



County of San Diego
Department of Environmental Health and Quality
Land and Water Quality
5500 Overland Ave., Suite 210, San Diego, CA 92123 / (858) 565-5173
www.sdcdehq.org

ONSITE WASTEWATER TREATMENT SYSTEM LAYOUT APPROVAL
EXPIRATION DATE: 1/20/2028

Owner: Roach Nicholas&Anna-Marie	Site: NO ADDRESS,
Address: 35&36 Euclid Ave El Cajon, CA 92019	Parcel: 512-180-35-00
Phone:	Certification: PERC TEST
Professional: Todd Walsh; DEH Environmental Health Specialist #REHS 5683	Record ID: DEH2025-LOWTS-020268

This project is **APPROVED** for the following:

Commercial / Residential: Residential *Gallons / Day:* 600
Number of Bedrooms: 4

THIS IS NOT AN ONSITE WASTEWATER TREATMENT SYSTEM PERMIT

You have until 1/20/2028 to obtain a septic permit. However, a site recheck may be required at any time to determine if site conditions have changed. Refer to the County of San Diego, Department of Environmental Health and Quality, Local Agency Management Program for Onsite Wastewater Treatment Systems for all applicable setbacks and standard conditions of approval.

ONSITE WASTEWATER SYSTEM REQUIREMENTS

Primary Septic Tank (in gallons): 1200 *Secondary Septic Tank (in gallons):* 1500
Pump Tank (in gallons): 1000

Supplemental Treatment Type: Norweco, Other Supplemental Treatment:
Make/Model of Supplemental Treatment: TNT 750

System Details:

Soil Disposal System

	System Type	Length	Width	Depth	Cap Depth	Spacing	Depth of Medium	# of Pods
Primary Dwelling	Drip Dispersal Line	437	1	1		2		

CONDITIONS TO BE COMPLETED PRIOR TO THE ISSUANCE OF A SEPTIC PERMIT

<i>Potable Water Source:</i> Public Water Supply	<i>Water District:</i> Helix Water District
<i>DEHQ Grading Inspection:</i>	<i>DEHQ Building Plan Review:</i>

COMMENTS: LAYOUT NEW CONSTRUCTION
PROPOSED 4BR SFD AND DRIVEWAY

INSTALL 1200 GALLON SPETIC TANK (PRE-TREATMENT) CONNECTED TO NORWECO TNT-750, AND 1000 GALLON PUMP CHAMBER W/ HB-105 SUBMERSIBLE PUMP.

SYSTEM TO DISPERSE OVER 437' OF DRIP LINE INSTALLED 12" DEEP W/ 2' SPACING. AUDIBLE ALARMS, CONTROL PANNEL, PRESSURE RELIFE VALVES, AND HEADWORKS TO BE INSTALLED PER PLAN.

- *GRADING CHECK REQUIRED PRIOR TO PERMIT ISSUANCE
- *COVENANT AGREEMENT REQUIRED PRIOR TO PERMIT ISSUANCE
- *PERMIT APPLICATION SIGNED BY ENGINEER AND CONTRACTOR REQUIRED TO PERMIT ISSUANCE



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THE SEPTIC CONTRACTOR SHALL CONTACT THE DESIGN ENGINEER PRIOR TO INSTALLATION OF ANY SYSTEM COMPONENTS AND COORDINATE NECESSARY INSPECTION(S) BY THE ENGINEER.

FINAL APPROVAL SHALL REQUIRE:

- WRITTEN CERTIFICATION AND AS BUILT FROM DESIGN ENGINEER
- TELEMETRY
- COPY OF MAINTENANCE AGREEMENT
- OBTAIN AN ANNUAL OPERATING PERMIT

Approved By: Conner Jordan

Date: 1/20/2026

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County of San Diego
Dept. of Environmental Health
Land & Water Quality Div.

DEHQ Use Only

RECORD ID #: DEH 2025 LOWTS 020368

DATE RECEIVED:

SECTION A - GENERAL INFORMATION Required for All Projects

PROJECT LOCATION:	Euclid Avenue	CITY:	El Cajon	APN:	512-180-35-00
OWNER NAME:	Nick Roach	PHONE:	(414) 698-4072		
OWNER MAILING ADDRESS:	2255 Euclid Avenue			EMAIL:	ricknoach@gmail.com
BUSINESS MAILING ADDRESS:					
QUALIFIED PROFESSIONAL COMPANY NAME:	D3 Soils, Inc.			PHONE:	(619) 850-3980
QUALIFIED PROFESSIONAL ADDRESS:	10802 Meadow Glen Way E, Escondido, CA 92026				
QUALIFIED PROFESSIONAL NAME:	Paul DeRisi/John Rivera			EMAIL:	p.derisi@d3soils.com
QUALIFIED PROFESSIONAL TITLE:	President	LICENSE/REGISTRATION TYPE:	CEG/RCE		

SECTION B - PROJECT LOCATION INFORMATION Required for All Projects

DESCRIPTION OF THE GENERAL PROJECT LOCATION: (ATTACH vicinity map)	
South of Euclid Avenue, approximately 330 feet east of Walsall Road	
DESCRIPTION OF PARCEL: (ATTACH layout diagram or separate diagram, if needed to show entire parcel)	
Vacant and undeveloped lot. Gently to moderately sloping down to the northwest	
Assessor's Parcel Number: 512-180-35-00	Parcel Acreage: 1.00
Parcel or Tentative Map and Lot Number: Parcel 3/PM 02652	Plat Number:

SECTION C - PROJECT TYPE INFORMATION Required for All Projects

PROJECT TYPE:	☒ Primary Residence	☐ Second Unit Dwelling/Accessory Dwelling Unit	☐ Other:
	☒ New OWTS	☐ Replacement OWTS	☐ Repair/Modification OWTS
	Does Project Include Tying a New Dwelling Unit into Existing OWTS?		☐ Yes ☐ No

OTHER PERMIT INFORMATION: (PDS Record ID: Building Permit/Discretionary Permit)

PROJECT DESCRIPTION: (Description should match the description provided in the building permit or discretionary permit application)

New 4-BD primary residence.

GRADING INFORMATION: Does the project include grading of the site? Check Yes even if a grading permit is not required. ☒ Yes ☐ No

If yes, provide description location/areas, purpose and timing of proposed grading activities. Include grading permit # and ATTACH grading plans, if applicable.

Minor grading proposed to develop level building pad. Cuts and fills of less than 5 feet proposed. Cut slope up to 4 feet high proposed. Driveway to connect to Euclid Ave. in northeast corner of site.

SECTION D - RESIDENTIAL SCOPE Required for All Projects

DESCRIPTION OF RESIDENTIAL SCOPE: Provide a description of the existing and proposed residential units, the number of bedrooms for each unit, and the OWTS that serves each unit. All residential units and their OWTS to be labeled and shown on layout diagram.

Proposed 4-BD primary residence served by STS with drip dispersal

ATTACH: Diagram showing locations and labels of all buildings (if not included in the layout diagram)

# Existing Residential Units:	0	Total # Existing Bedrooms:	0	# Existing OWTS:	0
# Proposed Residential Units:	1	Total # Proposed Bedrooms:	4	# Proposed OWTS:	1
# Total Persons served:	4	NOTE: If OWTS serves 20 or more persons, then it may be a Class V Underground Injection Well per EPA. If so, register system with EPA and provide copy of registration.			



ONSITE WASTEWATER TREATMENT SYSTEM LAYOUT AND DESIGN REPORT RESIDENTIAL PROJECTS

Instructions: Complete all applicable sections and provide all required attachments related to the specific project. See instructions sheet for more information. Use additional paper if needed. This template may not be required for an Onsite Wastewater Treatment System (OWTS) replacement or repairs authorized under the OWTS Replacement/Repair Permit Application and Authorization Form.

Check if Section Completed	REQUIRED FOR ALL RESIDENTIAL PROJECTS - COMPLETE ALL SECTIONS
☒	SECTION A - GENERAL INFORMATION
☒	SECTION B - PROJECT LOCATION INFORMATION
☒	SECTION C - PROJECT TYPE INFORMATION
☒	SECTION D - RESIDENTIAL SCOPE
☒	SECTION E - LAYOUT DIAGRAM
☒	SECTION F - PUBLIC SEWER AVAILABILITY
☒	SECTION G - POTABLE WATER SOURCE
☒	SECTION H - SITE EVALUATION INFORMATION
☒	SECTION I - SEPTIC TANK INFORMATION
☒	QUALIFIED PROFESSIONAL COMMENTS AND SIGNATURE
	REQUIRED FOR ALL RESIDENTIAL PROJECTS - COMPLETE THE SECTION BASED ON APPLICABLE DISPERSAL FIELD TYPE
☐	SECTION J - LEACH LINE DISPERSAL INFORMATION
☐	SECTION K - DEEP BED DISPERSAL INFORMATION
☐	SECTION L - VERTICAL SEEPAGE PIT DISPERSAL INFORMATION
☒	SECTION M - DRIP DISPERSAL INFORMATION
☐	SECTION N - SHALLOW BED DISPERSAL INFORMATION
☐	SECTION O - PRESBY-TYPE DISPERSAL INFORMATION
☐	SECTION P - OTHER DISPERSAL TYPE INFORMATION
	REQUIRED FOR PUMP AND/OR SUPPLEMENTAL TREATMENT SYSTEMS
☒	SECTION Q - PUMP SYSTEM DESIGN INFORMATION
☒	SECTION R - SUPPLEMENTAL TREATMENT SYSTEM INFORMATION
☒	SECTION S - PROPERTY OWNER CERTIFICATION OF FEASIBILITY
	REQUIRED FOR ALL VARIANCE REQUESTS
☐	SECTION T - VARIANCE REQUEST INFORMATION

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# Other buildings with plumbing fixtures: ☐ Garage ☐ Barn ☐ Shop ☐ Other:			
Are floor drains installed or proposed? ☐ YES ☒ NO		Describe Activities in Floor Drain Area:	
Is there a gray water system in use? ☐ YES ☒ NO		If yes, provide Permit ID and date:	
Total wastewater volume per day for parcel: (calculate using 150 gallons per bedroom, plus any other sources of wastewater)		600 Gallons	
☒ Domestic (low) strength wastewater only to be discharged (from kitchen, handwash sinks, showers, toilets, washing machine).			
☐ Non-domestic or high strength wastewater is proposed (i.e. home kitchen business).			
Describe activities generating additional wastewater: (e.g., home kitchen, hobby, other home-based business)			
SECTION E – LAYOUT DIAGRAM Required for All Projects			
ATTACH: An OWTS Design Layout Diagram: Diagram must be drawn to scale and include all required elements noted in the Sections 3.8-2 and 5.2-1 See Checklist in guidance section. All related setback distances must be shown. Diagrams submitted without all required information will be returned as an incomplete submittal.			
SECTION F – PUBLIC SEWER AVAILABILITY Required for All Projects			
PUBLIC SEWER AVAILABILITY: Answer the four questions below. If answers are No, no further action needed for this section. If answers to questions below are Yes, connection to sewer is required unless one of the conditions noted below exist (see notes). If any of these conditions are applicable, attach the associated documentation.			
Is property located within a sewer district? ☐ YES ☒ NO		Is property annexed or proposed to annex into a sewer district? ☐ YES ☒ NO	
Does property abut a sewer? ☐ YES ☒ NO		Is the building served by OWTS located within 200 feet of a sewer? ☐ YES ☒ NO	
Sewer District Name:			
Notes: 1) ATTACH: Letter or documentation from sewer district if any of the above applies, but District cannot provide connection to public sewer. Documentation must provide basis for infeasibility of connection. 2) Exemption to connection requirement may be applicable if (a) construction and connection fee costs are greater than twice the cost of the OWTS and (b) an OWTS can be installed pursuant to ordinance and LAMP requirements. ATTACH: Documentation of detailed estimate of construction costs and fees for connection to sewer and detailed estimate of design and construction costs and fees for permitting and installation of OWTS.			
SECTION G – POTABLE WATER SOURCE Required for All Projects			
Provide information on the potable water source.			
ATTACH: All associated documentation, such as DEHQ well permits, well sampling lab results, DEHQ well water potability approval, public water provider sign-off of Layout Diagram. Provide signed public water line statement in on the Layout Diagram.			
Public Water Source - Public Water Provider Name: Helix Water District			
Note: Sign-off of OWTS Layout Diagram by Vista Irrigation District, Rincon del Diablo, Yuima, or County Service Areas water providers is required.			
Private Water Well Source: ☐ Existing Water Well ☐ Proposed New Water Well		Will water well serve five or more total buildings? ☐ YES ☐ NO	
Is water well located up slope from existing or proposed OWTS location? ☐ YES ☐ NO			
For new OWTS, new water well, or if requested: Provide the following information and attach DEHQ well permit, sample results, and potability approval. Well water potability requirements per LAMP Section 3.7.11.5.			
Water Well Installation Date:	Permit #:	Date Well Approved by DEHQ:	
Water Sample Results Date: (within 1 year of submittal)	Date Water Results Approved by DEHQ:	Nitrate (as Nitrogen): mg/L	
Total Coliform Bacteria: (Absent/Present/Not Sampled)	Fecal Coliform Bacteria: (Absent/Present/Not Sampled)	Escherichia coli: (Absent/Present/Not Sampled)	
SECTION H – SITE EVALUATION INFORMATION Required for All Projects			
ATTACH any prior historical certification documentation, applicable Percolation Test and Soil Profile Results Form or Vertical Seepage Pit Capacity Test and Soil Profile Test Results Form.			
Historical Certification Information			
Historic Parcel/Final Map/ Plat Number, Lot number, and Date:		Historic Design Percolation Rate for Parcel/Lot: MPI	
Percolation/Capacity Test and Soil Profile Summary			
ATTACH: Either a Percolation Test Results Form or a Vertical Seepage Pit Results Form, whichever is applicable.			
Percolation/Capacity test methodology as per DEHQ Guidelines? ☒ YES ☐ NO		If No, attach detailed description of methodology used and DEHQ approval.	
Design Percolation Rate for Primary Dispersal: 18 MPI		Predominate Soil Type: Coarse Sandy Loam	
		Uniform Soils? ☒ YES ☐ NO	

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Design Percolation Rate for Reserve Dispersal: 18 MPI	Predominate Soil Type: Coarse Sandy Loam	Uniform Soils? ☒ YES ☐ NO
Vertical Pit Absorptive Capacity per Attached Testing Form: _____ Gallons/Day	Uniform Soils? ☐ YES ☐ NO	
Depth to Groundwater Evaluation Information		
Soil depth/separation to groundwater to be determined by percolation rate per LAMP Table 6.3-1 and Sections 6.3.2 or Section 6.3.3 for Supplemental Treatment Systems (STS) (2' for STS Nitrogen Reduction and 3' for STS Pathogen Reduction).		
Soil Depth/Separation to Groundwater Required: 2.0 ft	Soil Depth/Separation to Groundwater Measured: 8.0 ft	
Groundwater MUN Beneficial Use Excepted Area? (Required For Vertical Seepage Pits) ☐ YES ☒ NO	Additional Groundwater Monitoring Required? ☐ YES* ☒ NO	
Notes: 1) Recognized/legal groundwater basin per Department of Water Resources Bulletin 118. Informational Map : San Diego Basin Plan Map (ca.gov) 2) MUN is the municipal beneficial use type. Excepted areas are those areas where the MUN beneficial use is not applicable. See map referenced above. 3) *ATTACH: <i>Groundwater Monitoring Results Form</i> , if ongoing monitoring was performed and completed. For assistance, contact DEHQ.		
Slope Information		
Provide slope information to show predominant range of slope in the area. Slope Classes: 0-3% Nearly Level; 3-7% Gently Sloping; 7-12% Strongly Sloping; 12-20% Moderately Sloping; 20-30% Steep; 30-40% Very Steep; > 40% Extremely Steep.		
ATTACH: Topographical map.		
Percent Slope Tank Area 0 %	Primary Dispersal 8 %	Reserve Dispersal 8 %
		Does the slope exceed 30%? ☐ YES ☒ NO
For slopes 30% - 40%, was there any evidence of slope instability documented during the initial site evaluation screening? ☐ YES ☐ NO		
If Yes to the above, a Slope Stability Study is needed. Attach Slope Stability Study.		
Notes: The slope stability study shall determine the potential for land movement to impact the dispersal system as well as the potential of the dispersal field to affect slope stability. The study shall identify any mitigating actions, if applicable, to effectively maintain slope stability with dispersal field usage.		
Other Site Conditions Information: List any structures, trees or other plants, or other obstacles located within or near the proposed primary and dispersal areas and any proposed actions relating to their removal.		
None		
SECTION I – SEPTIC TANK INFORMATION Required for All Projects		
Septic tank requirements are found in LAMP Chapter 7.0. Tank capacity to be based on LAMP Table 7.2-1 for a primary dwelling and Table for 7.2-2 for multiple dwellings on one septic system.		
ATTACH: Tank Specifications Traffic Rating Engineering Design, if needed Tank Anchoring Engineering Design, if needed		
☒ Install New Tank ☐ Destroy Existing Tank and Replace with New Tank ☐ Reuse Existing Tank	Total # Tanks to be Installed: 1	
Tank #1 Size Required: 1,200 Gallons	Tank #1 Size Proposed: 1,200 Gallons	Tank Construction: Poly
Manufacturer/Model: Infiltrator		IAPMO Approved? ☒ YES ☐ NO
Tank #2 Size Required: _____ Gallons	Tank #2 Size Proposed: _____ Gallons	Tank Construction: _____
Manufacturer/Model: _____		IAPMO Approved? ☐ YES ☐ NO
Tank/Risers are subject to or within 5 feet of vehicle traffic? ☐ YES ☒ NO		If Yes, provide engineering calculations for traffic rating design.
Is tank in area with potential for contact with groundwater? ☐ YES ☒ NO		If Yes, tank anchoring required. Provide engineering design.
Are risers required* or proposed? ☐ YES ☒ NO		Riser Construction: _____
If Yes, Manufacturer and Model: _____		IAPMO Approved? ☐ YES ☐ NO
Is an effluent filter proposed (NSF/ANSI Standard 46 Certified)? ☐ YES ☒ NO If Yes, Manufacturer and Model: _____		
Notes: 1) Prefabricated tanks and risers shall be approved by the International Association of Plumbing and Mechanical Officials (IAPMO). Metal and wooden septic tanks are prohibited. 2) Tanks must be anchored to counter any potential buoyant forces in areas of high groundwater. 3) *Septic tank access openings with greater than six (6) inches of cover must have risers to within six (6) inches of finished grade. Risers and lids that are at or above grade must be watertight and lockable or require tools to be opened. 4) Effluent filters must be National Sanitation Foundation/American National Standard Institute (NSF/ANSI) Standard 46 certified.		

SECTION J – LEACH LINE DISPERSAL INFORMATION Use for Leach Line Dispersal

Information below must be consistent with design shown on OWTS layout diagram.

Leach line length to be determined from LAMP Table 8.2-1 and shall be based on number of bedrooms and percolation design rate.

Dispersal Area	Total Leach Line Length Required	Total Leach Line Length Proposed	Number Leach Line Trenches	Distribution Type (Equal, Serial, Pressure Dose)	Leach Line Trench Dimensions			
					Width	Rock Depth	Soil Cover/ Cap Depth	Total Depth
Primary Dispersal	ft	ft			ft	ft	ft	ft
Reserve Dispersal	ft	ft			ft	ft	ft	ft

Is Rock-less or Chamber Dispersal Proposed? ☐ YES ☐ NO

If Yes, provide manufacturer/ model:

IAPMO APPROVED? ☐ YES ☐ NOObservation Port Proposed? ☐ YES ☐ NO If Yes, provide number:

Note: An observation port is required for every 100 feet of leach line length.

Show locations on layout diagram.

Magnetic Tape Proposed? ☐ YES ☐ NO If Yes, provide number:

Show locations on layout diagram.

SECTION K – DEEP BED DISPERSAL INFORMATION Use for Deep Bed Dispersal

Information below must be consistent with design shown on OWTS layout diagram. Percolation rates must be 30 minutes per inch or faster. Infiltrative Surface Area to be determined from LAMP Table 8.5-2. Deep bed dimensions to be determined from LAMP Table 8.5-3.

Dispersal Area	Total Infiltrative Surface Area Required	Distribution Type (Equal, Serial, Pressure Dose)	Deep Bed Dimensions					
			Width	Length	Proposed Infiltrative Surface Area	Rock Depth	Soil Cover/ Cap Depth	Total Depth
Primary Dispersal – Bed #1	sq ft		ft	ft	sq ft	ft	ft	ft
Primary Dispersal – Bed #2	sq ft		ft	ft	sq ft	ft	ft	ft
Reserve Dispersal – Bed #1	sq ft		ft	ft	sq ft	ft	ft	ft
Reserve Dispersal – Bed #2	sq ft		ft	ft	sq ft	ft	ft	ft

Observation Port Proposed? ☐ YES ☐ NO If Yes, provide number:

Show locations on layout diagram.

Magnetic Tape Proposed? ☐ YES ☐ NO If Yes, provide number:

Show locations on layout diagram.

SECTION L – VERTICAL SEEPAGE PIT INFORMATION Use for Vertical Seepage Pit Dispersal

Information below must be consistent with design shown on OWTS layout diagram. Allowed only in areas excepted by the Regional Board from the Municipal and Domestic Supply Beneficial Use per San Diego Region Basin Plan. Vertical seepage pit capacity to be determined from LAMP Table 8.6-2 and Appendix II. Minimum total capacity is five times the required septic tank capacity per day or 5000 gallons per day, whichever is greater. Minimum capacity required for each individual seepage pit is 1,667 gallons per day.

Dispersal Area	Total Absorptive Capacity Volume Required	Number of Pits	Total Absorptive Capacity Volume Proposed	Distribution Type (Equal, Serial, Pressure Dose)	Vertical Seepage Pit Dimensions			
					Diameter	Rock Depth	Soil Cover/ Cap Depth	Total Depth
Primary Dispersal #1	Gal		Gal		ft	ft	ft	ft
Primary Dispersal #2	Gal		Gal		ft	ft	ft	ft
Reserve Dispersal #1	Gal		Gal		ft	ft	ft	ft
Reserve Dispersal #2	Gal		Gal		ft	ft	ft	ft

Existing Pit to be Retained? ☐ YES ☐ NOObservation Port Proposed? ☐ YES ☐ NO If Yes, provide Number.

Show locations on layout diagram.

Magnetic Tape Proposed? ☐ YES ☐ NO If Yes, provide Number.

Show locations on layout diagram.

SECTION M – DRIP DISPERSAL INFORMATION Use for Drip Dispersal

Information below must be consistent with design shown on OWTS layout diagram.

Infiltrative Surface Area to be determined from LAMP Table 8.3-1 based on slowest percolation rate and peak daily wastewater flow.

Peak daily flow to be calculated based on 150 gallons per bedroom.

Drip dispersal area dimensions to be determined from LAMP Table 8.7-1.

ATTACHMENTS: Design Specification Worksheet(s) Design Layout Sizing Calculations**Minimum Infiltrative Surface Area Calculation**

Peak Daily Flow (gallons/day)	÷	Application Rate from LAMP Table 8.3-1 [Based on percolation test highest (slowest) rate] (gallons/day/sq ft)	=	Required Infiltrative Surface Area (sq ft)
600	÷	0.686	=	875

Dispersal Area	Total Infiltrative Surface Area Required	Drip Dispersal Dimensions					
		Total SQ FT Infiltrative Surface Area Proposed	Linear Feet Drip Line	Drip Line Spacing	Emitter Spacing	Soil Cover Depth	
Primary Dispersal Zone 1	875 sq ft	876 sq ft	437.0 ft	2.0 ft	2.0 ft	1.0 ft	
Primary Dispersal Zone 2	sq ft	sq ft	ft	ft	ft	ft	
Reserve Dispersal Zone 1	875 sq ft	876 sq ft	437.0 ft	2.0 ft	2.0 ft	1.0 ft	
Reserve Dispersal Zone 2	sq ft	sq ft	ft	ft	ft	ft	

Provide attachments to include the following information: Check when completed/attached.

☒	List of drip dispersal system components (headworks, valves, filters, pressure gauges, flow meter, drip lines, emitters, air/vacuum relief valves, valve boxes, supply and return manifold and lines, control panel with audio/visual alarms and timed dosing, etc.).
☒	Layout diagram of the configuration of the drip dispersal system for the primary and reserve dispersal areas. Diagram to show continuous loop for emitter lines, vacuum release valves at high point of emitter lines.
☒	Drip dispersal system design sizing calculations, specification worksheet (if used) (i.e. GeoFlow worksheet).
☒	Complete pump information in Section R.
☒	Drip dispersal dosing calculations.
☒	Head loss calculations to ensure proper hydraulic pressure at the emitter. Emitter head minimum operating pressure of 10 pounds per square inch (psi), maximum operating pressure of 45 psi, and a maximum system operating pressure of 60 psi. Maximum discharge rate per emitter of 1.5 gallons per hour.
☒	Automatic backwashing and flushing mechanisms and components specifications.
☒	Control and/or alarm box with telemetric reporting specifications.
☒	Name/type of vegetation to be planted in drip dispersal area: Native, drought tolerant vegetation with shallow non-invasive roots
☒	Operations and Maintenance Plan.

SECTION N – SHALLOW BED DISPERSAL INFORMATION Use for Shallow Bed Dispersal

Information below must be consistent with design shown on OWTS layout diagram.

Used in areas with level ground, uniform coarse sand, sand, loamy coarse sand, or loamy sand soils with percolation design rates of three minutes per inch or faster. Infiltrative Surface Area to be determined from LAMP Table 8.8-2. (1-Bedroom – 3-bedrooms: 400 sq ft; 4-bedrooms: 500 sq ft; 5-bedrooms: 625 sq ft; 6 bedrooms: 750 sq ft)

Dispersal Area	Total Infiltrative Surface Area Required	Total Infiltrative Surface Area Proposed	Distribution Type (Equal, Pressure Dose)	Shallow Bed Dimensions				
				Width	Length	Rock Depth	Soil Cover/ Cap Depth	Total Depth
Primary Dispersal #1	sq ft	sq ft		ft	ft	ft	ft	ft
Primary Dispersal #2	sq ft	sq ft		ft	ft	ft	ft	ft
Reserve Dispersal #1	sq ft	sq ft		ft	ft	ft	ft	ft
Reserve Dispersal #2	sq ft	sq ft		ft	ft	ft	ft	ft

Observation Port Proposed? ☐ YES ☐ NO If Yes, provide number.

Show locations on layout diagram.

Magnetic Tape Proposed? ☐ YES ☐ NO If Yes, provide number. Show locations on layout diagram.

SECTION O – PRESBY-TYPE DISPERSAL Use for Presby-Type Dispersal

All proposed designs must meet minimum infiltrative surface areas requirements in LAMP Table 8.3-1. No reduction in infiltrative surface area is permitted. All other design calculations must conform to manufacturer's specifications. Information below must be consistent with design shown on OWTS layout diagram.

ATTACH: Design Calculations/Specifications List of All Components Layout Diagram must include Plan View (overhead) and Section View (side).

Minimum Infiltrative Surface Area Calculation

Peak Daily Flow (gallons/day) (150 gallons/day/bedroom)	÷	Application Rate from LAMP Table 8.3-1 (Based on percolation test design rate) (gallons/day/sq ft)	=	Required Infiltrative Surface Area (sq ft)
	÷	0.686	=	

System Configuration: Below Ground-Level: ☐ Below Ground-Slope: Other: ☐ Number of Beds: Dispersal Area % Slope: % Allowable Installation % Slope: %

Total Length Pipe Proposed: ft Number of Rows of Pipe Proposed: ft Pipe Spacing Proposed: ft

Dispersal Area	Sand Bed Area Proposed	Sand Bed Area Plus Extension	Distribution Type (Equal, Serial, Combined Serial)	Dimensions				
				Total Bed Width	Total Bed Length	Sand Depth	Soil Cover/ Cap Depth	Total Depth
Primary Dispersal #1	sq ft	sq ft		ft	ft	ft	ft	ft
Primary Dispersal #2	sq ft	sq ft		ft	ft	ft	ft	ft
Reserve Dispersal #1	sq ft	sq ft		ft	ft	ft	ft	ft
Reserve Dispersal #2	sq ft	sq ft		ft	ft	ft	ft	ft

Observation Port Proposed? ☐ YES ☐ NO If Yes, provide number: Show locations on layout diagram.

Magnetic Tape Proposed? ☐ YES ☐ NO If Yes, provide number: Show locations on layout diagram.

SECTION P – OTHER DISPERSAL TYPE

See LAMP Section 8.9 for proposed other dispersal system types. All proposed designs must meet minimum infiltrative surface areas requirements. Additional infiltrative surface area may be required based on the proposed dispersal design. Provide source of dispersal system design specifications and parameters (e.g. EPA Design Manual).

ATTACHMENTS: Design Calculations and Specifications.

Describe proposed dispersal type.

SECTION Q – PUMP SYSTEM DESIGN INFORMATION Required for Pump Systems

Provide the information as noted in the checklist below:

ATTACHMENTS: Pump Worksheet/Other Approved Design Worksheet Pump/Control/Alarm Box/Other Component List and Schematics

Pump Curves	Pump Tank Specifications	Traffic Rating Engineering Design (if needed)	Tank Anchoring Engineering Design (if needed)
Tank #1 Purpose: ☒ Pump Tank ☐ Surge Tank ☐ Other:			Tank Size: 1,000 Gallons
Construction: Concrete		Manufacturer/Model: Jensen JS-1000	
Tank #2 Purpose: ☐ Pump Tank ☐ Surge Tank ☐ Other:			Tank Size: Gallons
Construction:		Manufacturer/Model:	
Tank/Risers are subject to or within 5 feet of vehicle traffic? ☐ YES ☒ NO If Yes, provide engineering calculations for traffic rating design.			
Is tank in area with potential for contact with groundwater? ☐ YES ☒ NO If Yes, tank anchoring required. Provide engineering design.			
Are risers required or proposed? ☐ YES ☒ NO If Yes, Manufacturer and Model:			

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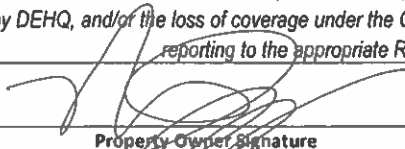
Is an effluent filter proposed? ☒ YES ☐ NO		If Yes, Manufacturer and Model: Norweco TNT	
Notes: 1) Prefabricated tanks and risers shall be approved by the International Association of Plumbing and Mechanical Officials (IAPMO). Metal and wooden septic tanks are prohibited. 2) Tanks must be anchored to counter any potential buoyant forces in areas of high groundwater. 3) Septic tank access openings with greater than six (6) inches of cover must have risers to within six (6) inches of finished grade. Risers and lids that are at or above grade must be watertight and lockable or require tools to be opened. 4) Effluent filters must be National Sanitation Foundation/American National Standard Institute (NSF/ANSI) Standard 46 certified.			
Checklist for pump system required submittal items: Check when completed and attached.			
☒	List of pump system components.		
☒	Size, manufacturer, model of pump tank and/or surge tank, if proposed.		
☒	Pump System Worksheet or other approved design worksheet (i.e. GeoFlow).		
☒	Pump size, manufacturer, model.		
☒	Pump design specifications and pump curve(s). Pump tank side view.		
☒	Friction and head loss calculations.		
☒	24-hour emergency storage capacity calculations.		
☒	Sampling port on dosing pump discharge line.		
☒	Control and/or alarm box with telemetric reporting component/design specifications/schematics.		
☒	Visual and audible telemetric alarm specifications.		
SECTION R – SUPPLEMENTAL TREATMENT SYSTEM INFORMATION <i>Required for Supplemental Treatment Systems</i>			
ATTACHMENTS: Provide the following information as attachments on the supplemental treatment system:			
Supplemental Treatment System Specifications and Detail Schematics		Pump Worksheet or Other Approved Design Worksheet	
Pump/Control/Alarm Box/Other Components List and Schematics		Certification Information	
☒	Residential supplemental treatment for nitrogen reduction. (NSF/ANSI 245 Residential Wastewater Treatment Systems - Nitrogen Reduction)		
☐	Residential supplemental treatment for pathogen reduction. (NSF/ANSI 46 Wastewater Treatment Systems - Pathogen Reduction)		
☐	Other (NSF/ANSI 40 or 46):		
Treatment System Manufacturer/Model: Norweco TNT		Rated Capacity of System: 750	Gallons/Day
An Operation and Maintenance Plan has been developed for this specific system and includes all the items in the check list provided in the <i>OWTS Layout and Design Report Guidance</i> document.			☒ YES ☐ NO

SECTION S – PROPERTY OWNER CERTIFICATION OF FEASIBILITY TO INSTALL, OPERATE, AND MAINTAIN AN OWTS WITH SUPPLEMENTAL TREATMENT Required for Supplemental Treatment System Projects

Initial Purchase and Installation Cost Estimate:	\$ 50,000.00	Annual Operation/Maintenance Cost Estimate:	\$ 1,000.00
Owner Responsibilities – Initial Each Responsibility after Reading to Indicate Understanding			Owner Initial
Recording with County Recorder's Office a document with acknowledgement of and promise to comply with the requirements of the annual operating permit, ongoing operation and maintenance, and property owner responsibilities.			NR
Obtaining a DEHQ Annual Operating Permit.			NR
Maintaining service contract with a Qualified Service Provider to be in effect at all times.			NR
Ensuring ongoing operation and maintenance of the system in accordance with the Operations and Maintenance Plan.			NR
Maintaining a copy of the Operation and Maintenance Plan and making available to Qualified Service Provider.			NR
Providing copies of all inspection reports to DEHQ within 30 days of the inspection date.			NR
Ensuring system malfunctions and other emergencies are immediately responded to by Qualified Service Provider.			NR
Reporting all failures, malfunctions, service requests, alarms, and issues by providing copy of service report and other associated documentation to DEHQ within 30 days.			NR

OWNER STATEMENT:

I certify that I understand the initial and ongoing costs and responsibilities associated with the installation, operation, and maintenance of an OWTS with supplemental treatment and certify that the installation, operation, and maintenance of an OWTS with supplemental treatment is financially and operationally feasible for me. I also understand that if I fail to meet the responsibilities required of me noted above, I may be subject to the revocation of the annual operating permit, enforcement action by DEHQ, and/or the loss of coverage under the Conditional Waiver of Waste Discharge Requirements, which may result in mandatory reporting to the appropriate Regional Water Quality Control Board.



Property Owner Signature

12/31/2025

Date

SECTION T – VARIANCE REQUEST Required for Variance Requests

See LAMP Section 10.3 for information on variance requests.

The proposed alternative design included in this application must:

- 1) Maintain substantial conformance, to the greatest extent practicable, with the minimum requirements of the LAMP.
- 2) Is adequate to accommodate the sewage flows from the buildings being served.
- 3) Is able to achieve the same practical protection to public health and groundwater as afforded by the LAMP requirements by modification of the system design.
- 4) Is able to provide an adequate level of protection to adjacent properties.

Describe the LAMP requirement or San Diego County Regulatory Code that cannot be met:

Describe the site condition or restraint that prevent the requirement to be met:

Describe the alternative design that meets the requirements as noted above:

I certify that the proposed alternative repair or replacement design provided in this application maintains substantial conformance, to the greatest extent practicable, with the minimum requirements of the LAMP and is adequate to accommodate all expected sewage flows from the buildings being served.

Property Owner Signature

Date

Design Qualified Professional Signature

Date

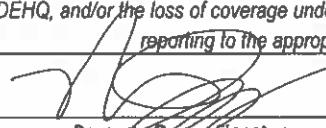
SECTION S – PROPERTY OWNER CERTIFICATION OF FEASIBILITY TO INSTALL, OPERATE, AND MAINTAIN AN OWTS WITH SUPPLEMENTAL TREATMENT Required for Supplemental Treatment System Projects

Initial Purchase and Installation Cost Estimate:	\$ 50,000.00	Annual Operation/Maintenance Cost Estimate:	\$ 1,000.00
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Owner Responsibilities – Initial Each Responsibility after Reading to Indicate Understanding	Owner Initial
Recording with County Recorder's Office a document with acknowledgement of and promise to comply with the requirements of the annual operating permit, ongoing operation and maintenance, and property owner responsibilities.	
Obtaining a DEHQ Annual Operating Permit.	
Maintaining service contract with a Qualified Service Provider to be in effect at all times.	
Ensuring ongoing operation and maintenance of the system in accordance with the Operations and Maintenance Plan.	
Maintaining a copy of the Operation and Maintenance Plan and making available to Qualified Service Provider.	
Providing copies of all inspection reports to DEHQ within 30 days of the inspection date.	
Ensuring system malfunctions and other emergencies are immediately responded to by Qualified Service Provider.	
Reporting all failures, malfunctions, service requests, alarms, and issues by providing copy of service report and other associated documentation to DEHQ within 30 days.	

OWNER STATEMENT:

I certify that I understand the initial and ongoing costs and responsibilities associated with the installation, operation, and maintenance of an OWTS with supplemental treatment and certify that the installation, operation, and maintenance of an OWTS with supplemental treatment is financially and operationally feasible for me. I also understand that if I fail to meet the responsibilities required of me noted above, I may be subject to the revocation of the annual operating permit, enforcement action by DEHQ, and/or the loss of coverage under the Conditional Waiver of Waste Discharge Requirements, which may result in mandatory reporting to the appropriate Regional Water Quality Control Board.



Property Owner Signature

Date

SECTION T – VARIANCE REQUEST Required for Variance Requests

See LAMP Section 10.3 for information on variance requests.
The proposed alternative design included in this application must:

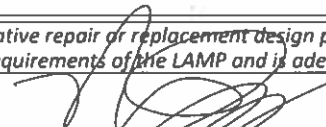
- 1) Maintain substantial conformance, to the greatest extent practicable, with the minimum requirements of the LAMP.
- 2) Is adequate to accommodate the sewage flows from the buildings being served.
- 3) Is able to achieve the same practical protection to public health and groundwater as afforded by the LAMP requirements by modification of the system design.
- 4) Is able to provide an adequate level of protection to adjacent properties.

Describe the LAMP requirement or San Diego County Regulatory Code that cannot be met:

Describe the site condition or restraint that prevent the requirement to be met:

Describe the alternative design that meets the requirements as noted above:

I certify that the proposed alternative repair or replacement design provided in this application maintains substantial conformance, to the greatest extent practicable, with the minimum requirements of the LAMP and is adequate to accommodate all expected sewage flows from the buildings being served.



Property Owner Signature

Date

Design Qualified Professional Signature

Date

QUALIFIED PROFESSIONAL COMMENTS/STAMP/SIGNATURE**Qualified Professional Comments:**

Proposed 4-BD primary residence on vacant and undeveloped parcel. Groundwater monitoring holes showed dry conditions to depths greater than 8 feet; however, parcel is located in an area of potential shallow groundwater. In lieu of long-term groundwater monitoring, homeowner has opted to utilize OWTS with supplemental treatment and shallow drip dispersal field. Legacy testing for parcel was performed at depths of 3 to 4 feet. Recent testing for adjacent parcel (APN 518-180-34-00) was performed at a depth of 1 foot for proposed STS with drip dispersal. The soils were identified as coarse sandy loam and yielded a design rate of 18 mpi. The soils in the proposed drip dispersal area for the subject were evaluated in the field and found to consist of coarse loamy sand soils consistent the adjacent parcel. A design rate of 18 mpi was utilized for design of STS dripfield in accordance with previous discussions with DEHQ staff. The dripfield is located in the upper/southeasterly portion of the property above the area of shallow groundwater concern.

Qualified Professional Certification/Stamp

I hereby certify that the information provided on this form and the associated attachments is accurate and true and representative of the site conditions and that the sizing, design, and siting of the proposed OWTS meets all applicable LAMP and San Diego County Regulatory Code requirements. I certify that the applicable LAMP required items for an OWTS layout diagram are provided and shown on the submitted layout diagram, including all known easements and all public water lines on or within 25 feet of the parcel boundaries. I understand that any required items omitted on the layout diagram may cause a delay of the project review until all items required for a full and complete review are submitted. I certify that all work, reporting, or documentation was performed or compiled within the scope of my professional license or registration.

	12/18/2025
Qualified Professional Signature	Date
John Rivera	RCE 73878
Print Name	Title/License or Registration No.

OWTS LAYOUT AND DESIGN REPORT GUIDANCE

Complete the sections as noted below. Additional information can be provided in the Qualified Professional Comments area or as an attachment.

SECTIONS REQUIRED FOR ALL OWTS PROJECTS

Complete the following sections for all projects. Use the provided checklists to ensure all required information is submitted.

SECTION A – GENERAL INFORMATION

Provide project location, owner information, and qualified professional information, as indicated.

SECTION B – PROJECT LOCATION INFORMATION

Provide project location and acreage information. Provide any information on the Planning and Development Services subdivision map and lot number, or plat number, if known.

SECTION C – PROJECT TYPE INFORMATION

Provide information on the type of residential project, as indicated. Provide information on **any** grading that is proposed or needed, even if a grading plan or permit is not required by Planning and Development Services or the Department of Public Works.

ATTACH grading diagram or plan.

SECTION D – RESIDENTIAL SCOPE

Provide information on the existing and proposed residential uses on the parcel, as indicated. Provide information on the existing and proposed volume and strength of the wastewater generated on the parcel. Wastewater volume is calculated at 150 gallons per bedroom per LAMP Section 6.5. Wastewater volumes exceeding 3,500 gallons per day are not covered under the scope of the local permitting program and are subject to Regional Water Quality Control Board review and approval. Wastewater from normal household activities from residential toilets, sinks, washing machines, and dishwashers are considered low strength wastewater per LAMP Section 6.4.1. The volume and characteristics of any wastewater generated from activities other than normal household activities must be provided. For example, a residence with a home kitchen providing fried chicken for sale will likely result in additional wastewater volume and characteristics including additional fats, oils, grease.

SECTION E – LAYOUT DIAGRAM

The Layout Diagram must be drawn to scale and include all required elements noted in the LAMP Sections 3.8-2 and 5.2-1 (see checklist below). All related setback distances must be shown. Diagrams submitted without all required information will be returned as an incomplete submittal.

ATTACH an OWTS Design Layout Diagram

Checklist for All OWTS Layout Map Required Elements:

☒	Property lines and lot dimensions-provide an over sheet (larger scale allowed and detail sheet(s) for large parcels).
☒	Location of all existing and proposed buildings or structures.
☒	Location of all known, recorded easements on or within 20 feet of lot boundaries (open-space, utility, road, waterline, etc.).
☒	Topographical lines and elevation points-include pad grade, finished floor, slope arrows, percent slope, and direction of fall, slope range, etc.
☒	Location of existing and proposed septic tank and leach lines/dispersal system.
☒	Location of existing and proposed primary and designated reserve dispersal areas.
☒	All setback distances-see setback table in LAMP Section 6.6.1.
☒	Location of rock outcroppings or other significant features.
☒	Location of recorded easements on or within 20 feet of parcel.
☒	Location of all public water lines located on or within 25 feet of property line. Signed statement that the layout diagram includes all public water lines on or within 25 feet of the parcel boundaries.
☒	Location of all water wells on or within 150 feet of parcel.
☒	Location of all public water wells on or within 600 feet of parcel.
☒	Location of drinking water reservoirs on or within 2,500 feet of parcel.

☒	Location of streams (perennial, intermittent, and ephemeral), creeks, rivers, and springs on or within 100 feet of parcel.
☒	Location of ponds, lakes, vernal pools, other surface water bodies on or within 200 feet of parcel.
☒	Location of stormwater features, surface runoff channels, swales, man-made ponds, and ditches 5 feet in depth or less on or within 25 feet of parcel.
☒	Location of stormwater features, surface runoff channels, swales, man-made ponds, and ditches greater than 5 feet in depth on or within 50 feet of parcel.
☒	For OWTS with pump system(s)-location of all pump system components.
☒	For OWTS with Supplemental Treatment-location of all system components.

SECTION F – PUBLIC SEWER AVAILABILITY

Answer the four questions provided in this section. If the answers to the four questions are all NO, then no further action is needed.

If any of the answers to the questions are YES, then indicate the appropriate sewer district. Connection to sewer is required unless one of the conditions noted below exist.

- 1) The Sewer District has provided documentation that it cannot provide connection to the public sewer. The documentation must provide a basis for the infeasibility to connect to the sewer. **ATTACH: Documentation from sewer district.**
- 2) Exemption to connection requirement may be applicable if (a) construction and connection fee costs are greater than twice the cost of the OWTS and (b) an OWTS can be installed pursuant to ordinance and LAMP requirements. **ATTACH: Documentation of detailed estimate of construction costs and fees for connection to sewer, and documentation of detailed estimate of design and construction costs and fees for permitting and installation of an OWTS.**

SECTION G – POTABLE WATER SOURCE

Provide information on the source of potable water for the project.

If parcel is to be served by a Public Water System, provide name of the water system provider. Please note that a sign-off of the Layout Diagram by the water provider is required for Vista Irrigation District, Rincon del Diablo, Yuima, or County Service Areas.

If parcel is to be served by an onsite water well, provide the information as indicated. Indicate if the well will serve 5 or more total buildings on the parcel. These buildings should be the same as indicated in Section D.

For new water wells or for existing wells not previously sampled (usually sampled at time of new OWTS proposal), provide well sample results to indicate if bacteria was absent, present, or if not sampled. Well sampling requirements are in LAMP Section 3.7.11.5. Water must be sampled within 12 months of submittal to DEHQ and must be analyzed by a laboratory certified by the State Water Resources Control Board for that analysis pursuant to California Health and Safety Code Division 101, Part 1, Chapter 4, Article 3, commencing with Section 100825.

Nitrate (as Nitrogen) - Water must be analyzed for Nitrate (as Nitrogen) and shall be less than the maximum contaminant level as specified in the California Code of Regulations Section 64431 (10 mg/L).

Bacteria - Water must also be negative for the presence of total coliform bacteria and fecal coliforms or *Escherichia coli* (E. coli).

Other Contaminants - For areas near known sources of contamination, additional water testing may be required.

ATTACH: Any related documentation, such as Well Permits, well sampling results, DEHQ well potability approval, public water provider sign off on Layout Diagram, if appropriate.

SECTION H - SITE EVALUATION INFORMATION

Provide all applicable information as indicated.

Historical Certification Information – Provide the subdivision of land map number, lot number, and date, if known. If the original certification is included on the subdivision of land map, provide the historic percolation design rate for the parcel (lot).

Percolation/Capacity Test and Soil Profile Information – Provide a summary of the percolation and soil testing information, as indicated and as applicable.

Depth to Groundwater Evaluation Information – Provide the information on groundwater depth as indicated. Minimum depth to groundwater requirements is found in LAMP Table 6.3-1.

If the parcel/dispersal system is located in an area subject to high groundwater, additional ongoing groundwater monitoring will be required per LAMP Section 4.1. Check with DEHQ to determine if ongoing groundwater monitoring is required. Groundwater monitoring results for ongoing monitoring are to be documented on the *Groundwater Monitoring Results Form*.

Slope Information – Provide slope information to show predominant range of slope. Slope Classes: 0-3% Nearly Level; 3-7% Gently Sloping; 7-12% Strongly Sloping; 12-20% Moderately Sloping; 20-30% Steep; 30-40% Very Steep; >40% Extreme. A Slope Stability Study is required for 30%-40% slopes where evidence of slope instability was found during the screening conducted as part of the site evaluation process per LAMP Section 4.4.

Other Site Conditions Information – Provide any other information relating to site conditions not captured above.

ATTACH: The *Percolation Test and Soil Profile Results Form* or *Vertical Seepage Pit Capacity Test and Soil Profile Results Form*, whichever is applicable. **ATTACH:** The *Groundwater Monitoring Results Form* if the required ongoing groundwater monitoring has been conducted and completed.

SECTION I – SEPTIC TANK INFORMATION

Provide information on the septic tank, as indicated. Septic tanks must meet the requirements of LAMP Chapter 7.0. Tank sizing is found in LAMP Table 7.2-1 for primary dwelling and Table 7.2-2 for multiple dwellings on same system. All tanks must be IAPMO approved. Metal and redwood tanks are prohibited. Concrete septic tanks that do not have IAPMO approval must have construction plans by a licensed civil engineer approved by DEHQ. Traffic rating calculations by a licensed civil engineer must be included for any septic tank subject to or within five feet of vehicular traffic. Septic tank anchoring specifications to address any potential buoyancy must be included for any septic tank subject to contact with groundwater, including perched water. Risers are required when the installation will result in more than six inches of soil cover and must have watertight and securable lids. NSF/ANSI Standard 46 certified effluent filters are optional unless required by a manufacturer or Qualified Professional.

QUALIFIED PROFESSIONAL COMMENTS/STAMP/SIGNATURE

Provide any additional information and comments relating to the project in the comments section and sign. Licensed engineers should provide a valid stamp in this section and on the Layout Diagram.

REQUIRED FOR ALL PROJECTS - DISPERSAL SYSTEM

Complete the appropriate section based on proposed dispersal field type

SECTION J – LEACH LINE DISPERSAL INFORMATION

Provide the information as indicated for leach line dispersal systems. Leach line requirements are found in LAMP Section 8.4. Leach line length is determined from Table 8.2-1 and is based on the number of bedrooms (see LAMP Section 6.5.1) and the percolation design rate (see LAMP Section 4.3.13.2). Table 8.2-1 provides an equivalent square foot infiltrative surface to that in the OWTS Policy *Table 3: Application Rates as Determined from Stabilized Percolation Rate* using a conversion to linear feet of two square feet per linear foot. Leach line dimensions and specifications are found in LAMP Section 8.4.2.

SECTION K – DEEP BED DISPERSAL INFORMATION

Provide the information as indicated for deep bed dispersal systems. Deep bed requirements are found in LAMP Section 8.5. Deep bed dispersal systems must have percolation rates of 30 minutes per inch or faster. Deep bed dispersal sizing must be consistent with LAMP Table 8.5-2 based on number of bedrooms (see LAMP Section 6.5.1) and the percolation design rate (see LAMP Section 4.3.13.2). Table 8.5-2 provides an equivalent square foot infiltrative surface to that allowed in the OWTS Policy *Table 3: Application Rates as Determined from Stabilized Percolation Rate*. The dimensions and associated square foot infiltrative surface areas is determined from Table 8.5-3 and is calculated using the bottom and two sidewall (rock) areas of the deep bed. Deep bed dimensions and specifications are found in LAMP Section 8.5.2.

SECTION L – VERTICAL SEEPAGE PIT INFORMATION

Provide the information as indicated for vertical seepage pit systems. Vertical seepage pit requirements are found in LAMP Section 8.6. Vertical seepage pit sizing must be consistent with LAMP Table 8.6-2 based on five times the volume of the required septic tank volume with a total minimum absorptive capacity of 5,000 gallons per day or 1,667 gallons per day for any individual pit. Actual absorptive capacity is determined from capacity testing found in LAMP Appendix II. Vertical seepage pit dimensions and specifications are found in LAMP Section 8.6.2.

SECTION M – DRIP DISPERSAL INFORMATION

Provide the information as indicated for drip dispersal systems. Drip dispersal system requirements are found in LAMP Section 8.7. Drip dispersal sizing must be consistent with LAMP Table 8.3-1 using the peak flow and highest (slowest) percolation rate. The minimum square footage is 400 square feet regardless of flow. Drip dispersal dimensions and specifications are found in LAMP Section 8. The Layout Diagram must show the configuration of the drip dispersal system for the primary and reserve dispersal areas and must show continuous loop for emitter lines, vacuum release valves at high point of emitter lines.

ATTACH: The design specifications, dosing calculations, and drip line/emitter sizing calculations worksheets/documentation, a list of system components, automatic backwashing and flushing mechanisms specifications and components, control and alarm

box with telemetric report specifications, name/type of vegetation to be planted in the drip dispersal area, and an Operations and Maintenance Plan for the system.

SECTION N – SHALLOW BED DISPERSAL INFORMATION

Provide the information as indicated for shallow bed dispersal systems. Shallow bed dispersal system requirements are found in LAMP Section 8.8 and are used in areas with sandy soils having a percolation rate of 1-3 minutes per inch, particularly intended for areas overlying the Borrego Springs groundwater basin as a nitrate area of concern per the Water Quality Control Plan for the Colorado River Basin. Shallow bed sizing must be consistent with LAMP Section 8.8.3. Shallow bed dimensions and specification are found in LAMP Section 8.8.2.

SECTION O – PRESBY-TYPE DISPERSAL

Provide the information as indicated for Presby-type dispersal systems. All proposed designs must meet minimum infiltrative surface areas requirements in LAMP Table 8.3-1. No reduction in infiltrative surface area is permitted for these systems. All other design calculations must conform to manufacturer's specifications. The OWTS layout diagram must include a Plan View (overhead) and Section View (side cross section).

ATTACH: The design calculations and specifications, list of components, and specifications of sand fill.

SECTION P – OTHER DISPERSAL TYPE

Provide detailed plans for the proposed subsurface dispersal system not included in sections above. Include the source of the design (e.g. EPA Design Manual).

ATTACH: The design and sizing calculations and specifications, list of components, and all other information needed for a complete review.

REQUIRED FOR PUMP AND/OR SUPPLEMENTAL TREATMENT SYSTEM PROJECTS

Complete the following sections for pump systems and/or supplemental treatment systems.

SECTION Q – PUMP SYSTEM DESIGN INFORMATION

Provide the information as indicated for pump system. Pump systems information is found in LAMP Section 7.4. Prefabricated tanks and risers shall be approved by the International Association of Plumbing and Mechanical Officials (IAPMO). Metal and wooden septic tanks are prohibited. Tanks must be anchored to counter any potential buoyant forces in areas of high groundwater. Septic tank access openings with greater than six (6) inches of cover must have risers to within six (6) inches of finished grade. Risers and lids that are at or above grade must be watertight and lockable or require tools to be opened. Effluent filters must be National Sanitation Foundation/American National Standard Institute (NSF/ANSI) Standard 46 certified. Use the provided check list to ensure all required items are submitted for review.

ATTACH: The design and sizing calculations and specifications on a pump worksheet, pump/control box/alarm box/list of components specifications and schematics, pump curves, pump tank specifications, traffic rating design calculations (if needed), and tank anchoring design calculations (if needed).

SECTION R – SUPPLEMENTAL TREATMENT SYSTEM INFORMATION

Provide the information as indicated for a supplemental treatment system. Supplemental treatment systems are found in LAMP Chapter 9.0. Supplemental treatment for nitrogen reduction must be certified to meet NSF/ANSI 245 standard. Use the provided check list to ensure all required items are submitted for review. Complete the applicable information in Section Q for pumps, Section I for septic tanks, and Sections J – P for the applicable dispersal system. Have the property owner complete and sign Section S - Property Owner Certification and Feasibility to Install, Operate, and Maintain an OWTS with Supplemental Treatment.

Notes:

- 1) NSF/ANSI 40: Water Treatment System Components-provides material, design, construction and performance requirements for testing and certifying residential wastewater treatment systems with rated capacities between 400 and 1,500 gallons per day (for CBOD₅, TSS, pH, and Color, Odor, Oily Film and Foam standards).
- 2) NSF/ANSI 46: Water Treatment System Components-components and devices used in wastewater treatment systems such as grinder pumps, septic tank effluent filters, chlorination devices, and UV disinfection devices.
- 3) NSF/ANSI 245: Nitrogen Reduction-Requires a minimum 50% reduction of total nitrogen for residential wastewater treatment systems with rated capacities between 400 and 1,500 gallons per day.
- 4) Pathogen reduction effluent to not exceed a 30-day average of TSS of 30 mg/L and shall further achieve an effluent fecal coliform bacteria concentration less than or equal to 200 Most Probable Number (MPN) per 100 milliliters. (OWTS Policy 10.10.1)

ATTACH: The supplemental treatment system specifications and detailed schematics, list of system components to include component name, manufacturer, model and certification or rating, and specifications/schematics of components.

Operations and Maintenance Plan

An Operations and Maintenance Plan must be developed for the specific Supplemental Treatment System and be provided to the property owner. The Operations and Maintenance Plan must include the items provided in LAMP Section 9.3 and in the following check list.

☒	Property Information including property location and property owner contact Information.
☒	Property owner responsibilities as provided in LAMP Sections 9.3 and 9.4.
☒	System Professional Contacts: Qualified Service Provider, Registered Septic Pumper, Qualified Professional System Designer, Licensed Installer, DEHQ Notification Contact Information.
☒	System location on property. Design details of system. Attach a copy of the Layout Approval and Installation Permit with "As Built" diagram.
☒	Operation instructions to include specific tasks and frequencies.
☐	Monitoring/Maintenance/Inspection Activities to include specific tasks and frequencies.
☐	Activities related to any potential repairs to the system, including notification to DEHQ and steps to obtain a repair permit.
☐	Records retention activities.

SECTION S – PROPERTY OWNER CERTIFICATION OF FEASIBILITY TO INSTALL, OPERATE, AND MAINTAIN AN OWTS WITH SUPPLEMENTAL TREATMENT

Provide the information as indicated on the initial and ongoing costs to install, operate and maintain an OWTS with supplemental treatment. Provide to property owner to read and understand the costs as well as the owner responsibilities that are associated with this type of OWTS. Ensure the property owner initials each responsibility identified and signs the certification. The Layout Report will not be approved until this certification by the property owner is completed and submitted.

REQUIRED FOR PROJECTS WHERE A VARIANCE IS REQUESTED

Complete the following sections for projects where a LAMP standard or San Diego Regulatory Code requirement cannot be met and a variance from that standard is being requested.

SECTION T – REQUEST FOR VARIANCE

Provide the information as indicated. See LAMP Section 10.3 for information on variance requests. The proposed alternative design included in this application must:

1. Maintain substantial conformance, to the greatest extent practicable, with the minimum requirements of the LAMP.
2. Is adequate to accommodate the sewage flows from the buildings being served.
3. Is able to achieve the same practical protection to public health and groundwater as afforded by the LAMP requirements by modification of the system design.
4. Is able to provide an adequate level of protection to adjacent properties.

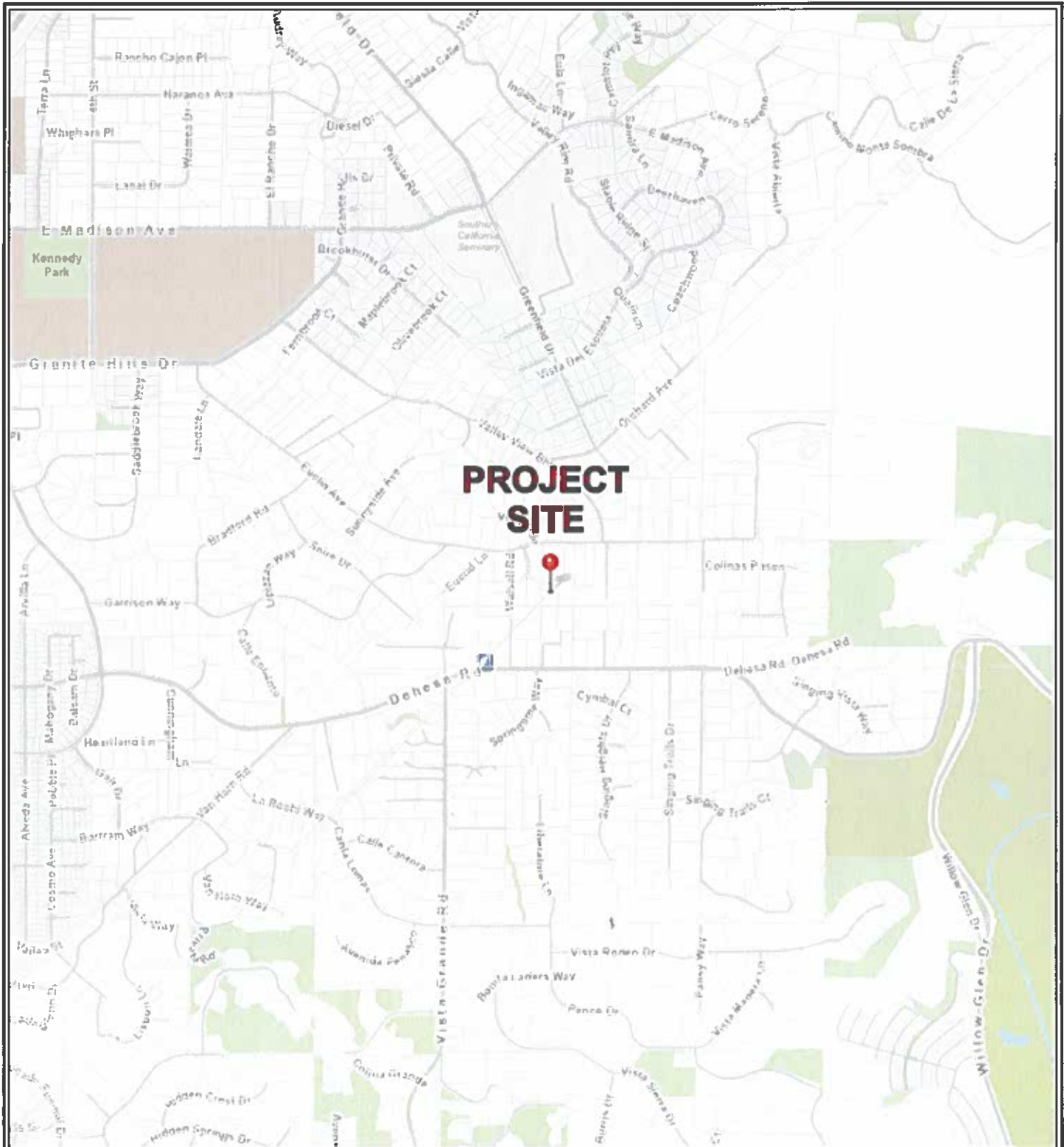


FIGURE 1
SITE LOCATION MAP

APN: 512-180-35-00
EUCLID AVENUE
EL CAJON, CALIFORNIA 92019

PROJ. NO.:
2511-03

REPORT NO.:
2511-03.2B

DATE:
DEC 2025

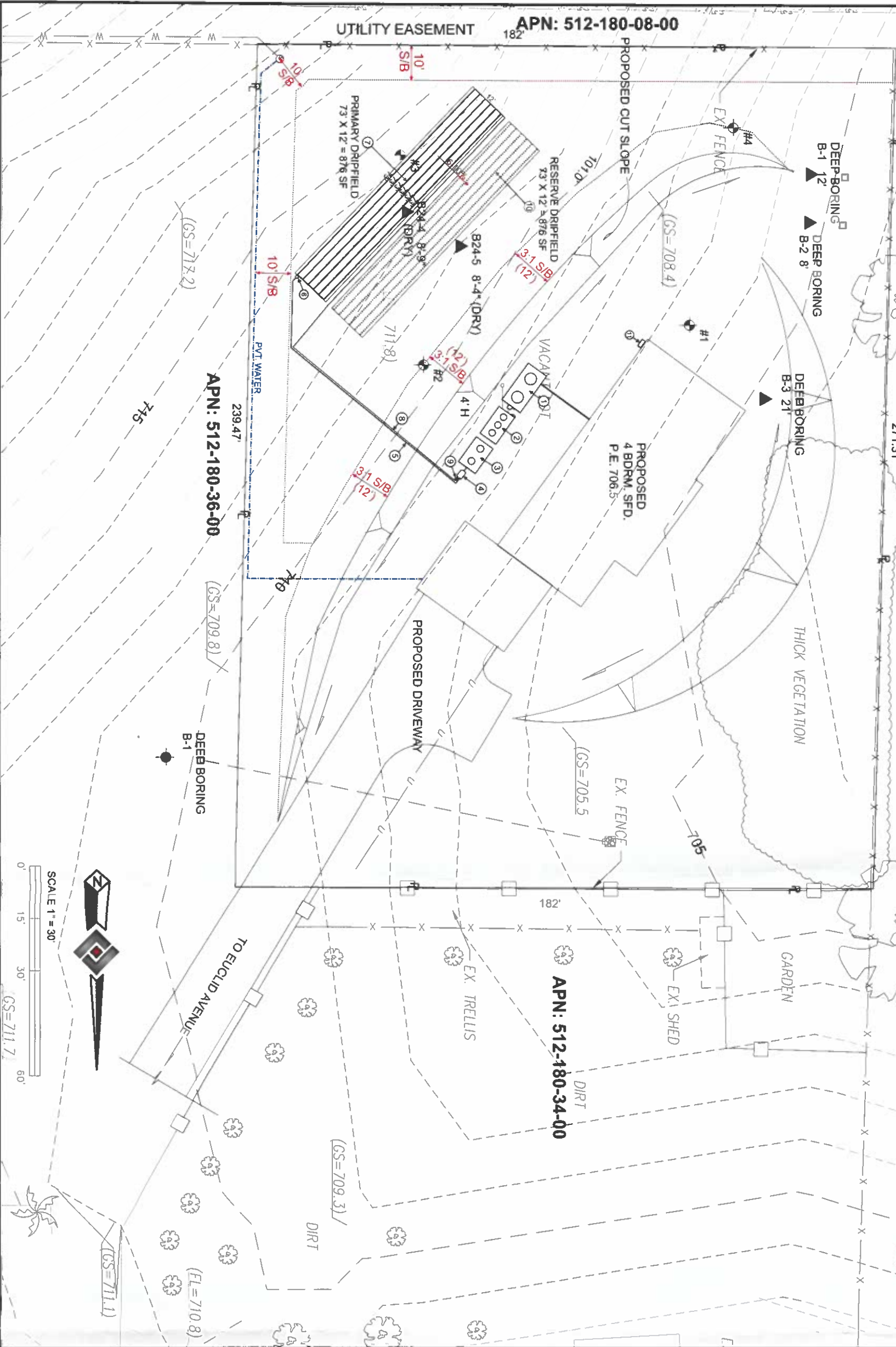


D3 Soils
INCORPORATED

SOURCE:
ArcGIS Web Map

The onsite wastewater treatment system design approval expires on 1/2029. Any changes to the structures, grading, driveways, storage devices, or other constraints on the property void this approval.

Co Jordan 1/20/26
Specialist



COMPONENTS:

- 1200 GAL PRIMARY TREATMENT / SEPTIC TANK
- NORWECO MODEL TNT 750 RESIDENTIAL WASTE WATER TREATMENT SYSTEM
- JENSEN JS-1000 PUMP TANK WITH NORWECO HB-105 SUBMERSIBLE PUMP
- 1-1/2" GEOFLOW AUTOMATIC SPORTY HEADWORKS WHWS-V-1.5F-A
- 1-1/4" SCH. 40 PVC SUPPLY LINE
- GEOFLOW AIR VENT
- PRIMARY DRIPFIELD - MIN. 437 L.F.
- GEOFLOW WATERFLOW PRO G-WFPC-16-2-24 0.6-GPH EMITTERS AT 24-IN SPACING
- 1-1/4" SCH. 40 PVC RETURN LINE
- CHECK VALVE
- RESERVE DRIPFIELD - MIN. 437 L.F.
- GEOFLOW WATERFLOW PRO G-WFPC-16-2-24 0.6-GPH EMITTERS AT 24-IN SPACING
- SERVICE PRO MCD CONTROL CENTER



APN 512-180-35-00

EUCLID AVENUE
EL CAJON, CA 92019

PROPOSED 4-BEDROOM
SINGLE FAMILY RESIDENCE

FIGURE 2

SEPTIC LAYOUT PLAN





Subsurface Drip Irrigation Design Tool

WaterflowPRO
WaterflowECO

Contact Information

P.O. Box 77457

Greensboro, NC 27417

T 800.828.3388

e customerservice@geoflow.com

w geoflow.com

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Small Systems Design Sheet

Directions: Fill-in applicable cells in BLACK. Answers appear in PURPLE.

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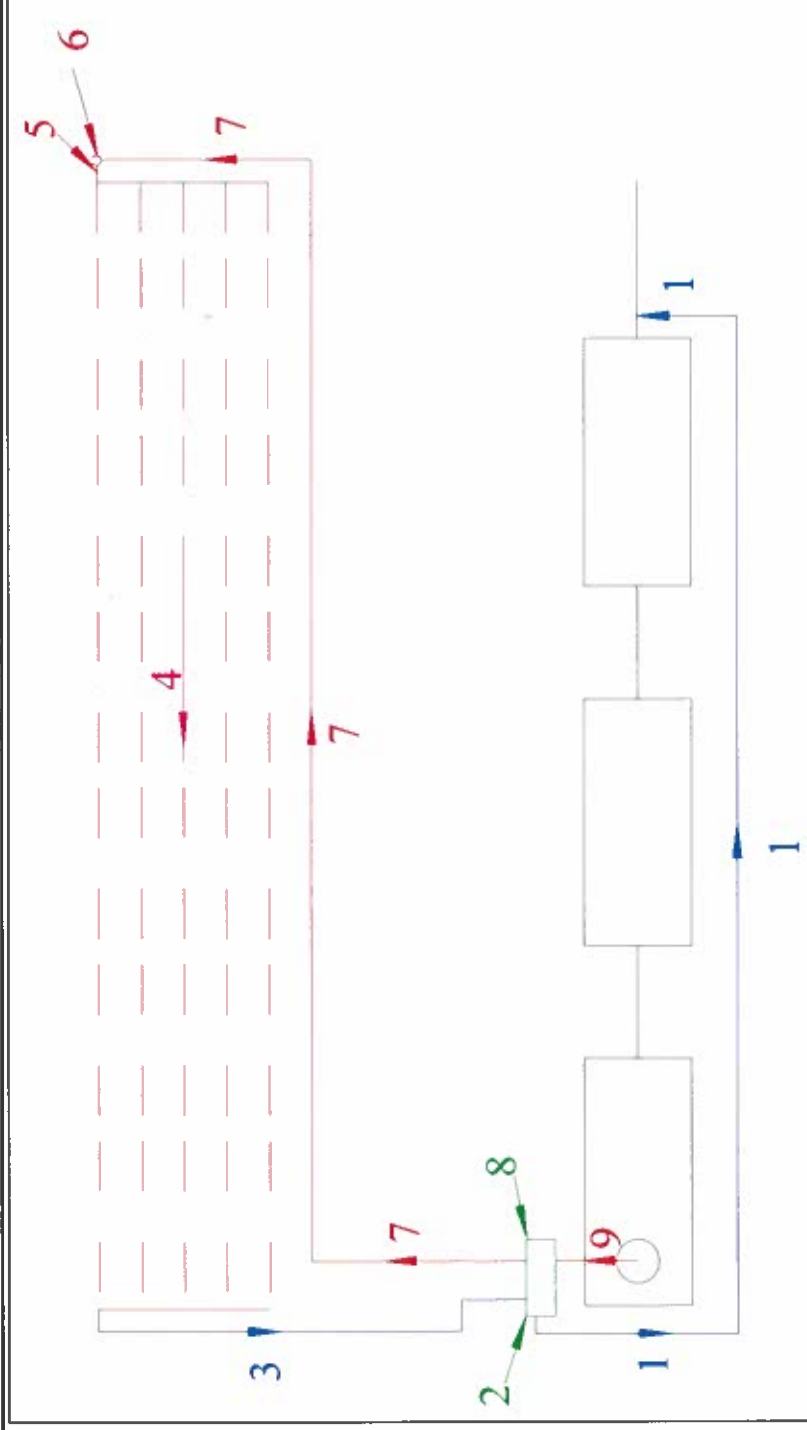
v.230721

600 gpd, maximum flow	Definitions: 1. Day = 24 hours 2. Lateral = supply to return connection total length 3. Run = number and length within each lateral
0.686 gpd/ft ² , soil loading rate	
100% usable acres for dispersal	
875 ft ² , total	
0.020 acres, minimum	
G-WFPC-16-2-24-PRO drip tubing p/n	
2.0 ft, dripline spacing	
437 ft, dripline required	
2 ft, dripper (emitter) spacing	
4 ft ² per dripper	
2.74 gpd dispersed, per dripper	
0.6 gph, per dripper rate	
4.57 hrs/d, theoretical per dripper max run time	
274 min/d, theoretical per dripper max run time	
12 max hrs/d, pump run time (12 hrs default)	
3 max theoretical zones, no.	
1 select number of zones	
875 ft ² , each zone	
437 ft, theoretical dripline run length per zone	
No drip lateral length >10% (shortest to longest)	
73.0 ft, lateral length	
6 select laterals per zone	
0.50 fps, flush velocity	
438.0 ft, calculated dripline run length per zone	
219 drippers, calculated per zone	
2.2 gpm, dispersal flow rate	
4.4 gpm, flushing flow rate	
2.2 gpm, return flow rate	
12 input cycles per day per zone, no. (all zones dosed individually each cycle)	
22.83 min, run time (fully pressurized) per zone per dose	
22.83 min, "on" time per dose cycle	
97.17 min, "off" time per dose cycle	
274 min/d, "on" time, or	4.57 hrs/d
1166 min/d, "off" time, or	19.43 hrs/d
→dosing tank capacity must accommodate peak hourly, daily, and weekly flows, and intermittent flow storage←	
600	gpd, maximum dispersed

Geoflow

System Layout

- 1 - Headworks to flush discharge point
- 2 - Headworks
- 3 - Return manifold outlet to headworks
- 4 - Drip lateral length return manifold to supply manifold
- 5 - Supply manifold to zone valve (if zone valve used)
- 6 - Zone valve, if used
- 7 - Headworks to zone valve/supply manifold
- 8 - Headworks
- 9 - Pump discharge to headworks



G-WFPC-16.4-12-PRO	Drip Tube
G-WWWSOUT-C-15FA	Headworks
1 Zone	Zone Valve
0.50	Flushing Velocity
50	Maximum Inlet Pressure
10	Minimum Outlet Pressure
73	Longest Lateral
6	Total Number of Laterals
438	Total Linear Footage of Drip Tube

	Pipe Diameter Inches	Linear Feet	Elevation Feet	Dispersal GPM	Flushing GPM	Return GPM	Dispersal Velocity	Flushing Velocity	Return Velocity	Dispersal F Loss PSI	Flushing F Loss PSI	Elevation PSI	Total Q Gallons
1. Headworks to flush discharge point	1 1/4	25	1			2.2			0.5		0.4	0.4	1.9
2. Headworks						2.2					4.6		
3. Return manifold outlet to headworks	1 1/4	150	-8.5			2.2			0.5		-3.6	-3.7	11.7
4. Drip lateral supply manifold to return manifold				1.1	1.5	0.4		0.5		1.0	2.4	0.0	0.9
5. Zone valve (if zone valve used) to supply manifold	1 1/4	0	0	6.6	8.8		1.4	1.9		0.0	0.0	0.0	0.0
6. Zone valve, if used										0.0	0.0		
7. Headworks to zone valve/supply manifold	1 1/4	80	10	6.6	8.8		1.4	1.9		4.6	4.7	4.3	6.2
8. Headworks				6.6	1.5					5.6	6.3		
9. Pump discharge to headworks	1 1/4	5	0	6.6	8.8		1.4	1.9		0.0	0.0	0.0	0.4

- 1 Headworks to flush discharge point
- 2 Headworks
- 3 Return manifold outlet to headworks
- 4 Drip lateral supply manifold to return manifold
- 5 Zone valve (if zone valve used) to supply manifold
- 6 Zone valve, if used
- 7 Headworks to zone valve/supply manifold
- 8 Headworks
- 9 Headworks to zone valve/supply manifold

6.6 GPM, Minimum Required During Dispersal Cycle	157.2 Feet, Minimum Pressure During Dispersal Cycle at Pump Discharge
72.4 PSI, Minimum Pressure During Dispersal Cycle at Pump Discharge	176.3 Feet, Minimum Pressure During Flushing Cycle at Pump Discharge
8.8 GPM, Minimum Required During Flushing Cycle	
76.3 PSI, Minimum Pressure During Flushing Cycle at Pump Discharge	
25.6 Gallons, Minimum Required to Fill Pipe Network	

150 Pipe coefficient is a value that reflects the roughness of the inside of a pipe. 150 is standard for PVC and is used in this calculator.
 1.1 Error factor is an adjustment value to account for fittings, bends, and miscellaneous losses associated with pipe systems. 1.1 is commonly used in the irrigation industry and is used here.
 ↓ Click in the cells with the arrow on right and select from the dropdown menu.
 Fill-in applicable cells in BLACK. See the heading of each cell, all other cells are self populating.
 The loss columns indicate the loss in psi due to friction of the water as it flows through the pipe network as well as the increase or decrease due to elevation.
 Velocity is measure of how fast water is moving through a given section of pipe, expressed in fps. When designing transport lines, the target flushing velocity is 2.5 to 3.5 fps or per state requirements. Property sized pipes shorten fill time.
 increase dispersal uniformity and aide in overall system operation and maintenance. This spreadsheet calculates the velocity based on your inputs.

SAMPLE TEXT

	Little Giant	Blaster	Ashland CPM	Zoeller
MODEL	20XC1-05PA	20EB95	20+ 12hp	5031 5S-12hp
DOSING TDH	NO	NO	NO	NO
FLUSHING TDH	NO	NO	NO	NO

WaterflowPRO®

Drip Tubing

Technical Specifications



Why Choose WaterflowPRO?

- 16mm diameter tubing with PC or Classic emitter
- Patented nano-Rootguard® band PROtects against root intrusion
- Patented Geoshield® antimicrobial lining prevents biofilm build-up inside tubing
- Constant performance in all climates
- Optimal for use on severe slopes and long runs
- Provides maximum water distribution uniformity in tough topographical areas
- High quality resins assure durable performance and long life
- Warranty against defects in materials or workmanship
- Emitter spacing available in 12" or 24"

Ordering Information

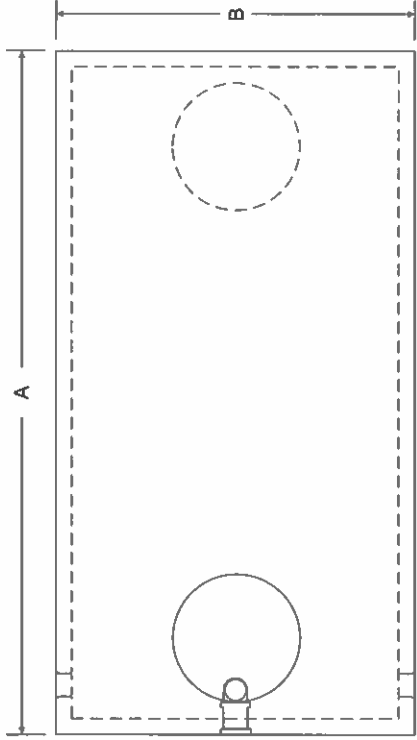
Part Number	G-WFCL-16-4-24	G-WFPC-16-2-12	G-WFPC-16-4-12	G-WFPC-16-2-24	G-WFPC-16-4-24
Emitter type	Classic	PC	PC	PC	PC
Emitter spacing, in	24	12	12	24	24
Emitter flow rate, nominal GPH	1.3 @ 20 psi	0.6	0.9	0.6	0.9
Coil length, ft	500	500	500	500	500

Parameter	Specification
Prevents root intrusion	Yes
Antimicrobial lining	Yes
Tubing diameter, nominal	16 mm
Wall thickness, nominal	1.10 mm
Emitter style	Cylindrical
Pressure, min	7 psi
Pressure, max	60 psi
Pressure range, optimal	20 to 50 psi
Tubing warranty	20 years
Rootguard warranty	10 years

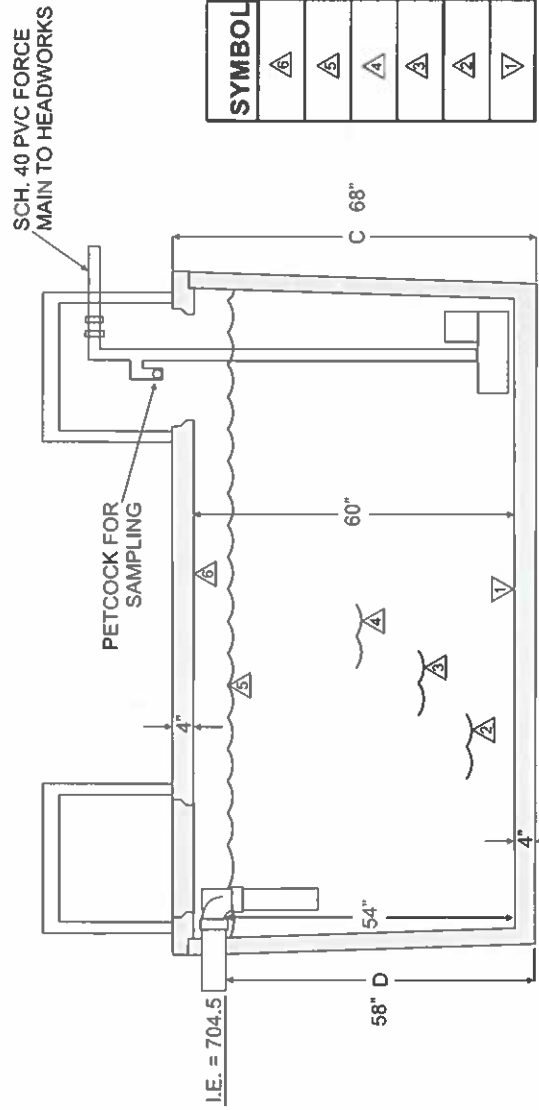


HOLDING/PUMP TANK DIAGRAMS

EMERGENCY STORAGE CALCULATIONS



TOP VIEW



SIDE VIEW

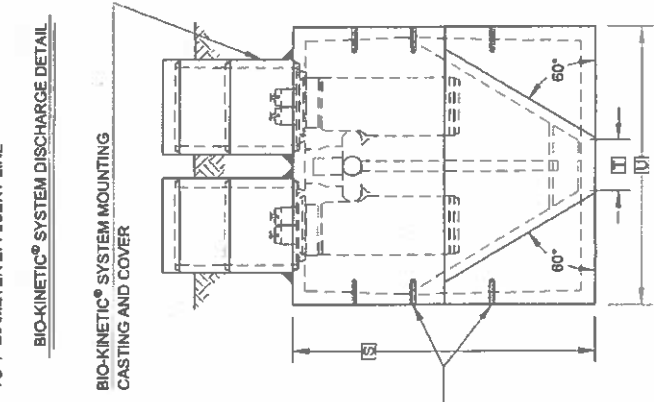
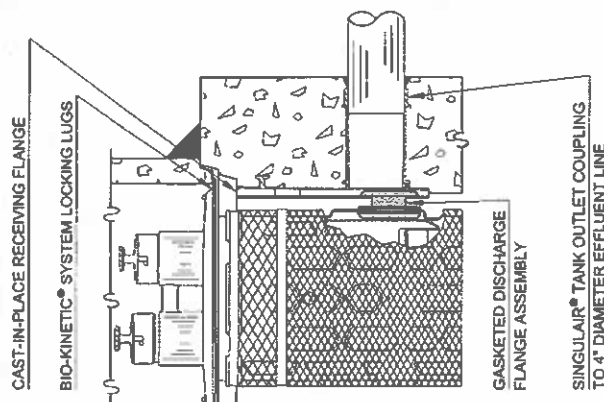
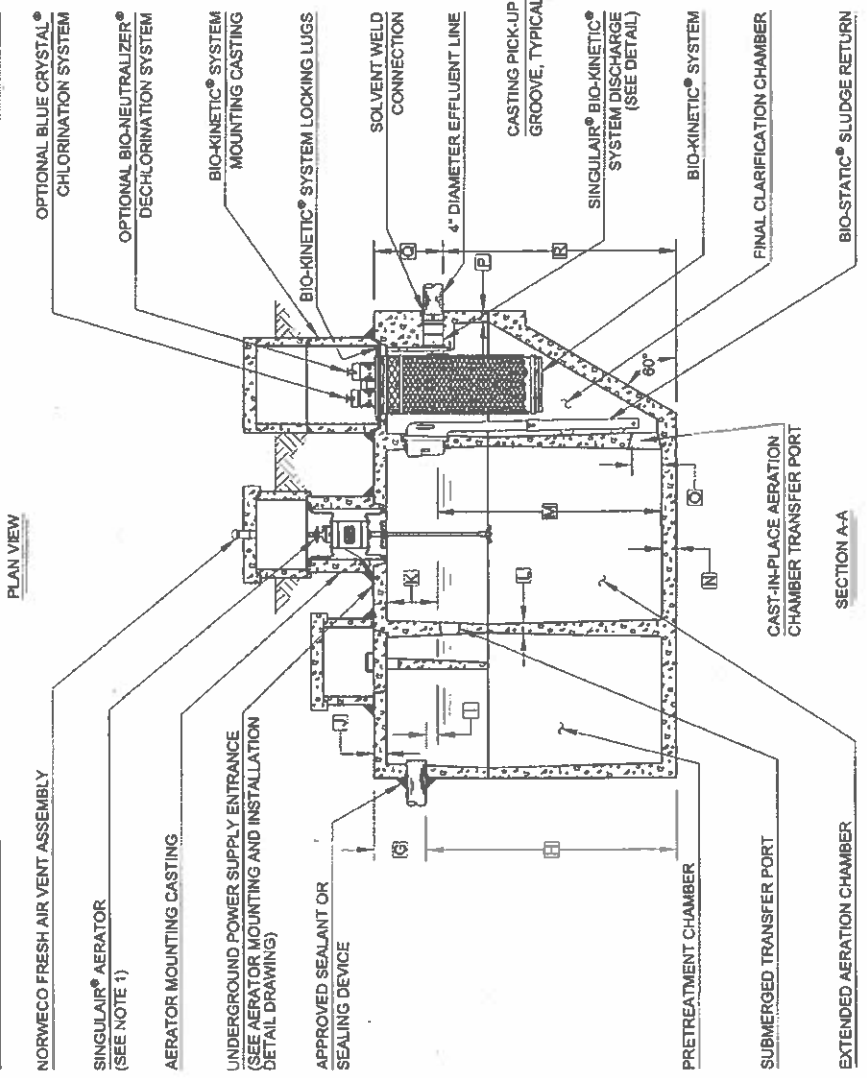
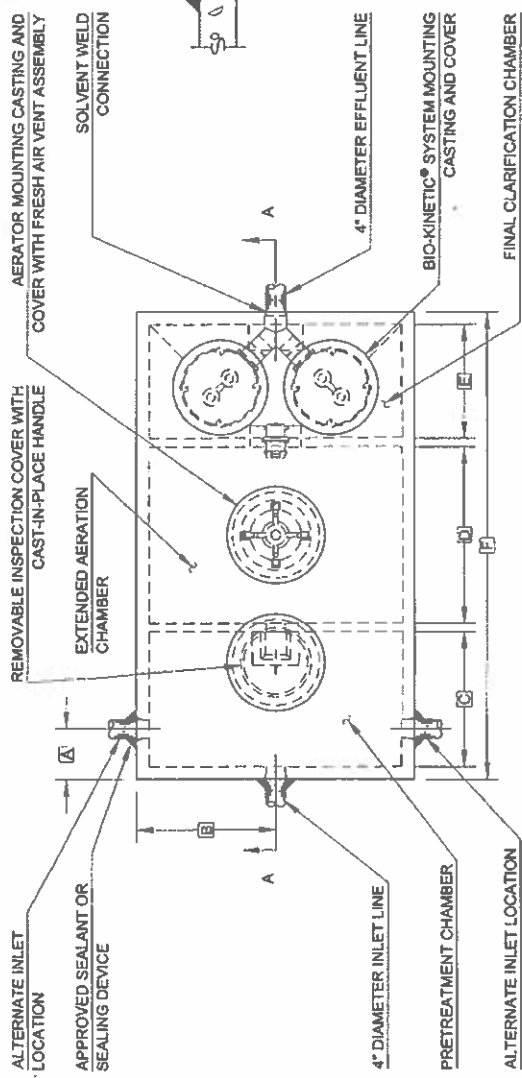
TOTAL TANK VOLUME:	1280	GAL
INTERNAL TANK HEIGHT:	60	IN
GALLONS PER INCH:	21.33333	GPI

24 HR EMERGENCY STORAGE NEEDED:
4 BR X 150 GAL/BR = **600 GAL**

EMERGENCY CAPACITY ABOVE ALARM:
42" X 24.75 GPI = **896 GAL**

SYMBOL	DESCRIPTION	ADD. HT.	TOT. HT.	EL.	VOL.
△	MAX. LEVEL	+6"	60"	705.00	128
△	INLET LEVEL	+36"	54"	704.50	768
△	ALARM ON	+3"	18"	701.50	64
△	PUMP ON	+9"	15"	701.25	192
△	PUMP OFF	+6"	6"	700.50	128
▽	TANK BOTTOM	0"	0"	700.00	0

MODEL NUMBER	STANDARD OPERATING VOLUME GALLONS	TOTAL TANK VOLUME GALLONS	WIDTH 'A'	OVERALL LENGTH 'B'	TANK HEIGHT 'C'	INLET 'D'	MINIMUM EXCAVATION WIDTH	MINIMUM EXCAVATION LENGTH
JS-1000	1000	1240	5'-1"	8'-2"	5'-8"	4'-10"	6'-1"	9'-2"
JS-1200	1200	1485	5'-9"	8'-6"	5'-8"	4'-10"	6'-9"	9'-6"
JS-1500	1500	1870	5'-7"	10'-8"	5'-8"	4'-10"	6'-7"	11'-8"



NOTE: TOTAL SYSTEM CAPACITY: 1,600 GALLONS
 RATED CAPACITY: 750 GALLONS PER DAY

GENERAL NOTES:

1. SINGULAIR® AERATOR, AS TESTED AND ACCEPTED BY NSF, OPERATING 60 MINUTES ON / 60 MINUTES OFF.
2. FALL THROUGH SINGULAIR® PLANT FROM INLET INVERT TO OUTLET INVERT IS FOUR INCHES. INLET INVERT IS TWELVE INCHES BELOW TANK TOP.
3. ON DEEPER INSTALLATIONS, PRECAST RISERS MUST BE USED TO EXTEND AERATOR MOUNTING CASTING AND BIO-KINETIC® SYSTEM MOUNTING CASTING TO GRADE. INSPECTION COVER ON PRETREATMENT CHAMBER MUST BE DEVELOPED TO WITHIN TWELVE INCHES OF GRADE.
4. TANK REINFORCED PER ACI STD. 318.
5. REMOVABLE COVERS ON RISERS WEIGH IN EXCESS OF SEVENTY-FIVE POUNDS EACH TO PREVENT UNAUTHORIZED ACCESS.
6. CONTACT THE LOCAL, LICENSED SINGULAIR® DISTRIBUTOR FOR ELECTRICAL REQUIREMENTS.

PROJECT ENGINEER'S APPROVAL:
 I (WE) HEREBY CERTIFY THAT THIS DRAWING HAS BEEN CHECKED AND IS APPROVED FOR USE IN CONFORMITY WITH THE CONTRACT DOCUMENTS.
 DATE: _____
 NAME: _____

CONTRACTOR'S CERTIFICATION:
 I (WE) HEREBY CERTIFY THAT THIS DRAWING HAS BEEN CHECKED AND IS APPROVED FOR USE IN CONFORMITY WITH THE CONTRACT DOCUMENTS.
 DATE: _____
 NAME: _____

CRITICAL DIMENSIONS

A	1'-0"	N	0'-3"
B	2'-8"	O	0'-6"
C	2'-8"	P	0'-2 1/2"
D	3'-7"	Q	1'-4"
E	2'-3"	R	5'-8"
F	9'-3"	S	7'-0"
G	1'-0"	T	1'-0"
H	6'-0"	U	5'-6"
I	0'-3"	V	
J	0'-3"	W	
K	1'-0"	X	
L	0'-2"	Y	
M	5'-6"	Z	

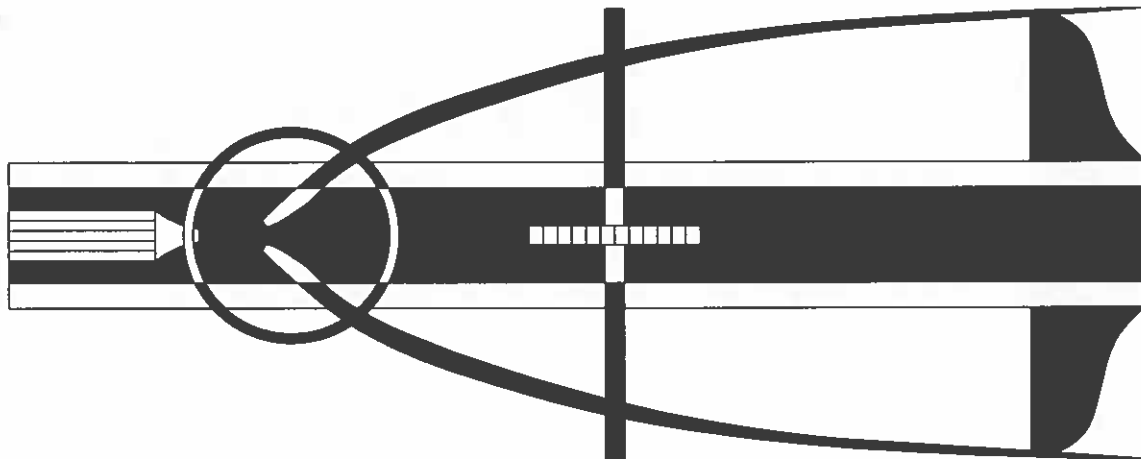
norweco
 U.S. PATENT PENDING
 FORBION
 SINGULAIR® BIO-KINETIC® WASTEWATER TREATMENT SYSTEM
 MODEL 1N1 - 750 GPD
 2-16-06
 NTS
 PC-5-7086

norweco[®]

SINGULAIR[®] BIO-KINETIC[®]
WASTEWATER TREATMENT SYSTEM
MODEL TNT[®]

GENERAL SPECIFICATIONS

The contractor shall furnish and install one complete Singulair Bio-Kinetic Model TNT system for Total Nitrogen Treatment with all necessary parts and equipment as described in the following specifications. Treatment of the domestic wastewater shall be accomplished by the extended aeration process with non-mechanical flow equalization, pretreatment of the influent and filtration of the final effluent. In addition to primary, secondary and tertiary treatment of the wastewater flow, the treatment system shall provide nitrification, denitrification, and if required, chlorination and dechlorination of the effluent prior to discharge. All treatment processes shall be contained within reinforced precast concrete tankage meeting the requirements of ACI Standard 318. The wastewater treatment system shall be a Singulair Model TNT as manufactured by Norweco, Inc., Norwalk, Ohio, USA. Systems utilizing fiberglass, steel, or plastic tankage are subject to flotation when dewatered and shall not be considered for this application.



The wastewater treatment system shall be capable of reducing Total Nitrogen without the addition of chemicals, specialized add-on processes or additional components. Nitrification and denitrification shall be accomplished within the chambers of the treatment system prior to effluent disposal. Biological reduction of nitrogen shall occur naturally by autotrophic bacteria, capable of converting ammonium nitrogen to nitrate and heterotrophic bacteria, capable of transforming nitrate to harmless gas. The treatment system shall include precast concrete tankage providing separate pretreatment, aeration and clarification chambers. Principal items of electro-mechanical equipment shall be a 1725 RPM mechanical aerator, UL listed Service Pro control center with MCD technology, Bio-Static sludge return and Bio-Kinetic tertiary treatment device for flow equalization and final filtration of system effluent.

SPECIFICATIONS

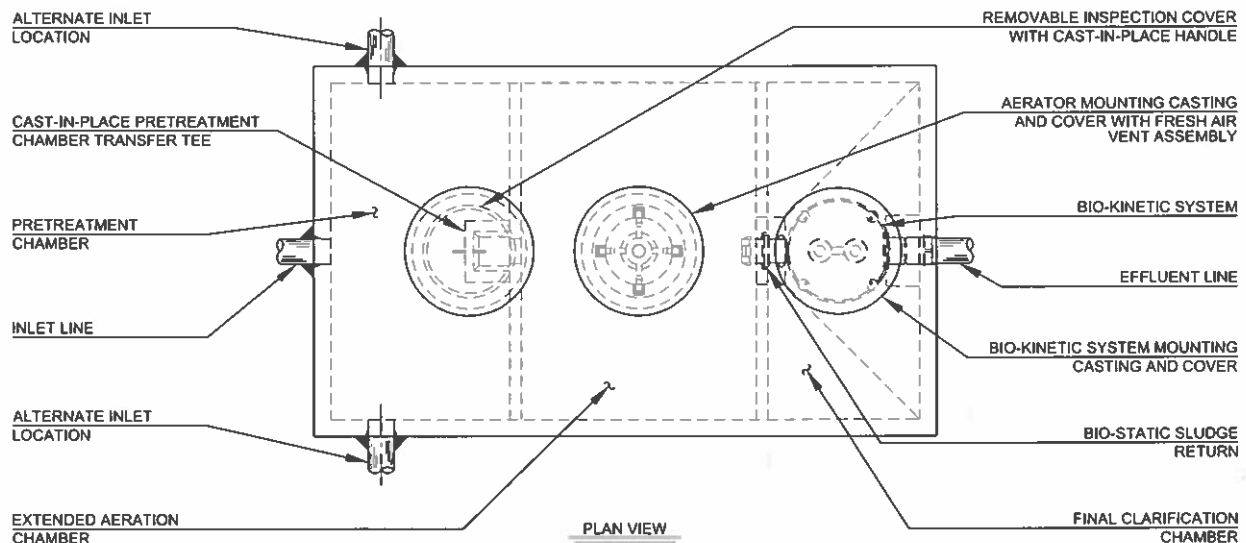
SINGULAIR®

OPERATING CONDITIONS

Total holding capacity of the system shall provide a minimum of 48 hour retention of the daily flow. The pretreatment chamber shall provide at least 18 hour retention, the extended aeration chamber shall provide at least 24 hour retention and the clarification chamber shall provide at least 6 hour retention. The non-mechanical flow equalization device shall increase each individual chamber and total system retention time in direct proportion to loading. Design of the system shall include a compartmented tank and non-mechanical flow equalization device to insure successful treatment performance without upset even when the significant runoff period is six hours. Hydraulic design considerations of the system and flow equalization device shall be such that intermittent peak flow factors as high as four shall not upset hydraulic reliability within the system. System performance in compliance with the requirements of NSF Standard 245 shall be recognized by an ANSI accredited third-party laboratory and be approved for use by the local governing regulatory agency.

PRETREATMENT CHAMBER

The pretreatment chamber shall be an integral part of the wastewater treatment system. All domestic wastewater shall be preconditioned and flow equalized while passing through the pretreatment chamber prior to being introduced to the extended aeration chamber. The outlet of the pretreatment chamber shall be equipped with a discharge tee that extends vertically into the liquid so that only the preconditioned equalized flow from the center area of the chamber is displaced to the extended aeration chamber. The discharge tee and transfer port shall be of adequate size to handle a peak flow factor of four without restricting the outlet and disturbing hydraulic displacement to the extended aeration chamber. A removable inspection cover shall be cast into the top of the pretreatment chamber to allow tank and transfer tee inspection. As a safety measure, the uncovered opening shall be small enough to insure that the tank cannot be entered for inspection or service.



AERATION CHAMBER

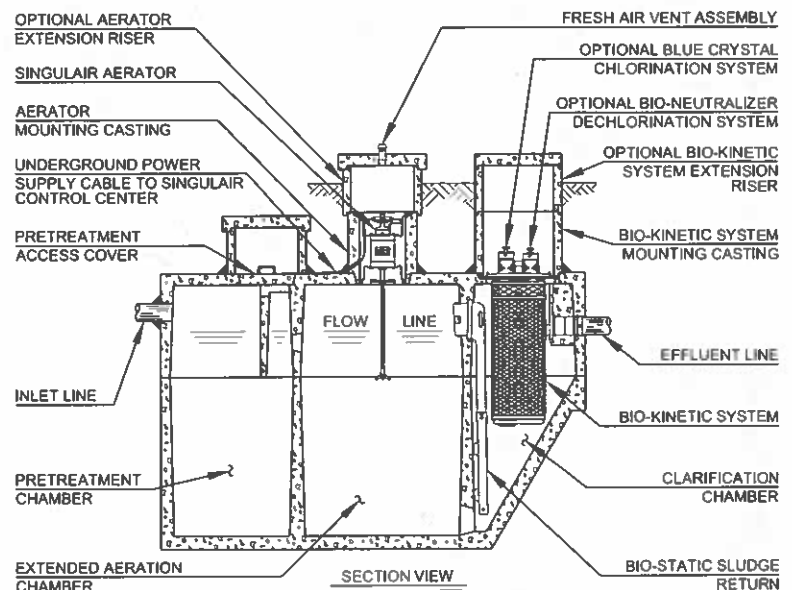
The extended aeration chamber shall provide in excess of 24 hour retention of the equalized daily flow. The chamber shall be of sufficient size to provide a minimum of 80 cubic feet of tank capacity per pound of applied BOD. The aeration chamber length-width-depth ratio shall be designed to insure uniform tank mixing and provide optimum treatment. The aeration chamber(s) shall be an integral part of the system flow path and constructed of properly reinforced 5,000 PSI, 28 day compression strength precast concrete. All castings used to construct the precast concrete tankage shall be monolithic units with external and internal walls incorporated into each section.

FINAL CLARIFICATION CHAMBER

The final clarification chamber shall consist of 5 functionally independent zones operating together to provide satisfactory settling and clarification of the equalized flow. An inlet zone shall be provided and shall dissipate transfer turbulence at the flow inlet of the clarification chamber. Its performance shall also eliminate turbulence in other zones of the clarifier. Liquid shall be hydraulically displaced from the inlet zone to the sludge return zone. Hydraulic currents shall sweep settled sludge from the hopped walls and return these solids via the inlet zone to the aeration chamber. As solids are removed, liquid is displaced to the hopper zone of the clarifier. In this zone, settling by gravity takes place. Three of the four sidewalls are slanted to form a hopper which directs all settled material back to the sludge return zone. Clarified liquid from the hopper zone shall be displaced into the final settling zone to provide additional clarification of the liquid. The liquid is finally displaced to the outlet zone for final filtration and discharge from the system. Non-mechanical equalization of the flow, through all 5 independent zones, shall provide optimal settling and clarification.

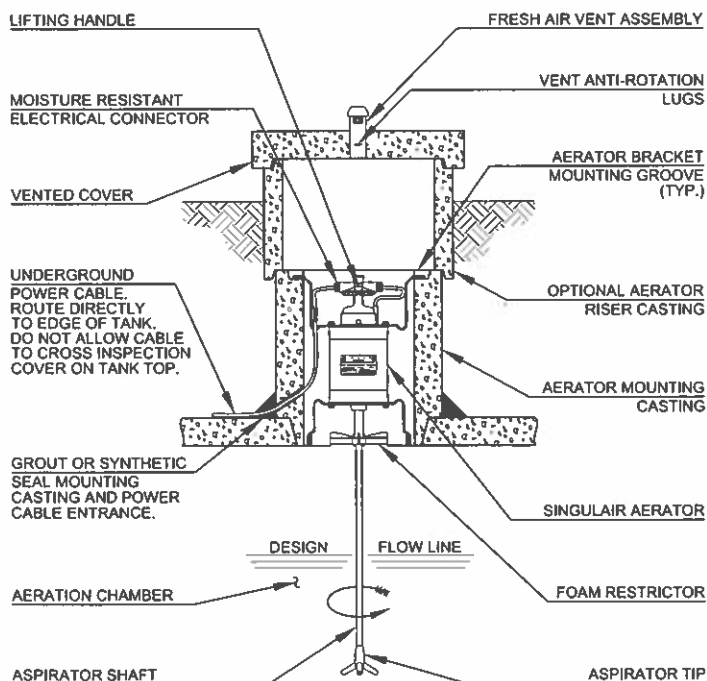
BIO-STATIC® SLUDGE RETURN

A Bio-Static sludge return shall be installed into the cast-in-place opening(s) in the aeration/clarification chamber wall to provide positive return of settled solids. Aeration chamber hydraulic currents shall enter the sludge return(s) and be directed into the sludge return zone of the clarification chamber. The Bio-Static sludge return shall accomplish resuspension and return of settled solids without disturbing the clarified liquid in the final settling zone and outlet zone.



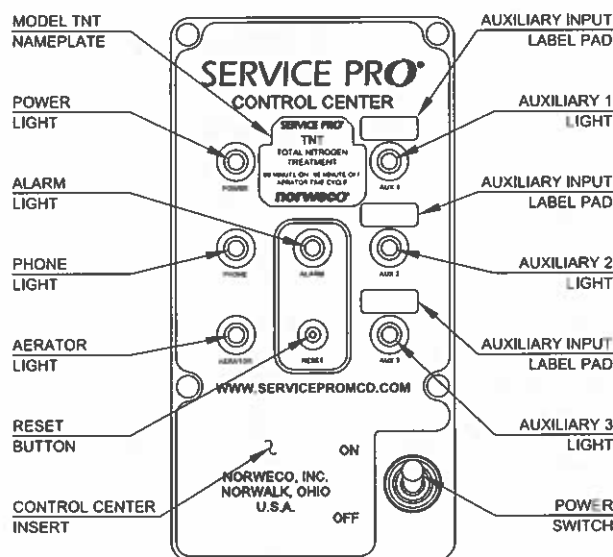
MECHANICAL AERATOR

Each Singular airerator shall be installed in a concrete aerator mounting casting above the aeration chamber. Fresh air shall be supplied through a molded plastic vent assembly cast into the concrete access cover above the aerator. The Singular aerator shall include plated mounting brackets, NEMA 6 rated electrical connector, UL recognized fractional horsepower motor, molded plastic lifting handle, molded plastic air intake screens, molded plastic foam restrictor, stainless steel aspirator shaft and molded glass-filled nylon aspirator tip. The motor shall contain precision manufactured o-ring type seals installed between the motor shell and the machined aluminum endbells to insure watertight integrity is maintained. Molded Viton elastomer shaft seals shall be utilized to protect the bearings from contamination. Only the stainless steel aspirator shaft and glass-filled nylon aspirator tip shall be installed in contact with the liquid. There shall be no submerged electrical motors, bearings or fixed air piping in the aeration system. Singular aerator motors shall be designed not to exceed the motor nameplate rating when installed and operated as recommended for the system. The fractional horsepower aerator motor shall be equipped with a foam restrictor to protect the motor against high water and foam. The motor shall be 4 pole, 1725 RPM, 115 volt, 60 Hertz, single phase, ball bearing constructed with a 1.0 service factor. It shall draw less than 4.0 amps when operating at the rated nameplate voltage. Aerator motors without UL recognition have not demonstrated compliance with international electrical standards for safety and reliability and shall not be considered for this application.



SERVICE PRO® CONTROL CENTER

The Service Pro electrical control center with MCD technology shall provide Monitoring, Compliance and Diagnostic functions for the Singulair treatment plant using a microprocessor based platform. The Service Pro control center shall contain nonvolatile memory to prevent loss of programming in the event of a power failure. The pre-wired controls shall be mounted in a lockable NEMA rated enclosure designed specifically for outdoor use. Each Service Pro control center shall be a UL listed assembly and shall include a factory-programmed timer, alarm light, reset button, power switch, power light, phone light, aerator alarm light and three auxiliary alarm lights. The control center shall monitor all treatment system operating conditions including aerator over current, aerator under current and open motor circuit. In the event the control center detects one of these conditions, power to the aerator shall be interrupted, a diagnostic sequence shall begin and the visual alarm shall activate. After a programmed recovery interval, an automatic restart attempt shall be initiated. If normal aerator operation does not resume during 24 programmed recovery and restart cycles, the audible alarm shall activate and the telemetry system shall report the specific condition to the Service Pro monitoring center. In the event that any of the auxiliary inputs detect abnormal operation of the treatment system auxiliary equipment, the audible and visual alarms shall immediately activate and the telemetry system shall report the alarm condition to the monitoring center. The service provider shall automatically be notified by the Service Pro monitoring center of the specific alarm condition using phone, fax or email.



AERATOR TIME CYCLE

A factory-programmed timer built into the Service Pro control center shall provide a total of twelve hours of aerator operation per day. The non-adjustable timer shall create a 60 minute aeration cycle followed by a 60 minute anoxic cycle during which the aerator shall be off. Use of an aerator timer can seriously affect system performance and operating cost. Systems that have not been performance certified, at a timed aeration cycle, by an independent ANSI accredited testing laboratory shall not be considered for this application.



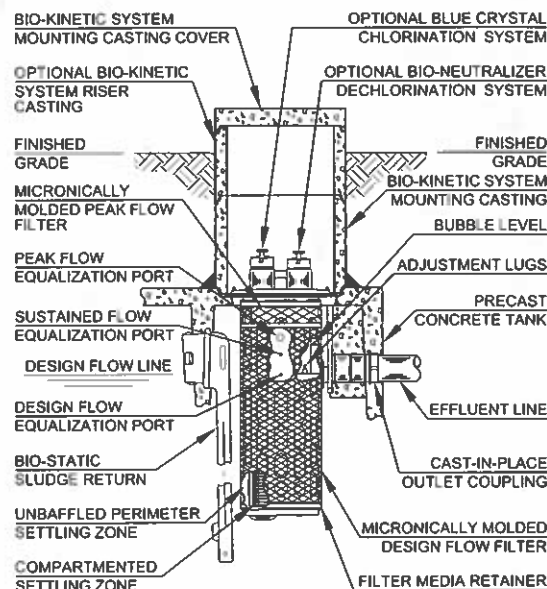
SERVICE PRO® MONITORING CENTER

The Service Pro monitoring center shall include a 256 bit encrypted password protected website for interface with the monitoring center database. Access to the secure website shall be obtained through a unique user name and password that provides tiered access to data from monitored treatment systems. Access level tiers shall include distributors, service providers, regulatory agencies and individual system owners. Distributors and service providers shall be able to create accounts, maintain service records and grant regulatory agencies access to the information. Individual system owners shall be able to view information regarding their own wastewater treatment systems, as well as download and print instructional information. Integrity of stored data shall be maintained through the use of multiple servers operating in geographically isolated locations.

SPECIFICATIONS

BIO-KINETIC® SYSTEM

A Bio-Kinetic system shall be installed in the mounting casting(s) above the clarification chamber. Each Bio-Kinetic system shall provide non-mechanical flow equalization through all plant processes including pretreatment, aeration, clarification, tertiary filtration, chlorination and dechlorination. The assembly shall be supplied with locking lugs and removable moisture/vapor shield and shall consist of a design flow and peak flow micronically molded filter, baffled perimeter settling zone, flow distribution deck, lifting handles, level indicator, adjustment lugs, optional chlorination feed tube, unbaffled perimeter settling zone, solids contact zone, vertical inlet zone, compartmented settling zone consisting of 42 baffled chamber plates, effluent stilling well, final discharge zone, adjustable outlet weir, optional dechlorination feed tube, outlet zone and gasketed discharge flange. All components shall be manufactured from inert synthetic materials or rubber, assembled in circular fashion and connected to a plastic outlet coupling. The outlet coupling shall accept a 4" diameter, Schedule 40, PVC pipe. Each Bio-Kinetic system shall be installed with the inverts of the design flow equalization ports located at the normal liquid level of the clarifier. If intermittent flow rates exceed the capacity of the design flow ports, flow shall be held upstream until the intermittent flow dissipates. If the intermittent flow continues to increase, the liquid level may reach a pair of sustained flow equalization ports. With four ports in use, flow through the system increases while continuing to provide flow equalization to all upstream and downstream processes. Peak flow equalization ports are supplied but should not be required in a properly sized system. Optional Blue Crystal and Bio-Neutralizer tablet feed tubes shall be positioned such that the flow-activated chemical cannot make contact with the liquid upstream of the feed tubes.



FLOW EQUALIZATION

The wastewater treatment system shall include a non-mechanical, demand use, flow equalization device. The device shall control normal residential flow rates and reduce typical residential flow surges. The flow equalization rate shall be dependent upon the specific loading pattern and the duration of flow surges. At the 600 gallon per day design loading schedule of NSF Standard 40 and NSF Standard 245, minimum performance of the device shall equalize daily flow an average of 50%.

BLUE CRYSTAL® CHLORINATION SYSTEM (Optional)

The Singlair system shall be furnished complete with a tablet feeder and a six month supply of Blue Crystal disinfecting tablets. Blue Crystal tablets shall be specifically formulated for consistent chlorine dosage and effluent disinfection to the sustained, variable and intermittent flows that are typical of domestic wastewater treatment systems. The tablets shall be manufactured from pure calcium hypochlorite and contain a minimum of 70% available chlorine. Each tablet shall be 2⁵/₈" diameter, compressed to a 1" thickness, weigh approximately 5 ounces and be white in color with blue crystals for easy identification. The tablets shall dissolve in direct proportion to the flow rate, releasing controlled amounts of chlorine.

BIO-NEUTRALIZER® DECHLORINATION SYSTEM (Optional)

The Singlair system shall be furnished complete with a tablet feeder and a six month supply of Bio-Neutralizer dechlorination tablets. The dechlorination tablets shall contain active ingredients specially formulated to chemically neutralize both free and combined chlorine. Each tablet shall be 2⁵/₈" diameter, compressed to a 1³/₁₆" thickness, weigh approximately 5 ounces and be green in color for easy identification. The tablets shall dissolve slowly, releasing controlled amounts of chemical for the instantaneous removal of residual chlorine from the system effluent.

WARRANTY AND EXCHANGE PROGRAM

The manufacturer shall provide a three year limited warranty for each Singulair aerator, Service Pro control center and Bio-Kinetic system purchased from the manufacturer. A comprehensive exchange program offers Singulair owners a lifetime of equipment protection. The distributor shall provide warranty and exchange program details to the regulatory agency, contractor and customer as required.



EQUIPMENT MANUFACTURER

The equipment specified herein shall be the product of a manufacturer having a minimum of seven years experience in the construction of prefabricated wastewater treatment equipment and systems. Bids shall be prepared on the basis of the equipment and material specified herein for purposes of determining the low bid. This is not done, however, to eliminate other products or equipment of equal quality and efficiency. If equipment is to be substituted, approval of such substitution must be made prior to execution of any order. It is assumed that substitution will result in a reduction of cost to the contractor and that if accepted, these savings will be passed along by a reduction in the base bid.

SINGULAIR® MODEL TNT® DATA CHART

Designation: Model TNT	500 GPD	750 GPD	1000 GPD	1250 GPD	1500 GPD
Daily Treatment Capacity (Gallons Per Day)	500/600	750/800	1000	1250	1500
Total System Capacity (Gallons)	1300	1600	2300	2850	3400
Number of Singulair Aerators	1	1	2	2	2
Number of Bio-Kinetic Systems	1	2	2	3	3
Number of Bio-Static Sludge Returns	1	1	1	2	2
Drawing Number (PC-5-)	7103	7065	7067	7068	7069

PROGRESS THROUGH SERVICE SINCE 1906

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and wastewater treatment*

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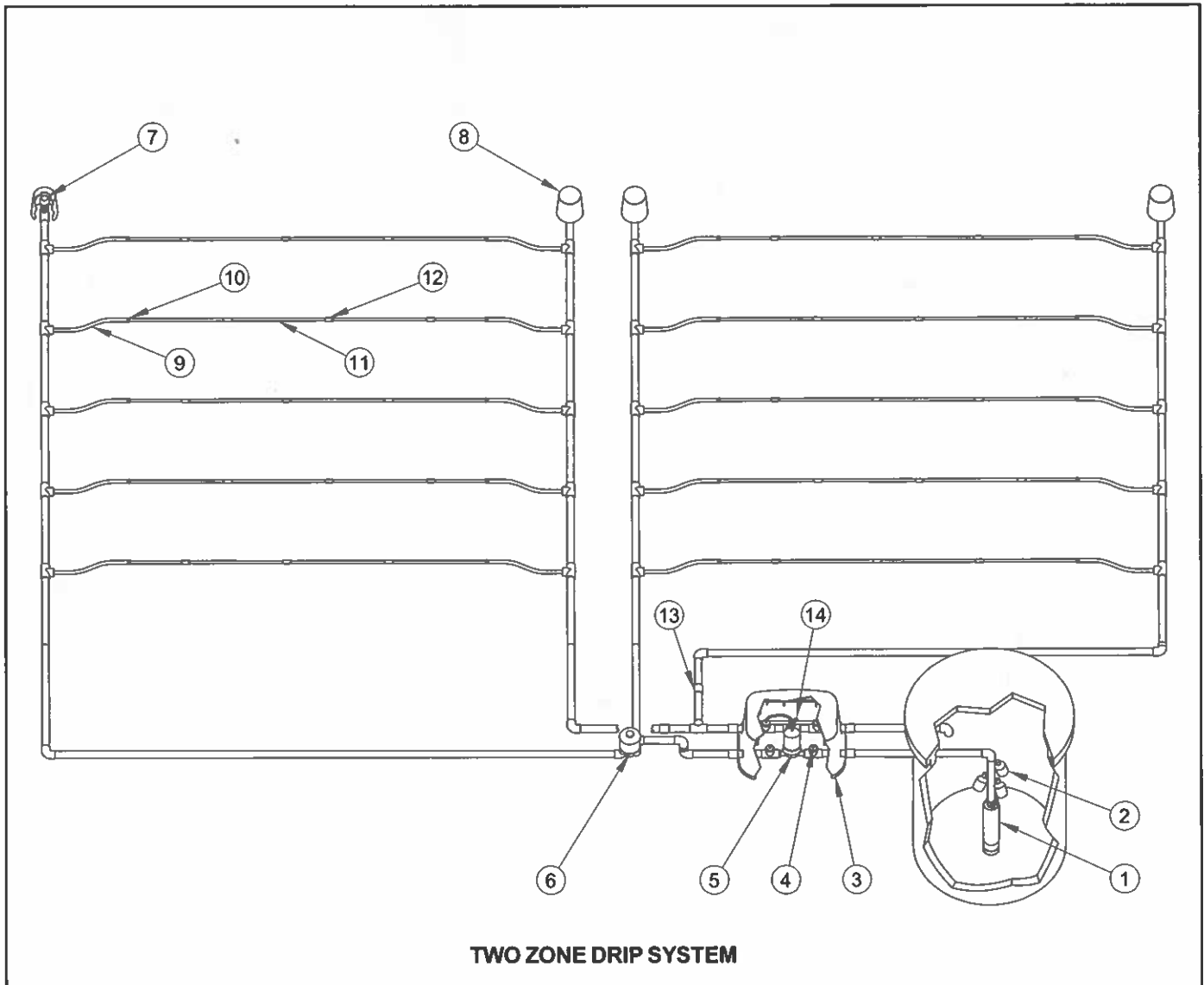
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norweco® **SINGULAIR**®

SUBSURFACE DRIP DISPOSAL SYSTEMS

PRE-ENGINEERED DESIGNS PARTS LIST



1	HB105 Submersible Effluent Pump	8	Relief Valve Enclosure
2	Pump Float Switches	9	Flexible PVC Hose
3	Headworks Enclosure	10	Compression Fitting
4	Schrader Valve	11	Drip Emitter Tubing
5	1" Disc Filter	12	Pressure Compensating Drip Emitter
6	Zone Indexing Valve	13	PVC Check Valve
7	Air/Vacuum Relief Valve	14	PVC Flush Valve

PRE-ENGINEERED DESIGNS PARTS LIST (Page 2 of 4)

INTEGRATED SYSTEM CONTROLS

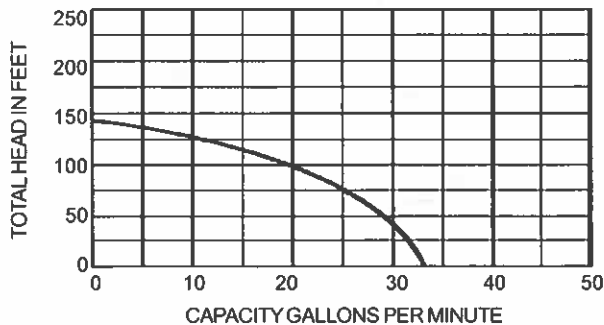
Integrated system controls (ISC) by Norweco eliminate the need to install and maintain separate controls for different components of the treatment system. One control center manages it all.



Certified and listed by NSF and CSA, ISC control centers bring together into one enclosure alarm/pump test switches, alarm silence switches, audible/visual alarms, failsafe features, remote monitoring, telemetry and aerator/pump timers.

EFFLUENT PUMP SPECIFICATIONS

The pump shall be a Norweco Model HB105 high head submersible pump, designed to handle filtered effluent and be capable of passing $\frac{1}{16}$ " spherical solids. The 115 volt, single phase, 60 cycle pump shall be UL and CSA listed and capable of running dry for short durations without damage to the motor or pump end.



The pump motor shall be $\frac{1}{2}$ horsepower rated and operate at 3450 RPM. The motor assembly shall have corrosion resistant stainless steel exterior construction and incorporate a dual action starting switch to provide automatic torque reversal. Electrical surge protection shall be provided. Automatic motor overload protection shall be included at the top end of the motor windings and shall be wired in series to automatically cease operation when the motor winding temperature reaches 266° F. The 10 foot long motor power cord shall be 14-3, jacketed, type SJOW. The power cord shall be sealed at the motor entrance by means of a rubber grommet and stainless steel



compression plate. The pump impeller shall be of the six vane enclosed type, constructed of engineered thermoplastic. The impeller shall have a hexagonal I.D. and be positively driven by a hexagonal 300 series stainless steel pump shaft. The pump shall be warranted by the manufacturer against defects in material and workmanship for a period of one year under normal use and service.

FLOAT SWITCH

The mechanically-activated, wide-angle pump control switch provides automatic operation of the effluent dosing pump. This commercial duty float switch is not sensitive to rotation or turbulence, allowing it to be used in both calm and turbulent applications. Float switch features consist of UL recognition, NSF Standard 61 listing, CSA certification and Water Quality Association approval. **NOTE:** This switch is not recommended for controlling non-arcing electric loads or electric loads less than <100 milliamps, 12 VAC. Switch must be used with pumps that provide integral thermal overload protection.



FLOAT SWITCH TECHNICAL DATA

Cable	Flexible 16 Gauge, 2 Conductor SJOW, Water Resistant
Float Housing	2.74" Diameter x 4.83" Long, High Impact, Corrosion Resistant, Polypropylene
Water Depth	30 Feet
Electrical	120/125 VAC 50/60 Hz Single Phase
Maximum Pump Starting Current	78 Amps
Maximum Pump Running Current	13 Amps
Maximum Pump HP	1/2 HP

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PRE-ENGINEERED DESIGNS PARTS LIST (Page 3 of 4)

HEADWORKS ENCLOSURE

The headworks enclosure is purple in color and rectangular in shape. Green enclosures are available if state and local regulations permit. All hydraulic system control components are contained within this open bottom enclosure. Components are conveniently arranged so that all necessary connections can be accessed from grade during routine service.



HEADWORKS ENCLOSURE TECHNICAL DATA

Enclosure Length	15"
Enclosure Width	21"
Enclosure Depth	12"
Enclosure Color (Standard)	Purple

SCHRADER VALVE

Schrader valves are manufactured with viton and PTFE threaded seals and are used with a liquid pressure gauge to accurately monitor system operating pressure. Located upstream and downstream of the disc filter and upstream of the flush valve.



SCHRADER VALVE TECHNICAL DATA

Connection	1/4" NPT
Maximum Pressure	200 PSI
Temperature Range	40° F to 300° F
Thread Size	0.305" - 32

1" DISC FILTER



The disc filter is completely corrosion resistant and designed to capture and retain effluent suspended solids. 1" disc filters are manufactured specially for small flow applications. A built-in tap allows for continuous flushing of filtered solids to the return line. Operation is automatic and requires no special tools.

1" DISC FILTER TECHNICAL DATA

	Metric	Imperial
Maximum Pressure	10 Bar	145 PSI
Flow Rate	6 m ³ /h	26 GPM
Flow Rate	4 m ³ /h	18 GPM
Filtration Surface Area	316 cm ²	49 in ²
Filtration Volume	440 cm ³	27 in ³
Filter Length	237 mm	9 11/32"
Filter Width	158 mm	6 7/32"
Distance Between Connections	158 mm	6 7/32"
Weight	1 kg	2.2 lbs.

ZONE INDEXING VALVE

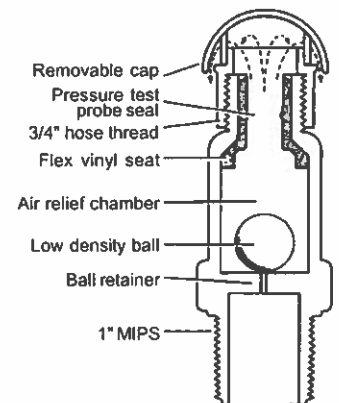
Zone indexing valves offer a reliable and economical way to automate multiple zoned residential and small commercial effluent drip disposal systems. Indexing valves are constructed of high strength, noncorrosive ABS polymer for long service life. Available in four and six outlet models, these valves make it easy to change from two to six disposal zones. Valves are easily maintained and serviced for long product life due the simplicity of the design. Reliably automates multiple zoned residential and small commercial effluent disposal systems with flows as low as 10 GPM and pressures of 25-75 PSI.



AIR/VACUUM RELIEF VALVE

Air/vacuum relief valves are installed at the high points of the drip field to keep soil from being pulled into the drip emitters due to back siphoning or back pressure. They are also used for proper draining of the supply and return lines in freezing conditions.

The air/vacuum relief valve provides instant and continuous vacuum relief and noncontinuous air relief. Both the body and the removable cover shall be constructed of molded plastic. The body and the cover shall be connected with a 3/4" hose thread.



PRE-ENGINEERED DESIGNS PARTS LIST (Page 4 of 4)

RELIEF VALVE ENCLOSURE



Manufactured from low density polymer resin, this 6" round enclosure provides a secure housing for the relief valve.

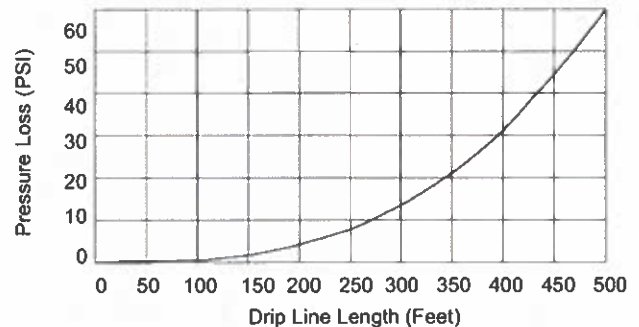
FLEXIBLE PVC HOSE

Designed to be glued into Schedule 40 PVC fittings, this flexible hose is used to connect drip tubing to supply and return lines. The hose is also used in single trench disposal zones to make loops in the drip tubing. Saves time and labor. Requires fewer fittings than rigid pipe. Smooth bore construction allows unrestricted flow. Use with recommended PVC primer and cement.



layers; the inside layer shall be a bactericide protection, the middle layer shall be black and the outside layer shall be purple striped for easy identification. The pressure compensating emitters shall be molded from virgin polyethylene resin with a silicone rubber diaphragm and shall have a nominal discharge rate of 1.02 gallons per hour. Each emitter shall be impregnated with a root growth inhibitor to protect against root intrusion.

Pressure Loss vs. Length of Drip Line



CHECK VALVE

PVC (Polyvinyl Chloride) check valves prevent effluent from flowing into resting disposal zones when active zones are being dosed. The check valves also allow maintenance to be performed without losing pressure in the system ahead of the maintenance.



Check valves are a vital component in multi-zone effluent drip disposal systems. The check valves are available as a union check valve combination, allowing a convenient connect/disconnect location anywhere in the system.

COMPRESSION FITTING



Compression fittings and adapters are specifically designed for use in subsurface effluent drip disposal systems. Manufactured from high strength polymer resin, these fittings simplify the installation of the emitter tubing.

COMPRESSION FITTING TECHNICAL DATA

1/2" Slip x 1/2" Drip Line
Weight: 0.005 lbs.

DRIP EMITTER TUBING

The drip tubing shall consist of nominal sized 1/2" linear low density, polyethylene tubing with turbulent flow drip emitters bonded to the inside wall. The drip emitter flow passage shall be 0.032" x 0.045" square. The tubing shall have an outside diameter (O.D.) of approximately 0.64" and an inside diameter (I.D.) of approximately 0.55". The tubing shall consist of three



Flow Rate vs. Pressure / TDH		
Drip Tubing	Head	Pressure
1.02 GPH	16 - 139 Feet	7 - 60 PSI

FLUSH VALVE

The flush valve is used to establish system operating pressure, allowing a continuous flow through the disposal field.

FLUSH VALVE TECHNICAL DATA

Size: 1 1/4" PVC Ball Valve (Standard)

Rated for 150 PSI at 73° F



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SINGULAIR® BIO-KINETIC® SYSTEM OPERATIONAL GUIDELINES



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SINGULAIR® OPERATIONAL GUIDELINES

The Singulair Bio-Kinetic wastewater treatment system utilizes the most up-to-date technology. It is a sound investment that protects you, the environment and the value of your property. These operational guidelines provide an overview of Singulair plant operation that will maximize the performance of your onsite wastewater treatment system. Following these operational guidelines and obtaining service from an authorized Singulair service professional will assure reliable trouble-free performance. Please carefully review these guidelines and if you have any questions, contact your factory trained service provider or licensed Norweco distributor.

Installation Requirements

Keep the Singulair system access opening covers accessible for inspections. Install risers if necessary.

Identify for the landscape contractor, the location of the entire onsite treatment and disposal system.

Do not plant anything over or near the effluent disposal system except grass. Roots from nearby trees or shrubs may clog and damage the drain lines in the disposal system.

Do not dig in the effluent disposal system or build anything over it.

Do not cover any portion of the system with concrete or asphalt. The disposal system should only be covered by grass. Grass can prevent erosion and help remove excess water.

Do not allow vehicles to drive on or park over any part of the system.

The Model 960 Singulair wastewater treatment plant is designed for domestic wastewater only. Do not connect any of the following items to the household sanitary system as they can interfere with biological treatment and damage the disposal system:

- Roofing downspouts
- Footer drains
- Sump pump piping
- Garage or basement floor drains
- Water softener backwash



Requirements for Use

Conserve water to avoid overloading the treatment and disposal system. Be sure to repair any leaky faucets or toilets.

Do not use septic tank additives. These products may be harmful to your system.



Do not flush hazardous materials or harsh chemicals into the system. The following items could seriously damage treatment and disposal components if allowed to enter the household plumbing:

- Flammable or toxic products
- Industrial solvents or floor wax
- Carpet cleaning fluids
- Chlorine bleach or chlorides
- Pool or spa products
- Pesticides or herbicides
- Agricultural chemicals or fertilizers

Use a trash can to dispose of all solid waste materials including:

- Cooking grease
- Coffee grounds or tea bags
- Egg shells
- Kitty litter
- Rags
- Fruit or vegetable seeds
- Chewing gum
- Tobacco products
- Paper towels or newspapers
- Candy wrappers
- Large amounts of hair



Do not use any portion of the household plumbing system for the disposal of:

- | | |
|------------------------------|----------------------|
| • Drain cleaners | • Lint or string |
| • Diapers | • Dental floss |
| • Sanitary napkins | • Scouring pads |
| • Paints or thinning agents | • Cotton balls/swabs |
| • Cleaning rags | • Cigarette filters |
| • Rubber or plastic products | • Harsh chemicals |

No Owner Maintenance

The Singulair Bio-Kinetic system is inspected and serviced by a local authorized and factory-trained service provider. No owner maintenance is required. Each system is sold with a two year service agreement covering a minimum of four system inspections. Keeping a detailed record of permits issued, installation drawings, inspections performed and maintenance activities will help track system performance. Norweco strongly encourages system owners to renew their service agreement annually. Maintaining a service agreement not only provides for optimal service of the system, but also allows the system owner to take full advantage of Norweco's lifetime warranty and exchange program.

The Singulair aerator enjoys the distinction of being the only aerator on the market today backed by a lifetime warranty and exchange program. Each Singulair aerator, control center and Bio-Kinetic system and any other components manufactured by Norweco are warranted to be free from defects in material and workmanship, under normal use and service, for a period of three years. The three year limited warranty is included in the original purchase price of every Singulair system. The comprehensive aerator exchange program offers Singulair owners a lifetime of protection. Owners with a Singulair system may exchange any aerator for a replacement unit at a prorated cost. If the Singulair aerator fails, do not use or dismantle the unit. The local, licensed distributor has detailed warranty and exchange information and should be contacted for service or replacement instructions.

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Progress Through Service Since 1906

We engineer, manufacture, install and maintain advanced water and wastewater treatment technologies for residential properties, communities and commercial properties that are not connected to sewer lines. Norweco treatment systems are in service all over the world.

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OPERATIONS & MAINTENANCE PLAN

Norweco Singulair Model TNT

OWTS with Drip Dispersal and Telemetry

County of San Diego – Department of Environmental Health and Quality (DEHQ)

1. Purpose and Regulatory Basis

This Operations and Maintenance (O&M) Plan establishes the minimum procedures, inspection frequency, and reporting requirements necessary to ensure proper operation of the **supplemental treatment OWTS** in compliance with:

- County of San Diego **Local Agency Management Program (LAMP)**
- **Annual Operating Permit** conditions issued by DEHQ
- Manufacturer requirements for the **Norweco Singulair Model TNT** and **Service Pro MCD telemetry**

This plan shall be maintained at the property and made available to DEHQ upon request.

2. System Description

2.1 Treatment System – Norweco Singulair Model TNT

The Norweco Singulair Model TNT is an extended aeration wastewater treatment system designed to reduce CBOD, TSS, and Total Nitrogen in residential wastewater. The system is NSF/ANSI Standard 245 certified and is approved for use as **supplemental treatment** under the County of San Diego LAMP.

Primary components include:

- Multi-compartment precast concrete treatment tank
- Continuous-duty aerator
- Internal Bio-Kinetic treatment and clarification system
- Final effluent discharge to drip dispersal system

The system is intended for **domestic wastewater only**.

2.2 Control Panel, Alarms, and Telemetry (REQUIRED)

The system is equipped with:

- Visual and audible alarm
- Norweco **Service Pro MCD** telemetry system, which provides **remote monitoring and alarm notification**

The telemetry system shall:

- Transmit alarm conditions to the **Owner** and **Qualified Service Provider (QSP)**
- Maintain alarm and operational history
- Remain powered and connected at all times

Any interruption to telemetry service shall be corrected immediately.

2.3 Effluent Sampling Port

A sampling port is installed downstream of the treatment unit and upstream of the drip dispersal system in a location representative of final effluent quality.

Sampling Port Location: [Describe location and access]

Sampling shall be performed when required by:

- DEHQ Operating Permit
 - System designer
 - Manufacturer or troubleshooting needs
-

2.4 Drip Dispersal System

The treated effluent is discharged to a pressure-dosed drip dispersal system consisting of:

- Filtration unit
- Control valve assemblies
- Pressure-compensating drip tubing installed within approved dispersal areas

The drip system is designed to distribute treated effluent uniformly and prevent surface discharge.

3. Roles and Responsibilities

3.1 Owner Responsibilities

The Owner shall:

- Maintain a valid **Annual Operating Permit** issued by DEHQ
- Maintain a **continuous maintenance contract** with a Qualified Service Provider
- Ensure inspections occur at the required frequency
- Maintain telemetry connectivity at all times
- Submit inspection and maintenance records to DEHQ within required timeframes
- Promptly notify the QSP of alarms, odors, surfacing effluent, or system concerns

3.2 Qualified Service Provider (QSP) Responsibilities

The QSP shall:

- Be trained or authorized to service Norweco Singulair systems
- Perform all inspections, maintenance, and troubleshooting
- Respond to alarms transmitted via Service Pro MCD
- Perform drip system flushing per schedule
- Submit inspection reports to DEHQ within **30 days** of each inspection
- Recommend corrective actions and pumping when necessary

4. Inspection and Maintenance Requirements

4.1 Minimum Inspection Frequency

- **Biannual inspections (minimum)** by the QSP
- Additional inspections as required by alarms, telemetry alerts, or permit conditions

4.2 Biannual Inspection Scope (Minimum)

A. Control Panel & Telemetry

- Verify visual and audible alarms are functional
- Confirm Service Pro MCD telemetry is communicating properly

- Review alarm history and system runtime data

B. Aeration & Mechanical Components

- Confirm aerator is operating continuously
- Check air delivery, vibration, noise, and electrical condition

C. Treatment Performance

- Observe mixed liquor and clarification conditions
- Check effluent appearance, odor, and presence of solids or foam

D. Solids Accumulation

- Evaluate sludge and scum levels
- Determine need for pumping and document recommendations

E. Sampling (If Required)

- Collect effluent samples from the sampling port when required
- Submit results with inspection report

F. Drip Dispersal System

- Verify dosing and pressure conditions
- Inspect for surfacing effluent, ponding, or odors
- Confirm vegetation health and absence of erosion

4.3 Drip System Flushing Requirements

Drip dispersal system flushing shall be performed by the QSP as follows:

- **Every 3 months during the first year** (or until vegetation is fully established)
- **Every 6 months thereafter**

Flushing records shall include:

- Date of flushing
- Duration and observations
- Maintenance performed (filter cleaning, valve checks, etc.)

5. Reporting, Recordkeeping, and Permit Compliance

5.1 Reporting to DEHQ

Inspection and maintenance reports shall be submitted to DEHQ **within 30 days** of each inspection and shall include:

- Date of inspection
- QSP name and qualifications
- System condition and observations
- Alarm history and telemetry status
- Maintenance performed
- Required corrective actions and schedule

5.2 Records Retention

The Owner shall retain:

- This O&M Plan
- Current maintenance contract
- Operating Permit
- At least **3 years** of inspection reports, alarm logs, pumping receipts, and flushing records
- As-built drawings showing system components and sampling port location

6. Alarm and Malfunction Response

6.1 Alarm Response Procedure

Upon alarm activation or telemetry notification:

1. Owner and QSP are notified via Service Pro MCD
2. QSP responds to evaluate system condition
3. Corrective actions are implemented promptly
4. If system failure or surfacing effluent occurs, wastewater flows shall be reduced and emergency measures taken as necessary
5. Documentation is submitted to DEHQ per permit requirements

6.2 Non-Compliance

Failure to maintain the system in accordance with this O&M Plan, the Operating Permit, or manufacturer requirements may result in enforcement action, permit suspension, or revocation by DEHQ.