KCI TECHNOLOGIES

ISO 9001:2015 CERTIFIED

ENGINEERS • PLANNERS • SCIENTISTS • CONSTRUCTION MANAGERS

614 N. Dupont Highway • Dover, DE 19901 • Phone 302-747-5999

3049/24

RECEIVED
JUN 24 2024
DNREC
Division of Water

To: ~~Mr. Derrick Caruthers~~
DNREC
State of Delaware
89 Kings Highway
Dover, DE 19901

Date: June 21, 2024

Re: **Simons Corner Pump Station Permit Application for Construction of Wastewater Collection and Conveyance Systems**

☐We are submitting
☐We are forwarding
☐We are returning

☒Herewith
☐Under separate cover

Sent via: Hand Delivered

Qty.	Description
1	Application for Construction Wastewater Collection & Conveyance System
2	Checks: (1) $825.00 payable to State of Delaware (2) $300.00 payable to the State of Delaware
1 ea	Letter, Design Information & Calculations, Ltr dated 5/27/2020 to Mr. Jamie Winfield, Ltr dated 6/5/24 to Mr. Aaron Whitenight, KCI Technologies
1 ea	Drawings and Specifications

☐In accordance with your request
☐For your review
☐For processing
☐Plans reviewed and accepted
☐Plans reviewed and accepted as noted
☐Conference requested at your convenience

☒For your use
☐For revision by you
☐Please call when ready
☐Please return to this office
☐Approval requested

If you have any questions or for additional information, please contact me.

Aaron Whitenight, PE
302.318.1066
Aaron.whitenight@kci.com

KCI TECHNOLOGIES

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1352 Marrows Road, Suite 100 • Newark, DE 19711 • Phone 302-731-9176 • Fax 302-731-7807

June 6, 2024

Delaware Dept. of Natural Resources & Environmental Control
Division of Water Commercial and Government Services Section
89 Kings Hwy
Dover, DE 19901

Attn: Mr. Derrick Caruthers

Subject: Simons Corner Pump Station Permit Application for the Construction of Wastewater Collection and Conveyance Systems

Dear Mr. Caruthers:

The purpose of this letter is to provide a narrative summary of the intended purpose and design of the proposed facilities. In summary, this permit application is for a new wastewater pumping station that will be owned and operated by the Town of Smyrna following final completion and acceptance of construction. The new Simons Corner Pump Station (SCPS) is intended to be installed in conjunction with an apartment complex project (Simons Corner Apartments) that will be under a separate permit application. This SCPS permit application is only for the pump station site, not the upstream conveyance system or downstream discharge force main. The SCPS is designed to convey flow from approximately 500 total equivalent dwelling units at ultimate buildout, of which 103 are existing and 397 are future proposed connections. This station will serve both commercial and residential customers within the Town of Smyrna.

Currently the Simons Corner Commercial shopping center is served by an onsite pumping station that conveys flow into the Town of Smyrna's gravity sewer network. The existing commercial gravity conveyance system will be realigned as part of the Simons Corner Apartments Project and be connected to the new SCPS. The existing pump station will be demolished following completion of the SCPS. As part of the overall Simons Corner Apartments Project new gravity sewer will be installed to serve several proposed apartment buildings, and the SCPS force main will be installed. The SCPS will discharge into the same manhole at Streamside Circle as the existing commercial pump station currently discharges into which is within the Town of Smyrna gravity sewer system. The SCPS basis of design is a Smith and Loveless packaged recessed pump station, with 4" DIP internal piping and 689' of 6" PVC force main piping, additional information regarding the design calculations and equipment cutsheets are provided in the permit application submission.

If you have any questions, please contact me at (302) 318-1066.

Sincerely,

Aaron Whitenight

KCI Technologies, Inc.
Aaron Whitenight, P.E.
Design Engineer

Department of Natural Resources
and Environmental Control
89 Kings Hwy
Dover, DE 19901
dnrec.delaware.gov

Division of Water
Commercial and Government Services Section

Phone: (302) 739-9946
Fax: (302) 739-8369

INSTRUCTIONS FOR COMPLETING THE PERMIT APPLICATION FOR THE CONSTRUCTION OF WASTEWATER COLLECTION AND CONVEYANCE SYSTEMS

The following items must accompany the application. **Please note that incomplete application packages will be returned in their entirety and not reviewed until such time as all required information is received.**

☐ 1. A narrative summary of the intended purpose and design of the proposed facilities.

☐ 2. One (1) set of final construction plans and specifications, if applicable, signed and sealed by a Delaware-registered Professional Engineer, or a Delaware-registered Professional Land Surveyor for gravity systems only. One (1) electronic copy of final Plans.

☐ 3. One (1) electronic copy of final Plans.

☐ 4. The final plans must be drawn to scale showing slopes, inverts, pipe types and sizes, existing and proposed ground surfaces, tops of manholes, water lines, stormwater and stream crossings, encasements shown in plan and profile, and other information if pertinent or requested.

☐ 5. For pump/lift stations and force mains, include all calculations and pump/performance curves.

☐ 6. A check made payable to the State of Delaware for eight hundred twenty-five dollars ($825.00), the non-refundable permit review fee. This fee covers the initial review and one follow-up review of any corrections or changes made to address the Division's comments. An additional eight hundred twenty- five dollars ($825.00) non-refundable review fee must be submitted for resubmission of the plans if changes are made to the project which trigger a complete review of the permit application.

☐ 7. Your permit will have a public notice requirement if your system includes force mains or pump/lift stations. Include a check made payable to the State of Delaware for three hundred dollars ($300.00) for the reimbursement of legal notices if the system has a force main connection or a pump/lift station.

☐ Please submit the completed application package, as outlined above, to DE DNREC, Division of Water, Commercial and Government Services Section, 89 Kings Highway, Dover, DE 19901. Please note, a new application, including the review fee, must be submitted if the Division's comments are not addressed or if requested supplemental information is not provided within one (1) year of the comment or request date.

☐ The following items must be submitted prior to permit issuance:

☐ 8. Verification from the appropriate county or municipal planning authority that the project has the proper zoning approval.

☐ 9. A letter from the owner/operator of the wastewater facilities to which the proposed collection and conveyance facilities connect. The letter must include confirmation that the owner/operator has approved the project, that the owner/operator will take responsibility for treating and disposing of the wastewater to be conveyed and that the downstream facilities have the capacity to manage the additional flows without causing or contributing to violations of Delaware's Environmental Protection Act (7 Del. C., Chapter 60) and the regulations promulgated thereafter. This includes, but is not limited to, unauthorized discharges such as overflows at manholes and violations of the treatment system's operating permit (for example, the National Pollutant Discharge Elimination System (NPDES) permit).

- Visit us on the web at: https://dnrec.alpha.delaware.gov/water/surface-water/

APPLICATION FOR THE CONSTRUCTION OF
WASTEWATER COLLECTION AND CONVEYANCE SYSTEMS
Application must be complete, typewritten or clearly printed

Date Application Submitted 6/6/2024

PROJECT INFORMATION			
Project Name and Location/ Address Simons Corner Pump Station 499 Jimmy Drive Smyrna, DE 19977			
Tax Parcel Number(s) 1-17-01900-01-7502-00001			
County ☒ Kent ☐ New Castle ☐ Sussex	Watershed (www.dnrec.delaware.gov/swc/wa/Pages/WatershedAssessment.aspx) ☐ Chesapeake Bay ☒ DE Bay/Estuary ☐ Inland Bays/Atl Ocean ☐ Piedmont		
Sewer District or Interceptor Town of Smyrna	Wastewater Treatment/Disposal Facility Name Kent County Treatment Plant 139 Milford Neck Road, Frederica, DE 19963		
Anticipated Construction Start Date Q3 - 2024	Treatment/Disposal Facility Owner and Operating Permit Number Kent County Permit # DE 0020338		
Please note, construction permits expire three (3) years from the date of permit issuance.			
Are you requesting plan review and comment on WPCC Construction Permit issuance? (circle one)			
Design Flow (gallons/day) Average 150,000	Peak 327,000	Peak Factor 2.18	Basis of Design Town of Smyrna Standards and Specs & Ten State Standards
Description An 8" gravity sewer (by others) will be installed in the proposed Simons Corner Apartments subdivision leading to a proposed Smith & Loveless recessed pump station (by KCI) alongside Pondside Drive. A 6" force main (by others) will take the flow along the west side of Pondside Drive to an existing manhole located just east of Streamside Circle within Christina Apartments subdivision.			

OWNER/DEVELOPER		
Company Name Town of Smyrna Delaware		
Mailing Address 27 S Market Street Plaza		
City Smyrna	State DE	Zip 19977
Contact Name Jason McNatt, Director of Public Works		
E-Mail Address jmcnatt@smyrna.delaware.gov		
Telephone Office 302-389-2343	Cell	Fax

ENGINEER

Company Name: KCI Technologies, Inc.		
Mailing Address: 1352 Marrows Road, Suite 100		
City: Newark	State: DE	Zip: 19711
Contact Name: Ryan Flickinger, P.E.		
E-Mail Address: ryan.flickinger@kci.com		
Telephone: (302) 318-1070	Cell:	Fax:

GRAVITY SEWER INFORMATION

Ownership	Type of Sewer System	If Other, list below
☒ Public ☐ Private	☒ Residential ☒ Commercial ☐ Industrial ☐ Other?	

Type of Pipe	Length (ft)	Diameter (in)	Joint Specification	Min. Slope (ft/ft)	Min. Velocity (ft/sec)
PVC SDR 26	10	8	bell and spigot	0.005	1.77
PVC SDR 26 & DIP CL. 52 *	2,880	8	bell and spigot	0.005	1.77

Minimum Pipe Cover (ft)	Number of Manholes	Drop manholes provided?	Maximum Distance Between Manholes (ft)
5	24 *	☒ Yes ☐ No	250

Minimum ten foot (10') horizontal & eighteen inch (18") vertical separation from water lines maintained?	If not, explain provisions to prevent cross-contamination:
☒ Yes ☐ No	

Explain any special challenges (for example, stream, highway and/or railroad crossings, directional drilling, elevated sewers, etc.)

Comments

This pumping station will be replacing an existing nearby pump station. However, due to proposed growth in the area this station is being sized larger in anticipated for development. All gravity piping and force main piping outside of the PS site will be constructed as part of a separate project for a new apartment complex (Simons Corner Apartments Project), or is existing piping within the commercial shopping center and will be redirected to the new PS as part of the Simons Corner Apartments Project. This PS is being constructed as a stand alone project, and will include approximately 10' of gravity piping from an upstream manhole into the wet well. The provided gravity sewer information is inclusive of the piping inside of the station's fencing connecting the final gravity manhole to the wet well (10') and the currently proposed upstream piping planned for installation as part of the larger separate Simons Corner Apartments Project (2,880' & 24 MHs). The actual linear footage is subject to change based on revisions to the Simons Corner Apartments Project as it continues through the plan review and permit submittal processes.

* Piping and manholes to be installed as part of a separate Simons Corner Apartment Project.

PUMP/LIFT STATION INFORMATION

Ownership *	Type of Wastewater	If Other, list below
☒ Public ☐ Private	☒ Residential ☒ Commercial ☐ Industrial ☐ Other?	

Pump Station Flows (gallons/day) Design	Average	Peak	Peak Factor
327,000	150,000	327,000	2.18

Basis of Design	Pump Type
Town of Smyrna Standards and Specs & Ten State Standards	Suction Lift

Will peak flows be accommodated if largest unit fails?	Pump calc's and pump curves attached?	Cycle Time (minutes)	Wet Well Detention Time (minutes)
☒ Yes ☐ No	☒ Yes ☐ No	8.59 (time pump on with Qin = 0.5*Qout)	17.17 (cycle time + time to fill operating volume at Qin = 0.5*Qout)

Check valves provided on discharge line? **	Gate valves provided on discharge line? ***
☒ Yes ☐ No	☒ Yes ☐ No

If not, explain alternate procedure:

Ventilation provided in wet well?	Dry Well?	Is an alarm system included?	Alternate source of power?
☒ Yes ☐ No	☒ Yes ☐ No	☒ Yes ☐ No	☒ Yes ☐ No

What other provisions for emergency operations?
Alarms will be utilized for notification of high levels, low levels, pump failure, etc.
Emergency bypass quick connections will be permanently installed.

Height of Influent Above Pump (suction head) (ft)	Height of Effluent Above Pump (discharge head) (ft)	Friction Loss (ft)
-15.92	7.93	6.69

Pump Design Point	Pump Operating Point	Static Head (ft)	Total Head (ft)	Required Motor Horsepower (hp)
227 GPM @ 31' TDH	227 GPM @ 31' TDH	23.85	30.54	3

FORCE MAIN INFORMATION

Type of Pipe	Length (ft)	Diameter (in)
PVC SDR 18	689	6

Hazen-Williams "C" Design Factor	Type of Joints	Velocity Under Design Conditions (ft/sec)	Minimum Pipe Cover (ft)
130	bell and spigot	2.5	4

Air relief valves specified?	Clean-outs provided?	Maximum distance between clean-outs (ft)
☐ Yes ☒ No ****	☐ Yes ☒ No	N/A

Minimum ten foot (10') horizontal & eighteen inch (18") vertical separation from water lines maintained?	If not, explain provisions to prevent cross-contamination:
☒ Yes ☐ No	

Comments
* Pump station is to be conveyed to the Town of Smyrna for owernship and maintenance following final acceptance of completion.
** Check valves are included as part of the packaged Smith & Loveless Station.
*** Isolation plug valves are included in the force main flow meter and valve vault.

**** Force main profile is planned for consistent uphill angle so no ARVs are specified.
The FM alignment and profile is within the scope of work of the Simons Corner Apartments Project.

1. Design Information

Date : 6/4/2024

Project: Simons Corner Pump Station
Smyrna, Kent County, DE

Contact:

Aaron Whitenight, P.E.
KCI Technologies, Inc.
1352 Marrows Road, Suite 100
Newark, DE 19711
Phone: 302.318.1066

Component: Simons Corner Pump Station

Calculation By: Aaron Whitenight

Description: This calculation is to design the pump station serving the Simons Corner Apartments. The gravity sewer and force main are to be designed by others as part of the Simons Corner Apartments Project. It is planned that ductile iron will be used for the piping within the PS and the FM will be PVC. The design flow criteria are based on Town of Smyrna Standard Specifications and Details for Water Mains, Sanitary Sewers, Storm Drains, Streets, Roads, and Electric, and 2014 Edition of Recommended Standards for Wastewater Facilities by the Great Lakes - Upper Mississippi River Board of State and Provincial Public Health and Environmetnal Managers.

2. Design Basis

	EDUs	
Simons Corner Apartments	270	*Proposed
Simons Corner Commerical	103	*Existing
Liborio North Property	127	*Proposed
Total	**500**	

Design Characteristics and Notes:

Pump Station and valve vault piping will be 4" DIP
Force main piping after the meter vault will be increased to 6" PVC
Basis of Design for the pumps are Smith & Loveless 4B2D*1, 1170 RPM, 3HP
K values for fitting losses were estimated based on Table 8-4 of Fluid Mechanics Fundemntals and Applications 3rd Edition
The 6" force main discharge piping will be 689 LF discharging into an existing manhole at invert 33.33'
The gravity and pressure piping outside of the PS site will be designed and permitted seperately by First State Engineering.

PUMPING STATION & FORCE MAIN CALCULATION SHEET

A. Calculate Peak Design Flow:

	EDUs	
Simons Corner Apartments	270	*Proposed
Simons Corner Commerical	103	*Existing
Liborio North	127	*Proposed
Total	**500**	

Qavg = 150,000 gpd
104.17 gpm

Peak Factor 2.18

Qpeak = 327,000 gpd
227.08 gpm

227.08 Flow Rate (gpm)
0.51 Flow Rate (cfs)

130 C -Factor (pvc)

Analyze Pipe Diameters:

* PVC DR-18

Pipe Diameter (in)	Actual Inside Pipe Diameter (in)	X - Sectional Area (sqft)	Flow Rate (cfs)	Velocity (fps)	hL (ft/100ft)
4.00	4.23	0.10	0.51	5.18	2.627
6.00	6.09	0.20	0.51	2.50	0.446
8.00	7.98	0.35	0.51	1.46	0.120

Design Flow (gpm) **227**

Choose Pipe Diameter (in) 6.09 for a Velocity (V) = **2.50** fps

Pump Station Friction Losses

* DIP - Class 52 - 4" Pipe

4.10 Actual Diameter of Discharge Piping (inches)

* Discharge piping includes the pipe from the pump to the connection with the 6" PVC force main

Fittings	K Value	Qty	K_{tot}	I.D. (in)	Size (ft)	V (ft/s)	H_{loss} (ft.)
Tee (Line Flow)	0.2	2	0.4	4.100	0.34	5.52	0.19
Isolation Valve (Fully Open)	0.2	2	0.4	4.100	0.34	5.52	0.19
Check Valve	2	1	2	4.100	0.34	5.52	0.95
90 deg. Elbow	0.7	1	0.7	4.100	0.34	5.52	0.33
45 deg. Elbow	0.4	1	0.4	4.100	0.34	5.52	0.19
		K Total	3.5				

	d (in)	d (ft)	D (in)	D (ft)	Qty	K Value	V (ft/s)	H_{loss} (ft.)
Increaser/Reducer	4.10	0.34	6.09	0.51	1	0.31	5.52	0.15

Pipe Length - Discharge

Size (inch)	Leq (ft)	Qty.	Leq (ft)	Friction Loss (ft)
4.10	1	40	40	1.22

Total PS Losses (ft) **3.22**

Force Main Friction Losses

6.09 Diameter of Force Main Piping (inches)

* PVC DR-18

Fittings	K Value	Qty	K_{tot}	I.D. (in)	Size (ft)	V (ft/s)	H_{loss} (ft.)
45 deg bends	0.4	6	2.4	6.09	0.51	2.50	0.23
Check Valve	1.5	1	1.5	6.09	0.51	2.50	0.15
Plug Valve	0.27	1	0.27	6.09	0.51	2.50	0.03
		K Total	4.17				

	Size (inch)	Leq (ft)	Qty.	Leq (ft)	Friction Loss (ft)
Pipe Length	6.09	1	689	689	3.07

Total FM Losses (ft) **3.48**

Static Head Loss:

33.33 High Point in System (ft) <-- elevation of invert at discharge MH per Simons Corner Apartments Major Site Plan
9.48 "Pump Off" Elevation (ft)

23.85 Static Head

Calculate Total Dynamic Head:

* Summation of PS Friction Losses, Force Main Friction Losses, and Static Head

3.215	Pump Station Fricton Losses (ft)
3.478	Force Main Friction Losses (ft)

Design Point:

30.54	**TDH (ft)**	* This Flow and TDH is the desired operating point
227.08	**Design Flow Rate (gpm)**	

SYSTEM CURVE:

GPM	Static Loss	Loss in PS Pipe (ft)	Velocity in PS Piping (fps)	Loss in PS Fittings (ft)	Velocity in FM Piping (fps)	Loss in FM Fittings (ft)	Loss in FM Pipe (ft)	Total
0	23.85	0.00	0.00	0.00	0.00	0.00	0.00	23.85
40	23.85	0.05	0.97	0.05	0.44	0.01	0.12	24.09
80	23.85	0.18	1.94	0.21	0.88	0.05	0.45	24.73
120	23.85	0.38	2.92	0.46	1.32	0.11	0.94	25.75
160	23.85	0.64	3.89	0.82	1.76	0.20	1.61	27.12
200	23.85	0.97	4.86	1.28	2.20	0.31	2.43	28.84
240	23.85	1.35	5.83	1.85	2.64	0.45	3.40	30.91
280	23.85	1.80	6.80	2.52	3.08	0.62	4.53	33.31
320	23.85	2.31	7.78	3.29	3.52	0.80	5.80	36.04
360	23.85	2.87	8.75	4.16	3.97	1.02	7.21	39.10
400	23.85	3.49	9.72	5.14	4.41	1.26	8.76	42.48
440	23.85	4.16	10.69	6.21	4.85	1.52	10.45	46.19
480	23.85	4.88	11.66	7.39	5.29	1.81	12.27	50.21
520	23.85	5.66	12.64	8.68	5.73	2.12	14.23	54.54
560	23.85	6.50	13.61	10.06	6.17	2.46	16.32	59.19
600	23.85	7.38	14.58	11.55	6.61	2.83	18.54	64.15

B. Wet Well Volume

Pump Off Elevation:

33.33	High Point in System (ft)	<-- elevation of invert at discharge MH per Simons Corner Apartments Major Site Plan
32.5	Ground Elevation at Wet Well (ft)	
0.83	Difference in Elevations (ft)	

14.14	Influent Invert Wet Well Elevation (ft)	
12.14	High Water Elevation (ft)	
11.64	Lag Pump On Elevation (ft)	
11.14	Lead Pump On Elevation (ft)	
9.48	Pump Off Elevation (ft)	<-- lead pump on elevation minus actual operating depth
8.98	Low Water Elevation (ft)	
8.48	Pump Intake Elevation (ft)	
7.94	Bottom of Wet Well (ft)	
25.40	Elevation of Pump	
16.92	Pump Suction Pipe Length (ft)	
16.46	Height of Wet Well (ft)	
-15.92	Height of influent water above Pump (ft)	
7.93	Height of Effluent Discharge Above Pump (ft)	

General Guideline Equation: Vmin = (Tmin X Qp) / 4; Tmin = 10 minutes

Tmin	10		*Tmin is the cycle time between pump starts, 6 starts per hour
Qp	227		*Represents the peak flow rate
Vmin =	567.71	gallons	# of gallons in operating range
	75.89	cuft	

Alternate Wet Well Volume Calcs: change to size wetwell for minimum pump run time -> when Qi = 1/2 Qo

Tmin	10	
Qin	113.54	* Qin is Qout (Qpeak) divided by 2, simulating best conditions for minimum time
Qout	227.08	* Qout is Qpeak because Qpeak is output of wastewater at peak conditions
Vmin =	567.71	gallons
	75.90	cuft

10	Choose Wet Well Diameter, in feet
78.50	CuFt per 1' vertical in 10' dia MH
587.18	Gal per 1' vertical in 10' dia MH

0.97	Required Operating Depth
1.66	Actual Operating Depth
974.72	Actual Operating Volume (gal)

* Note that a larger operating depth was selected than the minimum required.

* This additional volume was added to help provide extra storage in the event of extreme peak flows and provide operators with more flexability in control settings.

C. Ventilation

* Ventilation fans must be positive pressure feeds per Smyrna Standards

Fan Type (Intermittent(0)/Constant(1))	0.00	
Volume of wet well (L*H) =	1,292.11	Cu. Ft
Smyrna flow rate changes/hr variable =	646.06	CFM

<-- height of wet well taken from Simons Corner Pump Station Plans

Net Positive Suction Head (NPSH) & Cavitation:

**Barometric Pressure of water column =	33.90	ft
**Vapor Pressure of Liquid =	0.21	ft
**Entrance Losses =	1.00	ft
Transport Friction Losses =	0.58	ft
Pump Off Elevation =	9.48	ft
Pump Intake CL Elevation =	26.61	ft
Static Head =	-17.13	ft

C Factor	130.00	
Pipe Diameter:	4.10	

Fittings	Size (inch)	Leq (ft)	Qty.	Leq (ft)
Pipe	4.10	16.92	1	16.92
Intake Losses	4.10	2	1	2
			Total Leq (ft)	**18.92**

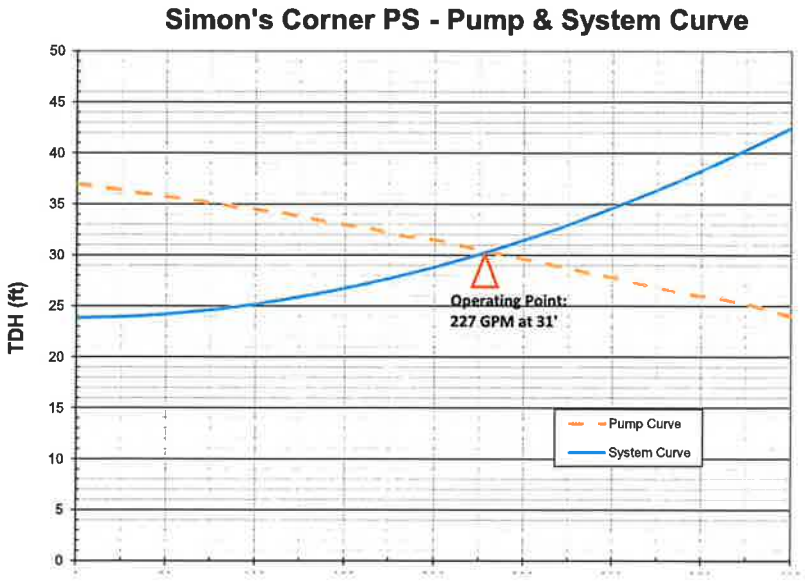
Design NPSHr =	7.00	ft
Actual NPSHa =	14.98	ft
* Actual NPSH should be no lower than	8.40	ft

* This value is the specified operating NPSH given by the pump manufacturer
* Due to uncertainties, this value must 20% greater than NPSH Required (Refer below for determining safety factor.)

Basis of Design for Pump:

Pump Make, Model, Power S&L 4B2D*1, 1170 RPM, 3HP

GPM	8-5/8" Impeller Head (ft)
0	37
20	36.5
40	36
60	35.5
80	35
100	34.5
120	34
140	33.25
160	32.75
180	32
200	31.5
220	30.75
240	30
260	29.25
280	28.5
300	27.8
320	27
340	26.25
360	25.75
380	25
400	24
420	23.5
440	22.5
460	21.75
480	21
500	20



ENGINEERING DATA

Smith & Loveless Inc.®

14040 Santa Fe Trail Drive
Lenexa, KS 66215
smithandloveless.com

EVERLAST™
Wet Well Mounted Pump Station
Design Factors
Electrical Service Data

ELECTRICAL SERVICE DATA
EVERLAST™ WET WELL MOUNTED PUMP STATION

MAIN PUMP MOTOR SIZE	TOTAL STATION FULL LOAD AMPS		
RATED HP EACH	208 VOLT	230 VOLT	460 VOLT
1	23.6	21.4	10.7
1-1/2	27.6	25.0	12.5
2	29.4	26.6	13.3
3	35.6	32.2	16.1
5	47.8	43.4	21.7
7-1/2	62.8	57.0	28.5
10	76.0	69.0	34.5
15	106.8	97.0	48.5
20	133.2	121.0	60.5
25	164.0	149.0	74.5
30	190.4	173.0	86.5
40	---	---	110.5
50	---	---	136.5

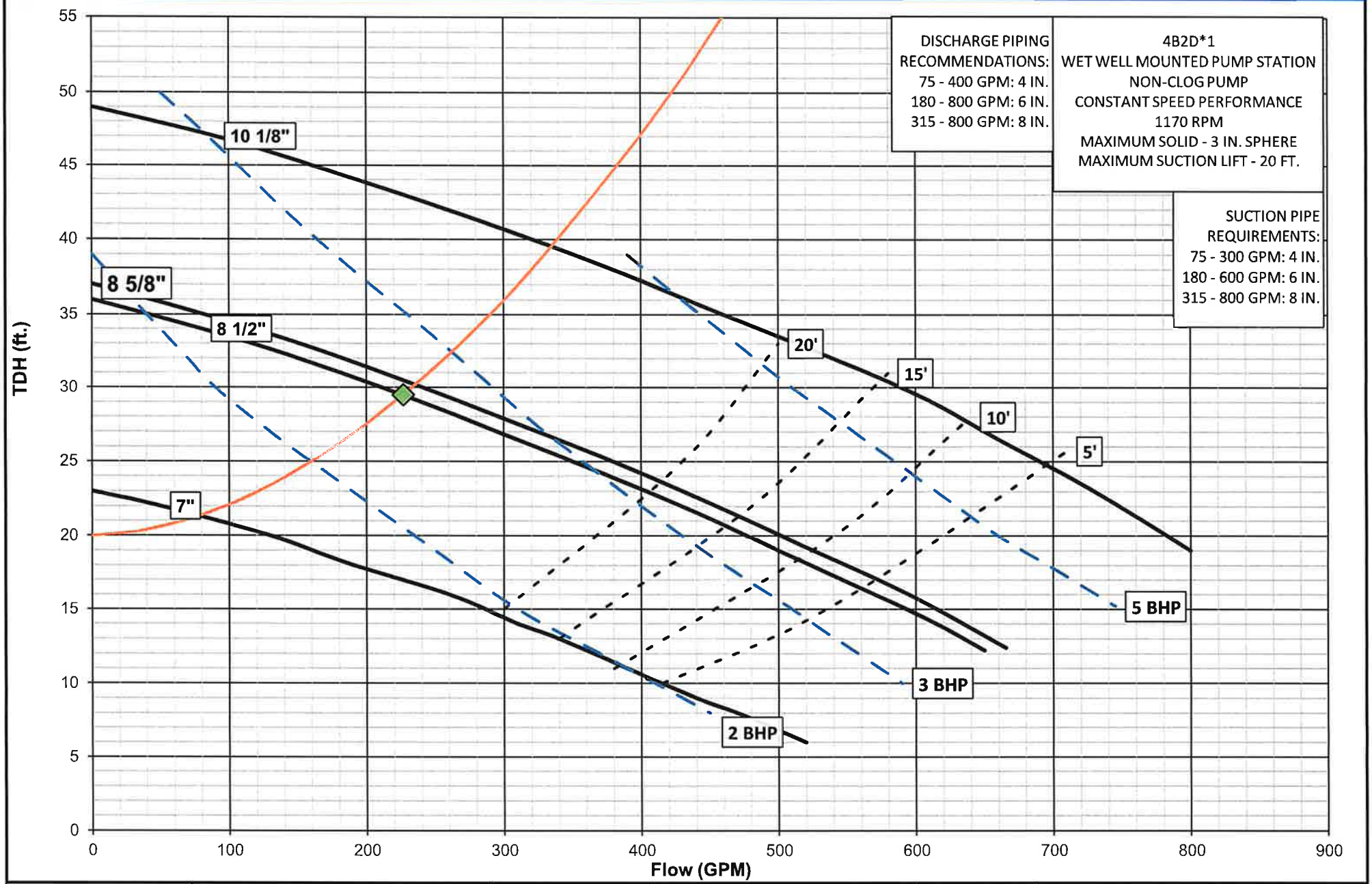
ASSUMING 3 KVA LOAD FOR CONTROLS

NOTE: *Refer to applicable station drawing for size of electrical conduit connection.*

April 2021

Pump Curve

Smith & Loveless Inc.



Location:	Dover, Delaware	Design Point:	227 GPM @ 29.5 ft.	Pump Model:	4B2D*1, 1170 RPM
Project Name:	Simmons Apts PS	Impeller Trim:	8 - 5/8 Inches	HP & Efficiency:	3 HP & 67.2%

Kent County

Department of Public Works

Engineering Division (302) 744-2430 Fax (302) 736-2100 555 Bay Rd., Dover, DE 19901
Wastewater Facilities Division (302) 335-6000 Fax (302) 335-0365 139 Milford Neck Rd., Milford, DE 19963

June 5, 2024

Aaron Whitenight, P.E.
KCI Technologies, Inc.
1352 Marrows Road
Suite 100
Newark, DE 19711

RE: Town of Smyrna – Simons Corner Pump Station (PS) Project

Dear Mr. Whitenight:

In response to your e-mail request to our Office, dated May 30, 2024, please be advised there is adequate sanitary sewer transmission and treatment capacity in the Kent County system for this Project.

As you indicated in this same e-mail, this Project and the local collection/transmission systems are the responsibility of the Town of Smyrna.

Please contact me at phone no. (302) 744-2430, if you have any questions.

Sincerely,

Brian L. Hall

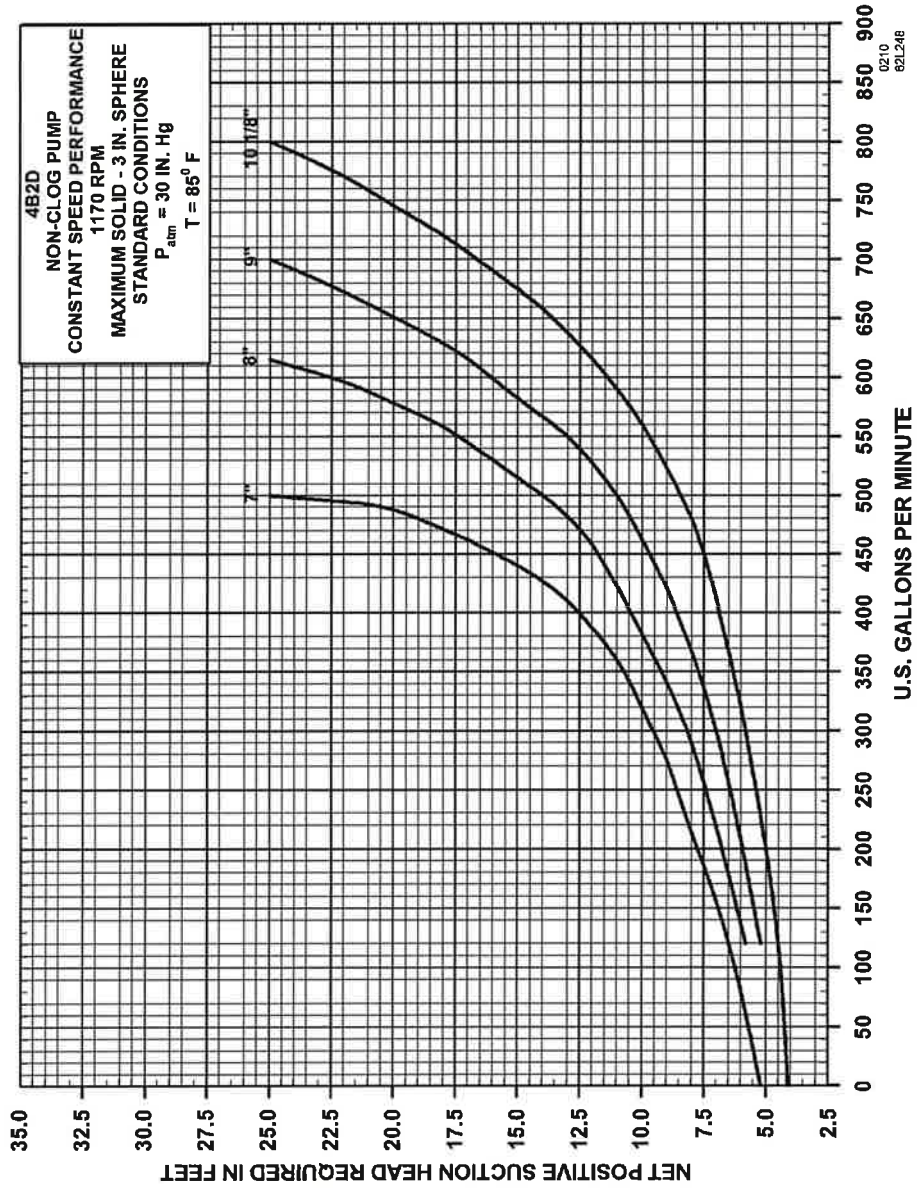
Brian L. Hall
Engineering Project Manager II

ENGINEERING DATA

Smith &
Loveless, Inc.®

14040 West Santa Fe Trail Drive
Lenexa, Kansas 66215-1284

NPSHR Curve
Non-Clog Pump
4B2D – 1170 RPM
January, 2012



Town of Smyrna

May 27, 2020

Simons Corner Apartments, LLC c/o Jamie Winfield
301 N. Ashview Lane
Wilmington, DE 19807

Dear Mr. Winfield,

At their monthly meeting held on May 27, 2020, the Smyrna Planning Commission granted Preliminary Major Site Plan approval for the construction of ten (10) three-story apartment buildings totaling 270 units, a 7,040 sq. ft. community/office building, three 10-stall parking garages, and associated site improvements, but subject to the following conditions:

1.) That the applicant obtain a variance from the Board of Adjustment for seven of the proposed apartment buildings to be constructed greater than the allowable 15 ft. front setback along one of the streets.
2.) That the applicant obtain a variance from the Board of Adjustment to exceed on twelve instances the maximum allowable ten parking spaces in a row without a landscaped island.
3.) That marked pedestrian crosswalks be provided at the entrances to the proposed off-street parking lots.
4.) That two additional patio areas (minimum of 400 sq. ft. in size) be provided behind the two 24-unit apartment buildings closest to the traffic circle.
5.) That the proposed dumpsters be screened by a brick masonry enclosure.
6.) That at least 15,434.05 sq. ft. of open space amenities be provided on the site; and if feasible, the expansion of the proposed dog park.
7.) That parking lot lights with acorn-shaped luminaires be provided in all off-street parking lots.
8.) That street lights be provided at minimum every 60 linear feet on center along thoroughfares and boulevards.
9.) That at a minimum eight (8) bicycle racks are provided, with at least one situated at each parking area of 20 parking spaces.

If you have any questions or concerns related to this letter (or the conditions outlined thereto) place contact Jeremy Rothwell, Senior Planner, at jrothwell@smyrna.delaware.gov, or by phone at (302) 389-2332.

Warm regards,

George DeBenedictis
Manager, Department of Building & Inspections

RECEIPT

	June 24th, 2024					67
RCVD FROM	KCI Technologies, INC.					$825.00
	Eight Hundred twenty-five dollars and 00/100					DOLLARS
FOR	Plan review fee WPCC 3049/24 Simons Corner Pump Station					
ACCT	$ 825.00		x	CHECK #	666360	
PAYMENT	$ 825.00			CASH		
	$ -			OTHER	BY	Kevin Bronson

DNREC, Commercial & Government Services Section, 89 Kings Hwy, Dover, DE 19901

RECEIPT

	June 24th, 2024					68
RCVD FROM	KCI Technologies, INC.					$300.00
	Three Hundred Dollars and 00/100					DOLLARS
FOR	WPCC Legal Notice Reimbursement 3049/24					
ACCT	$ 300.00		x	CHECK #	666359	
PAYMENT	$ 300.00			CASH		
	$ -			OTHER	BY	Kevin Bronson

DNREC, Commercial & Government Services Section, 89 Kings Hwy, Dover, DE 19901