

Tighe & Bond

Meriden Retail Health
460 Lewis Avenue
Meriden, CT

Engineering Memorandum

Prepared For:

**Town of Meriden,
Planning and Zoning**

February, 2021

Executive Summary**Section 1 Introduction and Site Conditions**

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Record Drawings - Sewer Lateral

Section 1

Introduction and Site Conditions

This project consists of a renovation to the existing Macy's store at the Meriden Mall at 460 Lewis Avenue in Meriden, CT. Refer to Figure 1, Site Location Plan, in **Appendix A**. The subject property is approximately 14.5 acres in size, and is located at the southern end of the larger Meriden Mall site.

The proposed project includes renovation to the existing two-story building, approximately 179,795 square feet which was formerly occupied by Macy's, as well as rehabilitation of parking areas, drive aisles, walkways, a relocated electric service, 2 new emergency generators, adjustments to storm drainage to accommodate changes to layout and grading, and other associated surface improvements.

The proposed project mimics existing drainage patterns, and the proposed conditions result in a net reduction of impervious area compared to existing conditions. Therefore, this project results in no increase in stormwater peak flow or volume leaving the site.

1.1 Existing Conditions

The project site is contained within the existing Meriden Mall site. The collective mall properties are bounded by Lewis Avenue to the east, Kensington Avenue to the north, Chamberlain Highway to the west and I-691 to the south.

The site coverage primarily consists of the existing building, paved parking and drive aisles, concrete walkways, concrete loading dock, retaining walls, and landscaping. The site generally slopes from the west down to Sodom Brook along the east edge of the site. An existing stormwater system collects runoff from the building roof and paved parking areas, and discharges to Sodom Brook.

The FEMA flood Profile for Sodom Brook indicates the 1% annual chance flood (100 year flood Base Flood Elevation) as approximately elevation 130 (NAVD88) along the limits of this property. Refer to Sodom Brook Flood Profile, in **Appendix A**. The site access drive along Sodom Brook ranges from approximate elevation 145 (at the Lewis Ave curb cut) to elevation 155 near where the brook enters a culvert below I-691.

This site is also located within the City Aquifer Protection Area. Refer to Figure 3, Aquifer Protection Map, in **Appendix A**.

1.2 Proposed Conditions

The proposed work includes a renovation and rehabilitation of the interior and exterior of the former Macy's building, as well as exterior improvements to enhance vehicular and pedestrian circulation and rehabilitate existing deteriorated pavement in the parking areas and loop road.

This project is not proposed to increase stormwater runoff in comparison to the existing conditions, as this project reduces impervious coverage from pre to post development conditions, mimics existing drainage patterns, and maintains discharge points to match the existing conditions. Therefore, proposed modifications to the storm drainage system are limited to accommodating adjustments to the proposed geometry and grading of the parking, driveways, and walkway areas.

Refer to Existing and Proposed Surface Coverage figures in **Appendix B**.

Below is a summary of the reduction in impervious coverage from existing to proposed conditions.

Existing:

Pervious = 181,418 SF (28%)

Impervious = 463,562 SF (72%)

Total = 644,980 SF (100%)

Proposed:

Pervious = 183,173 SF (28%)

Impervious = 461,807 SF (72%)

Total = 644,980 SF (100%)

There is a **net decrease in impervious surface** of approximately **1,755 SF**.

Section 2 Utility Services

2.1 Sanitary Sewer Service

The building is currently served by an existing 8" clay sanitary sewer lateral at the northeast corner of the building, which connects to an existing sewer manhole on the adjacent property within the mall site, and ultimately drains by means of a gravity sewer to the City sewer system in Lewis Ave.

The proposed wastewater flows are estimated based on the Connecticut Public Health Code Regulations and Technical Standards for Subsurface Sewage Disposal Systems (2011). The total estimated wastewater discharge from the project is approximately 36,000 gallons per day (GPD), with a projected peak flow of approximately 125 gallons per minute (GPM).

Table 1. Projected Average and Peak Daily Sanitary Sewer Flows

Wastewater Requirements					
Development		Design Criteria*		Required Capacity (GPD)	Peak Flow (GPM)**
Use	Size SF	GPD	Unit		
Medical Retail	179,795	0.2	SF	36,000	125

* Connecticut Public Health Code Section 19-13-B100a, B103, B104. Regulations and Technical standards for Subsurface Sewage Disposal Systems, 2011.

** Peak factor of 5 was applied to average daily flows to estimate peak flows; New England Interstate Water Pollution Control Commission, 2011.

A capacity check of the existing 8" clay sewer lateral was performed to confirm adequacy of the lateral size. The existing slope is unknown, so a conservative slope of 0.4% is assumed. A typical sanitary sewer lateral slope is 1% minimum. The capacity of an 8" clay pipe at 0.4% is 0.715 cubic feet per second (CFS), which equates to approximately 320 gallons per minute (GPM), which exceeds the estimated peak flow rate of 125 GPM. See **Appendix C** for sewer pipe capacity report and record drawings for the existing sewer lateral.

2.2 Domestic Water and Fire Protection

The existing building is served by existing 4" domestic water and 10" fire protection lines, which are proposed to be maintained.

The estimated water demand for the proposed medical retail development is approximately 36,000 GPD, as estimated above for the sanitary sewer flows. The estimated peak hour demand is 75 GPM, determined by using a maximum to average day ratio of 3.0.

The fire protection water demand has been estimated by the project's plumbing and fire protection engineers as: 80 psi at 600 gpm

2.3 Electric, Gas, Telephone and Communications

The existing public utility services are proposed to be maintained for the proposed building use, with the electric service proposed as being relocated on-site from the east side of the building to the west side. No proposed improvements or connections are anticipated off-site for these utilities.



MERIDEN RETAIL HEALTH
460 LEWIS AVENUE, MERIDEN, CONNECTICUT
SITE LOCATION PLAN


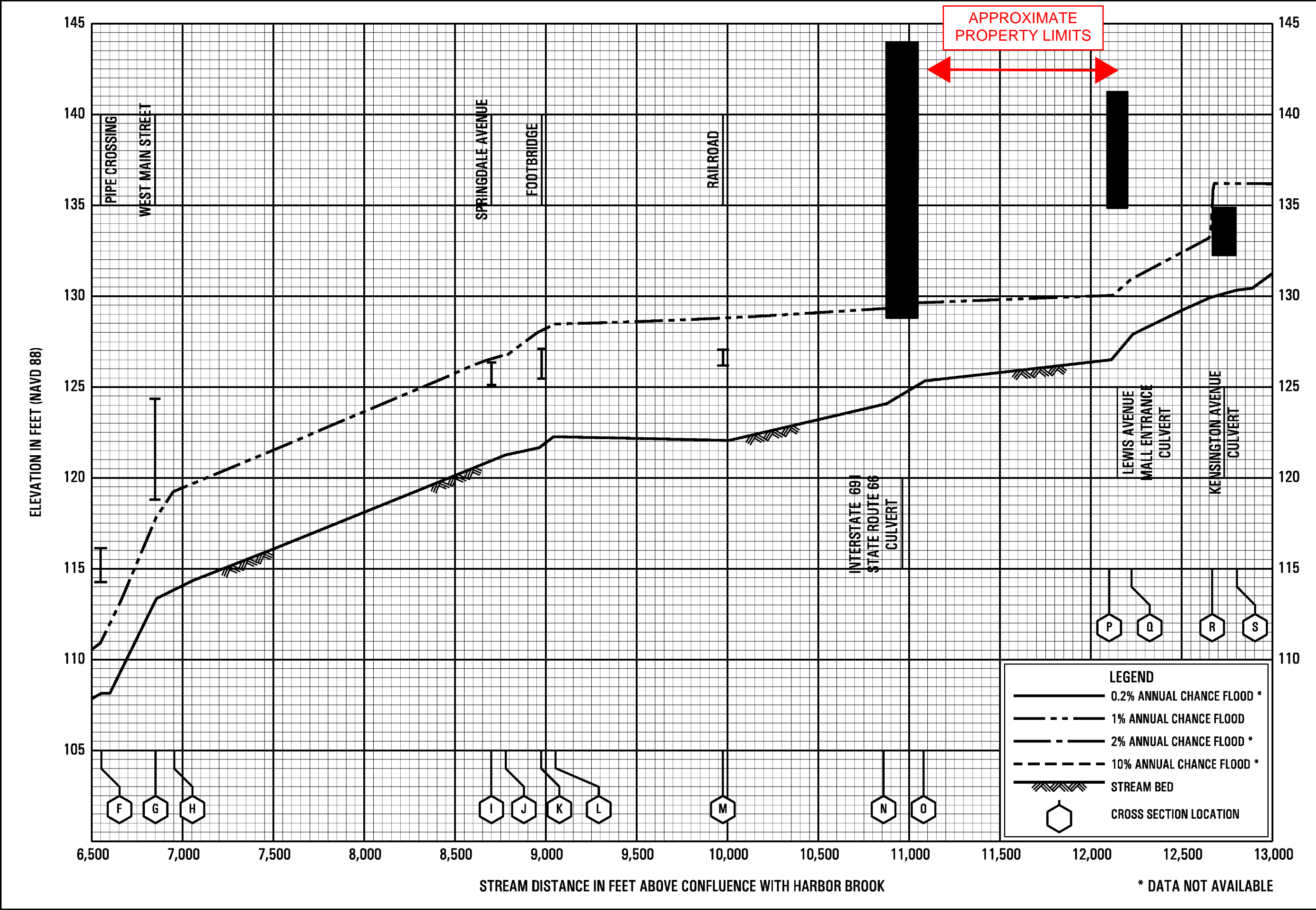
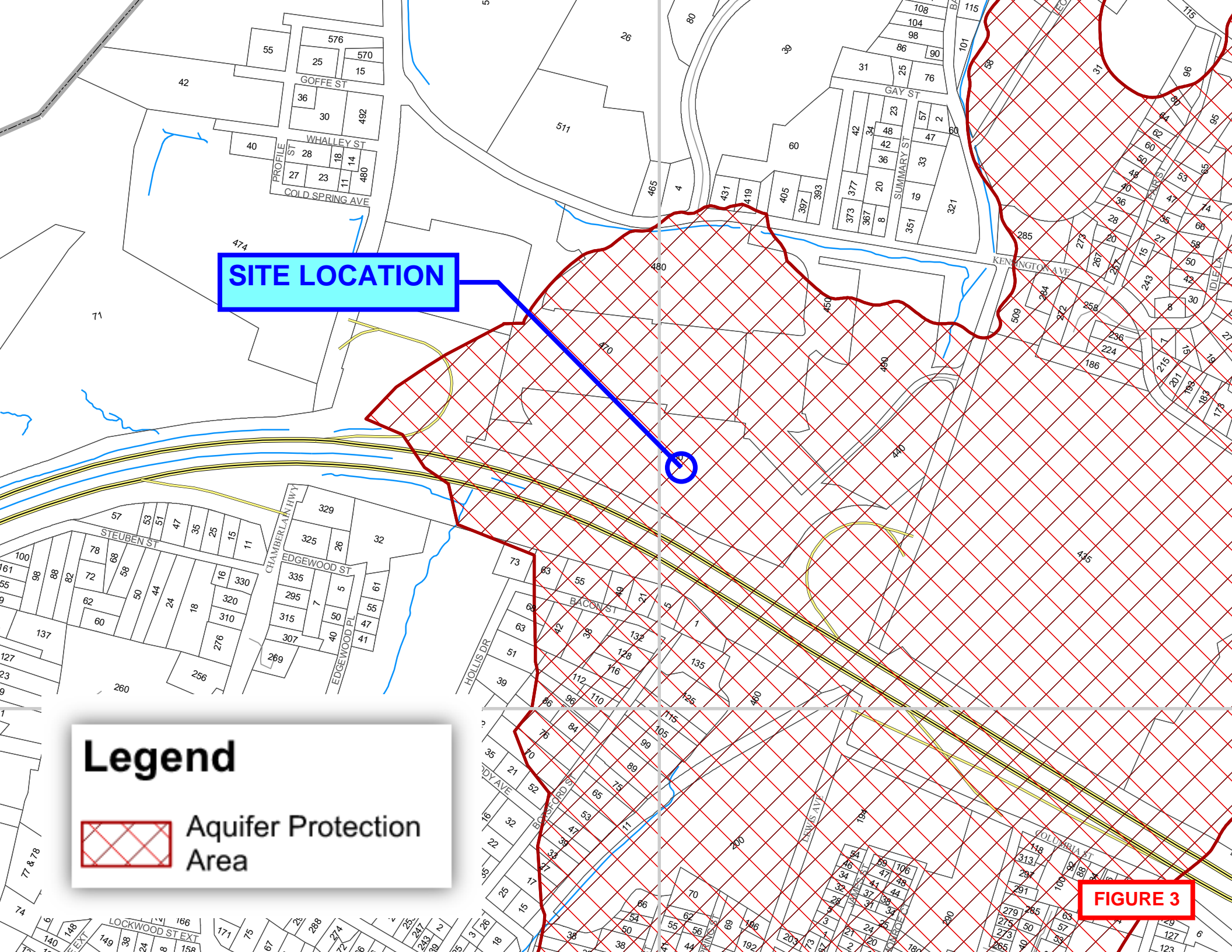
NORTH 
1" = 1000'

FIGURE 1





SITE LOCATION

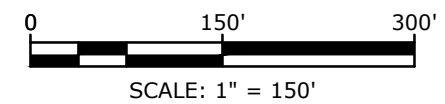
Legend



Aquifer Protection Area

FIGURE 3

TOTAL EXISTING PERVIOUS AREA = 181,418 SF (28%)
TOTAL EXISTING IMPERVIOUS AREA = 463,562 SF (72%)
TOTAL PROPERTY AREA = 644,980 SF (100%)

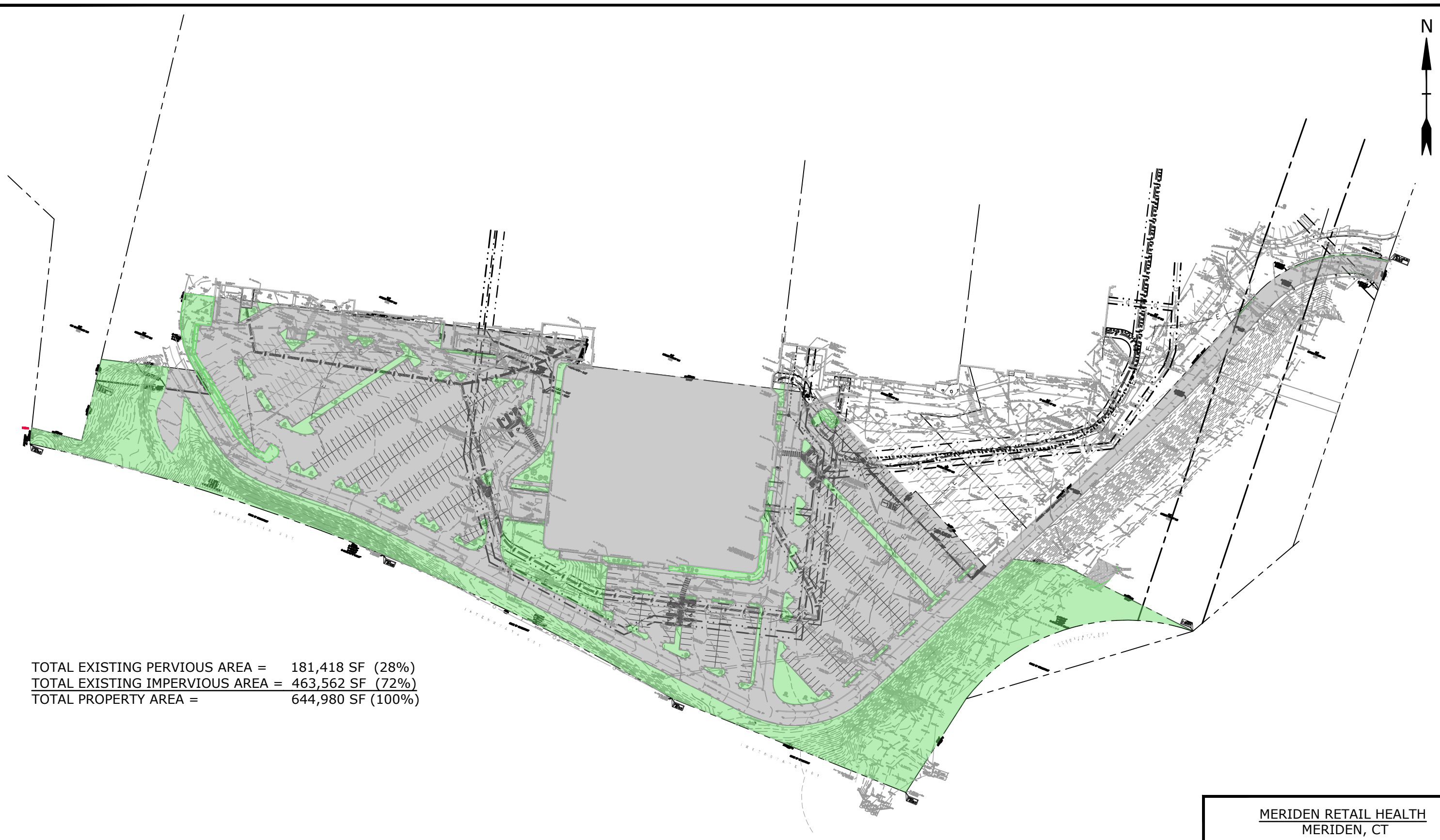


MERIDEN RETAIL HEALTH
MERIDEN, CT

EXISTING SURFACE COVERAGE

DATE: 02/12/2021
SCALE: 1" = 150'
FIGURE: 1

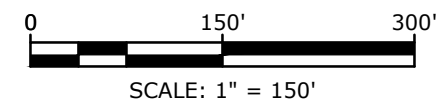
Tighe&Bond



Feb 11, 2021-9:30am Plotted By: AClark
Tighe & Bond, Inc. J:\WM5078 Medcraft\01 Meriden\Calculations\MS078-01-PR-WS.dwg

TOTAL PROPOSED PERVIOUS AREA = 183,173 SF (28%)
TOTAL PROPOSED IMPERVIOUS AREA = 461,807 SF (72%)
TOTAL PROPERTY AREA = 644,980 SF (100%)

DECREASE IN IMPERVIOUS AREA FROM EXISTING
CONDITION TO PROPOSED CONDITION = 1,755 SF



MERIDEN RETAIL HEALTH
MERIDEN, CT

PROPOSED SURFACE COVERAGE

DATE: 02/12/2021
SCALE: 1" = 150'
FIGURE: 1

Tighe&Bond

Channel Report

SANITARY LATERAL PIPE CAPACITY

Hydraflow Express Extension for Autodesk® AutoCAD® Civil 3D® by Autodesk, Inc.

Friday, Feb 5 2021

<Name>

Circular

Diameter (ft) = 0.67

Invert Elev (ft) = 155.00

Slope (%) = 0.40

N-Value = 0.015

Calculations

Compute by: Q vs Depth

No. Increments = 10

Highlighted

Depth (ft) = 0.60

Q (cfs) = 0.715

Area (sqft) = 0.33

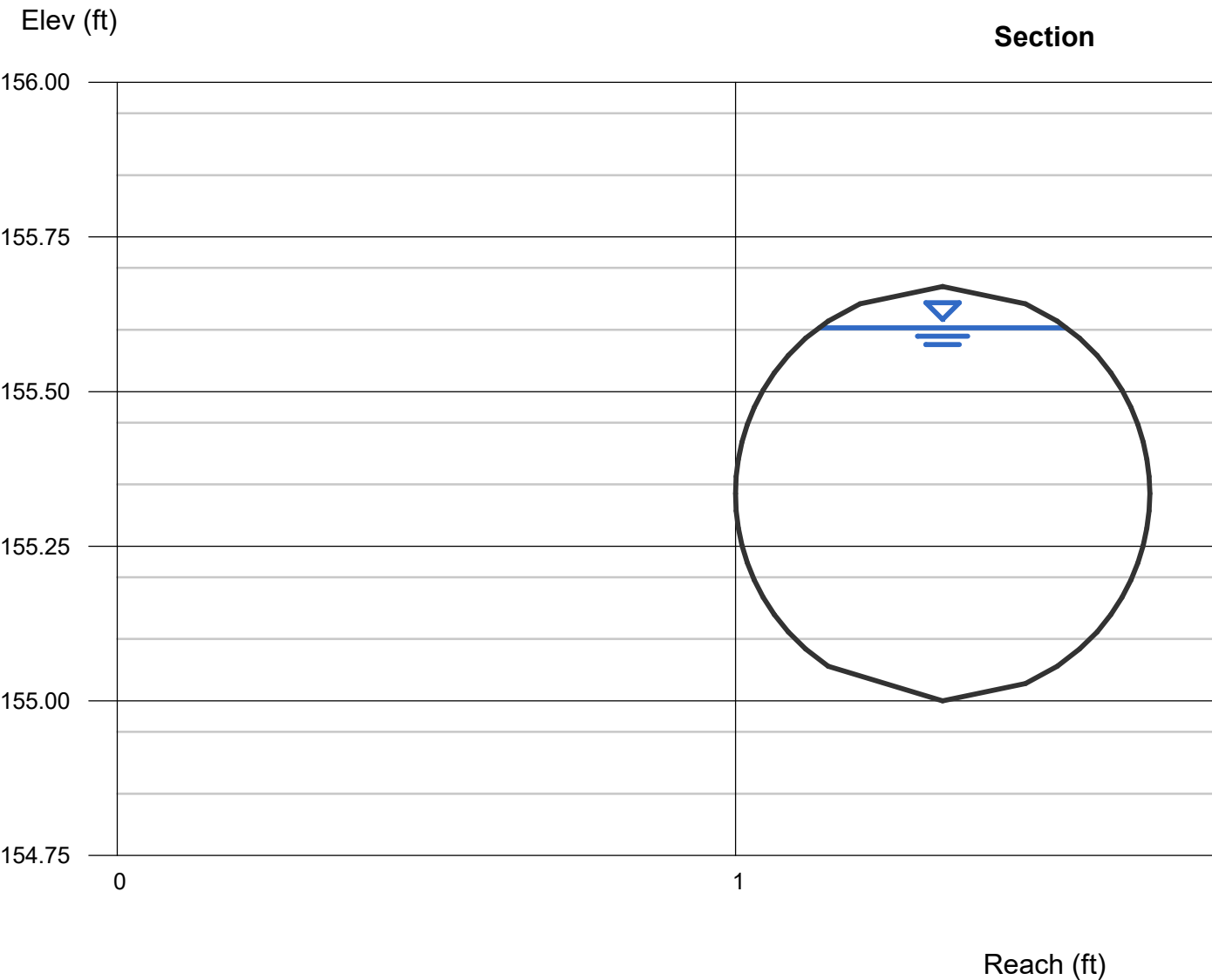
Velocity (ft/s) = 2.14

Wetted Perim (ft) = 1.68

Crit Depth, Yc (ft) = 0.40

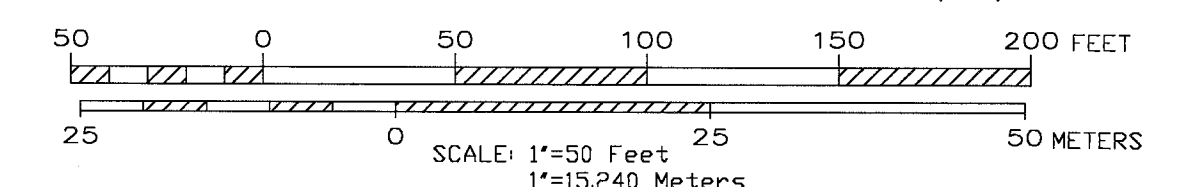
Top Width (ft) = 0.40

EGL (ft) = 0.67



EXISTING SEWER SYSTEM
CONNECTION TO CITY SYSTEM

EXHIBIT "A"
ALTA/ACSM TITLE INSURANCE PLAN
MERIDEN SQUARE
MERIDEN, CONNECTICUT
PREPARED FOR
MERIDEN SQUARE PARTNERSHIP
611 OLIVE STREET, SUITE 1555, ST. LOUIS, MISSOURI 63101-1797 (314)342-6200



21 MAY 1993
allan h. swanson, inc.
land surveyors — planners — civil engineers
3 Congress Street, Nashua, N.H. 03062-3399 (603) 863-2057 — Fax (603) 883-5057

NO.	DATE	REVISION	BY
1	06/15/93	GENERAL REVISIONS	G.C.

EXISTING SEWER SYSTEM AT
MALL SITE, BEYOND PROPOSED
MERIDEN RETAIL HEALTH
PROPERTY

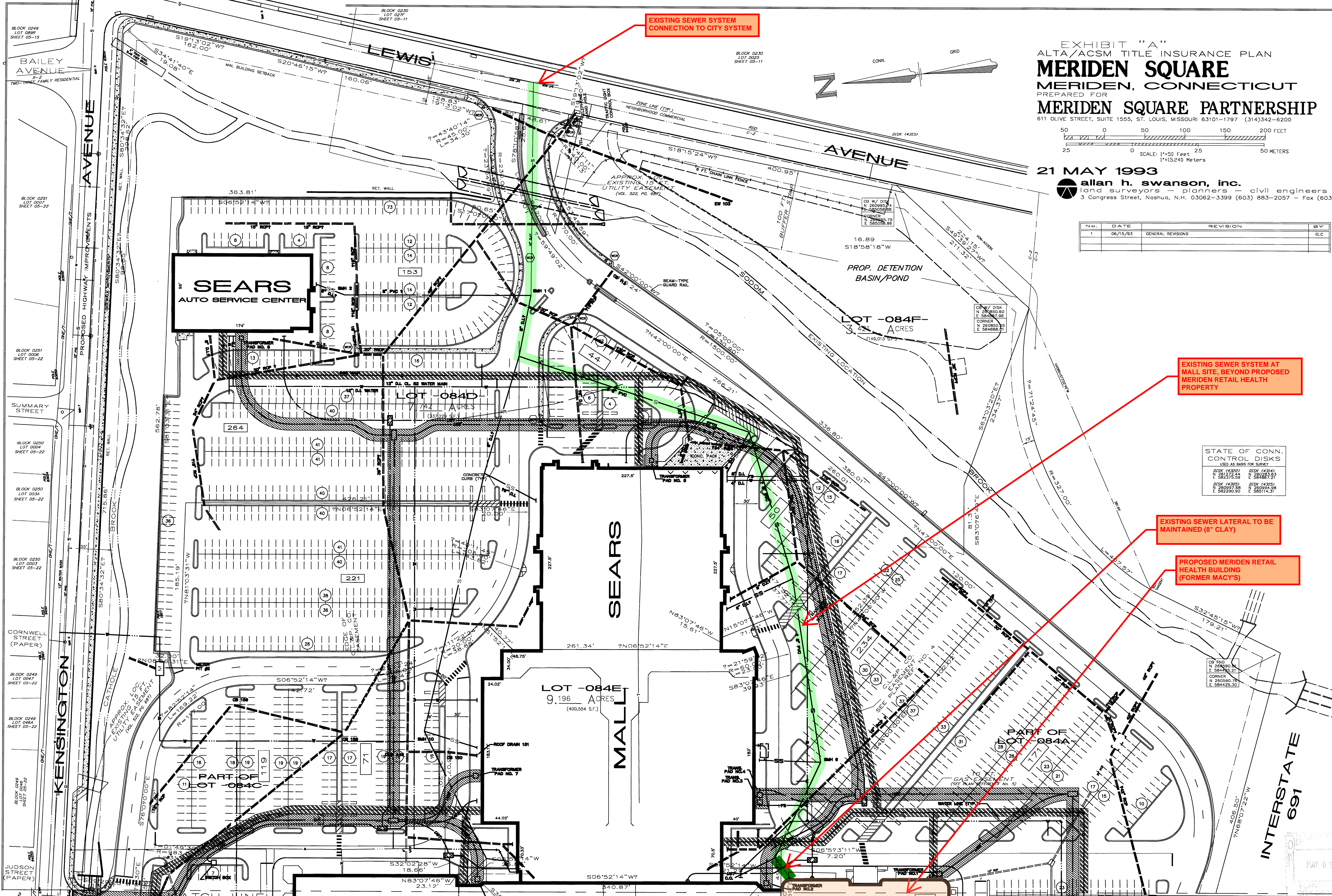
EXISTING SEWER LATERAL TO BE
MAINTAINED (8" CLAY)

PROPOSED MERIDEN RETAIL
HEALTH BUILDING
(FORMER MACY'S)

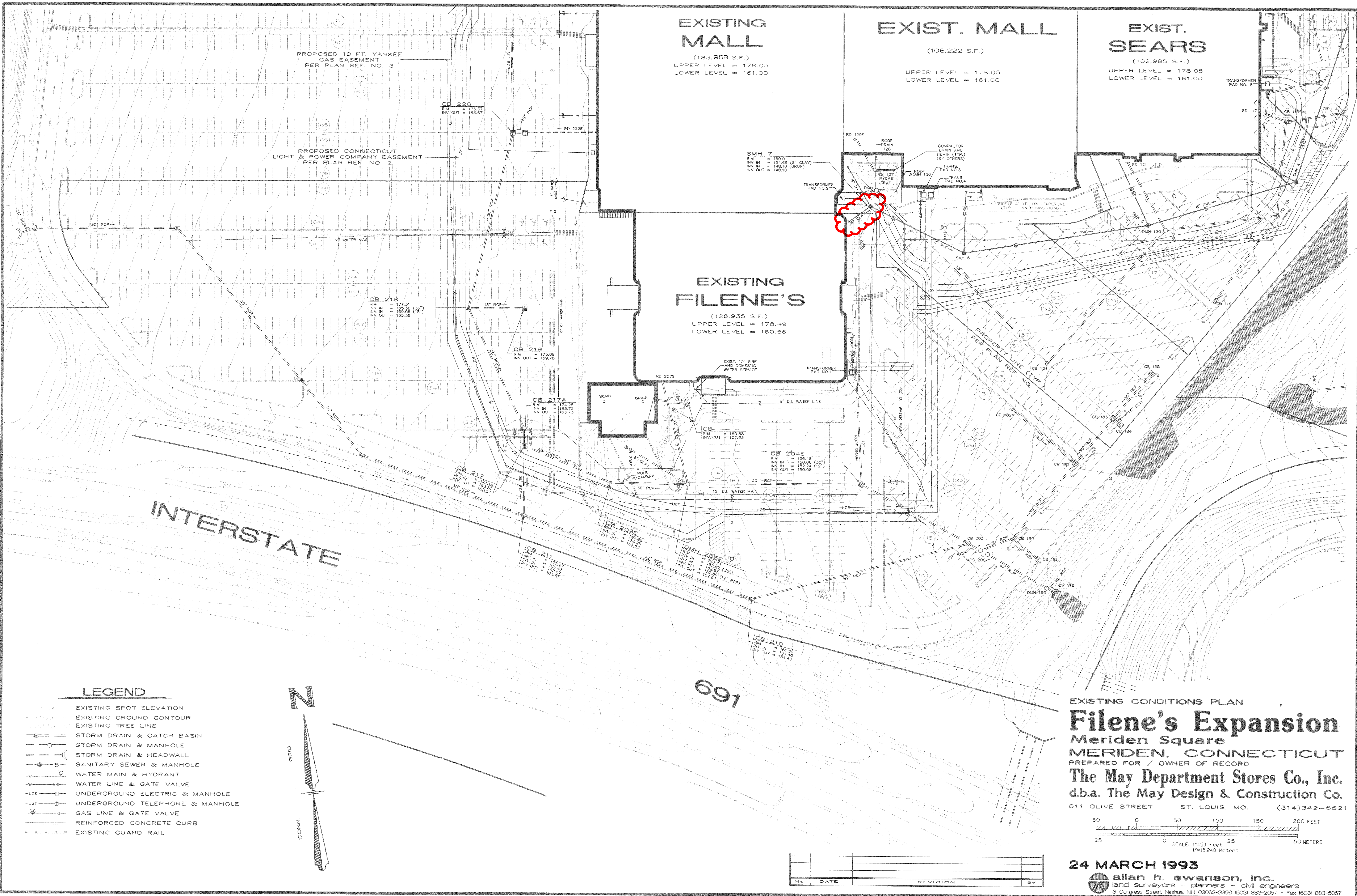
STATE OF CONN.
CONTROL DISKS
USED AS BARS FOR SURVEY

DISK (4325)	DISK (4314)
N 280995.80	N 280983.55
E 584887.98	E 584883.55
CORNER	CORNER
N 280995.80	N 280994.98
E 584888.81	E 584883.51

CD TNG
N 280990.00
E 584425.21
CORNER
N 280990.78
E 584425.30



SEE SHEET 3 OF 5



EXISTING MALL

(183,958 S.F.)
UPPER LEVEL = 178.05
LOWER LEVEL = 161.00

EXIST. MALL

(108,222 S.F.)
UPPER LEVEL = 178.05
LOWER LEVEL = 161.00

EXIST. SEARS

(102,985 S.F.)
UPPER LEVEL = 178.05
LOWER LEVEL = 161.00

EXISTING FILENE'S

(128,935 S.F.)
UPPER LEVEL = 178.49
LOWER LEVEL = 160.56

INTERSTATE

691

LEGEND

- EXISTING SPOT ELEVATION
- EXISTING GROUND CONTOUR
- EXISTING TREE LINE
- STORM DRAIN & CATCH BASIN
- STORM DRAIN & MANHOLE
- STORM DRAIN & HEADWALL
- SANITARY SEWER & MANHOLE
- WATER MAIN & HYDRANT
- WATER LINE & GATE VALVE
- UNDERGROUND ELECTRIC & MANHOLE
- UNDERGROUND TELEPHONE & MANHOLE
- GAS LINE & GATE VALVE
- REINFORCED CONCRETE CURB
- EXISTING GUARD RAIL

N

GRID

CONV.

EXISTING CONDITIONS PLAN

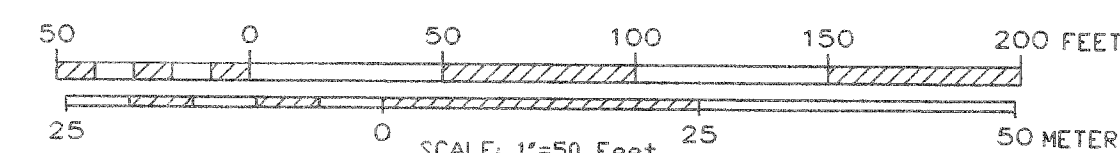
Filene's Expansion
Meriden Square

MERIDEN, CONNECTICUT

PREPARED FOR / OWNER OF RECORD

The May Department Stores Co., Inc.
d.b.a. The May Design & Construction Co.

611 OLIVE STREET ST. LOUIS, MO. (314)342-6621



24 MARCH 1993

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