



851 Chemung Street
Horseheads, New York 14845

January 28, 2014

Mr. Tim Gilbert, Code Enforcement Officer
Town of Big Flats Code Enforcement Department
476 Maple Street, P.O. Box 449
Big Flats, New York 14814

**Re: Tri-County Conference Center
Big Flats, New York
Review of Stormwater Management Plan**

Mr. Gilbert:

I have completed a review of the above-referenced project regarding the proposed stormwater management system for that project.

- Stormwater Pollution Prevention Plan for Tri-County Conference Center, Stamped by a NYS Licensed Professional Engineer, Prepared by Fagan Engineers, Dated December 2013, Received December 9, 2013
- Site Plan Drawings for Tri-County Conference Center, Stamped by a NYS Licensed Professional Engineer, Prepared by Fagan Engineers, Revision Dated November 20, 2013, Received December 9, 2013.
- Response letter to my July 24, 2013 review letter, Prepared by Fagan Engineers, Dated December 9, 2013
- Archeological Sensitive Area Mapping, Provided via e-mail by Fagan Engineers, Dated January 13, 2014

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

HYDROLOGIC & HYDRAULIC MODELING

1. It appears that the volume of the existing depression, used in the Stage versus Storage relationship to model the existing conditions, may be under-estimated. It is requested that this be reviewed.
2. In regards to the modeling of the proposed stormwater detention basin, a starting elevation of 962 feet (i.e. the floor elevation of the proposed basin) is assumed as opposed to the elevation of the low outlet control orifice (962.86 feet). The question exists is to whether this is a sound assumption. In other words, can it be reasonably assumed that standing water won't routinely occupy the proposed basin floor?

STORMWATER MANAGEMENT CONSIDERATIONS

1. Stormwater drywells are proposed to be part of the stormwater management system and would receive rooftop runoff. The following questions and comments pertain to the use of drywells.
 - The performance (and sizing) of the proposed drywells would depend upon the infiltration rate of the surrounding soils. It is my understanding that on-site infiltration testing has not been completed to date. Accordingly, appropriate soils testing, including test pits and infiltration testing, would need to be completed to verify the viability and sizing of drywells.
 - Sizing calculations for the proposed drywells should be provided. These calculations would include estimates of drain times for these drywells.
 - Although the “Roof Leader Drywell Detail” is from the New York Stormwater Design Manual, this detail appears to be more applicable for smaller residential roofs. In addition, a drywell, constructed per this detail, would offer limited options for effective long-term maintenance. On the contrary, the RRV calculations indicate that 8-foot diameter prefabricated drywells are proposed.
2. “Rain Gardens” are proposed to be part of the stormwater management system and receive runoff from parking lot and drive areas. The following questions and comments pertain to rain gardens.
 - Given the size and nature of the drainage area, the use of bioretention filters would be more appropriate. Bioretention filters and rain gardens are closely related, where rain gardens are more applicable for smaller residential drainage areas.
 - With bioretention, a perforated underdrain pipe is required.
 - Specific pre-treatment requirements exist with bioretention, as per the New York State Stormwater Management Design Manual.
3. A question exists regarding how reliably stormwater flows will be introduced to the proposed rain gardens. For example, for RG #2, RG #4, RG #7, and RG #8, a potential exists that flows will “skip” the curb breaks, as stormwater flows along curb lines with continuous downhill slopes (i.e. no sags) are intended to drop perpendicularly into the adjacent rain garden. Furthermore, turf growth along the proposed curb breaks would act to hinder the introduction of flow into the proposed rain gardens.
4. The size of the proposed debris screen on the proposed outlet control structure should be noted on the plans.
5. As per Sheet 3 of the plans, a water feature of some sort is proposed near the south entrance of the Homewood Suites building. The Applicant’s engineer has indicated that this will be an ornamental water feature, such as a water foundation, and is not proposed to be part of the stormwater management system.
 - The proposed grading plan in that area does not seem to correspond to this proposed feature.
 - Also, will this feature have an overflow to the stormwater system?
6. The discharge storm sewer into the forebay is below the spillway from the forebay. Furthermore, no forebay storage is provided below the invert elevation of this storm sewer. As such, debris, accumulated within the forebay, could also accumulate within this storm sewer.
7. The proposed stormwater management system for the area at the south side of the proposed Homewood Suites appears to be based upon the use of a drywell that would receive runoff from the adjacent lawn and sidewalk areas. Soils evaluation, to verify the suitability of drywells, has not been completed to date. Furthermore, as per the New York State Stormwater Management Design Manual, only roof runoff should be directed to a drywell.

STORMWATER CONVEYANCE

1. A tributary area map to the various inlets, culverts, rain gardens, etc of the proposed stormwater management and conveyance system is requested. This would assist with the technical review. In addition, the calculations for the estimated peak flows to the various inlets are requested.
2. The Applicant's engineer has indicated that the locations and discharge points of roof leaders are uncertain at this time. As a condition of the approval, the following requirements are recommended.
 - a. Prior to the start of construction, the Applicant's engineer shall submit to the Town of Big Flats for review and acceptance a utility plan showing the locations and discharge points of the proposed roof leaders.
 - b. The respective drainage areas to the proposed drywells shall not exceed those areas used for the sizing of the drywells.
 - c. Construction shall not begin until the Town reviews and accepts this utility plan.
3. In regards to the existing culvert below the existing entrance drive onto Colonial Drive, the Applicant's engineer has indicated that this culvert will be removed and the associated ditch regarded accordingly. The plans (including the grading plan) should indicate this.
4. Some of the proposed inlets shall be located along a curb with a continuous longitudinal slope (i.e. not in a sump). What grates are proposed for those situations and what is the capacity of the grates in that setting?
5. The storm sewer sizing calculations utilize a water surface elevation of 964.5 feet for the proposed stormwater detention basin for both the 10-year and 100-year storm events. This elevation is lower than the maximum water surface elevations for this basin, as noted on Page SWPPP-8.

SITE PLAN

1. It is requested that the plans clearly note the location and extents of the proposed curbing. Furthermore, spot elevations and labeling proposed elevation contours along curbs would be helpful.
2. Proposed spot elevations at the proposed drive entrances onto Colonial Drive and Arnot Road on the grading plan are requested. Upon discussion with Chemung County DPW Engineering personnel, runoff from the proposed access drives shall not be directed to these public thoroughfares.
3. Proposed spot elevations are requested on the grading plan, including at
 - the rain gardens (bioretention) and the associated area around these
 - curb breaks
 - the top and bottom of curbs
 - the edge of parking lots
 - sidewalks
 - spillways
 - entrance drives onto County Roads

OPERATION & MAINTENANCE PLAN

1. A detailed O & M plan should be provided that addresses the various components of the proposed stormwater management system. For example, the submitted O & M Plan does not include any provisions for the proposed drywells. Also, for example, detailed O & M requirements for the proposed rain gardens (bioretention) should be outlined, including triggers (such as standing water) that would initiate maintenance actions.

EROSION & SEDIMENT CONTROL

1. Some confusion exists with Note #5 of the Construction Sequence regarding the size of the proposed temporary sediment basin. For the temporary sediment basin, is it the intent to construct the proposed Stormwater Detention Basin except that the bottom of the basin would be temporarily at an elevation of 963 feet and subsequently, when completing the Stormwater Detention Basin, the bottom of the basin would be lowered to the proposed 962 feet? The plans should clarify this point.
2. Will 5 acres or greater of land be disturbed at any one time?
3. Note #12 of the Construction Sequence references an infiltration basin. This appears to be inaccurate.
4. Will the fill slope along the edge of the proposed parking lot, adjacent to the proposed stormwater detention basin, be prone to erosion?

MISCELLANEOUS

1. In accordance with the Town'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 the selected stormwater management practices will have specific O & M needs to maintain their 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 Town easements and/or rights-of-way to assure access for periodic inspections by the Town 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 Town of Big Flats, their attorney, and Chemung County Stormwater Coalition.

2. Runoff from a portion of Colonial Drive will be directed to the proposed stormwater conveyance system on the project site. As such, the drainage of that thoroughfare will depend upon the performance of the proposed stormwater conveyance system. The Applicant's engineer has indicated that the Applicant will provide an easement over the proposed downstream stormwater system that;
 - o Gives the County DPW the right (but not the responsibility) to complete necessary maintenance on this proposed downstream stormwater system, such to avoid negative impacts to Colonial Drive.
 - o Has provisions for the County DPW to be reimbursed for maintenance completed by them on the proposed downstream stormwater system.
3. This review pertains to stormwater management. The Applicant is responsible to obtaining all necessary approvals, including those from the Town of Big Flats and the Chemung County Sewer District.
4. The Applicant's engineer has noted that the Phase 2 site, grading, and drainage plans may change in the future, depending upon the final building plans. Appropriate plans, denoting these changes, should be submitted to the Town for their review and approval.

If you have any questions or comments regarding this letter, please do not hesitate to contact me. Furthermore, I would be happy to meet to discuss this project in greater detail. Given the preliminary nature of the submitted plans, additional questions may result in subsequent reviews.

Sincerely,

A handwritten signature in black ink that reads "Jimmie Joe Carl". The signature is written in a cursive style with a large, prominent 'J' at the beginning and a distinct 'C' at the end.

Jimmie Joe Carl, P.E.

Cc: Andy Avery, P.E., Chemung County DPW
Jessica Verrigni, Chemung County Stormwater