



Date December 8, 2014
To Matthew "Selby" Selby, Conservation Agent
From Thomas C. Houston
Project Residences at West Union, Ashland, MA
Subject Status of Responses to Comments

Professional Services Corporation, PC (PSC) issued our peer review of the Notice of Intent on October 14, 2014. We are in receipt of revised plans, calculations, and a letter response dated December 1, 2014 prepared by Guerriere & Halnon, Inc (G&H). Comments from PSC's October 14, 2014 report are reproduced hereinafter in standard font. The G&H responses follow for each numbered item and are shown in italic font. PSC's evaluation of the adequacy of the responses follow for each numbered item in bold font.

BASIS

Our evaluation of the adequacy of the G&H responses is based upon review of the following:

- A. "Proposed Site Plan for 133 West Union Street in Ashland, Massachusetts" consisting of ten (10) drawing sheets prepared by Guerriere and Halnon, Inc., dated May 23, 2014, revised December 1, 2014.
- B. "Hydraulic and Hydrologic Report 133 West Union Street in Ashland, Massachusetts" prepared by Guerriere and Halnon and dated May 26, 2014, revised September 30, 2014. [NOT REVISED].
- C. Wetland Replication Plan, 133 West Union Street, Ashland, Massachusetts prepared by Judith B. Schmitz, dated July 14, 2014.



STATUS OF RESPONSES TO NOTICE OF INTENT REVIEW

1. The project encroaches in several locations both into the 25-foot No Disturb Zone and the 100-foot buffer of the Bordering Vegetated Wetlands. Approximately thirteen (13) parking spaces associated with Building C encroach into the 25-foot No Disturb Zone (NDZ). Portions of the emergency access drives associated with Buildings A and B encroach into the NDZ. It is our opinion that the applicant has not met the required responsibility of addressing to the Board that waiving the local Regulations will include sufficient and reliable information which demonstrates
 - a. That sufficient wetland resource area function and value and adjacent upland habitat will remain such that the interests of the Act and bylaw are protected,
 - b. That likely use and maintenance of the altered area will have no detrimental effect on water quality of the adjacent resource area or quality of the remaining habitat area, and
 - c. That the work to be performed sufficiently protects or enhances wetland interests.

G&H: No response submitted.

PSC: Open item.

2. The Notice of Intent application should better clarify the scope and extent of construction within the jurisdictional buffers, including construction details and horizontal limits for retaining wall foundations.

G&H: The projects scope and extent on construction has been shown on the Site Plan set to clearly shown the impacts to the wetlands and the buffer zone. The retaining wall construction limits have been added to the plan. The 25 NO Disturb Zone line has been revised.

PSC: Wherever retaining walls are located between vehicular areas and the edge of wetland, poured in place concrete or precast concrete retaining walls (concrete retaining walls) should be used to limit encroachment. The actual limit of work would be up to 6¾± ft. further into the buffer zone or resource area if unit masonry walls are used. The drawings should be labeled to show the type of wall proposed in each location. See Comment 34. The retaining wall construction limits indicated on the drawings reflect a commitment to construct the retaining walls entirely from upland with no incursion of personnel or equipment beyond the wall footing.

3. The roadway crossing between the upland areas will be constructed fully within the NDZ; however may be exempt under the limited project provisions of the Stormwater Management Act.

G&H: The proposed crossing for the project is considered a minor limited project.

PSC: No construction detail is shown for this key site improvement. It is inevitable that the resource area will be impacted by shading and some filling, but extensive destruction by



filling should be minimized or avoided. An open bottom culvert with a minimum span of 25± ft. should be provided to minimize wetland fill. The culvert should have endwall to further limit the impact footprint. The drawings should be updated to show the culvert with end walls in plan view. A construction detail should be provided.

4. Dewatering will likely be required during construction of the project, including construction of the crossing and of the retaining walls. The plan should address dewatering techniques and should address protection of adjacent resource areas from silt deposition from dewatering activities.

G&H: Dewatering plan has been added to the Erosion Control Plan. All groundwater will be treated prior to discharge. Settling basins will be used for sediment traps. All sediment will be removed before runoff enters the wetlands.

PSC: OK.

5. The NOI Wetland Fee Transmittal Form was evaluated. Category 3b in the fee schedule requires an individual activity fee of \$1,050 for each building and site development. The fee was paid for two buildings but should be the sum for each of the six buildings for the project. The footprints of all six buildings fall either partially or completely within the jurisdictional 100-foot buffer to the BVW.

G&H: The wetland fee for the project will be revised.

PSC: Awaiting submission of the revised fee.

6. The project is solely reliant upon subsurface recharge systems to accommodate flows from pavement areas. Each system should be provided with a dedicated oil-water separation unit to protect groundwater from gas or oil spills on the pavement that are conveyed to the closed system with runoff. The Stormceptor unit at the front of the project is generally recognized as an acceptable system. Additional Stormceptor units should be provided just upgradient of each large recharge system.

G&H: The proposed drainage system has been design with catch basin with 4 foot sump as well as oil/gas separators on outlet pipe. The infiltration basins also have isolator rows with observation ports for maintenance. The installation of StormCeptors are not needed because the TSS removal prior to infiltration basin has been meet. Please see TSS removal sheets.

PSC: Please provide documentation that each infiltrator row is sized to accommodate the water quality volume. Also please cite the amount (percentage) of the claimed TSS removal rate and the source of this informaton. An adequately sized StormTech isolator row can effectively remove TSS; however, the isolator row is encased with permeable geotextile fabric and does not provide for spill containment. A StormCeptor or comparable separator would help to contain spills.



7. Although referenced in the narrative, the pre- and post-development stormwater runoff plans were not included in the electronic copies of Hydrologic & Hydraulic Report, or in Stormwater Report. The existing project had been modeled as a single 6.5-acre watershed that is tributary to the wetland. The proposed property has been divided into seven areas totaling 5.85 acres. The narrative description of the Drainage Areas P-1 through P-7 should be augmented with the plan. Also the pre- and post-developed areas should be equivalent in each model.

G&H: The PRE and POST development plans have been provided. The total watershed areas have been revised.

PSC: OK.

8. The project eligibility letter notes that the Town requested that Low Impact Development Best Management Practices be incorporated into the stormwater management system, including roof rainwater harvesting for use in irrigation. The plan is primarily reliant upon conventional closed-conveyance stormwater management design and does not include LID stormwater design features.

G&H: The project as design with the density of the proposed project does not allow the use of LID.

PSC: Open item.

9. The FIRM mapping for the locus has been updated by FEMA subsequent to submission of the NOI. Nonetheless, inspection of the Flood Insurance Rate Map (FIRM), Map Number 25017C0626F, Middlesex County Massachusetts, Panel 626 of 656, effective date July 7th, 2014 indicates that the entirety of the site falls outside the 100-year jurisdictional floodplain.

G&H: The project is outside of the 100 year jurisdictional floodplain.

PSC: OK.

10. Although proposed tree lines are provided on the drawings, the extents of all adjacent tree lines and any interior clearings should be shown on the existing conditions plan. Existing specimen trees over 8-inch caliper along the limits of construction should be added to an Existing Site Conditions Plan to facilitate preservation.

G&H: The projects limit of clearing is located on the Plans.

PSC: OK.

11. Several dumpsters are sited on the plans to serve each building. All dumpsters should have permanent, attractive enclosures that should be detailed on the drawings. Also, the dumpster pads should include slightly raised edges on the sides and rear to contain liquid waste that might otherwise seep from the enclosure and into the drain system.

G&H: Dumpster detail has been adjusted per comment.

PSC: OK.



12. Given the density of this project, snow storage is a significant concern. The single snow storage area that has been provided in the northerly corner of the project is likely insufficient for the entirety of the project. Additional Snow storage areas should be designated outside paved or on adjacent grassed areas that maximize recharge. The interior wetlands should be prohibited from snow storage. Signage should be added on the wetland side of each of the parking areas, prohibiting snow storage in wetland areas.

G&H: Additional snow storage areas have been added to the plan. A proposed snow management plan will be submitted to the commission.

PSC: Open item.

13. To protect the wetland, snow removal operations should emphasize low salt application, with a higher reliance on alternate means of road treatment, such as sanding.

G&H: The project will follow the Commission's recommendation on salt application.

PSC: Sodium chloride should be avoided.

14. The surface basin in front of Building C has not been modeled in the HydroCAD calculations.

G&H: There is no surface basin in front of building C. There is an earth berm that runs along West Union Street.

PSC: OK.

15. The discharge pipe from the large subsurface system between Buildings B and C (Basin #1) outfalls into a riprap apron that extends approximately 25 feet to the edge of one of the proposed wetland replication areas. Under the 10-year storm, this 12-inch pipe will discharge 1.17 cfs of flow at 1.7 feet/second. Under the 100-year storm, this 12-inch pipe will discharge 4.68 cfs of flow at 3.4 feet/sec. Although the riprap should help dissipate the flows from the 12-inch pipe (Invert #2 on the drawings), it is recommended that this replication area be re-sited to a more viable location, less subject to inundation from flows containing road salt.

G&H: A proposed settling basin with level spreader has been added at the out let of the basin and the runoff has been directed away from the replication area.

PSC: OK.

16. A level spreader should be designed at Basin #1 outfall to disperse flows.

G&H: Level spreaders have been added at each of the outfall pipes.

PSC: OK.

17. Each row of subsurface galleys should be provided with an observation port to facilitate maintenance. All five systems should be designed with additional ports.

G&H: Observation ports have been added to the proposed basins.

PSC: OK.



18. According to the calculations, the small recharge system behind Building A discharges minimally through an outlet pipe under the 100-year event. Riprap should be provided at this pipe end.

G&H: Riprap has been added to the outfall of small recharge basin.

PSC: OK.

19. Pipe capacity calculations should be provided for the on-site drainage system.

G&H: Pipe capacity calculations have been provided.

PSC: Rational formula pipe calculations were not provided.

20. The applicant has indicated that a first level Environmental Assessment in accordance with MGL Ch. 21E will be undertaken for the site. It is unclear whether the results will be available prior to a determination by the Commission.

G&H: Client will have 21E done on the property.

PSC: The 21E report should be filed with the Commission upon completion.

21. Certain of the wetland flags were noted by the Commission to have been disturbed and appear to have been placed some time ago. The date of the wetland delineations indicated should be specified on the drawings. The date, station by station field notes for each flag should be submitted. The Ashland Conservation Commission may not accept wetland delineations older than 3 years.

G&H: The wetland line has already been approved by the commission.

PSC: OK.

22. A note should be incorporated in the plans directing daily street sweeping of West Union Street throughout construction. The SWPPP under Standard 8 specifies bi-weekly street sweeping which is insufficient for the project.

G&H: Note has been added to the SWPPP regarding daily sweeping of West Union Street.

PSC: OK.

23. Additional Construction Methods should be addressed including methods for protecting stripped and cleared areas of the site during extended shutdown (due to weather, economic conditions, or any other cause).

G&H: The applicant shall apply mulch or hay in areas that have been cleared and left open for long period of time to prevent erosion entering the wetlands.

PSC: Straw (fewer weed seeds) can be used in the short term. A hydroseed application of annual rye grass or perennial grass should be specified for intermediate to long term exposure.



24. The proponent intends to utilize an onsite irrigation well. A proposed irrigation well is indicated in the vicinity of the clubhouse. Detail should be provided for the expected on-site demand for supplemental irrigation. Drought tolerant, indigenous species should be included in the design.
G&H: The proposed irrigation well will only be used for lawn areas. Drought tolerant plant will be used throughout the site.
PSC: Areas of irrigated turf should be indicated in a sketch plan for the Commission's review. There are areas along the perimeter of the site and embankments next to wetlands which do not require irrigation.
25. The applicant should be encouraged to limit turf areas due to water demand and requirements for lawn chemicals and fertilizer. Due to the intensive development of the site that includes large grassed areas, PSC recommends that a Turf Management plan should be provided that adequately protects the adjacent wetland areas from nitrate and phosphate loadings. This was requested during the Comprehensive review for the Board of Appeals, and should be provided, even if included as a condition of approval.
G&H: Applicant will follow the recommendations of the commission for a turf management plan.
PSC: OK.
26. The Notice of Intent should include a Conservation-approved, dedicated location on the site for equipment fueling operations that is sited outside the wetland and buffers and minimizes the potential for contamination from spills.
G&H: Dedicated fuel areas have been added to the Erosion Control Plan.
PSC: A small centrally draining temporary pavement should be provided to hold a 50± gallon spill.
27. Direction of flow of groundwater across the site should be indicated to the extent possible from available information.
G&H: Direction of groundwater will be looked at.
PSC: Open item.
28. Other than inclusion of the Responsible party for Operation and Maintenance, the Long-Term Operation and Maintenance Plan under Standard 9 has not been tailored for this project. For example, the subsurface recharge systems are not addressed under BMP Maintenance. Maintenance of the subsurface systems should include inspection frequency and debris removal. DEP recommends that mosquito controls be included in the O&M Plan in the event that a system has failed (refer to *Vol 2, Chap 2: Structural BMP Specifications for The Massachusetts Stormwater Handbook*).



G&H: Long Term Operation and Maintenance plan has been revised.

PSC: Additional information should be provided on recommended “jet vac” maintenance procedure for the isolator row. In order to obtain credit for pretreatment, the drop inlet structures must be provided with hoods.

29. The SWPPP should specify that the subsurface retention systems remain fully off-line until the site is fully stabilized by paved surfaces and established vegetation throughout all contribution areas. Construction-stage sediment would impact the full function of the system as designed and would be difficult to remove.

G&H: The SWPPP has been revised to indicate that the subsurface basins remain off line until site is stable.

PSC: OK.

30. The O&M plan indicates the roadway and parking areas will be either mechanically swept or hand swept semi-annually at a minimum. DEP recommends that TSS removal is limited to 5% if paved surfaces are mechanically swept on a monthly basis. In order to maintain the proper function of the large subsurface recharge systems, it is recommended that the reference to hand sweeping be removed and that the frequency of Mechanical Sweeping be increased to a monthly average, with sweeping scheduled primarily in spring and fall.

G&H: O&M Plan has been revised.

PSC: Regardless of whether a credit is claimed, requirements for pavement sweeping an average of four time per year with sweeping scheduled primarily in spring and fall using a regenerative air or vacuum filter sweeper should be included in the Order of Conditions. Subsurface recharge systems are inherently prone to failure due to sedimentation accumulation so enhanced sediment removal is desirable to extend the lifecycle for the subsurface recharge system. Hand sweeping or mechanical sweeping should not be considered sufficient.

31. All references to Infiltration basins in the O&M plan should be replaced. The BMPs for this project would be Subsurface Structure. The O&M text and calculations including TSS removal calculations, inspections and maintenance should be revised.

G&H: All text has been adjusted.

PSC: OK.

32. The SWPPP of the Stormwater Report should specify that there will be no storage of soil, gravel or construction debris within the 100-foot buffer zone to wetland resource areas. The construction staging areas should be identified on the Erosion and Sediment Control Plan outside the 100-foot buffer to the BVW.



Response- Staging areas are outside of the 100 foot buffer and are shown on the Erosion Control Plan.

PSC: OK.

33. The Illicit Discharge Compliance Statement should be signed.

G&H: Illicit Discharge Statement has been signed.

PSC: OK.

SUPPLEMENTAL COMMENTS

The following comments are based on issues raised at the public hearing for this project and by issues identified in evaluating responses to comments.

34. Two types of retaining wall are included on the detail sheets. The site plan should indicate which type of wall is to be used in each particular location. The type of retaining wall impacts the extent of encroachment.
35. In order to minimize encroachment, all retaining walls along the edges of parking lots and access drives should be poured in place walls or precast walls (concrete walls) not unit masonry walls. A concrete with an integral mounted guardrail similar to a MassDOT bride rail or a parapet wall extending above grade should be provided to avoid extending the limits of encroachment. The concrete retaining wall detail indicate on the drawings shows the guardrail post bearing against the retaining wall which cannot be allowed unless the wall is design to resist vehicle impacts.
36. If a unit masonry wall is used adjacent to parking or drive aisles, 3 to 5 ft. of clearance should be provided between the guardrail post and the retaining wall as determined by a structural engineer for impact loading. The width of the guardrail (1¾ ft.) plus the separation between the guardrail post and wall (3 to 5 ft.) must be shown. If a unit masonry retaining wall and guardrail are used adjacent to parking or access drives, the drawings should be revised to show an additional 4¾ ft. to 6¾ ft. additional encroachment into the buffer zone or wetland.
37. A 42 inch high pedestrian protection rail (with no exposed horizontal elements, i.e. ladder effect) must be provided along all walls having a 4 ft. exposed face. For the wall in the southwest portion of the site, the fence should wrap the ends to discourage access. In many locations, a guardrail or parapet wall is also required. A detail showing a combined guardrail and pedestrian rail should be added to the drawings.
38. For the retaining wall in the southwest portion of the site near Building C, the total grade change including the cut slope above the wall is approximately 20 ft., elevation 270 to 290. The nearest test pit indicates groundwater at 7 feet below existing grade. The wall will draw down groundwater by approximately 13 ft. It is unclear if the 7 ft. depth to groundwater represents



Memorandum
December 8, 2014
Page 10

seasonal high conditions. For the retaining wall in the northwest portion of the site near Building A, the total grade change including the 2 to 1 cut slope above the wall is approximately 17 ft., elevation 271 to 288. The nearest test pit indicates groundwater at 8 feet below existing grade. If this groundwater elevation depth also occurs at the face of wall, the proposed retaining wall will draw down groundwater by approximately 9 ft. It is unclear if the 8 ft. depth to groundwater represents seasonal high conditions. Based upon the above depths of drawdown, the volume of groundwater intercepted could be significant. Construction of the slopes and retaining wall drains will intercept groundwater which will be discharged to the wetland as surface runoff. This will alter the resource areas by increasing the quantity of surface water available to the wetland during high seasonal groundwater periods and depleting water available to the wetland during low groundwater periods. Essentially by intercepting groundwater, the retaining wall drains convert groundwater which flows at feet per year to pipe flow which flows at feet per second. The impact of wall construction on wetland resources should be quantified by a geohydrologist in terms of the volume and durations of flow during seasonal high groundwater periods and the percentage reduction in available groundwater during low groundwater periods.

39. The on-site wetland which receives all runoff from the Project Site is tributary to an existing culvert under West Union Street. The Proposed Project causes an increase in the total volume of stormwater runoff which may impact this culvert. This culvert should be modeled as a design point with respect to predevelopment and post development flow.