_____
Project Title

_____
County

# DEHNR-OSWS LARGE SUBSURFACE WASTEWATER SYSTEM REVIEW TRANSMITTAL CHECK-LIST

## III. SYSTEM ENGINEERING DESIGN REVIEW/APPROVAL*

Done | Not Applicable

A. Application information (not needed if previously provided)

☐ ☐ Application for Improvement Permit has been submitted to LHD (**4** copies attached)(2a)**
☐ ☐ Property has been shown on plat or boundary survey, and PIN number and locator map have been provided
☐ ☐ Name, address, phone, Fax, E-Mail Numbers for owner, agent, engineer, soils consultant are attached
☐ ☐ Project proposed is described, including whether new, repair, expansion, replacement, modification of existing, or combination
☐ ☐ Water supplies (existing and proposed) and surface waters have been described and locations shown
☐ ☐ Facilities are described and located (existing and proposed) which are to be served by proposed system, including occupancy and projected use patterns
☐ ☐ List provided of all wastewater sources and water use fixtures (points of wastewater entry into system)
☐ ☐ Projected wastewater characteristics (e.g. including wastewater quality data for any non-domestic sources) and flow patterns are described
☐ ☐ Wastewater system components are described and located (existing and proposed)
☐ ☐ Documentation provided to LHD indicating wastewater system and facility are under ownership or control of person owning the facility or that an owners association and tri-party agreement shall be provided

B. Site Plan and Layout Approval/Improvement Permit Issuage

Documentation provided that:

☐ ☐ Proposed site plan and layout have been previously approved by the OSWS
☐ ☐ An Improvement Permit has been issued by the LHD (**3** copies attached)
☐ ☐ OSWS approval of proposed site plan and layout is being concurrently sought

☐ ☐ C. Predesign conference was held (11)**

☐ ☐ Predesign conference was waived by all parties

| Done | Not Applicable | |
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| ☐ | ☐ | D. Engineering plans and specifications and supporting calculations are submitted herein (**3** copies to OSWS-Central Office, **2** copies to LHD) (12)**: |
| ☐ | ☐ | The North Carolina Professional Engineer's seal appears on all plan sheets and the first page of specifications and calculations |
| ☐ | ☐ | The design is in accordance with applicable rules, guidelines and recognized principles and practices of engineering and public health |
| ☐ | ☐ | The design incorporates and is found by the LHD to be consistent with approved site plan and layout and the improvement permit (if issued) |
| ☐ | ☐ | Facility description and details (floor plans) are provided to confirm compatibility with previously submitted information (**1** copy to OSWS-Central Office, **1** copy to LHD). |
| | | E. Specifications generally include the following (13)**: |
| ☐ | ☐ | Description of all materials and equipment to be used, with attached manufacturer's cut sheets, pump curves, etc. |
| ☐ | ☐ | Project-specific construction methods, installation, testing and start-up procedures |
| ☐ | ☐ | Means of assuring quality and integrity of finished product |
| ☐ | ☐ | Specific operation and maintenance procedures, including: |
| ☐ | ☐ | Requirements for system operation |
| ☐ | ☐ | Inspection process and performance monitoring schedules |
| ☐ | ☐ | Provisions for maintaining mechanical components and drainfield vegetative cover |
| ☐ | ☐ | Reporting requirements |
| ☐ | ☐ | Provisions for residuals management |
| ☐ | ☐ | Abandonment procedures for existing system components that are no longer required. |
| | | F. Plans and specifications for specific system components include (14)**: |
| | | Collection systems and force mains (14a)** : |
| ☐ | ☐ | Plan drawings showing locations of manholes and cleanouts |
| ☐ | ☐ | Profile drawings provided when the collection system is a 6-inch or larger gravity sewer serving two or more buildings or contains two or more manholes, or when it is a pressure sewer system. |
| ☐ | ☐ | Pipe invert and ground surface elevations are shown on plan drawings for all cleanouts/manholes |
| ☐ | ☐ | Force mains are shown in profile as required when their length exceeds 500 feet, or when their grade is not continuous. |
| ☐ | ☐ | Force main inverts are shown at their beginning and end, and depths of cover |
| ☐ | ☐ | Proximity indicated to utilities, wells, water lines, storms drains, surface waters, structures, roads, and other trafficked areas |
| ☐ | ☐ | Detail drawings are provided, as appropriate, of service connections, manholes, cleanouts, valves, other appurtenances, aerial crossings, and crossings of roads, water lines, storm drains, streams or ditches |
| ☐ | ☐ | Specifications include alignment, deflection and infiltration/extiltration testing procedures and pass/fail criteria |

| Done | Not Applicable | |
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| | | Tanks (14b)** : |
| ☐ | ☐ | Tanks located accessible to pumpers and maintenance vehicles with all setbacks shown |
| ☐ | ☐ | Plans show tank dimensions and relevant elevations (bottom, floor, inlet and outlet invert, top and ground |
| ☐ | ☐ | Plans show other pertinent elevations in pump tanks (i.e., float activation levels) or siphon tanks (i.e., siphon-trip and alarm elevations) |
| ☐ | ☐ | Access riser, manhole, chamber interconnection and sanitary tee details |
| ☐ | ☐ | Complete construction details are provided for built-in-place tanks, including dimensions, reinforcement details and calculations, and construction methods |
| ☐ | ☐ | State-approved precast tanks are specified as to manufacturer, nominal capacity, whether or not the tank is rated for traffic loading and State approval number (i.e., the PT- number for pump tanks, and the STB-number for septic tanks) |
| ☐ | ☐ | For grease traps, design and construction specifications are provided in accordance with Rule .1955(k) |
| ☐ | ☐ | Installation (e.g.: bedding, method of sealing tank and riser, pipe connections, surface water diversion) and water tightness testing procedures are provided with pass/fail criteria |
| ☐ | ☐ | Anti-floatation (buoyancy) calculations and provisions have been provided |
| | | Pump stations (14c)** : |
| ☐ | ☐ | Plans show pumps, discharge piping, and all related appurtenances |
| ☐ | ☐ | Calculations provided for system total dynamic head, pump is specified, pump curve(s) provided, and expected operating conditions specified |
| ☐ | ☐ | Plans show accessible pump removal system and accessible float support system, float switches and float settings |
| ☐ | ☐ | Plans show control panel/high water alarm location and electrical connection details |
| ☐ | ☐ | Control panel/high water alarm components specified |
| ☐ | ☐ | Description of float sequencing, control panel function under normal and abnormal conditions, and appropriate settings |
| ☐ | ☐ | Emergency storage capacity calculations and provisions for stand-by power have been provided when required |
| ☐ | ☐ | Provisions for lighting, wash-down water-supply with back siphonage protection, and protective fencing, detailed as needed |
| ☐ | ☐ | |
| | | Ground absorption fields (14d)** : |
| ☐ | ☐ | Final layout, existing and finished ground elevations are shown on the plans |
| ☐ | ☐ | All lines have been re-staked in the field as needed to verify layout, relative elevations and distribution system design |
| ☐ | ☐ | Trench and lateral distribution system plan and profile details and invert elevations for each lateral are shown on the plans |
| ☐ | ☐ | Manifold and supply line and interconnection details and invert elevations are shown on the plans |

| Done | Not Applicable | |
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| ☐ | ☐ | Flow distribution device design, construction detail, location, and invert elevations are shown on the plans |
| ☐ | ☐ | Drainage system locations, discharge points and design details are shown on the plans |
| ☐ | ☐ | Site preparation procedures have been specified |
| ☐ | ☐ | Construction phasing and phased system testing has been specified |
| ☐ | ☐ | Groundwater monitoring well locations (on the plans) and construction specifications (on plans and/or specifications) |
| ☐ | ☐ | Final landscaping provisions have been specified, including compliance with erosion control requirements. |

☐ ☐ G. Separate Guidelines and transmittal checklists have been obtained from the OSWS-Central office, and have been followed for advanced pretreatment systems (e.g.: sand filters, tertiary wastewater treatment plants), pressure sewer systems (eg: STEP or Grinder Pump Systems), and industrial process wastewater systems, and relevant information is attached (14e**).

☐ ☐ H. Other requirements or guidelines have been followed as appropriate, with references attached (14f)**.

I. Concurring Signature, that the Applicant has, to the best of his/her abilities and belief, provided complete and factual representations of the information requested above:

_____ _____

Applicant or Applicant's Design Engineer Date

J. Health Department's Concurrence that Application for Authorization to Construct has been submitted, requested information appears complete and state review/approval is requested:

_____ _____

Local Health Department Environmental Health Specialist Date

* **Note to all interested persons**. This transmittal check list and necessary accompanying information shall be submitted with a request for engineering design review/approval to the On-Site Wastewater Section, Division of Environmental Health,1642 Mail Service Center, Raleigh, NC-27699-1642 (Phone: 919-733-2895).

** Numbers in parentheses ( ) refer to corresponding item in document entitled "Procedures and Information Required for Approval of Large Subsurface Wastewater Systems", which contains complete information on the large system review and approval process and may be obtained from the On-Site Wastewater Section.