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PLANNING BOARD
GRAFTON, MA

US Wireless – Stormwater /Soil Erosion Presentation to Planning Board

Proposed raw land communication tower site

104 Creeper Hill Rd, Grafton, MA

Stormwater /Soil Erosion

- Response to Graves Engineering 9/30/16 letter
- The purpose of this presentation to illustrate that Applicant's project will only have a de minimus increase in stormwater runoff and sets forth the pervious versus impervious surfaces, where impervious surfaces are approximately 21% of the total project area versus 79% which are pervious with ¾" crushed stone surface. The submitted plans are "zoning drawings", versus construction drawings, the latter of which will thoroughly delineate and address the Graves Engineering items on its plans as it relates to a stormwater soil erosion plan with a proper stormwater/soil erosion hale bale/silt fence perimeter enclosing the project area.
- Grafton US-MA-5025 — 104 Creeper Hill Road Cell Tower Page 3 of 3
- Special Permit and Site Plan Review
- Hydrology & MassDEP Stormwater Management
- Item # 8: General Note 2 on Sheet 2 of the plans indicates that the project will have only a "de minimus" increase in storm water runoff
- Based on the zoning drawings, the following presentation shows the pervious versus impervious surfaces with percentages, which is preliminary documentation regarding hydrology
- The project shall conform with the MassDEP Stormwater Handbook and the MassDEP Stormwater Standards. Beyond the issue of peak rate attenuation (Standard 2), groundwater recharge (Standard 3)
- This presentation addresses storm water quality (Standard 4), and the project documents will also address construction phase erosion controls (Standard 8) and long-term operation and maintenance (Standard 9, which addresses site housekeeping as it relates to stormwater).
- This project review addresses compliance with applicable MassDEP Storrmwater Standards.

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Stormwater /Soil Erosion

- Response to Graves Engineering 9/30/16 letter
- Our project will occupy 3,600 square feet, where the surface will consist of ¾" crushed stone pervious surface.
- Of the 3,600 square feet, 761 square feet, or 21.14% will be impervious surfaces from concrete pads to support the tower and/or related telecommunication or electrical equipment.
- This results in 78.86% of the lease area or project which will be a pervious crushed stone surface that will absorb the water and allow the ground space to avoid any high velocity water run-off.

#	Description	Dimensions	Sq ft	
1	Lease area	36' x 36'	3,600	
Total			3,600	100%
	Impervious surfaces	Dimensions	Sq ft	
2	Tower concrete pad	25' x 25'	625	
3	Verizon propane generator pad	4.5' x 10'	45	
4	Verizon propane tank pad	4' x 10'	40	
5	Hubbel QUAZITE® enclosures for electrical junction boxe pad	3' x 5'	15	
6	Transformer pad	6' x 6'	36	
Total	Impervious surfaces		761	21.14%
	Pervious surfaces			
#	Description	Dimensions	Sq ft	
Total	Pervious surfaces		2,839	78.86%

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Stormwater/Soil Erosion

- The Zoning Drawings do not delineate Stormwater/Soil Erosion submitted to the Planning Board, although the Construction Drawings (which is the next step) will address and indicate the location of erosion control fencing around the compound.
- The leased space is a 60' x 60' or 3,600 square foot area
- The erosion control fencing around the compound will be 20' in each direction from the lease area boundary, or have a perimeter of 100' x 100' with hay bale/silt fencing or a 10,000 square foot enclosed perimeter.
- Construction Drawings will include a notation that erosion controls shall be installed prior to commencement of work or as required by Planning Board agent.
- Construction Drawings will include a notation and details of fencing and straw wattles/ straw bales will be on plan.

Stormwater Management Standards overview

- In 1996, the Massachusetts Department of Environmental Protection (the "Department" or "MassDEP") issued the Stormwater Policy that established Stormwater Management Standards aimed at encouraging recharge and preventing stormwater discharges from causing or contributing to the pollution of the surface waters and groundwaters of the Commonwealth.

- In 1997, MassDEP published the Massachusetts Stormwater Handbook as guidance on the Stormwater Policy. MassDEP has revised the Stormwater Management Standards and Massachusetts Stormwater Handbook to promote increased stormwater recharge, the treatment of more runoff from polluting land uses, low impact development (LID) techniques, pollution prevention, the removal of illicit discharges to stormwater management systems, and improved operation and maintenance of stormwater best management practices (BMPs).

- MassDEP applies the Stormwater Management Standards pursuant to its authority under the Wetlands Protection Act, M.G.L. c. 131, § 40, and the Massachusetts Clean Waters Act, M.G.L .c. 21, §§ 26-53. The revised Stormwater Management Standards have been incorporated in the Wetlands Protection Act Regulations, 310 CMR 10.05(6)(k) and the Water Quality Certification Regulations, 314 CMR 9.06(6)(a).

Stormwater Management Standards overview 1 -8

- 1. In the construction phase, this project will not discharge new stormwater conveyances (e.g. outfalls) untreated stormwater directly to or cause erosion in wetlands or waters of the Commonwealth.

- 2. In the construction phase, this project shall have Stormwater management systems which shall be designed so that post-development peak discharge rates do not exceed pre-development peak discharge rates. This Standard may be waived for discharges to land subject to coastal storm flowage as defined in 310 CMR 10.04.

- 3. In the construction phase, loss of annual recharge to groundwater shall be eliminated or minimized through the use of infiltration measures including environmentally sensitive site design, with hay bales and silt fence barrier as its low impact development technique, stormwater best management practices, and good operation and maintenance. At a minimum, the annual recharge from the post-development site shall approximate the annual recharge from pre-development conditions based on soil type. This Standard is met when the stormwater management system is designed to infiltrate the required recharge volume as determined in accordance with the Massachusetts Stormwater Handbook.

Stormwater Management Standards overview 1 -8

- 4. In the construction phase, this project will have a Stormwater management system, which shall be designed to remove 80% of the average annual post-construction load of Total Suspended Solids (TSS). This Standard is met when:

- a. Suitable practices for source control and pollution prevention are identified in a long-term pollution prevention plan, and thereafter are implemented and maintained;
- b. Structural stormwater best management practices are sized to capture the required water quality volume determined in accordance with the Massachusetts Stormwater Handbook; and
- c. Pretreatment is provided in accordance with the Massachusetts Stormwater Handbook.

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Stormwater Management Standards overview 1 -8

- 5. This project will not generate higher potential pollutant loads, therefore source control and pollution prevention shall not be required to be implemented in accordance with the Massachusetts Stormwater Handbook to eliminate or reduce the discharge of stormwater runoff from such land uses to the maximum extent practicable.
- Since this project will generate pollution counts that are far below any minimal requirement for prevention of all land uses with higher potential pollutant loads
- There will not be a results or exposure to rain, snow, snow melt, and stormwater runoff, the proponent shall be required to use specific structural stormwater BMPs determined by the Department to be suitable for such uses as provided in the Massachusetts Stormwater Handbook.
- There will be no stormwater discharges from land uses with higher potential pollutant loads
- The project will comply with the requirements of the Massachusetts Clean Waters Act, M.G.L. c. 21, §§ 26-53 and the regulations promulgated thereunder at 314 CMR 3.00, 314 CMR 4.00 and 314 CMR 5.00.

Stormwater Management Standards overview 1 -8

- 6. This project will not have Stormwater discharges within the Zone II or Interim Wellhead Protection Area of a public water supply, and stormwater discharges near or to any other critical area, or require the use of the specific source control and pollution prevention measures and the specific structural stormwater best management practices determined by the Department to be suitable for managing discharges to such areas, as provided in the Massachusetts Stormwater Handbook.

- This project will not discharge pollutants near a critical area so there is no strong likelihood of a significant impact occurring to said area, taking into account site-specific factors.

- Stormwater discharges to Outstanding Resource Waters and Special Resource Waters shall be removed and set back from the receiving water or wetland and receive the highest and best practical method of treatment. A "storm water discharge" as defined in 314 CMR 3.04(2)(a)1 or (b) to an Outstanding Resource Water or Special Resource Water shall comply with 314 CMR 3.00 and 314 CMR 4.00. There are no stormwater discharges to a Zone I or Zone A are prohibited or essential to the operation of a public water supply.

Stormwater Management Standards overview 1 -8

- 7. This project is not a redevelopment project, so there is no required stipulation to meet the following Stormwater Management Standards only to the maximum extent practicable: Standard 2, Standard 3, and the pretreatment and structural best management practice requirements of Standards 4, 5, and 6. Existing stormwater discharges shall comply with Standard 1 only to the maximum extent practicable.

- 8. During construction, Applicant will have a plan to control construction-related impacts including erosion, sedimentation and other pollutant sources during construction and land disturbance activities (construction period erosion, sedimentation, and pollution prevention plan) shall be developed and implemented.

- 9. During construction, Applicant will have a long-term operation and maintenance plan developed and implemented to ensure that stormwater management systems function as designed.

- 10. All illicit discharges to the stormwater management system are prohibited.

Applicability

- Except as expressly provided herein, stormwater runoff from all industrial, commercial, institutional, office, residential and transportation projects including site preparation, construction and redevelopment, and all point source stormwater discharges from said projects shall be managed according to the Stormwater Management Standards.

Environmentally Sensitive Site Design and Low Impact Development Techniques

- The project will comply with The Wetlands Regulations, 310 CMR 10.04, and the Water Quality Certification Regulations, 314 CMR 9.02, define environmentally sensitive site design to mean design that incorporates low impact development techniques to prevent the generation of stormwater and non-point source pollution by reducing impervious surfaces, disconnecting flow paths, treating stormwater at its source, maximizing open space, minimizing disturbance, protecting natural features and processes, and/or enhancing wildlife habitat. The Wetlands Regulations, 310 CMR 10.04, and the Water Quality Certification Regulations, 314 CMR 9.02, define low impact development (LID) techniques to mean innovative stormwater management systems that are modeled after natural hydrologic features. Low impact development techniques manage rainfall at the source using uniformly distributed decentralized micro-scale controls. Low impact development techniques use small cost-effective landscape features located at the lot level.

Explanation of the Standards

- Standard 1: No new stormwater conveyances (e.g. outfalls) will discharge untreated stormwater directly to or cause erosion in wetlands or waters of the Commonwealth.

- This standard allows the direct discharge of stormwater to waters and wetlands provided the discharge is adequately treated. The term "treated" refers to the implementation of stormwater management systems that are specifically designed to achieve sediment and contaminant removal rates that adequately protect groundwater, surface waters and wetlands in accordance with all applicable statutes, regulations, permits, and approvals, the other standards, and the technical specifications set forth in Volume 2 of the Massachusetts Stormwater Handbook. The level of treatment required by the other standards is based on whether the discharge impacts a critical area, is from a land use with a higher potential pollutant load, or to soils with a rapid infiltration rate.

Explanation of the Standards

- Standard 2: In the construction phase, this Stormwater management system shall be designed so that the post-development peak discharge rates do not exceed pre-development peak discharge rates. This Standard may be waived for discharges to land subject to coastal storm flowage as defined in 310 CMR 10.04.

- In the construction phase, to prevent storm damage and downstream and off-site flooding, Applicant will meet Standard 2 where the project requires that the post-development peak discharge rate is equal to or less than the pre-development rate from the 2-year and the 10-year 24-hour storms. BMPs that slow runoff rates through storage and gradual release, such as LID techniques, extended dry detention basins, and wet basins, must be provided to meet Standard 2. This project area is very close to area is within the 100-year coastal flood plain or land subject to coastal storm flowage, the control of peak discharge rates is usually unnecessary and may be waived.
- Standard 3: In the construction phase, loss of annual recharge to groundwater shall be eliminated or minimized through the use of environmentally sensitive site design, low impact development techniques, stormwater best management practices, and good operation and maintenance. At a minimum, the annual recharge from the post- development site shall approximate the annual recharge from pre-development conditions based on soil type. This Standard is met when the stormwater management system is designed to infiltrate the required recharge volume as determined in accordance with the Massachusetts Stormwater Handbook.

Explanation of the Standards

- Standard 4 requires the development and implementation of suitable practices for source control and pollution prevention. These measures must be identified in a long-term pollution prevention plan. The long-term pollution prevention plan shall include the proper procedures for the following:
- • good housekeeping;
- • storing materials and waste products inside or under cover;
- • vehicle washing;
- • routine inspections and maintenance of stormwater BMPs;
- • spill prevention and response;
- • maintenance of lawns, gardens, and other landscaped areas;
- • storage and use of fertilizers, herbicides, and pesticides;
- • pet waste management;
- • operation and management of septic systems; and
- • proper management of deicing chemicals and snow .

Explanation of the Standards

- Standard 5: For land uses with higher potential pollutant loads, source control and pollution prevention
- shall be implemented in accordance with the Massachusetts Stormwater Handbook to eliminate or reduce the discharge of stormwater runoff from such land uses to the maximum extent practicable.
- If, through source control and/or pollution prevention, all land uses with higher potential pollutant loads cannot be completely protected from exposure to rain, snow, snow melt and stormwater runoff, the proponent shall use the specific structural stormwater BMPs determined by the Department to be suitable for such uses as provided in the Massachusetts Stormwater Handbook.
- Stormwater discharges from land uses with higher potential pollutant loads shall also comply with the requirements of the Massachusetts Clean Waters Act, M.G.L.c. 21, §§ 26-53 and the regulations promulgated thereunder at 314 CMR 3.00, 314 CMR 4.00 and 314 CMR 5.00.