



Via Electronic Mail

December 1, 2023

Ms. Patricia Lambert, Chair
Scituate Planning Board
Town Hall
600 Chief Justice Cushing Highway
Scituate, MA 02066

Re: Response to Board Questions and 3rd Peer Review
Major Site Plan Review
Stearns Meadow Water Treatment Plant
453 Chief Justice Cushing Highway, Scituate, MA
Assessor's Map/Block/Lot 47/02/26J

Dear Ms. Lambert and Board Members:

Woodard & Curran submits this letter and supporting information to update the Scituate Planning Board ("Board") on pending items that were identified in the Horsley Witten Group's peer review letter entitled "3rd Peer Review Major Site Plan Review" dated November 21, 2023, as well as questions received from the Board in an email dated November 20, 2023.

Horsley Witten Group comments that were not closed (i.e. not described as "no further action required" or "The Applicant has no objection to the suggested condition.") are provided below in **bold**, followed by Woodard & Curran's responses in *italics*. Following the Horsley Witten Group comment responses is information related to the comments and questions posed by the Board in their November 20, 2023 email with a similar bold/italic format.

SECTION 600 DIMENSIONAL REGULATIONS

Section 620.1 BUILDING HEIGHTS

1. The maximum building height is 35 feet. HW recommends that the Applicant adjust the height of the treatment plant or justify the need for the extra height to the Planning Board.

HW (November 21, 2023): The Applicant has stated that it will update the Planning Board on the Special permit approval process. HW's previous comment stands.

The Applicant received Special Permit approval for the proposed building height at the November 14, 2023 Zoning Board of Appeals Meeting.

Section 770.6 STANDARD OF REVIEW (D)

D. Adequacy of the methods of disposal for sewage, refuse and other wastes resulting from the uses permitted on the site, safety and adequacy of water supply and distribution, and of fire fighting facilities on the site.

5. The Applicant has proposed an onsite wastewater absorption system. HW recommends that the Applicant document that the Board of Health has reviewed and approved the design. The Applicant has included an enclosed dumpster to manage solid waste.

HW (November 21, 2023): The Applicant submitted plans to the Board of Health in October and has received comments back. The Applicant has stated that it is in the process of responding to the Board of Health comments. HW recommends that the Planning Board reference the permit obtained from the Board of Health once received.

All plans and subsequent documentation will be submitted to the Planning Board once approval has been received from the Board of Health.

G. Minimizing the volume of cut and fill, the number of trees of 6" caliper or greater removed, the length of stone walls removed, soil erosion, and destruction of other natural features.

6. The Applicant has included a Cut and Fill Analysis Appendix, but HW has not received the final cut and fill analysis. Furthermore, HW understands that a tree survey is being conducted to confirm the number of trees to be cleared from the site. HW recommends that the Applicant provide the necessary documentation.

HW (October 18, 2023): The Applicant submitted a summary of anticipated earthwork quantities to the Planning Board and a tree survey is in progress.

HW (November 21, 2023): The Applicant has provided a tree survey as required. HW understands that the Planning Board has raised concerns about dewatering associated with the anticipated cutting of earthwork at the site. HW recommends that the Applicant address the Planning Board's concerns and provide a construction sequence and detailing of the dewatering process proposed.

Please refer to the text below responding to the Board's questions related to dewatering.

November 20, 2023 Board Email Questions & Comments from Karen Joseph

The questions outlined in the November 20, 2023 email from Karen Joseph are listed below with respective answers and supporting attachments as necessary.

1. Dewatering

- 1. Provide cross sections to identify areas that will be subject to dewatering and provide calculations and description of expected duration of dewatering (in number of days), expected design flows (I think they said 1,000 gpm at the meeting), duration of the longest expected dewatering period (I assume it will be a number of days to lower the ground water level and then maintain that level while excavation, forms, rebar, concrete pours and concrete curing is on-going). Effectively, we'd like to know how much steady state flow for how long a period of time is part of the design. If you use the 1000**

gpm and the 33,000 cf dewatering sump as the conservative estimates, the sump will be full in 4+ hours and then they will need to balance inflows and discharges on a continuing basis to make sure the dewatering sump doesn't overflow. I think we should have their engineering estimates on this.

Please note that at the November 14, 2023 Hearing the Woodard & Curran stated that the settling basin outlet culvert has the capacity to allow for 1,000 GPM. This shall not be interpreted as an expected dewatering design flow. The Applicant's Geotechnical Engineer is anticipating that, in cut areas, groundwater dewatering flows may approach 5 to 10 gallons per minute then will be intermittent with periodically higher flows to dewater stormwater that falls into the excavation footprint. A graphic is included with this submission that depicts profiles of the excavation needed to construct the foundation for the building.

- 2. Also, provide an explanation of the dewatering process they expect: i) Initially drill dewatering wells and then begin pumping? ii) create sumps and drop in sump pumps? iii) all pumps manifolded and pumped to the dewatering sump?**

We anticipate option ii will be utilized - create sumps and pump from the crushed stone mats below the footings to the settling basin.

- 3. In anticipation of continuous pumping for multiple days, what kind of pumps will be used, electric pumps or gasoline/diesel pumps. Need to know what kind of noise the neighbors will hear (or what kind of noise mitigation they will provide) and also need to manage fuel delivery and filling process to avoid any spills if they are gas/diesel pumps. Note that 1000 gpm pumps are going to be in the 75-100 hp range. Pretty good size and I assume they will have multiple pumps**

As mentioned above this will be at the Contractor's discretion but we anticipate they will utilize either electric submersible pumps or gas powered diaphragm pumps.

- 4. The dewatering sump is in the same location as the permanent bio retention basin and the top of the top of the dewatering sump is 68 ft whereas the bottom of the bioretention basin is around 70 ft. Therefore it doesn't seem that they can build out that portion of the stormwater system until dewatering is complete. Would be good to understand sequencing and how they manage stormwater during the dewatering period.**

The permanent stormwater system and sand drying beds cannot be fully constructed until the upstream areas are stabilized and the temporary basins can be decommissioned or reduced in size as work progresses. The sediment basin in

the southwest corner was set to be at the top of the first portion of the fill slope below the drying beds. The bioretention area sited where the settling basin is proposed can be constructed after the foundation slab is in place and the underdrains are operational. Actual sequencing will be dictated by the Contractor in compliance with applicable permit conditions.

5. Top of drying basins is 77 ft; top of dewatering basin is 68 ft. Transition from one to the other is 9 ft - how is that managed during construction?

See preceding response.

6. If they are talking as much as 1,000 gpm, it does not look like the discharge from the dewatering sump is properly designed. I would expect that discharge point to look something like Riprap Apron For Outlets detail on drawing no. C-903 conforming to the Underdrain Outlet No. 1 in the table above (the dewatering sump discharge line is 12" (1 Ft.).

A level spreader outlet has been added to the 200 series sheets with a detail shown on C-904.

7. I think we'll want a condition that requires them to come back to the Board with the final dewatering plan for review and approval. There are simply too many unknowns.

The Applicant is agreeable to submitting the Contractor's dewatering plan, after approval by the Engineer, to the Board for their reference.

8. It also looks like they have to monitor outfall. We should identify the monitoring required and the duration and method for reporting same to Town Planner.

As stated during previous meetings and as called out on the plans, monitoring of dewatering discharges will be done in conformance with the NPDES General Permit requirements.

2. The Drying Basin have 12.5 Ft wide shoulders and center lane. Is this sufficient for trucks and are the shoulders and the bed decant structures designed for fully loaded trucks to traverse them? Want to make sure we know they can manage the solids removal process without spilling solids on the ground. Also, the access looks like it's from the 12ft blacktop road so I'm assuming these grades meet - have them confirm. Also, is the turning radius sufficient to get trucks onto the shoulders and make the turns at all the corners. It would be good to have a clearer definition of access shown on the drawings.

The gravel roads around the sand drying beds are 12' wide and at the same elevation as the asphalt road approaching the sand drying beds. This width is sufficient for the excavators used to traverse the sand drying beds and remove the solids. This sand drying bed roadway width and design has been utilized successfully at other project sites including the water treatment plant at the University of New Hampshire. The competent operations team responsible for the removal of the solids from sand drying beds will be responsible for adequately handling any cleanup which may be required after solids removal.

- 3. Underdrain System. I missed this before but it looks like there is an underdrain system that discharges directly to the ground without going through the stormwater system. I'm not sure what this is, possibly a foundation drain system? If so and because the foundations are below ground water level, I would expect this to be flowing all the time. Was that evaluated by our peer review?**

The underdrain system is utilized to divert water from the foundations when the groundwater level rises above the foundations. The groundwater levels on the site are variable, and during the August borings the ground water level was only slightly higher in one boring (B-106) than the proposed foundation level. All other borings completed in August showed ground water levels deeper than the proposed foundation so it is likely that the foundation drains will only transport groundwater intermittently. During the periods when the groundwater level is elevated the area of dewatering of the foundation drains will be similar to the area and flow rate of dewatering during construction as described above and this flow rate represents the worst case scenario for the foundation drains dropping the groundwater elevation next to the building. These underdrains will likely be constructed during the dewatering effort and prior to the foundations being poured. This will help assist the contractor with de-watering when pouring the foundations. These drains do not go to the stormwater system because they are not diverting stormwater, rather they are diverting ground water. These foundation drains were included in the drawing set reviewed by the peer reviewer.

- 4. Recycled decant water from the drying basins go to a "pump station" (C-502). Is this a pump station that would not flood with decant water if pumps failed - just want to make sure this water can't end up in the stormwater system. Also there is a Lagoon Recycle Hydrant next to that pump station. Not sure what that is for - can we get an explanation?**

The recycle pump station is hydraulically connected to the sand drying beds and water flows by gravity from the sand drying beds to the recycle pumps station where the water is pumped back to the head of the plant. If the recycle pumps were to fail the sand drying beds would act as an equalization basin storing the additional water while the pumps are being repaired. The top of the wet well in the recycle pump station is at

a higher elevation than the top of the sand drying bed so the pump station cannot overflow.

The lagoon recycle hydrant next to the pump station will be used for facility maintenance and operations, for example testing the flow rate of the pumps without impacting the headworks of the plant.

5. Need at Detail (on C-903?) for the Dewatering Sump. This would be a good place to provide the design flows and durations as well.

No detail has been added to the plans for the dewatering sump since, as stated previously, the method will be at the discretion of the Contractor. In general we anticipate that the Contractor will excavate and install sumps (perforated culvert pipe with crushed stone backfill), install submersible pumps, excavate foundations and install crushed stone mats.

We trust that the responses above and supplemental information provided in the referenced documents address your comments. As noted below, revised site plans are included with this submittal that show changes to the dewatering approach, coordination of the waterline work in Route 3A, and addition of an access route to the wetland mitigation area in the limit of work. The sheets with changes are listed below for reference with the corresponding updates:

C-200: dewatering, Route 3A waterline, mitigation access
C-201: Route 3A waterline
C-202: dewatering, Route 3A waterline, mitigation access
C-300: Route 3A waterline, mitigation access
C-301: Route 3A waterline
C-302: Route 3A waterline, mitigation access
C-400: Route 3A waterline, mitigation access
C-401: Route 3A waterline
C-500: Route 3A waterline, mitigation access
C-501: Route 3A waterline
C-502: Route 3A waterline, mitigation access
C-900: dewatering

Please feel free to contact us if there are any questions or additional information is required.

Sincerely,

WOODARD & CURRAN, INC.



Kevin A. McCaffery, PE
Technical Manager – Civil & Stormwater

Attachments: Excavation Profiles and Revised Site Plans