



PRELIMINARY PLAN REVIEW MEMORANDUM

To: James Lamphere, Town Planner
Patrick Freeman, American Engineering
Matthew Cotta, American Engineering

From: Steven M. Cabral, P.E.
Crossman Engineering

Date: May 5, 2021
Revised May 25, 2021

Re: Fairview Estates

Upon receipt of revised Preliminary Plans and Stormwater Reports, we prepared the following summary of our May 5, 2021 comments with the status of each comment in **red** below and resolved items are crossed out:

1. Previous Master Plan Drainage Concern:

- The net long term impact to Fairview Avenue is dependent upon diligent maintenance of the drainage system, especially the infiltration pond and drywell systems. A private association must be formed to perform all maintenance of the stormwater systems and provide semi-annual reports to the Town DPW to document maintenance activities. If the system fails, the Association must be prepared to expand the drywell and infiltration systems. Space for expansion should be considered. The Town will not be responsible for maintenance and performance of the private road and the stormwater systems.

For rain events up to and including the 25 Year Frequency Storm, the design indicates that no runoff will discharge from the proposed infiltration pond and level spreader adjacent to Fairview Avenue. A 25 Year event represents a 6.1-inch rainfall over a 24-hour period. If discharge is observed for events less than 6.1 inches, it will be evident that the system has failed.

The drywell system at the intersection of Fairview and the new private road is designed to begin to overflow into the Fairview gutter at the 2 Year Frequency event, a 3.3-inch rainfall over 24 hours. For minor, frequent storms the system was designed to have no discharge onto Fairview.

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- Upon review of the area with the DPW Director, it has been confirmed that this segment of Fairview Avenue has a history of puddling and icing. Therefore, although the resulting project will be designed to not increase runoff, options to further decrease runoff onto Fairview should be further considered. Options include having all rooftops and driveways that drain towards Fairview discharge into on-site drywells and oversizing the infiltration system that overflows into Fairview Avenue.

As noted in the first comment, the system was designed to prevent overflows into Fairview during common rain events but lack of maintenance and avoidance of compaction in the infiltration areas during construction will be critical for system success.

2. Stormwater Report/Analysis Observations:

- ~~For the modeling of the existing pond on the east side of the property, an asymmetrical weir is used. We assume that this represents an actual survey but request confirmation.~~
- ~~The Existing Watershed 3 has a lower time of concentration when compared to the Proposed Watershed 5, which generally represents the same area. Since the Te path for Watershed 5 exists within Watershed 3, the Te should be the same for both Existing Watershed 3 and Proposed Watershed 5.~~
- ~~The use of "Reach 8R" for the outflow from the existing pond should also be modeled under the existing conditions.~~
- ~~Since attenuation credit is being taken for the forebays, the modeling of the forebays needs to account for sediment build up prior to the scheduled cleaning.~~
- ~~The bottom elevation of Forebay 1 in the calculations does not appear to match the design plans.~~
- ~~The forebay modeling uses a 6 inch weir breadth, but the earthen component of the weir appears larger.~~
- ~~Since the forebays are relatively shallow, we recommend that the flow through velocity be confirmed to ensure that sediment can deposit.~~
- ~~The modeling of Infiltration Pond 1 has a 1,642 sf bottom area at elevation 132. This should be depicted on the Plans.~~
- ~~The Primary Discharge of Infiltration Pond 1 is higher than the sediment forebay emergency overflow, therefore the maximum storage volume within Pond 1 that was modeled will not be available.~~
- ~~For each Infiltration System, we recommend a monitoring well be installed.~~
- ~~For Detention Pond 5, the 1-inch orifice is modeled at elevation 129 but appears to be at elevation 130 on the Plans. Also, screening of the outlet device is recommended to minimize the potential of clogging.~~
- ~~The 24-inch x 24-inch orifice/grate modeled for Detention Pond 1 appears to differ from the detail.~~

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- As recommended during the Master Plan stage, the design includes an outlet pipe from the infiltration pond adjacent to Fairview Avenue that connects into the drywell system beneath the new private road. The concern that arises with the final calculations is that this drywell system has no excess capacity for this inflow for the 10 – 100-year events. The original concept was to utilize excess capacity to reduce overflows into the Fairview gutter.

Comment 1 (page 1) provides a summary of the occurrence of overflows into Fairview.

3. **Safety Measures:** Although the regulations do not specifically state that fencing is required, we recommend that the developer consider fencing around each drainage infiltration and detention pond as a safety measure.

Fencing is now shown. A detail of the fence is recommended.

4. **No-Cut Buffer:** Since the aerial photographs indicate that clearing previously occurred within the proposed 40 ft No-Cut Buffer, consideration should be given to providing new plantings in the cleared areas.

The designer's reply indicates that this area will be left to grow naturally. Photographs should be presented to demonstrate the condition of the area and potential need for new evergreen plantings.

5. **Crushed Stone Access Road:** ~~Due to the slope of the crushed stone access drive at the end of the cul-de-sac, we have two (2) concerns. We recommend that the proposed grading be more pronounced to ensure that runoff does not bypass the stormwater system and we are also concerned with the potential for erosion along the edge of this access drive.~~
6. **Drywell System:** ~~For the drywell system at the entrance road, we recommend that a minimum of two (2) access ports be provided to allow for periodic inspection and cleaning.~~
7. **Level Spreader Detail:** ~~We recommend that the maximum side slopes and the downside embankment width of the level spreader be identified.~~
8. **Water Quality Filter Pond:** ~~Instead of loam, we recommend a sand/loam mix at the bottom of the pond to improve infiltration. A geotextile fabric should also be considered above the sand filter to prevent fines from clogging the sand.~~
9. **Overflow Weirs:** ~~The lengths of each overflow weir, as described in the calculations, was not readily evident on the plans.~~

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- 10. Pond Profiles on Sheet 9:** ~~We recommend that the maximum side slopes be labeled on each detail.~~
- 11. Catch-basin Grates:** ~~On sheet 10, a standard RIDOT Frame & Grate is depicted but we recommend that a high capacity grate be used project wide, due to the roadway slopes.~~
- 12. Plantings along Level Spreader:** ~~A row of evergreens is proposed along Fairview Avenue to screen the stormwater pond. We recommend that the landscape architect confirm that at maturity that the evergreens will not impact the proposed level spreaders.~~

As previously noted, the cross-hatched comments indicate that those previous comments have been incorporated into the Plans and addressed.