

January 11, 2018

Tredyffrin Township
Attn: Stephen Burgo, PE
Township Engineer
1100 Duportail Road
Berwyn, PA 19312-1079

*Scientists, Engineers &
Environmental Planners
Designing Innovative
Solutions for Water,
Wetland and Soil
Resource Management*

**Re: Wayne Glen Stormwater Management
Land Development Application
Tredyffrin Township, Chester County, Pennsylvania
pH No. 1380.001**

Dear Steve,

Princeton Hydro is pleased to provide Tredyffrin Township with this summary of our review of the recently submitted Wayne Glen land development application package. We have reviewed the plans for their compliance with the Township Stormwater Ordinance, the Trout Creek Overlay and the conditions set forth in the Settlement Agreement. Our review includes critical comments related to the application's compliance with various stormwater management related requirements.

Documents Reviewed

The following documents were provided to us by the applicant's engineer for the purpose of our review:

- Post-Construction Stormwater Management Report, Wayne Glen Tredyffrin Township, Chester County, PA, prepared by Pennoni, dated December 1, 2017
- Project Narrative, Wayne Glen Tredyffrin Township, Chester County, PA, prepared by Pennoni, dated December 1, 2017
- Compliance Narrative, Wayne Glen Tredyffrin Township, Chester County, PA, prepared by Pennoni, dated December 6, 2017
- Wayne Glen Preliminary/Final Land Development Plan Set, Tredyffrin Township, Chester County, Pennsylvania, 50 Sheets, prepared for Arcadia Tredyffrin, LLC, prepared by Pennoni, dated December 1, 2017

□ 1108 Old York Road PO Box 720
■ 1200 Liberty Place
□ 203 Exton commons
□ 20 Bayberry Road

Princeton Hydro, LLC
Ringoes, NJ 08551
Sicklerville, NJ 08081
Exton, PA 19341
Glastonbury, CT 06033

t. 908.237.5660 f. 908.237.5666
t. 856.629.8889 f. 856.629.8866
t. 610.524.4220 f. 610.524.9434
t. 860.652.8911 f. 860.652.8922

- Preliminary Plan Submission Wayne Glen (Landscape Plan), Tredyffrin Township, Chester County, Pennsylvania, 8 Sheets, prepared by Glackin Thomas Panzak, Inc., dated December 1, 2017
- Wayne Glen Regional Basin and Stream restoration Construction Plans, Tredyffrin Township, Chester County, Pennsylvania (and supporting reports), 21 Sheets, prepared for Arcadia Tredyffrin, LLC, prepared by Pennoni, dated January 16, 2015, last revised January 30, 2017

Introduction

The application has been revised from the original Conditional Use application and features a reduction in the total number of residential units with 91 units proposed. The 91 units include 26 Carriage Homes and 65 Villas with the Carriage homes located on the eastern side of the property/stream and the Villas primarily on the western side of the property.

The on-site site stormwater control measures now include six surface infiltration basins, ten bioretention basins, vegetated swales, subsurface infiltration beds, and permeable pavement. Although preliminary infiltration testing was conducted prior to the Conditional Use application, additional infiltration testing was completed in November 2017. This additional testing was performed within the footprint of each of the surface Stormwater Control Measures (SCMs). Consistent with the Trout Creek Overlay (TCO), the project includes the construction of a regional detention basin which will provide mitigation and relief of the frequent flooding at the Walker Road culvert crossing and provide peak flow rate control the 1.18 square mile watershed upstream of the project site.

The following itemized sections summarize the project's compliance with individual sections of the ordinance. A detailed summary of the project's compliance with the stormwater-related conditions of the Settlement Agreement is also provide in a later section of this letter.

1.0 Groundwater Recharge and Volume Control

In accordance with §208-161.A the application must incorporate additional stormwater control including volume control management of the total volume of runoff generated by the proposed development during the two-year storm. The project's ability to meet the volume control requirement is a key component in the project's stormwater management compliance.

Similar to previous versions of the plans, the site plan includes a series of interconnected stormwater management structures including features that are designed to provide groundwater recharge and volume control in compliance with

§174-20 and the TCO Ordinance. The engineer has generally used the appropriate calculation methodologies consistent with previous discussions with the Township, including those related to the determination of the loading ratio for basins designed in series. This approach provides the designer some flexibility and ensures that the overall loading ratios are met while encouraging a more distributed approach to the development's stormwater management.

Although the application appears to provide the required amount of positive volume control (below the first stage outlet), our review has revealed items that should be addressed in order demonstrate compliance with the Groundwater Recharge and Volume Control requirements. Based on our review we have provided the following comments with respect to Groundwater Recharge and Volume Control:

- 1.1. In accordance with §174-20.E(1)(a)[1], an infiltration BMP shall be constructed on soils that have the following characteristics, a minimum depth of 24 inches between the bottom of the BMP and the top of the limiting zone. The detail for Proposed Bioretention Basin 2A indicates that the bottom elevation of the system (below two feet of planting soil and one foot of crushed stone) is 156.00. However, the Soils Log for Test Pit I-11, located in Proposed Bioretention Basin 2A, indicates rock was encountered at elevation 159.00. Therefore, it appears that the construction of the basin would require a significant excavation into the bedrock. The engineer should revise the plan to ensure that the two foot of separation from the limiting zone is maintained.
- 1.2. In compliance with §174-20.E(1)(a)[3], an infiltration facility shall be designed such that it can be demonstrated that the system will be capable of completely infiltrating the required capture volume within three days (72 hours). Dewatering times for Bioretention Basins 1 and 3 and Surface Infiltration Basins 2A and 2C exceed the 72-hour requirement. The engineer should revise the design to ensure that the dewatering time requirement is being met.
- 1.3. Dewatering calculations for Surface Infiltration Basin 1 indicates a field tested infiltration rate of 0.5 in/hr. Soil tests I-23 and I-24 were completed within Surface Infiltration Basin 1 with test results of 1.0 in/hr and 0.0 in/hr respectfully. Dewatering calculations for Surface Infiltration Basin 2D indicates a field tested infiltration rate of 0.4 in/hr. Soil tests I-18 and I-19 were completed within Surface Infiltration Basin 2D with test results of 0.0 in/hr and 0.4 in/hr. The engineer should justify the selection of a final design infiltration rate which was not consistent between basins.

- 1.4. The site plans (Sheet 44) currently only includes a list of the 2013 infiltration test results. The more recent 2017 infiltration test and all test locations/results should be added to the plans.
- 1.5. Soils Log I-32 indicates an existing surface elevation of 175, test elevation of 169 and end of test pit elevation of 167. The location of I-32 on the Infiltration Testing Locations Plan indicates I-32 having an existing elevation of 152.
- 1.6. The following facilities had infiltration tests which were reported to have been completed at an elevation higher than the proposed bottom of the BMP; Bioretention Basins 1, 2A, 4C, 11A and Surface Infiltration Basin 2E.
- 1.7. Bioretention Basin 2 appears to have been mislabeled as "2A" in the PCSM plans. These labels are not consistent with the POI #2 routing diagram.
- 1.8. All stormwater management facilities including the subsurface infiltration systems, permeable pavers, and Bioretention Basin 4C should be clearly labeled in the PCSM Plan (Sheet 44).
- 1.9. The engineer uses a reduced Curve Number (CN) to represent the permeable pavers, however the provided storage beneath the permeable pavers is otherwise not accounted for. The engineer should represent the pavers with a CN value of 98 and consider minor design modifications to the system to ensure runoff has access to the storage bed independent of the paver surface.
- 1.10. The dimensions and critical design elevations for Bioretention Basin 4B are not provided in the Bioretention Basin details on Sheet 46 of the plan set.
- 1.11. The soil mapping summary tables, Table 4 of the PCSM report, and the summary table provided on Sheet 44 of the site plans are not consistent.
- 1.12. The domed risers proposed for many of the Bioretention Basins should be labeled in the PCSM plan.
- 1.13. Bioretention Basin 11A has a riser shown on the PCSM plan, however none is specified in the PCSM Detail Sheet (Sheet 46) nor is one considered in the supporting calculations.
- 1.14. All proposed monitoring/observation wells which are provided in accordance with the Settlement Agreement should be clearly labeled on PCSM plan.
- 1.15. The bioretention basin details on Sheet 46 of the site plans indicates that a crushed stone section is provided for Bioretention Basin 6, however the storage within the stone is not represented in the routing calculations.
- 1.16. The location, dimensions, and configuration of the underground infiltration systems (Infiltration Trench) are not clear. This system is partially detailed on

Sheet 50 with a profile provided on Sheet 25. Furthermore, the location of the system directly along the footing of a nearly 10 foot tall retaining wall is concerning; especially considering the site geology and the expected concentrated flow (offsite) flow along the top of the retaining wall. This portion of the plan should be reconsidered to better accommodate the desired significant grade change, offsite flow, and any proposed stormwater management features.

- 1.17. Additional underground infiltration trenches are proposed throughout the site. Additional details for these systems should be provided and no systems should be proposed under the proposed roadways.
- 1.18. The dimensions and configuration of the outlet control structure for Bioretention Basin 11 are not consistent between the calculations and the outlet control structure detail on Sheet 46. Additionally, the elevations indicated on the Bioretention Basin 11 Outlet Structure detail are not consistent with those shown in the detailed Bioretention Basin summary table on the same sheet.
- 1.19. The infiltration basin cross sections (Sheets 48 and 49) should be reviewed for consistency.
- 1.20. Many of the storage volumes indicated in the POI #1, #2, and #3 loading ratio/storage diagrams following the Worksheet 4 tables in the PCSM report are not consistent with the volumes in the routing calculations. These tables should be reviewed for consistency.
- 1.21. Table 17 in the PCSM report appears to be mislabeled as POI #3 and should be POI #2.
- 1.22. The routing calculations appear to underrepresent the storage within the crushed stone layer in the basin routing calculations for POI#1.
- 1.23. The engineer should revise the Overall Site Plan (Sheet 7) to show the locations of all of the proposed stormwater management features as well as the locations and buffers surrounding all known karst features.

As summary above, there are a number of outstanding items related to the project's compliance with the Groundwater Recharge and Volume Control requirements. However, the most significant of these is the conflict between the proposed stormwater systems and encountered bedrock as well as the results of the recent infiltration testing which indicate that the systems will likely function slower than expected. Both of these issues typically require the relocation or expansion of proposed stormwater management facilities. It is our opinion that there may be little flexibility considering the spatial constraints posed by the necessary regional basin impoundment area and the current site layout.

2.0 Peak Flow Rate Control

The applicant has generally demonstrated that the project will meet the requirements of §174-23 with the additional reductions per the TCO Ordinance. The applicant has made a concerted effort to eliminate the total amount of areas which bypass the proposed stormwater management features and capture all of the impervious coverage. The bypass areas primarily consist of narrow perimeter areas which are proposed to be managed in a meadow condition in accordance with the Landscape Plan.

In addition to meeting the 5-year post development to 1-year predevelopment peak flow rate as specified in §174-23, the application is required to further reduce the peak flow rates down to a 50% reduction of the baseline requirements of §174-23.

The following comments are provided with respect to the project's compliance with the Peak Flow Rate control criteria:

- 2.1. The engineer should provide basin cross sections with the peak design water surface elevations shown for each design storm.
- 2.2. Hydraulic routing calculations for the 1-, 2-, 5-, 10-, and 25-year design storms have not provided for Bioretention Basin 11.
- 2.3. Detailed calculations for outlet protection have not been provided.

3.0 Operation & Maintenance

The engineer has not submitted a detailed standalone Operation and Maintenance plan, however the following general comments about the application's Operation and Maintenance are provided.

- 3.1. Full access to all of the proposed basins is required and it is especially critical considering the karst bedrock at the property. The plans show the proposed access routes for each basin. However, the slope of each access to each basin (bottom) should not exceed 5:1.
- 3.2. Access routes into each basin should not be encumbered by any adjacent residential units or landscaping. Review of the Landscaping Plan indicates that multiple access paths will be blocked by the proposed vegetation. The Landscaping Plan should be revised and the access paths should be shown on the plan to ensure that there are no conflicts.
- 3.3. The site plans incorporate numerous retaining walls which can further complicate basin access and maintenance of both the basin and the retaining wall itself. The use of retaining walls should be minimized especially in context of the site geology.

- 3.4. The flush finished (level with the basin bottom) observation well detail provided on Sheet 46 should be revised to enable access when the basins are ponded.
- 3.5. A detailed standalone Operation and Maintenance plan should be provided for the project.

4.0 Regional Basin

The engineer has provided design documentation which illustrates that the proposed Regional Basin in its current size and outlet configuration will meet the 5% and 20% reductions for the 2- and 100-year storm respectively. The plans maintain access to the eastern side of the Regional Basin via an access road originating near the eastern side of the stream crossing off Road D. The applicant has acquired both PADEP Chapter 105 and Dam Safety permits for the construction of the proposed system Regional Basin system.

The following comments are provided related to the regional basin:

- 4.1. The site plan should show the existing (calculated) floodplain along the stream corridor.
- 4.2. The PCSM plan sheet (Sheet 44) should show the inundation extent (ponded area) for the modeled storm events.
- 4.3. The applicant should be aware that a separate Township Stormwater and Grading Permit will be required for the construction the Regional Basin and the associated culverts.

5.0 Settlement Agreement Conditions

Many of the conditions set forth in the Settlement Agreement relate to the project's stormwater management. We have reviewed the submitted materials with specific reference to the conditions of the Settlement Agreement, focusing solely on the stormwater related conditions. Each original condition related to stormwater management is referenced below in bold font and the status of each item is summarized below each condition.

Condition 22.a:

The stormwater management system shall recharge the runoff generated during the 2-year/24 hour storm, as required by Code Section 208-161 A(3)(a).

Generally the project appears to have adequate positive storage, however, based on recent infiltration testing some of the proposed systems are not expected to infiltrate the two-year/24 hour storm within the required 72 hours. Several testing location within basins reported infiltration rates of 0 in/hr. Additionally some of the proposed systems do not have adequate separation from bedrock.

Condition 22.b:

The stormwater management systems shall exceed rate control requirements of Section 174 by at least 50% for runoff generated, as required by Code Section 208-164 A.

Although minor items have been noted with respect to peak flow rate control, the application is expected to meet or exceed this condition in its current configuration.

Condition 22.c:

The stormwater management system [Regional Basin] shall provide a 20% reduction in pre-development flow rate for the 100-year design storm and a 5% reduction in predevelopment flow rate for the 2-year design storm at Walker Road based on methodology typical in the industry for modeling storm water, as required by 208-161 A(3)(c).

The dam breach analysis shows that the stormwater management system achieves the required 20% reduction in the pre-development flow rate for the 100-year storm and the 5% reduction in the predevelopment flow rate for the two-year storm. The report indicates that the post condition flow rate is 570 cfs for the 100-year storm and 64 cfs for the two-year storm; a 20% reduction and 6% reduction respectively. The proposed Regional Basin satisfies this condition.

Condition 22.d:

All stormwater structures and facilities [Regional Basin] shall be designed to manage on-site the volume of stormwater generated during the 100-year storm to prevent the overtopping of Walker Road during such storm events.

The proposed Regional Basin satisfies this condition.

Section 4. Stormwater Management

Condition 4.b/c:

For each of the Residential and Office Parcels, the onsite stormwater management features shall maintain positive storage (storage below the lowest outlet) adequate to store the entire runoff volume from the two-year storm in accordance with 208-161.A(3)a for that Parcel.

The on-site stormwater management system maintains a positive storage below the lowest outlet for the entire two-year storm. The total positive storage provided by the site is approximately 167,000 CF. The individual storage volumes for each POI are also maintained although the size of POI#3 is substantially reduced since it considered the entire office parcel at the time of the Settlement Agreement. However, as previously noted the design does not fully address the limiting zones encountered during the recent site testing including the low infiltration test results.

Condition 4.d:

All proposed stormwater management BMPs (Bioretention/ Infiltration Basins, Roadway Porous Pavement/ Underground Infiltration Beds, etc.) used to provide the two-year storage volume shall be equipped with a monitoring well located at an elevation equal to the bottom of the provided two-year storage. The monitoring well on the Residential Parcel shall be accessible by the HOA, the HOA professional engineer, Township, and PADEP to ensure that the storage is empty due to infiltration within a 72 hour period following a storm event. The monitoring well on the Office Parcel shall be accessible by the owner/applicant, the owner/applicant, professional engineer, Township and PADEP to ensure that that storage is empty due to infiltration within a 72 hour period following a storm event.

Although minor comments related to the details of the monitoring wells have been provided, the engineer has incorporated monitoring wells into the proposed stormwater systems.

Condition 4.d(i):

If it is determined that the systems are not able to provide adequate drawdown in 72 hours following a storm event, additional infiltration BMPs shall be provided on-site within the same POI to provide an amount of storage equal to that of the system in question. If needed, these additional BMPs shall not impact the proposed peak rate control reduction requirements of regional basin in accordance with 208-161.A(3)c, and be designed and constructed to not impact the approved zoning calculations. These additional BMPs shall also adhere to the Township's loading ratio criteria.

As indicated by the submitted dewatering calculations Bioretention Basin 1, 3, and 9 and Surface Infiltration Basins 2A and 2C will not dewater in the prescribed 72-hour period.

Condition 4.e:

The on-site stormwater management features shall maintain peak flow reductions at each POI equal to 50% of the baseline peak rate reductions of Chapter 174 in accordance with 208-164.

As stated previously under condition 22.c, the stormwater management systems are expected to comply the peak flow reductions at each POI with reductions equal to or greater than 50% of the baseline peak rates.

Condition 4.f:

All portions of the Property (exclusive of frontage sidewalks and entrance driveways) which bypass the proposed stormwater management systems shall be maintained in a meadow condition.

All bypass areas are indicated to be seeded with meadow seed mix in the Landscaping Plan.

Condition 4.g:

For the Residential Parcel, all downspouts shall be directed to pervious lawn areas or stormwater basin areas and not be directly connected to the pervious pavement/underground bed proposed BMPs. Surface grading should be maintained to ensure that downspout flow will reach the intended BMPs without the potential for bypass.

A downspout detail or note has not been provided. Although the applicant states that this will be included in the Operation and Maintenance plan, the PCSM plan should contain a note to ensure that the downspouts will be disconnected.

Condition 4.h:

A detailed planting plan shall be prepared prior to final land development approval that details the soil preparation, seeding methods, seeding mix, and planting plan for all stormwater management features, bypass meadow areas and the regional basin.

Details related to the planting of the stormwater management features, bypass meadow areas and the regional basin are provided in the Landscaping Plan.

Condition 4.i:

All off site areas which are contributory to the site shall be conveyed to the stream in a manner that creates no impacts (flooding, erosion or other impacts) to adjacent properties.

A combination of vegetated swales and pipes are provided to convey offsite flows to the regional basin. However, complete design information for all bypass structures should be provided.

Condition 4.j:

The Residential Parcel shall be equipped with monitoring equipment, especially for the regional basin facility. The details of the monitoring plan shall be submitted to the Township Engineer for review and approval prior to Final Land Development Plan approval.

Monitoring wells have been provided for the onsite stormwater basins and a staff gage has been detailed for the regional basin. No detailed monitoring plan has been submitted with the application. It is anticipated that this would be prepared as part of the detailed Operation and Maintenance plan.

Condition 4.k:

The Applicant shall prepare an executive summary of the site's stormwater management compliance with reference to the Township Stormwater Ordinance, TCO Ordinance, Trout Creek Study, and current state standards.

The PCSM Report contains an executive summary of the project stormwater management compliance with contains the necessary scope and detail.

Condition 4.l:

Given the complexity of the proposed Wayne Glen Stormwater Management and Site Land Development Plan, the Applicant shall agree to develop a postconstruction stormwater management O&M financial plan, and demonstrate how they and/or the HOA, or other entities will provide for the short and long term operation and maintenance of all the proposed CU stormwater management facilities on the proposed plans. The plan should clearly demonstrate that there will be adequate staff, professional engineering support services, and funding mechanisms in place for both short-term and long-term, routine, as well as all emergency inspection, maintenance and repairs to ensure the safe and efficient and complaint operations of all the proposed site stormwater management facilities. Given that the site is underlain by Karst geology upfront funding should be put aside by the HOA, and future property/home owners for both sinkhole remediation, but even more importantly stormwater facility operation and maintenance (O&M), and further collected by the HOA, and future property/ home owners in a quarterly or yearly basis in a manner which identifies it can only be used for stormwater O&M (inspections, routine repair/maintenance activities, and/or emergency repair / maintenance / replacement, etc.). The applicant has acknowledged this condition and stated that it will be submitted with the forthcoming Operation and Maintenance plan.

Condition 4.m:

During the construction process the Applicant shall have a full-time professional engineer conduct inspections and certify that the regional basin, dam, and all other site stormwater management facilities are constructed in accordance with the approved plan, Township, PADEP, and CCCD permit requirements. For inspection purposes, the Township should be kept informed of the progress of the construction process and be made aware of all critical steps during the construction process. A final certification shall be provided by the Applicant's professional engineer at the completion of each and all phases of construction.

The PCSM details state that “a licensed professional knowledgeable in the design and construction of stormwater BMP's, preferably the design engineer shall be on-site to monitor the [critical] stages of the construction” of the bioretention basins, infiltration basins, and the permeable pavers as listed.

Condition 4.n:

A detailed Erosion and Sediment Control Plan and a Construction Sequencing Plan shall be provided prior to the issuance of a Township Stormwater and Grading permit for each of the Residential Parcel and the Office Parcel, and each shall also demonstrate compliance with PADEP and CCCD 102/NPDES Erosion & Sediment Control requirements.

Construction sequencing has not been provided. Sheet 36 of 50 indicates "Fully designed erosion and sediment control plans and construction sequencing will be submitted as part of the NPDES permit submission to CCCD" as is noted in the

applicant's compliance statement. This remains a condition of approval and the same is noted for Conditions 4.n(i) through 4.n(vii).

Condition 4.o:

Applicant will install improvements to dissipate the energy of the water flowing under Walker Road and out of the culvert to mitigate the erosive effect of such outflows on the existing stream bank. As part of Applicant's post-construction operations and maintenance requirements, Applicant will be responsible for demonstrating the effectiveness of the energy dissipation improvements, to the satisfaction of the Township's Engineer, for all regulated storms from the 1-year through 100-year storm events.

The plan indicates Rip Rap Apron RR-1 will be used to dissipate the energy of the water flowing under Walker Rd. The detail for RR-1 is incomplete and design calculations shall be performed to satisfy this condition.

Condition 4.p:

Applicant will design and implement stream stabilization measures from the outflow of the Walker Road culvert to the Glenhardie Road culvert to mitigate the erosive effects of the outflows from the new culvert to be installed by Applicant under Walker Road. The stream stabilization measures shall be proposed by Applicant and subject to review and approval by the Township Engineer (and any consulting engineer engaged by the Township).

Although energy dissipaters are shown, the applicant's attorney has indicated that they have had difficulty in contacting the current property owner. The applicant's attorney is requested to work with the Township Solicitor to resolve this issue.

Condition 5.a:

A detailed Operation and Maintenance Plan shall be prepared for review by the Township, clearly detailing the routine, yearly, and emergency maintenance inspection, maintenance, and repairs, and reporting to the Township, prior to a Final Land Development approval.

The applicant has stated that the Operation and Maintenance plan will be provided at the time of resubmission of the preliminary and final plan.

Condition 5.b:

The O&M Plan shall include a plan showing the locations of each basin along with dedicated access routes which demonstrate full access to the perimeter of each proposed SWM facility. Access routes for each facility shall not be encumbered by adjacent residential units or landscaping and should have a min. 10-ft min width with slopes less than or equal to 5:1.

As previously noted, the basin access routes should maintain a slope less than 5:1 and extend to the bottom of each basin. Furthermore the routes should not be encumbered by proposed landscaping.

Condition 5.c:

The HOA shall be responsible for the operation and maintenance all stormwater facilities within the town home and carriage home (POT #1 and #2) portions of the site on the Residential Parcel.

The applicant has stated that this will be detailed in the forthcoming Operation and Maintenance plan.

Condition 5.e:

All property owners shall receive a simplified educational packet detailing the property's stormwater management features, which packet shall be subject to review and approval of the Township Engineer.

The applicant has stated that this will be included in the forthcoming Operation and Maintenance plan.

Condition 5.f:

No sand or cinders shall be used for winter road treatment and no landscaping materials (i.e., soils, sands, mulch, etc.) shall be stockpiled on the proposed roadways.

The applicant has stated that this will be stipulated in the forthcoming Operation and Maintenance plan.

Condition 5.g:

During the construction process, the Applicant shall have a full-time professional engineer conduct an inspection of all of the stormwater management facilities on the Property, specifically including the regional basin and dam following any rainfall events greater than one inch. Any observed issues shall be immediately reported to the PADEP, Chester County Conservation District, and the Township Engineer. Inspection reports shall be provided within one week of the rainfall event.

The applicant has stated that this will be included in the forthcoming Operation and Maintenance plan.

Condition 5.h:

For the Residential Parcel, the HOA shall ensure that the regional basin be inspected on a bi-monthly basis during the initial year of operation. Following that, the HOA shall hire a professional engineer to inspect the dam in compliance with PADEP inspection timeline requirements. The regional basin shall also be inspected after every storm with more than 2.7 inches of rainfall over a 24 hour period. Copies of these inspection reports shall be provided to the Township Engineer, within 14-days of the inspections.

The applicant states that this will be noted in the forthcoming Operation and Maintenance plan.

Condition 5.i:

Annual inspection reports completed by a Professional Engineer shall be provided to the Township Engineer on April 1st of each calendar year. The reports shall document any major and all routine inspections, maintenance, and repairs conducted on the regional basin and all private stormwater facilities. The report shall include a list of any outstanding maintenance items, as well as a detailed timeline for completion of any outstanding items.

The applicant has stated that this will be stipulated in the forthcoming Operation and Maintenance plan.

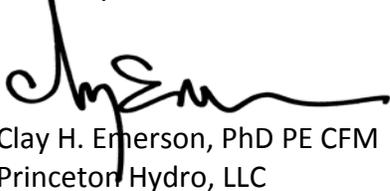
Summary and Conclusions

In summary, we have provided comments which illustrate that there are critical remaining issues with project's compliance with the stormwater ordinance and additional requirements as part of the TCO Ordinance and Settlement Agreement.

The applicant is reminded that the project will require the submission of a Township Stormwater and Grading permit for the land development project. Stormwater and Grading permits are also required for the construction of the regional basin both culverts.

This concludes our review of the recent land development application for the proposed Wayne Glen development. We reserve the right to provide further comment should it become necessary. Please do not hesitate to contact me with any questions. We appreciate the opportunity to provide Tredyffrin Township with these services.

Sincerely,



Clay H. Emerson, PhD PE CFM
Princeton Hydro, LLC

Cc: None
Encl: (0)