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To: Steven W. Reichert, Fuss & O'Neill

From: Tim O'Neill, Langan Eng & Env Svcs., Inc
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Cc: Justin Dunn, Hillwood
Brian Groth, Town of Hudson
Elvis Dhima, Town of Hudson
Jim Petropulos, Hayner/Swanson, Inc.

Date: September 14, 2020

Re: **Town of Hudson Planning Board Review
Stormwater Design Review
Hudson Logistics Center, Lowell Road
Tax Map 239, Lot 1; Acct. #1350-949
Reference No. 03-0249.1930
Langan Project No.: 151010101**

Enclosed please find our responses to the Stormwater Design Review comments dated June 19, 2020. Below please find each comment followed by our response in **bold**.

7. **Drainage Design/Stormwater Management**

Subdivision Plan and Master Plan – Green Meadow Drive Plan Sets Prepared By Hayner/Swanson, Inc.

- a. Hudson Regulation HR 289-18.B.4. We note that the creation of the cul-de-sac is creating what appears to be a "land-locked" wetland pocket. The applicant should review the need for an outlet structure from the center of the cul-de-sac and/or describe the intent of this design.

COMMENT RESPONSE: The revised plan set includes a relocated location of the proposed cul-de-sac (traffic roundabout). This redesign includes two (2) surface outlets from the inside part of the cul-de-sac that allow any build-up of rainwater to sheet drain into the two catch basins located at the low points of the roundabout. Please refer to sheet 6 of 22.

- b. HR 289-20.B.(2). The Regulation requires a catch basin at all four corners of roadways and interesting streets. The applicant is proposing to convert an existing catch basin to a drain manhole at the south side of the Green Meadows

Drive/Lowell Road intersection and not proposing to install a new catch basin at the curb line of the widened road.

COMMENT RESPONSE: A catch basin has been added to the south side of the proposed Green Meadow Drive, at the curb line, near the intersection with Lowell Road. See sheet 3 of 22.

- c. HR 290-5.A.11. We note that the drainage run HW 90 to HW 91 is illustrated within the Langan Site Plan set, but is not illustrated within this roadway plan set. The applicant should coordinate all proposed stormwater drainage between all submitted plan sets.

COMMENT RESPONSE: The HW 90 to HW 91 culvert has been added to the plan set. See sheet 5 of 22.

- d. HR 290-6.A.1. The dimensions for the FES outlet for CES1 and CES2 is not listed within the scour hole details on plan sheet 15. The applicant should add all proposed outlet apron dimensions to the plan set.

COMMENT RESPONSE: The Riprap at Headwall Detail has been revised to include CES 1. See sheet 15 of 22.

- e. HR 290-6.A.1. The applicant should provide rip rap outlet and/or scour hole sizing calculations for all FES locations, including but not limited to HW 90/HW 91 and CES 1/CES 2.

COMMENT RESPONSE: Riprap sizing calculations have been provided to LANGAN for inclusion in their Stormwater Management Report. Please note that HW90/HW91 is an 'equalizer' culvert whose purpose is to provide a hydraulic connection between two wetlands. Significant flow rates or velocities are not expected.

- f. HR 290-6.A.1. The applicant should provide the locations and appropriate related notes for the Erosion and Sediment BMPs illustrated within the Detail Sheets on the design sheets of the plan set.

COMMENT RESPONSE: The Erosion Control Plans (sheets 10-12 of 22) have been amended to be better coordinated with the appropriate details.

- g. HR 290-10.A & B. Due to the multiple plan sets concurrently submitted, the applicant should list all related required Town, State, or Federal permits as well as related plan sets (as references) within the plan. This will ensure that if a contractor

acquires only one of the multiple plan sets, they are fully aware of the connectivity of the plan sets.

COMMENT RESPONSE: A list of Permits/Approvals has been added to the roadway engineering plans. See sheet 1 of 22.

- h. Hudson Engineering Technical Guidelines and Typical Details (HETGTD) Section 930.1. The applicant should review the design on Plan Sheet 4 of 22, and note that CB 117 and CB 118 are illustrated to have less than 4.0' feet of cover. We note the design does not match the detail on Plan Sheet 15 of 22, illustrating a minimum of 4' of cover.

COMMENT RESPONSE: As required in the HETGTD we will seek approval from the Town Engineer for this deviation.

- i. HETGTD Section 930.4. We note that the majority of the stormwater design utilizes pipe slopes of less than the required 2.0%. The applicant should review these pipe slopes with the Town Engineer to determine if these are adequate. Fuss & O'Neill would take no exception to the applicant requesting a waiver for these slopes if deemed necessary, as long as the applicant can illustrate that the drain line velocities are self-cleaning.

COMMENT RESPONSE: As required in the HETGTD we will seek approval from the Town Engineer for this deviation.

- j. We note that Stations 8+75 and 0+70± illustrate what appears to be approximately 6" of separation between proposed water and drain lines, where 18" is typical engineering standard. The applicant should review this separation with the Town Engineer and if acceptable provide appropriate means of frost protection for the water piping.

COMMENT RESPONSE: The drain line at STA 8+75 has been lowered to provide additional clearance. See sheet 4 of 22. HSI could not find the similar situation at STA 0+70.

- k. HETGTD Section 930.10. We note the Town Requirement of curb inlet drainage structures at all vertical sags.

COMMENT RESPONSE: Curb inlets shall be used at all vertical sags within Green Meadow Drive. See detail added to sheet 13 of 22.

- l. HETGTD Section 930.13. We note that there appears to be a cut section between Stations 16+50± and 19-50±. The applicant should review and provide underdrain as required for this section of roadway.

COMMENT RESPONSE: Underdrains have been added to both sides of the proposed road in this location. See revised sheets 5 and 13 of 22.

Site Plan & Wetlands Conditional Use Applications Plan Set Prepared By Langan Engineering & Environmental Services, Inc.

- m. HR 290-5.A.10. Due to the proximity of wetlands and other buffer zones to the proposed locations for installation of erosion control practices, the applicant should review the need for relief from this requirement by the Planning Board.

COMMENT RESPONSE: The applicant has reviewed this regulation and developed both the site plans and stormwater management systems to minimize environmental impacts. Discussions regarding the wetlands and other buffer zone impacts are part of ongoing discussions and review with the Planning Board.

- n. HR 290-5.A.11. The applicant should utilize the most recent BMP worksheets available on the NHDES website. BMP worksheets provided appear to be outdated with dates of December of 2017 and March of 2019.

COMMENT RESPONSE: The BMP Worksheets appear to match the most current and available version on the NHDES web page. Please provide clarity on which sheet is out of date.

- o. HR 290-5.A.11. The applicant should provide additional detail for the installation of the basin with notes similar to Env-WWq 1508.06.L (infiltration basin requirements). Additional detail should include but is not limited to: side slopes, bottom prep, bottom material, type of ground cover (capable of being inundated for prolonged periods of time), tilling of soil, do not compact soil, riprap weir dimensions (depth, width, length, stone gradation, and size), etc.

COMMENT RESPONSE: A typical Infiltration Basin detail has been included on sheet CG504. Design details that are unique to each Infiltration basin have been identified in the design documents.

- p. HR 290-5.A.11. We note that Basin B6-2 is proposed to be constructed over an existing wetland, which typically results in a greatly reduced infiltration rate. The applicant should provide additional information for this basin, as well as other

similar basins, regarding whether a soil amendment is proposed which will promote infiltration and treatment.

COMMENT RESPONSE: All infiltration basin locations have been removed from existing wetland areas. In this specific location, a dry extended detention pond which does not account for infiltration has been proposed. Disturbance to this wetland area is unavoidable with or without a stormwater feature in this area as the main access road for Lot C runs through this area.

- q. HR 290-5.A.11. Basins A1-2, B1-2, and B6-2 illustrate the use of an underdrain outlet connected to the closed drainage system. With the use of an underdrain, the stormwater is not infiltrated, it simply offsets the peak discharge time, and is reintroduced into the stormwater system. The applicant should review the calculations to ensure this stormwater is intended to be “lost” by infiltration, or if it appropriately accounted for within the stormwater calculations.

COMMENT RESPONSE: Underdrain collection systems within the proposed infiltration basins have been removed. Gravel dry wells have been placed in the infiltration basins to ensure long term infiltration capacity. Standard dry wells are not applicable in this situation because of the risk of entrapping a protected species of turtle.

- r. HR 290-5.A.11. If the above mentioned underdrain is designed to account for frozen ground conditions and is removed to meet stormwater calculations, the applicant should reassess frozen ground conditions and provide additional information on how these conditions will be accounted for.

COMMENT RESPONSE: All underdrains have been removed from stormwater basins.

- s. HR 290-6.A.1. We note the Inspection and Maintenance manual references a Green Snow Pro applicator. The applicant should add this requirement to the plan set as well.

COMMENT RESPONSE: A note has been added to the General Notes on sheet CS002 which reads the following: A New Hampshire Certified, Green Snow Pro, applicator shall be used for snow management purposes on the development.

- t. HR 290-6.A.1. We note the requirement of Env-Wq 1507.05 “Channel Protection Requirements” is not compared within the Stormwater Management Report.

COMMENT RESPONSE: Section 3.5 Existing vs. Proposed Discharge Comparison directly be Table 2: Peak Flow Runoff Comparison of the stormwater report addresses this requirement. The 2 year 24 hour peak flow rate and volumes have both been reduced in the proposed condition from the existing condition. This satisfies the need for channel protection volume.

- u. HR 290-6.A.8. We note the requirement for the applicant to coordinate a pre-construction meeting with the Town Engineer. This should be stated on the plans.

COMMENT RESPONSE: The following note was added to "GENERAL NOTES" on sheet CS002: "A preconstruction meeting shall be held with Hudson's town engineer at least two weeks prior to the start of construction. The applicant, contractor, and applicant's engineer shall be in attendance."

- v. HR 290-6.A.13. The applicant should provide rip rap outlet and/or scour hole sizing calculations within the sediment forebays.

COMMENT RESPONSE: A preformed scour hole sizing chart is provided in detail #5 on sheet CG502.

- w. HR 290-6.A.13. The applicant should illustrate the location of the Construction Entrances upon all phased Erosion and Sediment Control Plans.

COMMENT RESPONSE: Construction entrance locations have been identified for each phase of the Erosion and Sediment Control Series.

- x. HR 290-7.A.6. We note that the provided Infiltration Feasibility Report states "To be completed during construction". To ensure infiltration is an acceptable treatment upon this project, the applicant should update the Infiltration Feasibility Report as per Env-Wq 1504.13.

COMMENT RESPONSE: The Infiltration Feasibility Report has been updated to reflect initial findings. Should additional investigation be required during the construction phase, design will be updated based on the findings and revised materials, including supporting documents, will be submitted to the Town.

- y. HR 290-7.A.6. The Stormwater Management Report calculations/analysis illustrate that a proposed infiltration rate of 1.5 inches per hour is utilized. The applicant should provide additional conversion calculations to support the use of that infiltration rate.

COMMENT RESPONSE: *Additional geotechnical investigation has been performed, including infiltration testing in critical areas. Updated design infiltration rates have been chosen based on the site specific soil map, observed field measurements and the Ksat Values for New Hampshire Soils provided by the SSSNNE Special Publication No.5 dated September, 2009. The design infiltration rates include a factor of safety of 2.*

- z. HR 290-7.A.6. We note the provided GZA Geotechnical Report does not properly label the test pits and borings, due to what appears to be a "black wipeout". The applicant should provide a clear and readable location plan.

COMMENT RESPONSE: *GZA's report provides historical information for the property. Langan is currently performing an independent geotechnical investigation. The design has been adjusted based on the initial findings. Preliminary geotechnical investigation reports have replaced the initial GZA report as an attachment to this submission.*

- aa. HR 290-7.A.6. The applicant should provide the locations of the test pits upon both the Topographic Subdivision plan and the Grading and Drainage plans, in order to be able to properly analyze the proposed infiltration.

COMMENT RESPONSE: *A boring location plan depicting all investigation locations has been provided in the preliminary geotechnical investigation reports found as an attachment to the stormwater report.*

- ab. HR 290-10.A. The applicant should keep the Town informed of all communication with NHDES in relation to the required Alteration of Terrain, Shoreland, and Wetlands Permits to ensure NHDES comments do not alter drainage design/calculations.

COMMENT RESPONSE: *Noted. The Town will be kept informed of the permitting process with the NHDES regarding AoT, Shoreland, and Wetlands permits.*

- ac. HR 290-10.A. Due to the multiple plan sets submitted concurrently, the applicant should list all related required Town, State, or Federal permits as well as related plan sets (as references) within this plan. This will ensure if a contractor acquires only one of the multiple plan sets, they are fully aware of the connectivity of the plan sets.

COMMENT RESPONSE: *The following notes have been added to sheet CS002:*

- *The following plan sets were submitted concurrently for this project:*

- **Topographic Subdivision Plan – Green Meadow Drive Set prepared by Hayner/Swanson Inc., dated 04-21-2020, and revised 07-13-2020.**
- **Master Plan – Green Meadow Drive Set prepared by Hayner/Swanson Inc., dated 04-21-2020, and revised 07-13-2020.**
- **The following permits and approvals are being pursued for this project:**
 - **Local Permits**
 - **Hudson Conservation Commission Wetlands Recommendation to Planning Board (Ch. 334)**
 - **Hudson Planning Board Approval -- Subdivision (Ch. 289)**
 - **Hudson Planning Board Approval -- Wetlands C.U.P. (Ch.334)**
 - **Hudson Planning Board Approval -- Site Plan (Ch. 275)**
 - **Hudson Planning Board Approval -- Stormwater Management Plan (Ch. 290)**
 - **Water & Sewer Peer Review Signoff**
 - **Sewer Use District Tie-In Approval (Ch. 270)**
 - **Sewer Use Allocation Approval (Ch. 270)**
 - **Steele Road Relocation Approval (If necessary)**
 - **Nonresidential Sewer Connection Permit**
 - **Water Service Connection Permit (Ch. 274)**
 - **Water Line Extension Approval/Agreement (Ch. 274)**
 - **Peer Review (Civil, Stormwater)**
 - **Traffic Peer Review**
 - **Street Opening Permit (Ch. 284)**
 - **Driveway Permit (Ch. 193)**
 - **Regional Permits**
 - **Lower Merrimack River Local Advisory Committee**
 - **NHDOT Approvals**
 - **Access Permits**
 - **Signalization Permit**
 - **NHDES Approvals**
 - **Air Pollution Control Permit**
 - **Dredge & Fill Permit**
 - **Alteration Of Terrain Permit**
 - **Sewer Connection Permit**
 - **Other State Approvals**
 - **Natural Heritage Bureau**
 - **New Hampshire Fish & Game**
 - **Federal Approvals**
 - **Army Corp**
 - **EPA Federal NPDES Permit**

- ad. HR 290-10.A. The applicant should to confirm and provide the pre- and post-subcatchment areas are equal in size per NHDES requirements.

COMMENT RESPONSE: Confirmed. This noted in the stormwater management report under section 3.4 Proposed Runoff Discharges.

- ae. HR 290-10.A. We note the Stormwater Management Report does not directly state/illustrate the stormwater on Green Meadow Drive. After review of the calculations, it is evident that the proposed roadway and cul-de-sac is accounted for. Please provide more information within the write up to note that the roadway is accounted for within the overall stormwater analysis.

COMMENT RESPONSE: Language is included in sections 3.0 Proposed Stormwater Treatment Summary and 4.3 StormDrainage Collection Summary and other locations in the stormwater management report to note that Green Meadow Drive is accounted for within the stormwater analysis. Additional language has been added to other sections throughout the report to clarify this.

- af. HR 290-10.A. We note that additional items will be required for the NHDES AoT Permit which could potentially effect the stormwater calculations and/or construction of the site. The applicant should provide additional detail related to the following items:

- i. The applicant should review typical NHDES screening layers as well as the NHDES PFAS sampling maps. We note the close proximity of the site to the Hampshire Chemical Corp directly across the Merrimack River, which has four test locations that illustrate the site contains elevated levels of PFAS, considered higher than health based levels.

COMMENT RESPONSE: The Hampshire Chemical Corp (HCC) is located across the Merrimack River from the site. If the HCC is a potential PFAS contributor to groundwater impacts in the area, it is unlikely to impact the subject property. The Merrimack River flows with an average discharge of over 7,500 CFS and likely has significant influence on groundwater flow in this area. Thus, it is unlikely that the subject property has been impacted by PFAS potentially emanating from the HCC.

- ii. We note the phasing of the site will be required to meet or request a waiver from the 5-acre disturbed area limit from NHDES Env-1505.03.

COMMENT RESPONSE: Given the nature of this development it isn't practical to limit disturbance to 5-acres at any one time. As such the applicant is requesting a waiver from this requirement from NHDES

- iii. We note the phasing of the site will be required to meet or request a waiver from the 1-acre winter disturbed area limit from NHDES Env-1505.06(b)(1).

COMMENT RESPONSE: Given the nature of this development it isn't practical to limit disturbance to 1-acres winter disturbance requirement. As such the applicant is requesting a waiver from this requirement from NHDES.

- ag. HR 290-10.B. The applicant should add the requirements for the EPA GCP, E-NOI, and SWPPP to the plan set.

COMMENT RESPONSE: The following note has been added to sheet CS002 under the General Notes section. "The EPA General Construction Permit, E-NOI, and SWPPP documents must be adhered to, active, and required documentation be kept on site at all times. The Town of Hudson New Hampshire is to be made aware of all updates, revision, and the statues of these documents."

- ah. HETGTD Section 920.3.12. We note that there are storm drains that exceed the listed maximum velocity of 10.0 fps. The applicant should review these velocities with the Town Engineer for acceptance. Fuss & O'Neill takes no exception if a waiver from this requirement is deemed necessary.

COMMENT RESPONSE: A waiver will be requested from the town engineer for acceptance of velocities greater than 10.0 fps.

- ai. HETGTD Section 920.3.13. We note that there are storm drains that exceed the listed minimum velocity of 2.0fps. We request the applicant review these velocities with the Town Engineer for acceptance. Fuss & O'Neill takes no exception if a waiver from this requirement is deemed necessary.

COMMENT RESPONSE: A waiver will be requested from the town engineer for acceptance of velocities less than 2.0 fps.

We trust these responses adequately address your comments and concerns at this time. Please feel free to contact us at (203) 562-5771 or toneill@langan.com with any questions or should you require additional information.