MEMORANDUM

To: Tom Grimaldi, P.E.   **Date**: June 6, 2024

From: Guy Hesketh, P.E.

Subject: **Engineering Review Appl. #PZC 24-06**
East Granby Meadows
Responses to May 30, 2024 Memorandum

Our File: **22082**

Please find below written responses to comments of your May 30, 2024 memo. Your comments are in normal font, my responses are in *italic font*.

ENGINEERING REVIEW COMMENTS:

Drainage Analysis

1.   Due to the increase in flow within the "Undetained DA", to the existing East Street culvert of 2.6 CFS, which is a 19% increase at the 25 Yr. Storm Event, please provide a pipe analysis of the existing 24-inch RCP under East Street, which discharges to the east.

A capacity analysis was run on the 24-inch East Street cross culvert that drains the eastern portion of the proposed development. Per the drainage analysis previously submitted, a total of 3.84 acres drains from the proposed East Granby Meadows will drain to this 24-inch cross culvert. In addition, approximately 7.15 acres of the undeveloped lot to the south will also drains into this culvert. The approximate total watershed area draining to the 24-inch culvert is depicted on the attached DA-3.

The drainage areas were estimated using LIDAR topographic data from the CT ECO site for the area between Rainbow Road and the East Granb Meadows project. The total drainage area is estimated to be about 10.99 acres. A weighted runoff coefficient of 0.28 was calculated for the watershed. And a time of concentration of 30 minutes was estimated, using TR-55 methodologies. The analysis shows that for a 25-year storm event, the watershed is anticipated to generate a peak flow of 10.5 CFS, and the 24-inch

culvert has a full flow capacity of 10.0 CFS. The culvert, therefore, has adequate capacity.

2.   We recommend the installation of stormwater quality basins for these two areas, which are adjacent to Units #1 & #2, to attenuate the net increase.

The Grading and Drainage Plan submitted with the application to the PZC (Sheet GR-2, revised to 05-03-2024) depicts a depression in the southwest corner of the proposed development, adjacent to and east of Unit 1. This depression will serve as a water quality basin and stormwater storage area during intense rainfall activity and help attenuate peak rated of flow into the 24-inch East Street Cross Culvert. The grade of the sidewalk and adjacent areas south of the catch basin between Unit 1 and the sidewalk will result in shallow ponding in the area. The same plan shows a shallow depression east of Unit 2. The grade of the sidewalk in this area will create a barrier that will promote shallow ponding of water below elevation 170.6, creating a shallow water quality basin around the inlet of the proposed Type 'C-L' catch basin.

Please advise if there are additional items that need addressing. We take no exception to the proposed recommended conditions of approval.
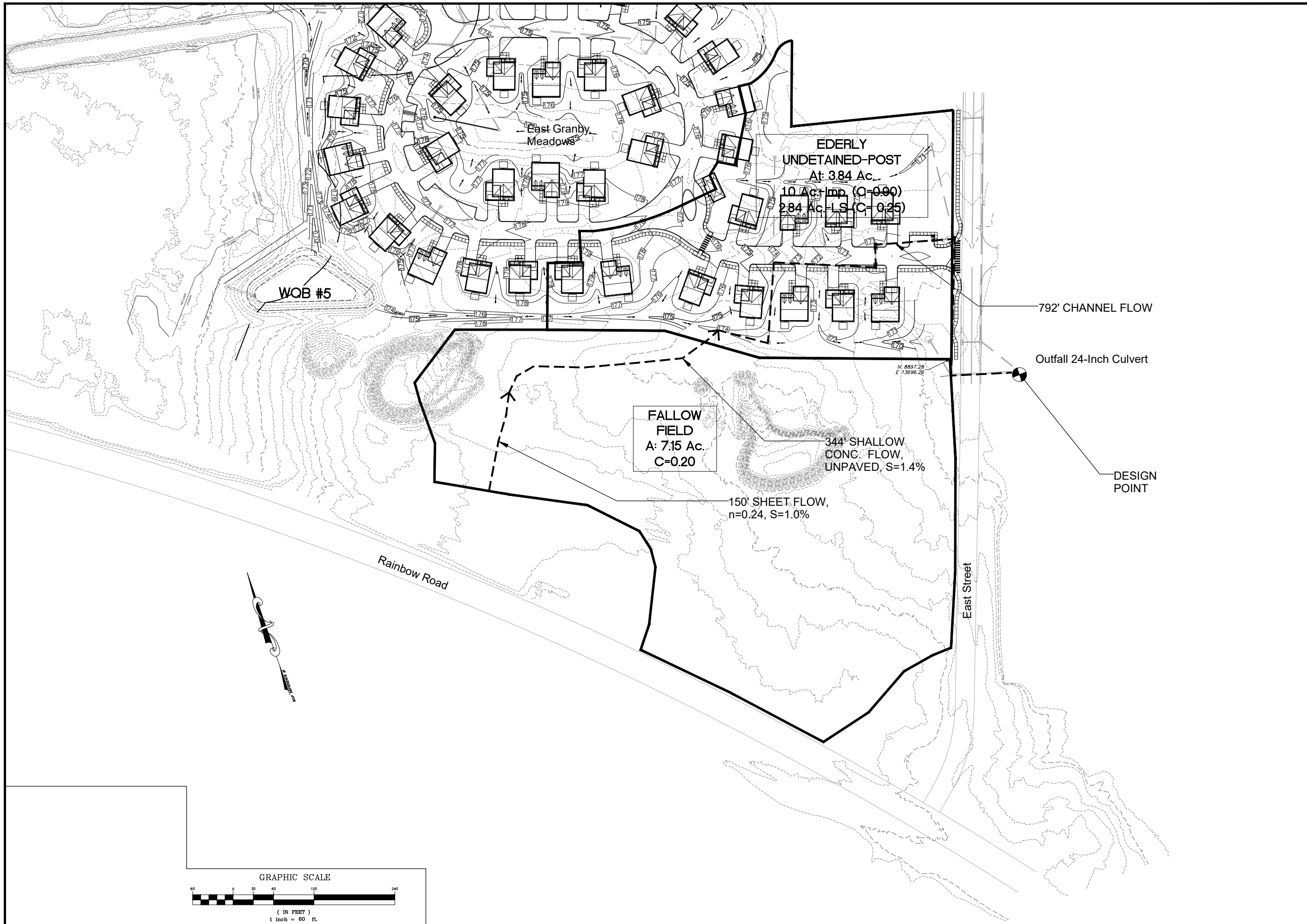
Hydraflow Storm Sewers Plan

1

● Outfall
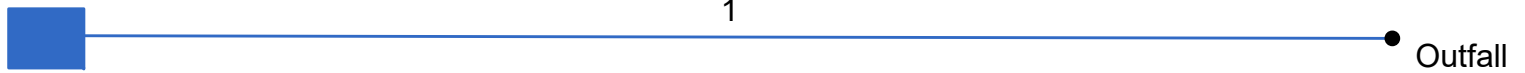
Storm Sewer Tabulation

Station		Len	Drng Area		Rnoff coeff	Area x C		Tc		Rain (I)	Total flow	Cap full	Vel	Pipe		Invert Elev		HGL Elev		Grnd / Rim Elev		Line ID
Line	To Line		Incr	Total	(C)	Incr	Total	Inlet	Syst					Size	Slope	Dn	Up	Dn	Up	Dn	Up	
		(ft)	(ac)	(ac)				(min)	(min)	(in/hr)	(cfs)	(cfs)	(ft/s)	(in)	(%)	(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	
1	End	89	10.99	10.99	0.28	3.08	3.08	30.0	30.0	3.4	10.52	16.06	4.08	24	0.50	163.84	164.29	165.56	165.68	167.00	168.09	CB TO OUTFALL

Project File: 24-INCH PIPE ANALYSIS.stm

Number of lines: 1

Run Date: 06-06-2024

NOTES: Intensity = 42.22 / (Inlet time + 3.70) ^ 0.71; Return period = 25 Yrs. ; Pipe travel time suppressed. ; c = cir e = ellip b = box

East Granby
Meadows

EDERLY
UNDETAINED-POST
At: 3.84 Ac.
1.0 Ac.+Imp. (C=0.90)
2.84 Ac. LS (C=0.25)

WQB #5

792' CHANNEL FLOW

Outfall 24-Inch Culvert

N. 8897.28
E. 13696.26

DESIGN
POINT

FALLOW
FIELD
A: 7.15 Ac.
C=0.20

344' SHALLOW
CONC. FLOW,
UNPAVED, S=1.4%

150' SHEET FLOW,
n=0.24, S=1.0%

Rainbow Road

East Street

GRAPHIC SCALE

60   0   30   60   120   240

(IN FEET)
1 inch = 60 ft.

Revisions:

No. | Date | Description

PROPOSED CONDITIONS
WATERSHED AREA MAP
PREPARED FOR
KSFR EAST GRANBY OWNER, LLC
OLD DEERFIELD CIRCLE
BRIARWOOD CIRCLE
EAST GRANBY, CONNECTICUT

Date: 06-06-2024 | Drawn by: DR7 | Job no: 22082
Scale: 1" = 60' | Checked by: GAH | Sheet no: 1 OF 1

DA-3

TR55 Tc Worksheet

Hyd. No. 1

EG Meadows - 24 in Culvert

Description	A	B	C	Totals
Sheet Flow				
Manning's n-value	= 0.240	0.011	0.011	
Flow length (ft)	= 150.0	0.0	0.0	
Two-year 24-hr precip. (in)	= 3.27	0.00	0.00	
Land slope (%)	= 1.00	0.00	0.00	
Travel Time (min)	= **25.76** +	**0.00** +	**0.00** =	**25.76**
Shallow Concentrated Flow				
Flow length (ft)	= 344.00	0.00	0.00	
Watercourse slope (%)	= 1.40	0.00	0.00	
Surface description	= Unpaved	Paved	Paved	
Average velocity (ft/s)	= 1.91	0.00	0.00	
Travel Time (min)	= **3.00** +	**0.00** +	**0.00** =	**3.00**
Channel Flow				
X sectional flow area (sqft)	= 2.00	0.00	0.00	
Wetted perimeter (ft)	= 3.00	0.00	0.00	
Channel slope (%)	= 1.00	0.00	0.00	
Manning's n-value	= 0.013	0.015	0.015	
Velocity (ft/s)	= 8.73	0.00	0.00	
Flow length (ft)	= 792.0	0.0	0.0	
Travel Time (min)	= **1.51** +	**0.00** +	**0.00** =	**1.51**

Total Travel Time, Tc .... **30.28 min**

Storm Sewer IDF Curves

IDF file: EGM 2024-03-28.IDF

Hydraflow Storm Sewers 2008