

~~Exhibit H~~

"A"



North Carolina Department of Environment and Natural Resources

Division of Water Quality

Chuck Wakild, P.E.

Director

Beverly Eaves Perdue
Governor

Dee Freeman
Secretary

July 13, 2012

Michael W. Laws – Managing Partner
Harkers Island Sewer Company, LLC
P.O. Box 370
Harkers Island, North Carolina 28531-0370

Subject: Permit No. WQ0034190
James Creek Subdivision
High-Rate Infiltration System
Carteret County

Dear Mr. Laws:

In accordance with your permit name change application received July 10, 2012, we are forwarding herewith Permit No. WQ0034190, dated July 13, 2012, to Harkers Island Sewer Company, LLC. (formerly BLE Development, LLC) for the construction and operation of the subject wastewater treatment and high-rate infiltration facilities. The major modification request received under a different application package is to be completed.

This permit shall be effective from the date of issuance until December 31, 2016, and shall be subject to the conditions and limitations as specified therein. Please pay particular attention to the monitoring requirements listed in Attachments A, B and C. Failure to establish an adequate system for collecting and maintaining the required operational information shall result in future compliance problems.

If any parts, requirements or limitations contained in this permit are unacceptable, the Permittee has the right to request an adjudicatory hearing upon written request within 30 days following receipt of this permit. This request shall be in the form of a written petition, conforming to Chapter 150B of the North Carolina General Statutes, and filed with the Office of Administrative Hearings at 6714 Mail Service Center, Raleigh, NC 27699-6714. Unless such demands are made, this permit shall be final and binding.

AQUIFER PROTECTION SECTION
1636 Mail Service Center, Raleigh, North Carolina 27699-1636
Location: 512 N. Salisbury Street, Raleigh, North Carolina 27604
Phone: 919-807-6300 \ FAX 1: 919-807-6480
Internet: www.ncwaterquality.org

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STATE OF NORTH CAROLINA

COUNTY OF Carteret

Permit No. WQ 003419D

OPERATIONAL AGREEMENT

This AGREEMENT made pursuant to G.S. 143-215.1 (d1) and entered into this 13th day of July 2012, by and between the North Carolina Environmental Management Commission, an agency of the State of North Carolina, hereinafter known as the COMMISSION; and Harkers Island Sewer Company, LLC, a corporation/general partnership registered/licensed to do business in the State of North Carolina, hereinafter known as the DEVELOPER.

WITNESSETH:

1. The DEVELOPER is the owner of the certain lands lying in Carteret County, upon which it is erecting and will erect dwelling units and other improvements, said development to be known as James Creek Subdivision (hereinafter the Development).
2. The DEVELOPER desires, to construct a wastewater collection system with pumps, wastewater treatment works, and/or disposal facilities (hereinafter Disposal System) to provide sanitary sewage disposal to serve the Development on said lands.
3. The DEVELOPER has applied to the COMMISSION for the issuance of a permit pursuant to G.S. 143-215.1 to construct, maintain, and operate the Disposal System.
4. The DEVELOPER has created or shall create unit ownership in said dwellings units, other improvements and lands through filing of a Declaration of Unit Ownership (hereinafter Declaration), pursuant to Chapter 47C of the North Carolina General Statutes.
5. The DEVELOPER has caused to be formed or will cause to be formed at the time of filing of the Declaration, the (Unit Owners' Association) James Creek Property Owners Association, Inc (hereinafter Association), a non-profit corporation organized and existing under and by the virtue of the laws of the State of North Carolina, for the purpose, among others, of handling the property, affairs and business of the Development; of operating, maintaining, re-constructing and repairing the common elements of the lands and improvements subject to unit ownership, including the Disposal System; and of collecting dues and assessments to provide funds for such operation, maintenance, re-construction and repair.
6. The COMMISSION desires to assure that the Disposal System of the Development is properly constructed, maintained and operated in accordance with law and permit provisions in order to protect the quality of the waters of the State and the public interest therein.

NOW, THEREFORE, in consideration of the promises and the benefits to be derived by each of the parties hereto, the COMMISSION and DEVELOPER do hereby mutually agree as follows:

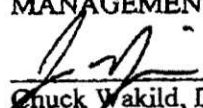
1. The DEVELOPER shall construct the Disposal System in accordance with the permit and plans and specifications hereafter issued and approved by the COMMISSION, and shall thereafter properly operate and maintain such systems and facilities in accordance with applicable permit provisions and law.
2. The DEVELOPER shall not transfer ownership and/or control of the Disposal System to the Association until construction has been completed in accordance with the permit and approved plans, and the staff of the Division of Water Quality has inspected and approved of the facilities. In order to change the name of the permit holder, the DEVELOPER must request that the permit be reissued to the Association. The request must include a copy of the Association Bylaws and Declaration.
3. The DEVELOPER shall not transfer, convey, assign or otherwise relinquish or release its responsibility for the operation and maintenance of its Disposal System until a permit has been reissued to the DEVELOPER's successor.

4. The DEVELOPER shall provide in the Declaration and Association Bylaws that the Disposal System and appurtenances thereto are part of the common elements and shall thereafter be properly maintained and operated in conformity with law and the provisions of the permit for construction, operation, repair, and maintenance of the system and facilities. The Declaration and Bylaws shall identify the entire wastewater treatment, collection and disposal system as a common element, which will receive the highest priority for expenditures by the Association except for Federal, State, and local taxes and insurance.
5. The DEVELOPER shall provide in the Declaration and Association Bylaws that the Disposal System will be maintained out of the common expenses. In order to assure that there shall be funds readily available to repair, maintain or construct the Disposal System, beyond the routine operation and maintenance expenses, the Declaration and Association Bylaws shall provide that a fund be created out of the common expenses. Such fund shall be separate from the routine maintenance funds allocated for the facility and shall be part of the yearly budget.
6. In the event the common expense allocation and separate fund are not adequate for the construction, repair, and maintenance of the Disposal System, the Declaration and Association Bylaws shall provide for special assessments to cover such necessary costs. There shall be no limit on the amount of such assessments, and the Declaration and Bylaws shall provide that such special assessments can be made as necessary at any time.
7. If a wastewater collection system and wastewater treatment and/or disposal facility provided by any city, town, village, county, water and sewer authorities, or other unit of government shall hereinafter become available to serve the Development, the DEVELOPER shall take such action as is necessary to cause the existing and future wastewater of the Development to be accepted and discharged into said governmental system, and shall convey or transfer as much of the Disposal System and such necessary easements as the governmental unit may require as condition of accepting the Development's wastewater.
8. Recognizing that it would be contrary to the public interest and to the public health, safety and welfare for the Association to enter into voluntary dissolution without having made adequate provision for the continued proper maintenance, repair and operation of its Disposal System, the DEVELOPER shall provide in the Association Bylaws that the Association shall not enter into voluntary dissolution without first having transferred its said system and facilities to some person, corporation or other entity acceptable to and approved by the COMMISSION by the issuance of a permit.
9. The agreements set forth in numbered paragraphs 1, 2, 3, 4, 5, 6, 7, and 8 above shall be conditions of any permit issued by the COMMISSION to the DEVELOPER for the construction, maintenance, repair and operation of the Disposal System.
10. A copy of this agreement shall be filed at the Register of Deeds in the County(ies) where the Declaration is filed and in the offices of the Secretary of State of North Carolina with the Articles of Incorporation of the Association.

IN WITNESS WHEREOF, this agreement was executed in duplicate originals by the duly authorized representative of the parties hereto on the day and year written as indicated by each of the parties named below:

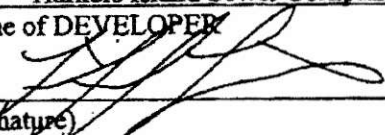
FOR THE ENVIRONMENTAL
MANAGEMENT COMMISSION

Sr


Chuck Wakild, Director
Division of Water Quality

7/13/12
(Date)

Harkers Island Sewer Company, LLC
Name of DEVELOPER

By: 
(Signature)

Mike W. Laws, Managing Partner
Print Name and Title

July 13, 2012
(Date)

ROY COOPER
Governor
MICHAEL S. REGAN
Secretary
S. DANIEL SMITH
Director



"B"

August 31, 2020

MICHAEL W. LAWS – MANAGER
HARKERS ISLAND SEWER COMPANY LLC
POST OFFICE BOX 370
HARKERS ISLAND, NORTH CAROLINA 28531-0370

Subject: Permit No. WQ0024023
West Bay WWTP
High-Rate Infiltration System
Carteret County

Dear Mr. Laws:

In accordance with your permit renewal request received July 1, 2020, we are forwarding herewith Permit No. WQ0024023 dated August 31, 2020, to Harkers Island Sewer Company LLC for the continued operation of the Phase I wastewater treatment and high-rate infiltration facilities, as well as the construction and operation of the Phase II wastewater treatment and high-rate infiltration facilities.

This permit shall be effective from the date of issuance through September 30, 2026, shall void Permit No. WQ0024023 issued October 12, 2015, and shall be subject to the conditions and limitations therein. **The Permittee shall submit a renewal application no later than April 3, 2026.**

Please pay attention to the monitoring requirements listed Attachments A, B, and C for they may differ from the previous permit issuance. Failure to establish an adequate system for collecting and maintaining the required operational information shall result in future compliance problems.

The Division has removed the following permit conditions since the last permit issuance dated October 12, 2015:

- Old Condition I.5. – This condition has been removed.
- Old Condition II.6. – This condition has been removed.
- Old Condition VI.2. – This condition has been removed because the permit is not voidable.

The following permit conditions are new since the last permit issuance dated October 12, 2015:

- Condition I.1. – This condition requires that the Permittee notify the Wilmington Regional Office at least two business days in advance of initial operation of the Phase I facilities so that the Division can conduct a startup inspection.
- Condition I.3. – With the Phase II modification request, the Permittee shall submit two original paper copies and one electronic copy of a site map for Phase II facilities.



North Carolina Department of Environmental Quality | Division of Water Resources
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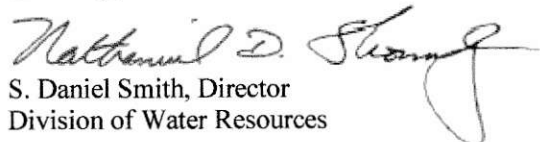
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- Condition I.6. – Prior to operation of the installed facilities, a Final Operation and Maintenance Plan shall be submitted for review.
- Condition II.12. – All applicable setbacks for Phase I and Phase II treatment, storage and disposal sites have been included.
- Condition III.4. – The Permittee shall maintain vegetative cover on the infiltration sites, such that crop health is optimal, allows even effluent distribution, and allows inspection of the infiltration system.
- Condition III.13. – The Permittee shall provide a water-tight seal on all treatment and storage units, or provide two feet protection from the 100-year flood plain elevation.
- Condition III.14. – This condition requires that a protective vegetative cover be established and maintained on all berms, pipe runs, erosion control areas, surface water diversions, and earthen embankments (i.e., outside toe of embankment to maximum allowable temporary storage elevation on the inside of the embankment).
- Condition III.15. – Metering equipment shall be tested and calibrated annually.
- Condition IV.8. – The maintenance log shall also now include the dates of infiltration equipment calibration.
- Condition VI.10. – This permit shall not be renewed if the Permittee or any affiliation has not paid the required annual fee.
- Attachment C – Total Phosphorus (00665) has been added to the groundwater monitoring requirement.

If any parts, requirements, or limitations contained in this permit are unacceptable, the Permittee has the right to request an adjudicatory hearing upon written request within 30 days following receipt of this permit. This request shall be in the form of a written petition, conforming to Chapter 150B of the North Carolina General Statutes, and filed with the Office of Administrative Hearings at 6714 Mail Service Center, Raleigh, NC 27699-6714. Otherwise, this permit shall be final and binding.

If you need additional information concerning this permit, please contact Poonam Giri at (919) 707-3656 or poonam.giri@ncdenr.gov.

Sincerely,


S. Daniel Smith, Director
Division of Water Resources

cc: Carteret County Health Department (Electronic Copy)
Wilmington Regional Office, Water Quality Regional Operations Section (Electronic Copy)
Laserfiche File (Electronic Copy)
Digital Permit Archive (Electronic Copy)
Central Files



North Carolina Department of Environment and Natural Resources

Pat McCrory
Governor

Donald R. van der Vaart
Secretary

June 25, 2015

"C"

Mike Laws, Managing Partner
Harkers Island Sewer Company, LLC
Post Office Box 370
Harkers Island, NC 28531

Subject: Permit No. WQ0037151 Modification
Harkers Island Sewer Company, LLC
Harkers Island Low Pressure Sewer System (LPSS): Phase 1
Wastewater Collection System Extension
Carteret County

Dear Mr. Laws:

In accordance with your modification request June 24, 2015, we are forwarding herewith Permit No. WQ0037151, dated June 25, 2015, to the Harkers Island Sewer Company, LLC (Permittee) for the construction and operation upon certification of the subject wastewater collection system extension. This permit shall be effective from the date of issuance until rescinded, shall void Permit No. WQ0037151 issued October 13, 2014, and shall be subject to the conditions and limitations as specified therein. This cover letter and supplement shall be considered a part of this permit and are therefore incorporated therein by reference.

Modification was required due to the construction inspection requirements related to Permit No. WQ0037151 issued October 13, 2014, modifications in the project scope, and the fact that the James Creek WWTF (Permit Number WQ0034190) is no longer a valid treatment option for the low pressure sewer system.

Please pay particular attention to the following conditions contained within this permit:

- Condition I.1: Limits the number of connections and flow allocation of the system to 48 connections and a permitted flow allocation of 17,280. The flow allocation allows for the connection of 48 simplex units between the Harkers Island LPSS: Phase 1 and the Westbay Subdivision LPSS (Permit No. WQ0028650).
- Condition I.3-9: Conditions related to the construction, operation and maintenance of the simplex pump stations.
- Condition II.1: This permit shall not be automatically transferable; a request must be made and approved.
- Condition II.4: Requires that the wastewater collection facilities be properly operated and maintained in accordance with 15A NCAC 2T .0403 or any individual system-wide collection system permit issued to the Permittee.

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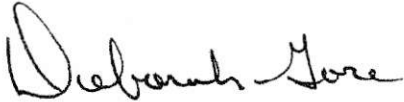
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It shall be responsibility of the Permittee to ensure that the as-constructed project meets the appropriate design criteria and rules. Failure to comply may result in penalties in accordance with North Carolina General Statute §143-215.6A through §143-215.6C, construction of additional or replacement wastewater collection facilities, and/or referral of the North Carolina-licensed Professional Engineer to the licensing board.

If any parts, requirements, or limitations contained in this permit are unacceptable, you have the right to request an adjudicatory hearing upon written request within 30 days following receipt of this permit. This request must be in the form of a written petition, conforming to Chapter 150B of North Carolina General Statutes, and filed with the Office of Administrative Hearings, 6714 Mail Service Center, Raleigh, NC 27699-6714. Unless such demands are made, this permit shall be final and binding.

If you need additional information concerning this matter, please contact Michael Leggett at (919) 807-6312 or via e-mail at michael.leggett@ncdenr.gov.

Sincerely,



for S. Jay Zimmerman, P.G.
Director, Division of Water Resources

by Deborah Gore, Supervisor
Pretreatment, Emergency Response, Collection System Unit

cc: James W. Forman, Jr., P.E. – Arendell Engineers
Wilmington Regional Office, Water Quality Section Regional Operations
Water Resources Central Files: WQ0037151 & WQ0028650
PERCS (electronic copy)



STATE OF NORTH CAROLINA
ENVIRONMENTAL MANAGEMENT COMMISSION
DEPARTMENT OF ENVIRONMENT AND NATURAL RESOURCES

WASTEWATER COLLECTION SYSTEM EXTENSION PERMIT

In accordance with the provisions of Article 21 of Chapter 143, General Statutes of North Carolina as amended, and other applicable Laws, Rules, and Regulations, permission is hereby granted to the

Harkers Island Sewer Company, LLC

for the construction and operation upon certification of approximately 896 linear feet of 2-inch low pressure force main (Mary Ella Drive); approximately 277 linear feet of 2-inch low pressure force main, approximately 483 linear feet of 2.5-inch force main (Crane Court), and 48 simplex pump stations with on-site audible and visual alarms to serve 48 single family residential units (3-bedroom units) as part of the Harkers Island LPPS: Phase 1 Project and the discharge of 17,280 gallons per day of collected domestic wastewater into the Harkers Island Sewer Company, LLC's existing sewerage system, pursuant to the application received June 24, 2015 and in conformity with the project plans, specifications, and other supporting data subsequently filed and approved by the Department of Environment and Natural Resources and considered a part of this permit.

and

the operation of approximately 425 linear feet of 2-inch low pressure force main, 1,382 linear feet of 2.5-inch low pressure force main, approximately 2,114 linear feet of 3-inch low pressure force main, and approximately 7,620 linear feet of 4-inch force main per the engineers certification received June 24th, 2015.

This permit shall be effective from the date of issuance until rescinded, shall void Permit No. WQ0037151 issued October 13, 2014, and shall be subject to the specified conditions and limitations contained therein.

for S. Jay Zimmerman, P.G.

Director, Division of Water Resources

By Authority of The Environmental Management Commission

Permit Number:	WQ0037151 Modification
Permit Issued:	June 25, 2015
Treatment Facility:	West Bay WWTF (WQ0024023)

SUPPLEMENT TO PERMIT COVER SHEET

The Permittee is hereby authorized to:

Construct, and then operate upon certification the aforementioned wastewater collection extension.

Permitting of this project does not constitute an acceptance of any part of the project that does not meet 15A NCAC 2T; the Division's Gravity Sewer Minimum Design Criteria adopted February 12, 1996 as applicable; and the Division's Minimum Design Criteria for the Fast-Track Permitting of Pump Stations and Force Mains adopted June 1, 2000 as applicable, unless specifically mentioned herein. Division approval is based on acceptance of the certification provided by a North Carolina-licensed Professional Engineer in the application. It shall be the Permittee's responsibility to ensure that the as-constructed project meets the appropriate design criteria and rules.

Construction and operation is contingent upon compliance with the Standard Conditions and any Special Conditions identified below.

I. SPECIAL CONDITIONS

1. No flow in excess of the quantity permitted herein, 17,280 GPD, shall be made tributary to the subject sewer system until an application for permit modification for an increase in flow has been submitted to and approved by the Division. The flow allocation allows for the connection of 48 simplex units between the Harkers Island LPSS: Phase 1 and the Westbay Subdivision LPSS (Permit No. WQ0028650).
2. The Permittee shall adhere to the construction sequence required in accordance with Permit Number WQ0024023 (West Bay WWTF). No flow in excess of the quantity permitted within this permit shall be made until the facilities are constructed, operational, and an engineer's certification has been received by the Division.
3. Simplex pump stations not meeting the separation requirements of 15A NCAC 02T.0305(f), which requires 50 feet of separation for waters classified WS (except WS-1 or WS-V) B, SA, ORW, HQW, or SB from normal high water (or tide elevation) and wetlands, shall adhere to the following conditions in accordance with the plans and specifications:
 - a. Pump stations shall be of a type specifically engineered to be watertight in floodplain conditions including watertight lids.
 - b. Wet wells shall be constructed of either high density polyethylene or fiberglass reinforced polyester resins with all seams thermally welded and factory tested for leak tightness.
 - c. All necessary penetrations shall be factory sealed and tested. No field penetrations will be allowed.
 - d. The pump station shall be located no further than 50 feet from the building served and shall be vented back to the building.
 - e. All pump station wet wells shall maintain a separation of no less than 10 feet from wetlands.
4. Low pressure force main not meeting the separation requirements in accordance with 15A NCAC 02T.0305 (f) shall adhere to 15A NCAC 02T .0305(g) that requires "materials, testing methods, and acceptability standards meeting water main standards.

5. The Permittee shall maintain on hand for immediate installation an adequate supply of spare, fully operational pump units of each type used in the system.
6. Each pump station shall be clearly and conspicuously posted using a weatherproof sign with a pump station identifying name/number, 24-Hour Emergency telephone number, and name of the owner/operator of the sewer system/pump station and instructions to call the number in the event of alarm activation or other emergency. Simplex pump stations or vacuum sewer pits serving a single-family residence may have a placard or sticker on the control panel in lieu of a sign. [15A NCAC 02T .0305(h)(2)]
7. The Permittee shall be responsible for all individual pumps, tanks, service laterals and main lines as permitted. This does not prohibit the Permittee from entering into a service agreement with another entity for maintenance or operation of these units, however, the Permittee shall be responsible for correcting any environmental or public health problem with the system. [15A NCAC 02T.304(c)]
8. The Permittee shall obtain all deeds, easements and encroachment agreements necessary for installation, operation, and maintenance of the system prior to operation. [15A NCAC 02T.0305(c)]
9. The Permittee shall maintain on hand for immediate installation an adequate supply of spare, fully operational pump units of each type used in the system. [15A NCAC 02T .0305(h)]

II. STANDARD CONDITIONS

1. This permit shall not be transferable. In the event there is a desire for the wastewater collection facilities to change ownership, or there is a name change of the Permittee, a formal permit request shall be submitted to the Division accompanied by documentation from the parties involved, and other supporting materials as may be appropriate. The approval of this request shall be considered on its merits and may or may not be approved. [15A NCAC 02T.0104; G.S. 143-215.1(d3)]
2. This permit shall become voidable unless the wastewater collection facilities are constructed in accordance with the conditions of this permit; 15A NCAC 2T; the Division's Gravity Sewer Minimum Design Criteria adopted February 12, 1996 as applicable; the Division's Minimum Design Criteria for the Fast-Track Permitting of Pump Stations and Force Mains adopted June 1, 2000 as applicable; and other supporting materials unless specifically mentioned herein. [15A NCAC 02T.0110]
3. This permit shall be effective only with respect to the nature and volume of wastes described in the application and other supporting data. [15A NCAC 02T .0110]
4. The wastewater collection facilities shall be properly maintained and operated at all times. The Permittee shall maintain compliance with an individual system-wide collection system permit for the operation and maintenance of these facilities as required by 15A NCAC 2T .0403. If an individual permit is not required, the following performance criteria shall be met: [15A NCAC 2T .0108(b)]
 - a. The sewer system shall be effectively maintained and operated at all times to prevent discharge to land or surface waters, and to prevent any contravention of groundwater standards or surface water standards.
 - b. A map of the sewer system shall be developed and shall be actively maintained.
 - c. An operation and maintenance plan including pump station inspection frequency, preventative maintenance schedule, spare parts inventory and overflow response has been developed and implemented.
 - d. Pump stations that are not connected to a telemetry system shall be inspected every day (i.e. 365 days per year). Pump stations that are connected to a telemetry system shall be inspected at least once per week.
 - e. High-priority sewer lines shall be inspected at least once per every six-months and inspections are documented.
 - f. A general observation of the entire sewer system shall be conducted at least once per year.
 - g. Overflows and bypasses shall be reported to the appropriate Division regional office in accordance with 15A NCAC 2B .0506(a), and public notice shall be provided as required by North Carolina General Statute §143-215.1C.
 - h. A Grease Control Program is in place as follows:
 1. For public owned collection systems, the Grease Control Program shall include at least biannual distribution of educational materials for both commercial and residential users and

the legal means to require grease interceptors at existing establishments. The plan shall also include legal means for inspections of the grease interceptors, enforcement for violators and the legal means to control grease entering the system from other public and private satellite sewer systems.

2. For privately owned collection systems, the Grease Control Program shall include at least bi-annual distribution of grease education materials to users of the collection system by the permittee or its representative.
 3. Grease education materials shall be distributed more often than required in Parts (1) and (2) of this Subparagraph if necessary to prevent grease-related sanitary sewer overflows.
 - i. Right-of-ways and easements shall be maintained in the full easement width for personnel and equipment accessibility.
 - j. Documentation shall be kept for Subparagraphs (a) through (i) of this Rule for a minimum of three years with exception of the map, which shall be maintained for the life of the system.
5. Noncompliance Notification:

The Permittee shall report by telephone to a water resources staff member at the Wilmington Regional Office, telephone number (910) 796-7215, as soon as possible, but in no case more than 24 hours, following the occurrence or first knowledge of the occurrence of either of the following:

- f. Any process unit failure, due to known or unknown reasons, that renders the facility incapable of adequate wastewater transport, such as mechanical or electrical failures of pumps, line blockage or breakage, etc.; or
- g. Any SSO and/or spill over 1,000 gallons; or
- h. Any SSO and/or spill, regardless of volume, that reaches surface water

Voice mail messages or faxed information is permissible, but this shall not be considered as the initial verbal report. Overflows and spills occurring outside normal business hours may also be reported to the Division of Emergency Management at telephone number (800) 858-0368 or (919) 733-3300. Persons reporting any of the above occurrences shall file a spill report by completing and submitting Part I of Form CS-SSO (or the most current Division approved form) within five days following first knowledge of the occurrence. This report must outline the actions taken or proposed to be taken to ensure that the problem does not recur. Part II of Form CS-SSO (or the most current Division approved form) can also be completed to show that the SSO was beyond control. [G.S. 143-215.1C(a1)]

6. Construction of the gravity sewers, pump stations, and force mains shall be scheduled so as not to interrupt service by the existing utilities nor result in an overflow or bypass discharge of wastewater to the surface waters of the State. [15A NCAC 02T.0108(b)]
7. Upon completion of construction and prior to operation of these permitted facilities, the completed Engineering Certification form attached to this permit shall be submitted with the required supporting documents to the address provided on the form. A complete certification is one where the form is fully executed and the supporting documents are provided as applicable. **Each individual grinder pump approved for connection by this permit shall be certified in accordance with this condition.** Any wastewater flow made tributary to the wastewater collection system extension prior to completion of this Engineer's Certification shall be considered a violation of the permit and shall subject the Permittee to appropriate enforcement actions.

A complete certification is one where the form is fully executed and the supporting documents are provided as applicable. Supporting documentation shall include the following:

- a. One copy of the project construction record drawings (plan & profile views of sewer lines & force mains) of the wastewater collection system extension. Final record drawings should be clear on the plans or on digital media (CD or DVD disk) and are defined as the design drawings that are marked up or annotated with after construction information and show required buffers, separation distances, material changes, etc.
- b. Changes to the project that do not result in non-compliance with this permit, regulations, or the Minimum Design Criteria should be clearly identified on the record drawings, on the certification in the space provided, or in written summary form.

Prior to Certification (Final or Partial): Permit modifications are required for any changes resulting in non-compliance with this permit (including pipe length increases of 10% or greater, increased flow, pump station design capacity design increases of 5% or greater, and increases in the number/type of connections), regulations, or the Minimum Design Criteria. Requested modifications or variances to the Minimum Design Criteria will be reviewed on a case-by-case basis and each on its own merit. Please note that variances to the Minimum Design Criteria should be requested and approved during the permitting process prior to construction. After-construction requests are discouraged by the Division and may not be approved, thus requiring replacement or repair prior to certification & activation. [15A NCAC 02T .0116]

8. Gravity sewers installed greater than ten percent below the minimum required slope per the Division's Gravity Sewer Minimum Design Criteria shall not be acceptable and shall not be certified until corrected. If there is an unforeseen obstacle in the field where all viable solutions have been examined, a slope variance can be requested from the Division with firm supporting documentation. This shall be done through a permit modification with fee. Such variance requests will be evaluated on a case-by-case basis. Resolution of such request shall be evident prior to completing and submitting the construction certification. [15A NCAC 02T.0105(n)]
9. A copy of the construction record drawings shall be maintained on file by the Permittee for the life of the wastewater collection facilities. [15A NCAC 02T .0116]
10. Failure to abide by the conditions and limitations contained in this permit; 15A NCAC 2T; the Division's Gravity Sewer Design Criteria adopted February 12, 1996 as applicable; the Division's Minimum Design Criteria for the Fast-Track Permitting of Pump Station and Force Mains adopted June 1, 2000 as applicable; and other supporting materials may subject the Permittee to an enforcement action by the Division, in accordance with North Carolina General Statutes §143-215.6A through §143-215.6C, construction of additional or replacement wastewater collection facilities, and/or referral of the North Carolina-licensed Professional Engineer to the licensing board. [15A NCAC 02T .0104; 15A NCAC 02T .0108(b-c)]
11. In the event that the wastewater collection facilities fail to perform satisfactorily, including the creation of nuisance conditions, the Permittee shall take immediate corrective action, including those as may be required by this Division, such as the construction of additional or replacement facilities. [15A NCAC 02T .0108(b)]

12. The issuance of this permit shall not exempt the Permittee from complying with any and all statutes, rules, regulations, or ordinances that may be imposed by the Division any other Federal, State, or Local government agencies which have jurisdiction or obtaining other permits which maybe required by the Division or any other Federal, State, of Local government agencies. [G.S.143-215.1(b)]

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- One copy of the project construction record drawings (plan & profile views of sewer lines & force mains) of the wastewater collection system extension. Final record drawings should be clear on the plans or on digital media (CD or DVD disk) and are defined as the design drawings that are marked up or annotated with after construction information and show required buffers, separation distances, material changes, etc.

Each individual grinder pump approved for connection by this permit shall be certified in accordance with this condition. Include the address and location of unit.


PERMITTEE'S CERTIFICATION

Printed Name, Title

Signature

Date _____

I, _____, as a duly registered Professional Engineer in the State of North Carolina, having been authorized to observe (☐ periodically, ☐ weekly, ☐ full time) the construction of the project name and location as referenced above for the above Permittee hereby state that, to the best of my abilities, due care and diligence was used in the observation of the following construction: of approximately 896 linear feet of 2-inch low pressure force main (Mary Ella Drive); approximately 277 linear feet of 2-inch low pressure force main, approximately 483 linear feet of 2.5-inch force main (Craney Court); 48 simplex pump stations with on-site audible and visual alarms, and in conformity with the project plans, specifications, supporting documents, and design criteria subsequently filed and approved. I certify that the construction of the above referenced project was observed to be built within substantial compliance and intent of the approved plans and specifications.

☐ Final☐ Partial (include description)

NCDENR/DWR WATER QUALITY PERMITTING SECTION

WASTEWATER BRANCH – PERCS UNIT

1617 Mail Service Center

Raleigh, NC 27699

" D "

HARKERS ISLAND SEWER COMPANY
PO BOX 370
HARKERS ISLAND NC 28531

Date: September, 2nd 2015

To: Ed Hardee

Division of Water Resources

Water Quality Permitting Section, Non-Discharge Permitting Unit

1617 Mail Service Center

Raleigh, NC 27699-1617

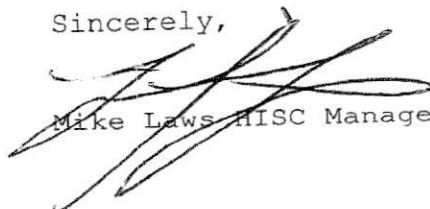
Phone (919) 807-6319

Re: James Creek WWTP permits

Dear Mr. Hardee,

Per our conversation on September 1, 2015 Harkers Island Sewer Company has no intent of constructing the designed and approved WWTP facility within the James Creek Subdivision located on Harkers Island NC. As far as Harkers Island Sewer Company is concerned the permits may be extinguished by any NC authority.

Sincerely,



Mike Laws HISC Manager

~~Exhibit D~~
"E"

HARKERS ISLAND SEWER COMPANY LLC
NC Public Utility
PO Box 370
Harkers Island
28531

Memorandum of Agreement

April 25th, 2016

Re: Sewer service to: Harkers Island RV Resort

Attention: Chris Chadwick

Dear Mr. Chadwick, The following confirms the ability and pledge for Harkers Island Sewer Company LLC to serve your project known as Harkers Island R/V Resort containing approximately 126 units, located at 265 Guthrie Road on Harkers Island, with public sewer service.

Conditions:

- a) Developer, (Chadwick) and its engineering firm must design and permit the onsite waste water system and required off site sewer mains and 1 lift station related to the service extension connecting to the Harkers Village WWTP.
- b) Proper construction or installation must be conducted by a licensed utility contractor and certified by the developer's engineer.
- c) Developer or its licensed utility contractor must warranty the sewer mains for a period of 1 year after certification.
- d) Ownership of sewer mains are transferred to the utility at time of engineer's certification.
- e) Developer is also responsible for required easements approved by utility's legal counsel and NCDENR easement requirements satisfied.
- f) The utility reserves the right for its engineer of record to review or comment and approve any design work to assure proper conformity to the system in its entirety before finalization and submitting to NCDENR for permits.

g) Developer or developers shall incur all cost associated the permits, design, and construction of the system or systems.

Note: the utility is aware of the offsite cost being shared by developers, as it relates to offsite sewer transmission lines Chris Chadwick and developer Doug Brady owner of Cape Point Subdivision, and will co-operate with both developers collectively.

Signed: Michael Laws, Manager.  Date 5/3/2014

Signed: Chris Chadwick, Developer.  Date 5-3-16

HARKERS ISLAND SEWER COMPANY LLC

PO Box 370
Harkers Island
28531
Invoice

March, 20th, 2017

Doug Brady
Academy Field LLC
805 Front St.
Beaufort, NC 28531

Re: Cape Point lift station up fit

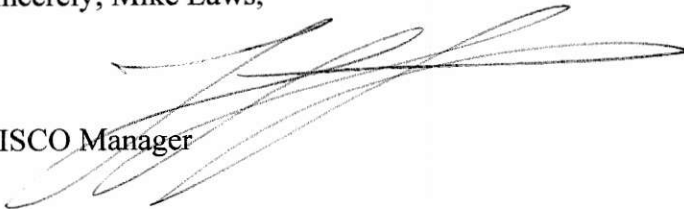
Mr. Brady, this notification and invoice is the result of the required onsite upgrade of the Cape Point sewer lift station located at 1200 Island Road, Harkers Island, NC. The upgrade in pumps and controls will properly process waste water to the final processing location at Harkers Village treatment facility also on Harkers Island, NC.

The determination of this upgrade was conducted by Arendell Engineers and mandated by NCDHHS and NCDWQ design criteria for public waste water systems.

Please forward the **\$25,000** in CIAC funds to HISCO needed to cover the onsite cost.

Sincerely, Mike Laws,

HISCO Manager

A handwritten signature in black ink, appearing to read 'Mike Laws', written over the printed name 'HISCO Manager'.

HARKERS ISLAND SEWER COMPANY LLC
1400 Pointe Village
PO Box 375
Harkers Island
28531

Memorandum of Agreement

May 4th, 2016

Re: Public sewer service to Cape Pointe Village

This agreement serves notice that Academy Field LLC represented by Doug Brady, has formally requested, and Harkers Island Sewer Company LLC has committed public sewer service to Cape Pointe Village at 1200 Island Road, Harkers Island NC.

The attached North Carolina Utilities Commission rate Schedule will apply to the 25 lots in Phase 1 of the attached plat. Any additional lots realized by the Developer contiguous to the Subdivision will be subject to the same rate schedule.

Conditions:

- a) Developer, (Doug Brady) and its Engineering firm must design and permit the onsite waste water system and required offsite sewer mains and 1 lift station related to the service extension connecting to the Harkers Village WWTP.
- b) Proper construction or installation must be conducted by a licensed utility contractor and certified by the Developer's Engineer.
- c) Developer or its licensed utility contractor must warranty the sewer mains for a period of 1 year after certification.
- d) Ownership of sewer mains are transferred to the Utility at time of Engineer's certification.
- e) Developer is also responsible for required easements approved by Utility's legal counsel.
- f) The Utility reserves the right for its Engineer of record to review or comment and approve any design work to assure proper conformity to the system in its entirety before finalization and submitting to NCDENR for permits.

g) Developer or Developers shall incur all cost associated the permits, design, and construction of the system or systems.

note: The utility is aware of the off site cost being shared by CJ Chadwick & Associates LLC developing Harkers Island RV Resort represented by Chris Chadwick and Academy Field LLC represented by Doug Brady and will co-operate with both Developers collectively.

Signed: Harkers Island Sewer Company LLC

Manager, Michael Laws



Date 5-18-16

Academy Field LLC

Manager, Doug Brady.



Date 5/19/2016

"F"

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COST OF UTILITY SYSTEM

1. Is the cost of utility system listed below based on past operation, or is it estimated for future operation?
(actual or estimated) estimated future
2. Does the cost of utility system listed below represent the cost to the Applicant herein? (yes or no)
no
If no, list cost (purchase price to Applicant). -0- The Developers of the 2ea. subdivisions are incurring all cost associated with the extension.

ORIGINAL COST OF UTILITY SYSTEM

As of Year Ended n/a (Date)

Note: List the total original cost to construct and establish the system, whether or not paid for by the present owner.

Utility Property in Service

Balance at End of Year

Water

Sewer

3. Land and rights-of-way	\$ n/a	\$ 0
4. Structures and site improvement	\$ "	\$ 2,000
5. Wells	\$ "	\$ 0
6. Pumping equipment	\$ "	\$ 46,000
7. Treatment equipment	\$ "	\$ 0
8. Storage tanks	\$ "	\$ 10,300
9. Mains (excluding service connections)	\$ "	\$ 96,000
10. Service connections	\$ "	\$ 4,000
11. Meters (including spare meters)	\$ "	\$ 0
12. Office furniture and equipment	\$ "	\$ 0
13. Transportation equipment	\$ "	\$ 0
14. Other utility property in service (describe in remarks below)	\$ "	\$ 0
15. Total utility property in service (Lines 3 thru 14)	\$ "	\$ 158,300
16. Less: accumulated depreciation	\$ "	\$ 0
17. Less: accumulated tap fees and other contributions in aid of construction	\$ "	\$ 0
18. Less: customer advances	\$ "	\$ 0
19. Net investment in utility property (Line 15 minus 16, 17, & 18)	\$ "	\$ 0

Utility Property Not in Service

Balance at End of Year

Water

Sewer

20. Construction work in progress	\$ n/a	\$ 0
21. Property held for future use	\$ "	\$ 0
22. Other (describe in remarks below)	\$ "	\$ 0

Remarks

23. _____
24. _____
25. _____
26. _____

"G"

ARENDELL
ENGINEERS
CIVIL • COASTAL • ENVIRONMENTAL
105 North 10th Street
Morehead City, North Carolina 28557
(252) 622-4338
N. C. Certification No. C-1509

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Apr 05 2021

December 29, 2017

Mr. Steven Berkowitz, P.E.
N. C. Division of Public Health
Onsite Water Protection Branch
5605 Six Forks Road
Raleigh, NC 27609

Phone: (919) 707-5876
Email: steven.berkowitz@dhhs.nc.gov

RE: Review of Harkers Island Sewer Company (HISCO) Various Connections to HISCO Sewer System,
Response of letter of December 20, 2017

Dear Steven:

This letter is in response to the Berkowitz letter of December 20, 2017 and based on the review of requests for authorizations to construct connections to the HISCO sewer system for the following facilities:

- A. LDS Church (existing 200 seat church facility), 1007 Island Road.
- B. NPS Phase 2 Collection System (to serve 5 existing single-family residences; 10-employee maintenance facility; existing RV area with 6 units; new RV area for 6 units).
- C. Tollan Wade 45-seat Bar and Ice Cream Shop at 989 Island Road.
- D. New two-bedroom home at 122 Old Ferry Dock Road.

The proposed design flow to be allocated to these facilities is 4275 gallons per day (600 gpd for LDS Church; 2410 for NPS Phase 2 facilities; 1025 gpd for Wade Bar/Ice Cream Shop; and 240 gpd for 122 Old Ferry Dock Road residence. These facility allocations are reported to utilize a portion of the proposed miscellaneous 16 3-bedroom Island Road connections referenced in the December 2016 Settlement agreement.

Responses to comments follow and include additional information where necessary.

1. General:

- a. *It must be clearly established that HISCO has responsibility and authority to operate all wastewater system components associated with these facilities, including any existing tanks and collection sewer connections from tanks to the proposed lift stations. This includes the existing tanks to remain in service at the LDS Church and within the NPS service area.*

By virtue of the easement provided by the LDS Church, in the case of NPS, the easement and agreement between NPS and HISCO for sewer, and the agreement for service executed between HISCO and each resident requesting service, HISCO is granted the full authority to enter the properties and maintain the sewer facilities for each customer. Copies of the standard agreement for service has been submitted to your office several times in response to similar comments on past connection requests. Confirm with Mike, provide copies of LDS easement revised and the standard agreement for service.

- b. *Provide documentation that proposed expansion of services is authorized under the conditions that HISCO operates as approved by the NC Utilities Commission.*

The HISCO service area includes any area of Harkers Island that is contiguous to an existing force main or other collection facilities. Documentation of this is attached. Mike to provide.

- c. *Prior to issuance of Construction Authorizations, amended Encroachment Agreements from DOT must be provided (relevant to LDS Church and 122 Ferry Dock Rd. projects).*

An NCDOT Encroachment Agreement is in place for utility work in Island Road and along the force main route between NPS and the WWTP at Harkers Village. The agreement between HISCO and NCDOT in the Division office in New Bern, is the, if utility construction is proposed in areas contiguous to the existing force main, a letter to NCDOT is provided notifying them of the additional area. NCDOT does not necessarily provide a return letter confirming each modification of the Encroachment Agreement. A copy of the letter from the installation of the force main extension along Old Ferry Dock Road is attached.

- d. *Clarification is needed whether these facilities are included as any of the five allocations on Island Road (of the original 16) committed to be served by HISCO, or are these five allocations still being separately retained?*

You provided that clarification in the second paragraph of this letter.

- e. *Any existing water supply sources (e.g., wells) within the vicinity of all new service connection lines must be indicated, and water lines serving proposed facilities (e.g., LDS Church, Bar/Ice Cream Shop, NPS facilities and 122 Old Ferry Dock Road residence) also shown.*

Confirmation that there are no well along the route of the force main was a condition of the DWR permit and was confirmed as part of the permitting process.

- f. *Specifications for force main segments of service connections installed within rights-of-ways should call for locator-taping (applicable to LDS Church and 122 Old Ferry Dock Road lines, and recommended for new NPS lines).*

The specifications for installation of force mains in the HISCO system has been standardized and provided to your office on several occasions. That specifications includes criteria for protection of existing utilities, crossings and clearances to water lines, and requirements for pressure testing. Those specification apply to all past and future force main installations in the HISCO system including mains and service laterals. Force mains installed inside Right-of-ways are equipped with locator tape and a 12 gage copper wire for electrical signal location in accordance with 15A NCAC 02T.

- g. *Force main/service connection installation specifications must be provided, including specifications for hydrostatic leakage testing.*

Refer to the response for item f. above.

- h. *All service connections should include a shut-off valve and redundant check valve at the edge of the right-of-way near their connection to a main (such as shown to be provided for the 122 Old Ferry Dock Road and NPS connection lines; corporation stop and check valve as shown for the LDS Church connection is acceptable, if at the edge of the right-of-way and located within an accessible valve box).*

The service connection configuration has been standardized for use in all HISCO service installations for both commercial duplex and residential simplex connections. The check valve and valve at the connection is accessible via a valve box and provided with a locking valve since it serves the means for HISCO to close the connection in the event of service being discontinued. Confirm???

- i. *Additional details must be provided for tops to proposed lift stations. Based on discussions with fiberglass basin manufacturer (TOPP-Industries), extra measures are needed for these tops to be watertight and/or gas tight. This would be an issue both for hydrostatic testing of the basins, as currently specified (10-foot head), and for any proposed locations where the tops are subject to flooding, or the basins will not meet horizontal setback requirements in Rule .1950(a). Need to confirm this with Mike.*

The wet well tops used for flood prone areas are aluminum instead of the heavy plastic lids used in non-flood areas. The tops are attached with bolts and a neoprene gasket with the bolts spaced at approximately 8 inches on center around the top. The NPS simplex and duplex service pumping units are in potential flood areas. None of the other services applied for are in an AE zone. All are in an X or zone or area of minimal flood hazard.

- j. *Given proposed panel locations on the sides of adjoining structures, a watertight (NEMA 4X) above grade junction box should be shown to be provided at the wet wells, with wires conveyed from inside the station to the box through watertight and gastight conduit, with no splices made inside the lift stations. Confirm on drawings.*

The specification on the pump station drawings indicate the requirement for NEMA 4X enclosures. This is and always has been a standard requirement.

2. LDS Church

- a. *Design Flow: Please have applicant confirm and field-verify lack of or presence of a kitchen, and adjust design flow if needed. Existing water use records should also be provided to further substantiate that the proposed design flow is appropriate.*

Applicant has confirmed and reconfirmed with the owner that there is no kitchen in the church. This was also confirmed by Chris Nitt. Water use record for 2016 is attached. A summary of water use is provided in the attached spreadsheet. The two anomalous months (10/2017, 46000 gal., and 4/2017, 28000 gal.) were confirmed by the owner to have resulted in fixture leaks in the building. Taking those two months out of the data set and the average daily flow is less than 300 gpd. We would request that an allocation of 400 gpd for the church versus the 600 gpd proposed in accordance with 15A NCAC 18A .1490 900 GPD. According to the water use records, the 600 gpd flow IAW 18A rules is more than twice the daily average.

- b. *Proposed use of existing tankage: The existing 1500-gallon septic tank and 1000-gallon pump tank are proposed to continue to be used (the pump tank modified to provide additional emergency storage capacity). Acceptability of these tanks must be field-verified by the engineer and health department, including leakage testing, and visible assessment of their structural integrity.*

Proposed new bottom-connection of the existing pump tank to the newly-proposed wet well is not acceptable, due to structural integrity concerns, and potential for inflow into this below-grade connection. If a 4-ft diameter wet-well is used, as indicated in the calculations, and based on telemetry being provided, there should be sufficient emergency storage capacity in the wet well and freeboard space in the existing tanks. If instead the existing pump tank is converted to a second settling tank, an effluent filter should be provided at the tank outlet (at elevation that will establish the liquid level in the tank). If the condition of the existing tanks is determined to be acceptable, consideration could also be given to utilizing an effluent pump either in the existing pump tank or in the newly-proposed wetwell, similar to the pumping system used for at Fishhook Restaurant.

The waterlines and existing and proposed facilities have been located in the field and flagged by HISCO and Chris Nitt of CCHD.

- d. *Abandonment procedures for all existing systems to be taken out service must be indicated (5 existing residences and for the existing 6 RV-units).*

A note for the procedure for abandonment of existing septic tanks is shown on drawings.

- e. *Design Flow: Basis for the proposed flow reduction for the RV units must be indicated. Any water use data from the existing 6 RV units, if available, should also be provided.*

Potable water use in the RV area is not metered separately. The 80 GPD flow is based on the flows allocated for the standard units in the Harkers Island RV Park. This is a conservative flow because the RV units in the NPS area are all transient. Additionally, NPS does not expect that more than 50 percent of the spaces would be occupied at any one time.

- f. *An 18-inch vertical separation must be shown to be provided where the force main from the proposed maintenance shop crosses the water line near the existing NPS lift station. The Plan View of this end of this line (Sheet C4) and valve must also be corrected to show this is to be a 1-1/2-inch line and valve not 2-inch.*

The required separation is shown on the drawing C-4 along with a standard note notifying the contractor of the required separation. John Check this.

- g. *Existing RV-Unit collection sewer must be inspected and verified to be in acceptable condition by the engineer and health department. This line should also be leak-tested (concurrent with leak-testing for the new collection sewer line). Location/depth of new sewer connecting to this sewer must be based on field-verified elevations.*

The Location and elevations of existing collection lines and septic tank have been located and elevations confirmed by a Professional Land Surveyor. The confirmed elevations are as shown on the drawings. The existing facilities have been inspected and the condition found satisfactory by HISCO and personnel from CCHD. Mike to confirm

- h. *New Collection Sewer Lines must be on minimum slope of 0.6% for 6-inch lines (not 0.5%). Depth of cover over proposed lines appears to be less than three feet. Proposed pipe materials (SDR-35) is too thin for this shallow of a cover. If not in traffic areas, lines may be of Sch. 40 PVC (if in traffic areas, DIP would be required). Specifications for sewer line installation and testing shall be provided (referenced but not in submittal package received).*

Slope of 6 inch lines is revised to 0.6 percent. A minimum burial of 3 feet for gravity collection lines is specified on the drawings. Notes are provided on drawings for testing of gravity lines in accordance with Minimum Design Criteria for the Permitting of Gravity Sewers, Section H. 6. (deflection testing), and J. 1. (leak testing). Pipe burial depth is minimum 3 feet. Use of heavier PVC pipe or use of DIP is not justified.

- i. *As discussed above, additional provisions are needed for the access manhole top for the RV Park Lift station, for it to indeed be flood-proof and waterproof, yet sufficiently accessible.*

Several fiberglass wetwells have been installed in the HISCO system that are in flood prone areas. The tops are aluminum and are attached to the flange of the cylindrical tank with bolts and a neoprene seal. The same top configuration will be utilized at the NPS locations. Access is obtained by completely removing

Good afternoon Mr. Laws,

Thank you for speaking to me today. As we agreed, I will meet you at the West Bay WWTP on Tuesday, 7/28/2020 at 10 am. Please feel free to contact me at 910-386-1224 if your plans change.

"H"

I hope you have good luck fishing!

Bryan K. Lievre, P.E.
Engineer
NCDEQ, DWR, Operations Section
127 Cardinal Drive Extension
Wilmington, NC 28405-3845
Office Tel.: 910-796-7324



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Apr 05 2021

Berkowitz, Steven
even <steven.berkowitz@dhhs.nc.gov>

Thu 10/1/2020 9:33 AM
To: mlawsharkersislandsewercompany.com
Cc: Julie Harris <julieh@carter.com>

Mike: The Island Road allotments accounted for in the Settlement Agreement were exhausted by other new connections allowed afterwards beyond what were included in the Agreement. I've shown that in previous emails and in subsequent approval letters. We were supposed to have your plans for upgrades received by August 1, 2020, which we have yet to receive, that were prerequisite for new approvals, in light of continued violations of effluent standards from the wastewater plant, and no provisions yet in place or proposed yet to successfully address these.

Steven

Steven Berkowitz, PE
Senior Engineer
Division of Public Health, On-Site Water Protection Branch
North Carolina Department of Health and Human Services

919-707-5876 office
919-845-3973 fax
Steven.Berkowitz@dhhs.nc.gov

5605 Six Forks Road
Raleigh NC 27609

1642 Mail Service Center
Raleigh, NC 27699



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Apr 05 2021

rom: "Bill Forman" <bill@arendellengineers.com>
Date: Fri, August 30, 2019 7:39 am
To: "Mike Laws" <mike@harkersislandsewercompany.com>

Mike, here is what I propose to send to Berkowitz with your approval regarding the denitrification system. Should I copy Clark Wright?

Steven,

If the Harker Village WWTP is non-conforming in terms of denitrification, then that non-conformance may indeed be due in part or wholly to the DHHS mandate included in the settlement agreement that required that the glycerin injection pump be triggered by the flow across the weir at the back end of the plant, at the chlorine contact chamber. This represents a significant flaw to the operation of the plant. Approximately 3,800 gallons of wastewater is discharged from the plant that has not received proper denitrification each time the sand filters are backwashed. Typically, the sand filters are backwashed at least once and sometimes as much as three times daily resulting in some 3,800 gallons of effluent (for each backwashing sequence) not receiving any carbon source dosing prior to going through the tertiary treatment sand filters.

The sand filters are backwashed with water from the clearwell. The backwash water is recirculated back to the EQ tank. The clear well is essentially emptied by the backwashing process dropping the water at the weir at the chlorine contact chamber below the flow meter sensor level which triggers the chemical feed pump to inject glycerin to the flow at the head of the mudwell. It is only after the clear well refills to the weir level that dosing is again triggered. The result is 3799 gallons of water processed through the sand filters into the clearwell and out the back end of the plant without the benefit of proper denitrification in the sand filers.

The dosing pump should be triggered by running of the lift pumps at the EQ tank. That way all effluent entering the sand filters has received a carbon dose and all water entering the clear well has been properly processed through the sand filters.

I have instructed HISCO to make a modification that causes the dosing pump to run each time either of the EQ tank lift pumps run and then monitor the nitrogen levels in the effluent for several weeks. The glycerin injection rate will remain at its current setting.

If you examine the monitoring reports, you will notice that high nitrogen readings occur after high flows which appear in the flow record as anomalous. The anomalous high flows result from the backwashing of the sand filters. The backwash water is recirculated back to the EQ tank so it is double counted in the overall plant output flow each time the sand filters are backwashed as measured at the flow meter at the chlorine contact chamber.

We believe that the plant modifications mandated by DHHS in the settlement agreement are the cause of the plant nitrogen removal non-conformance. That being the case, it is requested that DHHS grant HISCO some latitude in bringing the plant back into conformance and approve the connection permits while HISCO makes these modifications and monitors the effluent.

Please confirm this request at your earliest convenience. Call me if you have any questions.

James W. (Bill) Forman, Jr., P.E.

Bill Forman

ARENDELL ENGINEERS

James W. (Bill) Forman, Jr., P.E.

President

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1004 Arendell Street

Morehead City, NC 28557

Phone: (252) 622-4338

Fax: (252) 622-4505

Mobile: (252) 259-7224

Email: bill@arendellengineers.com

Website: www.arendellengineers.com

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Apr 05 2021



NC DEPARTMENT OF
**HEALTH AND
HUMAN SERVICES**

ROY COOPER • Governor

MANDY COHEN, MD, MPH • Secretary

MARK T. BENTON • Assistant Secretary for Public Health

Division of Public Health

January 8, 2021

Mr. Jesse R. Dail, REHS
Environmental Health Director
Carteret County Health Department
3820 Bridges St. Suite A
Morehead City, NC 28537
(Courier No. 11-11-01), Fax: (252) 222-7753

Re: Review of Revised Plans and Specifications for Denitrification System Upgrade, Harkers Village Wastewater Treatment System, HISCO Utilities, Harkers Island, Carteret County, NC, OSWS Project No. 1995-17-11.

Dear Mr. Dail:

I have completed a review of revised plans and specifications for modifications to the Harkers Village Wastewater Treatment Plant to facilitate compliance with Nitrogen Reduction permit limitations, received December 10, 2020. As you are aware, this plant has been in frequent violation of system performance standards, and the addition of new connections to the service area has been put on hold until an approved upgrade plan, and firm schedule for completion is in place. We had previously been advised that a new replacement Wastewater Treatment System was to be proposed (plans to have been provided by August 1, 2020), but have been informed that this option has now been delayed for the foreseeable future.

The current proposal appears to be for the basic components to facilitate enhanced denitrification initially proposed and approved in 2016 and a basis for the approval of significant service area expansions at that time (see Approval for OSWS Project Nos. 1995-17-3, 4 and 5, issued August 16, 2016) to now be implemented. Subsequent efforts to improve denitrification with less radical treatment plant modifications have now been fully acknowledged to have been unsuccessful. It is now proposed to: convert the front portion of each aeration tank (about 1/3 of its capacity) into an anoxic tank; include provisions for a mixer and recirculating pump; relocate glycerin injection points; install an ORP/DO meter to control glycerin feed and blower run-times in the aeration basins; and to relocate clarifier sludge returns to the anoxic zone.

Plans received so far (and as described in the Project Narrative) essentially are the same as were included in the 2016 plans. However, based upon the more recent emails and discussions, it is our understanding that some modifications are intended to be made which have yet to be detailed (e.g., Use of sheet metal partition instead of EPDM or PVC Fabric Barrier). Additionally, and

NC DEPARTMENT OF HEALTH AND HUMAN SERVICES • DIVISION OF PUBLIC HEALTH

LOCATION: 5605 SIX FORKS RD, RALEIGH NC 27609

MAILING ADDRESS: 1642 MAIL SERVICE CENTER, RALEIGH NC 27699-1642

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Apr 05 2021

based upon over further review, details need to be provided for any modifications, including manufacturer's cut sheets for any new equipment in addition to or instead of what was included in the 2016 submittal. Besides detail on the partition, the following need to be addressed:

1. Clarification of means of linking ORP and DO monitoring system to automatic regulation of the glycerin feed and blowers, including specification/cut sheets of materials to be provided. It is my understanding, that provisions would need to be incorporated for independent control of each train's aeration system (such as by each having a dedicated blower, with "H"-type interconnection of aeration system piping as a back-up).
2. Provisions specified for addressing corroded grating, grating angle iron supports, corroded structural stiffeners, and air system piping.
3. Need for further modifications based upon experience of the operator and designer from other systems, such as the need to provide means of controlling clarifier sludge return air-lifts independent from (and supplemental to) the main plant blowers.
4. Specific timeline for completing upgrades to Treatment Trains B and C. It is essential that both trains include the necessary upgrades. We note that during mid-Season (e.g., July), flows have frequently exceeded 20,000 gpd, besides the need for redundancy if one train needs to be taken out of service.

We shall continue with our review as soon as we receive revisions and additional information requested above. Please feel free to contact us if you have any questions pertaining to this letter or if we may be of further assistance with this project. We may be reached at the telephone and facsimile numbers or address listed on this letterhead, and I can be contacted directly at (919) 707-5876 or by email at steven.berkowitz@dhhs.nc.gov.

Sincerely,



Steven Berkowitz, P.E.
On-Site Wastewater Engineering

Cc: Bill Forman
Mike Laws (via Email)
Dwayne Graham (via Email)