



ISO 9001:2015 CERTIFIED

3003/24

ENGINEERS • PLANNERS • SCIENTISTS • CONSTRUCTION MANAGERS

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

TRANSMITTAL

To: DNREC
Division of Water
89 Kings Highway
Dover, DE 19901

Date: 01/18/2024
Project Name: Monarch Subdivision
Application for Construction of
Wastewater Collection & Conveyance
Systems

Attn: Commercial & Government Services Sec **Project No:** 271904607

WE ARE SENDING YOU THE FOLLOWING:

1	Copy	WPCC Application
1		Check #665313 for \$1,125.00
1	Copy	Sewer Narrative
1	Copy	Pump Station Design Report
1	Set	Gravity Sewer Plans
1	Set	Pump Station & Force Main Plans
1	CD	Electronic copy of plans, reports, & application

<input checked="" type="checkbox"/>	Herewith
<input type="checkbox"/>	For Your Files
<input type="checkbox"/>	For Approval and/or Correction
<input type="checkbox"/>	For Final Approval
<input type="checkbox"/>	As Requested



NOTES/COMMENTS: _____

Enclosures

cc: File

FROM: Rhiannon Sayles, PE
Land Development Practice Leader
302-318-1099
rhiannon.sayles@kci.com

Employee-Owned Since 1988



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 January 18, 2024

PROJECT INFORMATION			
Project Name and Location/ Address Monarch 540 Ratledge Road Middletown, DE 19709			
Tax Parcel Number(s) 13-003.00-001; 13-007.00-020; 13-007.00-021; 13-007.00-053; 13-007.00-054; 13-007.00-090			
County <input type="checkbox"/> Kent <input checked="" type="checkbox"/> New Castle <input type="checkbox"/> Sussex		Watershed (www.dnrec.delaware.gov/swc/wa/Pages/WatershedAssessment.aspx) <input type="checkbox"/> Chesapeake Bay <input checked="" type="checkbox"/> DE Bay/Estuary <input type="checkbox"/> Inland Bays/Atl Ocean <input type="checkbox"/> Piedmont	
Sewer District or Interceptor Southern Sewer		Wastewater Treatment/Disposal Facility Name Water Farm 1	
Anticipated Construction Start Date March 2024		Treatment/Disposal Facility Owner and Operating Permit Number Owner: New Castle County Operating Permit #: DE0050547	
Please note, construction permits expire three (3) years from the date of permit issuance.			
Are you requesting plan review and comment or <u>WPCC Construction Permit issuance?</u> (circle one)			
Design Flow (gallons/day) Average 202,200 GPD		Peak 561.7 GPM	Peak Factor 4.0
Basis of Design 300 GPD/Unit x 674 Single Family Units			
Description			
OWNER/DEVELOPER			
Company Name SB North LLC (TP #13-003.00-001, #13-007.00-020, #13-007.00-021)			
Mailing Address 18949 Coastal Highway, Suite 301			
City Rehoboth Beach		State DE	Zip 19971
Contact Name Tim Green			
E-Mail Address tgreen@schellbrothers.com			
Telephone (302) 569-9698		Cell (302) 542 8349	Fax

OA North LLC (TP #13-007.00-053, #13-007.00-054, #13-007.00-090)
18949 Coastal Highway, Suite 301, Rehoboth Beach, DE 19971
Contact: Tim Green, tgreen@schellbrothers.com

ENGINEER					
Company Name KCI Technologies, Inc.					
Mailing Address 1352 Marrows Road, Suite 100					
City Newark		State DE		Zip 19711	
Contact Name Rhiannon Sayles, PE					
E-Mail Address rhiannon.sayles@kci.com					
Telephone (302) 318-1099		Cell (610) 716-8107		Fax	
GRAVITY SEWER INFORMATION					
Ownership <input checked="" type="checkbox"/> Public <input type="checkbox"/> Private	Type of Sewer System <input checked="" type="checkbox"/> Residential <input type="checkbox"/> Commercial <input type="checkbox"/> Industrial <input type="checkbox"/> Other?			If Other, list below	
Type of Pipe PVC	Length (ft) 17,611	Diameter (in) 8	Joint Specification	Min. Slope (ft/ft) 0.0050	Min. Velocity (ft/sec) 2
	12,717	10		0.0050	2
DIP	1,512	8		0.0050	2
DIP	2,302	10		0.0050	2
Minimum Pipe Cover (ft) 3.1	Number of Manholes 218	Drop manholes provided? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Maximum Distance Between Manholes (ft) 300		
Minimum ten foot (10') horizontal & eighteen inch (18") vertical separation from water lines maintained? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No			If not, explain provisions to prevent cross-contamination: Sewer pipe encased in 4,000 PSI concrete for 10 LF on either side of water crossing (20 LF total)		
Explain any special challenges (for example, stream, highway and/or railroad crossings, directional drilling, elevated sewers, etc.)					
Comments					

PUMP/LIFT STATION INFORMATION				
Ownership <input checked="" type="checkbox"/> Public <input type="checkbox"/> Private		Type of Wastewater <input checked="" type="checkbox"/> Residential <input type="checkbox"/> Commercial <input type="checkbox"/> Industrial <input type="checkbox"/> Other?		If Other, list below
Pump Station Flows (gallons/day) Design 150,000		Average 202,200	Peak 601,200	Peak Factor 4.0
Basis of Design 501 EDUs @ 300 GPD / EDU w/ Peak Factor = 4.0			Pump Type Suction Lift Duplex Pump Station	
Will peak flows be accommodated if largest unit fails? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		Pump calc's and pump curves attached? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Cycle Time (minutes) 15	Wet Well Detention Time (minutes) 10
Check valves provided on discharge line? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No			Gate valves provided on discharge line? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
If not, explain alternate procedure:				
Ventilation provided in wet well? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		Dry Well? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Is an alarm system included? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Alternate source of power? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
What other provisions for emergency operations?				
Height of Influent Above Pump (suction head) (ft) -19.76		Height of Effluent Above Pump (discharge head) (ft) 10.20		Friction Loss (ft) 17.20
Pump Design Point 418 GPM @ 47.16' TDH	Pump Operating Point 417 GPM @ 48' TDH	Static Head (ft) 12.13	Total Head (ft) 47.1	Required Motor Horsepower (hp) 15
FORCE MAIN INFORMATION				
Type of Pipe PVC		Length (ft) 3,365 10		Diameter (in) 8 10
Hazen-Williams "C" Design Factor 130	Type of Joints	Velocity Under Design Conditions (ft/sec) 2.63	Minimum Pipe Cover (ft) 3.33	
Air relief valves specified? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Clean-outs provided? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Maximum distance between clean-outs (ft) N/A		
Minimum ten foot (10') horizontal & eighteen inch (18") vertical separation from water lines maintained? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		If not, explain provisions to prevent cross-contamination:		
Comments				

Sanitary Sewer Design Narrative for:

Monarch

ST. GEORGE'S HUNDRED
NEW CASTLE COUNTY, DELAWARE
NCC APPLICATION #2020-0644



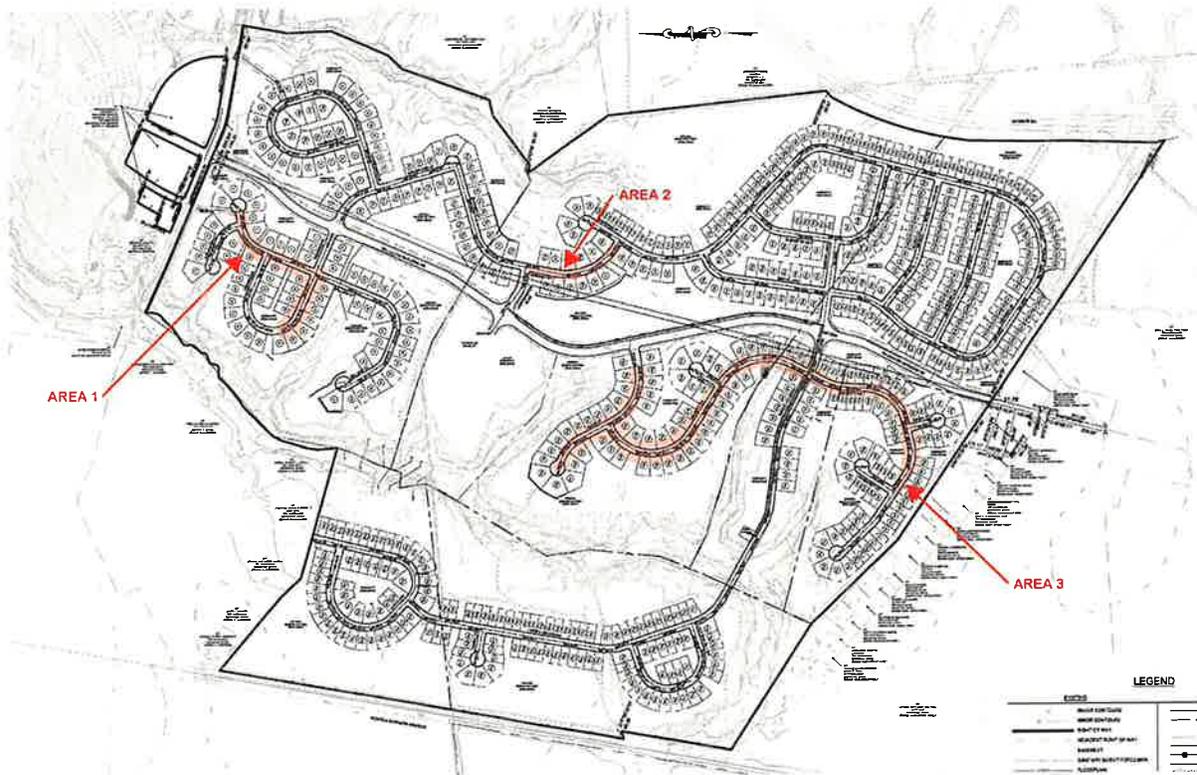
January 15, 2024

The Monarch Subdivision is located on both sides of Ratledge Road, on the south side of Lorewood Grove Road. The site is approximately 540 acres, and the subdivision will contain 674 single-family detached houses. In addition, Ratledge Road is being realigned and upgraded to meet future traffic needs.

This site was once part of the Town of Whitehall planned unit community. Specifically, these lands were the future locations for Whitehall Village 5 and Whitehall Village 6. Village 5 contained approximately 875 dwelling units + commercial area & Village 6 contained approximately 980 dwelling units + commercial. On the opposite side of Lorewood Grove Road, Brighton Hamlet 4 (formerly Whitehall Hamlet 4) was approved with a pump station located on the Monarch property. The pump station was designed for 150,210 GDP, serving 39,900 GDP for Hamlet 4 & 110,310 GDP for Village 5.

Due to significant elevation changes in the upland areas, significant WRPA recharge areas, and environmental constraints, the on-site sanitary sewer flows to three different areas. The three on-site sewer areas are:

- Area 1, northwest section of site, flows to Hamlet 4 pump station.
- Area 2, northeast section of site, flows to Village 1 pump station via existing sewer along Lorewood Grove Road
- Area 3, southern half of the site, flows to proposed pump station and discharges into Area 2 gravity sewer.



Area 1

Area 1 contains 70 single-family detached houses and is located at the northwest corner of the property. It is bordered by Joy Run to the west, Lorewood Grove Road to the north, and Ratledge Road to the east. The sewer will connect to an existing manhole, recently constructed with Hamlet 4.

Area 2

Area 2 contains 104 single-family detached houses and is located at the northeast corner of the property. It is bordered by an unnamed tributary to the C&D Canal to the west, Lorewood Grove Road to the north, and Ratledge Road to the west. The sewer will connect to an existing manhole, recently constructed with the Lea Eara wastewater treatment plan was removed and pumped to the Whitehall Village 1 pump station.

Area 3

Area 3 contains the southern half of the subdivision. Flow from 500 single family houses discharge into a proposed pump station located on King's Crossing. This location was chosen so it could also service the houses on the west side of Joy Run (132 units).

RECEIPT

January 18, 2024

6

RCVD FROM

KCI Technologies, INC.

\$1,125.00

FOR

One Thousand One Hundred Twenty Five Dollars and 00/100 *DOLLARS*

WPC 3003/24 Legal notice and permit application fee - Monarch

ACCT	\$	1,125.00
PAYMENT	\$	1,125.00
	\$	-

<input checked="" type="checkbox"/>
<input type="checkbox"/>
<input type="checkbox"/>

CHECK # 665313

CASH

OTHER BY

Kevin Bronson

DNREC, Surface Water Discharges Section, 89 Kings Hwy, Dover, DE 19901