



Technical Memorandum

To:	Andrea Lacy Bourbon County Joint Planning Commission	Date:	July 23, 2019
From:	GRW Engineers	GRW Project No.:	4602-04
Subject:	CMWA Construction Plans and Stormwater Calculations		

I. Comments

Below are comments on the CMWA Construction Plans and Drainage Report submitted by Palmer Engineering

Construction Plans:

- **Sheet C-0.1 – C-0.2**
 - Note 2: Contours were taken from State LIDAR that are accurate to 2'. Is that acceptable for this project? It may be since the entire site is on fill. Actual cut/fill volumes may vary from volumes calculated by CAD program.
 - Note 5: Change Clark County to Bourbon County and check that flood map reference is correct.
- **Sheet C-1.0**
 - Note 8: Revise spelling of "isle" to "aisle"
 - Site Plan Key: Letter E may want to state "future" or "not shown". Could not find letter L, "stairs". At the northeast portion of the building there is a letter T, but no concrete pad shown.
 - Will a geotechnical engineer be involved in this project for pavement and foundation design and to comment on the building being constructed over an existing underground stream?
 - The future expansion area looks to cover the existing stream outlet. Will the geotechnical engineer comment on remediation of that stream outlet in this phase?
- **Sheet C-2.4**
 - Can a detail for the low water crossing be provided?
- **Sheet C-3.0**
 - Note 14: Revise spelling of "isles" to "aisles"
 - From American Concrete Pipe Association Fill Height Tables: "A Type 1 installation requires greater soil stiffness from the surrounding soils than the Type 2, 3, and 4 installations, and is thus harder to achieve. Therefore, field verification of soil properties and compaction levels should be performed." We would recommend the geotechnical engineer comment on the Type 1 installation of the Class V RCP that goes under the building.
 - Pipe (13-14) is a 15" pipe and pipe (12-13) is a 30" pipe. Any reason for the jump in pipe size? Would a 24" pipe suffice?
 - Pipe (03-04) at 25% slope.

- **Sheet C-3.4**

- 48" Outlet Structure Detail: 30" pipe invert should be revised from 925 to 839.9 and top of the structure elevation should be revised to 847.34.
- Detention Detail: Revise spillway elevation and top elevation to 848 and 850, respectively. Revise rim elevation of outlet structure to 847.34.

- **Sheet U-1.0**

- Has the City of Paris water and sewer utilities reviewed this plan?
- Will a new water meter be installed?
- There are no proposed fire hydrants so the building is sprinklered?

Drainage Analysis Memo:

- Page 3, section 4.1, last sentence: acres is written twice back to back. Delete one.
- Page 3, section 4.2: The paragraph talks of converting the sediment basin into a temporary detention pond. Should "temporary" be removed? The paragraph states that sub-02 drains to Basin 2, but the attached map shows sub -03 drains to basin 2 and sub-03 bypasses the detention.
- Page 4-5: Please show the bypass (sub-03) runoff values in a table to ensure that the addition of all three basins add up to the pre and post runoff values shown.
- Page 1 of Attachment D: Sheet C-3.0 shows 15 junctions and 19 pipes, but this report shows 17 junctions and 27 pipes. Please double check as this is consistent throughout the report.
- Page 4 of Attachment D: I would like to see pipe and structure network layout to compare to sheet C-3.0. Also would like to see pipe/structure profiles with HGL shown. Check all inverts and slopes shown in the table. Some inconsistencies with Sheet C-3.0 were found.
- Page 5 of Attachment D: Inlets 8 and 9 from C-3.0 are not included in the inlet summary.
- Page 52 of Attachment D: Review Junction input table. One rim elevation shows 0.00. Not sure what junction the CO-** junctions correspond to on C-3.0. Network layout needed.
- Sheet 2 of 23, subbasin summary: Peak runoff values do not match what is shown in the table in report introduction. Please recheck all calculations to ensure they are correct and correspond with table in introduction.
- Storage area volume curves: one line should be red to correspond to storage area. Both lines are blue.