



August 2, 2022

Stow Planning Board
380 Great Road
Stow, MA 01775

Re: Initial Project Peer Review
The Cottages at Wandering Pond
Project No. 5366

Dear Board Members:

This office has received and reviewed the submittal documents for "The Cottages at Wandering Pond". As discussed with the Planning Staff, this office was unable to perform our usual in depth review. However, we anticipate that there will be significantly more additional information supplied by the development team in order to address our general comments to facilitate a full review of this project.

This office reviewed the following documents submitted with this application:

1. Application for Active Adult Neighborhood Special Permit "The Cottages at Wandering Pond" by Stamski and McNary dated June 30, 2022.
2. Traffic Impact Study by Vannasse & Associates dated April 19, 2022.
3. Stormwater Management Report for "The Cottages at Wandering Pond" by Stamski and McNary dated June 29, 2022.
4. Site Plans entitled, "The Cottages at Wandering Pond" Athens Street, Map R02, Parcels 1A, 3, 4, 5, 18, 19, 20-7, Stow, MA, prepared by Stamski & McNary, Inc, Acton, MA, dated June 30, 2022 (46 sheets).
5. Landscape Plans entitled, "The Cottages at Wandering Pond" Athens Lane, Stow, MA, prepared by Stamski & McNary, Inc, Acton, MA dated 6/28/22 (5 sheets)

General Comments:

This is a large project and as such, it takes a great amount of organization to present the information in a logical clear manner. In this case, the plan set for this project is currently 48 sheets and contains a large volume of data related to the project. While this seems to be a large number of sheets, we found that so much data is shown on any given sheet, that the clarity of the data is often obscured. This office has not completed a full comprehensive review, waiting for more clear plans. This comment letter will address some of the big picture items which will facilitate a more comprehensive plan review.

We recommend the following to add clarity and to make it easier to navigate through the plans for the information needed for both review and construction.

1. The plans should have key sheets, showing how the various plans relate to each other.
2. All roads should be labeled on all sheets and consideration should be given to including unit numbers on all sheets for reference.

3. All plans containing unique data should be at a scale of at least 1"= 40'. The Site Development Plans were prepared at 1"=60' and are illegible in many locations.
4. It is recommended that the Plan Index list individual roads to facilitate review of the Profile sheets.
5. Phasing is mentioned verbally in the narratives provided. This phasing should be reflected in the plans with a Master Phasing Plan and individual phasing plans. These phasing plans should include:
 - a. Address Utilities specific to the Phase. We assume that the water distribution system will have to be constructed to serve early phases of construction. Will there be a temporary connection or will the water line be routed through future roadways?
 - b. Address drainage – will there be a cross connection between phases or will each phase stand alone.
 - c. Address public safety providing temporary turnarounds if needed.
 - d. Erosion and Sedimentation Control plan should be reviewed to determine if there are sufficient temporary basins, stockpile location etc., for the phase. It is also recommended that the SWPPP include the basic information on construction trailer, port-a-johns, stockpiles of erosion control materials, concrete washout stations etc.

Plan Comments:

1. Existing Conditions Plans:

- a. Too much data is on the plans which obscure the information. Specifically, the metes and bounds make it difficult to see Athens Lane information- edge of pavement, contours etc.
- b. We recommend spot shots in the wetlands in the proximity of the two crossings including along the road/cart path surfaces for high flows.
- c. What is the basis of the topography? Lidar? On the ground? Please confirm that it is the same datum as the FEMA Flood Plain elevations.
- d. Plans do not show the 100 year flood plain.
- e. Plans do not show the thread line of the existing brook channel.
- f. Plans do not show the existing pond.
- g. Are there any existing specimen trees on site? The Board may want any significant trees on the fringes of the grading to be identified and a determination as to saving them. Is there any vegetation on Hudson Road that will be cleared? Street Trees?
- h. Wetland flags are missing in the area of Flag C-17 where the wetlands line jogs out.

2. Master Plan (sheet 15):

- a. Please show street names and unit numbers for reference.
- b. Under the lot coverage calculations, Section 3.24.6 requires the following additional information:
 - i. Undisturbed Open Space
 - ii. Building Height
 - iii. FAR, Gross Floor Area
 - iv. Flood Plain (if it is not shown, how was it calculated?)
 - v. We note that the visitor spaces are not integrated into the overall site (not equally dispersed) and visitor spaces at the Wastewater Treatment Facility are isolated as they are not connected by sidewalks to the remainder of the site.
 - vi. Chart does not indicate how many handicap spaces are provided on site.

3. Site Development Plans:

- a. Plan scale needs to be larger.
- b. Road names are needed, road stationing is illegible in places
- c. Both existing and proposed contour labels are difficult to determine in some areas, particularly near stormwater basins.
- d. Area of wetlands crossing illegible, plans do not indicate any replication area
- e. Recommend showing the clubhouse area on a separate sheet at 1"=20'. Parking spaces are not clearly defined as well as handicap parking, accessible route, curbs/berms etc. Are the mailboxes in the clubhouse area? Dumpster? Recycling?

4. Erosion and Sedimentation Control Plans:

- a. Plans should have roads and units labeled to provide reference point for notes.
- b. Plans are insufficient and lack the level of detail needed for a project being constructed on a hillside.
- c. The plans should address the overall construction sequence (will the entire site be cleared at the beginning of the project or by phase?) Erosion control should be addressed per each phase.
- d. We recommend the use of stump grindings for both temporary stabilization as well as temporary berms.
- e. The temporary settling basins do not appear to be of sufficient size for the tributary area, particularly those on the back of units on Wandering Pond Circle and Daffodil Lane.
- f. Plans should address emergency provisions for extreme weather applicable during the different phases of construction (i.e. the use of sand bags when the site is at binder vs check dams while rough graded). The plan should identify which stormwater basins are suitable to store silt laden runoff during an extreme event.
- g. Plans should identify temporary measures for individual unit development (stabilized construction entrances, roof drainage, etc.
- h. Storage of additional erosion control materials appropriate for the phase.
- i. All drainage rims should be functional at binder grade

5. Plan and Profile Sheets:

- a. Plans should provide geometry for the construction of the pavement – centerline radii, curb treatment, curb radii, pavement widths
- b. Handicap ramps should be provided at each intersection in compliance with MAAB requirements. Crosswalks should be indicated.
- c. No electric or communications utilities shown.
- d. Vertical curves K values result in very flat slopes and should be adjusted. We recommend removing sag vertical curves where the change in slope is 2 percent or less.
- e. Stationing is hard to read. Stations for centerline intersects with adjacent streets should be shown and the elevations should be shown on the profile portion.
- f. Where does Athens Lane end and Wandering Pond Way start? (Could be confusing for GPS and cross sections not consistent with profile plans).
- g. Plans do not show the existing culverts with elevations in the profile section at the crossings.
- h. Many sheets show that the water and sewer mains are at the same approximate elevations. This will create many conflicts with the water and sewer services crossing each other. It is recommended that consideration be given to lowering the sewer line to make the site easier to construct.

- i. Water gates are not shown on the plans and are typically required at intersection but should be coordinated with the phasing plans.
- j. Each sheet needs to be carefully checked for conflict of utilities – water (5' cover), sewer and drainage as well as electric and communications (2.5' cover). We have noted many areas of conflict. In places where the depth for a utility is not the standard, it needs to be called out so it can be constructed accordingly. There are multiple locations with conflicts between the drainage and sewer lines. Plans should indicate elevations of pipes where crossing.
- k. Catchbasin elevations do not appear to have sufficient depth to allow for the frame to be set to binder. Example CB-WPC4: Rim – invert= 3.0' – 1.17' (12" ADS)- 0.29' (Eliminator hood) -0.66' (8" thick conc. Structure for H20 loading)- .66' (8" frame and grate) = 0.22'. The finish course of pavement is 1.5" or 0.125' leaving only 0.1' to provide clearance in the structure for the eliminator and for mortar under the frame and grate. Bricks or riser rings are required under the frame per MassDOT standards. It is recommended that all catchbasins provide at least 3.5' difference between the rim and 12" inverts.
- l. Buttercup and Daisy Lanes should have catchbasins at the low points to accommodate winter conditions to avoid icing.
- m. Random checks indicate multiple locations where a 4' diameter manhole will not have sufficient sidewall due to inlet and outlet pipes set at the same invert elevations. A minimum of 6" between openings should be provided.
- n. In areas where the utilities are likely to be within the water table, anti-seep collars should be required.
- o. Buttercup Lane appears to have possible rain gardens in the front yards of the units. If this is correct, they should be labeled, a detail provided for the planting medium and plant list and the connecting pipe inverts should be labelled. Other utilities going beneath these depressions should be checked for adequate cover.

6. Detail Sheets:

- a. Wheel Chair Ramp Type A is not consistent with MAAB. Plans do not depict ADA compliant handicap ramps. Ramps and crosswalks should be placed at the perpendicular to the edge of pavement (at tangent of roundings) and should be connected with cross walks per 321 CMR 21.00.
- b. The 3/8" per foot cross section results in a cross slope greater than the 2% required for ADA accessible routes for crosswalks.
- c. Recommended that the pavement detail be revised to reflect 2" binder course and tackifier be applied between courses of pavement, and the binder go through one winter prior to the final pavement, consistent with the Subdivision Regulations.
- d. Catchbasins should have a minimum of 2 courses of brick and should be set to binder course.
- e. Infiltration Basin should have an impermeable core, keyed into the parent material and the width of the berm should be at least 10' wide.
- f. There is no cross section for Athens Lane
- g. Where is the fire cistern located on the plans?
- h. Recommend that the appropriate detection tape be used for all water and sewer lines as this will be both be a private system and will not be able to be dig-safed.

7. Culvert Crossings:

- a. The plans need additional information as to the construction sequence, need for temporary de-watering and means of stabilizing the surfaces inside of the culvert. As learned from the Joanne Drive culvert, the bottom cannot be maintained in a natural state (no daylight) and the inside of the culvert does not have sufficient head space to allow fill to be manually compacted.
- b. The cross sections should address the placement of other utilities. If water and sewer are to go below the footings for the second crossing, call out on plans and identify any adjustments needed for the footings. Both culverts should address the electric and communications to make sure there is sufficient space to meet the utility company specifications.
- c. The first culvert narrows down in width below the road surface. This will create a pinch point where debris can get caught as well as create turbulent flows. There needs to be some means to access this area for maintenance. In addition, how will this be constructed?
- d. Both crossings should show the flood plain – both in plan view and profile. We recommend more existing spot elevations in the wetland areas and identify the brook channel on both sides of the crossings both for design and as-built reviews.
- e. The weir boxes are somewhat unique and will essentially function as small dams. We recommend that these be reviewed by a structural engineer for stability under flood conditions and that consideration be given to the potential for scouring as flood waters flow over them.
- f. What size/weight are the grates over the weir boxes? Concern is that they be child safe yet not require a large crane to remove for maintenance.

8. Drainage Comments:

- a. Please label proposed ponds on Post Development plan and provide a routing diagram to facilitate review of the calculations
- b. Drainage calculations do not route the runoff through the collection system. There is no data to evaluate flows to individual catchbasins or the adequacy of the pipe network. This must be provided. Flows should also consider overland flows which will be captured by the drainage system (i.e. Stepping Stone Lane)
- c. We disagree with some of the pre-development drainage areas and times of concentrations. We believe that P-2B has a natural drainage divide and should be broken into potentially 5 different subcatchments of similar characteristics. Similarly, P-9 is not reflective of the stormwater basin on the abutting property.
- d. Many of the basins do not appear to have testing in the basin. The various Rawl's rates used in the infiltration imply better soils than shown on the soils maps. If the soils maps appear to be overconservative as having poor soils versus the on-site testing, the drainage calculations should be consistent with the testing. It is not apparent why three different Rawl's rates were used in the calculations.
- e. The culvert calculations show the inverts of the culverts in inches – we are not familiar with this software to understand the implications of these units- please explain.
- f. The culvert calculations state that they are not considering the weir flows across the roadways. This will oversimplify the flows through the culvert as the flows across the road will reduce the head on the culverts and therefore the flows.
- g. The calculations assume that a similar size orifice will have the same hydrologic conditions as the existing culverts. This is not correct, depending on whether the culverts are under inlet or outlet control.

- h. We note that the unique configuration of the first culvert cannot simply be modeled as the contraction beneath the roadway will result in head losses and potential turbulence which directly effects the flow through the culvert.

The drainage calculations will need to be reviewed in detail. Insufficient information was provided to access compliance with the Stormwater Regulations.

In summary, we anticipate that this high level review will result in significant plan revisions and recognize that this review is not a complete review. This office is amenable to a direct meeting with the design engineer to review the technical details of this review if they feel it would be helpful.

Please contact this office should you have any questions on this review.

Very truly yours,
Places Associates, Inc.
BY:

Susan E. Carter, P.E., LEED AP
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