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August 24, 2021

To: Community Development
City of Methuen

From: Stephen J. Gagnon, PWM
Engineering Department Administrator

Subject: 33 Danton Drive
Site Plan Review

As requested, I have reviewed the revised plan set, Stormwater Management Report and letter responding to my July 13, 2021, memo. All the documents are dated July 30, 2021, and were prepared by Design Consultants, Inc. My July 13, 2021 comments are in plain text, the Project Engineer's response is in italic text and my current comments are on bold text.

1. Full size pre and post development drainage are maps should be provided.

   DCI 7/30/21 response: Full size drainage area maps have been provided.

   Comment addressed. No further action necessary.

2. The stormwater analysis indicates an increase in the peak rate of stormwater runoff and volume. The project should be revised to provide 0 increase in stormwater runoff for all storm events up to 100-year.

   DCI 7/30/21 response: The rates and volumes have been reduced for all storm events. Please see the provided updated stormwater calculations.

   Comment addressed. No further action necessary.

3. A TSS Removal worksheet should be provided for the system associated with DMH-4, as this system does not utilize deep sump catch basins.

DCI 7/30/21 response: The proposed subsurface infiltration chamber system provides the required water quality volume providing 80% TSS removal for all paved areas. The deep sump catch basins and water quality units provide the required 44% TSS pretreatment removal. As a redevelopment project the proposed design treats 100% of the paved areas well more that the requiem of full treatment of expanding paved areas and best extent practical for the remaining areas.

Comment addressed. It should be noted, if the site is determined to be LUHPPL the TSS removal prior to infiltration will be revisited. Also, the response above does not agree with the project narrative that states the project is not redevelopment.

4. A turning analysis should be provided for WB-50 vehicles.

   DCI 7/30/21 response: The turning movement has been added to the site layout plan.

   Comment partially addressed. The turning movement analysis has been provided for trucks exiting the site from the loading docks. The analysis should be expanded to include trucks entering the site and maneuvering to the loading docks.

5. The diameter and material of proposed water connections should be provided.

   DCI 7/30/21 response: The water service is 2" and fire is 6" with this added to the plans.

   Comment addressed. No further action necessary. It should be noted, the domestic service may be split off the 6" fire service near the building if desired.

6. Grading changes are proposed within the Danton Drive right of way. The grading changes should be limited to the subject site.

   DCI 7/30/21 response: The previously approved site plan indicated grading in the right of way. There is existing paved parking that requires some grading in here but the filling along the new parking has been removed from the plan.

   Comment addressed. No further action necessary.

7. The material of the proposed drainage pipes should be specified.

   DCI 7/30/21 response: Pipe material labels have been added to the utility plan.

Comment addressed. No further action necessary.

8. A note on sheet C 103 labels existing sewer main as 12" diameter, this should be revised to 24" diameter.

   DCI 7/30/21 response: The note has been changed to 24" diameter.

   Comment addressed. No further action necessary.

9. The proposed drainage system is depicted connecting to the existing drainage system in Danton Drive. The Project engineer should confirm the existing drainage system has sufficient capacity to accommodate the proposed connection.

   DCI 7/30/21 response: The approved project reduces the 10-yr peak discharge rate from 6.3 cfs to 3.3 cfs and maintains the existing 100-yr peak discharge rate of 16.6 cfs. The new design reduces the 10-yr peak discharge rate from 6.3 cfs to 2.4 cfs and 100-yr peak discharge rate from 16.6 cfs to 11.7 cfs. The project is reducing flow to the Danton Drive drainage system for all storm events. Therefore, we do not believe a system wide analysis is required.

   Comment addressed. No further action necessary.

10. The slope of the proposed sewer service connection is specified as 0.005. The slope should be revised to a minimum of 0.020.

    DCI 7/30/21 response: The sewer service slope has been adjusted.

    Comment addressed. No further action necessary.

11. A proposed drainpipe capacity analysis should be provided.

    DCI 7/30/21 response: A proposed drainpipe capacity analysis has been provided as Appendix J to the Stormwater Management Report.

    Comment addressed. No further action necessary.

12. A construction detail of the outlet control structure should be provided.

    DCI 7/30/21 response: The outlet structure is a standard manhole with 3 inlets from the chamber system and one outlet. A detail (#4) has been added on sheet C503.

    Comment addressed.

13. The elevations for the outlet control structure do not agree in the drainage calculations and the plan set.

    DCI 7/30/21 response: All elevations have been checked and now in agreement with the provided revised documents.

    The outlet structure invert elevations in the plan set do not agree with Stormwater Management Report.

14. The discharge pipe from the outlet control structure is depicted as 15" diameter in the plan set and 18" diameter in the calculations.

    DCI 7/30/21 response: The discharge pipe is 15". The HydroCAD calculations have been updated.

    Comment addressed. No further action necessary.

15. The test pit locations depicted on the plan set should be identified so the corresponding soil logs can be associated.

    DCI 7/30/21 response: Test pit locations with numbers are now shown on the plan. A soil profile of TP8, which is where the infiltration system is located, has been added as detail #5 on sheet C503.

    Comment addressed. No further action necessary.

16. The infiltration rate for the infiltration structure should be determined according to the DEP Stormwater Manual.

    DCI 7/30/21 response: Per the DEP Stormwater Manual, we have used 8.27" per hour as indicated in the Rawl's Table for sand material as shown in the results from test pit 8 in the report.

    Comment addressed. No further action necessary.

17. The peak water surface elevation in the infiltration system exceeds the invert elevation for the upstream drainage system. The drainage system should be free flowing to the infiltration system for all storm events.

    DCI 7/30/21 response: The peak water surface elevation in the infiltration system exceeds the invert elevations for the upstream drainage system. The drainage system should be free flowing to the infiltration system for all storm events.

    Comment addressed. No further action necessary.

18. The plan should be revised to provide unique identifiers for each pipe entering/exiting manholes.

    DCI 7/30/21 response: The Utility Plan has been updated to indicate unique identifiers for inlets and outlets for all manholes with multiple orifices.

    Comment addressed. No further action necessary.

19. The jurisdiction of the Plumbing Code extends 10' from the outside face of the foundation, consequently some of the proposed drainage system would be subject. The engineer should confirm the design is consistent with the Massachusetts Plumbing Code.

    DCI 7/30/21 response: Pipe materials are called out to be cast iron within 10 feet of the building.

    Comment addressed. No further action necessary.

NEW ISSUES

1. Some of the drainpipe segments have less than 3' of cover. A waiver for depth of cover can be requested from the CD Board, however the Engineer should confirm there is sufficient cover to construct the manhole/catch basin i.e. slab top, adjusting brick and 8" frame.

2. The infiltration field is proposed over the existing sewer main; this is not acceptable and must be relocated.

3. The drainpipe exiting CB-3 is labeled as both 8" and 12" diameter.

4. Drain manhole 7 is specified as a "doghouse" style. Doghouse manholes are not permitted in the city. The existing drainpipe must be removed, and a new manhole installed and reconnected.

The Project Engineer should address these issues in writing.