

## MEMORANDUM

**TO:** Jerome F. Shea, P.E.  
**FROM:** Weston & Sampson Engineers, Inc.  
**DATE:** April 06, 2012  
**SUBJECT:** Restrictions associated with the reconstruction of a Department of Public Works Facility at Old River Road

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Based on recent correspondence with the Department of Energy and Environmental Protection (DEEP) the Town of Canton has asked Weston & Sampson Engineers, Inc. to prepare a memorandum addressing the restrictions associated with reconstructing the existing Department of Public Works (DPW) facility at its current location along Old River Road. The current DPW facility is located at 50 Old River Road. A portion of the site is within the Farmington River FEMA designated floodway and the remainder is within the 100 year floodplain as shown on the most recent Flood Insurance Rate Map Number 09003C0308F, effective date September 26, 2008 (see attached). Also based on the latest Federal Emergency Management Agency (FEMA) Elevation Certificate dated August 2007 the base flood elevation for this location is 299.1. Currently the floor areas of the existing building are located below this base flood elevation as are several support functions that would impact the environment in the event of a flood which include road salt storage, material storage, and fueling operations.

If the Town of Canton is contemplating a substantial improvement (i.e. new building footprint) to the property which is located in the mapped 100 year floodplain, the new structure must be brought into compliance with the Town of Canton's floodplain management regulations which reference the need to comply with 44CFR 60.6(a) of the Federal NFIP regulations as if it is new construction.

Weston & Sampson spoke with Diane Ifkovic, State NFIP Coordinator/Environmental Analyst III with the Connecticut Department of Energy & Environmental Protection Bureau of Water Protection & Land Reuse, Inland Water Resources Division, and Flood Management Program to discuss potential options for addressing the NFIP regulations. Based on our discussion with Ms. Ifkovic, review of the NFIP regulations, and review of FEMA Technical Bulletins, the following options are available for constructing the facility within the 100 year floodplain:

1. Raise the lowest floor elevation of the building, as well as the material stored in the yard, to an elevation at or above the base flood elevation and provide compensatory flood storage.
2. Construct the facility at the current grade (below the base flood elevation), wet floodproof the vehicle storage area, dry floodproof the administration, employee

facilities, vehicle maintenance, and wash bay, and provide compensatory storage for dry floodproofed areas which exceed the current footprint.

## Option 1 Raise the Lowest Floor Elevation

If the site is raised to an elevation at or above the base flood elevation, any reduction in flood volume caused by filling, new construction, or substantial improvements involving an increase in footprint to the structure must be designed in a manner to provide compensatory floodplain storage and equal conveyance of flow through the site. Compensatory storage may be possible if the Town is able to locate a parcel within the same hydraulic reach and with a volume that was not previously used for flood storage. The grades on the compensatory storage site would need to be modified to provide comparable and incrementally equal storage of flood water at each elevation up to and including the 100 year flood elevation which would be displaced by the proposed project. Although feasible if such a property exists, this would result in a substantial increase in construction costs and as of now, no viable compensatory storage sites have been identified near the existing DPW facility.

Even if the compensatory storage is feasible to achieve, the equal conveyance requirement may be more difficult to meet. This requirement states that work within the floodplain and the land adjacent to the floodplain, including work to provide compensatory storage, shall not be constructed in such a way so as to cause an increase in flood stage or flood velocity. This requirement will require detailed analyses to demonstrate, with supporting hydrologic and hydraulic analyses, that such encroachments will not result in an increase in flood levels. Any substantial improvements to the site may not be made if this requirement or any of the previous requirements cannot be achieved.

Furthermore, it should be noted that raising the site would impact access to the site as Old River Road is currently constructed below the base flood elevation. Raising this road above the base flood elevation would not be a feasible alternative due to the presence of a residential abutter to the north of the site. In order to make the elevated site viable during a flooding event, it is anticipated that a new access point along River Road would be required.

## Option 2 Construct at the Current Elevation with Wet and Dry Floodproofing Provisions

Based on our discussion with Ms. Ifkovic, the new Public Works Facility could be constructed below the base flood elevation if appropriate measures are implemented to protect the structure during flooding. In accordance with FEMA Technical Bulletin 3-93, NFIP allows a new or substantially improved non-residential building in an A zone to have the lowest floor below the base flood elevation provided that the building has been designed, constructed, and certified to be dry floodproofed. Dry floodproofed is defined as making a building watertight (substantially impermeable to flood waters). In

accordance with the bulletin, floodproofing requirements may include anchoring of the building to resist floatation, collapse, and lateral movement; installation of watertight closures for doors and windows; reinforcement of walls to withstand floodwater pressure and impact forces generated by floating debris; use of membranes and other sealants to reduce seepage of floodwater through walls and wall penetrations, installation of pumps to control interior water levels, and locating electrical, mechanical, utility, and other valuable damageable equipment and contents above expected flood levels. In accordance with FEMA Technical Bulletin 1 dated August 2008, an unfinished or flood-resistant enclosure that is used solely for parking of vehicles, building access, or storage of low-value items is not considered the lowest floor and can be constructed below the base flood elevation without meeting the dry-floodproofing requirements provided that the enclosure is built in compliance with applicable requirements for wet floodproofing. These requirements include the use of flood damage-resistant materials and installation of openings to allow for automatic entry and exit of floodwaters. Furthermore, the bulletin indicates that the following are not allowed below the base flood elevation: appliances, heating and cooling equipment, plumbing fixtures, more than the minimum electric service required to address life safety and electric code requirements for building access and storage areas, and materials that are not flood damage-resistant.

The new Public Works Facility will include space to support administration/employee facilities, workshops, vehicle maintenance, vehicle storage, and wash bay. Based on our discussion with Ms. Ifkovic, the only space that could qualify as space which could be constructed below the base flood elevation without meeting the dry floodproofing requirements is the vehicle storage area. This is based on the assumption that the space is used solely for storage of vehicles and does not include the storage of any high value materials. All other areas would need to be either raised to or above the base elevation or would need to be dry floodproofed. If alternate/shared uses are anticipated within the vehicle storage area such as workshops or minor vehicle maintenance, then this space would need to be dry floodproofed.

Dry floodproofing of a building footprint larger than the existing DPW facility will require compensatory storage to be created as described in Option 1 since this increased dry floodproofed volume will displace floodwaters.

It should be noted that no new road salt or de-icing materials storage facilities can be located within the 100 year floodplain as defined and mapped for each municipality under 44 CRF 59 et seq. Therefore, the salt storage structure will need to be constructed at an alternate location or the structure will need to be raised above the base flood elevation and compensatory storage provided.

Although Option 2 is feasible from a regulatory perspective, it is our opinion that construction of the new Public Works Facility below the base flood elevation should not be considered. The Department of Public Works serves as a first responder during storm events. In the event that a flood condition was to occur, the facilities utilized by the DPW to respond to flooding conditions

in town would not be accessible and could impact the DPW's ability to serve the needs of the community during such an emergency situation.

The following is a list of potential permits and approvals needed for construction/reconstruction in the Floodplain and Floodway at Canton's existing DPW Facility at 50 Old River Road.

- Inland Wetlands and Watercourses Permit – For Activity within 100' of the Farmington River.
- Farmington River Protection Overlay District – In accordance with Section 59.8.2, a Special Exception Uses as permitted by the Zoning Commission will be necessary for municipal improvements. In addition, Section 59.8.5 requires a special exception for municipal improvements including “Enlargement, relocation, or redistribution of highway maintenance facilities”.
- Flood Management Certification – A permit is only needed for projects in the floodplain if State or Federal Funds are utilized. It is anticipated that this permit would be required since STEAP funds were utilized on the project.

#### Per Local Zoning Regulations:

- Erosion and Sedimentation Control Plan Certification per Section 68.
- Possible Excavation and Grading Permit per Section 64.
- Site Plan Approval per Section 51.
- Design Review Team Review per Section 69.
- Compliance with Flood Plain Regulations per Section 53.
- Non-Residential Buildings require a Special Exception per Section 53.14.3.
- Continuing Existing Non-Conforming Uses and Structures or the Enlargement of Non-conforming Uses – Due to the newly adopted Town Districts an amendment to the zoning map would be required along with a Special Exception.
- Municipal Building – Public Works Facilities require a Special Exception.

#### Currently Not Applicable:

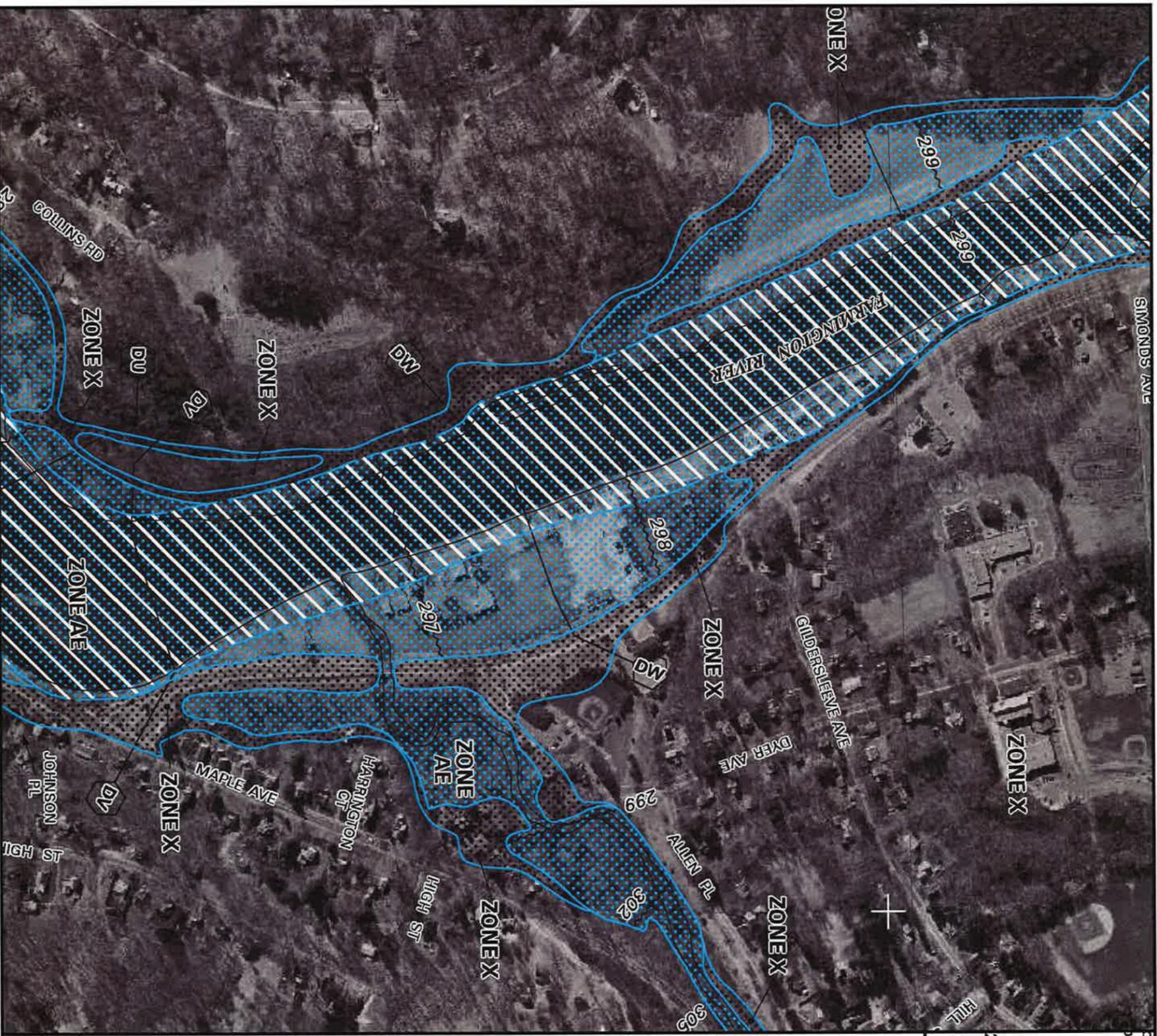
- No wetlands identified onsite from Capitol Region Council of Governments (CRCOG) GIS Viewer, which means no Army Corps of Engineers and Water Quality Certificate. This could change should the Town identify a site for compensatory storage which would impact existing wetlands.
- Stream Channel Encroachment Lines Permit – Canton was not identified on the “listing of regulated areas in CT” from the DEEP.

A preliminary zoning analysis was prepared for the site in accordance with the MCPF District requirements. The existing site consists of a 6.5 acre parcel and includes the existing DPW facility, a ball field, and a wastewater treatment facility. In accordance with Section 27.4.3, the following dimensional requirements apply to this district:

- Minimum Lot Area: None
- Minimum Frontage: 30 feet
- Min. Front Yard: 20 feet
- Minimum Side Yard: 15 feet (may be increased per 27.4.7.d)
- Minimum Rear Yard: 25 feet (may be increased per 27.4.7.d)
- Maximum Height: 40 feet
- Maximum Building Coverage: 25% (may be increased up to 60%)
- Maximum Impervious Coverage: 50% (may be increased up to 60%)
- Any loading area, outdoor vehicle service area, outdoor material storage areas, or any area that would require repetitious forward and backward movements of large vehicle and heavy equipment shall be located at least 100 feet from any lot lines which adjoin a residential lot.

The lot currently contains approximately 48,000 square feet of impervious surface. Utilizing the generic DPW facility plan (see attached), the proposed DPW facility would result in an additional 109,400 SF of impervious surface. The total impervious surface area would be approximately 55% of the site which would require the Town to seek an increase in the Maximum Impervious Coverage by demonstrating to the Commission that such additional coverage will not increase the off site storm water runoff. However, this increase may not be permitted in accordance with Section 59.11 of the Farmington River Protection Overlay District (FRPO) which limits the impervious coverage to 50%. Consequently, the proposed development plan would need to be modified to reduce the overall impervious coverage to 50%.

Based on the current generic site plan, the new facility would displace the existing ball field and would leave little to no room for a surface stormwater management system (detention pond). Consequently, the development of this site will likely require the installation of a subsurface storage/infiltration system. The type of system would be determined upon identifying the actual depth to the seasonal high groundwater. Further consideration should be given to the Future Land Use Map in the POCD which indicates that this land is intended by the Town to be a Conservation Area.



Flood insurance is available in this community, contact your local Flood Insurance Program at (800) 638-6620.



MAP SCALE 1" = 500'



**NATIONAL FLOOD INSURANCE PROGRAM**

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FIRM  
**FIRM**  
 FLOOD INSURANCE RATE MAP  
 HARTFORD COUNTY,  
 CONNECTICUT  
 (ALL JURISDICTIONS)

**PANEL 308 OF 675**  
 (SEE MAP INDEX FOR FIRM PANEL LAYOUT)

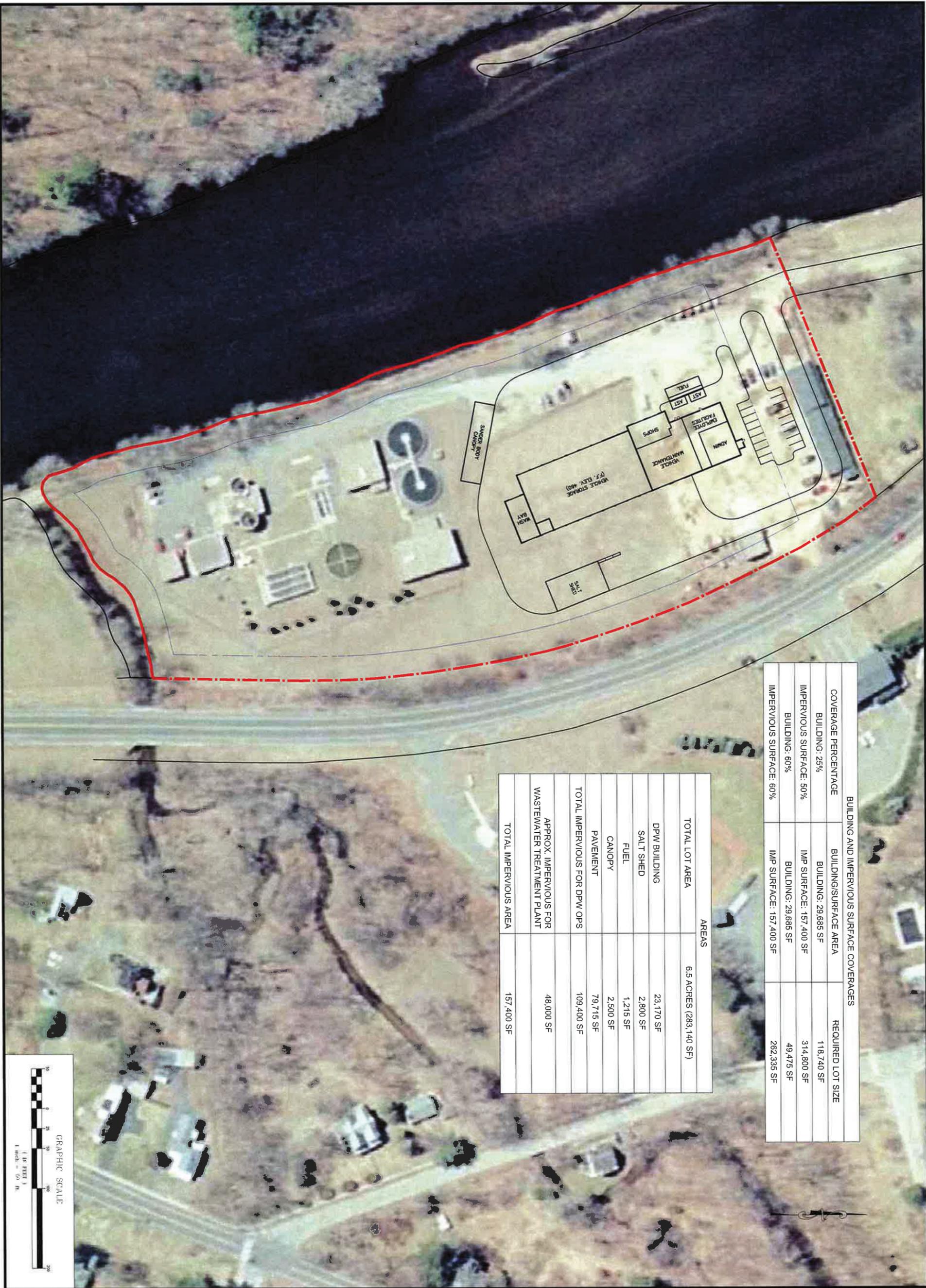
CONTAINS:  
 COMMUNITY NUMBER PANEL SUPERX  
 CANTON, TOWN/OF 090135 0308 F

**MAP NUMBER**  
 09003C0308F

**EFFECTIVE DATE:**  
 SEPTEMBER 26, 2008

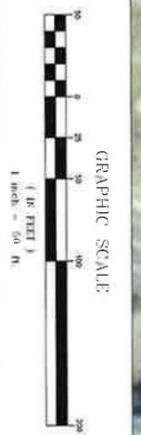
Federal Emergency Management Agency

This is an official copy of a portion of the above referenced flood map. It was extracted using F-MIT On-Line. This map does not reflect changes or amendments which may have been made subsequent to the date on the title block. For the latest product information about National Flood Insurance Program flood maps check the FEMA Flood Map Store at [www.msc.fema.gov](http://www.msc.fema.gov)



BUILDING AND IMPERVIOUS SURFACE COVERAGES		
COVERAGE PERCENTAGE	BUILDING/SURFACE AREA	REQUIRED LOT SIZE
BUILDING: 25%	BUILDING: 29,685 SF	118,740 SF
IMPERVIOUS SURFACE: 50%	IMP SURFACE: 157,400 SF	314,800 SF
BUILDING: 60%	BUILDING: 29,685 SF	49,475 SF
IMPERVIOUS SURFACE: 60%	IMP SURFACE: 157,400 SF	262,335 SF

AREAS		6.5 ACRES (283,140 SF)
TOTAL LOT AREA		
DPW BUILDING	23,170 SF	
SALT SHED	2,800 SF	
FUEL	1,215 SF	
CANOPY	2,500 SF	
PAVEMENT	79,715 SF	
TOTAL IMPERVIOUS FOR DPW OPS	109,400 SF	
APPROX. IMPERVIOUS FOR WASTEWATER TREATMENT PLANT	48,000 SF	
TOTAL IMPERVIOUS AREA	157,400 SF	



<b>50-1</b> SHEET - OF - 1	TOWN OF CANTON, CONNECTICUT DEPARTMENT OF PUBLIC WORKS DPW SITE SELECTION STUDY <b>50 OLD RIVER ROAD</b>		No.    Date    Dr. By    Ck. By    App. By    Description A    P    P    R    O    V    E    D		 Weston & Sampson Engineers, Inc. 100 Foxborough Blvd, Foxborough, MA 02035
	FILE NO. MARCH 2012 CADD NO. C-1 SCALE: AS SHOWN CONTRACT: _____ JOB NO. _____ DR BY JMF DSN BY _____ CHK. BY JJA APP. BY _____	REGISTERED PROFESSIONAL ENGINEER _____ DATE _____			