FINAL DESIGN SUBMISSION FOR COLLECTION SYSTEM PROJECTS
REVIEW GUIDANCE – CHECKLIST

WPN: 19.0301 Project Name: Franklin County North Middle School

Acceptable	Item Number	DESCRIPTION	COMMENTS
		Cover Letter	
✓	1	Description of the project; utility and design contact persons (name, organization name, address, email, phone number and fax number); project location (county and city); associated NPDES or SOP number and treatment plant name; enclosures, e.g., plan sheets (format), engineering report (format), fee worksheet (format), engineering report check fee. .	
✓	2	Cover letter and/or plan signed by utility representative and/or letter provided by the utility stating they approve the design and will own, operate and maintain the improvements.	
✓	3	Linear feet, diameter, and type (force main, gravity sewer, low pressure sewer);	620 LF of force main
NA	4	For line rehabilitation: linear feet and size by activity, e.g., replacement, pipe-bursting, cured-in-place, slip-line, TV inspection, smoke testing; number of manhole or service lateral rehabs	
X	5	Check received for the correct amount	Fee required for force main (620/250) = 2.48, 3 X $25.00 = $75.00
		General	
✓	6	All plan sheets sealed by professional engineer licensed in TN, signed by owner; legible when printed on a 11x17 sheet	

X	7	Calculations sealed by professional engineer licensed in TN	Pump station calculations need to be stamped
X	8	Ownership of all proposed lift stations and lines designated	Confirm whether the school system or Decherd will own and operate the pump station and force main
✓	9	Adequate separation from water lines – 10-feet horizontal, 18-inches vertical	
✓	10	Other utilities shown on plan and profile sheets	
✓	11	Does the downstream system have capacity for the proposed flow? Letter from utility provided	
✓	12	Relationship to any area under sewer moratorium or Order	
X	13	Project cost	Provide project cost
Sewer Lift Station			
✓	14	Lift station has associated force main calculations	
✓	15	Lift Station Name	
✓	16	Type of station: wet well with submersible/suction lift pumps, wet well with dry pit submersible/extended shaft, etc.	Submersible
✓	17	Design Firm Capacity: __ gpm at __ftH2O head	80 GPM @ 25’ TDH
✓	18	Number of Pumps (at least 2 unless grinder station)	2
✓	19	Model of Pumps (calculations match drawings)	Barnes SGV3042L
✓	20	H/Q curves with system curve at C=130 superimposed at pumps on and off elevations for single pump and multiple pump combinations indicating static, friction and TDH	
✓	21	Hydraulic profile from pump off level in the pump station to discharge point shown at pump off level with single pump and with firm capacity pump(s) at pump on level	
✓	22	Motor Drives: single speed, variable speed and hp:	Single Speed
✓	23	Control Scheme: float on-off with alternating lead-lag; constant level VFD control with alternating lead-lag; etc.	
✓	24	Control capabilities: 1. Run time: 2. Overload/short protection: 3. Telemetry capabilities: 4. Alarms: Recommended: 1. Discharge Flow Meter: type, telemetry, storage, instantaneous, cumulative, etc. 2. Ability to calculate, store and download influent flow rate over	

		time 3. Ability to record rainfall in vicinity of pump station	
✓	**25**	Effective storage volume: (pump off to high level alarm) Emergency storage volume: (above high water alarm)	
✓	**26**	Power: 1. Normal power source 2. Alternate power source 3. Standby or emergency power source	
✓	**27**	Lighting or power source for lighting	
✓	**28**	Plan view – dimensions match calculations, station accessible by utility personnel, fenced with lock	
✓	**29**	Elevation view – dimensions match calculations	
NA	**30**	Single line electrical drawing	
X	**31**	Uplift (buoyancy) calculations	Provide calculations.
NA	**32**	Potable water line with frost proof hose bibb (recommended)	
Gravity Sewer Lines			
NA	**33**	Basis of Design: Calculations showing how flow rates were determined for normal and wet weather induced flows	
NA	**34**	Calculations: Diameter; slope; velocity is 2<v<15 fps	
NA	**35**	Plan and profile sheets – pipe material and rating on the plans	
NA	**36**	Elevations of (proposed) structures are above gravity line elevation	
NA	**37**	Watertight lids on manholes in flood zones	
NA	**38**	Flexible boot connection between pipe and manhole	
Force Mains			
X	**39**	Basis of Design: Calculations showing how flows were determined	Provide how many individuals (staff and students) the flow rate accounts for in the calculations
	40	Plan and Profile sheets	
	41	Hydraulic calculations	
	42	Velocity in the force main is between 3 and 8 fps	
	43	Pipeline profile and hydraulic grade line	
	44	Pipe material and rating on the plans	
	45	Impact of other pumps utilizing force main (if any)	
	46	Air relief valves provided	

Alternative Sewers			
NA	**47**	Pumps and/or septic tanks are owned by the same entity as the collection line	
NA	**48**	Pressure Sewers (grinder pumps) 1. Determination of number of pumps operating at the same time 2. Pumps meet the criteria for the maximum hydraulic grade line 3. Reserve space provided between the pump on level and high level alarm 4. No loops in the system 5. Check valves at the pump and end of service lines	
NA	**49**	Effluent sewers (STEP and STEG) 1. Determination of flow based on number of tanks or pumps 2. Pumps meet the criteria for the maximum hydraulic grade line 3. Liquid depth in tanks between 30 and 60 inches 4. 18 inches to three feet of cover above the septic tank 5. Tank design bears the stamp of an engineer licensed in Tennessee 6. Collector main $\geq$ 4 inches	
NA	**50**	Vacuum systems - Design approved by vacuum system manufacturer	
Trenching Environmental Safeguards			
NA	**51**	Provisions to prevent stream and ground water capture 1. Stream crossing details 2. Trench details when within 50' of stream	
NA	**52**	ARAP application is submitted and deemed complete by the division	
✓	**53**	Erosion control	
✓	**54**	Acres disturbed	
✓	**55**	NPDES Storm water Construction Permit: [General or Individual]	
Specifications			
✓	**56**	Specific equipment called out for all critical process equipment; major equipment performance matches calculations.	
X	**57**	Post installation testing 1. Gravity lines: mandrel test, low pressure test	City of Decherd does not currently have an approved standard specification. The notes on Sheet C002 reference Hendersonville

		2. Force mains, manholes, septic tanks: water tightness	and not Decherd.
NA	**58**	Manholes: Min 2-foot opening, Coating if receiving waste has long detention time	
✓	**59**	Storm water permits, SWPPP, ARAP provisions implemented	
NA	**60**	Procurement has adequate checks to ensure clear lines of responsibility and accountability and that procurement outside the contract meets approved plans, engineering report and specification requirements.	
NA	**61**	Responsibilities of owner, engineer, inspector, and contractor clearly defined for: 1. Substantial completion, 2. Warranty period and responsibilities, 3. Punch list generation, 4. Delivery, acceptance, start-up, demonstration of equipment performance, 5. Delivery of record drawings (as-builts) and operation and maintenance manuals; and 6. Training of operation and maintenance personnel	
NA	**62**	Recommended: 1. Requirement for progress meetings; 2. Maintenance of "red line" drawings on-site to record field changes; 3. List of equipment submittals required for submission before purchase; 4. Withholding final payment until record drawings and O&M manuals are provided	
NA	**63**	Specifications sealed by a professional engineer licensed in TN	
Other Notes			
The city of Decherd does not have a current approved standard specification with the division. Utilization of Hendersonville specifications is not adequate.			