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851 Chemung Street  
Horseheads, New York 14845

April 14, 2021

Attn: Mr. John McCracken, Director of Code Enforcement  
City of Elmira  
Inspection Services Department  
101 West Second Street  
Elmira, New York 14901

**Re: Proposed Medical Office Building  
503 Park Place, City of Elmira  
Review of Stormwater Management Plan**

Mr. McCracken:

I have completed a review of the following submitted information for the above-referenced project regarding the stormwater management plan for that project.

- Site Development Drawings for Proposed Medical Office Building, Prepared by James Allen Rumsey, Dated March 5, 2021, Received March 26, 2021, Stamped by a licensed architect
- Stormwater Management Report for Proposed Medical Office Building, Prepared by Pinewoods Engineering, P.C., Dated February 10, 2021, Received March 26, 2021, Stamped by a licensed professional engineer

My review comments and questions regarding the proposed stormwater management system for the above-referenced project, based upon the submitted information, are as follows.

**I. General Items**

1. It is noted in the Stormwater Management Report that the proposed project is subject to the Town of Elmira zoning ordinance. This is incorrect, as this project is subject to the City of Elmira zoning ordinance. Furthermore, this proposed project is subject to the City of Elmira's Stormwater Management and Erosion & Sediment Control Ordinance.
2. It is requested that the proposed elevation contours lines be added to the Grading Plan. ½-ft contour lines may be appropriate.
3. Would the proposed filling/grading on the western end of the project site interrupt existing drainage patterns on the adjacent properties?

4. From the submitted information, it appears that during large storm events when the capacity of the proposed stormwater infiltration system is exceeded, stormwater overflows from the redeveloped project site would be directed off-site to the north to the existing parking/drive area on the south side of the Saint Patrick's Apartments.

Of note, the existing stormwater dry well for this off-site area appears to have marginal/poor performance. The photograph below (facing north from the project site towards Saint Patrick's Apartments) was taken on the morning of April 12, 2021, after a rainfall event. As shown, significant ponding occurred at this time. The 24-hour rainfall amount (prior to the time of that this photograph was taken) was 1.54 inches.



Given the following items, alternatives to directing stormwater overflows off-site to the north should be considered.

1. As per the Stormwater Management Report, for a 100-year storm event, the peak flow rates directed off-site to the north would be significantly higher than the current peak flow rates.
2. The performance of the existing off-site dry well appears to be marginal/poor and is unable to accommodate runoff from the existing drainage area for even a modest rainfall event. The increased stormwater overflows during extreme storm events could exasperate the existing ponding situation.

## II. Soils Testing & Evaluation

1. Infiltration testing has not been completed for the proposed Dry Well #1 or proposed Dry Well #3. Also, in regards to the proposed Dry Well #2, the closest infiltration test was over 25 feet away. It is important that representative testing be completed for the various components of the infiltration system. It appears that the design infiltration rate for the entire site is based upon a single infiltration test.
2. Based on the soil borings, it appears that the depth of the clay layer varies across the project site and the soil profiles have been impacted in some locations by prior development on this site. Given these items, significant variability in the upper soils (and the depth to gravel) is expected across the project site. The effects of prior development could include the presence of concrete basement floors, basement walls, imported soils, etc that could impact a stormwater infiltration system.

Given the potential for variable soil conditions, it is recommended additional soil evaluation be completed. Also, it would be prudent for the developer's design engineer to be on-site to evaluate the soil conditions in the proposed dry well and storm piping locations, prior to the installation of the dry wells and storm sewer piping. One important item would be to verify the location of the gravel layer.

## III. Hydrologic Modeling

1. In regards to the existing (pre-project) conditions, the following items are noted.
  - In regards to Existing Drainage Area #1, a portion of this area drains through a low-lying grassed area near the northwest corner of the project site. It appears that this area would effectively act as an infiltration practice. It is recommended that this be considered in the hydrologic modeling of the existing conditions.
  - The capacity of the existing dry well appears to be under-estimated. In the submitted modeling results, it is estimated that the existing dry well is unable to accommodate stormwater flows from even a 1-year storm event, resulting in ponding within the existing parking lot and stormwater overflows to Third Street. This may not conform to historic performance. For example, on April 11/12, 2021, 1.54 inches of rainfall occurred and the existing dry well accommodated the associated runoff with no ponding or surcharge.

It would be conservative to assume that the existing dry well can accommodate peak stormwater flows (without overflows) up to and including the 100-year storm event. Alternatively, the historic performance of this dry well could be reviewed and documented, and an appropriate capacity established.
2. In regards to the hydrologic modeling of the post-developed conditions, the following items are noted.
  - The Tc value for Developed Drainage Area #2 is too high. It is recommended that the shortest Tc value (6 minutes) be utilized.
  - For areas that are intended to be grassed/pervious, appropriate soil restoration should be employed if these areas are disturbed during construction (including being compacted).
3. In regards to the estimation of infiltration flow rates in the post-developed condition, what is the amount of "side surface area" for infiltration for the various storm events? Are these side areas within the gravel layer?

#### IV. Stormwater Infiltration Systems

1. The following questions and comments pertain to the proposed dry wells on Drawing No. C5.1 and the Dry Well Detail on Drawing No. C5.2 of the submitted plans.
    - What load rating is proposed for these structures?
    - What type of geotextile fabric is proposed?
    - What is the specification of the proposed aggregate around and below the structures?
    - A 12-inch dia. grate or cover is unusually small for such a structure.
    - Is it proposed that tight soils below the proposed dry well structures (if encountered) be removed to expose the underlying gravel and replaced with a permeable gravel?
    - What is the 4" min. circle shown on the Detail?
    - The location of the proposed Dry Well #1 is shown to be within the footprint of the existing residential house to be demolished. Remnants of the demolition of this building (such as foundation walls and basement floor slabs) could act to impede infiltration from this proposed dry well and should be considered in the design.
  
  2. The following questions and comments pertain to the proposed storm sewer on Drawing No. C5.1 and the Trench Section Details on Drawing No. C5.2 of the submitted plans.
    - Is adequate cover proposed over the storm sewer pipe?
    - What is the specification for the proposed perforated HDPE storm sewer?
    - As per the Stormwater Management Report, the proposed "gravel encasement" is noted to have a 40% void space. A void space of 40% is typically associated with a clean, open graded, angular aggregate material, as opposed to a crushed gravel.
    - Is a geotextile fabric proposed to wrap the around aggregate for the perforated pipe?
    - Is it proposed that tight soils below the proposed storm sewers (if encountered) be removed to expose the underlying gravel and replaced with a permeable gravel?
  
  3. The following questions and comments pertain to the proposed storm manholes on Drawing No. C5.1 and the Typical Storm Manhole Detail on Drawing No. C5.2 of the submitted plans.
    - As per Drawing C5.1, the heights of the proposed storm manholes (as measured from the top of grate to the pipe invert) would be approximately 3.8 to 4.5 feet. Given the height of the frame/cover and the thickness of the top slab of the manhole, the interior height of the manhole would not allow ready access/use of these manholes.
    - As per the Stormwater Management Report, the storm manholes shall be 4-foot diameter. Would a manhole larger than 4-foot diameter be required to accommodate the proposed storm sewer pipes?
    - The Typical Storm Manhole Detail states that the minimum diameter of the manhole shall be 2' dia. (or as required). This may be confusing. It is recommended that the diameters of the proposed manholes be noted on the plans, to avoid confusion.
    - The Typical Storm Manhole detail indicates that a 12-inch diameter cover is proposed. This diameter is unusually small for manholes of this type.
    - What load rating is proposed for the manhole structures?
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**V. Stormwater Collection and Conveyance**

1. Will the proposed roof drain system (including downspouts) have sufficient hydraulic capacity to accommodate peak stormwater flows rates? Supporting calculations should be provided.

**VI. Erosion & Sediment Control**

1. The Erosion & Sediment Control Plan should be consistent with the erosion and sediment control requirements outlined in the City's Stormwater Management and Erosion & Sediment Control Ordinance.
2. The proposed Sequence of Construction, including the associated erosion and sediment control measures, should be provided. It is imperative that silt and sediment not be directed to the infiltration system.
3. The maintenance requirements for the various erosion and sediment control practices should be included.
4. Provisions for dust control should be included in the erosion & sediment control plan. An appropriate specification should be included in the erosion & sediment control Plan.

**VII. Operation & Maintenance Plan/Agreement**

1. In accordance with the City of Elmira's Stormwater Management and Erosion and Sediment Ordinance, a formal, signed enforceable operation and maintenance agreement for the stormwater collection and management system shall be provided by the Applicant. Furthermore, this agreement must reference and include an approved Operation & Maintenance Plan. This is especially pertinent to this project as stormwater infiltration systems will have specific O & M needs to maintain the on-going performance.

This agreement shall be binding on all subsequent landowners and recorded in the office of the County Clerk as a deed restriction on the property. Also, the Applicant shall convey to the City easements and/or rights-of-way to assure access for periodic inspections by the City or their representatives (and for maintenance if required). These agreements, as well as the Operation & Maintenance Plan, shall be subject to the review and approval of the City of Elmira, their attorney, and Chemung County Stormwater Coalition.

2. In regards to the proposed stormwater infiltration systems, a detailed O & M Plan should be developed that includes (but not be limited to) the following items.
  - i. Specific operation and maintenance tasks
  - ii. Monitoring requirements (including frequency)
  - iii. Frequency of and thresholds (triggers) for maintenance activities

Like other stormwater infiltration systems, the proposed drywells would have an effective life span, after which the repair and/or replacement of these would be needed. A number of factors impact the effective working life of an infiltration system, including the nature of the existing soils, the nature and amount of solid particulates discharged to the system, the degree of maintenance, and the nature of the pretreatment provided. Maintenance of the proposed infiltration system will be critical to the long-term performance and effective life of these systems.

If you have any questions or comments regarding these questions and comments, please do not hesitate to contact me. Furthermore, I would be happy to meet to discuss these items in greater detail.

Sincerely,

A handwritten signature in blue ink that reads "Jimmie Joe Carl". The signature is written in a cursive style with a blue color.

Jimmie Joe Carl, P.E.

Cc: Andy Avery, P.E., City of Elmira  
Rick Vary, City of Elmira  
Pinewoods Engineering, PC