of bicycle travel in a shared travelled-way configuration on site driveways, circulating roadways, and between Harvard Street and Canton Street. Ample, convenient and

secure bicycle storage should be provided, particularly at the residential, retail and office locations. A proposed multi-use path located parallel to University Avenue between Blue Hill Drive and Harvard Street will allow for bicycle accommodations. An off-road bi-modal facility between Harvard Street and Canton Street will be constructed at full build out of the project to connect pedestrians and bicyclists to the west of the project site and Canton Street. The Proponent will also coordinate with the MBTA to construct a bicycle parking facility within the Westwood/Route 128 Station parking garage and to purchase and install a "Pedal 'n' Park" bicycle parking/sharing kiosk at an appropriate location outside the MBTA commuter rail station.

The TIS identified components of the proposed Transportation Demand Management (TDM) program. Specific measures proposed for implementation are described in the Mitigation section of this Certificate. I strongly encourage the Proponent to review comments from MassDEP and the Metropolitan Area Planning Council (MAPC) regarding the implementation of additional TDM measure beyond those identified in the NPC to further enhance opportunities for alternative modes of travel. The Proponent should set specific mode share goals for the project based upon the TIS and Commonwealth mode shift goals. The Proponent should use monitoring data to confirm that these goals have been achieved. If mode shares allocations are not consistent with those modeled in the TIS, the Proponent should re-evaluate the content and implementation of the TDM program and modify it accordingly to improve use of alternative modes of transportation.

The Proponent has also committed to provide $2.1 million to the Town of Westwood for the implementation of traffic calming measures to reduce vehicle travel speeds and neighborhood cut-through traffic. The Proponent will collect pre- and post-development traffic volume and speed data to assist in this effort. The Proponent will also provide $250,000 to the Town of Westwood to engage consultants to study and design alternative intersection alignments on Canton Street, including at its intersection with University Avenue, for consideration and potential implementation by MassDOT as part of future Dedham Street Corridor Improvements. Finally, the Proponent will conduct traffic monitoring at three intersections in Canton to be commenced upon initial occupancy of the Current Project and completed annually thereafter for a period of two years after project completion.

Parking

The Current Project includes 5,596 spaces; approximately 3,550 spaces are located in the vicinity of the project's retail establishments, 160 are located in the vicinity of the hotel, 976 are located in the vicinity of the office buildings, and 910 are located near the residential buildings. With the exception of handicapped and residential spaces, parking is not anticipated to be assigned to various buildings. The UAMUD does not establish specific parking requirements by land use. According to the NPC, the retail parking spaces were provided at a rate of 4.7 spaces per 1,000 gsf, office use spaces were provided at a rate of 1 space per 333 gsf, and residential spaces were provided at a rate of 1.6 spaces per unit. While the NPC states that these numbers are below industry standards, they appear relatively high given the opportunity for shared parking. I encourage the Proponent to continue to evaluate the amount of parking proposed on-site to provide a reasonable, but not overly excessive amount of parking. I also encourage the

Proponent to consider charging a parking fee, as excessive free parking can limit the success of a quality TDM program. The Proponent should review comments from MassDEP and MAPC regarding additional parking management opportunities associated with the project.

Air Quality

The NPC did not include an updated air quality mesoscale analysis because the projected traffic volumes are essentially the same or lower in the Current Project. According to the NPC, the overall average daily traffic volumes for the Current Project are less than those of the Prior Project, and therefore, the mesoscale air quality analysis presented in conjunction with the Prior Project remains a conservative estimate of air quality impacts associated with the current development proposal. All fuel combustion equipment for heating and emergency electrical power installed as part of the project will be installed under the MassDEP Environmental Results Program (ERP). The Proponent must comply with Massachusetts Idling Regulations (310 CMR 7.11) and Rideshare Regulations (310 CMR 7.16).

The Proponent conducted a noise study to determine whether the operation of the project will comply with MassDEP Noise Policy. While the project is exempt from the Westwood Zoning Bylaw noise limits, the Proponent compared acoustic modeling results for the roof-top mechanical equipment and loading dock areas to the local noise limits for information purposes. The NPC described the noise study methodology, identified Noise Sensitive Areas (NSAs) and potential sources of noise (ambient, stationary, vehicle traffic, and service and loading). A separate roadway noise impact analysis was performed for the Current Project, building on data from analysis performed in conjunction with the Prior Project. The Proponent will implement a series of mitigation measures (described in the Mitigation section of this Certificate) to ensure compliance with the MassDEP Noise Policy, including the construction of a 12-foot high wood sound barrier and use of low-noise HVAC units on the two office buildings and three residential buildings.

Greenhouse Gas Emissions

The NPC included a GHG analysis consistent with the MEPA GHG Policy. The Policy requires projects to quantify carbon dioxide (CO_2) emissions and identify measures to avoid, minimize or mitigate such emissions. The analysis quantifies the direct and indirect CO_2 emissions associated with the project's energy use (stationary sources) and transportation-related emissions (mobile sources). The GHG analysis evaluated CO_2 emissions for two alternatives as required by the Policy including 1) a Base Case corresponding to the 8th Edition of the Massachusetts Building Code (780 CMR, 8th Edition (2010)) and 2) a Preferred Alternative that meets the Stretch Energy Code as adopted by the Town of Westwood. The analysis used eQUEST modeling software to perform the GHG analysis. To facilitate the modeling process of the conceptual design, the GHG analysis aggregated similar sized buildings of the same use, resulting in the evaluation of nine building groups. As described in the NPC, five buildings or groups of buildings over 100,000 gsf in size were analyzed for compliance under Section 501.1.1 of the Stretch Energy Code using the Appendix G3 methodology; there are Retail J (Target), Retail K (Wegman's Supermarket), Retail R, the Hotel, and a group of four residential buildings A1, A2, B and C. For other groups of buildings, the GHG analysis assumed the prescriptive

option of the Stretch Energy Code (Section 501.1.4) in modeling energy use. Mobile GHG emissions were estimated using the projected traffic volumes, vehicle miles traveled (VMT) data from the traffic study area roadway network and MOBILE6.2 CO_2 emission factors. Potential project-related mobile GHG emissions were compared between the 2022 No-Build Condition, the 2022 Build Condition (includes roadway mitigation measures), and the 2022 Build Condition with Mitigation (i.e., TDM measures).

I note that the Town of Westwood is a designated Green Community. As such, the Town has adopted the Commonwealth of Massachusetts' Stretch Energy Code requirement of 20 percent better than American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE) 90.1-2007. The Stretch Code requires modeling of base and proposed cases based on the methodology as is defined in ASHRAE 90.1.2007-Appendix G. Achieving compliance with the Stretch Code requires that the project achieve a minimum 20 percent overall reduction in annual energy use; therefore, the percentages of energy use may differ from overall GHG emissions reductions. Overall, the GHG analysis concludes that the project will exceed the energy use reduction requirements of the Stretch Energy Code.

Direct stationary source CO_2 emissions included those emissions from the facility itself, such as boilers, heaters, and internal combustion engines. Indirect stationary source CO_2 emissions were derived from the consumption of electricity, heat or other cooling from off-site sources, such as electrical utility or district heating and cooling systems. Mobile CO_2 emissions included those emissions associated with vehicle use by employees, vendors, customers and others.

The NPC included a summary of modeling inputs (e.g., R-values, U-values, efficiencies, lighting power density, etc.) for energy efficiency measures modeled in eQUEST such as equipment, walls, ceilings, windows, lighting, HVAC units, etc. for both the Base Case and Preferred Alternative based upon the conceptual design. The NPC described design mitigation measures modeled in the GHG analysis and proposed for adoption by the Proponent to meet the Stretch Energy Code requirements. The NPC also described a series of qualitative GHG reduction measures that are not easily quantified using the approved modeling software. These include encouragement and allocation of space for recycling and where practical, sourcing environmentally friendly building materials. A summary of proposed mitigation measures is included in the Mitigation section of this Certificate.

The NPC identified three categories of building efficiency measures that are still under consideration by the Proponent. These measures include:

- Use of water source heat pumps in the multi-story residential buildings;
- Installation of solar thermal hot water panels on the residential buildings; and
- Installation of third-party solar photovoltaic (PV) systems on retail buildings J and K (Target and Wegman's).

The GHG analysis included an assessment of installation of both an owner-installed and a third-party-installed, 200 kilowatt (kW) PV system installed in a single block on a commercial building roof. The Proponent used recent comparable installation cost data from the Massachusetts Clean Energy Center (MassCEC) website. A 200-kW system would generate 206,528 kWh per year, equating to a reduction of 85.5 tpy of GHG emissions. The GHG analysis presented modeling assumptions for each scenario and determined that with a simple payback period of 8 years, the project was not financially feasible at this time. While the Proponent has agreed to set aside space on the roof of the two large commercial buildings as "solar ready", I strongly encourage the Proponent to re-evaluate the feasibility of a third-party system, as other similar facilities (e.g., WalMart) have undertaken initiatives to install PV systems with favorable returns on investment. The project would also lend itself to the installation of PV-canopies over the large areas of parking associated with the proposed commercial uses. As recommended by MassDEP, the Proponent should continue to explore the feasibility of renewable energy sources on-site or the purchase of green power. I encourage the Proponent to consider disposal of food waste at a regional anerobic digester facility, when such a regional facility becomes available, proximate to the project site.

Total estimated stationary source GHG emissions for the Current Project, are estimated at 13,006 tpy, a 3,320.6 tpy reduction from the Base Case total of 16,237 tpy (a 19.9 percent overall project reduction). Given the conceptual nature of the modeled buildings, I strongly encourage the Proponent to continue to explore ways to reduce energy consumption through the adoption of higher-efficiency core and shell improvements, HVAC systems, and equipment with reduced plug loads. The MassDEP comment letter also identified additional energy savings opportunities associated with the proposed parking structures. The Proponent should consider these recommendations prior to advancing project design.

As noted in the NPC, the Proponent in some instances will build spaces with full heating, ventilation, and air conditioning (HVAC) systems and lighting while in other cases, the Proponent will construct core and shell space in which tenants will fit-out the mechanical systems and lighting according to their needs. To ensure that future tenant fit-out incorporates energy efficient mechanicals and lighting, etc., the Proponent will develop a Tenant Manual (to be provided upon executing a lease) to assist in selecting measure that comply with Stretch Energy Code requirements. The NPC included a draft outline of this Tenant Manual. I encourage the Proponent to provide technical or financial assistance as necessary to ensure that tenants select measures consistent with the Tenant Manual and go beyond the minimum energy savings required in the Stretch Energy Code. The Proponent should consider recommendations from MassDEP regarding content of the Tenant Manual to ensure its overall effectiveness.

Mobile source emissions were analyzed using the U.S. EPA MOBILE 6.2 Mobile Source Emission Factor Model. Project area CO_2 emissions in the 2022 No-Build Condition are estimated at 7,159.3 tons per year (tpy). The 2022 Build Condition is estimated to increase CO_2 attributable to project-related traffic by 6,515 tpy from the 2022 No-Build Condition. The 2022 Build Condition with TDM Mitigation is projected to reduce CO_2 emissions by 325.7 tpy (or 6.6 percent), for a project total of 6,189.3 tpy attributable to project-related traffic. The GHG analysis did not provide a separate calculation of CO_2 emissions reductions associated with the

proposed roadway improvements. However these improvements to roadway operations are expected to reduce congestion and idling time, thereby reducing emissions as well.

Total estimated GHG emissions for the proposed Preferred Alternative - indirect and direct emissions attributable to stationary sources and indirect emissions attributable to mobile sources - are estimated at 19,195.3 tpy, a 3,556.3 tpy reduction from the Base Case total of 22,751.6 tpy (a 15.6 percent overall project reduction).

Following completion of construction for each phase, the Proponent shall file with the MEPA Office a certification signed by an appropriate professional (e.g. engineer, architect, general contractor) indicating that mitigation measures listed in the NPC have been implemented. The certification should be supported by as-built plans. For those measures that are operational in nature (i.e. TDM, recycling), the Proponent should provide an updated plan identifying the measures, the schedule for implementation, and how progress toward achieving these measures will be obtained. Collectively, the mitigation measures for the project as a whole shall include all of the GHG emissions mitigation measures outlined in the NPC, or equivalent measures that are designed to achieve the overall GHG emissions reductions presented in the NPC.

Wetlands and Stormwater

The Current Project will not directly impact State-regulated wetland resource areas. According to the NPC, work resulting in direct alteration of 2,670 sf of BVW and 504 linear feet of Bank, as well as construction of a 9,418-sf wetland replication area, described in the FEIR has been completed under Order of Conditions No. 338-0422 by the previous owner. The Current Project will aim to protect all remaining wetland resource areas, preserve previously built mitigation areas, and/or incorporate such features into expanded areas created under the approved stormwater management plan.

The Current Project will exceed the requirements of the MassDEP Stormwater Management Regulations (SMR). The NPC described how the project will be designed to meet the ten standards of the SMR and identified Best Management Practices (BMPs) selected to treat both stormwater runoff quality and quantity. Stormwater management controls were developed for the 2-, 10-, 25- and 100-year 24-hour storm event, with system recharge design capable of capturing and recharging all runoff associated with more common precipitation events (two inches or less). Proposed stormwater BMPs include: sub-surface infiltration galleries, Stormtech infiltration systems, water quality structures, rain gardens, deep sump hooded catch basins, sediment forebays, riprap spillways, and extended dry and wet detention basins. These BMPs will meet the standards for treatment of areas classified as Land Uses with Higher Potential Pollutant Loads (LUHPPLs). The Proponent should review and modify the stormwater management plan to ensure that treatment of total suspended solids (TSS) can meet the performance standards in the SMR. Modifications to selected BMPs, particularly water quality units, may be necessary. The Proponent will also implement a Stormwater Operation and Maintenance Plan (O&M Plan).

The NPC identified specific BMPs designed to mitigate stormwater runoff in areas near the DWWD Municipal wells and associated Zone I and Zone II Wellhead protection areas. No infiltration structures will be located within 400 feet of any wellhead and only clean roof runoff will be infiltrated in Zone II areas immediately adjacent to the Zone I. As indicated by MassDEP, the Proponent should submit detailed plans to the DWWD in order to verify that all BMPs are appropriately located.

The Proponent should review and implement MassDEP's recommendations regarding work within the Zone I wellhead protection areas around the DWWD White Lodge Well. These recommendations include reducing and minimizing activities within the Zone I, avoiding the use of fertilizers, herbicides and hydroseeding, and using signage to indicate the environmental sensitivity of the wellhead protection area. The Proponent should review guidance provided by MassDEP regarding stormwater management components necessary to meet Critical Area Standard 6 of the SMR, measures to avoid, minimize, and mitigate impacts to the Zone II Groundwater Resource Protection District, and registration of BMPs and Class V wells subject to the Underground Injection Control (UIC) regulations (310 CMR 27.05(2)(c).

Water and Wastewater

The NPC included revised water demand and wastewater generation estimates based upon the new development program. The NPC included plans depicting the location of existing water and sewer mains, as well at the location of proposed water and wastewater connections. Water will be supplied by the DWWD White Lodge Water Treatment Plant located on University Avenue adjacent to the project site. Water demand for the project, based upon unadjusted MassDEP Title 5 rates is 255,720 gpd. The Proponent has committed to the use of WaterSense (or equivalent) fixtures, which will result in a 20 percent water savings. The water demand estimates in the NPC do not reflect this credit. The Proponent will also meet all terms agreed to under the Prior Project with regard to construction of new water mains in accordance with DWWD requirements and the construction of a high service/low service pressure-reducing valve pit allowing redundancy in supply between the systems. Finally, as part of the Current Project, the Proponent will replace 2,380 linear feet of water main within University Avenue that was originally installed in the 1950s and 1960's.

The NPC included a summary of estimated MassDEP Title 5 sewer design flows for the Current Project by use type and size. The Current Project is expected to generate a daily flow of 255,720 gpd. The Proponent will pay a sewer connection fee to the Town of Westwood and work with the Town to line approximately 2,500 linear feet of existing sewer in University Avenue to the point of connection with the MWRA trunk sewer.

As noted in the MassDEP and MWRA comment letters, the project must comply with MassDEP's *Policy Managing Infiltration and Inflow in MWRA Community Sewer Systems.* The Proponent intends to amend the Sewer Connection/Extension Permit issued by MassDEP in 2008 for the Prior Project. I expect that, at a minimum, the Proponent will provide the same commitments to fund or directly construct infiltration and inflow (I/I) improvement projects within the hydraulically connected sewer system. The Proponent should work with the Town of Westwood to identify specific I/I abatement projects or, if none are currently identified,

contribute to an I/I fund, to be used for future I/I mitigation projects. The Proponent will be required to construct watertight sewers and manholes in the Zone I and Zone II aquifer areas as required in MassDEP's Policy *Review of Sewer Line/Water Supply Protection* (Policy BRP/DWM/WS/P03-1).

The NPC also provide an updated water budget to assess the project's overall impacts on water resources in the local aquifer and the Neponset River. The analysis considered the interaction between water consumption, average annual rainfall, infiltration from pervious surfaces, building roofs and parking areas directed to subsurface recharge systems, surface runoff, evapotranspiration, and evaporation. The updated water budget was recalculated with a pre-demolition condition of the project site, minus the 105 Rosemont parcel. The pre-demolition condition water budget calculations estimated a surplus of 10.55 million gallons per year to support the groundwater base flow of the Neponset River. The post-construction water budget evaluated the impacts of the Current Project with consideration for proposed infiltration and water conservation measures. The water budget for the Current Project estimated a surplus of 26.06 million gallons per year, exceeding the pre-demolition condition by 15.51 million gallons per year, and further enhancing base flow to the Neponset River.

Construction Period

The project must comply with the Solid Waste and Air Pollution Control regulations, pursuant to M.G.L. c.40, s.54. The Proponent should prepare and implement a Construction Waste Management (CWM) Plan for each component of construction. Materials to be salvaged, recycled, and disposed should be identified in the CWM plan, along with methods to facilitate and promote salvage and recycling over disposal, if feasible. I encourage the Proponent to set salvage and recycling goals in the CWM Plan to gauge overall success of waste diversion. The CWM Plan should also identify potential reuse applications for asphalt, brick or concrete (ABC) to limit disposal at approved facilities.

The project will require the preparation of a Stormwater Pollution Prevention Plan (SWPPP) in accordance with the NPDES CGP. Erosion and sedimentation controls should be implemented throughout the project site to reduce potential impact to wetland resource areas and Zone I and Zone II areas associated with DWWD wells. The Proponent will require contractors to comply with the requirements of the Clean Air Construction Initiative. All construction activities should be undertaken in compliance with the conditions of all State and local permits.

Mitigation/Draft Section 61 Findings

The NPC included a description of the proposed mitigation package and public benefits for the Current Project, adjusted to be commensurate to the current size and design of the project. The draft Section 61 Findings included in the NPC are intended to address all mitigation and public benefits associated with the Current Project and supersede any list or discussion in prior MEPA filings. The following is a summary of mitigation measures; given the extent and complexity of these measures (particularly those associated with traffic and transportation improvements), readers should reference the text of the NPC, or the subsequent final Section 61 Findings for the comprehensive list of measures.

General

- The Proponent will provide the DCR, upon the issuance of the first Building Permit for the Project for vertical construction, an amount equal to $325,000 to be utilized for the construction, by DCR, of the recreational improvements, including a new canoe access, additional signage and related materials, support for Blue Hill Trails mapping, connectivity to DCR-owned land and such other items as DCR may designate. A portion of the funds (estimated to be $80,000) will be used to fund an endowment for the maintenance of the canoe access.

Traffic and Transportation

- University Avenue:
  - University Avenue will be reconstructed from approximately Canton Street to Blue Hill Drive/Green Lodge Street to meet the MassDOT improvement projects at either end of the corridor. As part of the design of the Project and the University Avenue improvements, Harvard Street will be reconstructed in its current location, and Rosemont Road will be relocated approximately 750 feet to the north of its current alignment to form a new intersection with University Avenue.
  - Approximately 5,200 feet of University Avenue will be reconstructed as a tree-lined, median divided boulevard following a "Complete Streets" design approach with a typical five lane cross-section, with two through lanes at each intersection and left and right turn lanes at the Project site driveways. Sidewalks along both sides of the street, crosswalks and pedestrian accommodations at signalized intersections, and a system of connective walking pathways are an integral part of the design for University Avenue.

- Project site access points will be provided and constructed as follows:

  - A re-located Rosemont Road which provides a connection to existing and Project site related residential buildings and office buildings located on Rosemont Road and Marymont Avenue;
  - A driveway located opposite re-located Rosemont Road for residential, office and retail uses;

- North Project Site Drive – located approximately 750 feet south of re-located Rosemont Road and on the west side of University Avenue. This drive occupies the same right-of-way as the existing Rosemont Road and is a major access for the larger retail and grocery store components of the Project;
- A driveway, located opposite North Site Drive, which services residential and office development, east of University Avenue;
- South Site Drive – located approximately 900 feet south of North Project Site Drive and will serve as the primary driveway to the retail components of the Project;
- A driveway, located opposite South Project Site Drive, servicing a small retail module of the Project; and
- Harvard Street, approximately 1,300 feet south of South Project Site Drive, an existing roadway which provides a connection to existing and Project site related office buildings located off Rosemont Road, NStar Way and Marymont Road, as well as to retail components of the Project.

These seven roads and/or driveways will form four intersections, all under traffic signal control. These intersections are:

- Re-located Rosemont Road/Project Site Drive/University Avenue
- North Project Site Drive/Project Site Drive/University Avenue
- South Project Site Drive/Project Site Drive/University Avenue
- Harvard Street/University Avenue.

Proposed traffic signals at re-located Rosemont Road, the North Project Site Drive and the South Project Site Drive will be coordinated with the new traffic signals at the University Avenue intersections at the Blue Hill Drive ramps and the MBTA Garage Driveway. The Proponent will work with MassDOT to implement Adaptive Signal Control Technology (ASCT) for these five coordinated intersections.

- I-95/University Avenue/Blue Hill Drive (proposed by MassDOT):
  - Re-align the ramps to eliminate the unsignalized intersection with Blue Hill Drive at the terminus of the existing ramp;
  - Terminate Blue Hill Drive as a cul-de-sac west of the new ramp alignment;
  - Extend the length of ramps to the intersection of University Avenue and Green Lodge Street and increase the radii of the horizontal curves for drivers coming off I-95 to provide a safer transition to the local roadway network;
  - Reconstruct the signalized intersection of the Blue Hill Drive ramps with University Avenue/Green Lodge Street to provide appropriate lane arrangement and capacities to support redevelopment at the Project Site;
  - Reconfigure the existing commercial driveways on the north side of the existing Blue Hill Drive west of University Avenue (future Blue Hill Drive on-ramp) to limit traffic access/egress to right-in/right-out operations only; and
  - Construct a new driveway on University Avenue opposite the MBTA Westwood Station Driveway to service the existing commercial parcel on the north side of Blue Hill Drive.

The intersection of the Blue Hill Drive ramps at University Avenue will be reconstructed/widened to provide the following approach geometrics:

- Blue Hill Drive Eastbound - exclusive left turn lane, through lane and a channelized right turn lane;
- Green Lodge Street Westbound - exclusive left turn lane and a shared through/right lane;
- University Avenue Southbound - exclusive left turn lane, two through lanes and a shared through/right lane; and
- University Avenue Northbound – two exclusive left turn lanes and a shared through/right lane.

Construction of the MassDOT I-95/University Avenue/Blue Hill Drive interchange improvement project is anticipated to begin in September 2014 and require two construction seasons. Thus, the improvements assumed for the 2017 Build Condition analyses are expected to be complete by fall 2016. If this schedule is not met by MassDOT, the Proponent will coordinate with MassDOT in order to ensure that the construction of the I-95/University Avenue/Blue Hill Drive interchange project will be staged so that the necessary infrastructure to support the expected first sequence of the Project (expected by March 2015 and including approximately 450,000 gross square feet of retail/grocery/restaurant space and 350 apartment units) is complete.

The initial infrastructure components of the I-95/University Avenue/Blue Hill Drive interchange project necessary to support the first sequence of the Project include the following:

- Blue Hill Drive terminated in a cul-de-sac west of the I-95 off-ramp.
- Removal of the current I-95 off-Ramp/Blue Hill Drive intersection so vehicles exiting I-95 southbound progress unimpeded to the traffic signal at University Avenue; and
- Signal timing modifications at the University Avenue/Blue Hill Drive intersection.

It is expected that these initial elements of the I-95/University Avenue/Blue Hill Drive interchange project can be completed prior to the opening of the first sequence of the Project. The Project Proponent will continue to coordinate with the MassDOT to expedite the improvements at the I-95/University Avenue/Blue Hill Drive interchange. Should the balance of the overall MassDOT I-95/University Avenue/Blue Hill Drive interchange improvement project not advance, the Proponent will, as necessary, provide design and permitting assistance, fund, or construct these improvements (or portions thereof) in coordination with MassDOT to complete the full I-95/University Avenue/Blue Hill Drive interchange improvements prior to advancement of the Project beyond the first sequence of development (unless the Proponent demonstrates to MassDOT's satisfaction that additional portions of the Project can be accommodated by the initial infrastructure components described above), subject to receipt of all necessary rights, permits, approvals and land transfers.

- Canton Street/University Avenue (Proposed by MassDOT)
    - Canton Street Westbound – Provision of an exclusive left turn lane, a through lane and a channelized right turn lane;
    - Canton Street Eastbound – Provision of an exclusive left turn lane, a through lane and share through/right lane;
    - University Avenue Northbound – Provision of an exclusive left turn lane, a through lane and an exclusive right turn lane; and
    - University Avenue Southbound – Provision of two exclusive left turn lanes and a shared through/right lane.

  It is anticipated that the Canton Street/University Avenue improvements will require one construction season to complete and will be commensurate with the first sequence of development for the Project such that interim improvements will not be required at this intersection. The Proponent has been and will continue to coordinate with MassDOT to ensure that the defined improvements are completed at the Canton Street/University Avenue intersection to support the Project. Should the MassDOT Canton Street/University Avenue improvements not be completed commensurate with the first sequence of development for the Project, the Proponent will, as necessary and in coordination with MassDOT, provide design and permitting assistance, fund, or construct these improvements (or portions thereof) the defined improvements subject to receipt of all necessary rights, permits, approvals and land transfers.

- Off-Site Improvements – the Proponent will design, construct or implement a number of traffic intersection improvements to improve traffic operations, improve safety, and monitor the success of such improvements. A summary of these improvements is provided below. Further detail of each improvement project, schedules for construction and project cost is included in the draft Section 61 Findings provided in the NPC:
    - I-95/Route 128 University Avenue Ramps (Dedham) – Design and construct safety improvements;
    - Route 1A/Everett Street/Clapboardtree Street (Westwood) – Design and construct safety improvements, design and implement optimal traffic signal timing plan, prepare PS&E design for capacity improvements including new travel lanes and traffic signal improvements;
    - Nahatan Street/Clapboardtree Street (Westwood) – Perform traffic monitoring and design and construct safety improvements;
    - East Street Rotary (Westwood) – design and construct safety improvements;
    - Dedham Street/Washington Street (Canton) – design and construct a Dedham Street right-turn lane within the public right-of-way and implement an optimal traffic signal timing plan;
    - Route 138/Washington Street (Canton) – design and construct improvements;
    - Route 138/Randolph Street (Canton) – design and construct improvements, restripe the Route 138 approaches to provide exclusive left-turn lanes, and implement an optimal traffic signal timing plan concurrent with pedestrian phasing;

- Route 138/Green Lodge Street (Canton) – monitor intersection and conduct a follow-on traffic signal warrant analysis after project full build out and occupation and prepare PS&E for intersection improvements and traffic signal if warranted;
- Dedham Street/Shawmut Road (Canton) – design and construct a right-turn lane on Shawmut Road within the public right-of-way;
- Dedham Street/Elm Street (Canton) - monitor intersection and conduct a follow-on traffic signal warrant analysis after project full build out and occupation and prepare PS&E for intersection improvements and traffic signal if warranted;
- Neponset Street/Chapman Street (Canton) – implement an optimal traffic signal timing plan;
- Washington Street/Chapman Street (Canton) – perform traffic monitoring and if signalization is warranted and desired by the Town, prepare PS&E for intersection improvements including a traffic signal;
- Route 1/Everett Street/University Avenue (Norwood) – design and construct safety improvements, design and implement an optimal traffic signal timing plan, and prepare a PS&E for capacity improvements including new travel lanes and traffic signal improvements; and
- Neponset Circle (Norwood) - design and construct safety improvements.

- The Proponent will provide $2.1 million to the Town of Westwood for the design and implementation of traffic calming measures in order to reduce vehicle travel speeds and neighborhood cut-through traffic and will assist the Town in this effort by collecting pre and post-development traffic volume and speed data along specific roadways where traffic calming measures are to be advanced by the Town.

- The Proponent will provide $250,000 to the Town of Westwood to engage consultants to study and design alternative intersection alignments on Canton Street, including at its intersection with University Avenue, for consideration and potential implementation by MassDOT as part of the future Dedham Street Corridor Improvements.

- The Proponent will conduct traffic monitoring during the weekday morning, weekday afternoon and Saturday mid-day peak hours at the following intersections in Canton:
  - Washington Street/Chapman Street;
  - Route 138/Green Lodge Street; and
  - Dedham Street/Elm Street.

  The details of the traffic monitoring program will be developed in consultation with Town officials, and will be completed by a Professional Engineer in accordance with industry standards. The results of the annual monitoring program will be documented in reports provided to the Town of Canton. The monitoring program will commence upon initial occupancy of the Project and will be completed annually thereafter for a period of 2-years after Project completion.

- Sidewalks and pedestrian promenade areas will be provided within the Project site that will connect to the planned sidewalk infrastructure along University Avenue.

- Lighting will be provided within the Project site, around building perimeters and along University Avenue.

- Full handicapped access will be provided within the Project site and along proposed internal circulating roadways, including ramps for barrier-free access where appropriate; pedestrian crosswalks, pushbuttons and phasing will be provided at all signalized intersections constructed or modified in conjunction with the Project where sidewalks and crosswalks are provided; and crosswalks and associated pedestrian crossing warning signs will be installed at and in advance of pedestrian crossing locations as appropriate, and will be designed and installed in accordance with the MUTCD.

- The pedestrian traffic signal equipment (pushbuttons and indications) will be reviewed and upgraded/replaced at the signalized study area intersections in order to meet current design standards for accessibility where such accommodations are currently afforded.

- Pedestrian phase timing will be reviewed and adjusted as may be necessary to meet current MUTCD design standards at all signalized intersections within the study area where such accommodations are present.

- Upon advancing Development Area B (located within the Project site and opposite the Westwood/Route 128 Station), the Proponent will construct a pedestrian connection between the Project site and the Westwood/Route 128 Station by way of the Green Lodge Street underpass alignment. Construction will be coordinated with the MBTA. In order to facilitate this connection, the Proponent will design and construct the required modifications to the access doors and lobby of the station.

- The Project will include the installation of bicycle racks that will be appropriately located proximate to building entrances and site driveways and circulating roadways within the Project site will provide sufficient width to accommodate bicycle travel in a shared travelled-way configuration.

- All traffic signals to be constructed or physically modified in conjunction with the Project will include bicycle detection and associated signs and pavement markings, if and to the extent feasible and appropriate.

- Bicycle accommodations will be afforded by way of a multi-use path to be constructed parallel to University Avenue from Relocated Rosemont Road to Harvard Street. On-road bicycle accommodations between Harvard Street and Canton Street will be afforded in a shared travelled-way condition so designated by "sharrow" pavement markings along both sides of University Avenue.

- An off-road facility between Harvard Street and Canton Street will be constructed at full-build out of the Project.

- The Proponent will construct a bicycle parking facility within the Westwood/Route 128 Station parking garage and purchase and install a "Pedal 'n' Park" bicycle parking/sharing kiosk at an appropriate location outside of the station. The Proponent will coordinate construction with the MBTA.

- Implementation of a TDM program including the following elements:

  - Assigning a transportation coordinator and joining the NVTMA;
  - Working with the NVTMA to develop an informational packet of commuting alternatives to be made available to employees and guests of the hotel;
  - Encouraging employers to implement flexible work hours;
  - Providing designated parking spaces for carpool or vanpools;
  - Installing secure bicycle racks at specific locations that are convenient to users;
  - Encouraging the use of public transit and provide information regarding schedules;
  - Providing on-site sale of Charlie cards;
  - Participating in the MBTA Corporate Pass Program to the extent practical and as allowable pursuant to commercial tenant lease requirements;
  - Encouraging employees to participate in MassRIDES' NuRide program;
  - Encouraging major employers to offer a "Guaranteed Ride Home" to all employees that commute to the Project by means other than private automobile;
  - Promoting the use of public transportation to hotel guests in website based materials including links to the appropriate homepages of the MBTA and MassRIDES;
  - Providing a periodic newsletter or bulletin concerning commuting options; and
  - Pursuing a potential utilization of the NVRTA's existing RailLink shuttle service.

Air Quality

- The Proponent will implement the following air quality mitigation measures in conjunction with the project:
    - Installation of Low-noise HVAC units at two office buildings (Office A and B) closest to NSA 1 and three residential buildings (Residential A1, A2 and B) closest to NSA 3;
    - Use of sealed loading docks for all loading docks in the Project. Rubber gaskets will be provided at all seal connections to further address noise from unloading activities;
    - Use of rubber mats on docking plates;
    - Use of natural rock and earth barriers at the rear of the loading docks to block sound propagation toward residential areas; and
    - Construction of a 12-foot high wood sound barrier along the Blue Hill Drive ramp west of Whitewood Road, to complement the existing 8-foot sound barrier.

Greenhouse Gas Emissions

Stationary source GHG emissions for the Current Project, are estimated at 13,006 tpy, a 3,320.6 tpy reduction from the Base Case total of 16,237 tpy (a 19.9 percent overall project reduction). Mobile source emissions from the 2022 Build Condition with TDM Mitigation is projected to reduce CO_2 emissions by 325.7 tpy (or 6.6 percent), for a project total of 6,189.3 tpy attributable to project-related traffic. Total estimated GHG emissions for the proposed Preferred Alternative - indirect and direct emissions attributable to stationary sources and indirect emissions attributable to mobile sources - are estimated at 19,195.3 tpy, a 3,556.3 tpy reduction from the Base Case total of 22,751.6 tpy. Overall, the Preferred Alternative achieves a 15.6 percent overall reduction in GHG emissions compared to the Base Case.

Stationary Sources

- Construction of a higher efficiency building envelope with R-25 roof insulation;
- Use of energy efficient windows with double pane, low-e glass, with lower U-values (0.35). Window glass areas for retail and office buildings as a percentage of wall area will be lower than the eQUEST model default values of 46 percent and 53 percent, respectively;
- Use of Demand Control Ventilation (DCV) will be used in all retail buildings except for the Supermarket, which will have dehumidification coils on HVAC units;
- Use of Energy Recovery Ventilation (ERV) in residential buildings;
- Use of higher efficiency HVAC cooling systems including Energy-STAR rated HVAC units with energy efficiency ratings (EER) ten percent above code. The Target EER will be 12 percent more efficient than Code;
- Use of higher-efficiency HVAC heating systems that are five percent more efficient than Code. Space heating boilers will achieve a minimum thermal efficiency of 90 percent;
- HVAC supply ducts will be sealed, leak tested and insulated;

- Use of Energy Management Systems (EMS) to track and control energy use;
- Use of higher efficiency interior lighting with a light power density (LPD) at least ten percent below Code for the retail, office, and public spaces in all buildings. The Tenant Manual will recommend an LPD of at least ten percent below Code;
- Use of a high-efficiency refrigeration system in the supermarket capable of achieving a 25 percent energy saving though the use of: low-speed, high-efficiency fan motors; variable speed compressors; refrigerated display cases with low-energy anti-condensate heaters; vertical doors for frozen foods and dairy products; and LED lights for glass door cases;
- Use of refrigeration equipment in the Hotel and Retail Buildings J and R that reduce electrical loads by 15 percent below Code;
- Use of occupancy controls for lighting in restrooms, offices, and unoccupied storage rooms;
- Use of Energy-STAR appliances in residential units and laundry rooms;
- Use of energy efficient metal halide, or light emitting diode (LED), fixtures for exterior parking areas, with LED lights used for pedestrian walkways/sidewalks and bicycle paths; and
- Commissioning of building systems.

Mobile Sources

- Mobile source GHG reduction measures are outlined in the traffic and transportation mitigation section of this Certificate and include intersection improvements and implementation of a TDM program.

General

- A self-certification will be provided to the MEPA office following completion of construction for each construction phase signed by an appropriate professional (e.g. civil engineer, traffic engineer, architect, general contractor) indicating that all of the GHG mitigation measures, or equivalent measures that are designed to collectively achieve the proposed stationary source GHG emission reduction committed to in the NPC, have been incorporated into the project.

Wetlands and Stormwater

- Work will be conducted on site in accordance with the conditions set for the current Order of Conditions issued for the project.

- The project will exceed the requirements of the MassDEP SMR, with stormwater management controls capable of treating runoff associated with the 2-, 10-, 25- and 100-year 24-hour storm event.

- Proposed stormwater BMPs include: sub-surface infiltration galleries, Stormtech infiltration systems, water quality structures, rain gardens, deep sump hooded catch basins, sediment forebays, riprap spillways, and extended dry and wet detention basins. These BMPs will meet the standards for treatment of areas classified as LUHPPLs.

- BMPs will be installed that are designed to mitigate stormwater runoff in areas near the DWWD Municipal wells and associated Zone I and Zone II Wellhead protection areas. No infiltration structures will be located within 400 feet of any wellhead and only clean roof runoff will be infiltrated in Zone II areas immediately adjacent to the Zone I.

- The Proponent will implement a Stormwater O&M Plan.

Water and Wastewater

- The Proponent will install WaterSense® fixtures (or equivalent) as a water conservation measure to reduce water consumption rates by 20 percent.

- The Proponent will replace approximately 2,800 feet of water main within University Avenue.

- The use of water conservation fixtures and groundwater recharge BMPs will result in a post-construction water budget surplus of 26.06 million gallons per year, exceeding the pre-demolition condition by 15.51 million gallons per year, and further enhancing base flow to the Neponset River.

- The Proponent will work with the Town to line approximately 2,500 linear feet of existing sewer in University Avenue to the point of connection with MWRA trunk sewer.

Construction Period

- The project will comply with the Solid Waste and Air Pollution Control regulations, pursuant to M.G.L. c.40, s.54.

- The Proponent will prepare a SWPPP in accordance with the NPDES CGP. Erosion and sedimentation controls will be implemented throughout the project site to reduce potential impact to wetland resource areas and Zone I and Zone II areas associated with DWWD wells.

- The Proponent will require contractors to comply with the requirements of the Clean Air Construction Initiative.

Conclusion

The NPC has sufficiently defined the nature and general elements of the project for the purposes of MEPA review. I am satisfied that any outstanding issues can be addressed by the Proponent during State permitting or in direct consultation with the Towns of Westwood, Canton and Norwood, as appropriate. Based on review of the NPC and comments received, and in consultation with State Agencies, I have determined that no further MEPA review is required.

August 16, 2013
Date

Richard K. Sullivan Jr.

Comments received:

08/02/2013	Town of Norwood
08/02/2013	Town of Westwood Planning Board
08/09/2013	Massachusetts Department of Conservation and Recreation
08/09/2013	Massachusetts Department of Environmental Protection – NERO
08/09/2013	Massachusetts Water Resource Authority
08/09/2013	Massachusetts Department of Transportation
08/09/2013	Robert Messina
08/09/2013	Massachusetts Area Planning Council
08/09/2013	Town of Westwood Board of Selectmen
08/14/2013	Town of Canton Board of Selectmen

RKS/HSJ/hsj

Bk 25212 P101 #108671
10-05-2007 @ 10:51a

Massachusetts Department of Environmental Protection
Bureau of Resource Protection - Wetlands

WPA Form 5 – Order of Conditions

Massachusetts Wetlands Protection Act M.G.L. c. 131, §40

DEP File Number:
338-0422
Provided by DEP

A. General Information

Important: When filling out forms on the computer, use only the tab key to move your cursor - do not use the return key.

From:

Westwood Conservation Commission
Conservation Commission

RECEIVED AND RECORDED
NORFOLK COUNTY
REGISTRY OF DEEDS
DEDHAM, MA
CERTIFY
William P O'Donnell
WILLIAM P. O'DONNELL, REGISTER

This issuance is for (check one):

☒ Order of Conditions

☐ Amended Order of Conditions

To: Applicant:

Jay Doherty - Cabot, Cabot and Forbes
Name
125 Summer Street
Mailing Address
Boston | MA | 02110
City/Town | State | Zip Code

Property Owner (if different from applicant):

Name
Mailing Address
City/Town | State | Zip Code

1. Project Location:

University Ave. Westwood Station
Street Address
Westwood
City/Town
see attached list
Assessors Map/Plat Number
see attached list
Parcel/Lot Number

2. Property recorded at the Registry of Deeds for:

Norfolk
County
see attached list
Book
Page
Certificate (if registered land)

3. Dates:

January 29, 2007
Date Notice of Intent Filed
June 13, 2007
Date Public Hearing Closed
6/28/07
Date of Issuance

4. Final Approved Plans and Other Documents (attach additional plan references as needed):

Notice of Intent Plans - Westwood Station, University Avenue, Westwood MA
Title
1/29/07 rev. 6/13/07

5. Final Plans and Documents Signed and Stamped by:

Richard A Moore PE# 28704
Name

6. Total Fee:

$3,350.00
(from Appendix B: Wetland Fee Transmittal Form)

RETURN TO:
CLAUDIA FIORE
WILMER HALE
60 STATE ST
BOSTON, MA 02109 (1087)

ATTACHMENT # 1 to WPA Form 3 – Notice of Intent

NAME OF APPLICANT (Item 2)	PROPERTY ADDRESS/ LOCATION (Item 1a)	OWNER OF RECORD (Item 3)	MAILING ADDRESS OF OWNERS OF RECORD (Item 3c)	DEED (Item 3)	ASSESSORS MAP AND PARCEL (Item 4)	STATUS OF APPLICANT
CFRI/Doherty 22 Marymount Avenue, LLC	22 Marymount Avenue, Westwood, MA	CFRI/Doherty 22 Marymount Avenue, LLC	c/o Cabot, Cabot & Forbes, 125 Summer Street, Boston, MA 02110	Book 22250, Page 154	33/13 ✓	Owner
CFRI/Doherty Blue Hill Drive, L.L.C.	505 Blue Hill Drive, Westwood, MA	CFRI/Doherty Blue Hill Drive, L.L.C.	Same as above	Certificate of Title 170401, Reg. Bk. 853, Pg. 1 – see Notice of Withdrawal from Registered Land filed as Document 1130006 and in recorded Book 24839 Page 1; and recorded Book 22518, Page 264	33/6 ✓	Owner
CFRI/Doherty 213 Whitewood Road, LLC	213 Whitewood Road, Westwood, MA	CFRI/Doherty 213 Whitewood Road, LLC	Same as above	Certificate of Title 170830, Reg. Bk. 855, Pg. 30 – see Notice of Withdrawal from Registered Land filed as Document 1130008 and in recorded Book 24839 Page 51; and recorded Book 22755, Page 362 and 364	33/20 ✓	Owner
CFRI/Doherty 75 University Avenue, LLC	75 University Avenue, Westwood, MA	CFRI/Doherty 213 Whitewood Road, LLC	Same as above	Certificate of Title 170480, Reg. Bk. 853, Pg. 80 – see Notice of Withdrawal from Registered Land filed as Document 1130011 and in recorded Book 24839 Page 21; and recorded Book 22566, Page 86	33/19 ✓	Owner

NAME OF APPLICANT (Item 2)	PROPERTY ADDRESS/ LOCATION (Item 1a)	OWNER OF RECORD (Item 3)	MAILING ADDRESS OF OWNERS OF RECORD (Item 3d)	DEED (Item 8)	ASSESSORS MAP AND PARCEL (Item 7)	STATUS OF APPLICANT
CFRI/Doherty 105 Rosemont Road, LLC	105 Rosemont Road, Westwood, MA	CFRI/Doherty 105 Rosemont Road, LLC	Same as above	Book 22566, Page 166	33/17 & 33/18 Met Life	Owner
CFRI/Doherty 50 Rosemont Road, LLC	50 Rosemont Road, Westwood, MA	CFRI/Doherty 50 Rosemont Road, LLC	Same as above	Book 22566, Page 111	33/16 ✓	Owner
CFRI/Doherty 145 University Avenue, LLC	145 University Avenue, Westwood, MA	CFRI/Doherty 145 University Avenue, LLC	Same as above	Certificate of Title 170293 Reg. Bk. 852, Pg. 52 80 – see Notice of Withdrawal from Registered Land filed as Document 1130012 and in recorded Book 24839 Page 25; and recorded Book 22462, Page 230	33/15 ✓	Owner
CFRI/Doherty 165 University Avenue, LLC	165 University Avenue, Westwood, MA	CFRI/Doherty 165 University Avenue, LLC	Same as above	Certificate of Title 170294, Reg. Bk. 852, Pg. 94 and 80 – see Notice of Withdrawal from Registered Land filed as Document 1130015 and in recorded Book 24839 Page 39; and recorded Book 22462, Page 237	33/12 ✓	Owner

NAME OF APPLICANT (Item 2)	PROPERTY ADDRESS/ LOCATION (Item 1a)	OWNER OF RECORD (Item 3)	MAILING ADDRESS OF OWNERS OF RECORD (Item 3d)	DEED (Item 8)	ASSESSORS MAP AND PARCEL (Item 2b)	STATUS OF APPLICANT
CFRI/Doherty 47 Harvard Street, LLC	47 Harvard Street, Westwood, MA	CFRI/Doherty 47 Harvard Street, LLC	Same as above	Certificate of Title 170292, Reg. Bk. 852, Pg. 92 80 – see Notice of Withdrawal from Registered Land filed as Document 1130010 and in recorded Book 24839 Page 17	33/17 ✓	Owner
CFRI/Doherty 201 University Avenue, LLC	201 University Avenue, Westwood, MA	CFRI/Doherty 201 University Avenue, LLC	Same as above	Certificate of Title 171618, Reg. Bk. 859, Pg. 18 – see Notice of Withdrawal from Registered Land filed as Document 1130010 and in recorded Book 24839 Page 43	33/11 ✓	Owner
CFRI/Doherty 245 University Avenue, LLC	245 University Avenue, Westwood, MA	CFRI/Doherty 245 University Avenue, LLC	Same as above	Certificate of Title 171381, Reg. Bk. 857, Pg. 181 – see Notice of Withdrawal from Registered Land filed as Document 1130017 and in recorded Book 24839 Page 47 Book 24875, Page 299*	37/20 ✓ 37/19 ✓	Owner
CFRI/Doherty 35 Harvard Street, LLC	35 Harvard Street, Westwood, MA	CFRI/Doherty 35 Harvard Street, LLC	Same as above	Certificate of Title 170443– see Notice of Withdrawal from Registered Land filed as Document 1130008 and in recorded Book 23839 Page 9; Reg. Bk. 853, Pg. 43	37/18 ✓	Owner

NAME OF APPLICANT (Item 2)	PROPERTY ADDRESS/ LOCATION (Item 1a)	OWNER OF RECORD (Item 3)	MAILING ADDRESS OF OWNERS OF RECORD (Item 3d)	DEED (Item 8)	ASSESSORS MAP AND PARCEL (Item 7)	STATUS OF APPLICANT
CFRI/Doherty 730 Canton Street, LLC	700 Canton Street, Westwood, MA	CFRI/Doherty 730 Canton Street, LLC	Same as above	Certificate of Title 170838, Reg. Book 855, Pg. 38 and recorded Book 22760 Page 183– see Notice of Withdrawal from Registered Land filed as Document 1130008 and in recorded Book 24839 Page 47; and in recorded Book 23839 Page 9	37/10 ✓	Owner
CFRI/Doherty 40-46 Harvard Street, LLC	40-46 Harvard Street, Westwood, MA	CFRI/Doherty 40-46 Harvard Street, LLC	Same as above	Certificate of Title 171437, Reg. Bk. 858, Pg. 37– see Notice of Withdrawal from Registered Land filed as Document 1130009 and in recorded Book 24839 Page 13; Book 24875, Page 293*	37/16 ✓	Owner

US1DOCS 6354668v4

NAME OF APPLICANT (Item 2)	PROPERTY ADDRESS/ LOCATION (Item 1a)	OWNER OF RECORD (Item 3)	MAILING ADDRESS OF OWNERS OF RECORD (Item 3d)	DEED (Item 8)	ASSESSORS MAP AND PARCEL (Item 1)	STATUS OF APPLICANT
CFRI/Doherty 160 University Avenue, LLC, authorized agent/prospective purchaser	160 University Avenue, Westwood, MA	MIB, Inc./MIB Group, Inc.	160 University Avenue, Westwood, MA 02090, Attention: Jonathan W. Sager, General Counsel, Property Owner Telephone: (617) 751-6332	Certificate of Title 110534, Reg. Bk. 553, Pg. 134 – see Notice of Withdrawal from Registered Land filed as Document 1130014 and in recorded Book 24839 Page 35	33/8 ✓	authorized agent/ prospective purchaser
CFRI/Doherty 160 University Avenue, LLC, authorized agent/prospective purchaser	Land off of University Avenue, Westwood, MA	MIB Group, Inc.	160 University Avenue, Westwood, MA 02090, Attention: Jonathan W. Sager, General Counsel, Property Owner Telephone: (617) 751-6332	Certificate of Title 109542, Reg. Bk. 548, Pg. 142 – see Notice of Withdrawal from Registered Land filed as Document 1130013 and in recorded Book 24839 Page 29	33/9 ✓	authorized agent/ prospective purchaser
CFRI/Doherty 160 University Avenue, LLC	Land off of University Avenue, Westwood, MA	CFRI/Doherty 160 University Avenue, LLC	c/o Cabot, Cabot & Forbes, 125 Summer Street, Boston, MA 02110	Book 24875, Page 296*	none	owner

* successor in title to CC&F Investment Company Limited Partnership

The parcels listed below are the only parcels in this filing where work regulated under the state Wetlands Protection Act, M.G.L. 130, Section 30 and the Westwood Wetlands Protection Bylaw will occur:

NAME OF APPLICANT (Item 2)	PROPERTY ADDRESS/ LOCATION (Item 1a)	OWNER OF RECORD (Item 3)	MAILING ADDRESS OF OWNERS OF RECORD (Item 3d)	DEED (Item 8)	ASSESSORS' MAP AND PARCEL (Item 7)	STATUS OF APPLICANT
CFRI/Doherty Blue Hill Drive, L.L.C.	505 Blue Hill Drive, Westwood, MA	CFRI/Doherty Blue Hill Drive, L.L.C.	Same as above	Certificate of Title 170401, Reg. Bk. 853, Pg. 1 – see Notice of Withdrawal from Registered Land filed as Document 1130006 and in recorded Book 24839 Page 1; and recorded Book 22518, Page 264	33/6 ✓	Owner
CFRI/Doherty 213 Whitewood Road, LLC	213 Whitewood Road, Westwood, MA	CFRI/Doherty 213 Whitewood Road, LLC	Same as above	Certificate of Title 170830, Reg. Bk. 855, Pg. 30 – see Notice of Withdrawal from Registered Land filed as Document 1130008 and in recorded Book 24839 Page 51; and recorded Book 22755, Page 362 and 364	33/20 ✓	Owner
CFRI/Doherty 75 University Avenue, LLC	75 University Avenue, Westwood, MA	CFRI/Doherty 213 Whitewood Road, LLC	Same as above	Certificate of Title 170480, Reg. Bk. 853, Pg. 80 – see Notice of Withdrawal from Registered Land filed as Document 1130011 and in recorded Book 24839 Page 21; and recorded Book 22566, Page 86	33/19 ✓	Owner

NAME OF APPLICANT (Item 2)	PROPERTY ADDRESS/ LOCATION (Item 1a)	OWNER OF RECORD (Item 3)	MAILING ADDRESS OF OWNERS OF RECORD (Item 3d)	DEED (Item 8)	ASSESSORS MAP AND PARCEL (Item 9)	STATUS OF APPLICANT
CFRI/Doherty 160 University Avenue, LLC, authorized agent/prospective purchaser	160 University Avenue, Westwood, MA	MIB, Inc./MIB Group, Inc.	160 University Avenue, Westwood, MA 02090, Attention: Jonathan W. Sager, General Counsel, Property Owner Telephone: (617) 751-6332	Certificate of Title 110534, Reg. Bk. 553, Pg. 134 – see Notice of Withdrawal from Registered Land filed as Document 1130014 and in recorded Book 24839 Page 35	33/8 ✓	authorized agent/ prospective purchaser
CFRI/Doherty 160 University Avenue, LLC, authorized agent/prospective purchaser	Land off of University Avenue, Westwood, MA	MIB Group, Inc.	160 University Avenue, Westwood, MA 02090, Attention: Jonathan W. Sager, General Counsel, Property Owner Telephone: (617) 751-6332	Certificate of Title 109542, Reg. Bk. 548, Pg. 142 – see Notice of Withdrawal from Registered Land filed as Document 1130013 and in recorded Book 24839 Page 29	33/9 ✓	authorized agent/ prospective purchaser

The identification of any other parcels in this application (and inclusion of information about those parcels) where work will be performed as part of the project is not and shot not be construed to be an acknowledgement of any fact or jurisdiction.

Massachusetts Department of Environmental Protection
Bureau of Resource Protection - Wetlands

WPA Form 5 – Order of Conditions

Massachusetts Wetlands Protection Act M.G.L. c. 131, §40

DEP File Number:
338-0422
Provided by DEP

B. Findings

Findings pursuant to the Massachusetts Wetlands Protection Act:

Following the review of the above-referenced Notice of Intent and based on the information provided in this application and presented at the public hearing, this Commission finds that the areas in which work is proposed is significant to the following interests of the Wetlands Protection Act. Check all that apply:

☒ Public Water Supply	☐ Land Containing Shellfish	☒ Prevention of Pollution
☒ Private Water Supply	☒ Fisheries	☒ Protection of Wildlife Habitat
☒ Groundwater Supply	☒ Storm Damage Prevention	☒ Flood Control

Furthermore, this Commission hereby finds the project, as proposed, is: (check one of the following boxes)

Approved subject to:

☒ the following conditions which are necessary, in accordance with the performance standards set forth in the wetlands regulations, to protect those interests checked above. This Commission orders that all work shall be performed in accordance with the Notice of Intent referenced above, the following General Conditions, and any other special conditions attached to this Order. To the extent that the following conditions modify or differ from the plans, specifications, or other proposals submitted with the Notice of Intent, these conditions shall control.

Denied because:

☐ the proposed work cannot be conditioned to meet the performance standards set forth in the wetland regulations to protect those interests checked above. Therefore, work on this project may not go forward unless and until a new Notice of Intent is submitted which provides measures which are adequate to protect these interests, and a final Order of Conditions is issued.

☐ the information submitted by the applicant is not sufficient to describe the site, the work, or the effect of the work on the interests identified in the Wetlands Protection Act. Therefore, work on this project may not go forward unless and until a revised Notice of Intent is submitted which provides sufficient information and includes measures which are adequate to protect the Act's interests, and a final Order of Conditions is issued. A description of the specific information which is lacking and why it is necessary is attached to this Order as per 310 CMR 10.05(6)(c).

General Conditions (only applicable to approved projects)

1. Failure to comply with all conditions stated herein, and with all related statutes and other regulatory measures, shall be deemed cause to revoke or modify this Order.
2. The Order does not grant any property rights or any exclusive privileges; it does not authorize any injury to private property or invasion of private rights.
3. This Order does not relieve the permittee or any other person of the necessity of complying with all other applicable federal, state, or local statutes, ordinances, bylaws, or regulations.

Massachusetts Department of Environmental Protection
Bureau of Resource Protection - Wetlands
WPA Form 5 – Order of Conditions
Massachusetts Wetlands Protection Act M.G.L. c. 131, §40

DEP File Number:
338-0422
Provided by DEP

B. Findings (cont.)

4. The work authorized hereunder shall be completed within three years from the date of this Order unless either of the following apply:
   a. the work is a maintenance dredging project as provided for in the Act; or
   b. the time for completion has been extended to a specified date more than three years, but less than five years, from the date of issuance. If this Order is intended to be valid for more than three years, the extension date and the special circumstances warranting the extended time period are set forth as a special condition in this Order.

5. This Order may be extended by the issuing authority for one or more periods of up to three years each upon application to the issuing authority at least 30 days prior to the expiration date of the Order.

6. Any fill used in connection with this project shall be clean fill. Any fill shall contain no trash, refuse, rubbish, or debris, including but not limited to lumber, bricks, plaster, wire, lath, paper, cardboard, pipe, tires, ashes, refrigerators, motor vehicles, or parts of any of the foregoing.

7. This Order is not final until all administrative appeal periods from this Order have elapsed, or if such an appeal has been taken, until all proceedings before the Department have been completed.

8. No work shall be undertaken until the Order has become final and then has been recorded in the Registry of Deeds or the Land Court for the district in which the land is located, within the chain of title of the affected property. In the case of recorded land, the Final Order shall also be noted in the Registry's Grantor Index under the name of the owner of the land upon which the proposed work is to be done. In the case of the registered land, the Final Order shall also be noted on the Land Court Certificate of Title of the owner of the land upon which the proposed work is done. The recording information shall be submitted to this Conservation Commission on the form at the end of this Order, which form must be stamped by the Registry of Deeds, prior to the commencement of work.

9. A sign shall be displayed at the site not less then two square feet or more than three square feet in size bearing the words,

   "Massachusetts Department of Environmental Protection" [or, "MA DEP"]

   "File Number 338-0422"

10. Where the Department of Environmental Protection is requested to issue a Superseding Order, the Conservation Commission shall be a party to all agency proceedings and hearings before DEP.

11. Upon completion of the work described herein, the applicant shall submit a Request for Certificate of Compliance (WPA Form 8A) to the Conservation Commission.

12. The work shall conform to the plans and special conditions referenced in this order.

13. Any change to the plans identified in Condition #12 above shall require the applicant to inquire of the Conservation Commission in writing whether the change is significant enough to require the filing of a new Notice of Intent.

14. The Agent or members of the Conservation Commission and the Department of Environmental Protection shall have the right to enter and inspect the area subject to this Order at reasonable hours to evaluate compliance with the conditions stated in this Order, and may require the submittal of any data deemed necessary by the Conservation Commission or Department for that evaluation.

Massachusetts Department of Environmental Protection
Bureau of Resource Protection - Wetlands
WPA Form 5 – Order of Conditions
Massachusetts Wetlands Protection Act M.G.L. c. 131, §40

DEP File Number:
338-0422
Provided by DEP

B. Findings (cont.)

15. This Order of Conditions shall apply to any successor in interest or successor in control of the property subject to this Order and to any contractor or other person performing work conditioned by this Order.

16. Prior to the start of work, and if the project involves work adjacent to a Bordering Vegetated Wetland, the boundary of the wetland in the vicinity of the proposed work area shall be marked by wooden stakes or flagging. Once in place, the wetland boundary markers shall be maintained until a Certificate of Compliance has been issued by the Conservation Commission.

17. All sedimentation barriers shall be maintained in good repair until all disturbed areas have been fully stabilized with vegetation or other means. At no time shall sediments be deposited in a wetland or water body. During construction, the applicant or his/her designee shall inspect the erosion controls on a daily basis and shall remove accumulated sediments as needed. The applicant shall immediately control any erosion problems that occur at the site and shall also immediately notify the Conservation Commission, which reserves the right to require additional erosion and/or damage prevention controls it may deem necessary. Sedimentation barriers shall serve as the limit of work unless another limit of work line has been approved by this Order.

Special Conditions (use additional paper, if necessary):

The Conditions issued under Article 18, Westwood Wetlands Protection Bylaw are cited as Special Conditions to this State Order under M.G.L. c. 131, s. 40. See Accompanying Document.

Findings as to municipal bylaw or ordinance

Furthermore, the Westwood Conservation Commission hereby finds (check one that applies):
Conservation Commission

☐ that the proposed work cannot be conditioned to meet the standards set forth in a municipal ordinance or bylaw specifically:

Name — Municipal Ordinance or Bylaw

Therefore, work on this project may not go forward unless and until a revised Notice of Intent is submitted which provides measures which are adequate to meet these standards, and a final Order of Conditions is issued.

☒ that the following additional conditions are necessary to comply with a municipal ordinance or bylaw, specifically:

Weswood Wetlands Protection Bylaw — Article 18
Name — Municipal Ordinance or Bylaw

The Commission orders that all work shall be performed in accordance with the said additional conditions and with the Notice of Intent referenced above. To the extent that the following conditions modify or differ from the plans, specifications, or other proposals submitted with the Notice of Intent, the conditions shall control.

Massachusetts Department of Environmental Protection
Bureau of Resource Protection - Wetlands

WPA Form 5 – Order of Conditions

Massachusetts Wetlands Protection Act M.G.L. c. 131, §40

DEP File Number:
338-0422
Provided by DEP

B. Findings (cont.)

Additional conditions relating to municipal ordinance or bylaw:

The Conditions issued under Article 18, Westwood Wetlands Protection Bylaw are cited as Special Conditions for this State Order under M.G.L. c. 131, s. 40.

This Order is valid for three years, unless otherwise specified as a special condition pursuant to General Conditions #4, from the date of issuance.

June 28, 2007 expires June 28, 2010 for Westwood Station
Date

This Order must be signed by a majority of the Conservation Commission. The Order must be mailed by certified mail (return receipt requested) or hand delivered to the applicant. A copy also must be mailed or hand delivered at the same time to the appropriate Department of Environmental Protection Regional Office (see Appendix A) and the property owner (if different from applicant).

Signatures:

On 13th day
Day

Of June, 2007
Month and Year

before me personally appeared

The above signitors

to me known to be the person described in and who executed the foregoing instrument and acknowledged that he/she executed the same as his/her free act and deed.

Notary Public

4/14/2011
My Commission Expires

KARON SKINNER CATRONE
Notary Public
Commonwealth of Massachusetts
My Commission Expires
APRIL 14, 2011

This Order is issued to the applicant as follows:

☒ by hand delivery on

6/28/07
Date

☒ by certified mail, return receipt requested, on

Date

Massachusetts Department of Environmental Protection
Bureau of Resource Protection - Wetlands

WPA Form 5 – Order of Conditions

Massachusetts Wetlands Protection Act M.G.L. c. 131, §40

DEP File Number:

338-0422
Provided by DEP

C. Appeals

The applicant, the owner, any person aggrieved by this Order, any owner of land abutting the land subject to this Order, or any ten residents of the city or town in which such land is located, are hereby notified of their right to request the appropriate DEP Regional Office to issue a Superseding Order of Conditions. The request must be made by certified mail or hand delivery to the Department, with the appropriate filing fee and a completed Appendix E: Request of Departmental Action Fee Transmittal Form, as provided in 310 CMR 10.03(7) within ten business days from the date of issuance of this Order. A copy of the request shall at the same time be sent by certified mail or hand delivery to the Conservation Commission and to the applicant, if he/she is not the appellant.

The request shall state clearly and concisely the objections to the Order which is being appealed and how the Order does not contribute to the protection of the interests identified in the Massachusetts Wetlands Protection Act, (M.G.L. c. 131, § 40) and is inconsistent with the wetlands regulations (310 CMR 10.00). To the extent that the Order is based on a municipal ordinance or bylaw, and not on the Massachusetts Wetlands Protection Act or regulations, the Department has no appellate jurisdiction.

D. Recording Information

This Order of Conditions must be recorded in the Registry of Deeds or the Land Court for the district in which the land is located, within the chain of title of the affected property. In the case of recorded land, the Final Order shall also be noted in the Registry's Grantor Index under the name of the owner of the land subject to the Order. In the case of registered land, this Order shall also be noted on the Land Court Certificate of Title of the owner of the land subject to the Order of Conditions. The recording information on Page 7 of Form 5 shall be submitted to the Conservation Commission listed below.

Westwood
Conservation Commission

Bk 25212 P114 #108672
10-05-2007 @ 10:51a

TOWN OF WES'
Commonwealth of Massachusetts

CONSERVATION COMMISSION

Order of Conditions
Westwood Wetlands Protection Bylaw, Article 18

Article 18, File Number 338-0422

From:
Westwood Conservation Commission

To: Applicant:
Jay Doherty – Cabot, Cabot and Forbes of New England, Inc.
125 Summer Street
Boston, MA 02110

Project Location:
Westwood Station, University Ave.
Westwood, MA 02090
Map see attached list Lot see attached list

Property Owner if different from applicant:

Westwoood, MA 02090

Property Recorded at the Registry of Deeds for:
Norfolk County Book see attached list Page Cert.

Approved Plans:
Notice of Intent Plans Westwood Station, University Ave. Westwood, MA
Date: January 29, 2007 (Revised June 13, 2007
Stamped and signed by: Richard A. Moore PE# 28704

Date Issued:
June 28, 2007

Westwood Conservation Commission
50 Carby Street
Westwood, MA 02090

phone: (781) 251-2580
Fax: (781) 461-6837

(20F2)

24

ATTACHMENT # 1 to WPA Form 3 – Notice of Intent

NAME OF APPLICANT (Item 2)	PROPERTY ADDRESS/ LOCATION (Item 1a)	OWNER OF RECORD (Item 3)	MAILING ADDRESS OF OWNERS OF RECORD (Item 3d)	DEED (Item 8)	ASSESSORS MAP AND PARCEL (Item 7)	STATUS OF APPLICANT
CFRI/Doherty 22 Marymount Avenue, LLC	22 Marymount Avenue, Westwood, MA	CFRI/Doherty 22 Marymount Avenue, LLC	c/o Cabot, Cabot & Forbes, 125 Summer Street, Boston, MA 02110	Book 22250, Page 154	33/13 ✓	Owner
CFRI/Doherty Blue Hill Drive, L.L.C.	505 Blue Hill Drive, Westwood, MA	CFRI/Doherty Blue Hill Drive, L.L.C.	Same as above	Certificate of Title 170401, Reg. Bk. 853, Pg. 1 – see Notice of Withdrawal from Registered Land filed as Document 1130006 and in recorded Book 24839 Page 1; and recorded Book 22518, Page 264	33/6 ✓	Owner
CFRI/Doherty 213 Whitewood Road, LLC	213 Whitewood Road, Westwood, MA	CFRI/Doherty 213 Whitewood Road, LLC	Same as above	Certificate of Title 170830, Reg. Bk. 855, Pg. 30 – see Notice of Withdrawal from Registered Land filed as Document 1130008 and in recorded Book 24839 Page 51; and recorded Book 22755, Page 362 and 364	33/20 ✓	Owner
CFRI/Doherty 75 University Avenue, LLC	75 University Avenue, Westwood, MA	CFRI/Doherty 213 Whitewood Road, LLC	Same as above	Certificate of Title 170480, Reg. Bk. 853, Pg. 80 – see Notice of Withdrawal from Registered Land filed as Document 1130011 and in recorded Book 24839 Page 21; and recorded Book 22566, Page 86	33/19 ✓	Owner

NAME OF APPLICANT (Item 2)	PROPERTY ADDRESS/ LOCATION (Item 1a)	OWNER OF RECORD (Item 3)	MAILING ADDRESS OF OWNERS OF RECORD (Item 3d)	DEED (Item 8)	ASSESSORS MAP AND PARCEL (Item 7)	STATUS OF APPLICANT
CFRI/Doherty 105 Rosemont Road, LLC	105 Rosemont Road, Westwood, MA	CFRI/Doherty 105 Rosemont Road, LLC	Same as above	Book 22566, Page 166	33/17 & 33/18	Owner
CFRI/Doherty 50 Rosemont Road, LLC	50 Rosemont Road, Westwood, MA	CFRI/Doherty 50 Rosemont Road, LLC	Same as above	Book 22566, Page 111	33/16 ✓	Owner
CFRI/Doherty 145 University Avenue, LLC	145 University Avenue, Westwood, MA	CFRI/Doherty 145 University Avenue, LLC	Same as above	Certificate of Title 170293 Reg. Bk. 852, Pg. 52 80 – see Notice of Withdrawal from Registered Land filed as Document 1130012 and in recorded Book 24839 Page 25; and recorded Book 22462, Page 230	33/15 ✓	Owner
CFRI/Doherty 165 University Avenue, LLC	165 University Avenue, Westwood, MA	CFRI/Doherty 165 University Avenue, LLC	Same as above	Certificate of Title 170294, Reg. Bk. 852, Pg. 94 and 80 – see Notice of Withdrawal from Registered Land filed as Document 1130015 and in recorded Book 24839 Page 39; and recorded Book 22462, Page 237	33/12 ✓	Owner

US1DOCS 6554668v4

NAME OF APPLICANT (Item 2)	PROPERTY ADDRESS/ LOCATION (Item 1a)	OWNER OF RECORD (Item 3)	MAILING ADDRESS OF OWNERS OF RECORD (Item 3d)	DEED (Item 8)	ASSESSORS MAP AND PARCEL (Item 7)	STATUS OF APPLICANT
CFRI/Doherty 47 Harvard Street, LLC	47 Harvard Street, Westwood, MA	CFRI/Doherty 47 Harvard Street, LLC	Same as above	Certificate of Title 170292, Reg. Bk. 852, Pg. 92 80 – see Notice of Withdrawal from Registered Land filed as Document 1130010 and in recorded Book 24839 Page 17	33/17 DWD	Owner
CFRI/Doherty 201 University Avenue, LLC	201 University Avenue, Westwood, MA	CFRI/Doherty 201 University Avenue, LLC	Same as above	Certificate of Title 171618, Reg. Bk. 859, Pg. 18 – see Notice of Withdrawal from Registered Land filed as Document 1130010 and in recorded Book 24839 Page 43	33/11 ✓	Owner
CFRI/Doherty 245 University Avenue, LLC	245 University Avenue, Westwood, MA	CFRI/Doherty 245 University Avenue, LLC	Same as above	Certificate of Title 171381, Reg. Bk. 857, Pg. 181 – see Notice of Withdrawal from Registered Land filed as Document 1130017 and in recorded Book 24839 Page 47 Book 24875, Page 299*	37/20 ✓ 37/19 ✓	Owner
CFRI/Doherty 35 Harvard Street, LLC	35 Harvard Street, Westwood, MA	CFRI/Doherty 35 Harvard Street, LLC	Same as above	Certificate of Title 170443– see Notice of Withdrawal from Registered Land filed as Document 1130008 and in recorded Book 23839 Page 9; Reg. Bk. 853, Pg. 43	37/18 ✓	Owner

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NAME OF APPLICANT (Item 2)	PROPERTY ADDRESS/ LOCATION (Item 1a)	OWNER OF RECORD (Item 3)	MAILING ADDRESS OF OWNERS OF RECORD (Item 3d)	DEED (Item 8)	ASSESSORS MAP AND PARCEL (Item 7)	STATUS OF APPLICANT
CFRI/Doherty 730 Canton Street, LLC	700 Canton Street, Westwood, MA	CFRI/Doherty 730 Canton Street, LLC	Same as above	Certificate of Title 170838, Reg. Book 855, Pg. 38 and recorded Book 22760 Page 183– see Notice of Withdrawal from Registered Land filed as Document 1130008 and in recorded Book 24839 Page 47; and in recorded Book 23839 Page 9	37/10 ✓	Owner
CFRI/Doherty 40-46 Harvard Street, LLC	40-46 Harvard Street, Westwood, MA	CFRI/Doherty 40-46 Harvard Street, LLC	Same as above	Certificate of Title 171437, Reg. Bk. 858, Pg. 37– see Notice of Withdrawal from Registered Land filed as Document 1130009 and in recorded Book 24839 Page 13; Book 24875, Page 293*	37/16 ✓	Owner

NAME OF APPLICANT (Item 2)	PROPERTY ADDRESS/ LOCATION (Item 1a)	OWNER OF RECORD (Item 3)	MAILING ADDRESS OF OWNERS OF RECORD (Item 3d)	DEED (Item 8)	ASSESSORS MAP AND PARCEL (Item 7)	STATUS OF APPLICANT
CFRI/Doherty 160 University Avenue, LLC, authorized agent/prospective purchaser	160 University Avenue, Westwood, MA	MIB, Inc./MIB Group, Inc.	160 University Avenue, Westwood, MA 02090, Attention: Jonathan W. Sager, General Counsel, Property Owner Telephone: (617) 751-6332	Certificate of Title 110534, Reg. Bk. 553, Pg. 134 – see Notice of Withdrawal from Registered Land filed as Document 1130014 and in recorded Book 24839 Page 35	33/8	authorized agent/ prospective purchaser
CFRI/Doherty 160 University Avenue, LLC, authorized agent/prospective purchaser	Land off of University Avenue, Westwood, MA	MIB Group, Inc.	160 University Avenue, Westwood, MA 02090, Attention: Jonathan W. Sager, General Counsel, Property Owner Telephone: (617) 751-6332	Certificate of Title 109542, Reg. Bk. 548, Pg. 142 – see Notice of Withdrawal from Registered Land filed as Document 1130013 and in recorded Book 24839 Page 29	33/9	authorized agent/ prospective purchaser
CFRI/Doherty 160 University Avenue, LLC	Land off of University Avenue, Westwood, MA	CFRI/Doherty 160 University Avenue, LLC	c/o Cabot, Cabot & Forbes, 125 Summer Street, Boston, MA 02110	Book 24875, Page 296*	none	owner

* successor in title to CC&F Investment Company Limited Partnership

The parcels listed below are the only parcels in this filing where work regulated under the state Wetlands Protection Act, M.G.L. 130, Section 30 and the Westwood Wetlands Protection Bylaw will occur:

NAME OF APPLICANT (Item 2)	PROPERTY ADDRESS/ LOCATION (Item 1a)	OWNER OF RECORD (Item 3)	MAILING ADDRESS OF OWNERS OF RECORD (Item 3d)	DEED (Item 8)	ASSESSORS MAP AND PARCEL (Item 7)	STATUS OF APPLICANT
CFRI/Doherty Blue Hill Drive, L.L.C.	505 Blue Hill Drive, Westwood, MA	CFRI/Doherty Blue Hill Drive, L.L.C.	Same as above	Certificate of Title 170401, Reg. Bk. 853, Pg. 1 – see Notice of Withdrawal from Registered Land filed as Document 1130006 and in recorded Book 24839 Page 1; and recorded Book 22518, Page 264	33/6	Owner
CFRI/Doherty 213 Whitewood Road, LLC	213 Whitewood Road, Westwood, MA	CFRI/Doherty 213 Whitewood Road, LLC	Same as above	Certificate of Title 170830, Reg. Bk. 855, Pg. 30 – see Notice of Withdrawal from Registered Land filed as Document 1130008 and in recorded Book 24839 Page 51; and recorded Book 22755, Page 362 and 364	33/20	Owner
CFRI/Doherty 75 University Avenue, LLC	75 University Avenue, Westwood, MA	CFRI/Doherty 213 Whitewood Road, LLC	Same as above	Certificate of Title 170480, Reg. Bk. 853, Pg. 80 – see Notice of Withdrawal from Registered Land filed as Document 1130011 and in recorded Book 24839 Page 21; and recorded Book 22566, Page 86	33/19	Owner

NAME OF APPLICANT (Item 2)	PROPERTY ADDRESS/ LOCATION (Item 1a)	OWNER OF RECORD (Item 3)	MAILING ADDRESS OF OWNERS OF RECORD (Item 3d)	DEED (Item 8)	ASSESSORS MAP AND PARCEL (Item 7)	STATUS OF APPLICANT
CFRI/Doherty 160 University Avenue, LLC, authorized agent/prospective purchaser	160 University Avenue, Westwood, MA	MIB, Inc./MIB Group, Inc.	160 University Avenue, Westwood, MA 02090, Attention: Jonathan W. Sager, General Counsel, Property Owner Telephone: (617) 751-6332	Certificate of Title 110534, Reg. Bk. 553, Pg. 134 – see Notice of Withdrawal from Registered Land filed as Document 1130014 and in recorded Book 24839 Page 35	33/8	authorized agent/ prospective purchaser
CFRI/Doherty 160 University Avenue, LLC, authorized agent/prospective purchaser	Land off of University Avenue, Westwood, MA	MIB Group, Inc.	160 University Avenue, Westwood, MA 02090, Attention: Jonathan W. Sager, General Counsel, Property Owner Telephone: (617) 751-6332	Certificate of Title 109542, Reg. Bk. 548, Pg. 142 – see Notice of Withdrawal from Registered Land filed as Document 1130013 and in recorded Book 24839 Page 29	33/9	authorized agent/ prospective purchaser

The identification of any other parcels in this application (and inclusion of information about those parcels) where work will be performed as part of the project is not and shot not be construed to be an acknowledgement of any fact or jurisdiction.

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FINDINGS

The Commission has reviewed the Notice of Intent plans and has held a Public Hearing on the Project. Based on the information available to the Commission at this time, the Commission has determined that the area on which the proposed work is to be done is significant to the following values set forth in Article 18, Westwood Wetlands Protection Bylaw (check as appropriate).

X Public water supply	X Flood control	_ Fisheries
X Private water supply	X Storm damage prevention	X Wildlife habitat
X Groundwater supply and quality	X Prevention of pollution	X Erosion and sediment control

Furthermore, this Commission finds that the project is approved and that:

1. The site contains the following resource areas subject to protection under the Act and the Local Bylaw, Article 18:Bank, Bordering Vegetated Wetlands, Bordering Land Subject to Flooding, Land under Waterbody, and Riverfront Area. The project meets performance standards under 310 CMR 10.55(4), 310 CMR 10.56(4), and 310 CMR 10.57(4) respectively.

2. The following conditions which are deemed necessary to protect the interests identified above. This Commission orders that all work shall conform to the approved Notice of Intent plan referenced above, to the General Conditions defined under the State Wetlands Protection Act, and to the special conditions attached to this Order. To the extent that the following conditions modify or differ from the plans, specifications, or other proposals submitted with the Notice of Intent, these conditions shall take precedence.

Standard Conditions

1. This Order of Conditions (herein referred to as Order) applies to the Applicant. The term "Applicant" as used in this Order shall refer to the owner, any successor in interest or successor in control of the property referenced in the Notice of Intent, supporting documents and this Order. The Westwood Conservation Commission (herein referred to as the Commission) shall be notified in writing within 30 days of any transfer in title to the Land or any change in contractor or developers before the Certificate of Compliance is issued. The notice shall include the name, address, and telephone numbers of the new owner or new contractor or developer, as well as a statement made under the penalties of perjury that the new owner or new contractor or developer has been provided with a copy of this Order.
2. This Order shall be included in all construction contracts with contractors and subcontractors dealing with the work proposed.
3. A copy of this Order of Conditions and applicable plans shall be provided to each company doing work on the site and shall be available on the site at all times during construction.
4. Members of the Commission and/or their designated representatives, shall, at reasonable times, have the right to enter upon and inspect the premises to evaluate compliance with this Order.
5. This Order authorizes only the activity described on the approved plan(s) and approved documents

referenced in this Order. Any other or additional activity in areas within the jurisdiction of the Commission will require separate review and approval by the Commission or its agent.

6. The Commission will engage a qualified Environmental Monitor, to oversee project activities as they relate to wetland resource areas, associated buffer zones, sediment and erosion control, stormwater management, LID, groundwater recharge/infiltration and other aspects of the work. The Environmental Monitor will provide a report of the construction activity to the Commission, which will include photographs, progress, future activities and any outstanding issues. The Applicant shall pay for the Environmental Monitor's services.
7. The Applicant or owner shall be liable for any non-compliance with the Conditions of this Order or with any Condition that may survive the issuance of a Certificate of Compliance. The Commission may assess appropriate penalties for non-compliance with the Order and surviving conditions. This may include a $300.00 per violation/per day non-criminal penalty issued under the Westwood Wetlands Protection Bylaw, Article 18.

Pre-Construction Requirements

8. All work shall conform to the following plans, specifications, operation and maintenance plans, associated supplementary materials and special conditions defined in this Order.
    - Notice of Intent Plans January 29, 2007, revised through June 13, 2007
    - Notice of Intent, January 29, 2007
    - Notice of Intent Supplement, May 18, 2007
    - Storm Water Facilities O & M Plan, June 6, 2007
    - Emergency Response & Contingency Plans, June 6, 2007
    - Snow & Ice Removal Operations Plan, June 6, 2007
    - Stormwater Pollution Prevention Plan (SWPPP), June 6, 2007
    - Wetland Replication Plan, May 3, 2007
9. No work shall commence on site until the following conditions are met.
    a. All administrative appeal periods have elapsed or if such administrative appeal has been taken, until all proceedings before DEP have been completed.
    a) The Applicant records the approved plan and the Order at the Registry of Deeds and provides a copy of the recorded plan and Order, stamped by the Norfolk County Registry of Deeds to the Commission.
    b) The D.E.P. sign is placed in a visible location on the site in accordance with State General Condition #9 and remain visible until the Commission issues a Certificate of Compliance. The sign shall be weather proof, no less than 2 square feet or greater than three square feet in size with language as described in State General Condition #9. The sign shall be mounted on a wooden or metal post acceptable to the commission.
    c) The Applicant informs the Commission and Environmental Monitor, in writing, of the names, addresses, and business telephone numbers of each person responsible for supervising the project and for onsite compliance with this Order and his/her alternate. The Environmental Monitor in turn will provide his contact information to the Applicant.

d) The Applicant installs erosion and sediment control measures at the locations shown on the plan referenced in the Order or as directed by the Environmental Monitor in the field. Only vegetation directly in the path of the erosion control works shall be removed at this time.

e) A limit of work line shall be staked in the field by means of a four foot high fluorescent orange snow fencing supported eight foot on center with standard weight metal agricultural fence posts. The limit of work shall be placed as indicated on the approved plan or as may be determined by the Commission or their agent in the field. Workers shall be informed that no construction activity beyond that conditioned herein is to occur beyond this line at any time.

f) The Applicant shall notify the Commission in writing of the Applicant's desire to have the erosion control works and limit of work flagging inspected by the Commission or Environmental Monitor.

g) The Applicant shall receive written approval of the erosion control installation from the Commission or Environmental Monitor.

h) The Applicant shall arrange a pre-construction meeting between the Applicant, the General Contractor's site superintendent, and the Commission and/or Environmental Monitor. The purpose of this meeting is to review all aspects of the Order, in detail. The Project Supervisor in charge of day-to-day operations on site shall read and sign each page of a copy of the recorded Order. The purpose of this exercise is to insure that each and every Condition has been read and is understood. Questions relative to the meaning or intent of any Condition shall be clarified during the pre-construction meeting. At this meeting, the Applicant shall provide a sequential outline and schedule of the work included in Phase.

i) The Applicant shall submit electronic copies of ALL plans to be used by the Town of Westwood's Information Systems Department. Submissions will be used in conjunction with the town's current GIS system. For submission, CAD drawings (.dwg) preferably georeference to match the GIS. Projection should be in "real world" rather than just x,y. The projection to be submitted shall be the Massachusetts State Plane, NAD 83 feet. If additional clarification is needed, the Applicant is advised to contact Westwood Information Systems Department.

Only after the Applicant has satisfied the procedural requirements above shall the Applicant be allowed to begin construction.

Erosion Control and Pollution Prevention Measures

10. The Applicant and construction contractor shall furnish the Commission with copies of the following, relative to compliance with the EPA Construction General Permit

    a. The Notice of Intent submitted to the EPA for coverage under the Construction General Permit,

    b. EPA Active Project Notification

    c. Any revisions to the SWPPP

    d. The Notice of Termination (NOT), when filed with EPA.

11. All erosion and sediment control measures and orange snow fence shall be maintained in good condition at all times. Deteriorated erosion and sediment control measures shall be replaced as required, to maintain effectiveness. The Commission and/or Environmental Monitor reserve the right to require additional erosion and sediment controls and/or damage prevention control at any

time they are deemed appropriate. At no time shall any sediment be deposited in the wetland except as authorized in this Order.

12. Catch basins shall be equipped with Silt Sacks with performance standards equal to or greater then ACF Environmental Model # SIL T02X02 High Visibility Yellow. Silt Sacks must be color yellow and inspected and cleaned periodically no less than one time per month.

13. During all phases of construction, disturbed or exposed soil surfaces shall be brought to final finished grade and stabilized according to the approved SWPPP.

14. Standard Condition #6 of the State General Order of Conditions relating to the use of clean fill is modified to prohibit the presence of asphalt in any fill used on site.

15. No erosion control measures shall be removed or relocated until such removal or relocation is allowed by the Commission or Environmental Monitor, or if a Certificate of Compliance issues for the work conditioned herein, whichever comes first.

16. Dewatering of excavation shall be accomplished in the manner described by the attached sedimentation basin design to preclude the discharge of turbid water or sediment into any wetland or undisturbed buffer. The Commission and/or Environmental Monitor must inspect the sedimentation basin prior to use on site to insure compliance with this condition. (See Attachment "A")

17. No materials excavated from any area on the site shall be dumped into any Resource Area or Buffer Zone thereto.

18. During construction of the project, there shall be no discharge of fuel, oil, or other pollutants onto any part of the site. The Applicant shall take all reasonable precautions to prevent the release of pollutants by ignorance, accident, or vandalism. In the event there is a spill on the site, the Applicant shall immediately notify the Westwood Fire Department, the Commission and the Board of Health.

19. All construction materials, earth stockpiles, landscaping materials, slurry pits, waste products, refuse, debris, stumps, slash, or excavation materials may only be stockpiled or collected in areas as shown and labeled on the approved plan(s), or if no such areas are shown it must be placed or stored outside all resource areas and associated buffer zones under cover and surrounded by a double row of silt socks to prevent contact with rain water.

20. No material of any kind may be buried, placed or dispersed in areas within the jurisdiction of the Commission by activities that are the subject of this Order, except as are expressly permitted by this Order or the plans approved herein.

21. There shall be no underground storage of fuel or other hazardous substance in areas within the jurisdiction of the Commission unless written approval from the Commission and/or Environmental Monitor has been received in advance.

22. No trash dumpsters will be allowed within 100 feet of areas subject to protection under the Massachusetts Wetlands Protection Act or the Town's Bylaw.

23. Equipment fuel storage and refueling operations shall be situated in an upland area at a horizontal distance greater than 100 feet from the boundaries of the wetland resource areas and of the Riverfront Area.

24. Daily street sweepings beginning on or before the conclusion of the required pre-construction meeting shall be done on the following roadways. a) University Avenue from Blue Hill Drive to Canton St. b) Blue Hill Drive from Whitewood Road to University Avenue. c) Canton Street 200

feet proximal to the intersection of University Ave. d) Additional roadways that need daily sweeping, as required by the Commission's Agent or its representative. Copies of invoices, verifying the daily street sweepings shall be submitted to the Commission on a frequency of no less than 30 days. The daily street sweeping schedule can be reduced, amended, or stopped upon written acknowledgement by the Commission and/or Environmental Monitor.

25. The Applicant shall designate an Erosion Control Monitor to oversee the placement of supplemental erosion controls in an event of an emergency, and to conduct regular inspection, maintenance or replacement of erosion and sedimentation control devices. The Erosion Control Monitor must be accessible to the Commission and its agent by phone any time including evenings and weekends. This person shall be given authority by the Applicant to stop construction as it is related to sediment and erosion control.

26. An adequate stockpile of erosion control materials shall be on site at all times for emergency or routine replacement and shall include materials to repair or replace silt fences, silt sock, erosion control blankets, stone riprap, filter berms or any other devices planned for use during construction.

27. The Commission reserves the right to impose additional conditions on portions of this project to mitigate any impacts which could result from site erosion, or any noticeable degradation of surface water quality discharging from the site.

28. The area of construction shall remain in a stable condition at the close of each construction day. Erosion controls should be inspected at this time, and repaired, reinforced or replaced as necessary.

29. Subsequent to seeding, disturbed areas will be covered with a salt hay mulch, erosion control blanket or netting, or other suitable material in order to provide an adequate surface protection until seed germination. Preference should be given to erosion control netting with biodegradable stitching.

30. Cement trucks shall not be washed out in any wetland resource or buffer zone area, or into any drainage system. Any deposit of cement or concrete products into a buffer zone or wetland resource area shall be immediately removed.

31. A truck demudding apron(s) shall be installed as shown on the NOI Plans and on any other construction site access drive to prevent sediment from being tracked off site with heavy equipment and entering roadway street drainage. It shall measure a minimum of 60' in length, and no less that 30' in width. The apron shall be graded back onto the site and use a minimum of 2" stone.

Site Specific Conditions

32. Catch basins shall have a stencil, permanent plaque or catch basin marker, with a design approved by the Commission and/or Environmental Monitor. If a stencil is selected, it shall have a profile of a fish or duck, no less than 18 inches in length. The wildlife emblem shall be placed no less than 1 foot from the center arc of the catch basin grate and no greater than 2 feet from the center of the arc. The wording, "DON'T DUMP NEPONSET RIVER", no less than 3 inches in height shall be incorporated into the stencil. Permanent plaques or catch basin markers shall have similar wording and be approved by the Commission and/or Environmental Monitor prior to final design and placement. In the same year that the spot grades are verified for the detention basins, these stencils, plaques or markers will be replaced if necessary. A copy of the invoices for this activity will be submitted with the annual maintenance report to the Commission.

33. The Commission and/or Environmental Monitor shall witness the installation of critical BMP elements prior to backfill. Critical elements are considered to be the Stormceptor units, catch

basins, recharge (infiltration) systems, rain gardens, permeable pavers, and the foundation drainage systems as described in the approved plans and approved documents. The Environmental Monitor shall include a detailed account of these inspections with his/her monthly report to the Commission.

34. A planting scheme of (2) -2" DBH caliber trees for every 900 square feet of disturbance within the buffer zone shall be completed prior to requesting a Certificate of Compliance from the Conservation Commission.

35. All dumpsters shall comply with the Westwood Board of Health regulations for this site, including but not limited to provision of impervious surfaces with catchment systems for ALL dumpsters.

36. A foundation plan shall be submitted prior to the start of any framing or structural steel installation. The plan shall include the location of the wetland resource areas, the distance between the foundation and the wetland resource areas, foundation drainage systems, and any proximal stormwater management systems if in place at that time.

37. No substitutes for the Stormceptor units and other BMP elements represented on the approved plans shall be allowed without the express consent of the Commission. For the purpose of this condition, "substitute" includes any change of manufacturer, model, size, or functional feature of the device as depicted in the NOI plans and other submittals.

38. The Applicant shall notify the Commission and/or Environmental Monitor immediately upon discovery of any matter related to this Order that may affect any wetland resource area or buffer zone within the jurisdiction of the Commission in a manner not anticipated or addressed in this Order.

39. Site grading and construction shall be scheduled to avoid periods of high groundwater. Once begun, grading and construction shall move uninterrupted to completion to avoid erosion and siltation of the wetlands.

40. All equipment shall be inspected regularly for leaks. Any leaking hydraulic lines, cylinders or any other components shall be fixed immediately.

41. Upon beginning of work, the Project Supervisor and/or Environmental Professional shall submit to the Commission and/or Environmental Monitor written progress reports monthly. Progress reports shall indicate what work has been done in wetland resource areas, associated buffer zones and mitigation areas; Low Impact Development features and any work associated with the stormwater management and recharge systems. This report shall also discuss what work is anticipated to be done over the next reporting period. The reports shall also address the current condition of erosion and sedimentation controls; describe any erosion and sedimentation control repair and/or replacement; and describe any erosion or sedimentation problems and mitigation measures implemented.

42. All construction equipment shall be operated, parked, and maintained so as to limit alterations of wetlands and buffer zones to those areas clearly identified on the approved plans and demarcated in the field by the flagging and construction barriers installed pursuant to Condition #9f. No equipment is to enter or cross wetland resource areas at any time unless the location of disturbance is marked on the approved plans referenced in this Order and flagged in the field.

43. Compensatory flood storage shall be constructed prior to any filling of land subject to flooding.

44. Grading shall be accomplished so that runoff be directed as indicated on the approved plan.

45. The seed stock to be used to restore disturbed areas shall complement or contain native flora and be of proven value to local wildlife at all times.

46. Riprap material shall be clean and free of trash, tree stumps, roots, and other deleterious material at all times.

47. The four outlet pipes to the Neponset River identified in the project plans shall be identified and visibly marked in the field with fluorescent paint or other appropriate method so that they can be readily found at all times.

Wetland Replication

48. All wetland replication and resource area mitigation work (including inland stream creation) shall conform to the Wetland Replication Plan dated May 3, 2007 and all related supplementary submittals and plans.

49. The Commission and/or Environmental Monitor shall be given 48 hours notice prior to the beginning of construction of the mitigation areas. The Commission and/or Environmental Monitor must meet with the construction engineer and the Applicant's Wetlands Specialist to discuss requirements and to ensure compliance with all special conditions.

50. All work involving preparation and construction of the resource area mitigation areas shall be overseen by a Wetlands Specialist who will be on-site while the work is being performed. The Wetlands Specialist shall submit written status reports to the Commission and/or Environmental Monitor at the start of work on all mitigation areas and weekly through to the completion and final stabilization of all mitigation sites.

51. The Applicant will submit to the Commission and/or Environmental Monitor project monitoring reports for all mitigation areas at the conclusion of the mitigation work and at the end of each of the first five growing seasons. Reports will be prepared according to the approved Wetland Replication Plan documents referenced in Condition #48.

52. Following construction of mitigation areas and prior to other work on the site, the wetland specialist shall certify to the Commission that the area has been constructed in compliance with the Order of Condition. Such certification shall be accompanied by a plan showing the limits of the replication area and final grades as surveyed by a licensed land surveyor, which meet grades shown on the plans approved in this Order of Conditions.

53. Following completion of each mitigation area, the associated buffer zone will be identified and clearly marked so as to avoid future resource area impact from ongoing project activities.

54. Any unauthorized damage caused as a direct result of this project to any wetland resource areas shall be the responsibility of the Applicant and/or owner of the premises to repair, restore and/or replace. Sedimentation or erosion into these areas shall be considered damage to wetland resource areas. If sediment reaches these areas the Commission and/or Environmental Monitor shall be contacted and a plan for abatement of the problem and proposed restoration/mitigation measures shall be submitted for approval and implementation.

55. The Commission and/or Environmental Monitor reserves the right to impose additional conditions on portions of this project to mitigate any unapproved impacts which could result from wetland alteration or replication activities.

56. The Applicant is committed to a student participation program related to the Wetland Replication aspects of the work as described in Appendix I of the Applicant's May 18, 2007 Notice of Intent

Supplement. Details of the program shall be negotiated between the Applicant and the program leader.

Continuing Conditions

57. Erosion and sediment control measures and pollution prevention measures shall be implemented, maintained, inspected, and repaired in accordance with the plans and the Stormwater Pollution Prevention Plan (SWPPP) filed with the Notice of Intent. Any proposed modification to the SWPPP must be submitted in writing to the Commission for approval.

58. Detention Basins, rain gardens, and other stormwater management surface basins: As a Continuing Order of these Conditions, even after a Certificate of Compliance has been issued, the following requirements shall be the responsibility of the land owner:

    a. The as-built plan for these basins submitted with the Request for a Certificate of Compliance, or Partial Certificate of Compliance, shall include a minimum of three spot grades in the lowest elevation of each of the basins.

    b. Every five years, spot grades shall be surveyed and submitted to the Commission via Certified Mail for review with the annual maintenance report.

    c. If the elevation of the bottom of the basin increases more than 4 inches, or in the opinion of the Town Engineer the sedimentation has compromised the effectiveness of the basin, the basin shall be cleaned and restored to the elevation shown on the approved plan.

59. As a continuing condition of this Order, even after a Certificate of Compliance is issued, a yearly report, sent by certified mail shall be submitted to the Commission by December 31st of each year. The report shall include a tabular-form maintenance schedule that shall list each Stormwater Management System element, the type of maintenance or inspection accomplished, the date of completion, and the cost to complete. The yearly report shall also include copies of invoices for work performed in connection with maintenance of the Stormwater Management System. The Commission shall provide the Applicant or the Applicant's Successor(s), as the case may be, with an example of the required tabular form maintenance schedule.

60. The Commission or their representative shall be notified 72 hours prior to maintenance of any stormwater management system elements to observe the amounts of sediment that have accumulated in the system. This condition shall remain in perpetuity.

61. No landscaped area on any location on the site shall be fertilized without first having received written acceptance from the Commission of both the type and application rate and frequency of application of materials proposed to be used. The use of any inorganic fertilizer containing ammonium nitrate and ammonium phosphate is prohibited. Any fertilizer to be considered by the Commission must be limited to the use of slow release organic fertilizers only. This condition is being imposed to maintain water quality in the Neponset River as well as the public water supply. This condition shall survive the issuance of a Certificate of Compliance.

62. As a continuing condition of this Order, even after a Certificate of Compliance is issued, the use of herbicides and pesticides is prohibited. This condition is being imposed to maintain water quality in the Neponset River as well as the public water supply.

63. As a continuing condition of this Order, even after a Certificate of Compliance is issued, no activity, except routine maintenance and landscaping, is permitted within the buffer zone of the existing or replicated wetland resource areas including the removal or cutting of vegetation.

64. As a continuing condition of this Order, even after a Certificate of Compliance is issued, only calcium chloride or other non-sodium based equivalent product approved by the Commission shall be used as a de-icing agent.

65. Stabilized slopes shall be maintained as designed and constructed by the property owner of record, whether "bioengineered" or mechanically-stabilized slopes.

66. Dumping Prohibited: There shall be no dumping of leaves, grass clippings, brush, or other debris into jurisdictional resource areas or buffer zones. This condition shall survive the expiration of this Order, and shall be included as a continuing condition in perpetuity on the Certificate of Compliance.

67. Prior to the issuance of a Certificate of Compliance and upon the sale of the property to subsequent owners, the new owner shall provide a letter to the Commission acknowledging that he/she understands the wetland restrictions bound to its property. A copy of this letter shall accompany the written request for a Certificate of Compliance. This shall be an ongoing condition and shall be recorded in the deed and on subsequent deeds.

68. In the event that groundwater or unsuitable soil material is encountered during the installation of the infiltration structures, rain gardens, or permeable pavers rendering the approved design infeasible, the Applicant shall contact the Commission and/or Environmental Monitor immediately to discuss alternative designs/solutions.

Operation & Maintenance

69. The following party is identified in the Stormwater Facilities Operation and Maintenance Plan dated June 6, 2007 on file with the Commission, as being the owner of the stormwater capture, storage, and treatment Best Management Practices: Cabot, Cabot & Forbes. The following party is identified in the Stormwater Facilities Operation and Maintenance Plan dated June 6, 2007 on file with the Commission, as being responsible for ongoing operation and maintenance of the stormwater capture, storage, and treatment Best Management Practices: Cabot, Cabot & Forbes. Said owner and responsible party shall operate and maintain the stormwater capture, storage, and treatment Best Management Practices in strict accordance with the referenced Operations and Maintenance Plan. If the stormwater capture, storage and treatment structures are not maintained in accordance with the Operations and Maintenance Plan, such failure shall constitute noncompliance with the Certificate of Compliance and the owner and responsible party may be subject to fines and other administrative penalties per day of noncompliance.

70. All stormwater management practices shall be maintained as specified in the Operation and Maintenance Plan submitted with the Notice of Intent and incorporated in the Order. This condition shall be noted on the Certificate of Compliance and shall continue in perpetuity.

71. The owner and responsible party identified in the Operation and Maintenance Plan shall maintain a copy of the Operation and Maintenance Plan and Emergency Response and Contingency Plan at the following location: on-site. The owner and responsible party identified in the Operation and Maintenance Plan and Emergency Response and Contingency Plan shall permit public inspection of these documents and associated records at reasonable times by the Commission.

72. The owner and responsible party identified in the Emergency Response and Contingency Plan and the Operation and Maintenance Plan shall update the emergency contact list specified in these documents, including telephone numbers, addresses and/or email addresses, at least once a year after issuance of this Certificate of Compliance, and submit a copy to the Commission.

73. The owner and responsible party identified in the Operation and Maintenance Plan shall conduct training sessions specified for staff responsible for the ongoing operation and maintenance of the stormwater capture, storage, and treatment Best Management Practices in accordance with the schedule specified in the Operations and Maintenance Plan, but no less than at least one training session per year for maintenance staff. Copies of the training records shall be submitted to the Commission along with the required Maintenance Reports on or before December 31st of each year.

74. The owner and responsible party identified in the Emergency Response and Contingency Plan shall conduct trainings specified for staff responsible for emergency management and response in accordance with the schedule specified in the Emergency Response and Contingency Plan, but no less than one training session per year.

75. The Commission shall have reasonable access to all structural Best Management Practices constructed to capture, store, and treat stormwater, to ensure ongoing maintenance. The access shall be located on the approved plans dated June 13, 2007 prepared by Tetra Tech Rizzo, and on file with the Commission.

76. The Owner and responsible party for maintenance identified in the Operations and Maintenance Plan dated June 6, 2007 on file with the Commission, and/or successors shall be responsible for regular monitoring and cleaning out sumps, sediment traps, and other related stormwater capture, storage and treatment facilities as specified in the Operations and Maintenance Plan at the inspection and cleaning frequencies specified therein. This condition shall run in perpetuity and shall represent an ongoing condition in the Certificate of Compliance. All excavated sediments shall be removed from the site and disposed of according to MassDEP regulations. Excavated materials may be taken to a lined or unlined permitted solid waste sanitary landfill, subject to requirements in 310 CMR 19.00. If there is reason to believe that sediment and residuals from a structural BMP may be contaminated, (i.e. in the event of a spill), the material should be tested and properly disposed in accordance with DEP regulations, policies, and guidance. Reuse and disposal of street sweepings is discussed in Policy #BWP-94-092. Materials containing free draining liquids are prohibited from landfills. Records of disposal, including date inspected, cleaned, and volume of material removed shall be maintained by the Applicant and/or successors and shall be made available to the Commission or the MassDEP upon request.

77. Drainage channels, water quality swales, extended detention basins and other vegetated stormwater treatment Best Management Practices shall be mowed to the height and frequency specified in the Operations and Maintenance Plan. All mowed vegetation and debris shall be removed during mowing. Any accumulated sediment and debris shall be removed in accordance with the schedule specified in the Operation and Maintenance Plan.

78. Snow Removal – Snow removal shall be conducted in accordance with the Snow & Ice Removal Operations Plan filed with the NOI. Snow shall be managed as described in the Snow and Ice Removal Plan dated June 6, 2007 on file with the Commission. Snow shall not be plowed into vegetated wetlands, banks, coastal beaches, or Land Under Water. Snow piles shall not be placed atop catch basin inlets, in drainage channels, water quality swales, extended detention basins, wet retention basins, infiltration basins, infiltration trenches, and similar structural Best Management Practices. Snow shall be disposed of in accordance with the Massachusetts Department of Environmental Protection Snow Disposal Guidance. Storage or management of snow not in compliance with the DEP Snow Disposal Guidance shall be considered noncompliance with the Certificate of Compliance. Open water disposal of snow is strictly prohibited unless otherwise approved in an emergency by both the Commission and the Massachusetts Department of

Environmental Protection. Sediments shall be removed from snow storage areas in the early spring.

79. Recharge Structures: The infiltration basin, trench, dry well, infiltration chambers, infiltration galleys, rain gardens, permeable pavements, or other recharge structures shall be inspected after every large rainfall to ensure that it is functioning properly for one year after issuance of this Certificate. Thereafter, the inspection shall be conducted at the frequency specified in the Operations and Maintenance Plan, but in no case less than once per year after that.

80. Recharge Structures: Grass clippings, leaves and sediments are to be removed from the surface of the infiltration basin, trench, dry well, or rain garden on a regular basis. If water ponding occurs at the surface, the infiltration surface should be inspected for surface clogging. If surface clogging exists, the topsoil or first layer of aggregate must be removed and replaced. If ponding occurs in the trench, basin, well or rain garden, then all filter media, stone aggregate and/or filter fabric and sediments must be removed and replaced as required to restore the infiltration function.

81. Detention Structures: Inspections of all structures designed to control stormwater discharge rates (detention basins, extended detention basins, wet retention basins, underground detention chambers, and any other structure built for purposes of attenuating the peak rate of runoff) shall include an assessment of the hydraulic control structures for these devices, to ensure that the outlets are functional and providing the intended stormwater detention function. Corrective action shall be immediately initiated following any inspection that indicates loss of outlet control function or design conveyance capacity.

82. Illicit Discharges: There shall be no cross-connections between the stormwater management system and any wastewater system. Only stormwater shall be directed to the structural stormwater best management practices. Other discharges, such as sewerage, wastewater, including wastewater containing soap or sudsing agents, shall be directed to a sewerage system or approved subsurface treatment system, and not to any structural stormwater best management practices.

83. Catch basins shall be inspected and cleaned in accordance with the schedule specified in the Operations and Maintenance Plan. At the request of the Commission or at least yearly, the Owner and Responsible Party in the Operations and Maintenance Plan shall provide to the Commission written confirmation that the inspection and cleaning were conducted. This condition shall be noted on the Certificate of Compliance and shall continue in perpetuity.

84. The Owner(s), Responsible Party identified in the Operations and Maintenance Plan, their successors and assignees shall maintain all culverts, stream crossing structures, stormwater capture, storage, and treatment structures, including, but not limited to, catch basin inlets, sediment traps, retention and detention basins, constructed wetlands, outlet structures, and other elements of drainage systems, unless put into an easement to the Town of Westwood in order to avoid blockages and siltation which might cause failure of the system and/or detrimental impacts to on-site or off-site wetland resource areas, and shall maintain the integrity of vegetative cover on the site.

85. Vegetated Portions of BMPs shall be re-seeded, replanted, and mowed in accordance with the schedule specified in the Operations and Maintenance Plan.

86. Pretreatment devices shall be maintained in accordance with the schedule specified in the Operations and Maintenance Plan.

87. Devices installed to provide for shut down and containment shall be inspected in accordance with the schedule specified in the Operations and Maintenance Plan, but in no case less than once per

year, and repaired as necessary. Copies of said inspections shall be submitted to the Commission on or before December 31st of each year.

88. Commission members, the Environmental Monitor, staff, their designees, and Department of Environmental Protection staff shall have the right to enter onto said property to ensure compliance with the ongoing conditions contained within this Certificate of Compliance.

Changes in Plans

89. Significant changes to the approved plans that may impact wetland resource areas, associated buffer zones, sediment and erosion control, stormwater management, LID, and groundwater recharge/infiltration require formal action by the Commission allowing the change. The Applicant must submit a written request to the Commission to make a determination of significance for each change. The request should include an evaluation of the changes by the Environmental Monitor that will assist the Commission in making the determination. If the Commission determines by a majority vote that the changes are significant to wetland resources, the Commission may require a new public hearing, at the expense of the Applicant, to amend the Order, or if necessary, issue a new Order.

90. If the proposed change is determined to be significant, no work involving the change(s) shall be done until a new or amended Order of Conditions has been issued and all appeal periods have expired. It is the responsibility of the Applicant to make sure that all changes accepted by, or required by, the Commission are reflected in the plans held by other Town departments.

91. The Commission reserves the right to amend this Order after a legally advertised public hearing if plans or circumstances are changed or if new conditions or information so warrant.

Requirements for a Certificate of Compliance

92. Upon completion of work covered by this Order, the Applicant shall request in writing that a Certificate of Compliance be issued. The written request shall be accompanied by a statement from a Professional Engineer registered in the State of Massachusetts that all work allowed or required by this Order has been satisfactorily completed. Such request shall also be accompanied by an as-built plan prepared, stamped and signed by a registered P.E. and Land Surveyor.

93. A Partial Certificate of Compliance will be issued when the roadway construction is complete, the drainage system is complete, the utilities are complete, the Stormwater Management System construction is complete, the stormwater management system is cleaned and stabilized, and all the roadway related BMPs, including but not limited to deep sump catch basins, detention basins, Stormceptor units, infiltration areas, rain gardens, permeable pavers, and grass swales are fully functional.

94. Upon completion of construction and final soil stabilization, the Applicant shall submit the following to the Commission to request a Certificate or a partial Certificate of Compliance (COC):

    a. A Completed Request for a Certificate of Compliance form (WPA Form 8A or other form if required by the Commission at the time of request).

    b. A letter from a Registered Professional Engineer certifying compliance of the property with this Order of Conditions, and detailing any deviations that exist, and their potential effect on the project. A statement that the work is in "substantial compliance" with no detailing of the deviations shall not be accepted.

An "As-Built" plan signed and stamped by a Registered Professional Engineer and Land Surveyor showing post-construction conditions within all areas under the jurisdiction of the Massachusetts Wetlands Protection

Continuing Conditions

95. As a continuing order of these conditions, even after a Certificate of Compliance is issued, no activity is permitted within the no-disturb buffer to the existing wetland including, but not limited to, the removal or cutting of vegetation.

96. As a continuing order of these conditions, if within two (2) years from the issuance of a Certificate of Compliance erosion is evident on any slopes, mitigating measures satisfactory to the Westwood Conservation Commission shall be taken.

97. As a continuing order of these conditions, even after a Certificate of Compliance is issued, no by-products of landscaping may be placed within the no disturbance buffer zone, in the wetland area or flood plain.

Site Specific Conditions for Westwood Station

See above conditions.

Commission Signatures:

On 13th day Of June, 2007
Day

before me personally appeared

The above signitors

to me known to be the person described in and who executed the foregoing instrument and acknowledged that he/she executed the same as his/her free act and deed.

Notary Public

April 14, 2011
My Commission Expires

KARON SKINNER CATRONE
Notary Public
Commonwealth of Massachusetts
My Commission Expires
APRIL 14, 2011

This Order is issued to the applicant as follows:

☒ by hand delivery on 6/28/07

☐ by certified mail, return receipt requested, on

ATTACHMENT "A"

TOWN OF WESTWOOD

Commonwealth of Massachusetts

CONSERVATION COMMISSION

DEWATERING ACTIVITIES

During excavation activities for installation of the utilities, it may become necessary to dewater the trench in the instance that high groundwater or saturated soil is present. Dewatering is often necessary in wetlands or near stream banks to expose the ditch line and provide drier workspace. Discharges should be conveyed to filter bags in well-vegetated areas outside of the wetlands. The filter bags should be placed within haybale corrals when discharging in especially sensitive areas, such as near streambanks or wetlands.

FILTER BAGS AND HAYBALE CONTAINMENT AREA

- Where: Use filter bags for discharge when it is necessary to dewater the trench or excavation in order to provide a drier workspace. Dewatering sites should be located in well-vegetated areas within approved work areas.
- If practicable, Discharges should be located outside of wetlands and over 100 feet from a streambank or waterbody.
- If a well-vegetated area is not available, or if the discharge will be within 100 feet of a wetland or waterbody, discharge to a filter bag and a haybale containment structure.

INSTALLATION:

- Pump should be placed in a containment structure, such as a plastic, child sized pool to avoid any fuel leaks to the wetlands or waterways.
- Properly place the discharge hose into a pre-manufactured, geotextile filter bag per the manufacturer's instructions.
- Place the filter bag in a well-vegetated area outside of a wetland area and over 100 feet from a waterbody if practicable.
- The intake hose should be elevated off the trench bottom, and a sump should be created with clean rock in order to avoid pumping additional sediment.
- If the water must be discharged within 100 feet of a wetland or waterbody, a haybale corral should be built around the filter bag.
- Stake a double vertical line of haybales in an "L " or "U" shape on the down gradient sides of the bag. This will further filter the discharge water.

ATTACHMENT A

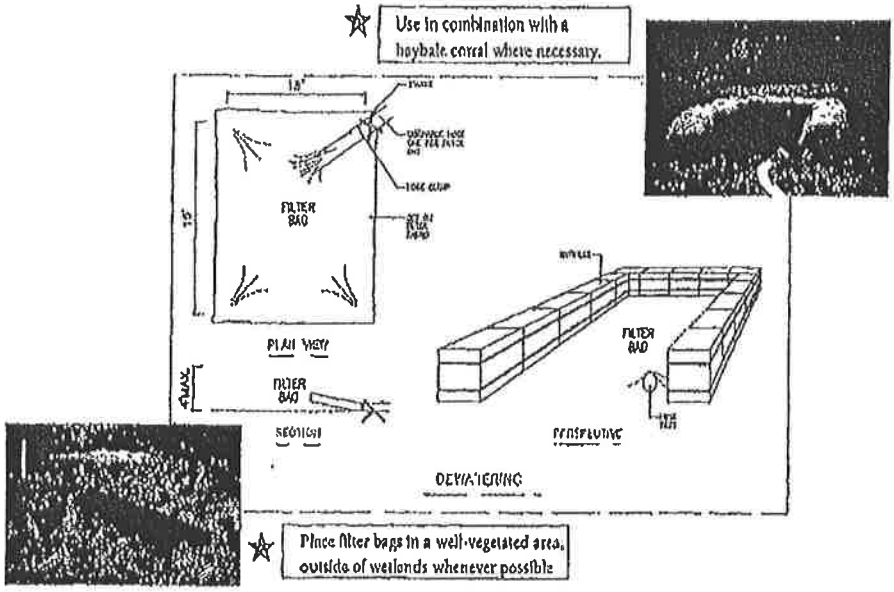
MAINTENANCE:

- If the pump requires refueling, it should be done within the plastic containment structure or over 100 feet from the wetland or waterbody.
- The pump should be manned at all times. The filter bag should be checked regularly during pumping activities to ensure that it is not reaching its holding capacity.
- If the bag appears to be nearing its limits, dewatering should cease until more water has filtered out and the bag can be replaced.
- Used filter bags and the trapped sediment they hold, must be disposed of in the proper manner.

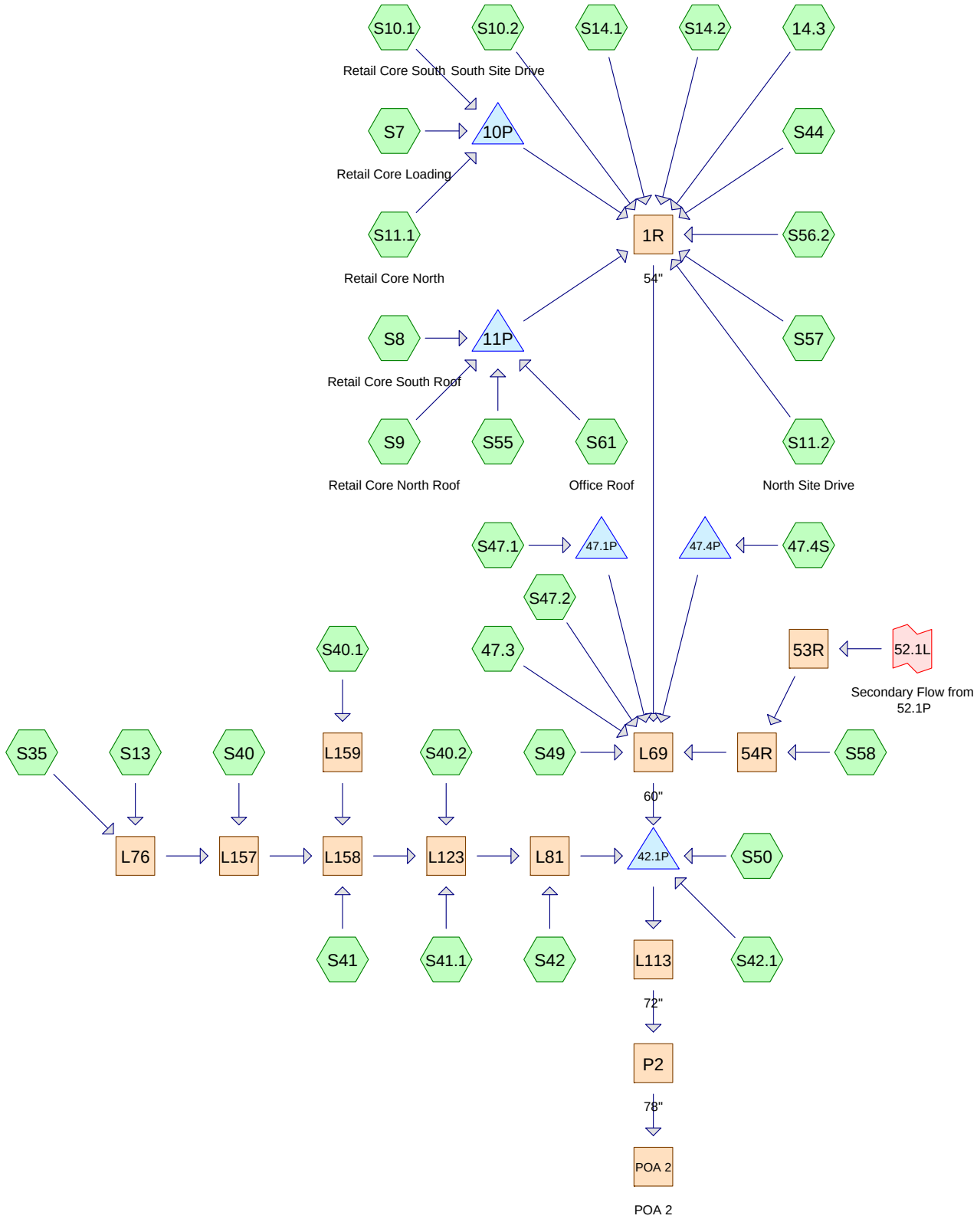
REMEMBER

Under no circumstances should trench water, or other forms of turbid water, be directly discharged onto exposed soil or into any wetland or waterbody. The Conservation Agent must inspect the dewatering system prior to use.

DEWATERING ACTIVITIES



Tab 5:
Drainage Calculations



Routing Diagram for 3659-12003C-Proposed Conditions POA 2-01
Prepared by {enter your company name here}, Printed 11/7/2013

Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
5.961	49	50-75% Grass cover, Fair, HSG A (S35, S40, S40.1, S41, S41.1, S42, S44, S49, S57, S7)
14.899	39	>75% Grass cover, Good, HSG A (14.3, 47.3, S10.1, S10.2, S11.1, S11.2, S13, S14.1, S14.2, S42.1, S47.2, S50, S55, S56.2, S58, S7)
1.299	61	>75% Grass cover, Good, HSG B (S55, S56.2)
40.628	98	Paved parking, HSG A (14.3, 47.3, S10.1, S10.2, S11.1, S11.2, S13, S14.1, S14.2, S35, S40, S41, S41.1, S42, S42.1, S44, S47.1, S47.2, S49, S50, S56.2, S57, S58, S7)
25.425	98	Roofs, HSG A (47.4S, S10.1, S11.1, S35, S40, S40.1, S40.2, S41.1, S42, S44, S49, S55, S57, S61, S8, S9)
0.304	98	Water Surface, HSG A (S47.1)
1.447	36	Woods, Fair, HSG A (S41, S41.1, S47.1)
0.824	43	Woods/grass comb., Fair, HSG A (S42.1)
90.787	**83**	**TOTAL AREA**

Soil Listing (all nodes)

Area (acres)	Soil Group	Subcatchment Numbers
89.489	HSG A	14.3, 47.3, 47.4S, S10.1, S10.2, S11.1, S11.2, S13, S14.1, S14.2, S35, S40, S40.1, S40.2, S41, S41.1, S42, S42.1, S44, S47.1, S47.2, S49, S50, S55, S56.2, S57, S58, S61, S7, S8, S9
1.299	HSG B	S55, S56.2
0.000	HSG C	
0.000	HSG D	
0.000	Other	
90.787		**TOTAL AREA**

Ground Covers (all nodes)

HSG-A (acres)	HSG-B (acres)	HSG-C (acres)	HSG-D (acres)	Other (acres)	Total (acres)	Ground Cover	Subcatchment Numbers
5.961	0.000	0.000	0.000	0.000	5.961	50-75% Grass cover, Fair	S35, S40, S40.1, S41, S41.1, S42, S44, S49, S57, S7
14.899	1.299	0.000	0.000	0.000	16.197	>75% Grass cover, Good	14.3, 47.3, S10.1, S10.2, S11.1, S11.2, S13, S14.1, S14.2, S42.1, S47.2, S50, S55, S56.2, S58, S7
40.628	0.000	0.000	0.000	0.000	40.628	Paved parking	14.3, 47.3, S10.1, S10.2, S11.1, S11.2, S13, S14.1, S14.2, S35, S40, S41, S41.1, S42, S42.1, S44, S47.1, S47.2, S49, S50, S56.2, S57,

Ground Covers (all nodes) (continued)

HSG-A (acres)	HSG-B (acres)	HSG-C (acres)	HSG-D (acres)	Other (acres)	Total (acres)	Ground Cover	Subcatchment Numbers
25.425	0.000	0.000	0.000	0.000	25.425	Roofs	47.4S, S10.1, S11.1, S35, S40, S40.1, S40.2, S41.1, S42, S44, S49, S55, S57, S61, S8, S9
0.304	0.000	0.000	0.000	0.000	0.304	Water Surface	S47.1
1.447	0.000	0.000	0.000	0.000	1.447	Woods, Fair	S41, S41.1, S47.1
0.824	0.000	0.000	0.000	0.000	0.824	Woods/grass comb., Fair	S42.1
89.489	**1.299**	**0.000**	**0.000**	**0.000**	**90.787**	**TOTAL AREA**	

Time span=0.00-20.00 hrs, dt=0.05 hrs, 401 points
Runoff by SCS TR-20 method, UH=SCS
Reach routing by Stor-Ind method - Pond routing by Stor-Ind method

Subcatchment 14.3: Runoff Area=54,863 sf 71.82% Impervious Runoff Depth>1.36"
Tc=5.0 min CN=81 Runoff=2.16 cfs 0.143 af

Subcatchment 47.3: Runoff Area=28,100 sf 62.47% Impervious Runoff Depth>1.06"
Tc=5.0 min CN=76 Runoff=0.85 cfs 0.057 af

Subcatchment 47.4S: Runoff Area=7,150 sf 100.00% Impervious Runoff Depth>2.83"
Tc=5.0 min CN=98 Runoff=0.51 cfs 0.039 af

Subcatchment S10.1: Retail Core South Runoff Area=558,326 sf 95.19% Impervious Runoff Depth>2.51"
Tc=5.0 min CN=95 Runoff=37.81 cfs 2.679 af

Subcatchment S10.2: South Site Drive Runoff Area=19,231 sf 68.59% Impervious Runoff Depth>1.23"
Tc=5.0 min CN=79 Runoff=0.68 cfs 0.045 af

Subcatchment S11.1: Retail Core North Runoff Area=280,057 sf 93.60% Impervious Runoff Depth>2.41"
Tc=5.0 min CN=94 Runoff=18.48 cfs 1.290 af

Subcatchment S11.2: North Site Drive Runoff Area=180,673 sf 79.73% Impervious Runoff Depth>1.71"
Tc=5.0 min CN=86 Runoff=8.93 cfs 0.592 af

Subcatchment S13: Runoff Area=194,045 sf 68.31% Impervious Runoff Depth>1.23"
Tc=5.0 min CN=79 Runoff=6.90 cfs 0.458 af

Subcatchment S14.1: Runoff Area=93,612 sf 70.71% Impervious Runoff Depth>1.36"
Tc=5.0 min CN=81 Runoff=3.69 cfs 0.244 af

Subcatchment S14.2: Runoff Area=92,580 sf 66.26% Impervious Runoff Depth>1.17"
Tc=5.0 min CN=78 Runoff=3.12 cfs 0.208 af

Subcatchment S35: Runoff Area=58,042 sf 77.81% Impervious Runoff Depth>1.79"
Tc=5.0 min CN=87 Runoff=2.99 cfs 0.199 af

Subcatchment S40: Runoff Area=2.670 ac 67.42% Impervious Runoff Depth>1.43"
Tc=5.0 min CN=82 Runoff=4.81 cfs 0.317 af

Subcatchment S40.1: Runoff Area=100,887 sf 45.60% Impervious Runoff Depth>0.77"
Flow Length=712' Tc=60.6 min CN=71 Runoff=0.84 cfs 0.149 af

Subcatchment S40.2: Runoff Area=3.200 ac 100.00% Impervious Runoff Depth>2.83"
Tc=5.0 min CN=98 Runoff=10.00 cfs 0.754 af

Subcatchment S41: Runoff Area=1.080 ac 55.56% Impervious Runoff Depth>1.06"
Tc=5.0 min CN=76 Runoff=1.42 cfs 0.095 af

Subcatchment S41.1: Runoff Area=2.030 ac 14.78% Impervious Runoff Depth>0.21"
Flow Length=245' Tc=18.1 min CN=55 Runoff=0.18 cfs 0.035 af

Subcatchment S42: Runoff Area=1.440 ac 73.61% Impervious Runoff Depth>1.64"
Tc=5.0 min CN=85 Runoff=2.97 cfs 0.197 af

Subcatchment S42.1: Runoff Area=78,222 sf 25.16% Impervious Runoff Depth>0.24"
Flow Length=362' Tc=11.1 min CN=56 Runoff=0.21 cfs 0.035 af

Subcatchment S44: Runoff Area=61,875 sf 92.36% Impervious Runoff Depth>2.41"
Tc=5.0 min CN=94 Runoff=4.08 cfs 0.285 af

Subcatchment S47.1: Runoff Area=80,663 sf 34.80% Impervious Runoff Depth>0.29"
Flow Length=271' Tc=11.5 min CN=58 Runoff=0.31 cfs 0.045 af

Subcatchment S47.2: Runoff Area=43,697 sf 73.55% Impervious Runoff Depth>1.43"
Tc=5.0 min CN=82 Runoff=1.81 cfs 0.119 af

Subcatchment S49: Runoff Area=3.120 ac 76.60% Impervious Runoff Depth>1.79"
Tc=5.0 min CN=87 Runoff=7.00 cfs 0.466 af

Subcatchment S50: Runoff Area=296,002 sf 9.22% Impervious Runoff Depth>0.02"
Flow Length=873' Tc=21.9 min CN=44 Runoff=0.03 cfs 0.011 af

Subcatchment S55: Runoff Area=163,904 sf 84.64% Impervious Runoff Depth>2.04"
Tc=5.0 min CN=90 Runoff=9.51 cfs 0.640 af

Subcatchment S56.2: Runoff Area=86,678 sf 44.74% Impervious Runoff Depth>1.11"
Tc=5.0 min CN=77 Runoff=2.76 cfs 0.185 af

Subcatchment S57: Runoff Area=32,640 sf 76.04% Impervious Runoff Depth>1.71"
Tc=5.0 min CN=86 Runoff=1.61 cfs 0.107 af

Subcatchment S58: Runoff Area=71,936 sf 66.24% Impervious Runoff Depth>1.17"
Tc=5.0 min CN=78 Runoff=2.42 cfs 0.161 af

Subcatchment S61: Office Roof Runoff Area=113,278 sf 100.00% Impervious Runoff Depth>2.83"
Tc=5.0 min CN=98 Runoff=8.13 cfs 0.613 af

Subcatchment S7: Retail Core Loading Runoff Area=255,978 sf 69.16% Impervious Runoff Depth>1.30"
Tc=5.0 min CN=80 Runoff=9.59 cfs 0.634 af

Subcatchment S8: Retail Core South Runoff Area=221,180 sf 100.00% Impervious Runoff Depth>2.83"
Tc=5.0 min CN=98 Runoff=15.87 cfs 1.197 af

Subcatchment S9: Retail Core North Runoff Area=191,272 sf 100.00% Impervious Runoff Depth>2.83"
Tc=5.0 min CN=98 Runoff=13.73 cfs 1.035 af

Reach 1R: 54" Avg. Flow Depth=1.67' Max Vel=5.73 fps Inflow=31.37 cfs 2.260 af
54.0" Round Pipe n=0.014 L=481.0' S=0.0033 '/' Capacity=104.99 cfs Outflow=30.70 cfs 2.257 af

Reach 53R: Avg. Flow Depth=0.86' Max Vel=4.29 fps Inflow=8.53 cfs 0.981 af
48.0" Round Pipe n=0.014 L=249.0' S=0.0040 '/' Capacity=84.10 cfs Outflow=8.52 cfs 0.980 af

Reach 54R: Avg. Flow Depth=0.87' Max Vel=4.56 fps Inflow=9.34 cfs 1.142 af
48.0" Round Pipe n=0.014 L=742.0' S=0.0044 '/' Capacity=88.41 cfs Outflow=9.28 cfs 1.140 af

Reach L113: 72" Avg. Flow Depth=1.48' Max Vel=12.27 fps Inflow=67.03 cfs 6.279 af
72.0" Round Pipe n=0.014 L=96.0' S=0.0160 '/' Capacity=498.08 cfs Outflow=66.77 cfs 6.279 af

Reach L123: Avg. Flow Depth=1.63' Max Vel=4.86 fps Inflow=24.73 cfs 2.004 af
48.0" Round Pipe n=0.014 L=700.0' S=0.0026 '/' Capacity=67.64 cfs Outflow=23.49 cfs 1.999 af

Reach L157: Avg. Flow Depth=1.54' Max Vel=3.20 fps Inflow=14.55 cfs 0.973 af
48.0" Round Pipe n=0.014 L=138.0' S=0.0012 '/' Capacity=45.42 cfs Outflow=14.22 cfs 0.972 af

Reach L158: Avg. Flow Depth=1.16' Max Vel=5.06 fps Inflow=15.68 cfs 1.216 af
48.0" Round Pipe n=0.014 L=254.0' S=0.0039 '/' Capacity=83.69 cfs Outflow=15.28 cfs 1.215 af

Reach L159: Avg. Flow Depth=0.37' Max Vel=2.10 fps Inflow=0.84 cfs 0.149 af
24.0" Round Pipe n=0.014 L=70.0' S=0.0029 '/' Capacity=11.23 cfs Outflow=0.84 cfs 0.149 af

Reach L69: 60" Avg. Flow Depth=1.79' Max Vel=6.60 fps Inflow=42.08 cfs 4.039 af
60.0" Round Pipe n=0.014 L=127.0' S=0.0039 '/' Capacity=151.74 cfs Outflow=41.83 cfs 4.038 af

Reach L76: Avg. Flow Depth=0.92' Max Vel=4.51 fps Inflow=9.88 cfs 0.657 af
48.0" Round Pipe n=0.014 L=355.0' S=0.0041 '/' Capacity=84.95 cfs Outflow=9.82 cfs 0.655 af

Reach L81: Avg. Flow Depth=1.19' Max Vel=7.17 fps Inflow=26.18 cfs 2.196 af
60.0" Round Pipe n=0.014 L=121.0' S=0.0074 '/' Capacity=207.41 cfs Outflow=25.90 cfs 2.195 af

Reach P2: 78" Avg. Flow Depth=1.40' Max Vel=12.67 fps Inflow=66.77 cfs 6.279 af
78.0" Round Pipe n=0.014 L=25.0' S=0.0180 '/' Capacity=653.15 cfs Outflow=66.74 cfs 6.280 af

Reach POA 2: POA 2 Inflow=66.74 cfs 6.280 af
Outflow=66.74 cfs 6.280 af

Pond 10P: Peak Elev=47.95' Storage=26,852 cf Inflow=65.85 cfs 4.604 af
Discarded=26.33 cfs 4.600 af Primary=0.00 cfs 0.000 af Outflow=26.33 cfs 4.600 af

Pond 11P: Peak Elev=51.29' Storage=30,542 cf Inflow=47.24 cfs 3.484 af
Discarded=8.35 cfs 3.030 af Primary=13.75 cfs 0.452 af Outflow=22.10 cfs 3.482 af

Pond 42.1P: Peak Elev=39.44' Storage=3,120 cf Inflow=67.22 cfs 6.279 af
72.0" Round Culvert n=0.014 L=1.0' S=0.0100 '/' Outflow=67.03 cfs 6.279 af

Pond 47.1P: Peak Elev=42.17' Storage=1,957 cf Inflow=0.31 cfs 0.045 af
Outflow=0.00 cfs 0.000 af

Pond 47.4P: Peak Elev=48.84' Storage=623 cf Inflow=0.51 cfs 0.039 af
Discarded=0.07 cfs 0.039 af Primary=0.00 cfs 0.000 af Outflow=0.07 cfs 0.039 af

ar Secondary Outflow **Link** Imported from 3659-12003C-Proposed Conditions POA 3-01~Pond 52.1P.hce Inflow=8.53 cfs 0.981 af
Primary=8.53 cfs 0.981 af

Total Runoff Area = 90.787 ac Runoff Volume = 13.034 af Average Runoff Depth = 1.72"
26.91% Pervious = 24.430 ac 73.09% Impervious = 66.357 ac

Time span=0.00-20.00 hrs, dt=0.05 hrs, 401 points
Runoff by SCS TR-20 method, UH=SCS
Reach routing by Stor-Ind method - Pond routing by Stor-Ind method

Subcatchment 14.3: Runoff Area=54,863 sf 71.82% Impervious Runoff Depth>2.46"
Tc=5.0 min CN=81 Runoff=3.89 cfs 0.258 af

Subcatchment 47.3: Runoff Area=28,100 sf 62.47% Impervious Runoff Depth>2.05"
Tc=5.0 min CN=76 Runoff=1.67 cfs 0.110 af

Subcatchment 47.4S: Runoff Area=7,150 sf 100.00% Impervious Runoff Depth>4.16"
Tc=5.0 min CN=98 Runoff=0.74 cfs 0.057 af

Subcatchment S10.1: Retail Core South Runoff Area=558,326 sf 95.19% Impervious Runoff Depth>3.82"
Tc=5.0 min CN=95 Runoff=56.17 cfs 4.085 af

Subcatchment S10.2: South Site Drive Runoff Area=19,231 sf 68.59% Impervious Runoff Depth>2.29"
Tc=5.0 min CN=79 Runoff=1.27 cfs 0.084 af

Subcatchment S11.1: Retail Core North Runoff Area=280,057 sf 93.60% Impervious Runoff Depth>3.72"
Tc=5.0 min CN=94 Runoff=27.75 cfs 1.991 af

Subcatchment S11.2: North Site Drive Runoff Area=180,673 sf 79.73% Impervious Runoff Depth>2.91"
Tc=5.0 min CN=86 Runoff=14.98 cfs 1.006 af

Subcatchment S13: Runoff Area=194,045 sf 68.31% Impervious Runoff Depth>2.29"
Tc=5.0 min CN=79 Runoff=12.86 cfs 0.851 af

Subcatchment S14.1: Runoff Area=93,612 sf 70.71% Impervious Runoff Depth>2.46"
Tc=5.0 min CN=81 Runoff=6.64 cfs 0.441 af

Subcatchment S14.2: Runoff Area=92,580 sf 66.26% Impervious Runoff Depth>2.21"
Tc=5.0 min CN=78 Runoff=5.92 cfs 0.391 af

Subcatchment S35: Runoff Area=58,042 sf 77.81% Impervious Runoff Depth>3.01"
Tc=5.0 min CN=87 Runoff=4.94 cfs 0.334 af

Subcatchment S40: Runoff Area=2.670 ac 67.42% Impervious Runoff Depth>2.55"
Tc=5.0 min CN=82 Runoff=8.52 cfs 0.567 af

Subcatchment S40.1: Runoff Area=100,887 sf 45.60% Impervious Runoff Depth>1.63"
Flow Length=712' Tc=60.6 min CN=71 Runoff=1.88 cfs 0.315 af

Subcatchment S40.2: Runoff Area=3.200 ac 100.00% Impervious Runoff Depth>4.16"
Tc=5.0 min CN=98 Runoff=14.48 cfs 1.110 af

Subcatchment S41: Runoff Area=1.080 ac 55.56% Impervious Runoff Depth>2.05"
Tc=5.0 min CN=76 Runoff=2.79 cfs 0.184 af

Subcatchment S41.1: Runoff Area=2.030 ac 14.78% Impervious Runoff Depth>0.69"
Flow Length=245' Tc=18.1 min CN=55 Runoff=0.97 cfs 0.117 af

Subcatchment S42: Runoff Area=1.440 ac 73.61% Impervious Runoff Depth>2.82"
Tc=5.0 min CN=85 Runoff=5.06 cfs 0.338 af

Subcatchment S42.1: Runoff Area=78,222 sf 25.16% Impervious Runoff Depth>0.75"
Flow Length=362' Tc=11.1 min CN=56 Runoff=1.12 cfs 0.112 af

Subcatchment S44: Runoff Area=61,875 sf 92.36% Impervious Runoff Depth>3.72"
Tc=5.0 min CN=94 Runoff=6.13 cfs 0.440 af

Subcatchment S47.1: Runoff Area=80,663 sf 34.80% Impervious Runoff Depth>0.85"
Flow Length=271' Tc=11.5 min CN=58 Runoff=1.39 cfs 0.131 af

Subcatchment S47.2: Runoff Area=43,697 sf 73.55% Impervious Runoff Depth>2.55"
Tc=5.0 min CN=82 Runoff=3.20 cfs 0.213 af

Subcatchment S49: Runoff Area=3.120 ac 76.60% Impervious Runoff Depth>3.01"
Tc=5.0 min CN=87 Runoff=11.58 cfs 0.781 af

Subcatchment S50: Runoff Area=296,002 sf 9.22% Impervious Runoff Depth>0.23"
Flow Length=873' Tc=21.9 min CN=44 Runoff=0.52 cfs 0.131 af

Subcatchment S55: Runoff Area=163,904 sf 84.64% Impervious Runoff Depth>3.30"
Tc=5.0 min CN=90 Runoff=15.02 cfs 1.034 af

Subcatchment S56.2: Runoff Area=86,678 sf 44.74% Impervious Runoff Depth>2.13"
Tc=5.0 min CN=77 Runoff=5.35 cfs 0.353 af

Subcatchment S57: Runoff Area=32,640 sf 76.04% Impervious Runoff Depth>2.91"
Tc=5.0 min CN=86 Runoff=2.71 cfs 0.182 af

Subcatchment S58: Runoff Area=71,936 sf 66.24% Impervious Runoff Depth>2.21"
Tc=5.0 min CN=78 Runoff=4.60 cfs 0.304 af

Subcatchment S61: Office Roof Runoff Area=113,278 sf 100.00% Impervious Runoff Depth>4.16"
Tc=5.0 min CN=98 Runoff=11.77 cfs 0.902 af

Subcatchment S7: Retail Core Loading Runoff Area=255,978 sf 69.16% Impervious Runoff Depth>2.38"
Tc=5.0 min CN=80 Runoff=17.56 cfs 1.163 af

Subcatchment S8: Retail Core South Runoff Area=221,180 sf 100.00% Impervious Runoff Depth>4.16"
Tc=5.0 min CN=98 Runoff=22.97 cfs 1.762 af

Subcatchment S9: Retail Core North Runoff Area=191,272 sf 100.00% Impervious Runoff Depth>4.16"
Tc=5.0 min CN=98 Runoff=19.87 cfs 1.523 af

Reach 1R: 54" Avg. Flow Depth=2.73' Max Vel=7.08 fps Inflow=75.06 cfs 4.369 af
54.0" Round Pipe n=0.014 L=481.0' S=0.0033 '/' Capacity=104.99 cfs Outflow=71.56 cfs 4.365 af

Reach 53R: Avg. Flow Depth=1.65' Max Vel=6.12 fps Inflow=29.89 cfs 4.071 af
48.0" Round Pipe n=0.014 L=249.0' S=0.0040 '/' Capacity=84.10 cfs Outflow=29.89 cfs 4.069 af

Reach 54R: Avg. Flow Depth=1.64' Max Vel=6.41 fps Inflow=31.06 cfs 4.373 af
48.0" Round Pipe n=0.014 L=742.0' S=0.0044 '/' Capacity=88.41 cfs Outflow=31.02 cfs 4.368 af

Reach L113: 72" Avg. Flow Depth=2.16' Max Vel=15.05 fps Inflow=138.64 cfs 13.882 af
72.0" Round Pipe n=0.014 L=96.0' S=0.0160 '/' Capacity=498.08 cfs Outflow=138.25 cfs 13.882 af

Reach L123: Avg. Flow Depth=2.23' Max Vel=5.60 fps Inflow=42.16 cfs 3.474 af
48.0" Round Pipe n=0.014 L=700.0' S=0.0026 '/' Capacity=67.64 cfs Outflow=40.45 cfs 3.466 af

Reach L157: Avg. Flow Depth=2.15' Max Vel=3.72 fps Inflow=26.15 cfs 1.750 af
48.0" Round Pipe n=0.014 L=138.0' S=0.0012 '/' Capacity=45.42 cfs Outflow=25.61 cfs 1.749 af

Reach L158: Avg. Flow Depth=1.59' Max Vel=6.00 fps Inflow=28.65 cfs 2.248 af
48.0" Round Pipe n=0.014 L=254.0' S=0.0039 '/' Capacity=83.69 cfs Outflow=28.04 cfs 2.247 af

Reach L159: Avg. Flow Depth=0.55' Max Vel=2.65 fps Inflow=1.88 cfs 0.315 af
24.0" Round Pipe n=0.014 L=70.0' S=0.0029 '/' Capacity=11.23 cfs Outflow=1.88 cfs 0.315 af

Reach L69: 60" Avg. Flow Depth=3.01' Max Vel=8.29 fps Inflow=103.16 cfs 9.837 af
60.0" Round Pipe n=0.014 L=127.0' S=0.0039 '/' Capacity=151.74 cfs Outflow=102.33 cfs 9.836 af

Reach L76: Avg. Flow Depth=1.24' Max Vel=5.34 fps Inflow=17.77 cfs 1.185 af
48.0" Round Pipe n=0.014 L=355.0' S=0.0041 '/' Capacity=84.95 cfs Outflow=17.73 cfs 1.183 af

Reach L81: Avg. Flow Depth=1.58' Max Vel=8.40 fps Inflow=45.05 cfs 3.805 af
60.0" Round Pipe n=0.014 L=121.0' S=0.0074 '/' Capacity=207.41 cfs Outflow=44.64 cfs 3.804 af

Reach P2: 78" Avg. Flow Depth=2.03' Max Vel=15.59 fps Inflow=138.25 cfs 13.882 af
78.0" Round Pipe n=0.014 L=25.0' S=0.0180 '/' Capacity=653.15 cfs Outflow=138.22 cfs 13.884 af

Reach POA 2: POA 2 Inflow=138.22 cfs 13.884 af
Outflow=138.22 cfs 13.884 af

Pond 10P: Peak Elev=49.29' Storage=64,985 cf Inflow=101.52 cfs 7.240 af
Discarded=27.65 cfs 7.235 af Primary=0.00 cfs 0.000 af Outflow=27.65 cfs 7.235 af

Pond 11P: Peak Elev=52.46' Storage=40,809 cf Inflow=69.63 cfs 5.222 af
Discarded=8.80 cfs 4.005 af Primary=35.98 cfs 1.214 af Outflow=44.78 cfs 5.219 af

Pond 42.1P: Peak Elev=41.15' Storage=12,180 cf Inflow=146.73 cfs 13.882 af
72.0" Round Culvert n=0.014 L=1.0' S=0.0100 '/' Outflow=138.64 cfs 13.882 af

Pond 47.1P: Peak Elev=42.46' Storage=5,713 cf Inflow=1.39 cfs 0.131 af
Outflow=0.00 cfs 0.000 af

Pond 47.4P: Peak Elev=49.13' Storage=996 cf Inflow=0.74 cfs 0.057 af
Discarded=0.09 cfs 0.056 af Primary=0.00 cfs 0.000 af Outflow=0.09 cfs 0.056 af

r Secondary Inflow Imported from 3659-12003C-Proposed Conditions POA 3-01~Pond 52.1P.hce Inflow=29.89 cfs 4.071 af
Primary=29.89 cfs 4.071 af

Total Runoff Area = 90.787 ac Runoff Volume = 21.273 af Average Runoff Depth = 2.81"
26.91% Pervious = 24.430 ac 73.09% Impervious = 66.357 ac

Time span=0.00-20.00 hrs, dt=0.05 hrs, 401 points
Runoff by SCS TR-20 method, UH=SCS
Reach routing by Stor-Ind method - Pond routing by Stor-Ind method

Subcatchment 14.3: Runoff Area=54,863 sf 71.82% Impervious Runoff Depth>3.22"
Tc=5.0 min CN=81 Runoff=5.05 cfs 0.338 af

Subcatchment 47.3: Runoff Area=28,100 sf 62.47% Impervious Runoff Depth>2.75"
Tc=5.0 min CN=76 Runoff=2.24 cfs 0.148 af

Subcatchment 47.4S: Runoff Area=7,150 sf 100.00% Impervious Runoff Depth>5.02"
Tc=5.0 min CN=98 Runoff=0.89 cfs 0.069 af

Subcatchment S10.1: Retail Core South Runoff Area=558,326 sf 95.19% Impervious Runoff Depth>4.68"
Tc=5.0 min CN=95 Runoff=67.86 cfs 4.996 af

Subcatchment S10.2: South Site Drive Runoff Area=19,231 sf 68.59% Impervious Runoff Depth>3.03"
Tc=5.0 min CN=79 Runoff=1.67 cfs 0.111 af

Subcatchment S11.1: Retail Core North Runoff Area=280,057 sf 93.60% Impervious Runoff Depth>4.56"
Tc=5.0 min CN=94 Runoff=33.65 cfs 2.445 af

Subcatchment S11.2: North Site Drive Runoff Area=180,673 sf 79.73% Impervious Runoff Depth>3.71"
Tc=5.0 min CN=86 Runoff=18.89 cfs 1.282 af

Subcatchment S13: Runoff Area=194,045 sf 68.31% Impervious Runoff Depth>3.03"
Tc=5.0 min CN=79 Runoff=16.89 cfs 1.124 af

Subcatchment S14.1: Runoff Area=93,612 sf 70.71% Impervious Runoff Depth>3.22"
Tc=5.0 min CN=81 Runoff=8.61 cfs 0.576 af

Subcatchment S14.2: Runoff Area=92,580 sf 66.26% Impervious Runoff Depth>2.93"
Tc=5.0 min CN=78 Runoff=7.83 cfs 0.520 af

Subcatchment S35: Runoff Area=58,042 sf 77.81% Impervious Runoff Depth>3.81"
Tc=5.0 min CN=87 Runoff=6.20 cfs 0.423 af

Subcatchment S40: Runoff Area=2.670 ac 67.42% Impervious Runoff Depth>3.31"
Tc=5.0 min CN=82 Runoff=10.98 cfs 0.737 af

Subcatchment S40.1: Runoff Area=100,887 sf 45.60% Impervious Runoff Depth>2.26"
Flow Length=712' Tc=60.6 min CN=71 Runoff=2.62 cfs 0.437 af

Subcatchment S40.2: Runoff Area=3.200 ac 100.00% Impervious Runoff Depth>5.02"
Tc=5.0 min CN=98 Runoff=17.35 cfs 1.339 af

Subcatchment S41: Runoff Area=1.080 ac 55.56% Impervious Runoff Depth>2.75"
Tc=5.0 min CN=76 Runoff=3.74 cfs 0.248 af

Subcatchment S41.1: Runoff Area=2.030 ac 14.78% Impervious Runoff Depth>1.10"
Flow Length=245' Tc=18.1 min CN=55 Runoff=1.74 cfs 0.187 af

Subcatchment S42: Runoff Area=1.440 ac 73.61% Impervious Runoff Depth>3.61"
Tc=5.0 min CN=85 Runoff=6.41 cfs 0.433 af

Subcatchment S42.1: Runoff Area=78,222 sf 25.16% Impervious Runoff Depth>1.17"
Flow Length=362' Tc=11.1 min CN=56 Runoff=1.97 cfs 0.176 af

Subcatchment S44: Runoff Area=61,875 sf 92.36% Impervious Runoff Depth>4.56"
Tc=5.0 min CN=94 Runoff=7.43 cfs 0.540 af

Subcatchment S47.1: Runoff Area=80,663 sf 34.80% Impervious Runoff Depth>1.31"
Flow Length=271' Tc=11.5 min CN=58 Runoff=2.31 cfs 0.202 af

Subcatchment S47.2: Runoff Area=43,697 sf 73.55% Impervious Runoff Depth>3.31"
Tc=5.0 min CN=82 Runoff=4.13 cfs 0.277 af

Subcatchment S49: Runoff Area=3.120 ac 76.60% Impervious Runoff Depth>3.81"
Tc=5.0 min CN=87 Runoff=14.52 cfs 0.991 af

Subcatchment S50: Runoff Area=296,002 sf 9.22% Impervious Runoff Depth>0.47"
Flow Length=873' Tc=21.9 min CN=44 Runoff=1.55 cfs 0.267 af

Subcatchment S55: Runoff Area=163,904 sf 84.64% Impervious Runoff Depth>4.13"
Tc=5.0 min CN=90 Runoff=18.55 cfs 1.294 af

Subcatchment S56.2: Runoff Area=86,678 sf 44.74% Impervious Runoff Depth>2.84"
Tc=5.0 min CN=77 Runoff=7.11 cfs 0.471 af

Subcatchment S57: Runoff Area=32,640 sf 76.04% Impervious Runoff Depth>3.71"
Tc=5.0 min CN=86 Runoff=3.41 cfs 0.232 af

Subcatchment S58: Runoff Area=71,936 sf 66.24% Impervious Runoff Depth>2.93"
Tc=5.0 min CN=78 Runoff=6.08 cfs 0.404 af

Subcatchment S61: Office Roof Runoff Area=113,278 sf 100.00% Impervious Runoff Depth>5.02"
Tc=5.0 min CN=98 Runoff=14.10 cfs 1.088 af

Subcatchment S7: Retail Core Loading Runoff Area=255,978 sf 69.16% Impervious Runoff Depth>3.12"
Tc=5.0 min CN=80 Runoff=22.92 cfs 1.528 af

Subcatchment S8: Retail Core South Runoff Area=221,180 sf 100.00% Impervious Runoff Depth>5.02"
Tc=5.0 min CN=98 Runoff=27.53 cfs 2.125 af

Subcatchment S9: Retail Core North Runoff Area=191,272 sf 100.00% Impervious Runoff Depth>5.02"
Tc=5.0 min CN=98 Runoff=23.80 cfs 1.838 af

Reach 1R: 54" Avg. Flow Depth=3.41' Max Vel=7.48 fps Inflow=99.60 cfs 5.882 af
54.0" Round Pipe n=0.014 L=481.0' S=0.0033 '/' Capacity=104.99 cfs Outflow=96.95 cfs 5.877 af

Reach 53R: Avg. Flow Depth=2.22' Max Vel=6.97 fps Inflow=49.82 cfs 6.866 af
48.0" Round Pipe n=0.014 L=249.0' S=0.0040 '/' Capacity=84.10 cfs Outflow=49.81 cfs 6.863 af

Reach 54R: Avg. Flow Depth=2.18' Max Vel=7.28 fps Inflow=50.92 cfs 7.267 af
48.0" Round Pipe n=0.014 L=742.0' S=0.0044 '/' Capacity=88.41 cfs Outflow=50.88 cfs 7.259 af

Reach L113: 72" Avg. Flow Depth=2.51' Max Vel=16.24 fps Inflow=182.74 cfs 19.906 af
72.0" Round Pipe n=0.014 L=96.0' S=0.0160 '/' Capacity=498.08 cfs Outflow=182.29 cfs 19.906 af

Reach L123: Avg. Flow Depth=2.63' Max Vel=5.92 fps Inflow=53.98 cfs 4.489 af
48.0" Round Pipe n=0.014 L=700.0' S=0.0026 '/' Capacity=67.64 cfs Outflow=51.91 cfs 4.481 af

Reach L157: Avg. Flow Depth=2.54' Max Vel=3.94 fps Inflow=33.88 cfs 2.282 af
48.0" Round Pipe n=0.014 L=138.0' S=0.0012 '/' Capacity=45.42 cfs Outflow=33.20 cfs 2.281 af

Reach L158: Avg. Flow Depth=1.85' Max Vel=6.44 fps Inflow=37.36 cfs 2.965 af
48.0" Round Pipe n=0.014 L=254.0' S=0.0039 '/' Capacity=83.69 cfs Outflow=36.60 cfs 2.963 af

Reach L159: Avg. Flow Depth=0.66' Max Vel=2.92 fps Inflow=2.62 cfs 0.437 af
24.0" Round Pipe n=0.014 L=70.0' S=0.0029 '/' Capacity=11.23 cfs Outflow=2.62 cfs 0.437 af

Reach L69: 60" Avg. Flow Depth=3.84' Max Vel=8.77 fps Inflow=143.90 cfs 14.553 af
60.0" Round Pipe n=0.014 L=127.0' S=0.0039 '/' Capacity=151.74 cfs Outflow=142.38 cfs 14.552 af

Reach L76: Avg. Flow Depth=1.42' Max Vel=5.74 fps Inflow=23.04 cfs 1.547 af
48.0" Round Pipe n=0.014 L=355.0' S=0.0041 '/' Capacity=84.95 cfs Outflow=23.02 cfs 1.545 af

Reach L81: Avg. Flow Depth=1.80' Max Vel=9.00 fps Inflow=57.75 cfs 4.914 af
60.0" Round Pipe n=0.014 L=121.0' S=0.0074 '/' Capacity=207.41 cfs Outflow=57.26 cfs 4.913 af

Reach P2: 78" Avg. Flow Depth=2.35' Max Vel=16.86 fps Inflow=182.29 cfs 19.906 af
78.0" Round Pipe n=0.014 L=25.0' S=0.0180 '/' Capacity=653.15 cfs Outflow=182.25 cfs 19.908 af

Reach POA 2: POA 2 Inflow=182.25 cfs 19.908 af
Outflow=182.25 cfs 19.908 af

Pond 10P: Peak Elev=50.23' Storage=92,282 cf Inflow=124.53 cfs 8.969 af
Discarded=28.60 cfs 8.906 af Primary=1.78 cfs 0.058 af Outflow=30.38 cfs 8.963 af

Pond 11P: Peak Elev=53.18' Storage=47,275 cf Inflow=83.97 cfs 6.346 af
Discarded=9.09 cfs 4.588 af Primary=46.08 cfs 1.754 af Outflow=55.17 cfs 6.342 af

Pond 42.1P: Peak Elev=42.10' Storage=21,809 cf Inflow=201.30 cfs 19.907 af
72.0" Round Culvert n=0.014 L=1.0' S=0.0100 '/' Outflow=182.74 cfs 19.906 af

Pond 47.1P: Peak Elev=42.67' Storage=8,794 cf Inflow=2.31 cfs 0.202 af
Outflow=0.00 cfs 0.000 af

Pond 47.4P: Peak Elev=49.27' Storage=1,200 cf Inflow=0.89 cfs 0.069 af
Discarded=0.10 cfs 0.065 af Primary=0.09 cfs 0.002 af Outflow=0.20 cfs 0.066 af

r Secondary Inflow Imported from 3659-12003C-Proposed Conditions POA 3-01~Pond 52.1P.hce Inflow=49.82 cfs 6.866 af
Primary=49.82 cfs 6.866 af

Total Runoff Area = 90.787 ac Runoff Volume = 26.845 af Average Runoff Depth = 3.55"
26.91% Pervious = 24.430 ac 73.09% Impervious = 66.357 ac

Summary for Subcatchment 14.3:

[49] Hint: Tc<2dt may require smaller dt

Runoff = 5.05 cfs @ 12.08 hrs, Volume= 0.338 af, Depth> 3.22"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-Year Rainfall=5.50"

Area (sf)	CN	Description
15,460	39	>75% Grass cover, Good, HSG A
39,403	98	Paved parking, HSG A
54,863	81	Weighted Average
15,460		28.18% Pervious Area
39,403		71.82% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Summary for Subcatchment 47.3:

[49] Hint: Tc<2dt may require smaller dt

Runoff = 2.24 cfs @ 12.08 hrs, Volume= 0.148 af, Depth> 2.75"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-Year Rainfall=5.50"

Area (sf)	CN	Description
10,546	39	>75% Grass cover, Good, HSG A
17,554	98	Paved parking, HSG A
28,100	76	Weighted Average
10,546		37.53% Pervious Area
17,554		62.47% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Summary for Subcatchment 47.4S:

[49] Hint: Tc<2dt may require smaller dt

Runoff = 0.89 cfs @ 12.07 hrs, Volume= 0.069 af, Depth> 5.02"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-Year Rainfall=5.50"

Area (sf)	CN	Description
7,150	98	Roofs, HSG A
7,150		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Summary for Subcatchment S10.1: Retail Core South

[49] Hint: Tc<2dt may require smaller dt

Runoff = 67.86 cfs @ 12.07 hrs, Volume= 4.996 af, Depth> 4.68"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-Year Rainfall=5.50"

Area (sf)	CN	Description
26,881	39	>75% Grass cover, Good, HSG A
435,993	98	Paved parking, HSG A
95,452	98	Roofs, HSG A
558,326	95	Weighted Average
26,881		4.81% Pervious Area
531,445		95.19% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Summary for Subcatchment S10.2: South Site Drive

[49] Hint: Tc<2dt may require smaller dt

Runoff = 1.67 cfs @ 12.08 hrs, Volume= 0.111 af, Depth> 3.03"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-Year Rainfall=5.50"

Area (sf)	CN	Description
6,040	39	>75% Grass cover, Good, HSG A
13,191	98	Paved parking, HSG A
19,231	79	Weighted Average
6,040		31.41% Pervious Area
13,191		68.59% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Summary for Subcatchment S11.1: Retail Core North

[49] Hint: Tc<2dt may require smaller dt

Runoff = 33.65 cfs @ 12.07 hrs, Volume= 2.445 af, Depth> 4.56"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-Year Rainfall=5.50"

Area (sf)	CN	Description
17,929	39	>75% Grass cover, Good, HSG A
259,625	98	Paved parking, HSG A
2,503	98	Roofs, HSG A
280,057	94	Weighted Average
17,929		6.40% Pervious Area
262,128		93.60% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Summary for Subcatchment S11.2: North Site Drive

[49] Hint: Tc<2dt may require smaller dt

Runoff = 18.89 cfs @ 12.07 hrs, Volume= 1.282 af, Depth> 3.71"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-Year Rainfall=5.50"

Area (sf)	CN	Description
36,623	39	>75% Grass cover, Good, HSG A
144,050	98	Paved parking, HSG A
180,673	86	Weighted Average
36,623		20.27% Pervious Area
144,050		79.73% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Summary for Subcatchment S13:

[49] Hint: Tc<2dt may require smaller dt

Runoff = 16.89 cfs @ 12.08 hrs, Volume= 1.124 af, Depth> 3.03"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-Year Rainfall=5.50"

Area (sf)	CN	Description
61,493	39	>75% Grass cover, Good, HSG A
132,552	98	Paved parking, HSG A
194,045	79	Weighted Average
61,493		31.69% Pervious Area
132,552		68.31% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Summary for Subcatchment S14.1:

[49] Hint: Tc<2dt may require smaller dt

Runoff = 8.61 cfs @ 12.08 hrs, Volume= 0.576 af, Depth> 3.22"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-Year Rainfall=5.50"

Area (sf)	CN	Description
27,416	39	>75% Grass cover, Good, HSG A
66,196	98	Paved parking, HSG A
93,612	81	Weighted Average
27,416		29.29% Pervious Area
66,196		70.71% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Summary for Subcatchment S14.2:

[49] Hint: Tc<2dt may require smaller dt

Runoff = 7.83 cfs @ 12.08 hrs, Volume= 0.520 af, Depth> 2.93"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-Year Rainfall=5.50"

Area (sf)	CN	Description
31,237	39	>75% Grass cover, Good, HSG A
61,343	98	Paved parking, HSG A
92,580	78	Weighted Average
31,237		33.74% Pervious Area
61,343		66.26% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Summary for Subcatchment S35:

[49] Hint: Tc<2dt may require smaller dt

Runoff = 6.20 cfs @ 12.07 hrs, Volume= 0.423 af, Depth> 3.81"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-Year Rainfall=5.50"

Area (sf)	CN	Description
12,877	49	50-75% Grass cover, Fair, HSG A
24,707	98	Paved parking, HSG A
20,458	98	Roofs, HSG A
58,042	87	Weighted Average
12,877		22.19% Pervious Area
45,165		77.81% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Summary for Subcatchment S40:

[49] Hint: Tc<2dt may require smaller dt

Runoff = 10.98 cfs @ 12.08 hrs, Volume= 0.737 af, Depth> 3.31"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-Year Rainfall=5.50"

Area (ac)	CN	Description
0.870	49	50-75% Grass cover, Fair, HSG A
1.406	98	Paved parking, HSG A
0.394	98	Roofs, HSG A
2.670	82	Weighted Average
0.870		32.58% Pervious Area
1.800		67.42% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Summary for Subcatchment S40.1:

Runoff = 2.62 cfs @ 12.85 hrs, Volume= 0.437 af, Depth> 2.26"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-Year Rainfall=5.50"

Area (sf)	CN	Description
54,880	49	50-75% Grass cover, Fair, HSG A
46,007	98	Roofs, HSG A
100,887	71	Weighted Average
54,880		54.40% Pervious Area
46,007		45.60% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
53.9	100	0.0020	0.03		**Sheet Flow, Sheet** Woods: Light underbrush n= 0.400 P2= 3.20"
4.1	312	0.0063	1.28		**Shallow Concentrated Flow, Shallow Conc** Unpaved Kv= 16.1 fps
2.6	300	0.0090	1.93		**Shallow Concentrated Flow, Shallow Conc** Paved Kv= 20.3 fps
60.6	712	Total			

Summary for Subcatchment S40.2:

[49] Hint: Tc<2dt may require smaller dt

Runoff = 17.35 cfs @ 12.07 hrs, Volume= 1.339 af, Depth> 5.02"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-Year Rainfall=5.50"

Area (ac)	CN	Description
3.200	98	Roofs, HSG A
3.200		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Summary for Subcatchment S41:

[49] Hint: Tc<2dt may require smaller dt

Runoff = 3.74 cfs @ 12.08 hrs, Volume= 0.248 af, Depth> 2.75"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-Year Rainfall=5.50"

Area (ac)	CN	Description
0.460	49	50-75% Grass cover, Fair, HSG A
0.020	36	Woods, Fair, HSG A
0.600	98	Paved parking, HSG A
1.080	76	Weighted Average
0.480		44.44% Pervious Area
0.600		55.56% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Summary for Subcatchment S41.1:

Runoff = 1.74 cfs @ 12.30 hrs, Volume= 0.187 af, Depth> 1.10"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-Year Rainfall=5.50"

Area (ac)	CN	Description
1.510	49	50-75% Grass cover, Fair, HSG A
0.220	36	Woods, Fair, HSG A
0.294	98	Paved parking, HSG A
0.006	98	Roofs, HSG A
2.030	55	Weighted Average
1.730		85.22% Pervious Area
0.300		14.78% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
17.1	100	0.0050	0.10		**Sheet Flow, Sheet** Grass: Short n= 0.150 P2= 3.20"
1.0	145	0.0230	2.44		**Shallow Concentrated Flow, Shallow Conc** Unpaved Kv= 16.1 fps
18.1	245	Total			

Summary for Subcatchment S42:

[49] Hint: Tc<2dt may require smaller dt

Runoff = 6.41 cfs @ 12.07 hrs, Volume= 0.433 af, Depth> 3.61"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-Year Rainfall=5.50"

Area (ac)	CN	Description
0.380	49	50-75% Grass cover, Fair, HSG A
0.136	98	Paved parking, HSG A
0.924	98	Roofs, HSG A
1.440	85	Weighted Average
0.380		26.39% Pervious Area
1.060		73.61% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Summary for Subcatchment S42.1:

Runoff = 1.97 cfs @ 12.18 hrs, Volume= 0.176 af, Depth> 1.17"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-Year Rainfall=5.50"

Area (sf)	CN	Description
22,646	39	>75% Grass cover, Good, HSG A
35,897	43	Woods/grass comb., Fair, HSG A
19,679	98	Paved parking, HSG A
78,222	56	Weighted Average
58,543		74.84% Pervious Area
19,679		25.16% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.8	100	0.0500	0.25		**Sheet Flow, Sheet** Grass: Short n= 0.150 P2= 3.20"
4.3	262	0.0040	1.02		**Shallow Concentrated Flow, Shallow Conc** Unpaved Kv= 16.1 fps
11.1	362	Total			

Summary for Subcatchment S44:

[49] Hint: Tc<2dt may require smaller dt

Runoff = 7.43 cfs @ 12.07 hrs, Volume= 0.540 af, Depth> 4.56"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-Year Rainfall=5.50"

Area (sf)	CN	Description
4,725	49	50-75% Grass cover, Fair, HSG A
31,574	98	Paved parking, HSG A
25,576	98	Roofs, HSG A
61,875	94	Weighted Average
4,725		7.64% Pervious Area
57,150		92.36% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Summary for Subcatchment S47.1:

Runoff = 2.31 cfs @ 12.18 hrs, Volume= 0.202 af, Depth> 1.31"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-Year Rainfall=5.50"

Area (sf)	CN	Description
52,593	36	Woods, Fair, HSG A
14,808	98	Paved parking, HSG A
13,262	98	Water Surface, HSG A
80,663	58	Weighted Average
52,593		65.20% Pervious Area
28,070		34.80% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.1	100	0.0475	0.17		**Sheet Flow, Sheet** Grass: Dense n= 0.240 P2= 3.20"
1.4	171	0.0160	2.04		**Shallow Concentrated Flow, Shallow Conc** Unpaved Kv= 16.1 fps
11.5	271	Total			

Summary for Subcatchment S47.2:

[49] Hint: Tc<2dt may require smaller dt

Runoff = 4.13 cfs @ 12.08 hrs, Volume= 0.277 af, Depth> 3.31"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-Year Rainfall=5.50"

Area (sf)	CN	Description
11,557	39	>75% Grass cover, Good, HSG A
32,140	98	Paved parking, HSG A
43,697	82	Weighted Average
11,557		26.45% Pervious Area
32,140		73.55% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Summary for Subcatchment S49:

[49] Hint: Tc<2dt may require smaller dt

Runoff = 14.52 cfs @ 12.07 hrs, Volume= 0.991 af, Depth> 3.81"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-Year Rainfall=5.50"

Area (ac)	CN	Description
0.730	49	50-75% Grass cover, Fair, HSG A
1.517	98	Paved parking, HSG A
0.873	98	Roofs, HSG A
3.120	87	Weighted Average
0.730		23.40% Pervious Area
2.390		76.60% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Summary for Subcatchment S50:

Runoff = 1.55 cfs @ 12.52 hrs, Volume= 0.267 af, Depth> 0.47"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-Year Rainfall=5.50"

Area (sf)	CN	Description
268,723	39	>75% Grass cover, Good, HSG A
27,279	98	Paved parking, HSG A
296,002	44	Weighted Average
268,723		90.78% Pervious Area
27,279		9.22% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
14.3	100	0.0200	0.12		**Sheet Flow, Sheet** Grass: Dense n= 0.240 P2= 3.20"
7.6	773	0.0110	1.69		**Shallow Concentrated Flow, Shallow Conc** Unpaved Kv= 16.1 fps
21.9	873	Total			

Summary for Subcatchment S55:

[49] Hint: Tc<2dt may require smaller dt

Runoff = 18.55 cfs @ 12.07 hrs, Volume= 1.294 af, Depth> 4.13"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-Year Rainfall=5.50"

	Area (sf)	CN	Description
	14,073	39	>75% Grass cover, Good, HSG A
	11,103	61	>75% Grass cover, Good, HSG B
*	138,728	98	Roofs, HSG A
	163,904	90	Weighted Average
	25,176		15.36% Pervious Area
	138,728		84.64% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Summary for Subcatchment S56.2:

[49] Hint: Tc<2dt may require smaller dt

Runoff = 7.11 cfs @ 12.08 hrs, Volume= 0.471 af, Depth> 2.84"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-Year Rainfall=5.50"

Area (sf)	CN	Description
2,441	39	>75% Grass cover, Good, HSG A
45,461	61	>75% Grass cover, Good, HSG B
38,776	98	Paved parking, HSG A
86,678	77	Weighted Average
47,902		55.26% Pervious Area
38,776		44.74% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Summary for Subcatchment S57:

[49] Hint: Tc<2dt may require smaller dt

Runoff = 3.41 cfs @ 12.07 hrs, Volume= 0.232 af, Depth> 3.71"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-Year Rainfall=5.50"

Area (sf)	CN	Description
7,822	49	50-75% Grass cover, Fair, HSG A
13,996	98	Paved parking, HSG A
10,822	98	Roofs, HSG A
32,640	86	Weighted Average
7,822		23.96% Pervious Area
24,818		76.04% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Summary for Subcatchment S58:

[49] Hint: Tc<2dt may require smaller dt

Runoff = 6.08 cfs @ 12.08 hrs, Volume= 0.404 af, Depth> 2.93"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-Year Rainfall=5.50"

Area (sf)	CN	Description
24,288	39	>75% Grass cover, Good, HSG A
47,648	98	Paved parking, HSG A
71,936	78	Weighted Average
24,288		33.76% Pervious Area
47,648		66.24% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Summary for Subcatchment S61: Office Roof

[49] Hint: Tc<2dt may require smaller dt

Runoff = 14.10 cfs @ 12.07 hrs, Volume= 1.088 af, Depth> 5.02"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-Year Rainfall=5.50"

Area (sf)	CN	Description
113,278	98	Roofs, HSG A
113,278		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Summary for Subcatchment S7: Retail Core Loading

[49] Hint: Tc<2dt may require smaller dt

Runoff = 22.92 cfs @ 12.08 hrs, Volume= 1.528 af, Depth> 3.12"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-Year Rainfall=5.50"

Area (sf)	CN	Description
71,631	39	>75% Grass cover, Good, HSG A
7,309	49	50-75% Grass cover, Fair, HSG A
177,038	98	Paved parking, HSG A
255,978	80	Weighted Average
78,940		30.84% Pervious Area
177,038		69.16% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Summary for Subcatchment S8: Retail Core South Roof

[49] Hint: Tc<2dt may require smaller dt

Runoff = 27.53 cfs @ 12.07 hrs, Volume= 2.125 af, Depth> 5.02"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-Year Rainfall=5.50"

Area (sf)	CN	Description
221,180	98	Roofs, HSG A
221,180		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Summary for Subcatchment S9: Retail Core North Roof

[49] Hint: Tc<2dt may require smaller dt

Runoff = 23.80 cfs @ 12.07 hrs, Volume= 1.838 af, Depth> 5.02"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-Year Rainfall=5.50"

Area (sf)	CN	Description
191,272	98	Roofs, HSG A
191,272		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Summary for Reach 1R: 54"

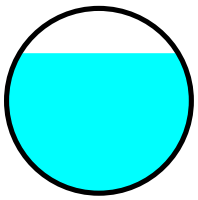
[52] Hint: Inlet/Outlet conditions not evaluated

Inflow Area = 55.238 ac, 86.45% Impervious, Inflow Depth > 1.28" for 25-Year event
Inflow = 99.60 cfs @ 12.10 hrs, Volume= 5.882 af
Outflow = 96.95 cfs @ 12.12 hrs, Volume= 5.877 af, Atten= 3%, Lag= 0.9 min

Routing by Stor-Ind method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs / 2
Max. Velocity= 7.48 fps, Min. Travel Time= 1.1 min
Avg. Velocity = 2.24 fps, Avg. Travel Time= 3.6 min

Peak Storage= 6,219 cf @ 12.12 hrs
Average Depth at Peak Storage= 3.41'
Bank-Full Depth= 4.50' Flow Area= 15.9 sf, Capacity= 104.99 cfs

54.0" Round Pipe
n= 0.014
Length= 481.0' Slope= 0.0033 '/'
Inlet Invert= 40.09', Outlet Invert= 38.50'



Summary for Reach 53R:

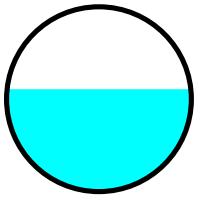
[52] Hint: Inlet/Outlet conditions not evaluated

Inflow = 49.82 cfs @ 12.54 hrs, Volume= 6.866 af
Outflow = 49.81 cfs @ 12.55 hrs, Volume= 6.863 af, Atten= 0%, Lag= 0.5 min

Routing by Stor-Ind method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Max. Velocity= 6.97 fps, Min. Travel Time= 0.6 min
Avg. Velocity = 3.71 fps, Avg. Travel Time= 1.1 min

Peak Storage= 1,778 cf @ 12.55 hrs
Average Depth at Peak Storage= 2.22'
Bank-Full Depth= 4.00' Flow Area= 12.6 sf, Capacity= 84.10 cfs

48.0" Round Pipe
n= 0.014
Length= 249.0' Slope= 0.0040 '/'
Inlet Invert= 42.90', Outlet Invert= 41.91'



Summary for Reach 54R:

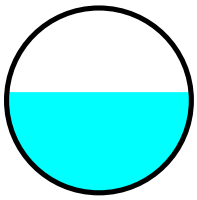
[52] Hint: Inlet/Outlet conditions not evaluated
[62] Hint: Exceeded Reach 53R OUTLET depth by 0.01' @ 11.15 hrs

Inflow Area = 1.651 ac, 66.24% Impervious, Inflow Depth > 52.80" for 25-Year event
Inflow = 50.92 cfs @ 12.53 hrs, Volume= 7.267 af
Outflow = 50.88 cfs @ 12.55 hrs, Volume= 7.259 af, Atten= 0%, Lag= 1.4 min

Routing by Stor-Ind method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Max. Velocity= 7.28 fps, Min. Travel Time= 1.7 min
Avg. Velocity = 3.13 fps, Avg. Travel Time= 4.0 min

Peak Storage= 5,184 cf @ 12.55 hrs
Average Depth at Peak Storage= 2.18'
Bank-Full Depth= 4.00' Flow Area= 12.6 sf, Capacity= 88.41 cfs

48.0" Round Pipe
n= 0.014
Length= 742.0' Slope= 0.0044 '/'
Inlet Invert= 41.76', Outlet Invert= 38.50'



Summary for Reach L113: 72"

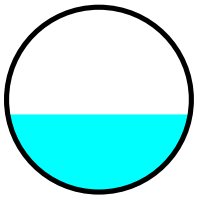
[52] Hint: Inlet/Outlet conditions not evaluated
[79] Warning: Submerged Pond 42.1P Primary device # 1 INLET by 2.51'

Inflow Area = 90.787 ac, 73.09% Impervious, Inflow Depth > 2.63" for 25-Year event
Inflow = 182.74 cfs @ 12.19 hrs, Volume= 19.906 af
Outflow = 182.29 cfs @ 12.19 hrs, Volume= 19.906 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs / 2
Max. Velocity= 16.24 fps, Min. Travel Time= 0.1 min
Avg. Velocity = 5.41 fps, Avg. Travel Time= 0.3 min

Peak Storage= 1,077 cf @ 12.19 hrs
Average Depth at Peak Storage= 2.51'
Bank-Full Depth= 6.00' Flow Area= 28.3 sf, Capacity= 498.08 cfs

72.0" Round Pipe
n= 0.014
Length= 96.0' Slope= 0.0160 '/'
Inlet Invert= 36.11', Outlet Invert= 34.57'



Summary for Reach L123:

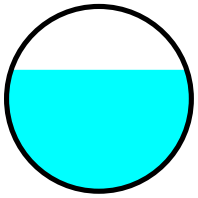
[52] Hint: Inlet/Outlet conditions not evaluated
[62] Hint: Exceeded Reach L158 OUTLET depth by 0.83' @ 12.15 hrs

Inflow Area = 17.083 ac, 64.60% Impervious, Inflow Depth > 3.15" for 25-Year event
Inflow = 53.98 cfs @ 12.09 hrs, Volume= 4.489 af
Outflow = 51.91 cfs @ 12.12 hrs, Volume= 4.481 af, Atten= 4%, Lag= 1.5 min

Routing by Stor-Ind method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Max. Velocity= 5.92 fps, Min. Travel Time= 2.0 min
Avg. Velocity = 2.09 fps, Avg. Travel Time= 5.6 min

Peak Storage= 6,123 cf @ 12.12 hrs
Average Depth at Peak Storage= 2.63'
Bank-Full Depth= 4.00' Flow Area= 12.6 sf, Capacity= 67.64 cfs

48.0" Round Pipe
n= 0.014
Length= 700.0' Slope= 0.0026 '/'
Inlet Invert= 40.60', Outlet Invert= 38.80'



Summary for Reach L157:

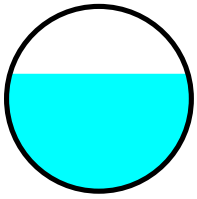
[52] Hint: Inlet/Outlet conditions not evaluated
[62] Hint: Exceeded Reach L76 OUTLET depth by 1.12' @ 12.10 hrs

Inflow Area = 8.457 ac, 69.53% Impervious, Inflow Depth > 3.24" for 25-Year event
Inflow = 33.88 cfs @ 12.09 hrs, Volume= 2.282 af
Outflow = 33.20 cfs @ 12.09 hrs, Volume= 2.281 af, Atten= 2%, Lag= 0.4 min

Routing by Stor-Ind method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs / 2
Max. Velocity= 3.94 fps, Min. Travel Time= 0.6 min
Avg. Velocity = 1.40 fps, Avg. Travel Time= 1.6 min

Peak Storage= 1,161 cf @ 12.09 hrs
Average Depth at Peak Storage= 2.54'
Bank-Full Depth= 4.00' Flow Area= 12.6 sf, Capacity= 45.42 cfs

48.0" Round Pipe
n= 0.014
Length= 138.0' Slope= 0.0012 '/'
Inlet Invert= 41.86', Outlet Invert= 41.70'



Summary for Reach L158:

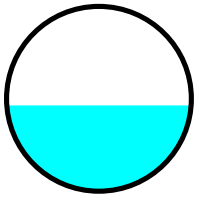
[52] Hint: Inlet/Outlet conditions not evaluated
[61] Hint: Exceeded Reach L157 outlet invert by 1.75' @ 12.10 hrs
[63] Warning: Exceeded Reach L159 INLET depth by 1.27' @ 12.10 hrs

Inflow Area = 11.853 ac, 63.58% Impervious, Inflow Depth > 3.00" for 25-Year event
Inflow = 37.36 cfs @ 12.09 hrs, Volume= 2.965 af
Outflow = 36.60 cfs @ 12.10 hrs, Volume= 2.963 af, Atten= 2%, Lag= 0.4 min

Routing by Stor-Ind method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs / 2
Max. Velocity= 6.44 fps, Min. Travel Time= 0.7 min
Avg. Velocity = 2.33 fps, Avg. Travel Time= 1.8 min

Peak Storage= 1,444 cf @ 12.10 hrs
Average Depth at Peak Storage= 1.85'
Bank-Full Depth= 4.00' Flow Area= 12.6 sf, Capacity= 83.69 cfs

48.0" Round Pipe
n= 0.014
Length= 254.0' Slope= 0.0039 '/'
Inlet Invert= 41.60', Outlet Invert= 40.60'



Summary for Reach L159:

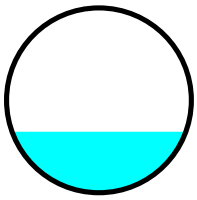
[52] Hint: Inlet/Outlet conditions not evaluated

Inflow Area = 2.316 ac, 45.60% Impervious, Inflow Depth > 2.26" for 25-Year event
Inflow = 2.62 cfs @ 12.85 hrs, Volume= 0.437 af
Outflow = 2.62 cfs @ 12.85 hrs, Volume= 0.437 af, Atten= 0%, Lag= 0.3 min

Routing by Stor-Ind method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Max. Velocity= 2.92 fps, Min. Travel Time= 0.4 min
Avg. Velocity = 1.54 fps, Avg. Travel Time= 0.8 min

Peak Storage= 63 cf @ 12.85 hrs
Average Depth at Peak Storage= 0.66'
Bank-Full Depth= 2.00' Flow Area= 3.1 sf, Capacity= 11.23 cfs

24.0" Round Pipe
n= 0.014
Length= 70.0' Slope= 0.0029 '/'
Inlet Invert= 41.90', Outlet Invert= 41.70'



Summary for Reach L69: 60"

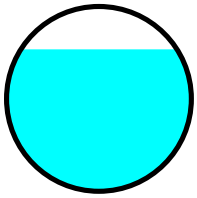
[52] Hint: Inlet/Outlet conditions not evaluated
[62] Hint: Exceeded Reach 1R OUTLET depth by 1.15' @ 12.75 hrs
[62] Hint: Exceeded Reach 54R OUTLET depth by 2.30' @ 12.10 hrs

Inflow Area = 63.673 ac, 83.53% Impervious, Inflow Depth > 2.74" for 25-Year event
Inflow = 143.90 cfs @ 12.12 hrs, Volume= 14.553 af
Outflow = 142.38 cfs @ 12.12 hrs, Volume= 14.552 af, Atten= 1%, Lag= 0.2 min

Routing by Stor-Ind method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs / 2
Max. Velocity= 8.77 fps, Min. Travel Time= 0.2 min
Avg. Velocity = 3.08 fps, Avg. Travel Time= 0.7 min

Peak Storage= 2,056 cf @ 12.12 hrs
Average Depth at Peak Storage= 3.84'
Bank-Full Depth= 5.00' Flow Area= 19.6 sf, Capacity= 151.74 cfs

60.0" Round Pipe
n= 0.014
Length= 127.0' Slope= 0.0039 '/'
Inlet Invert= 38.50', Outlet Invert= 38.00'



Summary for Reach L76:

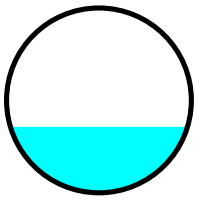
[52] Hint: Inlet/Outlet conditions not evaluated

Inflow Area = 5.787 ac, 70.50% Impervious, Inflow Depth > 3.21" for 25-Year event
Inflow = 23.04 cfs @ 12.08 hrs, Volume= 1.547 af
Outflow = 23.02 cfs @ 12.09 hrs, Volume= 1.545 af, Atten= 0%, Lag= 1.0 min

Routing by Stor-Ind method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Max. Velocity= 5.74 fps, Min. Travel Time= 1.0 min
Avg. Velocity = 1.94 fps, Avg. Travel Time= 3.0 min

Peak Storage= 1,422 cf @ 12.09 hrs
Average Depth at Peak Storage= 1.42'
Bank-Full Depth= 4.00' Flow Area= 12.6 sf, Capacity= 84.95 cfs

48.0" Round Pipe
n= 0.014
Length= 355.0' Slope= 0.0041 '/'
Inlet Invert= 43.30', Outlet Invert= 41.86'



Summary for Reach L81:

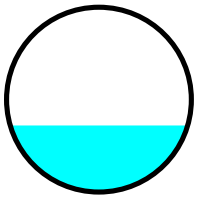
[52] Hint: Inlet/Outlet conditions not evaluated
[61] Hint: Exceeded Reach L123 outlet invert by 1.79' @ 12.10 hrs

Inflow Area = 18.523 ac, 65.30% Impervious, Inflow Depth > 3.18" for 25-Year event
Inflow = 57.75 cfs @ 12.11 hrs, Volume= 4.914 af
Outflow = 57.26 cfs @ 12.11 hrs, Volume= 4.913 af, Atten= 1%, Lag= 0.1 min

Routing by Stor-Ind method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs / 2
Max. Velocity= 9.00 fps, Min. Travel Time= 0.2 min
Avg. Velocity = 3.01 fps, Avg. Travel Time= 0.7 min

Peak Storage= 768 cf @ 12.11 hrs
Average Depth at Peak Storage= 1.80'
Bank-Full Depth= 5.00' Flow Area= 19.6 sf, Capacity= 207.41 cfs

60.0" Round Pipe
n= 0.014
Length= 121.0' Slope= 0.0074 '/'
Inlet Invert= 38.80', Outlet Invert= 37.91'



Summary for Reach P2: 78"

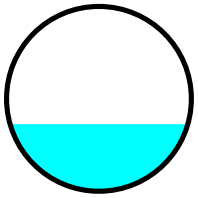
[52] Hint: Inlet/Outlet conditions not evaluated
[61] Hint: Exceeded Reach L113 outlet invert by 2.35' @ 12.20 hrs

Inflow Area = 90.787 ac, 73.09% Impervious, Inflow Depth > 2.63" for 25-Year event
Inflow = 182.29 cfs @ 12.19 hrs, Volume= 19.906 af
Outflow = 182.25 cfs @ 12.19 hrs, Volume= 19.908 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs / 2
Max. Velocity= 16.86 fps, Min. Travel Time= 0.0 min
Avg. Velocity = 5.58 fps, Avg. Travel Time= 0.1 min

Peak Storage= 270 cf @ 12.19 hrs
Average Depth at Peak Storage= 2.35'
Bank-Full Depth= 6.50' Flow Area= 33.2 sf, Capacity= 653.15 cfs

78.0" Round Pipe
n= 0.014
Length= 25.0' Slope= 0.0180 '/'
Inlet Invert= 34.57', Outlet Invert= 34.12'



Summary for Reach POA 2: POA 2

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 90.787 ac, 73.09% Impervious, Inflow Depth > 2.63" for 25-Year event
Inflow = 182.25 cfs @ 12.19 hrs, Volume= 19.908 af
Outflow = 182.25 cfs @ 12.19 hrs, Volume= 19.908 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs

Summary for Pond 10P:

Inflow Area = 25.123 ac, 88.69% Impervious, Inflow Depth > 4.28" for 25-Year event
Inflow = 124.53 cfs @ 12.07 hrs, Volume= 8.969 af
Outflow = 30.38 cfs @ 12.45 hrs, Volume= 8.963 af, Atten= 76%, Lag= 22.7 min
Discarded = 28.60 cfs @ 12.45 hrs, Volume= 8.906 af
Primary = 1.78 cfs @ 12.45 hrs, Volume= 0.058 af

Routing by Stor-Ind method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 50.23' @ 12.45 hrs Surf.Area= 60,958 sf Storage= 92,282 cf

Plug-Flow detention time= 18.5 min calculated for 8.963 af (100% of inflow)
Center-of-Mass det. time= 18.2 min (764.2 - 746.0)

Volume	Invert	Avail.Storage	Storage Description
#1	47.00'	105,027 cf	**Custom Stage Data (Prismatic)**Listed below Inside #2
#2	47.00'	284,093 cf	**Custom Stage Data (Prismatic)**Listed below (Recalc)
			815,261 cf Overall - 105,027 cf Embedded = 710,234 cf x 40.0% Voids
		389,120 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
47.00	8,079	0	0
48.00	8,079	8,079	8,079
49.00	8,079	8,079	16,158
50.00	8,079	8,079	24,237
51.00	8,079	8,079	32,316
52.00	8,079	8,079	40,395
53.00	8,079	8,079	48,474
53.67	8,079	5,413	53,887
60.00	8,079	51,140	105,027

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
47.00	57,735	0	0
48.00	58,728	58,232	58,232
49.00	59,725	59,227	117,458
50.00	60,728	60,227	177,685
51.00	61,734	61,231	238,916
52.00	62,745	62,240	301,155
53.00	63,761	63,253	364,408
53.67	64,440	42,947	407,355
60.00	64,440	407,905	815,261

Device	Routing	Invert	Outlet Devices
#1	Discarded	47.00'	**19.000 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 0.00'
#2	Primary	49.50'	**12.0" Vert. Orifice/Grate** C= 0.600

Discarded OutFlow Max=28.60 cfs @ 12.45 hrs HW=50.23' (Free Discharge)
↑**1=Exfiltration** (Controls 28.60 cfs)

Primary OutFlow Max=1.78 cfs @ 12.45 hrs HW=50.23' (Free Discharge)
↑**2=Orifice/Grate** (Orifice Controls 1.78 cfs @ 2.91 fps)

Summary for Pond 11P:

Inflow Area = 15.832 ac, 96.35% Impervious, Inflow Depth > 4.81" for 25-Year event
Inflow = 83.97 cfs @ 12.07 hrs, Volume= 6.346 af
Outflow = 55.17 cfs @ 12.16 hrs, Volume= 6.342 af, Atten= 34%, Lag= 5.7 min
Discarded = 9.09 cfs @ 12.16 hrs, Volume= 4.588 af
Primary = 46.08 cfs @ 12.16 hrs, Volume= 1.754 af

Routing by Stor-Ind method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 53.18' @ 12.16 hrs Surf.Area= 19,158 sf Storage= 47,275 cf

Plug-Flow detention time= 14.8 min calculated for 6.342 af (100% of inflow)
Center-of-Mass det. time= 14.5 min (740.7 - 726.2)

Volume	Invert	Avail.Storage	Storage Description
#1	47.60'	28,656 cf	**Custom Stage Data (Prismatic)**Listed below Inside #2
#2	47.60'	82,866 cf	**Custom Stage Data (Prismatic)**Listed below (Recalc) 235,821 cf Overall - 28,656 cf Embedded = 207,164 cf x 40.0% Voids
		111,522 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
47.60	2,311	0	0
48.00	2,311	924	924
49.00	2,311	2,311	3,235
50.00	2,311	2,311	5,546
51.00	2,311	2,311	7,857
52.00	2,311	2,311	10,168
53.00	2,311	2,311	12,479
54.00	2,311	2,311	14,790
55.00	2,311	2,311	17,101
55.25	2,311	578	17,679
60.00	2,311	10,977	28,656

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
47.60	16,274	0	0
48.00	16,476	6,550	6,550
49.00	16,984	16,730	23,280
50.00	17,496	17,240	40,520
51.00	18,013	17,755	58,274
52.00	18,535	18,274	76,548
53.00	19,061	18,798	95,346
54.00	19,592	19,327	114,673
55.00	20,127	19,860	134,532
55.25	20,261	5,049	139,581
60.00	20,261	96,240	235,821

Device	Routing	Invert	Outlet Devices
#1	Discarded	47.60'	**18.500 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 0.00'
#2	Primary	49.85'	**36.0" Vert. Orifice/Grate** C= 0.600

Discarded OutFlow Max=9.07 cfs @ 12.16 hrs HW=53.14' (Free Discharge)
1=Exfiltration (Controls 9.07 cfs)

Primary OutFlow Max=45.55 cfs @ 12.16 hrs HW=53.14' (Free Discharge)
2=Orifice/Grate (Orifice Controls 45.55 cfs @ 6.44 fps)

Summary for Pond 42.1P:

[63] Warning: Exceeded Reach L69 INLET depth by 0.07' @ 12.20 hrs
[63] Warning: Exceeded Reach L81 INLET depth by 1.74' @ 12.20 hrs

Inflow Area = 90.787 ac, 73.09% Impervious, Inflow Depth > 2.63" for 25-Year event
Inflow = 201.30 cfs @ 12.12 hrs, Volume= 19.907 af
Outflow = 182.74 cfs @ 12.19 hrs, Volume= 19.906 af, Atten= 9%, Lag= 3.9 min
Primary = 182.74 cfs @ 12.19 hrs, Volume= 19.906 af

Routing by Stor-Ind method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs

Peak Elev= 42.10' @ 12.19 hrs Surf.Area= 11,367 sf Storage= 21,809 cf

Plug-Flow detention time= 0.9 min calculated for 19.857 af (100% of inflow)
Center-of-Mass det. time= 0.9 min (790.5 - 789.7)

Volume	Invert	Avail.Storage	Storage Description
#1	36.10'	83,475 cf	**Custom Stage Data (Prismatic)**Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
36.10	0	0	0
36.56	36	8	8
37.02	71	25	33
37.52	628	175	208
38.02	1,185	453	661
38.52	1,515	675	1,336
39.02	1,845	840	2,176
39.52	2,750	1,149	3,325
40.02	3,654	1,601	4,926
40.52	6,082	2,434	7,360
41.02	8,510	3,648	11,008
41.52	9,847	4,589	15,597
42.02	11,185	5,258	20,855
42.52	12,262	5,862	26,717
43.02	13,340	6,401	33,117
43.52	14,672	7,003	40,120
44.02	16,005	7,669	47,789
44.52	17,355	8,340	56,129
45.02	18,705	9,015	65,144
46.00	18,705	18,331	83,475

Device	Routing	Invert	Outlet Devices
#1	Primary	36.11'	**72.0" Round Culvert** L= 1.0' Ke= 0.500 Inlet / Outlet Invert= 36.11' / 36.10' S= 0.0100 '/' Cc= 0.900 n= 0.014, Flow Area= 28.27 sf

Primary OutFlow Max=181.65 cfs @ 12.19 hrs HW=42.08' (Free Discharge)
1=Culvert (Barrel Controls 181.65 cfs @ 8.03 fps)

Summary for Pond 47.1P:

Inflow Area = 1.852 ac, 34.80% Impervious, Inflow Depth > 1.31" for 25-Year event
Inflow = 2.31 cfs @ 12.18 hrs, Volume= 0.202 af
Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 100%, Lag= 0.0 min
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 42.67' @ 20.00 hrs Surf.Area= 15,751 sf Storage= 8,794 cf

Plug-Flow detention time= (not calculated: initial storage excedes outflow)
Center-of-Mass det. time= (not calculated: no outflow)

Volume	Invert	Avail.Storage	Storage Description
#1	42.00'	243,835 cf	**Custom Stage Data (Prismatic)**Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
42.00	10,588	0	0
43.00	18,319	14,454	14,454
44.00	25,630	21,975	36,428
45.00	30,580	28,105	64,533
46.00	36,447	33,514	98,047
50.00	36,447	145,788	243,835

Device	Routing	Invert	Outlet Devices
#1	Primary	47.00'	**165.0' long x 6.0' 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 4.00 4.50 5.00 5.50 Coef. (English) 2.37 2.51 2.70 2.68 2.68 2.67 2.65 2.65 2.65 2.65 2.66 2.66 2.67 2.69 2.72 2.76 2.83

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=42.00' (Free Discharge)
1=Broad-Crested Rectangular Weir (Controls 0.00 cfs)

Summary for Pond 47.4P:

Inflow Area = 0.164 ac,100.00% Impervious, Inflow Depth > 5.02" for 25-Year event
Inflow = 0.89 cfs @ 12.07 hrs, Volume= 0.069 af
Outflow = 0.20 cfs @ 12.47 hrs, Volume= 0.066 af, Atten= 78%, Lag= 24.2 min
Discarded = 0.10 cfs @ 12.47 hrs, Volume= 0.065 af
Primary = 0.09 cfs @ 12.47 hrs, Volume= 0.002 af

Routing by Stor-Ind method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 49.27' @ 12.47 hrs Surf.Area= 1,555 sf Storage= 1,200 cf

Plug-Flow detention time= 115.5 min calculated for 0.066 af (96% of inflow)
Center-of-Mass det. time= 100.5 min (818.9 - 718.4)

Volume	Invert	Avail.Storage	Storage Description
#1	48.00'	2,612 cf	**Custom Stage Data (Prismatic)**Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
48.00	366	0	0
49.00	1,265	816	816
50.00	2,328	1,797	2,612

Device	Routing	Invert	Outlet Devices
#1	Discarded	48.00'	**2.750 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 0.00'
#2	Primary	49.25'	**24.0" x 24.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads

Discarded OutFlow Max=0.10 cfs @ 12.47 hrs HW=49.27' (Free Discharge)
└**1=Exfiltration** (Controls 0.10 cfs)

Primary OutFlow Max=0.08 cfs @ 12.47 hrs HW=49.27' (Free Discharge)
└**2=Orifice/Grate** (Weir Controls 0.08 cfs @ 0.48 fps)

Summary for Link 52.1L: Secondary Flow from 52.1P

Inflow	=	49.82 cfs @	12.54 hrs, Volume=	6.866 af
Primary	=	49.82 cfs @	12.54 hrs, Volume=	6.866 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs

25-Year Secondary Outflow Imported from 3659-12003C-Proposed Conditions POA 3-01~Pond 52.1P.hce

Time span=0.00-20.00 hrs, dt=0.05 hrs, 401 points
Runoff by SCS TR-20 method, UH=SCS
Reach routing by Stor-Ind method - Pond routing by Stor-Ind method

Subcatchment 14.3: Runoff Area=54,863 sf 71.82% Impervious Runoff Depth>4.21"
Tc=5.0 min CN=81 Runoff=6.58 cfs 0.442 af

Subcatchment 47.3: Runoff Area=28,100 sf 62.47% Impervious Runoff Depth>3.69"
Tc=5.0 min CN=76 Runoff=2.98 cfs 0.198 af

Subcatchment 47.4S: Runoff Area=7,150 sf 100.00% Impervious Runoff Depth>6.12"
Tc=5.0 min CN=98 Runoff=1.08 cfs 0.084 af

Subcatchment S10.1: Retail Core South Runoff Area=558,326 sf 95.19% Impervious Runoff Depth>5.77"
Tc=5.0 min CN=95 Runoff=82.72 cfs 6.162 af

Subcatchment S10.2: South Site Drive Runoff Area=19,231 sf 68.59% Impervious Runoff Depth>4.00"
Tc=5.0 min CN=79 Runoff=2.19 cfs 0.147 af

Subcatchment S11.1: Retail Core North Runoff Area=280,057 sf 93.60% Impervious Runoff Depth>5.65"
Tc=5.0 min CN=94 Runoff=41.15 cfs 3.029 af

Subcatchment S11.2: North Site Drive Runoff Area=180,673 sf 79.73% Impervious Runoff Depth>4.75"
Tc=5.0 min CN=86 Runoff=23.88 cfs 1.642 af

Subcatchment S13: Runoff Area=194,045 sf 68.31% Impervious Runoff Depth>4.00"
Tc=5.0 min CN=79 Runoff=22.14 cfs 1.486 af

Subcatchment S14.1: Runoff Area=93,612 sf 70.71% Impervious Runoff Depth>4.21"
Tc=5.0 min CN=81 Runoff=11.24 cfs 0.754 af

Subcatchment S14.2: Runoff Area=92,580 sf 66.26% Impervious Runoff Depth>3.90"
Tc=5.0 min CN=78 Runoff=10.32 cfs 0.690 af

Subcatchment S35: Runoff Area=58,042 sf 77.81% Impervious Runoff Depth>4.86"
Tc=5.0 min CN=87 Runoff=7.80 cfs 0.540 af

Subcatchment S40: Runoff Area=2.670 ac 67.42% Impervious Runoff Depth>4.32"
Tc=5.0 min CN=82 Runoff=14.25 cfs 0.961 af

Subcatchment S40.1: Runoff Area=100,887 sf 45.60% Impervious Runoff Depth>3.13"
Flow Length=712' Tc=60.6 min CN=71 Runoff=3.63 cfs 0.603 af

Subcatchment S40.2: Runoff Area=3.200 ac 100.00% Impervious Runoff Depth>6.12"
Tc=5.0 min CN=98 Runoff=21.01 cfs 1.632 af

Subcatchment S41: Runoff Area=1.080 ac 55.56% Impervious Runoff Depth>3.69"
Tc=5.0 min CN=76 Runoff=4.99 cfs 0.332 af

Subcatchment S41.1: Runoff Area=2.030 ac 14.78% Impervious Runoff Depth>1.72"
Flow Length=245' Tc=18.1 min CN=55 Runoff=2.89 cfs 0.291 af

Subcatchment S42: Runoff Area=1.440 ac 73.61% Impervious Runoff Depth>4.64"
Tc=5.0 min CN=85 Runoff=8.15 cfs 0.557 af

Subcatchment S42.1: Runoff Area=78,222 sf 25.16% Impervious Runoff Depth>1.81"
Flow Length=362' Tc=11.1 min CN=56 Runoff=3.26 cfs 0.271 af

Subcatchment S44: Runoff Area=61,875 sf 92.36% Impervious Runoff Depth>5.65"
Tc=5.0 min CN=94 Runoff=9.09 cfs 0.669 af

Subcatchment S47.1: Runoff Area=80,663 sf 34.80% Impervious Runoff Depth>1.98"
Flow Length=271' Tc=11.5 min CN=58 Runoff=3.69 cfs 0.305 af

Subcatchment S47.2: Runoff Area=43,697 sf 73.55% Impervious Runoff Depth>4.32"
Tc=5.0 min CN=82 Runoff=5.36 cfs 0.361 af

Subcatchment S49: Runoff Area=3.120 ac 76.60% Impervious Runoff Depth>4.86"
Tc=5.0 min CN=87 Runoff=18.26 cfs 1.264 af

Subcatchment S50: Runoff Area=296,002 sf 9.22% Impervious Runoff Depth>0.87"
Flow Length=873' Tc=21.9 min CN=44 Runoff=3.60 cfs 0.493 af

Subcatchment S55: Runoff Area=163,904 sf 84.64% Impervious Runoff Depth>5.20"
Tc=5.0 min CN=90 Runoff=23.02 cfs 1.629 af

Subcatchment S56.2: Runoff Area=86,678 sf 44.74% Impervious Runoff Depth>3.79"
Tc=5.0 min CN=77 Runoff=9.43 cfs 0.629 af

Subcatchment S57: Runoff Area=32,640 sf 76.04% Impervious Runoff Depth>4.75"
Tc=5.0 min CN=86 Runoff=4.31 cfs 0.297 af

Subcatchment S58: Runoff Area=71,936 sf 66.24% Impervious Runoff Depth>3.90"
Tc=5.0 min CN=78 Runoff=8.02 cfs 0.536 af

Subcatchment S61: Office Roof Runoff Area=113,278 sf 100.00% Impervious Runoff Depth>6.12"
Tc=5.0 min CN=98 Runoff=17.07 cfs 1.326 af

Subcatchment S7: Retail Core Loading Runoff Area=255,978 sf 69.16% Impervious Runoff Depth>4.11"
Tc=5.0 min CN=80 Runoff=30.06 cfs 2.011 af

Subcatchment S8: Retail Core South Runoff Area=221,180 sf 100.00% Impervious Runoff Depth>6.12"
Tc=5.0 min CN=98 Runoff=33.33 cfs 2.590 af

Subcatchment S9: Retail Core North Runoff Area=191,272 sf 100.00% Impervious Runoff Depth>6.12"
Tc=5.0 min CN=98 Runoff=28.82 cfs 2.240 af

Reach 1R: 54" Avg. Flow Depth=4.50' Max Vel=7.52 fps Inflow=126.60 cfs 8.070 af
54.0" Round Pipe n=0.014 L=481.0' S=0.0033 '/' Capacity=104.99 cfs Outflow=112.57 cfs 8.093 af

Reach 53R: Avg. Flow Depth=2.68' Max Vel=7.41 fps Inflow=66.24 cfs 11.051 af
48.0" Round Pipe n=0.014 L=249.0' S=0.0040 '/' Capacity=84.10 cfs Outflow=66.24 cfs 11.047 af

Reach 54R: Avg. Flow Depth=2.61' Max Vel=7.74 fps Inflow=67.32 cfs 11.584 af
48.0" Round Pipe n=0.014 L=742.0' S=0.0044 '/' Capacity=88.41 cfs Outflow=67.28 cfs 11.572 af

Reach L113: 72" Avg. Flow Depth=2.75' Max Vel=16.96 fps Inflow=214.88 cfs 28.643 af
72.0" Round Pipe n=0.014 L=96.0' S=0.0160 '/' Capacity=498.08 cfs Outflow=214.48 cfs 28.642 af

Reach L123: Avg. Flow Depth=3.21' Max Vel=6.13 fps Inflow=69.34 cfs 5.839 af
48.0" Round Pipe n=0.014 L=700.0' S=0.0026 '/' Capacity=67.64 cfs Outflow=66.44 cfs 5.829 af

Reach L157: Avg. Flow Depth=3.10' Max Vel=4.11 fps Inflow=43.88 cfs 2.985 af
48.0" Round Pipe n=0.014 L=138.0' S=0.0012 '/' Capacity=45.42 cfs Outflow=42.99 cfs 2.983 af

Reach L158: Avg. Flow Depth=2.16' Max Vel=6.88 fps Inflow=48.64 cfs 3.918 af
48.0" Round Pipe n=0.014 L=254.0' S=0.0039 '/' Capacity=83.69 cfs Outflow=47.69 cfs 3.916 af

Reach L159: Avg. Flow Depth=0.78' Max Vel=3.19 fps Inflow=3.63 cfs 0.603 af
24.0" Round Pipe n=0.014 L=70.0' S=0.0029 '/' Capacity=11.23 cfs Outflow=3.63 cfs 0.603 af

Reach L69: 60" Avg. Flow Depth=5.00' Max Vel=8.78 fps Inflow=184.86 cfs 21.499 af
60.0" Round Pipe n=0.014 L=127.0' S=0.0039 '/' Capacity=151.74 cfs Outflow=161.50 cfs 21.496 af

Reach L76: Avg. Flow Depth=1.64' Max Vel=6.16 fps Inflow=30.07 cfs 2.026 af
48.0" Round Pipe n=0.014 L=355.0' S=0.0041 '/' Capacity=84.95 cfs Outflow=29.87 cfs 2.024 af

Reach L81: Avg. Flow Depth=2.05' Max Vel=9.63 fps Inflow=73.82 cfs 6.386 af
60.0" Round Pipe n=0.014 L=121.0' S=0.0074 '/' Capacity=207.41 cfs Outflow=73.25 cfs 6.385 af

Reach P2: 78" Avg. Flow Depth=2.56' Max Vel=17.63 fps Inflow=214.48 cfs 28.642 af
78.0" Round Pipe n=0.014 L=25.0' S=0.0180 '/' Capacity=653.15 cfs Outflow=214.43 cfs 28.644 af

Reach POA 2: POA 2 Inflow=214.43 cfs 28.644 af
Outflow=214.43 cfs 28.644 af

Pond 10P: Peak Elev=51.40' Storage=126,843 cf Inflow=153.91 cfs 11.202 af
Discarded=29.79 cfs 10.887 af Primary=4.48 cfs 0.308 af Outflow=34.27 cfs 11.195 af

Pond 11P: Peak Elev=54.13' Storage=55,912 cf Inflow=102.25 cfs 7.786 af
Discarded=9.47 cfs 5.291 af Primary=56.73 cfs 2.490 af Outflow=66.19 cfs 7.781 af

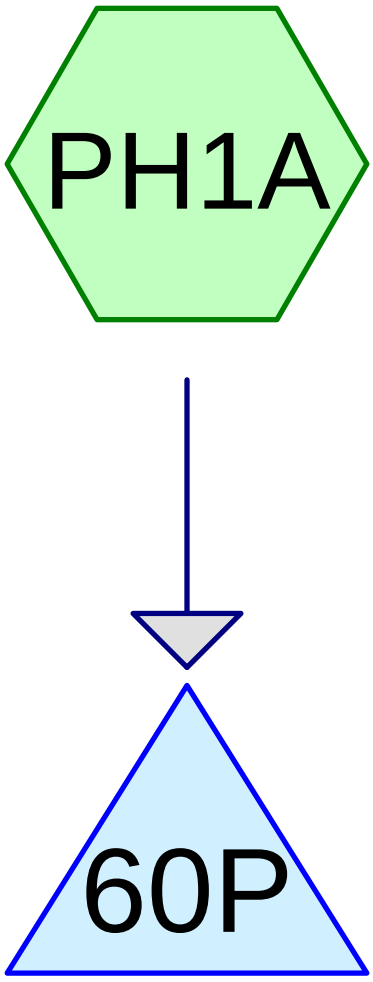
Pond 42.1P: Peak Elev=42.81' Storage=30,357 cf Inflow=227.99 cfs 28.644 af
72.0" Round Culvert n=0.014 L=1.0' S=0.0100 '/' Outflow=214.88 cfs 28.643 af

Pond 47.1P: Peak Elev=42.94' Storage=13,289 cf Inflow=3.69 cfs 0.305 af
Outflow=0.00 cfs 0.000 af

Pond 47.4P: Peak Elev=49.31' Storage=1,257 cf Inflow=1.08 cfs 0.084 af
Discarded=0.10 cfs 0.070 af Primary=0.38 cfs 0.010 af Outflow=0.48 cfs 0.080 af

Secondary Outflow **Link** Imported from 3659-12003C-Proposed Conditions POA 3-01~Pond 52.1P.hce Inflow=66.24 cfs 11.051 af
Primary=66.24 cfs 11.051 af

Total Runoff Area = 90.787 ac Runoff Volume = 34.174 af Average Runoff Depth = 4.52"
26.91% Pervious = 24.430 ac 73.09% Impervious = 66.357 ac



Subcat Reach Pond Link

Routing Diagram for 3659-12003C-Proposed Conditions PH1A Stormtech

Prepared by {enter your company name here}, Printed 11/7/2013

Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
0.182	39	>75% Grass cover, Good, HSG A (PH1A)
0.670	98	Paved parking, HSG A (PH1A)
0.779	98	Roofs, HSG A (PH1A)
1.630	**91**	**TOTAL AREA**

Time span=5.00-20.00 hrs, dt=0.05 hrs, 301 points
Runoff by SCS TR-20 method, UH=SCS
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment PH1A: Runoff Area=71,005 sf 88.85% Impervious Runoff Depth>1.09"
Tc=5.0 min CN=91 Runoff=2.22 cfs 0.148 af

Pond 60P: Peak Elev=48.13' Storage=3,000 cf Inflow=2.22 cfs 0.148 af
Discarded=0.15 cfs 0.121 af Primary=0.00 cfs 0.000 af Outflow=0.15 cfs 0.121 af

Total Runoff Area = 1.630 ac Runoff Volume = 0.148 af Average Runoff Depth = 1.09"
11.15% Pervious = 0.182 ac 88.85% Impervious = 1.448 ac

Summary for Subcatchment PH1A:

[49] Hint: Tc<2dt may require smaller dt

Runoff = 2.22 cfs @ 12.08 hrs, Volume= 0.148 af, Depth> 1.09"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 2" Rainfall=2.00"

Area (sf)	CN	Description
7,915	39	>75% Grass cover, Good, HSG A
29,164	98	Paved parking, HSG A
33,926	98	Roofs, HSG A
71,005	91	Weighted Average
7,915		11.15% Pervious Area
63,090		88.85% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Summary for Pond 60P:

Inflow Area = 1.630 ac, 88.85% Impervious, Inflow Depth > 1.09" for 2" event
Inflow = 2.22 cfs @ 12.08 hrs, Volume= 0.148 af
Outflow = 0.15 cfs @ 13.76 hrs, Volume= 0.121 af, Atten= 93%, Lag= 101.0 min
Discarded = 0.15 cfs @ 13.76 hrs, Volume= 0.121 af
Primary = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 48.13' @ 13.76 hrs Surf.Area= 2,164 sf Storage= 3,000 cf

Plug-Flow detention time= 176.3 min calculated for 0.121 af (82% of inflow)
Center-of-Mass det. time= 126.1 min (911.9 - 785.8)

Volume	Invert	Avail.Storage	Storage Description
#1A	47.00'	1,853 cf	**34.75'W x 59.40'L x 3.50'H Field A**-Impervious 7,224 cf Overall - 2,592 cf Embedded = 4,632 cf x 40.0% Voids
#2A	47.50'	2,592 cf	**StormTech SC-740** x 56 Inside #1 Effective Size= 44.6"W x 30.0"H => 6.45 sf x 7.12'L = 45.9 cf Overall Size= 51.0"W x 30.0"H x 7.56'L with 0.44' Overlap Row Length Adjustment= +0.44' x 6.45 sf x 7 rows
#3B	47.00'	2,007 cf	**129.75'W x 16.68'L x 3.50'H Field B** 7,575 cf Overall - 2,557 cf Embedded = 5,017 cf x 40.0% Voids
#4B	47.50'	2,557 cf	**StormTech SC-740** x 54 Inside #3 Effective Size= 44.6"W x 30.0"H => 6.45 sf x 7.12'L = 45.9 cf Overall Size= 51.0"W x 30.0"H x 7.56'L with 0.44' Overlap Row Length Adjustment= +0.44' x 6.45 sf x 27 rows
		9,010 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Storage Group B created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Discarded	47.00'	**3.000 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 0.00'
#2	Primary	44.75'	**30.0" Round Culvert** L= 120.0' Ke= 0.500 Inlet / Outlet Invert= 44.75' / 43.55' S= 0.0100 '/' Cc= 0.900 n= 0.014, Flow Area= 4.91 sf
#3	Device 2	48.15'	**6.0' long Sharp-Crested Rectangular Weir** 2 End Contraction(s)

Discarded OutFlow Max=0.15 cfs @ 13.76 hrs HW=48.13' (Free Discharge)
└**1=Exfiltration** (Controls 0.15 cfs)

Primary OutFlow Max=0.00 cfs @ 5.00 hrs HW=47.00' (Free Discharge)
└**2=Culvert** (Passes 0.00 cfs of 23.54 cfs potential flow)
└**3=Sharp-Crested Rectangular Weir** (Controls 0.00 cfs)

Time span=5.00-20.00 hrs, dt=0.05 hrs, 301 points
Runoff by SCS TR-20 method, UH=SCS
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment PH1A: Runoff Area=71,005 sf 88.85% Impervious Runoff Depth>2.13"
Tc=5.0 min CN=91 Runoff=4.27 cfs 0.289 af

Pond 60P: Peak Elev=48.39' Storage=3,854 cf Inflow=4.27 cfs 0.289 af
Discarded=0.15 cfs 0.141 af Primary=2.28 cfs 0.100 af Outflow=2.44 cfs 0.240 af

Total Runoff Area = 1.630 ac Runoff Volume = 0.289 af Average Runoff Depth = 2.13"
11.15% Pervious = 0.182 ac 88.85% Impervious = 1.448 ac

Summary for Subcatchment PH1A:

[49] Hint: Tc<2dt may require smaller dt

Runoff = 4.27 cfs @ 12.07 hrs, Volume= 0.289 af, Depth> 2.13"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-Year Rainfall=3.20"

Area (sf)	CN	Description
7,915	39	>75% Grass cover, Good, HSG A
29,164	98	Paved parking, HSG A
33,926	98	Roofs, HSG A
71,005	91	Weighted Average
7,915		11.15% Pervious Area
63,090		88.85% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Summary for Pond 60P:

Inflow Area = 1.630 ac, 88.85% Impervious, Inflow Depth > 2.13" for 2-Year event
Inflow = 4.27 cfs @ 12.07 hrs, Volume= 0.289 af
Outflow = 2.44 cfs @ 12.20 hrs, Volume= 0.240 af, Atten= 43%, Lag= 7.8 min
Discarded = 0.15 cfs @ 12.20 hrs, Volume= 0.141 af
Primary = 2.28 cfs @ 12.20 hrs, Volume= 0.100 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 48.39' @ 12.20 hrs Surf.Area= 2,164 sf Storage= 3,854 cf

Plug-Flow detention time= 100.3 min calculated for 0.240 af (83% of inflow)
Center-of-Mass det. time= 52.6 min (822.6 - 770.0)

Volume	Invert	Avail.Storage	Storage Description
#1A	47.00'	1,853 cf	**34.75'W x 59.40'L x 3.50'H Field A**-Impervious 7,224 cf Overall - 2,592 cf Embedded = 4,632 cf x 40.0% Voids
#2A	47.50'	2,592 cf	**StormTech SC-740** x 56 Inside #1 Effective Size= 44.6"W x 30.0"H => 6.45 sf x 7.12'L = 45.9 cf Overall Size= 51.0"W x 30.0"H x 7.56'L with 0.44' Overlap Row Length Adjustment= +0.44' x 6.45 sf x 7 rows
#3B	47.00'	2,007 cf	**129.75'W x 16.68'L x 3.50'H Field B** 7,575 cf Overall - 2,557 cf Embedded = 5,017 cf x 40.0% Voids
#4B	47.50'	2,557 cf	**StormTech SC-740** x 54 Inside #3 Effective Size= 44.6"W x 30.0"H => 6.45 sf x 7.12'L = 45.9 cf Overall Size= 51.0"W x 30.0"H x 7.56'L with 0.44' Overlap Row Length Adjustment= +0.44' x 6.45 sf x 27 rows
		9,010 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Storage Group B created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Discarded	47.00'	**3.000 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 0.00'
#2	Primary	44.75'	**30.0" Round Culvert** L= 120.0' Ke= 0.500 Inlet / Outlet Invert= 44.75' / 43.55' S= 0.0100 '/' Cc= 0.900 n= 0.014, Flow Area= 4.91 sf
#3	Device 2	48.15'	**6.0' long Sharp-Crested Rectangular Weir** 2 End Contraction(s)

Discarded OutFlow Max=0.15 cfs @ 12.20 hrs HW=48.39' (Free Discharge)
└**1=Exfiltration** (Controls 0.15 cfs)

Primary OutFlow Max=2.26 cfs @ 12.20 hrs HW=48.39' (Free Discharge)
└**2=Culvert** (Passes 2.26 cfs of 36.07 cfs potential flow)
└**3=Sharp-Crested Rectangular Weir** (Weir Controls 2.26 cfs @ 1.60 fps)

Time span=5.00-20.00 hrs, dt=0.05 hrs, 301 points
Runoff by SCS TR-20 method, UH=SCS
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment PH1A: Runoff Area=71,005 sf 88.85% Impervious Runoff Depth>3.40"
Tc=5.0 min CN=91 Runoff=6.65 cfs 0.462 af

Pond 60P: Peak Elev=48.59' Storage=4,513 cf Inflow=6.65 cfs 0.462 af
Discarded=0.16 cfs 0.158 af Primary=5.73 cfs 0.242 af Outflow=5.88 cfs 0.400 af

Total Runoff Area = 1.630 ac Runoff Volume = 0.462 af Average Runoff Depth = 3.40"
11.15% Pervious = 0.182 ac 88.85% Impervious = 1.448 ac

Summary for Subcatchment PH1A:

[49] Hint: Tc<2dt may require smaller dt

Runoff = 6.65 cfs @ 12.07 hrs, Volume= 0.462 af, Depth> 3.40"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Year Rainfall=4.60"

Area (sf)	CN	Description
7,915	39	>75% Grass cover, Good, HSG A
29,164	98	Paved parking, HSG A
33,926	98	Roofs, HSG A
71,005	91	Weighted Average
7,915		11.15% Pervious Area
63,090		88.85% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Summary for Pond 60P:

[82] Warning: Early inflow requires earlier time span

Inflow Area = 1.630 ac, 88.85% Impervious, Inflow Depth > 3.40" for 10-Year event
Inflow = 6.65 cfs @ 12.07 hrs, Volume= 0.462 af
Outflow = 5.88 cfs @ 12.12 hrs, Volume= 0.400 af, Atten= 12%, Lag= 2.8 min
Discarded = 0.16 cfs @ 12.12 hrs, Volume= 0.158 af
Primary = 5.73 cfs @ 12.12 hrs, Volume= 0.242 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 48.59' @ 12.12 hrs Surf.Area= 2,164 sf Storage= 4,513 cf

Plug-Flow detention time= 68.6 min calculated for 0.400 af (87% of inflow)
Center-of-Mass det. time= 27.6 min (786.7 - 759.1)

Volume	Invert	Avail.Storage	Storage Description
#1A	47.00'	1,853 cf	**34.75'W x 59.40'L x 3.50'H Field A**-Impervious 7,224 cf Overall - 2,592 cf Embedded = 4,632 cf x 40.0% Voids
#2A	47.50'	2,592 cf	**StormTech SC-740** x 56 Inside #1 Effective Size= 44.6"W x 30.0"H => 6.45 sf x 7.12'L = 45.9 cf Overall Size= 51.0"W x 30.0"H x 7.56'L with 0.44' Overlap Row Length Adjustment= +0.44' x 6.45 sf x 7 rows
#3B	47.00'	2,007 cf	**129.75'W x 16.68'L x 3.50'H Field B** 7,575 cf Overall - 2,557 cf Embedded = 5,017 cf x 40.0% Voids
#4B	47.50'	2,557 cf	**StormTech SC-740** x 54 Inside #3 Effective Size= 44.6"W x 30.0"H => 6.45 sf x 7.12'L = 45.9 cf Overall Size= 51.0"W x 30.0"H x 7.56'L with 0.44' Overlap Row Length Adjustment= +0.44' x 6.45 sf x 27 rows
		9,010 cf	Total Available Storage

Storage Group A created with Chamber Wizard
Storage Group B created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Discarded	47.00'	**3.000 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 0.00'
#2	Primary	44.75'	**30.0" Round Culvert** L= 120.0' Ke= 0.500 Inlet / Outlet Invert= 44.75' / 43.55' S= 0.0100 '/' Cc= 0.900 n= 0.014, Flow Area= 4.91 sf
#3	Device 2	48.15'	**6.0' long Sharp-Crested Rectangular Weir** 2 End Contraction(s)

Discarded OutFlow Max=0.16 cfs @ 12.12 hrs HW=48.59' (Free Discharge)
↑—**1=Exfiltration** (Controls 0.16 cfs)

Primary OutFlow Max=5.55 cfs @ 12.12 hrs HW=48.59' (Free Discharge)
↑—**2=Culvert** (Passes 5.55 cfs of 37.56 cfs potential flow)
↑—**3=Sharp-Crested Rectangular Weir** (Weir Controls 5.55 cfs @ 2.16 fps)

Time span=5.00-20.00 hrs, dt=0.05 hrs, 301 points
Runoff by SCS TR-20 method, UH=SCS
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment PH1A: Runoff Area=71,005 sf 88.85% Impervious Runoff Depth>4.22"
Tc=5.0 min CN=91 Runoff=8.17 cfs 0.574 af

Pond 60P: Peak Elev=48.67' Storage=4,751 cf Inflow=8.17 cfs 0.574 af
Discarded=0.16 cfs 0.166 af Primary=7.24 cfs 0.342 af Outflow=7.39 cfs 0.507 af

Total Runoff Area = 1.630 ac Runoff Volume = 0.574 af Average Runoff Depth = 4.22"
11.15% Pervious = 0.182 ac 88.85% Impervious = 1.448 ac

Summary for Subcatchment PH1A:

[49] Hint: Tc<2dt may require smaller dt

Runoff = 8.17 cfs @ 12.07 hrs, Volume= 0.574 af, Depth> 4.22"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-Year Rainfall=5.50"

Area (sf)	CN	Description
7,915	39	>75% Grass cover, Good, HSG A
29,164	98	Paved parking, HSG A
33,926	98	Roofs, HSG A
71,005	91	Weighted Average
7,915		11.15% Pervious Area
63,090		88.85% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Summary for Pond 60P:

[82] Warning: Early inflow requires earlier time span

Inflow Area = 1.630 ac, 88.85% Impervious, Inflow Depth > 4.22" for 25-Year event
Inflow = 8.17 cfs @ 12.07 hrs, Volume= 0.574 af
Outflow = 7.39 cfs @ 12.11 hrs, Volume= 0.507 af, Atten= 10%, Lag= 2.5 min
Discarded = 0.16 cfs @ 12.11 hrs, Volume= 0.166 af
Primary = 7.24 cfs @ 12.11 hrs, Volume= 0.342 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 48.67' @ 12.11 hrs Surf.Area= 2,164 sf Storage= 4,751 cf

Plug-Flow detention time= 58.8 min calculated for 0.506 af (88% of inflow)
Center-of-Mass det. time= 22.2 min (776.8 - 754.6)

Volume	Invert	Avail.Storage	Storage Description
#1A	47.00'	1,853 cf	**34.75'W x 59.40'L x 3.50'H Field A**-Impervious 7,224 cf Overall - 2,592 cf Embedded = 4,632 cf x 40.0% Voids
#2A	47.50'	2,592 cf	**StormTech SC-740** x 56 Inside #1 Effective Size= 44.6"W x 30.0"H => 6.45 sf x 7.12'L = 45.9 cf Overall Size= 51.0"W x 30.0"H x 7.56'L with 0.44' Overlap Row Length Adjustment= +0.44' x 6.45 sf x 7 rows
#3B	47.00'	2,007 cf	**129.75'W x 16.68'L x 3.50'H Field B** 7,575 cf Overall - 2,557 cf Embedded = 5,017 cf x 40.0% Voids
#4B	47.50'	2,557 cf	**StormTech SC-740** x 54 Inside #3 Effective Size= 44.6"W x 30.0"H => 6.45 sf x 7.12'L = 45.9 cf Overall Size= 51.0"W x 30.0"H x 7.56'L with 0.44' Overlap Row Length Adjustment= +0.44' x 6.45 sf x 27 rows
		9,010 cf	Total Available Storage

Storage Group A created with Chamber Wizard
Storage Group B created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Discarded	47.00'	**3.000 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 0.00'
#2	Primary	44.75'	**30.0" Round Culvert** L= 120.0' Ke= 0.500 Inlet / Outlet Invert= 44.75' / 43.55' S= 0.0100 '/' Cc= 0.900 n= 0.014, Flow Area= 4.91 sf
#3	Device 2	48.15'	**6.0' long Sharp-Crested Rectangular Weir** 2 End Contraction(s)

Discarded OutFlow Max=0.16 cfs @ 12.11 hrs HW=48.66' (Free Discharge)
↑—**1=Exfiltration** (Controls 0.16 cfs)

Primary OutFlow Max=7.06 cfs @ 12.11 hrs HW=48.66' (Free Discharge)
↑—**2=Culvert** (Passes 7.06 cfs of 38.12 cfs potential flow)
↑—**3=Sharp-Crested Rectangular Weir** (Weir Controls 7.06 cfs @ 2.34 fps)

Time span=5.00-20.00 hrs, dt=0.05 hrs, 301 points
Runoff by SCS TR-20 method, UH=SCS
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment PH1A: Runoff Area=71,005 sf 88.85% Impervious Runoff Depth>5.28"
Tc=5.0 min CN=91 Runoff=10.10 cfs 0.718 af

Pond 60P: Peak Elev=48.76' Storage=5,021 cf Inflow=10.10 cfs 0.718 af
Discarded=0.16 cfs 0.174 af Primary=9.10 cfs 0.474 af Outflow=9.25 cfs 0.648 af

Total Runoff Area = 1.630 ac Runoff Volume = 0.718 af Average Runoff Depth = 5.28"
11.15% Pervious = 0.182 ac 88.85% Impervious = 1.448 ac

Summary for Subcatchment PH1A:

[49] Hint: Tc<2dt may require smaller dt

Runoff = 10.10 cfs @ 12.07 hrs, Volume= 0.718 af, Depth> 5.28"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-Year Rainfall=6.65"

Area (sf)	CN	Description
7,915	39	>75% Grass cover, Good, HSG A
29,164	98	Paved parking, HSG A
33,926	98	Roofs, HSG A
71,005	91	Weighted Average
7,915		11.15% Pervious Area
63,090		88.85% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Summary for Pond 60P:

[82] Warning: Early inflow requires earlier time span

Inflow Area = 1.630 ac, 88.85% Impervious, Inflow Depth > 5.28" for 100-Year event
Inflow = 10.10 cfs @ 12.07 hrs, Volume= 0.718 af
Outflow = 9.25 cfs @ 12.11 hrs, Volume= 0.648 af, Atten= 8%, Lag= 2.3 min
Discarded = 0.16 cfs @ 12.11 hrs, Volume= 0.174 af
Primary = 9.10 cfs @ 12.11 hrs, Volume= 0.474 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 48.76' @ 12.11 hrs Surf.Area= 2,164 sf Storage= 5,021 cf

Plug-Flow detention time= 52.6 min calculated for 0.648 af (90% of inflow)
Center-of-Mass det. time= 19.4 min (769.9 - 750.4)

Volume	Invert	Avail.Storage	Storage Description
#1A	47.00'	1,853 cf	**34.75'W x 59.40'L x 3.50'H Field A**-Impervious 7,224 cf Overall - 2,592 cf Embedded = 4,632 cf x 40.0% Voids
#2A	47.50'	2,592 cf	**StormTech SC-740** x 56 Inside #1 Effective Size= 44.6"W x 30.0"H => 6.45 sf x 7.12'L = 45.9 cf Overall Size= 51.0"W x 30.0"H x 7.56'L with 0.44' Overlap Row Length Adjustment= +0.44' x 6.45 sf x 7 rows
#3B	47.00'	2,007 cf	**129.75'W x 16.68'L x 3.50'H Field B** 7,575 cf Overall - 2,557 cf Embedded = 5,017 cf x 40.0% Voids
#4B	47.50'	2,557 cf	**StormTech SC-740** x 54 Inside #3 Effective Size= 44.6"W x 30.0"H => 6.45 sf x 7.12'L = 45.9 cf Overall Size= 51.0"W x 30.0"H x 7.56'L with 0.44' Overlap Row Length Adjustment= +0.44' x 6.45 sf x 27 rows
		9,010 cf	Total Available Storage

Storage Group A created with Chamber Wizard
Storage Group B created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Discarded	47.00'	**3.000 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 0.00'
#2	Primary	44.75'	**30.0" Round Culvert** L= 120.0' Ke= 0.500 Inlet / Outlet Invert= 44.75' / 43.55' S= 0.0100 '/' Cc= 0.900 n= 0.014, Flow Area= 4.91 sf
#3	Device 2	48.15'	**6.0' long Sharp-Crested Rectangular Weir** 2 End Contraction(s)

Discarded OutFlow Max=0.16 cfs @ 12.11 hrs HW=48.75' (Free Discharge)
↑—**1=Exfiltration** (Controls 0.16 cfs)

Primary OutFlow Max=8.90 cfs @ 12.11 hrs HW=48.75' (Free Discharge)
↑—**2=Culvert** (Passes 8.90 cfs of 38.75 cfs potential flow)
↑—**3=Sharp-Crested Rectangular Weir** (Weir Controls 8.90 cfs @ 2.53 fps)

Calc. By: AFT Date: 7-Nov-13
Chk. By: Date:

University Station
Westwood, MA

Groundwater Recharge Calculations

Required Recharge Volume[1]

Rv = F x impervious area

Where: Rv = required recharge volume (acre-feet)
F = target depth factor associated with each hydrologic soil group (inches)
Impervious Area = pavement, gravel and rooftop area on site (acres)

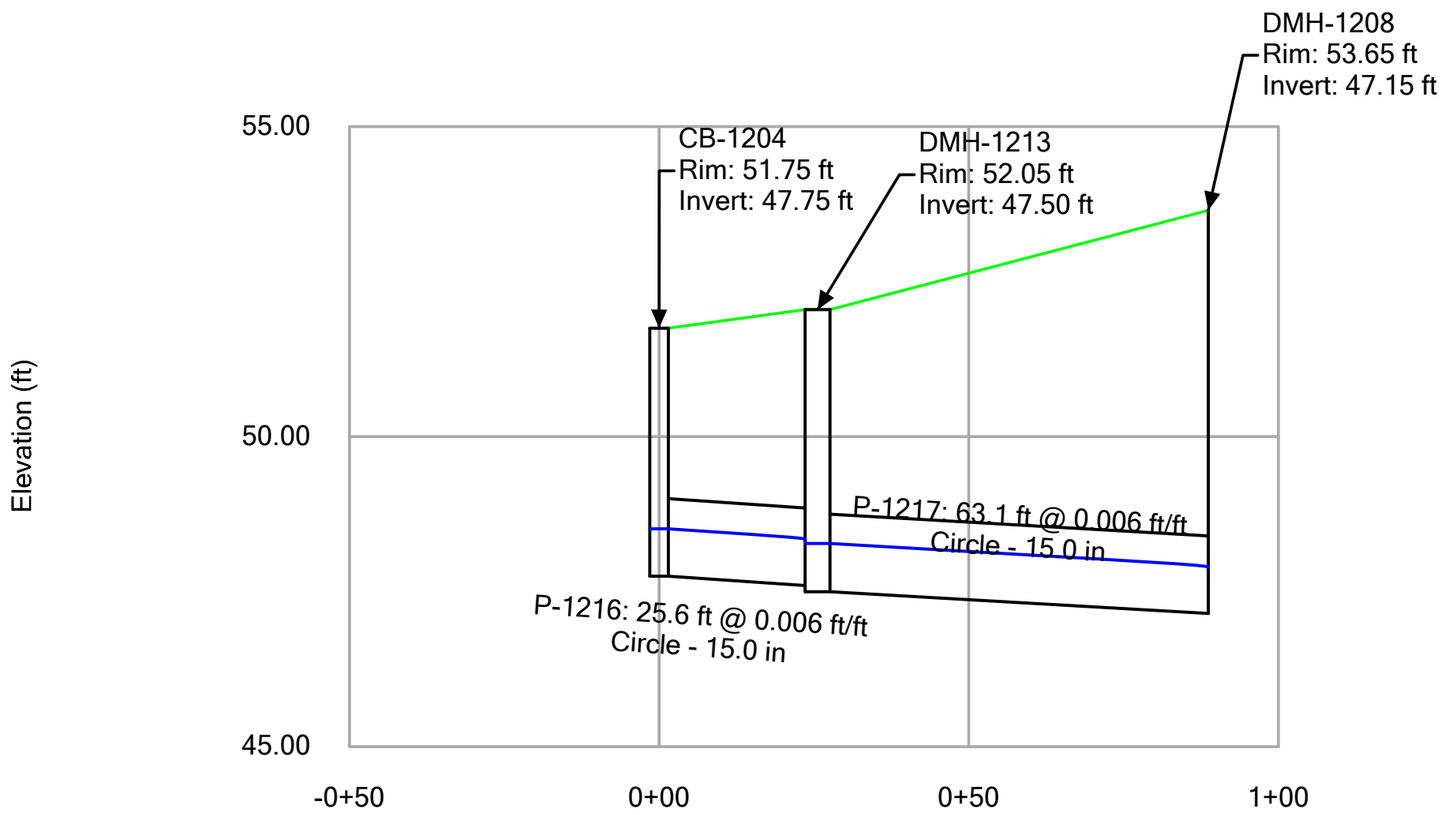
NRCS Hydrologic Soil Type	Approx. Soil Texture	Target Depth Factor (inches)	Impervious Area (acre)	Impervious Area Being Infiltrated (acre)	Infiltration Adjustment Factor	Rv (acre-feet)	Rv (cf)
A	sand	0.60	86.60	59.40	1.46	6.313	274,984
B	loam	0.35	0.00			0.000	0
C	silty loam	0.25	0.00			0.000	0
D	clay	0.10	0.00			0.000	0
			Total =			**6.313**	**274,984**

Provided Recharge Volume[2]

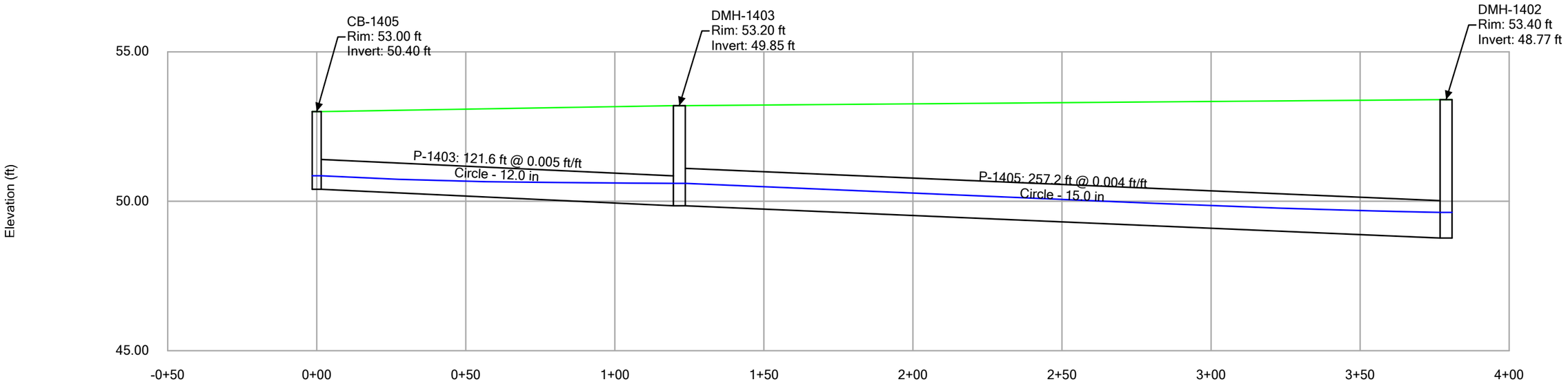
Subsurface Infiltration Basin	Dynamic Recharge Volume (acre-feet)	Dynamic Recharge Volume (cf)
10P	2.373	103,368
11P	1.932	84,158
27P	0.742	32,322
47.4P	0.022	958
59.1P	0.649	28,270
59.2P	0.269	11,718
60P	0.351	15,290
Total =	**6.338**	**276,083**

Notes:
1.) Refer to Massachusetts Stormwater Handbook Volume 3, Chapter 1, page 15 dated February 2008.
2.) Provided recharge volume is based on the Simple Dynamic Method, refer to Massachusetts Stormwater Handbook Volume 3, Chapter 1, page 19 dated February 2008.

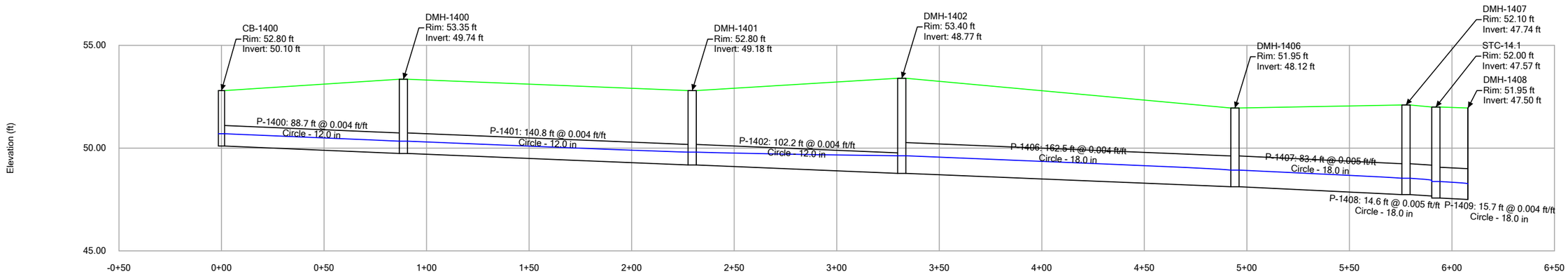
Profile Report
Engineering Profile - 1200-Series (East) (3659-12003-StormCAD-PH1A.stsw)



Profile Report
Engineering Profile - 1400-Series (East) (3659-12003-StormCAD-PH1A.stsw)



Profile Report
Engineering Profile - 1400-Series (West) (3659-12003-StormCAD-PH1A.stsw)



FlexTable: Catch Basin Table

Label	Elevation (Ground) (ft)	Elevation (Rim) (ft)	Elevation (Invert) (ft)	Inlet Drainage Area (acres)	Inlet C	Local Flow Time (min)	System CA (acres)	Diameter (in)
CB-1204	51.75	51.75	47.75	0.577	0.980	5.000	0.565	36.0
CB-1400	52.80	52.80	50.10	0.324	0.778	5.000	0.252	36.0
CB-1405	53.00	53.00	50.40	0.178	0.945	5.000	0.168	36.0
CB-1406	53.00	53.00	49.90	0.533	0.914	5.000	0.487	36.0

FlexTable: Conduit Table

Label	Start Node	Invert (Upstream) (ft)	Invert (Downstream) (ft)	Stop Node	Manning's n	Diameter (in)	Length (Scaled) (ft)	Slope (Calculated) (ft/ft)	Flow (cfs)	Capacity (Full Flow) (cfs)	Upstream Inlet Area (acres)	System Drainage Area (ft²)	System CA (acres)	Elevation Ground (Start) (ft)	Hydraulic Grade Line (In) (ft)	Elevation Ground (Stop) (ft)	Hydraulic Grade Line (Out) (ft)	Cover (Start) (ft)	Cover (Stop) (ft)	Velocity (ft/s)
P-1400	CB-1400	50.10	49.74	DMH-1400	0.013	12.0	88.7	0.004	1.53	2.27	0.324	14,129.9	0.252	52.80	50.70	53.35	50.34	1.70	2.61	3.10
P-1401	DMH-1400	49.74	49.18	DMH-1401	0.013	12.0	140.8	0.004	1.50	2.25	(N/A)	14,129.9	0.252	53.35	50.34	52.80	49.90	2.61	2.62	3.06
P-1402	DMH-1401	49.18	48.77	DMH-1402	0.013	12.0	102.2	0.004	1.47	2.26	(N/A)	14,129.9	0.252	52.80	49.90	53.40	49.77	2.62	3.63	3.06
P-1406	DMH-1402	48.77	48.12	DMH-1406	0.013	18.0	162.5	0.004	5.17	6.64	(N/A)	45,088.5	0.907	53.40	49.77	51.95	49.06	3.13	2.33	4.16
P-1407	DMH-1406	48.12	47.74	DMH-1407	0.013	18.0	83.4	0.005	5.06	7.09	(N/A)	45,088.5	0.907	51.95	49.06	52.10	48.65	2.33	2.86	4.36
P-1408	DMH-1407	47.74	47.67	STC-14.1	0.013	18.0	14.6	0.005	5.01	7.28	(N/A)	45,088.5	0.907	52.10	48.65	52.00	48.53	2.86	2.83	4.44
P-1409	STC-14.1	47.57	47.50	DMH-1408	0.013	18.0	15.7	0.004	5.00	7.02	(N/A)	45,088.5	0.907	52.00	48.49	51.95	48.36	2.93	2.95	4.31
P-1403	CB-1405	50.40	49.85	DMH-1403	0.013	12.0	121.6	0.005	1.02	2.40	0.178	7,741.6	0.168	53.00	50.90	53.20	50.80	1.60	2.35	2.93
P-1404	CB-1406	49.90	49.85	DMH-1403	0.013	15.0	10.0	0.005	2.95	4.57	0.533	23,217.0	0.487	53.00	50.81	53.20	50.80	1.85	2.10	3.95
P-1405	DMH-1403	49.85	48.77	DMH-1402	0.013	15.0	257.2	0.004	3.87	4.19	(N/A)	30,958.6	0.655	53.20	50.80	53.40	49.77	2.10	3.38	3.87
P-1216	CB-1204	47.75	47.60	DMH-1213	0.013	15.0	25.6	0.006	3.42	4.95	0.577	25,135.0	0.565	51.75	48.51	52.05	48.35	2.75	3.20	4.35
P-1217	DMH-1213	47.50	47.15	DMH-1208	0.013	15.0	63.1	0.006	3.41	4.81	(N/A)	25,135.0	0.565	52.05	48.28	53.65	47.89	3.30	5.25	4.25

FlexTable: Manhole Table

Label	Diameter (in)	Elevation (Rim) (ft)	Elevation (Ground) (ft)	Elevation (Invert) (ft)	Hydraulic Grade Line (In) (ft)	Hydraulic Grade Line (Out) (ft)	Elevation (Invert in 1) (ft)	Elevation (Invert in 2) (ft)	Elevation (Invert in 3) (ft)	Elevation (Invert in 4) (ft)
DMH-1213	48.0	52.05	52.05	47.50	48.28	48.28	47.60	(N/A)	(N/A)	(N/A)
DMH-1400	48.0	53.35	53.35	49.74	50.34	50.34	49.74	(N/A)	(N/A)	(N/A)
DMH-1401	48.0	52.80	52.80	49.18	49.90	49.90	49.18	(N/A)	(N/A)	(N/A)
DMH-1402	48.0	53.40	53.40	48.77	49.77	49.77	48.77	48.77	(N/A)	(N/A)
DMH-1403	48.0	53.20	53.20	49.85	50.80	50.80	49.85	49.85	(N/A)	(N/A)
DMH-1406	48.0	51.95	51.95	48.12	49.06	49.06	48.12	(N/A)	(N/A)	(N/A)
DMH-1407	48.0	52.10	52.10	47.74	48.65	48.65	47.74	(N/A)	(N/A)	(N/A)
STC-14.1	48.0	52.00	52.00	47.57	48.49	48.49	47.67	(N/A)	(N/A)	(N/A)

Tab 6:
Project Plans

The following plans are being provided under separate cover:

- Cover Sheet – dated November 8, 2013
- L-101 General Layout Map – dated November 8, 2013
- V-101 Existing Conditions Plan – dated November 8, 2013
- L-102 Site Development Plans – Demolition and Erosion Control– dated November 8, 2013
- L-201 Site Development Plans – Site Layout Plan – dated November 8, 2013
- L-301 Site Development Plans – Grading Plan – dated November 8, 2013
- L-302 Site Development Plans – Utility Plan – dated November 8, 2013
- L-401 Site Development Plans – Landscaping Plan – dated November 8, 2013
- L-402 Site Development Plans – Courtyard Landscaping Plan– dated November 8, 2013
- L-501 Site Development Plans – Exterior Lighting Plan – dated November 8, 2013
- L-502 Site Development Plans – Photometric Cut Sheets – dated November 8, 2013
- L-601 Site Development Plans – Detail Sheet – dated November 8, 2013
- L-602 Site Development Plans – Detail Sheet – dated November 8, 2013
- L-603 Site Development Plans – Detail Sheet – dated November 8, 2013
- L-604 Site Development Plans – Detail Sheet – dated November 8, 2013
- L-606 Site Development Plans – Detail Sheet – dated November 8, 2013
- L-607 Site Development Plans – Detail Sheet – dated November 8, 2013
- A-201 Conceptual Architectural First Floor Plans – dated November 8, 2013
- A-202 Conceptual Architectural Second Floor Plans – dated November 8, 2013
- A-203 Conceptual Architectural Roof Plans – dated November 8, 2013
- A-301 Conceptual Architectural Elevations – dated November 8, 2013

PDR Submittal Enabling Package

- Cover Sheet – dated November 8, 2013
- C-101 Key Sheet for Site Layout Plans – dated November 8, 2013
- V-101 Existing Conditions Plan – dated November 8, 2013
- C-111 Site Development Plans – Demolition Plan – dated November 8, 2013
- C-121 Site Development Plans — Site Layout Plan dated November 8, 2013
- C-131 Site Development Plans – Grading & Drainage Plan – dated November 8, 2013
- C-141 Site Development Plans – Utility Plan – dated November 8, 2013
- C-501 Site Development Plans – Detail Sheet – dated November 8, 2013
- C-502 Site Development Plans – Detail Sheet – dated November 8, 2013
- C-503 Site Development Plans – Detail Sheet – dated November 8, 2013

- L-106 Site Development Plans – The Meadow Overall Landscape Plan – dated November 8, 2013
- L-106.1 Site Development Plans – The Meadow Planting Plan West – dated November 8, 2013
- L-106.2 Site Development Plans – The Meadow Planting Plan East – dated November 8, 2013
- L-106.3 Site Development Plans – The Meadow Planting Plan West 2 – dated November 8, 2013
- L-400 Site Development Plans – Landscape Details – dated November 8, 2013
- L-401 Site Development Plans – Landscape Details – dated November 8, 2013
- L-402 Site Development Plans – Landscape Details – dated November 8, 2013
- E0.2 Site Development Plans – Photometric Site Plan