

**ENGINEERING DESIGN  
AND  
DRAINAGE REPORT**  
**THE LODGES AT STORRS  
MANSFIELD, CT**

Prepared for:

**Storrs Lodges, CT  
Mansfield, CT  
Applicant**

Prepared by:



**F. A. Hesketh  
& Associates, Inc.**

6 Creamery Brook  
East Granby, CT 06026

860-653-8000

**March 18, 2016**

FAHA Project #04161



**ENGINEERING DESIGN**  
**AND**  
**DRAINAGE REPORT**

**Prepared For**

**STORRS LODGES, LLC**  
**MANSFIELD, CT**

**March 18, 2016**

**A. INTRODUCTION**

The project site consists of a 45.93-acre parcel of land located on the west side of Hunting Lodge Road, as shown on the attached Property Survey, Sheet PS-1. The developer is proposing to develop the property under the zoning requirements for a DMR-Design Multiple Residence. The property is currently zoned RAR-90.

An application will be made to the Town of Mansfield for an Inland Wetlands Permit, Zone Change and Special Use-Site Plan approvals for a proposed multi-family development to consist of 218 residential rental units for UCONN students. Under the current proposed Development Plan, the property will be developed with a mix of 47 two-story apartment buildings and a community center building with outdoor recreation area, as shown on the attached Master Plan, Sheet MA-1.

**B. WATER SUPPLY**

The project will be serviced by extension of the existing UCONN/CT Water public water supply system located in Northwood Road and Hunting Lodge Road through conventional service connections to the property. Fire hydrants will be provided throughout the development at the locations specified by the Mansfield Fire Marshal and water company personnel. All work and materials will conform to utility company standard water service specifications.

**C. SANITARY SEWAGE DISPOSAL**

The project will be serviced by extension of the existing UCONN sanitary sewer system located in Northwood Road through conventional service connections to the property. The applicant is currently reviewing with UCONN utility personnel the scope of public improvements required to the existing sanitary pumping station located to the south near Eagleville Road in order to properly accommodate the additional wastewater generated by the project. Wastewater generated from the Northwood Road residential area is pumped up Eagleville Road via a force main towards the UCONN campus to the

university's wastewater treatment plant for disposal. All work and materials will conform to UCONN sanitary sewer design specifications.

#### **D. ELECTRIC, TELEPHONE and OTHER UTILITY SERVICES**

The site will be serviced by underground connections to the public electrical and communication utility companies using standard service extensions to the existing systems located in Northwood Road and Hunting Lodge Road. All work and materials will conform to the applicable utility company specifications. The applicant is also in discussions with the gas company on the feasibility of providing gas service to the site.

#### **E. ON-SITE STORM DRAINAGE DESIGN**

The storm sewer collection system proposed for the project is comprised for the most part of a conventional catch basin and pipe system connected to underground infiltration systems and bio-retention treatment basins and swales at each of the outlets. The system design is based on a 10-year design storm using the Rational Method. All materials and equipment will follow Town of Mansfield and ConnDOT design specifications for small drainage collection systems.

The design goals for the on-site storm sewer system are as follows:

- Provide a system that has the hydraulic capacity for the 10-year design storm
- Create multiple discharge points around the Project Site to replicate existing runoff patterns to receiving wetlands and watercourses and the on-site vernal pool
- Create a Treatment Train that will provide a minimum of 80% TSS removal
- Provide for the necessary Water Quality Volume (WQV) and Groundwater Recharge Volume (GRV)
- Implement BMP and LID design techniques
- Provide outlet protection to minimize erosion issues and provide final treatment of runoff before discharge downstream

The overall Stormwater Management Plan for the project includes the implementation of Best Management Practices (BMP's) with Low Impact Design (LID) techniques to produce a Treatment Train to treat runoff consistent with the guidelines recommended by CTDEEP, as follows:

- Implementation of a comprehensive routine site cleaning and maintenance program
- Use of permeable paver units in selected overflow parking space areas
- Pre-cast catch basins with 4-foot precast sumps and hooded outlets
- Use of a combination of underground infiltration systems, bio-retention basins and in-line hydrodynamic separator structures prior to outlet discharge for primary treatment, along with the use of permeable pavers, flared end sections, and level spreaders for secondary treatment to meet the design goals of 80% TSS removals, Water Quality Volume (WQV) and Groundwater Recharge Volume (GRV)
- Discharge of roof leaders to multiple splash blocks around the buildings and connection to the underground infiltrator systems to the extent possible to promote infiltration

## **F. MACRO WATERSHED ANALYSIS**

In accordance with Town Engineering Requirements, a comprehensive drainage and watershed analysis was completed. The computer printout for the macro analysis for the proposed Stormwater Management Plan is included in Appendix A. The hydrologic analysis and stormwater routing for the project site was completed using the software package Hydraflow by Intelisove utilizing the 2 thru 100-year storm events.

The purpose of the macro study was to determine the effect of stormwater runoff generated by the development on downstream watersheds and the need to incorporate detention and/or retention facilities in the various on-site sub-watersheds. The roughly 98-acre± Study Area falls partially within the watershed for Eagleville Brook and partially within the watershed for Cedar Swamp Brook. Eagleville Brook has a total watershed of approximately 2.4 sq. miles and Cedar Swamp Brook has a much larger watershed. Both brooks are tributary to the Willimantic River.

The limits of the Study Area under existing and proposed conditions are shown on the attached Watershed Maps (WS-1 and WS-2), Scale 1"=100'. In addition to the Project Site, the Study Area includes portions of neighboring parcels that discharge runoff to the site including a small watercourse tributary to Eagleville Brook that enters the northeasterly portion of the site and flows through the property to the south where it continues to an existing 24" drainage culvert under Eagleville Road to Eagleville Brook.

Eagleville Brook is listed as an impaired watercourse by CTDEEP. Both Eagleville Brook and Cedar Swamp Brook are rated as B/A or B/AA water quality, meaning that

the natural water quality is or may be threatened. Concerns with Eagleville Brook from both water quality and hydrological perspectives are well documented in several published studies, some of which remain ongoing. In addition, neighbors to the south of the project site down to Eagleville Road have expressed concerns with the effects of possible increases in flow caused by the development that could further exacerbate existing localized drainage issues they currently experience on their properties.

In order to assess the potential impacts to the downstream watersheds, the Study Area was divided into several subwatershed areas for both existing and proposed conditions. Each subwatershed area was analyzed separately and then combined to determine peak design flow at Design Points "X", "Y" and "Z". Under Existing Conditions, the Study Area (see Sheet WS-1) was broken up into nine (9) sub-watershed areas (A thru I) comprised of the Project Site (except for the westerly most portion of the property outside the development area), the portion of Carriage House Apartments to the north and residential properties to the east of Hunting Lodge Road that drain to the Project Site, and portions of the residential properties south of the Project Site down to Eagleville Road.

Under Proposed Conditions, the Study Area (see Sheet WS-2) is broken up similar to the Existing Conditions model. The Project Site is further broken up into 24 sub-watersheds that follow the drainage patterns created by the grading and drainage system layout in the proposed development.

Design Point "X" is located at the southerly side of the existing culverts under Eagleville Road. Design Point "Y" is located at the westerly portion of the site and indicates runoff to the Cedar Swamp Watershed. Design Point "Z" is located along the southerly property line of the Project Site at the point where the watercourse intersects the property line.

No credit was taken in the macro model calculations for infiltration or other LID design techniques that are included in the proposed site drainage system design. To be conservative, the drainage model treats all pavement types as impervious. The actual peak rates of runoff generated for all storm events will therefore be actually less than projected in the macro model results.

The goals of the Stormwater Management Plan are as follows:

- Implement treatment systems to meet CTDEEP Water Quality standards

- Match or reduce peak flow rates for all design storm events to the Eagleville Brook Watershed analyzed at Design Points “X” and “Z”
- Minimize any increase in peak flow rates for all design storm events to the Cedar Swamp Watershed to a negligible amount

### **Results and Conclusion**

Initial modeling efforts indicated that substantial detention/retention capacity was needed for the drainage systems discharging to both watersheds in order to meet the goals of the design. Starting with Design Point “Y” the results of the macro hydraulic computer modeling indicate that the peak flow rates from the Project Site for the 2 thru 100-year storm events will be essentially maintained to the Cedar Swamp Brook Watershed. If you factor in the positive effects of the proposed infiltration system, natural storage of the downstream wetland corridor and the large heavily wooded upland along the entire westerly side of the site, peak flow rates, particularly for the more frequent storm events, will be considerably reduced under Proposed Conditions.

At the downstream Design Point “X” at Eagleville Road, there is very little change to peak flow rates and essentially no change to inlet elevations at the town owned culverts under the road. Therefore, there will be no measurable impact to the downstream Eagleville Brook watershed or the existing town drainage system.

At Design Point “Z”, the model indicates there will be a measurable reduction in peak flow rates leaving the property for all storm events. Again, when you factor in effects of the infiltration system and other LID techniques incorporated into the analysis, there will be a considerable reduction in peak flow leaving the site at the southerly property line under Proposed Conditions.

In conclusion, the model results indicate that all goals of the Stormwater Management Plan have been accomplished with the proposed design.

### **Water Quality Volume (WQV), Groundwater Recharge Volume (GRV), Treatment Train Analysis**

The calculations provide a summary of the Water Quality Volume (WQV) calculations completed and indicates that more than sufficient capacity is provided through the combination of volumes in the infiltration systems and bio-retention basins.

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With regards to Groundwater Recharge Volume (GRV), the underlying soil conditions in the development areas on the property fall generally as Group B soils meaning that they are conducive to groundwater infiltration techniques. The calculations provide a summary of the GRV calculations completed and indicate that more than sufficient capacity is provided through the combination of volumes in the infiltration systems.

Treatment Train Efficiency Calculations for the portion of the new drainage system discharging to the basins are attached. The TSS removal rate was determined to exceed the CTDEEP minimum requirement of 80%.

#### **G. DRIVEWAY DESIGN AND WETLAND CROSSINGS**

In order to minimize impervious coverage, proposed driveway widths are limited to 24 feet. On the main driveway from Hunting Lodge Road, the applicant is proposing to use a pre-cast concrete arch bridge with block retaining walls on both sides to minimize the footprint of the embankment and span the wetland corridor, as illustrated on Sheet SDD-1. The proposed site driveway is located over what appears to be the remains of a gravel driveway that once served the property. There is a natural breach in the existing filled embankment that allows the watercourse to pass through. This does create some ponding upstream of the crossing that the project wetlands consultant has recommended not be altered. The proposed crossing design eliminates any disturbance to the existing watercourse and minimizes the need to fill the adjoining wetland areas.

#### **H. SOIL EROSION CONTROL PLAN**

A soil and erosion control plan has been prepared in accordance with town and ConnDEP requirements. Prior to the start of site construction, the limits of clearing will be carefully staked out in the field and reviewed with town staff. Silt fencing will be installed around the entire perimeter of the site. Once the site clearing has been completed, rough grading of the site and installation of site improvements can commence.

The project contract specifications will require the contractor to prepare sub-phasing plans as the work progresses incorporating interim erosion control measures at every step. These plans will be submitted to the project engineer and construction manager for review and concurrence throughout the duration of site construction.

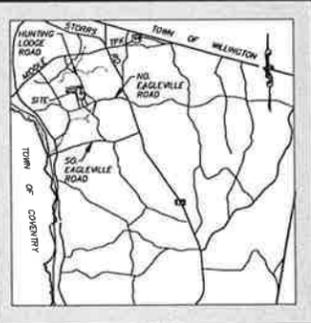
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## **I. FEMA FLOOD ANALYSIS**

According to the current FEMA FIRM for Eagleville Brook, no portion of the property falls within the Zone A (100-year BFE storm) limits.

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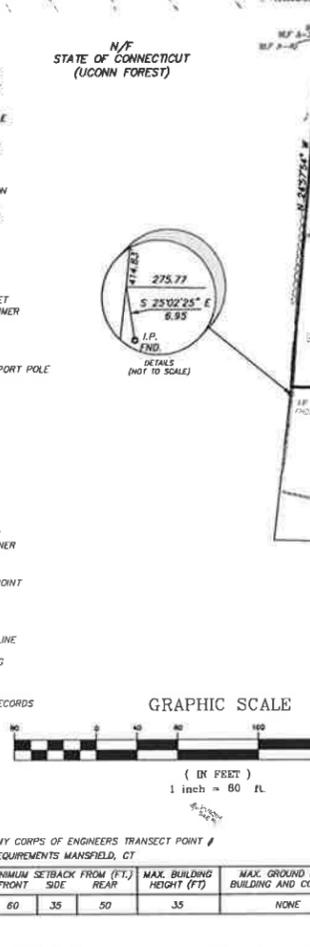
**MAP REFERENCES:**

- PLAN OF LAND B AND E MAGURA CONVEYED TO TOWN OF MANSFIELD AS A TOWN ROAD DATED SEPT 1855 SCALE 1"=40' REVISED NOV 1956 BY EARL R. MOORE, SURVEYOR
- MAP OF SOME LAND OF GEORGE MAGURA JR & EMMA J. MAGURA TOWN OF MANSFIELD, CONNECTICUT SCALE 1"=100' DATED MAY 24, 1969 BY EVERETT O. GARDNER
- PROPOSED LAND CONVEYANCES BETWEEN FRANK ZDR & J. WILLIAM TRANTAM MANSFIELD CONN SCALE 1"=50' DATED OCT 1969 BY ROBERT J. SCHNEIDER
- PART OF LAND OF GEORGE & EMMA MAGURA MANSFIELD CONN SCALE 1"=40' DATED APRIL 7, 83
- PLAN OF MEADOW ROAD STORRS CONN SCALE 1"=80' DATED JUNE 1855
- CORRECTED MAP OF CARRIAGE HOUSE APARTMENTS MANSFIELD, CONNECTICUT SCALE 1"=40' OWNED BY SIMON KONDOR, NORMAN S. SHAWROD AND MARTIN W. PATTON, W. HARTFORD CONNECTICUT DATED AUG. 12, 1968 BY EVERETT O. GARDNER
- FIRM FLOOD INSURANCE RATE MAP, TOWN OF MANSFIELD, CONNECTICUT HARTFORD COUNTY PANEL S OF 30 COMMUNITY PANEL NUMBER 090128 0005 C EFFECTIVE DATE JANUARY 2, 1981.
- EASEMENT MAP, EASEMENT TO BE ACQUIRED BY THE TOWN OF MANSFIELD OVER LAND OF THE RESTON COMPANIES, LLC HUNTING LODGE ROAD, MANSFIELD, CONNECTICUT, SCALE 1"=40' DATE: 08-23-07 SHEET NO. 2 OF 2, TODD S. HESKETH, L.S. 17945
- PROPERTY SURVEY, WETLANDS AMENDMENT MATCH THE PROPERTY OF PONDE PLACE, LLC, HUNTING LODGE ROAD, MANSFIELD CONNECTICUT, SCALE 1"=80', DATED 02-07-05, JOB NO. 04161, SHEET 1 OF 1, BY F.A. HESKETH & ASSOCIATES.

**NOTES:**

- THIS SURVEY HAS BEEN PREPARED PURSUANT TO THE REGULATIONS OF CONNECTICUT STATE AGENCIES SECTIONS 20-300B-1 THROUGH 20-300B-20 AND THE STANDARDS FOR SURVEYS AND MAPS IN THE STATE OF CONNECTICUT AS ADOPTED BY THE CONNECTICUT ASSOCIATION OF LAND SURVEYORS, INC. ON SEPTEMBER 26, 1996.
- IT IS A PROPERTY SURVEY INTENDED TO BE USED FOR SITE PLANNING PURPOSES.
- THIS SURVEY FALLS INTO THE RE-SURVEY BOUNDARY DETERMINATION CATEGORY.
- THIS SURVEY CONFORM TO CLASS A-2 ACCURACY STANDARDS FOR PHOTO CONTROL AND BOUNDARY INFORMATION AND CLASS 1-3 TOPOGRAPHIC ACCURACY STANDARDS FOR PLANIMETRIC & TOPOGRAPHIC FEATURES. PHOTO DATE: JANUARY 28, 2015.
- THE SUBJECT PARCEL IS CURRENTLY OWNED BY PONDE PLACE, LLC, M.L.R. VOL. 753 PG. 405.
- THE SUBJECT PROPERTY IS LOCATED IN THE RAR-90 MULTI FAMILY ZONE IN THE TOWN OF MANSFIELD.
- SEE DIMENSIONAL REQUIREMENTS BELOW.
- THE BEARINGS AND COORDINATES DEPICTED HEREON ARE BASED UPON NAD 83 DATUM. TOPOGRAPHIC INFORMATION DEPICTED HEREON WAS PROVIDED BY EASTERN TOPOGRAPHICS FROM A PHOTO DATED NOVEMBER 24, 2003 AND IS BASED UPON NAD83 DATUM.
- UNDERGROUND FEATURES (IF ANY) HAVE BEEN COMPILED FROM RECORD MAPS AND OTHER SOURCES. THESE LOCATIONS MUST BE CONSIDERED AS APPROXIMATE IN NATURE. ADDITIONALLY, OTHER SUCH FEATURES MAY EXIST ON THE SITE. THE LOCATION AND EXISTENCE OF ALL SUCH FEATURES MUST BE FIELD DETERMINED AND NOTIFIED BY THE APPROPRIATE AUTHORITIES PRIOR TO CONSTRUCTION. CALL BEFORE YOU DIG 1-800-922-4455.
- THE SUBJECT PARCEL IS IN FLOOD ZONE "C"; "AREAS OF MINIMAL FLOODING" BASED UPON A VISUAL INSPECTION OF MAP REFERENCE #7.
- WETLAND FLAGS DEPICTED HEREON WERE SET IN THE FIELD BY A CERTIFIED SOIL SCIENTIST AND LOCATED IN THE FIELD UNDER DIRECT SUPERVISION OF THE UNDERSTANDING LAND SURVEYOR.

- LEGEND (SYMBOLS NOT TO SCALE)**
- CATCH BASIN
  - SANITARY MANHOLE
  - DRAINAGE MANHOLE
  - WATER MANHOLE
  - TELEPHONE MANHOLE
  - ELECTRIC MANHOLE
  - UNKNOWN MANHOLE
  - YARD DRAIN
  - CABLE MANHOLE
  - FLARED END SECTION
  - FIRE HYDRANT
  - WATER GATE VALVE
  - GAS GATE VALVE
  - MISC. GATE VALVE
  - VENT PIPE
  - FILL CAP
  - WELL
  - MAIL BOX
  - HAND HOLE
  - CONTROLLER CABINET
  - ELECTRIC TRANSFORMER
  - UTILITY POLE
  - MISC. POLE
  - CROSSWALK POLE
  - LIGHT POLE
  - POST
  - TRAFFIC LIGHT SUPPORT POLE
  - STREET SIGN
  - TREE (TYP.)
  - MONITOR WELL
  - BORING
  - ELECTRIC METER
  - GAS METER
  - WATER METER
  - TELEPHONE
  - AC UNIT
  - TREE LINE
  - STONE WALL
  - GUIDE RAIL
  - DIRECTION OF FLOW
  - I.P. PROPERTY CORNER
  - MONUMENT
  - DRILL HOLE
  - SURVEY CONTROL POINT
  - FENCE LINE
  - WATER LINE
  - GAS LINE
  - ELECTRIC LINE
  - CABLE TELEVISION LINE
  - OVERHEAD WIRES
  - POINT OF BEGINNING
  - NORTHING
  - EASTING
  - NOW OR FORMERLY MANSFIELD LAND RECORDS
  - DELTA ANGLE
  - RADIUS
  - TANGENT
  - LENGTH
  - CHORD
  - CHORD BEARING
  - FRONT YARD
  - SIDE YARD
  - REAR YARD
  - CONTROL POINT
  - WETLAND FLAG #
  - VERTICAL CURVE
  - UNITED STATES ARMY CORPS OF ENGINEERS TRANSECT POINT #



**DIMENSIONAL REQUIREMENTS MANSFIELD, CT**

ZONE	MINIMUM REQUIRED LOT AREA (AC.)	MINIMUM LOT FRONTAGE (FT)	MINIMUM SETBACK FROM (FT.)	MAX. BUILDING HEIGHT (FT)	MAX. GROUND FLOOR BUILDING AND COVERAGE
RAR-90	5.0	200	60 35 50	35	NONE

**PROPERTY SURVEY PREPARED FOR**  
**STORRS LODGES, LLC.**  
 HUNTING LODGE ROAD  
 MANSFIELD, CONNECTICUT

**DATE:** 02-07-05  
**DRAWN BY:** RM  
**CHECKED BY:** JSH  
**SCALE:** 1" = 80'

**REVISIONS:**

No.	Date	Description
1	06-27-07	MISC
2	10-27-15	WETLANDS / TITLE UPDATED
3	03-09-16	SUBMITTAL / TITLE

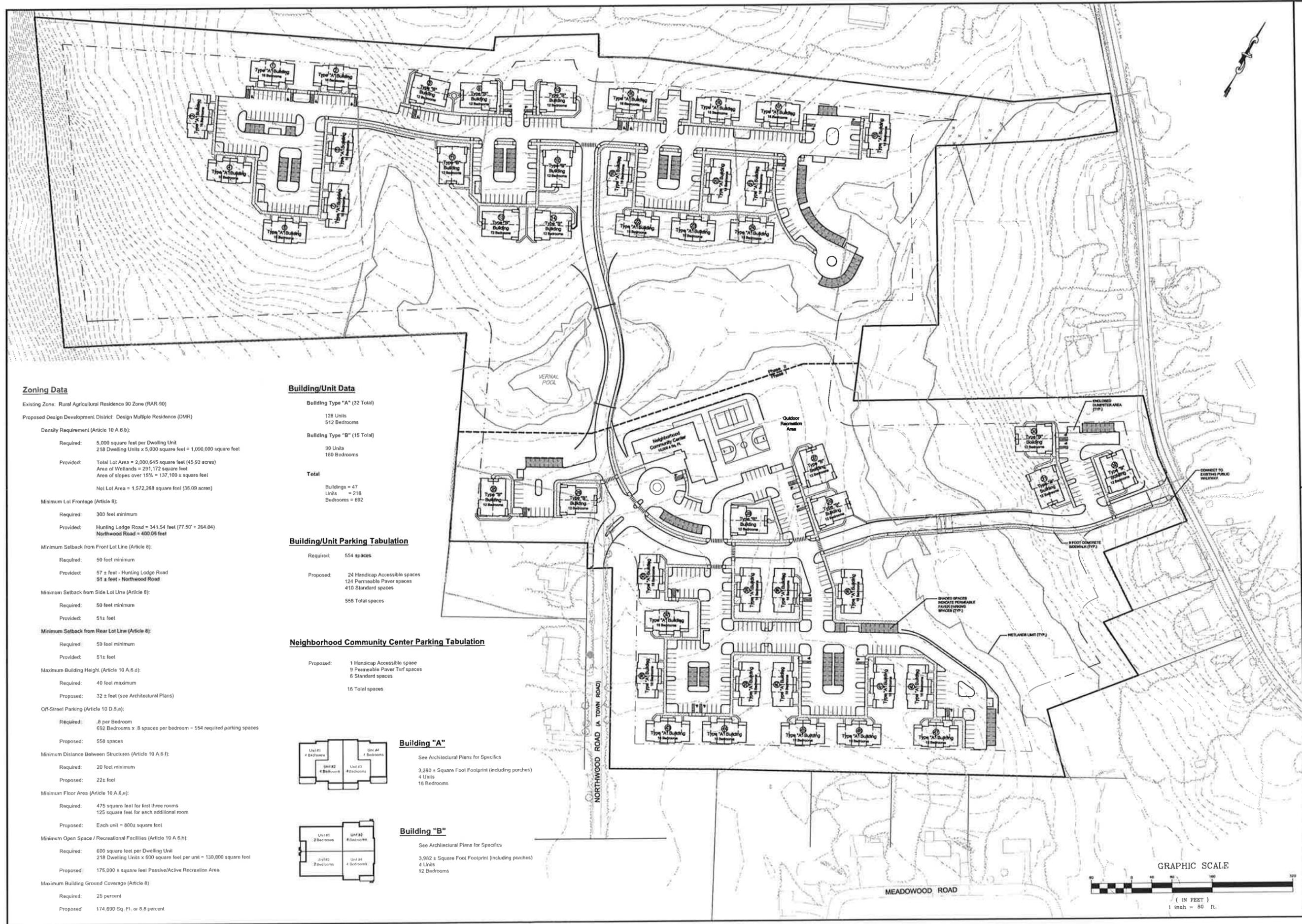
**PROJECT INFORMATION:**  
 PROJECT NO.: 04161  
 SHEET NO.: 1 OF 1

**TO MY KNOWLEDGE AND BELIEF THIS MAP IS SUBSTANTIALLY CORRECT AS NOTED HEREON.**  
 THIS MAP IS NOT VALID WITHOUT THE LIVE SIGNATURE AND IMPRESSION TYPE SEAL OF THE LAND SURVEYOR, WHOSE SIGNATURE APPEARS HEREON.

1000 S. HESKETH LS 17945

**F.A.H.**  
**F. A. Hesketh & Associates, Inc.**  
 6 Creamery Brook, East Granby, CT 06028  
 Civil & Traffic Engineers • Surveyors • Planners • Landscape Architects

Phone (860) 880-9000  
 Fax (860) 844-9000  
 e-mail: fah@fah.com



**Zoning Data**

Existing Zone: Rural Agricultural Residence 90 Zone (RAR-90)  
 Proposed Design Development District: Design Multiple Residence (DMR)

**Density Requirement (Article 10 A.6.b):**  
 Required: 5,000 square feet per Dwelling Unit  
 218 Dwelling Units x 5,000 square feet = 1,090,000 square feet  
 Provided: Total Lot Area = 2,000,645 square feet (45.93 acres)  
 Area of Wetlands = 291,172 square feet  
 Area of slopes over 15% = 137,100 ± square feet  
 Net Lot Area = 1,572,268 square feet (36.09 acres)

**Minimum Lot Frontage (Article 8):**  
 Required: 300 feet minimum  
 Provided: Hunting Lodge Road = 341.54 feet (77.50' + 264.04)  
 Northwood Road = 400.09 feet

**Minimum Setback from Front Lot Line (Article 8):**  
 Required: 50 feet minimum  
 Provided: 57 ± feet - Hunting Lodge Road  
 51 ± feet - Northwood Road

**Minimum Setback from Side Lot Line (Article 8):**  
 Required: 50 feet minimum  
 Provided: 51 ± feet

**Minimum Setback from Rear Lot Line (Article 8):**  
 Required: 50 feet minimum  
 Provided: 51 ± feet

**Maximum Building Height (Article 10 A.6.d):**  
 Required: 40 feet maximum  
 Proposed: 32 ± feet (see Architectural Plans)

**Off-Street Parking (Article 10 D.5.a):**  
 Required: .8 per Bedroom  
 692 Bedrooms x .8 spaces per bedroom = 554 required parking spaces  
 Proposed: 558 spaces

**Minimum Distance Between Structures (Article 10 A.6.f):**  
 Required: 20 feet minimum  
 Proposed: 22 ± feet

**Minimum Floor Area (Article 10 A.6.a):**  
 Required: 475 square feet for first three rooms  
 125 square feet for each additional room  
 Proposed: Each unit = 800 ± square feet

**Minimum Open Space / Recreational Facilities (Article 10 A.6.h):**  
 Required: 600 square feet per Dwelling Unit  
 218 Dwelling Units x 600 square feet per unit = 130,800 square feet  
 Proposed: 175,000 ± square feet Passive/Active Recreation Area

**Maximum Building Ground Coverage (Article 8):**  
 Required: 25 percent  
 Proposed: 174,690 Sq. Ft. or 8.8 percent

**Building/Unit Data**

**Building Type "A" (32 Total)**  
 128 Units  
 512 Bedrooms

**Building Type "B" (15 Total)**  
 90 Units  
 180 Bedrooms

**Total**  
 Buildings = 47  
 Units = 218  
 Bedrooms = 692

**Building/Unit Parking Tabulation**

Required: 554 spaces  
 Proposed: 24 Handicap Accessible spaces  
 124 Permeable Paver spaces  
 410 Standard spaces  
 558 Total spaces

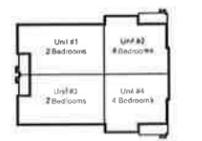
**Neighborhood Community Center Parking Tabulation**

Proposed: 1 Handicap Accessible space  
 9 Permeable Paver Turf spaces  
 6 Standard spaces  
 16 Total spaces



**Building "A"**

See Architectural Plans for Specifics  
 3,280 ± Square Foot Footprint (including porches)  
 4 Units  
 16 Bedrooms



**Building "B"**

See Architectural Plans for Specifics  
 3,982 ± Square Foot Footprint (including porches)  
 4 Units  
 12 Bedrooms

**THE LODGES AT STORRS**

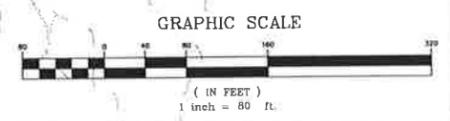
Phone: (860) 453-8000  
 Fax: (860) 444-8000  
 e-mail: info@storrslodges.com

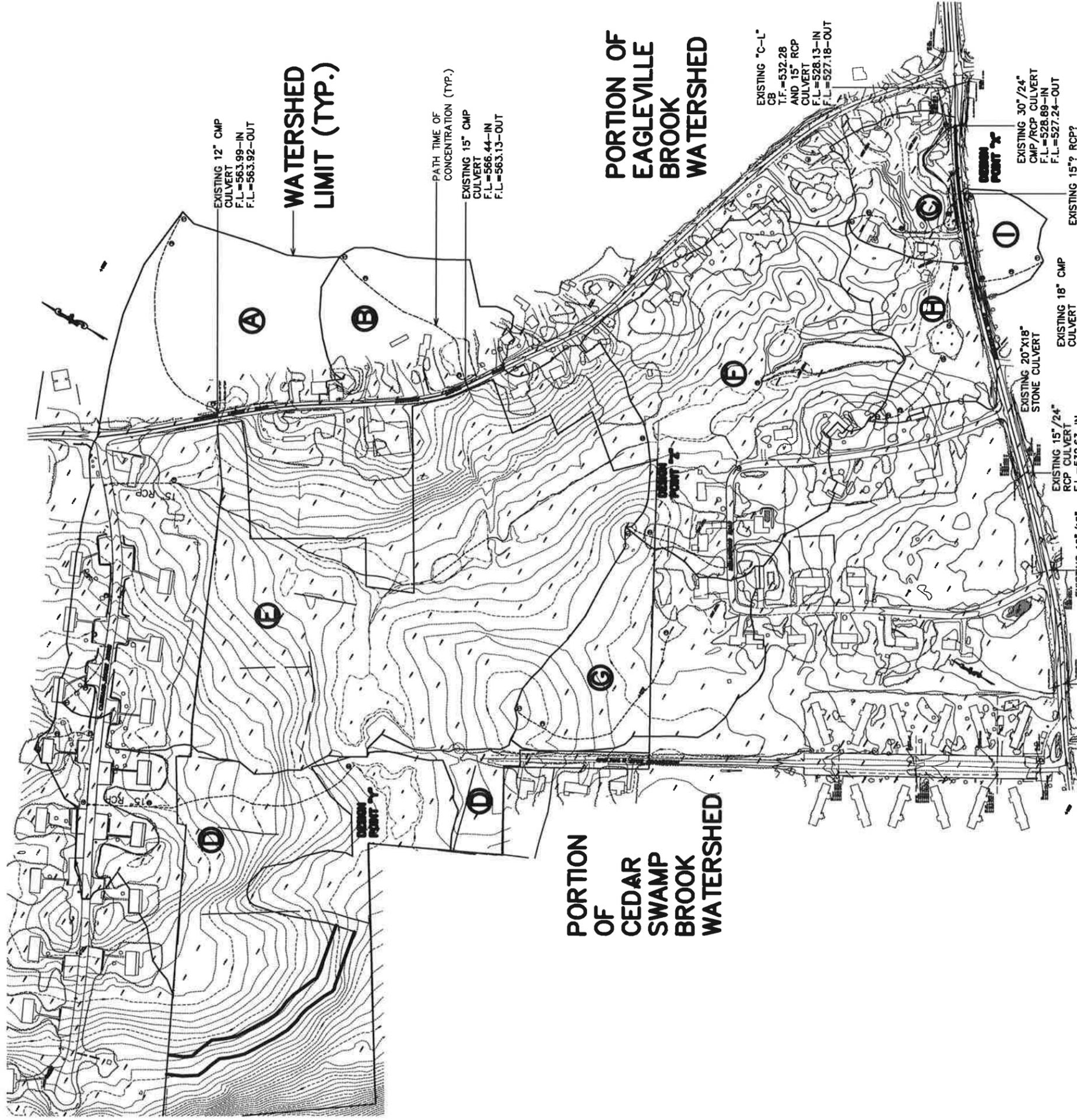
**F.A.H.** F. A. Hesketh & Associates, Inc.  
 6 Creamery Brook, East Granby, CT 06026  
 Civil & Traffic Engineers • Surveyors • Planners • Landscape Architects

No.	Date	Description

MASTER PLAN  
 FOR  
**STORRS LODGES, LLC**  
 HUNTING LODGE ROAD  
 MANSFIELD, CONNECTICUT  
 Date: 03-18-2016 Drawn by: KLL Job no: 04161  
 Scale: 1" = 80' Checked by: DSZ Sheet no: 1 OF 1  
 C:\2024\04161\2016 - Storrs Lodges\02.dwg, MA-1, Mar. 17, 2016 - 3:46:51 PM

**MA-1**





**PORTION OF CEDAR SWAMP BROOK WATERSHED**

**PORTION OF EAGLEVILLE BROOK WATERSHED**

**WATERSHED LIMIT (TYP.)**

PATH TIME OF CONCENTRATION (TYP.)

EXISTING 12" CMP CULVERT  
F.L.=563.99-IN  
F.L.=563.92-OUT

EXISTING 15" CMP CULVERT  
F.L.=566.44-IN  
F.L.=563.13-OUT

EXISTING "C-L" CB  
T.F.=532.28  
AND 15" RCP CULVERT  
F.L.=528.13-IN  
F.L.=527.18-OUT

EXISTING 30"/24" CMP/RCP CULVERT  
F.L.=528.89-IN  
F.L.=527.24-OUT

EXISTING 15" RCP? CULVERT  
F.L.=530.75-IN  
F.L.=530.22-OUT

EXISTING 18" CMP CULVERT  
EXISTING 18" RCP CULVERT

EXISTING 20"x18" STONE CULVERT

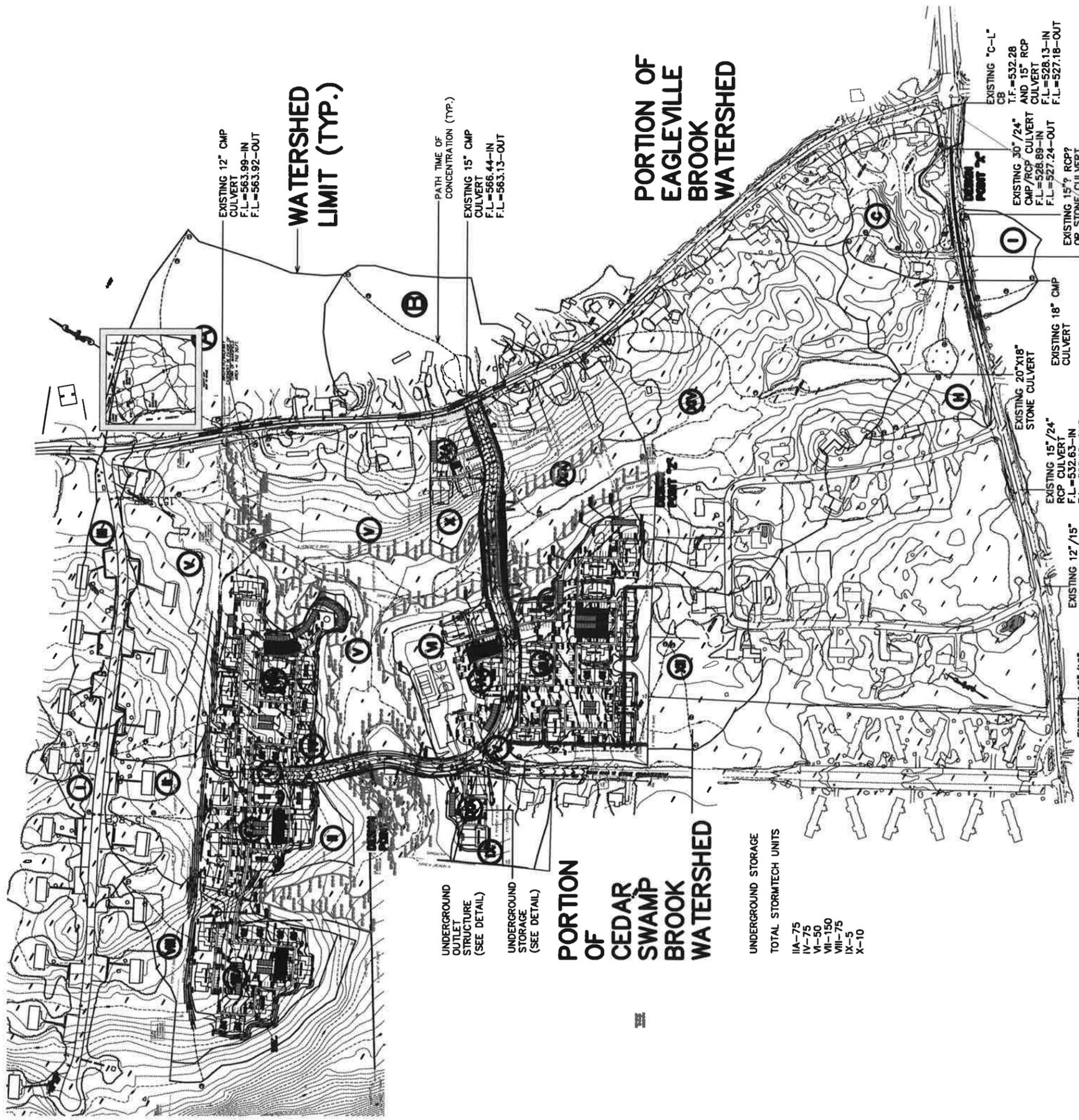
EXISTING 15"/24" RCP CULVERT  
F.L.=532.63-IN  
F.L.=528.12-OUT

EXISTING 12"/15" RCP/CMP CULVERT  
F.L.=535.06-IN  
F.L.=535.97-OUT

EXISTING 15"/18" RCP/CMP CULVERT  
F.L.=537.28-IN  
F.L.=536.80-OUT

**WATERSHED MAP  
EXISTING CONDITIONS/WS-1**

SCALE: 1"=100'  
Revised: 3/18/16



EXISTING 12" CMP  
CULVERT  
F.L.=563.99-IN  
F.L.=563.92-OUT

**WATERSHED  
LIMIT (TYP.)**

PATH TIME OF  
CONCENTRATION (TYP.)

EXISTING 15" CMP  
CULVERT  
F.L.=566.44-IN  
F.L.=563.13-OUT

**PORTION  
OF  
CEDAR  
SWAMP  
BROOK  
WATERSHED**

UNDERGROUND STORAGE  
TOTAL STORMTECH UNITS

- IIA-75
- IV-75
- VI-50
- VII-150
- VIII-75
- IX-5
- X-10

**PORTION OF  
EAGLEVILLE  
BROOK  
WATERSHED**

EXISTING "C-L"  
CB  
T.F.=532.28  
EXISTING 30" / 24"  
CMP / RCP CULVERT  
AND 15" RCP  
CULVERT  
F.L.=528.89-IN  
F.L.=527.24-OUT  
F.L.=527.18-OUT

EXISTING 15" / 7"  
RCP?  
OR STONE / CULVERT  
F.L.=530.75-IN  
F.L.=530.22-OUT

EXISTING 18" CMP  
CULVERT  
EXISTING 18" RCP  
CULVERT

EXISTING 20" X 18"  
STONE CULVERT

EXISTING 15" / 24"  
RCP CULVERT  
F.L.=532.63-IN  
F.L.=528.12-OUT

EXISTING 12" / 15"  
RCP / CMP CULVERT  
F.L.=535.06-IN  
F.L.=535.97-OUT

EXISTING 15" / 18"  
RCP / CMP CULVERT  
F.L.=537.28-IN  
F.L.=536.80-OUT

**WATERSHED MAP  
PROPOSED CONDITIONS / WS-2**

SCALE: 1" = 200'  
3/18/2016

## PEAK FLOW SUMMARY-TABLE 1

EXISTING AND PROPOSED CONDITIONS  
STORRS LODGES, CT

PLANS DATED 3/18/2016

STORM EVENT	EXISTING CONDITIONS							PROPOSED CONDITIONS						
	DESIGN POINT "X"			DESIGN POINT "Y"	DESIGN POINT "Z"			DESIGN POINT "X"			DESIGN POINT "Y"	DESIGN POINT "Z"		
	IN	OUT	ELEV	IN	IN	OUT	ELEV	IN	OUT	ELEV	IN	IN	OUT	ELEV
2(1)	3.6(2)	3.3	529.64(3)	9	22.7	8.7	541.9	3.6	3.2	529.64	10	11.8	6.8	541.69
10	5.2	4.6	529.83	12.9	33.6	16.3	542.1	5.2	4.6	529.83	13.9	18.8	12	542.04
25	6.1	5.4	529.92	15.2	39.6	20.4	542.15	6.1	5.4	529.92	16	23	15.6	542.08
50	6.8	6	529.99	16.9	44.2	23.6	542.2	6.8	6	529.99	17.6	26.8	18.1	542.12
100	7.4	6.6	530.05	18.5	48.8	28	542.23	7.4	6.6	530.05	19.8	30.5	20.6	542.16

(1) Return period (Years)  
(2) Flow (CFS)  
(3) Elevation (FT)

Design Point "X"- Eagleville Brook Watershed (North Eagleville Road)  
Design Point "Y"- Cedar Swamp Brook Watershed (Northwood Road)  
Design Point "Z"- Access Road (From Hunting Lodge Road)