Guidelines for Building Sewer Construction

Whitley County Regional Water and Sewer District

These guidelines are applicable for customer connections to the new sewer system for customers in the following service areas:

-County Line South- South of SR 14
-Dunfee
-Stable Acres
-Coesse

01-31-2024

Prepared & Maintained by:

JONES PETRIE RAFINSKI

WCRWSD- District Engineer

Guidelines for Building Sewer Construction

Whitley County Regional Water and Sewer District
Whitley County, State of Indiana

The following guidelines shall apply for all residential, commercial, industrial, and institutional users connecting to the Whitley County Regional Water and Sewer District (District) sanitary sewer collection system installed as part of the initial project in the following service areas:

- County Line South- south of SR 14
- Dunfee
- Stable Acres
- Coesse

These guidelines cover the administrative procedures and the construction requirements of the customer connections to the District-installed grinder stations or gravity sewer, which is part of the above described project and service area.

The provisions of this document are intended to provide guidance to retire existing septic systems and to provide uniform sewer connection procedures to prevent infiltration and contaminants from entering and damaging the District' sewer system.

Future connections to the systems above will be performed under the development standards of the appropriate utility jurisdiction. (For this project, either Aqua IN for Dunfee, County Line South, and Stable Acres, or Columbia City for Coesse)

Part 1 – Administrative

1.1 Background-

A. The Whitley County Regional Water and Sewer District obtained grant funding for a septic elimination project, which includes construction of gravity and pressure sewer wastewater collection systems serving the following communities:

1. County Line South (800 East- south of SR 14)- gravity sewer system connecting to Aqua IN wastewater collection system on the east side of County Line Road
2. Dunfee- Pressure Sewer system connecting to Aqua IN system just north of the railroad crossing along County Line Road
3. Stable Acres- Pressure Sewer System connecting to the Aqua IN system along SR 14 at CR 400 East
4. Coesse- Pressure sewer system connecting to the Columbia City sewer system serving the northern portion of Coesse

B. Upon completion of the initial construction project (completed on 1/31/2024), the new sewer systems for the above service areas will be turned over to the respective utility providing wastewater treatment. Each customer will then become a customer of the respective utility.

C. Description of Property Owner and Utility Responsibility

1. For the gravity sewer system- (County Line South- South of SR 14),

    a) the Utility will own and maintain:

        i. the main line gravity sewer installed in the easement behind (west of) the west property lines of the service area

        ii. the gravity lateral tee and

        iii. the gravity lateral from the main line sewer to the cleanout installed at the west property lines of the parcels in the service area

    b) the property owner will be required to install and maintain:

        i. the gravity sewer lateral from the cleanout installed as part of the project at the west property line to the point where the building sewer line exits the structure.

        ii. In addition, the property owner is responsible to abandon the existing septic tank system

2. For the Pressure sewer systems- (Dunfee, Stable Acres and Coesse)

    a) The Utility will own and maintain:

        i. the main pressure sewer line located in the existing road rights of way

        ii. the short segment of pressure sewer lateral from the main line to the curb stop/ check valve assembly installed by the project near the property line/right of way line

        iii. the curb stop/check valve assembly

    b) The property owner will be responsible to operate and maintain the following items installed by the project:

        i. The pressure sewer lateral from the curb stop/check valve assembly to the grinder station

        ii. The grinder station and alarm control panel

    c) The property owner will also be responsible to install, operate and maintain:

        i. The electrical circuit to energize the grinder station

        ii. The gravity sewer lateral from the grinder station lateral stub to the point where the building sewer line exits the structure

        iii. In addition, the property owner is responsible for abandoning the existing septic system.

1.2 Forms

A. The following documents shall be executed during the building sewer application process and are included as attachments herein.

1. Application for Sewer Connection Permit (**Form A**)
2. Sewer Location Sketch (**Form B**)
3. Sewer Connection Permit Certificate of Approval (**Form C**)
4. Billing and account forms as required by Aqua IN or Columbia City- included in appendix

1.3 Submittals and Permitting Process

A. Customer completes appropriate Utility service application form and submits to Utility
   a. Aqua IN for County Line South, Dunfee and Stable Acres- **Form AQ-1**
   b. Columbias City for Coesse- **Form CC-1**

B. Customer/Installing Contractor (CIC) completes the District permit Application **Forms A and B** and submits to District Representative (DR):
   a. Via email to WCConnection@JPR1Source.com
   b. Via mail or in person to JPR office at the following address:
      Jones Petrie Rafinski Corp
      222 Pearl Street
      Fort Wayne, IN 46802
      260-422-2522
      Normal Business hours 8:00 am to 5:00 pm

C. DR reviews/confirms the following:
   a. submitted **Forms A and B** for completeness
   b. confirms that customer has set up account with utility
      i. Aqua IN for County Line South, Dunfee and Stable Acres
      ii. Columbias City for Coesse
   c. Once all required documents are received (insurance, bonds, etc.), DR signs off on Forms A and B and sends approved forms back to CIC via email or US Postal service

D. After CIC receives the approved construction permit (**Forms A and B**), CIC is allowed to proceed with connection work. CIC may:
   a. install sewer pipe and fittings with partial bedding leaving top of pipe exposed
   b. make connection to house end or utility end (but not both)
   c. make final connection at time of inspection- leaving all connection work exposed

E. Prior to final connection of lateral to grinder station gravity lateral or gravity sewer lateral, CIC schedules an inspection (48 hour notice) with one of the following:
   a. County Line South, Dunfee, Stable Acres- Aqua, IN
      Sarah Baker
      Construction Coordinator
      Aqua Indiana, Inc.
      14421 Illinois Road
      Fort Wayne, IN 46814
      M: 260.403.9496
      O: 260.625.4700 x55221
      Email: SVBaker@aquaamerica.com

b. Coesse- District Representative:
Jennifer Bowman
Jones Petrie Rafinski Corp.
222 Pearl Street
Fort Wayne, IN 46802
260-422-2522
Email: WCConncetion@JPR1Source.com

F. Upon successful inspection of the sewer connection, then the following will occur:
   a. CIC can complete the installation process (backfilling and restoration) and septic tank abandonment

   b. Then, in the County Line South, Dunfee, Stable Acres service area- (Aqua, IN)
      i. Aqua IN inspector will sign off on Exhibit C- or equivalent form
      ii. Aqua IN will notify the DR that inspection has passed
      iii. DR will notify the Whitley County Health Department regarding need to perform a final inspection of septic tank abandonment
      iv. Aqua IN inspector will notify Aqua IN that connection is complete and billing should begin

   c. Then, in the Coesse service area- (Columbia City)
      i. DR will sign off on Exhibit C
      ii. DR will notify Columbia City Clerk Treasurer that connection is complete, and billing should begin
      iii. DR will notify the Whitley County Health Department regarding need to perform a final inspection of septic tank abandonment

G. After County Health Department representative has inspected property for proper septic tank abandonment, the Health Department representative will notify the DR that septic tank for said property has been properly abandoned

Part 2A – Agreements, Codes, Standards and Ordinances

The following agreements, codes, standards, and ordinances are all applicable to the work herein described, either in part or entirety, except that where more stringent requirements are set forth under codes, laws, and ordinances of federal, state and/or local governing bodies having jurisdiction, those more stringent requirements take precedence.

A. Property owner Right of Entry Agreement- This agreement has already been signed by the property owner at the physical street address prior to or during the District's construction project.
B. Aqua Indiana Guidelines (for Stable Acres, County Line South, and Dunfee Service Areas)
C. Sewer Use and Rate Ordinances for Coesse Service Area- as published by Columbia City
D. BOCA National Plumbing Code, current edition, with Indiana amendments
E. NFPA 70 National Electrical Code, current edition, with Indiana amendments
F. Indiana State Department of Health, Bulletin S.E. 13 "On Site Water Supply and Wastewater Disposal for Public and Commercial Establishments", current edition
G. Indiana Administrative Code 410 IAC 6-8.1 "Residential Sewage Disposal Systems"

Part 2B – Insurance

Prior to execution of the work, all contractors must procure and maintain insurance of the types and limits specified by the Board from a carrier licensed to do business in the State of Indiana. All such insurance must be evidenced by a "Certificate of Insurance" to be submitted with the "**Application for Building Sewer Connection Permit**".

Certificate of Insurance Requirements:
Before the District accepts the **"Application for Building Sewer Connection Permit"** The contractor shall show one of the following proofs of insurance when filing the application.

1) Public Liability and Property Damage Insurance in an amount not less than one Million dollars ($1,000,000.00) in the case of damage or injury to one or more persons.

Homeowners completing work without a contractor shall either present a Property Owner's policy amended, or obtain a separate policy, to cover damages to the public sewer system from their operations. Such coverage shall be issued in the amount of $10,000 and be evidenced by a "Certificate of Insurance" to be submitted with the "**Application for Building Sewer Connection Permit**".

Part 2C – Bonds

In addition to Insurance, all contractors and their subcontractors engaged in providing all or any part of the work of connecting a building or buildings to the main sewer system with a building sewer must furnish guaranteed surety to the District in the form of a permit bond in the amount of $5000, in the event that the contractor or subcontractor damages any part of the public sewer system or the grinder station for which corrective action must be taken by the District.

Part 2D – Local Permit Fees: Contractor County Registration

Customer or Installing Contractor (CIC) shall obtain appropriate permit from the Whitley County Building Department for the electrical connection to the grinder station.

Part 3 – Materials

3.1 Gravity Sewer and Pressure Sewer Laterals

A. Sewer laterals 50’ or more from water wells (public or private):

a. Any new building sewer gravity laterals, installed between the structure and the grinder station or the structure and the gravity sewer, shall be SDR 26 Polyvinyl Chloride (PVC) pipe with gasketed, push on joints. Glued-joint pipe is not acceptable. Glued fittings are only allowed at the connection point to the existing building sewer or the connection point to the grinder station lateral stub. Existing lateral pipe conforming to current County Health Department standards may continue to be utilized, provided all other applicable standards herein are maintained.

B. Sewer laterals less than 50’ from water wells (public or private)

a. Minimum separation requirements as stipulated in IAC 410 shall be observed whenever potable water wells are located within the minimum isolation distances defined therein.

b. Specifically, IAC 410-6-8.3 57d – Sewers shall not be located within fifty (50) feet of any water supply well or subsurface pump action line, except as follows:

(1) Sewers constructed of waterworks grade ductile iron pipe with tyton or mechanical joints, or PVC pressure sewer pipe with an SDR rating of twenty-one (21) or less with compression on gasket joints, may be located within the fifty (50) foot distance.

(2) In no case shall sewers be located closer than twenty (20) feet to dug and bored water supply wells or closer than ten (10) feet to drilled and driven water supply wells or subsurface pump suction lines.

C. Sewer lateral size and scope:

a. Sanitary service laterals shall be:

- four (4) inches or six (6) inches for single family residential dwellings or small commercial connections connecting to a grinder station
- six (6) inches in diameter for single family residential dwelling connecting to a gravity sewer

b. 4" Sanitary service laterals shall be laid with a minimum slope of 2.0% and a maximum slope of 12.0%.

c. 6-inch diameter laterals shall be laid at a minimum slope of 1.0% and a maximum slope of 12.0%.

(minimum and maximum slopes taken directly from 410 IAC 6-8.2-62)

D. Every attempt was made by the District to have the gravity sewer lateral stub (for the gravity sewer), or the gravity lateral stub out of the grinder station (for the pressure sewer) installed at a depth that would allow the property owner to make the connection to the sewer system using a gravity sewer lateral connection. In instances where

pressure sewer laterals must be constructed due to inadequate or negative slope between building sewer and the gravity sewer lateral stub or the grinder stations lateral stub, a property owner may need to install a sewage ejector (either inside or outside of the house) and a pressure sewer lateral, the following special provisions will apply:

a. pipe shall be of waterworks grade, with gasket, pressure grade push on joints (i.e., SDR 21 PVC or Class 52 ductile iron pipe or HDPE DR 11, 200 psi pressure rating.)
b. the ejector pit shall be located greater than 50 feet of potable water wells (public or private).
c. the pump a/o ejector pit shall not be capable of exceeding a flow rate of 14 gallons per minute and shall not pump waste in intervals exceeding 10 gallons. (sometimes referred to as "slugs")
d. the District reserves the right to require anyone obtaining a permit for this type of connection to also provide pump curve performance data and shop drawings for the pump and ejector pit they are proposing to use.

3.2 Electrical Connection

A. Each grinder station pump is powered by a single phase, 1 hp, 240 V, 1725 RPM motor

B. Electrical service to grinder station requires a dedicated 30A circuit breaker

C. The property owner may choose to install a separate disconnect switch either on the alarm panel post or within a line of site of alarm panel, in accordance with state and local electrical codes. The pump alarm panel supplied for the Stable Acres, Dunfee and Coesse service areas are provided with an internal Main Service Disconnect

D. Wire sizes and grounding shall be in accordance with state and local electrical codes

Part 4 – Installation

Sewer Lateral Installation

4.1 Building sewers should be installed using the shortest and most direct route to the Grinder station. Interior plumbing modifications are suggested rather than excessive changes of direction in the building sewer. Any new plumbing done inside the house to within 5 feet of the home must be performed by a licensed plumber unless the homeowner does this work.

4.2 Prior to the start of the work, both the location and elevation for the building sanitary drain and lateral connection to the sewer system must be identified to determine if slope is available in the allowable distance. The lateral connection location can be obtained from record drawings maintained by the District. (see 3.1 C b & c herein for minimum slopes).
Should inadequate or negative slope exist, the only method of sewer hookup available would be the use of a sewage ejector pump and pressure sewer lateral.

4.3 All fittings shall be installed to guide sewage in the direction of flow. There shall be no elbows or bends greater than 45 degrees. Two consecutive 45 degree elbow shall not be closer than 7' apart.

4.4 When connecting laterals to pipe of differing material or pipe diameters (typically at the connection to the grinder station gravity lateral, or gravity sewer lateral or connection to the existing building sewer), a Strong Back heavy duty Fernco coupling (or approved equivalent) shall be used. These are the only location such connectors shall be used.

4.5 Any open trench lateral construction shall be bedded in a minimum of 3" granular material conforming to Indiana Department of Transportation (INDOT) No. 53 or No. 8 gradations. Native soils may be used only if they consist of sand or other similar materials. Native materials that include vegetable or other organic matter, all types of refuse, large pieces or fragments of concrete, large stones, boulders, or other similar materials shall not be used. Bedding shall be carefully placed up to the spring line of the pipe making sure that the lower quadrants of the pipe are firmly bedded and supported. Bedding shall continue to be placed to the top of the pipe. After inspection of the gravity sewer lateral, bedding shall be placed to 6" above the top of pipe. The trench section from the top of the pipe bedding to existing grade shall be carefully backfilled with suitable excavated material.

Suitable excavated material used for backfilling shall consist of loam, sand, or other similar materials. Backfill materials that include vegetable or other organic matter, all types of refuse, large pieces or fragments of concrete, large stones, boulders, or other similar materials shall not be used.

At all times during the work, proper care must be taken to keep the trench and any other excavation free from any ground and surface water. Such equipment must be supplied and maintained to keep excavations dry until the sewer pipe bedding and backfill are complete. Drain or pump water away from the work to a suitable location without interference to adjoining property

Refer to typical details attached hereto for details regarding building sewer connections, pipe bedding and backfill requirements.

4.6 A two directional sewer cleanout shall be installed a maximum of 7-feet from the building, or from the connection point to the building's existing gravity waste line.

4.7 Sewer cleanouts downstream of the first cleanout next to the house, shall be installed at a

maximum of every 100 feet along any gravity type building sewer and can be two direction or single direction (towards grinder station). Accessible cleanouts can be installed at every change of direction or grade.

4.8 Cleanouts shall be extended to grade, pipe liners (frost sleeves) are recommended to be placed around the cleanout extension to grade. The cleanout shall be a "Y" fitting installed in the direction of sewer flow with a 45-degree fitting directed to grade. See typical details attached hereto for a detail of cleanout construction.

4.9 Cleanouts shall be the same diameter as the sewer lateral pipe.

4.10 Cleanout access shall not be covered and shall be readily accessible. Cleanouts shall be plugged or capped with an approved watertight lid.

4.11 Property owner may install a green #12 trace wire clamped to the near-the-house cleanout with a stainless-steel hose clamp, buried on top of the building sewer, terminating at the cleanout next to the grinder station.

4.12 Those existing sewer lines presently connecting the building sanitary drain to the septic tank, holding tank, which are also tied directly to a storm drain or drainage tile or other structure must be disconnected and abandoned.

4.13 The property owner shall make every effort necessary to avoid prohibited connections, which include but may not be limited to the following: rain, surface or subsurface water, sump pumps collecting rain and/or ground water, septic tanks, holding tanks, dry wells, and field drains. Internal piping shall be verified and inspected by the District before any connections are made. All Piping and fixtures on the property of the customer are assumed to be in satisfactory condition at the time the sewer connection is made, and sewer service furnished. The District reserves the right to require the correction of any unsatisfactory plumbing condition that may affect the integrity of the District sewer system if, during the inspection, such condition is found to exist. The District reserves the right to make any necessary repairs, if the customer refuses to do so, and shall bill the customer for the cost of said repairs.

4.14 The sewer lateral for all non-residential properties engaged in food service or food processing must include an acceptable self-contained grease trap.

Electrical Installation

4.15 Electrical

Each grinder station pump is powered by a single phase, 1 hp, 240 V, 1725 RPM motor.

Electrical service to grinder station requires a dedicated 30A circuit breaker.

The property owner may choose to install a separate disconnect switch either on the alarm panel post or within a line of site of alarm panel, in accordance with state and local electrical codes.

The pump alarm panel supplied for the Stable Acres, Dunfee and Coesse service areas are provided with an internal Main Service Disconnect.

Wire sizes and grounding shall be in accordance with state and local electrical codes.

Electrical wire diagrams and installation instructions from the grinder satin manufacturer (Environment One Corporation) are provided as an attachment to these guidelines.

Septic Tank Abandonment

4.16 All existing septic tanks, holding tanks and drywells, distribution boxes, including all other buried containers and receptacles presently tied into the building and collecting waste, shall be disconnected, and properly abandoned or removed. All tanks, basins, containers, etc. shall, prior to backfill or removal, be emptied clean by a licensed septage service. Such work shall be documented by a receipt from a licensed septic hauler.

The contents of the septic tank must be disposed of in a way meeting all Local and State health department standards. Contents of the waste shall not be disposed of in the Districts system.

Containers or receptacles constructed of materials subject to deterioration over a short period of time shall be removed and hauled from site.

Those septic tanks constructed of concrete or masonry may remain in place if found in sound condition. Tops or lids shall be removed and hauled from site or crushed into the tank. If built with solid bottoms, material must be broken up to allow for proper drainage, then backfilled with a debris- free sand or granular material, compacted in place to prevent settling. Where flowable mortar is used, the septic tank top may remain intact, provided all voids within the tank are filled adequately.

The Whitley County Health Department shall inspect septic tank abandonment to ensure compliance with all local and State of Indiana regulations.

Properly grade and establish vegetative cover.

If electrical power is involved with the existing septic system, it must be disconnected at the source and all control and lines removed.

Part 5 – Inspections

5.1 The District shall inspect all building sewers and sewer laterals to ensure compliance with these standards. A 48-hour notice for inspections is required

5.2 The entire installation and final hookup shall be inspected prior to backfilling, to verify materials and installation. Any building sewer lateral backfilled prior to an inspection approval shall be re-excavated at the owner's expense for inspection. In instances where service laterals are installed by directional drilling, the owner shall retain a sample of the piping material for verification by the inspector.

5.3 If it is to remain in place, the existing septic tank abandonment must be inspected prior to backfill.

5.4 No building sewer or sewer lateral installation or excavation of the lateral connection shall be allowed prior to completion of the District's main sewer collection system.

Part 6- Operations and Warranty

6.1 All grinder stations installed as part of the original project were started and tested prior to completion of the project. As noted above in the connection guidelines and as noted in the Right of Entry agreements, the grinder stations will be transferred to the property owner upon:

6.1.1 Completion of the Districts sewer project- January 21,2024
6.1.2 Customer Connection to the system

6.2 During the first two years of operation, (warranty period is December 2023 through December 2025), the Grinder station equipment is under a two year warranty provided by the grinder station manufacture (Environment One Corporation).

6.2 If a property owner experiences operational issues with the grinder station or alarm panel during the above stated two year warranty period, the property owner may reach out to the following:

Primary Contact: Environment One Local representative:

Name	Bob Hyatt
Company	Covalen
Phone Number	574-870-9467
Email	bhyatt@covalen.com

Secondary Contact: Environment One Local authorized service technician:

Name	Jerry Fitzpatrick
Company	Miami Maintenance
Phone Number	765-513-8020
Email	n.a.

6.5 For Grinder station/alarm panel issues after expiration of the two year warranty period, or for general maintenance and service needs for the grinder station, the property owner can reach out to:

Environment One Local authorized service technician:

Name	Jerry Fitzpatrick
Company	Miami Maintenance
Phone Number	765-513-8020
Email	n.a.

6.6 For the balance of the project improvements (pressure sewer lateral, curb stop/check valve assembly, main line pressure sewer, seeding and restoration, etc, the General contractor is providing a one year warranty for the improvements. For any of these issues, the property owner can reach out to:

Primary Contact:

Name	Joe Nichols
Company	Fleming Excavating, Inc.
Phone Number	260-724-2697
Cell Number	260-222-9259
Email	joen@flemingexc.com

Secondary Contact

Name	Steve Henschen
Company	Joes Petrie Rafinski Corp
Phone Number	260-433-2522
Cell Number	260-615-7173
Email	shenschen@jpr1source.com

6.6 After expiration of the general one year warranty, for any issues or concerns related to the pressure sewer lines and system valves, the property owner can reach out to the appropriate utility:

Aqua, IN: (for County Line South, Dunfee and Stable Acres
260-625-4700 EXT 0

Columbia City Utilities: (for Coesse)
260-248-5110

Attachments

CC-1- Columbia City Utilities Customer Application Form
AQ-1- Aqua IN Application Form Customer Application Form

Form A- Application for Building Sewer Connection Permit
Form B- Building Sewer and Sewer Lateral Location Sketch
Form C- Sewer Connection Approval

Figure 1- Building Sewer to Gravity Sewer System Connection Details
Figure 2- Building Sewer to Grinder Station System Detail
Figure 3- Building Sewer Connection and Cleanout Detail
Figure 4- Gravity Sewer Lateral Pipe Bedding Detail

E-One- Environment One Grinder Station Manufacturers' information

CC-1- Columbia City Utilities Customer Application Form

COLUMBIA CITY MUNICIPAL UTILITIES
APPLICATION FOR RESIDENTIAL UTILITY SERVICE
INFORMATION PROVIDED IS FOR OFFICE USE ONLY

FOR OFFICE USE ONLY: **ACCOUNT #**_____

DEPOSIT DATE _____ **CASH** _____ **CHECK** _____ **CREDIT CARD** _____ **OTHER** _____

ELECTRIC MD $_____ **RECEIPT #**_____ **WATER MD $**_____ **RECEIPT #**_____

Today's Date _____ **Service Start Date** _____

Service Address _____

Billing Address _____

Email Address _____

APPLICANT # 1 **APPLICANT #2**

Name _____ _____
Last First MI Last First MI

Soc. Sec. #_____ _____

Date of Birth_____ _____

Phone Number_____ _____

Previous Address _____ _____

Employer_____ _____

Employer's Address _____ _____

Name of Relative Not at your Address_____

Relative's Address_____

References (Bank, Credit Union, Etc.)_____

Have you had service in Columbia City Before? _____ If Yes, Dates of Service _____

Are you: Buying ☐ Renting ☐ From Whom _____

Type of Heat Type of Water Heater Type of Cooking Stove

I (We) request service as described above and agree to pay all charges in connection therewith. I (We) also agree to pay CCMU's attorney fees in the event of non-payment, whether or not suit is filed. By signing this Application, the undersigned hereby irrevocably and unconditionally submits his/herself to the jurisdiction of the courts of Whitley County, Indiana in any action or proceeding arising out of/or relating to this application for residential utility service. I understand that if I am renting this property, the landlord may obtain account balance information at any time.

For questions about your service start up, please contact our office at **(260)248-5100 ext 5227** Monday through Friday from 7:30 am to 4:00 pm or email us at bworden@columbiacity.net.

This Application is being signed in _____, IN.
City County

_____ _____
APPLICANT #1 SIGNATURE **APPLICANT #2 SIGNATURE**

The following individuals have my permission to obtain information regarding my account:

1. _____ 2. _____ 3. _____

AQ-1- Aqua IN Application Form Customer Application Form

Application for Service

Last Name: _____

First Name: _____

Service Address: _____

City, State, Zip: _____

Billing Address: _____
(if different than Service Address)

Phone Number: _____

For questions about your service start up:

Aboite Division Phone Number: (260) 625.4700 ext.55230

Office Hours: Monday thru Friday, 7:30AM to 4:30PM

Lori Kieres: lkieres@aquaamerica.com

Sarah Baker: svbaker@aquaamerica.com

Once your account has been set up and your service is active, our Call Center will be able to take your calls 24 hours a day, seven days a week.

Call Center Phone Number: (877) 987.2782

For Office Use:

Aqua Indiana Account Number: _____

Form A- Application for Building Sewer Connection Permit

Whitley County Regional Water and Sewer District

220 West Van Buren Street, Suite 101
Columba City, IN

Sewer Connection Permit – Form A

SEWER CONNECTION PERMIT APPLICATION

(Please type or print clearly)

Before sewer excavation or construction begins, the customer or installing contractor must apply for and be issued a building sewer connection permit, submit all required insurance and bond information.

Before a building sewer or sewer lateral may be buried or put into use, it must be inspected and approved by a District representative to confirm compliance with minimum requirements for design, materials and workmanship.

A COMPLETED SKETCH (Form B) must be included with this application form upon its return for approval.

Form C, listing required information, is attached for your use as a guide to what the inspector will be checking.

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To Be Completed by Applicant or Contractor

Date: _____

Property Owner/Customer Information

Name of Property Owner: _____

Physical Street Address of Connection Property: _____

Mailing Address (if Different): _____

Phone Number: _____

Email Address: _____

Utility Service Provider (select appropriate utility): AQUA IN or Columbia City

Property Owner's Certificate of Insurance Enclosed (if not using a contractor): _____

Proposed Date of Connection (if not using a contractor): _____

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To Be Completed by Contractor (if applicant is using a contractor)

Contractor Information

Installing Contractor: _____

Contractor Address: _____

Contractor Phone Number: _____

Contractor Email Address: _____

Contractor's Certificate of Insurance Enclosed: _____

Contractor's Permit Bond Enclosed: _____

Proposed Date of Connection: _____

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Property Owner or Contractor shall submit the following to the District Representative:

- Sewer Connection Permit Form A
- Sewer Connection Permit Form B
- Certificate of Insurance
  (Provided by Applicant if not using Contractor, Provided by Contractor if one is being used)
- Permit Bond
  (Provided by Contractor Only, Not needed if Contractor is not being used)

Documents can be emailed, mailed or hand delivered to the following:

a. Via email to WCConnection@JPR1Source.com
b. Via mail or in person to JPR office at the following address:
   Jones Petrie Rafinski Corp
   222 Pearl Street
   Fort Wayne, IN 46802
   260-422-2522
   Normal Business hours 8:00 am to 5:00 pm

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For District Use

Approved by: _____ Date: _____

Printed Name: _____

Representing: _____

Form B- Building Sewer and Sewer Lateral Location Sketch

Whitley County Regional Water and Sewer District
220 West Van Buren Street, Suite 101
Columba City, IN

Sewer Connection Permit - Form B

SEWER LOCATION SKETCH-

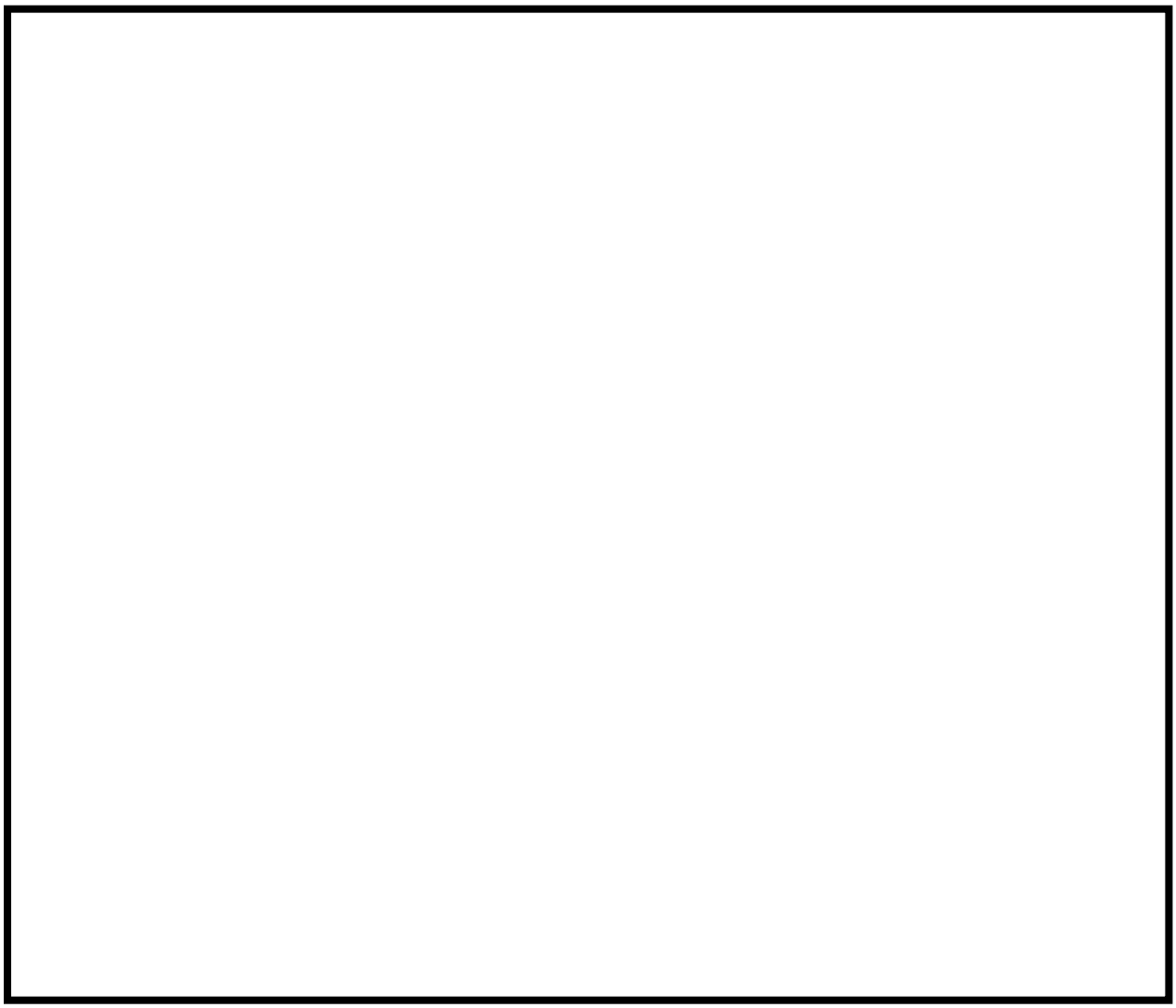
(Please type or print clearly)

Name of Property Owner: _____

Property Address: _____

Utility Service Provider (select appropriate utility): AQUA IN or Columbia City

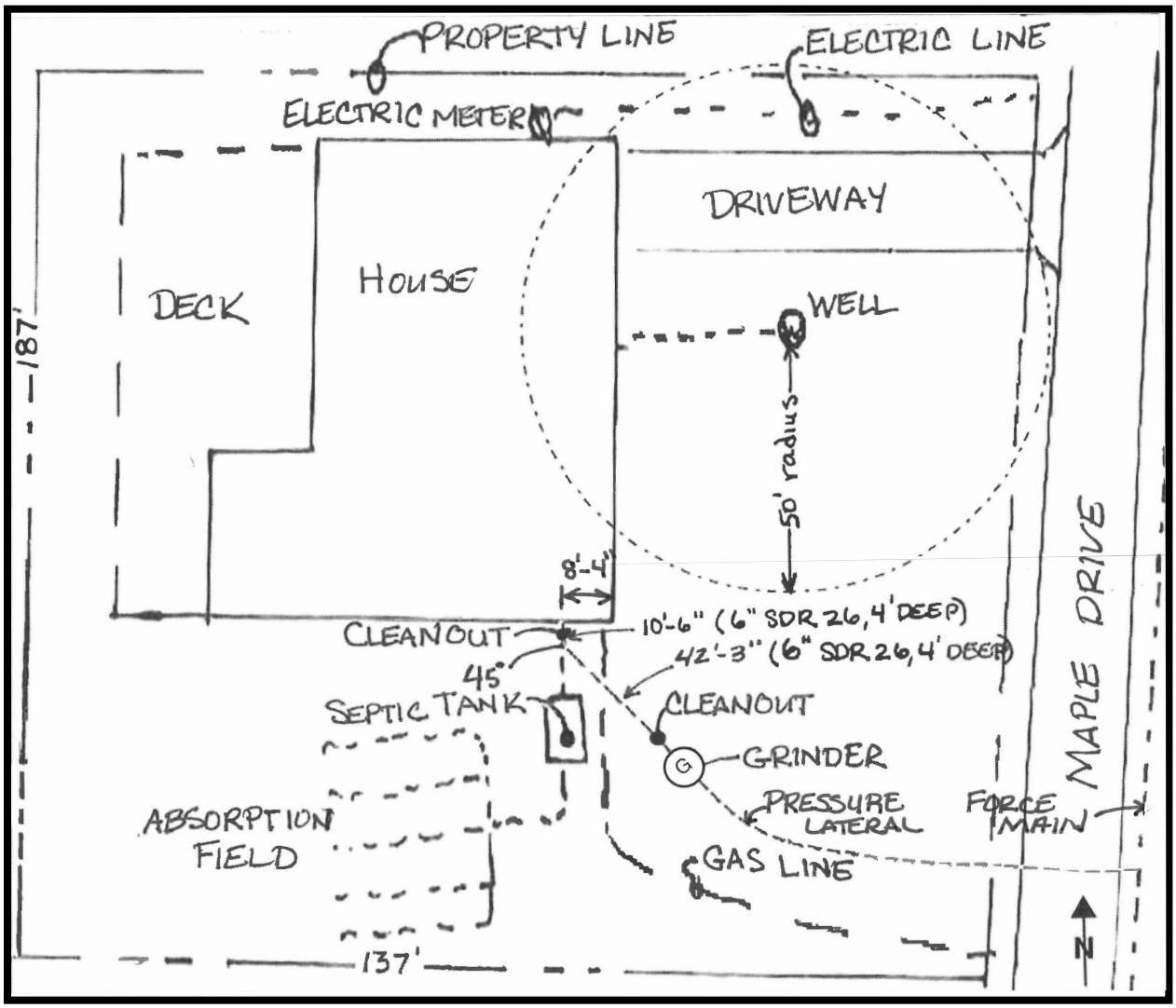
Continue to next page for sewer location sketch:



SHOW ON SKETCH:

1. Indicate North direction with arrow.
2. Locate streets and alleys.
3. Locate any potable wells on the property.
4. Locate building on lot.
5. Show lot size.
6. Sketch location of proposed building sewer from the building to the grinder station or gravity sewer, location of the grinder station, and location of the pressure sewer lateral to the sewer main.
7. If applicable, sketch the location of the building sewer from the building to the private ejector pit. Sketch the pressure sewer lateral, including size, from ejector pit to grinder ejector pit. Sketch the pressure sewer lateral, including size, from ejector pit to grinder station.
8. Indicate proposed location of cleanouts.
9. Indicate length and pipe material of any gravity or pressure sewer runs.
10. Approximate depth of the gravity, force main and low-pressure pipe runs.

EXAMPLE SKETCH



SHOW ON SKETCH:

1. Indicate North direction with arrow.
2. Locate streets and alleys.
3. Locate any potable wells on the property and sketch 50’ radius.
4. Locate building on lot.
5. Show lot size.
6. Sketch location of proposed building sewer from the building to the grinder station or gravity sewer, location of the grinder station, and location of the pressure sewer lateral to the sewer main.
7. If applicable, sketch the location of the building sewer from the building to the private ejector pit. Sketch the pressure sewer lateral, including size, from ejector pit to grinder ejector pit. Sketch the pressure sewer lateral, including size, from ejector pit to grinder station.
8. Indicate proposed location of cleanouts.
9. Indicate length and pipe material of any gravity or pressure sewer runs.
10. Approximate depth of the gravity, force main and low-pressure pipe runs.

Form C- Sewer Connection Approval

Whitley County Regional Water and Sewer District

220 West Van Buren Street, Suite 101
Columba City, IN

Sewer Connection Permit Page - Form C

SEWER CONNECTION CERTIFICATE OF APPROVAL

To Be Completed by a duly authorized representative of the WCRWSD or the local designated utility

Name(s) of Property Owner:_____Date: _____

Address of Property:_____

Contact Phone Number:_____

Check if Complete

_____Septic tank abandoned (attach documentation)

_____Clean outs installed

_____Internal grey water lines re-routed to sewer

_____Surface and groundwater lines re-routed elsewhere

_____Bedding material under laterals

_____Piping is in satisfactory condition or has been corrected to meet the rules and regulations of the District

_____Lateral & gasket installed

_____Type of Connection made at Existing Structure Connection (Flexible Coupling, Glued, Etc.)

_____Type of Connection made at Existing Lateral at Grinder (Flexible Coupling, Glued, Etc.)

_____Pipe Material at Existing Structure Connection

_____All Permit Forms Complete

_____As-Built Sketch Complete

This approval does not release the contractor or property owner from any responsibility or liability related to workmanship or functionality.

The connection to the public sanitary sewer system associated with this permit has been installed pursuant to the spirit and intent of the local and non-local ordinances and regulations that apply to the same, and the installation has been inspected in the field by a duly authorized representative of the utility accordingly. Approval of this connection is hereby granted.

By:_____

Print Name:_____

Representing:_____

Date:_____

Figure 1- Building Sewer to Gravity Sewer System Connection Details

NOTE:
ITEMS SHOWN IN RED ARE TO BE PROVIDED/INSTALLED BY THE PROPERTY OWNER

SEWER IMPROVEMENTS MAINTAINED BY AQUA

PRIVATE PROPERTY

SEWER IMPROVEMENTS MAINTAINED BY OWNER

INTERMEDIATE CLEANOUT REQUIRED EVERY 100'

7'-0"

SANITARY SEWER CLEANOUT

FINISHED GRADE

NEW SANITARY SEWER CLEANOUT WITHIN 7' OF BUILDING

DEPTH VARIES MIN 5'

WYE CLEANOUT

TWO-WAY CLEANOUT RECOMMENDED

HOUSE

SANITARY SEWER MAIN

NEW SANITARY SEWER SERVICE LATERAL

EXISTING BUILDING SEWER

SANITARY SEWER SERVICE LATERAL 6" PVC SDR 35

CONNECT TO EXISTING SANITARY SEWER LATERAL WITH PVC FITTING WITH GASKET JOINTS OR FERNCO STRONG BACK COUPLINGS

PROPERTY LINE

SEWER EASEMENT

PVC FITTING WITH GASKET JOINTS OR FERNCO STRONG BACK COUPLINGS

PROVIDED/INSTALLED BY HOMEOWNER – SANITARY SEWER LATERAL.

REV.	DESCRIPTION	BY	DATE

JONES PETRIE RAFINSKI
Elkhart, IN p: 574.293.7762
South Bend, IN p: 574.232.4388
Fort Wayne, IN p: 260.422.2322

CUSTOMER CONNECTION DETAIL

SEPTIC ELIMINATION PROJECT
DUNFEE, COESSE, E. COUNTY LINE ROAD S., AND STABLE ACRES SERVICE AREAS

WHITLEY COUNTY REGIONAL WATER AND SEWER DISTRICT
WHITLEY COUNTY, INDIANA
www.WhitleyRSD.com

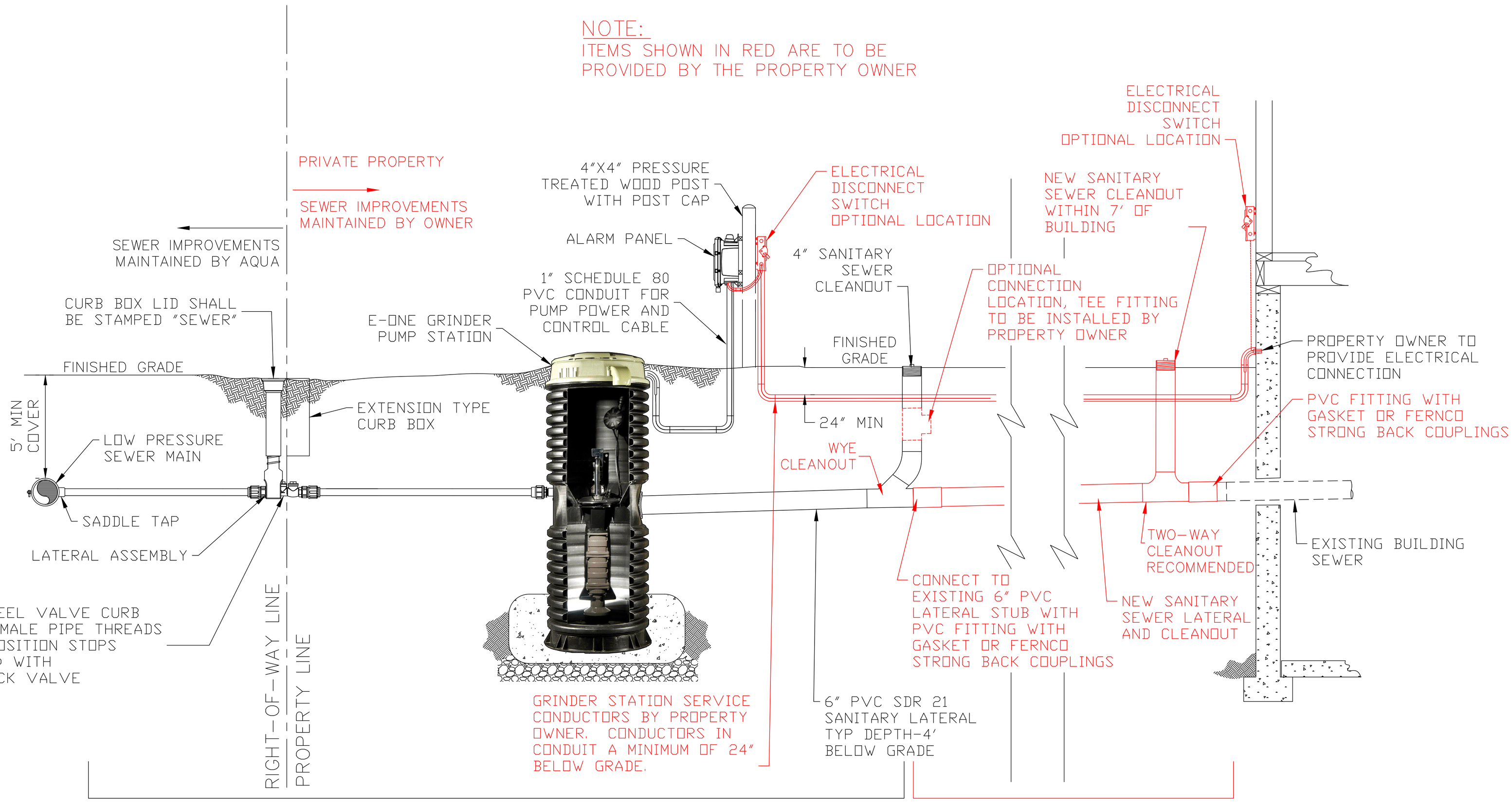
CUSTOMER CONNECTION DETAILS

DESIGNED BY: ----
DRAWN BY: KRM
REVIEWED BY: ----
DATE: NOVEMBER 2023
JOB NUMBER: 2020-0257
SCALE: N.T.S

FIGURE 1

Figure 2- Building Sewer to Grinder Station System Detail

NOTE:
ITEMS SHOWN IN RED ARE TO BE PROVIDED BY THE PROPERTY OWNER



INCLUDED IN PROJECT – INCLUDING ALARM PANEL AND WOOD POST

PROVIDED/INSTALLED BY PROPERTY OWNER – SANITARY SEWER LATERAL, ELECTRICAL SERVICE AND ELECTRICAL DISCONNECT SWITCH.

REV.	DESCRIPTION	BY	DATE

JONES PETRIE RAFINSKI
Fort Wayne, IN p: 260.422.2322
South Bend, IN p: 574.232.4388
Elkhart, IN p: 574.293.7762

CUSTOMER CONNECTION DETAIL

SEPTIC ELIMINATION PROJECT
DUNFEE, COESSE, E. COUNTY LINE ROAD S., AND STABLE ACRES SERVICE AREAS
WHITLEY COUNTY REGIONAL WATER AND SEWER DISTRICT
WHITLEY COUNTY, INDIANA
www.WhitleyRSD.com
CUSTOMER CONNECTION DETAILS

DESIGNED BY: ----
DRAWN BY: KRM
REVIEWED BY: ----
DATE: NOVEMBER 2023
JOB NUMBER: 2020-0257
SCALE: N.T.S

FIGURE 2

J:\PROJECTS\2020 PROJECTS\2020-0257 WHITLEY COUNTY SEPTIC ELIMINATION PROJECT\SUR\LAND ACQUISITION\PHASE II LAND

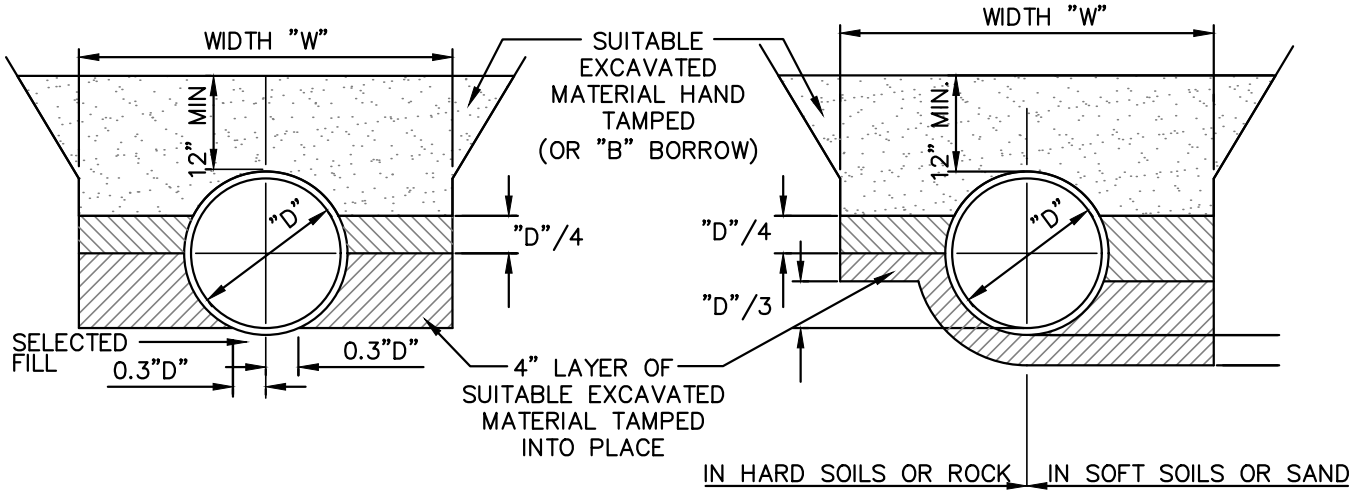
Figure 3- Building Sewer Connection and Cleanout Detail

Not Used

Figure 4- Gravity Sewer Lateral Pipe Bedding Detail

WHITLEY COUNTY REGIONAL WATER AND SEWER DISTRICT
STANDARD DETAILS

NOTE:
– PIPE SHALL BE FIRMLY BEDDED ON UNDISTURBED SOIL AS SHOWN IN SECTION. IN THE EVENT THE SOIL CANNOT BE SHAPED, OR THE CONTRACTOR PREFERS, THE TRENCH SHALL BE EXCAVATED TO A GREATER DEPTH AND BACK FILLED WITH SELECTED FILL AND COMPACTED AS SHOWN IN RIGHT SECTION. IN ALL CASES, BELL HOLES SHALL BE PROVIDED SO THAT THE BELL SUPPORTS NO WEIGHT. IN THE EVENT THAT THE EXCAVATED MATERIAL IS FOUND TO BE UNSUITABLE FOR TRENCHBACKFILL SHALL BE INDOT "B" BORROW OR EQAUL



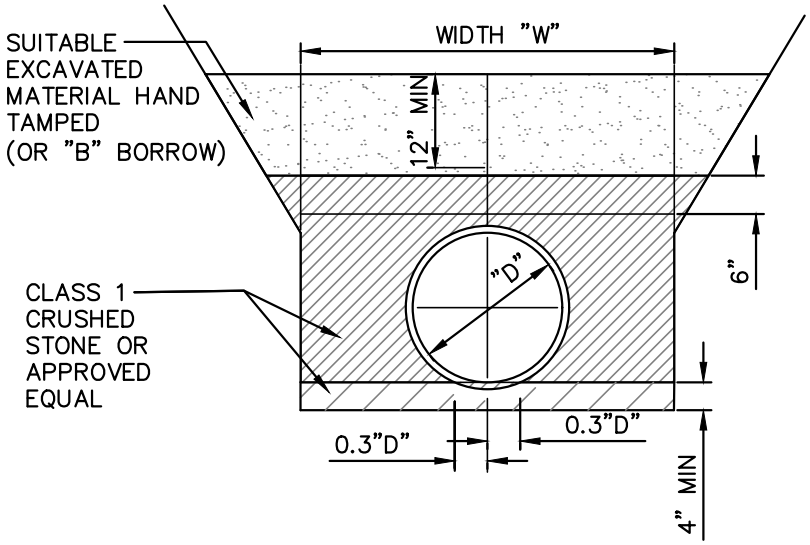
IN SUITABLE SOILS

IN SOFT OR HARD SOILS

MIN THICKNESS "T"	
4" TO 15"	6"
18" TO 36"	9"
OVER 36"	12"

MAX TRENCH WIDTH AT TOP OF PIPE	
DIA "D"	WIDTH "W"
6"	18"
8"	24"
10"	24"
12"	30"
15"	36"
18"	39"
21"	42"
24"	45"
27"	48"
30"	53"
36"	66"
42"	75"
48"	82"

NOTE:
ALL PVC PIPE SHALL BE INSTALLED FOLLOWING THE ASTM STANDARD PRACTICE D 2321–89.



HDPE OR PVC PIPE

REV.	DATE:
–	

GRAVITY SEWER LATERAL PIPE BEDDING DETAIL (ALL MATERIALS)

WHITLEY COUNTY
REGIONAL WATER AND SEWER DISTRICT

JONES PETRIE RAFINSKI
South Bend, IN p: 574.232.4388
Fort Wayne, IN p: 260.422.2522

File: M:\2020 Projects\2020-0257 Whitley County Septic Elimination Project\open house workshops\WCRWSD-002 pipe bedding detail.dwg

WCRWSD–002

E-One- Environment One Grinder Station Manufacturers' information

JONES PETRIE RAFINSKI

SHOP DRAWING FORM

PROJECT: Septic Elimination Project for Dunfee, Coesse, E. County Line Road S., and Stable Acres
OWNER: Whitley County Regional Water and Sewer District
CONTRACTOR: Fleming Excavating, Inc
RE: Submittal 023 – Grinder Stations
DATE: June 14, 2022

SHOP DRAWINGS DESCRIPTION:

Grinder Stations

COMMENTS AND/OR QUESTIONS:

1. **All approved submittals are contingent upon final approval of the project and bid package by Indiana State Revolving Funds**

DISCLAIMER:

The Contractor is hereby notified that Approval of these shop drawings by the Engineer does not relieve the contractor, sub-contractor and their suppliers of legal responsibility for integrity of design, latent defects, reliability or conformance to project plans and specifications. The Contractor shall specifically highlight any deviations from project plans and specifications for alternate materials, equipment and means of installation. If such is not presented, the Engineer and Owner assumes that the project submittals shall be per project plans and specifications.

DECISION:

_____Reviewed ___x___Reviewed As Noted _____ Revise and Resubmit

_____Rejected _____Submit specified Item

Allie Nahrwold

Engineer: _____ Date: 6/14/2022

M:\2020 Projects\2020-0257 Whitley County Septic Elimination Project\Construction Admin\Submittals\023 - Grinder Stations\to Fleming\2022-06-14 Submittal 023 - Grinder Stations.docxpp

Fleming Excavating Inc.

112E 1000N Decatur, IN 46733
Office: 260-724-2697
Fax: 260-724-8012
Email: joen@flemingexc.com

☐ REVIEWED ☒ REVIEWED AS NOTED
☐ REJECTED ☐ REVISE AND RESUBMIT
☐ SUBMIT SPECIFIED ITEM

THIS REVIEW IS ONLY FOR GENERAL CONFORMANCE WITH THE DESIGN CONCEPT OF THE PROJECT AND GENERAL COMPLIANCE WITH THE INFORMATION GIVEN IN THE CONTRACT DOCUMENTS. CORRECTIONS OR COMMENTS MADE ON THE SHOP DRAWINGS DURING THIS REVIEW DO NOT RELIEVE CONTRACTOR FROM COMPLIANCE WITH THE REQUIREMENTS OF THE PLANS AND SPECIFICATIONS. APPROVAL OF A SPECIFIC ITEM SHALL NOT INCLUDE APPROVAL OF AN ASSEMBLY OF WHICH THE ITEM IS A COMPONENT. CONTRACTOR IS RESPONSIBLE FOR: DIMENSIONS TO BE CONFIRMED AND CORRELATED AT THE JOBSITE; INFORMATION THAT PERTAINS SOLELY TO THE FABRICATION PROCESSES OR TO THE MEANS, METHODS, TECHNIQUES, SEQUENCES AND PROCEDURES OF CONSTRUCTION; COORDINATION OF THE WORK OF ALL TRADES; AND FOR PERFORMING ALL WORK IN A SAFE AND SATISFACTORY MANNER.

DATE 6/14/2022 BY akn

JPR

Project Name: WCRWSD- Septic Elimination Project

Date: 6/7/2022

To: Jones Petrie Rafinski

RE: Grinder Submittals 023

Remarks: 113,115.01,116.01,116.02,117.01,119.01,119.03, MA1-113, MA1-114, MA1-115.01, MA1-116.01, MA1-116.02, MA1-117.01, MA1-119.01, MA1-119.03 116.03,MA1-116.03

REVIEWED

This Submittal Has Been Reviewed

By Fleming Excavating Inc.

For General Conformance with the Plans and Specifications.

Recoverable Signature

1. All approved submittals are contingent upon final approval of the project and bid package by Indiana State Revolving Funds

☐ JN

Joe Nichols

Signed by: bbae3a7a-90df-4eca-bcfc-ec2bdb1c68a2

SEPTIC ELIMINATION PROJECT
GINDER PUMP SUPPLY

PRODUCT SUBMITTAL #1

FOR

WHITLEY COUNTY REGIONAL WATER AND SEWER DISTRICT
SEPTIC ELIMINATION PROJECT

JONES PETRIE RAFINSKI

June 6, 2022

2773 Balltown Road
Niskayuna, NY 12309
Phone: 518-346-6161 ⌖ FAX: 518-346-6188
www.eone.com

PROJECT:	**Whitley County Regional Water and Sewer District** Septic Elimination Project Whitley County, IN
OWNER:	**Whitley County Regional Water and Sewer District** 220 West Van Buren Street Columbia City, IN 46725
ENGINEER:	**Jones Petrie Rafinski Corp** 222 Pearl Street Fort Wayne, IN 46802 Daniel E. Byam, P.E. Phone: (260) 422-2522
EQUIPMENT MANUFACTURER:	**Environment One Corporation** 2773 Balltown Road Niskayuna, NY 12309 Dave Breiner - Sales Engineer Phone: (518) 579-3054
DISTRICT OFFICE:	**Environment One Corporation** Keyur Vora - Regional Manager Phone: (518) 630-9265
DISTRIBUTOR:	**Covalen** 6929 Brookville Road Indianapolis, IN 46239 Bob Hyatt Phone: (574) 870-9467
BID DATE:	**April 12, 2022**

LIST OF MATERIALS

ITEM NUMBER 113 - Grinder Pump Unit, Type 1

MODEL NUMBER DH071-93
- D200B14B23BF – Basin/Core/Cable
- PA1002G03 - Tank Wrench Assembly (typically ship 5 per truckload)

QUANTITY 130 Ea.

WEIGHT 262 Lbs. / Ea.

DESCRIPTION EXTREME Simplex grinder pump station includes:
- 70 Gallon, 92” Tall HDPE Basin Wetwell/Drywell, 44” COD, and 53” Invert Depth
- Green HDPE Lockable Cover Assembly with Integral Vent
- Core Assembly (1 Phase, 1HP, 240V, 1725 RPM Semi-Positive Displacement Pump), Includes: NEMA 6P Electrical Quick Disconnect, Pressure Switch Level Controls, 7’ Core Cable, Equalizer Assembly, Check Valve/Anti-Siphon Valve Assembly, SS Candy Cane Discharge and SS Discharge Ball valve
- Factory Installed Power Cable Gland Nut and 32’ of Direct Bury Supply Cable
- Factory Installed Inlet Grommet to accept a 6” DWV (6.625” OD) inlet pipe, 180 Degrees from Discharge
- 1-1/4” SS FNPT Discharge Bulkhead

LIST OF MATERIALS (Cont.)

ITEM NUMBER 115.01 - Extend Depth of Grinder Station

MODEL NUMBER NC0293G01 – 1’ Simplex Accessway Extension Kit

QUANTITY TBD Ea.

WEIGHT 30 Lbs. / Ea.

DESCRIPTION 1’ Simplex Accessway Extension includes:
- 1’ Slip On Extension and Cover Shroud (reuse existing cover)

ITEM NUMBER 116.01/02 – Curb Stop Check valve Asm w/ Curb Box

MODEL NUMBER NB0184P01 – SS Curb Stop/Check Valve Assembly
PB0930G04 – Curb Box Asm, Plastic, 42-66”

QUANTITY 131 Ea.

WEIGHT 20 Lbs. / Ea.

DESCRIPTION Lateral Assembly
- Curb stop assembly, 1-1/4” FNPT Each End, 316SS
- Curb Box Assembly, 42-66”, ABS plastic, Cast Iron Cover and wench extension

---

ITEM NUMBER 116.03 – SS Flex Connector

MODEL NUMBER NA0779P01 – Braided SS Hose

QUANTITY 131 Ea.

WEIGHT 4 Lbs. / Ea.

DESCRIPTION Flex Connector
- 1-1/4” MNPT Each End, 304SS

LIST OF MATERIALS (Cont.)

ITEM NUMBER 117.01 – Type 1 Simplex Alarm Panel

MODEL NUMBER Simplex Sentry Alarm Panel
- SA1B110B0AA

QUANTITY 130 Ea.

WEIGHT 8 Lbs. / Ea.

DESCRIPTION Sentry Simplex Alarm Panel includes:
- Sentry Simplex Grinder Pump Alarm Panel, 240V, UL Listed, NEMA 4X Rated Thermoplastic enclosure, lockable latch and keyed alike padlock, circuit breakers, redundant (high level) run, visual & audible alarm, manual silence and manual run switch
- Hour Meter
- MSDB

ITEM NUMBER 119.01 – Type 1 Spare Core

MODEL NUMBER Simplex Spare Core
- D200A01A01AA

QUANTITY 12 Ea.

WEIGHT 100 Lbs. / Ea.

DESCRIPTION Spare Core includes:
- Core Assembly (1 Phase, 1HP, 240V, 1725 RPM Semi-Positive Displacement Pump), Includes: NEMA 6P Electrical Quick Disconnect, Pressure Switch Level Controls, 7’ Core Cable, Equalizer Assembly, Check Valve/Anti-Siphon Valve Assembly, SS Candy Cane Discharge and SS Discharge Ball valve.

LIST OF MATERIALS (Cont.)

ITEM NUMBER 119.03 – Type 1 Spare Simplex Alarm Panel

MODEL NUMBER Simplex Sentry Alarm Panel
- SA1B110B0AA

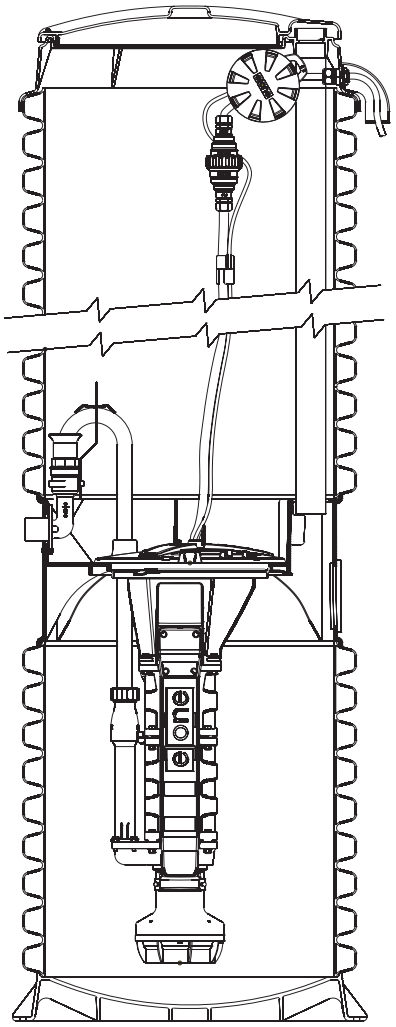
QUANTITY 6 Ea.

WEIGHT 8 Lbs. / Ea.

DESCRIPTION Sentry Simplex Alarm Panel includes:
- Sentry Simplex Grinder Pump Alarm Panel, 240V, UL Listed, NEMA 4X Rated Thermoplastic enclosure, lockable latch and keyed alike padlock, circuit breakers, redundant (high level) run, visual & audible alarm, manual silence and manual run switch
- Hour Meter
- MSDB

E/ONE EXTREME SERIES

DH071/DR071



General Features

The model DH071 or DR071 grinder pump station is a complete unit that includes: the grinder pump, check valve, HDPE (high density polyethylene) tank, controls, and alarm panel. A single DH071 or DR071 is a popular choice for one, average single-family home and can also be used for up to two average single-family homes where codes allow and with consent of the factory.

- Rated for flows of 700 gpd (2650 lpd)
- 70 gallons (265 liters) of capacity
- Indoor or outdoor installation
- Standard outdoor heights range from 61 inches to 160 inches

The DH071 is the “hardwired,” or “wired,” model where a cable connects the motor controls to the level controls through watertight penetrations.

The DR071 is the “radio frequency identification” (RFID), or “wireless,” model that uses wireless technology to communicate between the level controls and the motor controls.

Operational Information

Motor
1 hp, 1,725 rpm, high torque, capacitor start, thermally protected, 120/240V, 60 Hz, 1 phase

Inlet Connections
4-inch inlet grommet standard for DWV pipe. Other inlet configurations available from the factory.

Discharge Connections
Pump discharge terminates in 1.25-inch NPT female thread. Can easily be adapted to 1.25-inch PVC pipe or any other material required by local codes.

Discharge
15 gpm at 0 psig (0.95 lps at 0 m)
11 gpm at 40 psig (0.69 lps at 28 m)
7.8 gpm at 80 psig (0.49 lps at 56 m)

Accessories

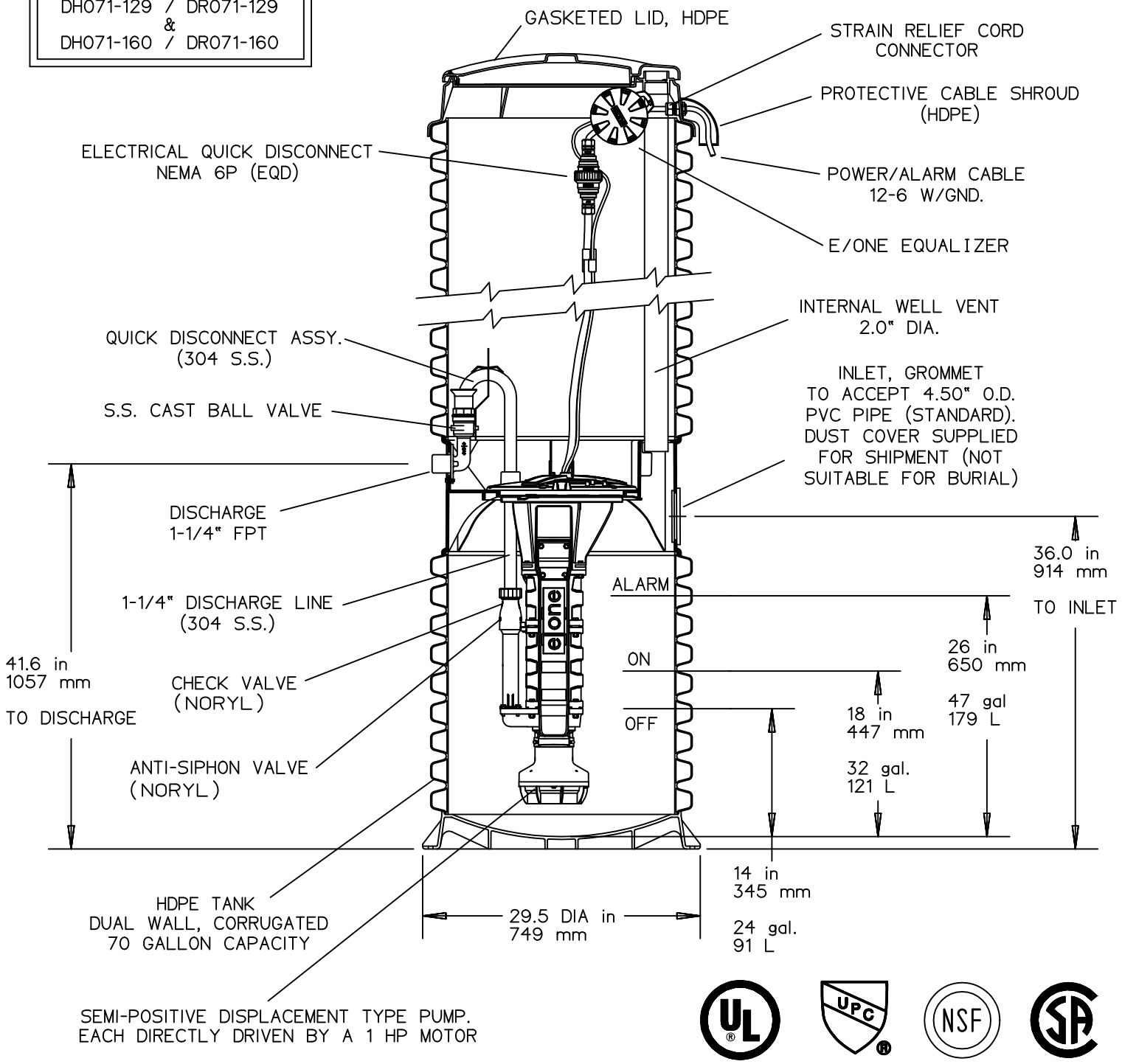
E/One requires that the Uni-Lateral, E/One’s own stainless steel check valve, be installed between the grinder pump station and the street main for added protection against backflow.

Alarm panels are available with a variety of options, from basic monitoring to advanced notice of service requirements.

The Remote Sentry is ideal for installations where the alarm panel may be hidden from view.

OPTIONS : [X] DH071 (HARD WIRED LEVEL CONTROLS)
[ ] DR071 (WIRELESS LEVEL CONTROLS)

FIELD JOINT REQUIRED
FOR MODELS
DH071-129 / DR071-129
&
DH071-160 / DR071-160



CONCRETE BALLAST MAY BE REQUIRED
SEE INSTALLATION INSTRUCTION
FOR DETAILS

NOTE: DIMENSIONS ARE FOR REF ONLY

AD	CH	10/20/10	E	
DR BY	CHK'D	DATE	ISSUE	SCALE

SEWER SYSTEMS

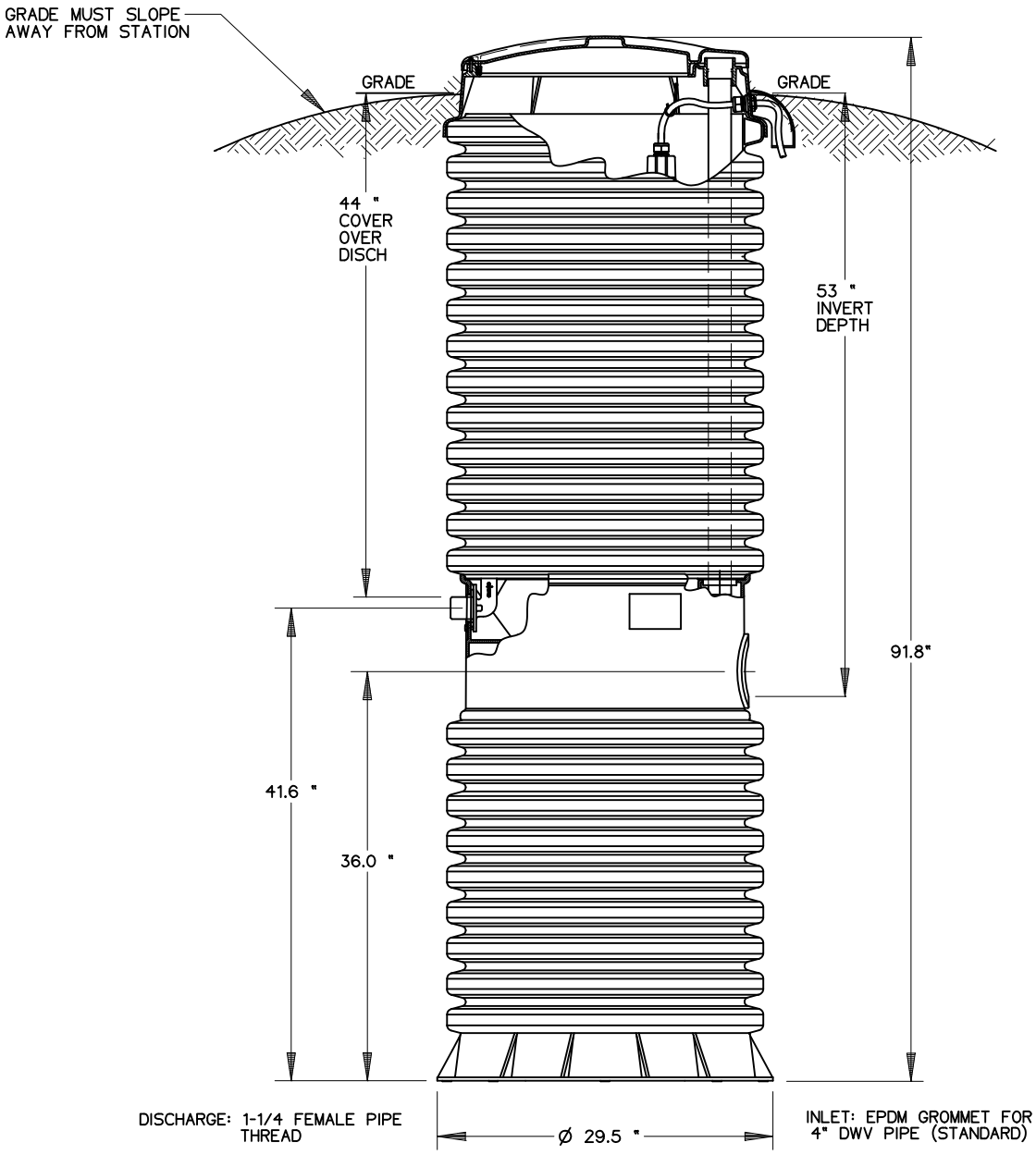
MODEL DH071 / DR071
DETAIL SHEET

NA0050P02

OPTIONS :

[X] **DH071-93** (HARD WIRED LEVEL CONTROLS)

[ ] **DR071-93** (WIRELESS LEVEL CONTROLS)



CONCRETE BALLAST MAY BE REQUIRED
SEE INSTALLATION INSTRUCTIONS
FOR DETAILS

NOTE: DIMENSIONS ARE FOR REF ONLY

AD	CAH	07/12/07	B	1/16
DR BY	CHK'D	DATE	ISSUE	SCALE

eone SEWER SYSTEMS

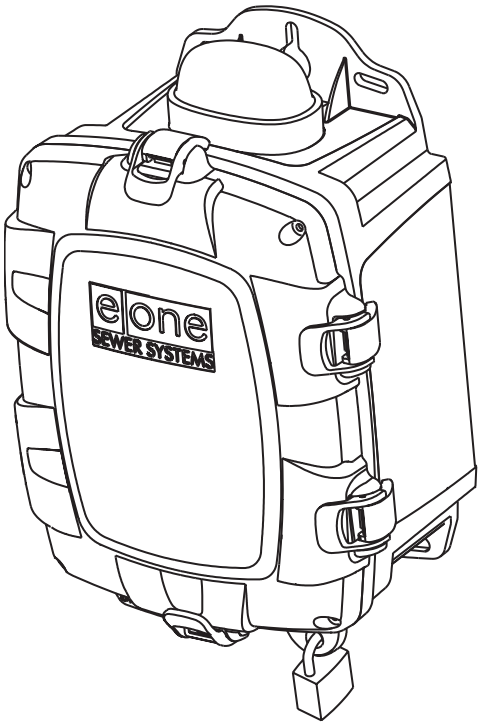
MODEL DH071-93 / DR071-93

NA0050P06

E/ONE EXTREME SERIES

E/One Sentry™

Alarm Panel — Basic Package



Description

The E/One Sentry panels are custom designed for use with Environment One grinder pump stations. They can be configured to meet the needs of your application, from basic alarm indication to advanced warning of pending service requirements.

E/One Sentry panels are supplied with audible and visual high level alarms. They are easily installed in accordance with relevant national and local codes. Standard panels are approved by UL, CSA, CE and NSF to ensure high quality and safety.

The panel features a corrosion-proof, NEMA 4X-rated, thermoplastic enclosure. A padlock is provided to prevent unauthorized entry (safety front).

Standard Features

Circuit breakers, 240 or 120 VAC service

Terminal blocks and ground lugs

Audible alarm with manual silence

Manual run feature and run indicator

Redundant “Start” function with high level alarm

Conformal-coated alarm board (both sides)

Alarm board overload protection

Optional Features

Contact group (dry, powered and Remote Sentry)

Inner cover (dead front)

Hour meter

Generator receptacle with auto transfer

GFCI

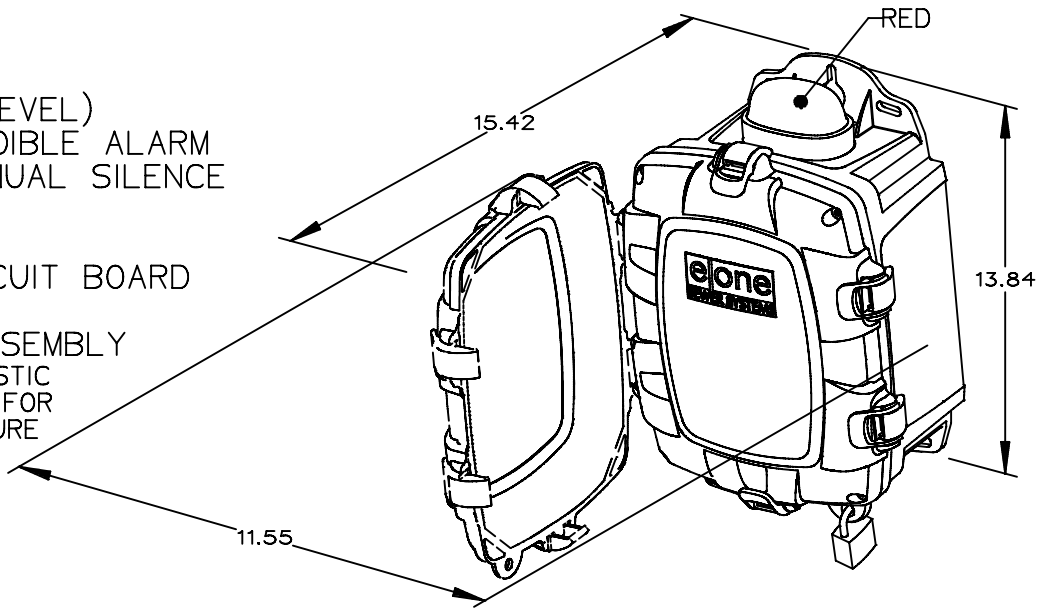
Main service disconnect

Brownout protection

Please consult factory for special applications.

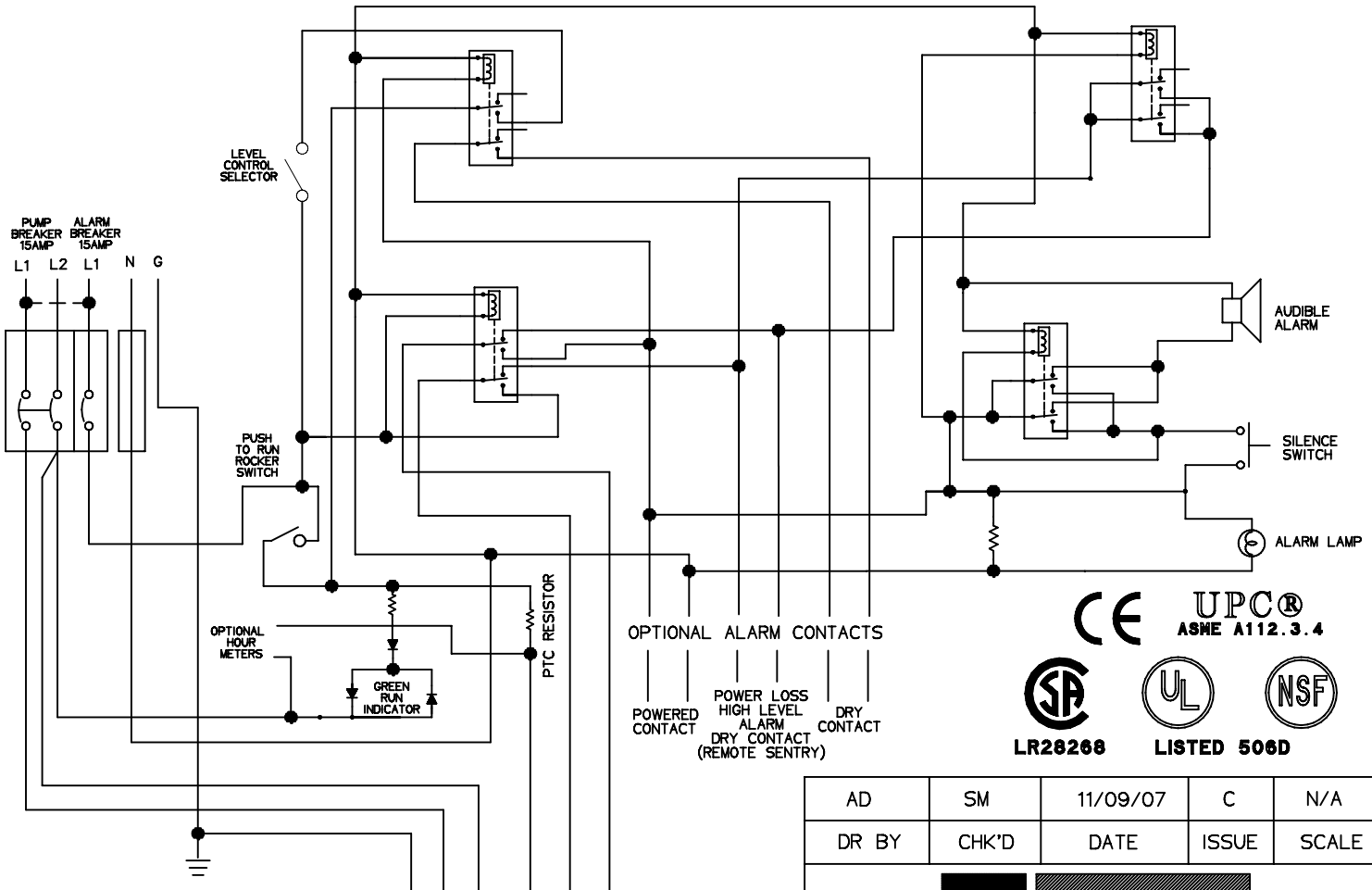
SIMPLEX SENTRY

REDUNDANT RUN (HIGH LEVEL)
EXTERNAL VISUAL & AUDIBLE ALARM
EXTERNAL LATCHING MANUAL SILENCE
MANUAL RUN
PUMP RUN INDICATOR
CONFORMAL COATED CIRCUIT BOARD
PADLOCK
NEMA 4X ENCLOSURE ASSEMBLY
CORROSION PROOF THERMOPLASTIC POLYESTER APPROVED BY UL FOR ELECTRICAL CONTROL ENCLOSURE



OPTIONS:

- ☐ ALARM CONTACTS
- ☐ HOUR METER



CE UPC® ASME A112.3.4

CSA LR28268 UL LISTED 506D NSF

PIN	FUNCTION	2000S	EXTREME
1	MANUAL RUN	RED	BROWN
2	L1	BLACK	RED
3	L2	WHITE	BLACK
4	GND	GREEN	GRN/YEL
5	ALARM FEED	ORANGE	YELLOW
6	ALARM RETURN	BLUE	BLUE

CONTROL CABLE:
TYPE TC: DIRECT BURIAL, 12AWG, SIX CONDUCTOR

AD	SM	11/09/07	C	N/A
DR BY	CHK'D	DATE	ISSUE	SCALE

e/one SEWER SYSTEMS

SIMPLEX SENTRY, 240V 60Hz.
DOUBLE POLE POWER

LM000326

SIMPLEX SENTRY

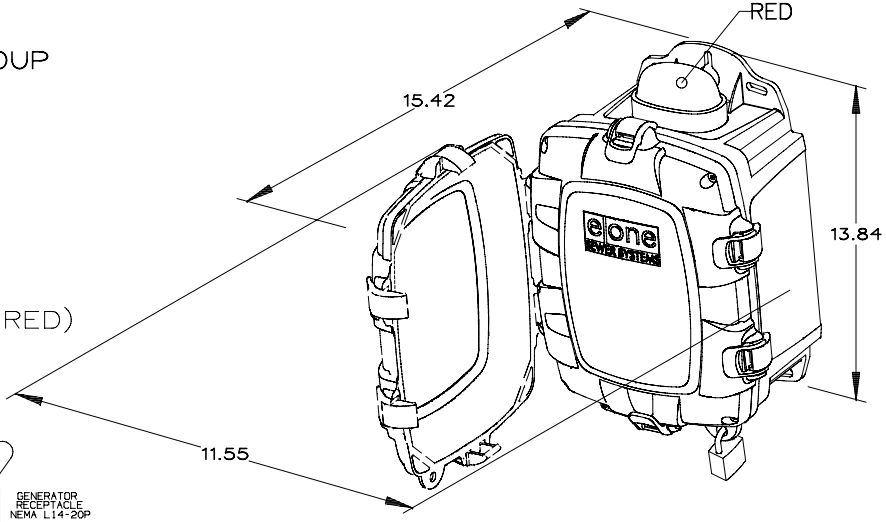
REDUNDANT RUN (HIGH LEVEL)
EXTERNAL VISUAL & AUDIBLE ALARM
EXTERNAL LATCHING MANUAL SILENCE
MANUAL RUN
PUMP RUN INDICATOR
CONFORMAL COATED CIRCUIT BOARD
PADLOCK
NEMA 4X ENCLOSURE ASSEMBLY
CORROSION PROOF THERMOPLASTIC POLYESTER APPROVED BY UL FOR ELECTRICAL CONTROL ENCLOSURE

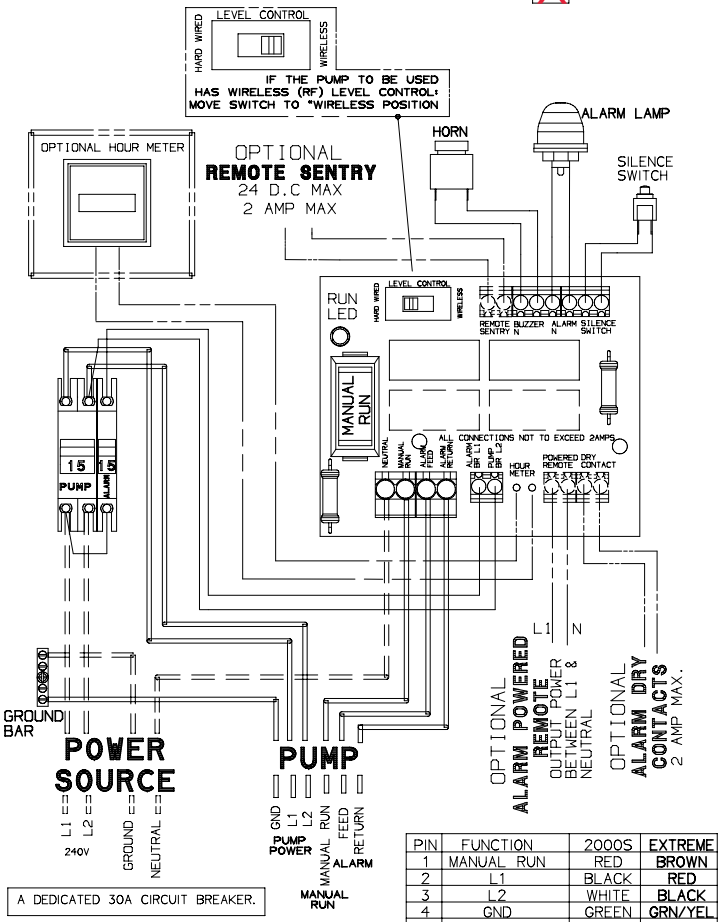
OPTIONS:

- [ ] WITH CONTACT GROUP
- [X] NO CONTACTS

OPTIONAL FEATURES:

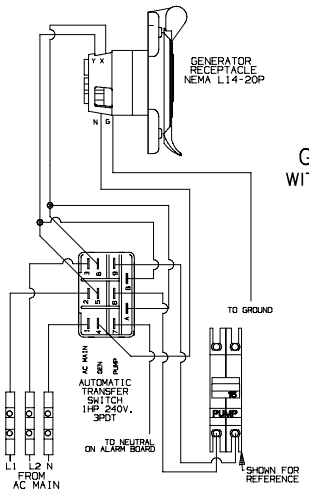
- [X] HOUR METERS
- [ ] GENERATOR RECEPTACLE
- [ ] GFCI (DEAD FRONT REQUIRED)
- [ ] DEAF FRONT
- [X] SERVICE DISCONNECT



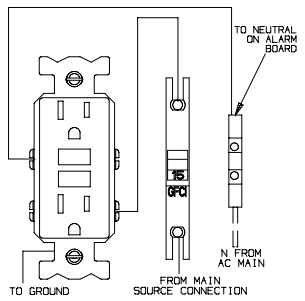


PIN	FUNCTION	2000S	EXTREME
1	MANUAL RUN	RED	BROWN
2	L1	BLACK	RED
3	L2	WHITE	BLACK
4	GND	GREEN	GRN/YEL
5	ALARM FEED	ORANGE	YELLOW
6	ALARM RETURN	BLUE	BLUE

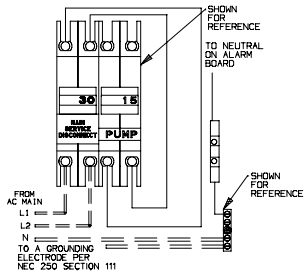
STANDARD WIRING



OPTIONAL
GENERATOR RECEPTACLE
WITH AUTOMATIC TRANSFER SWITCH



OPTIONAL
GROUND FAULT RECEPTACLE



OPTIONAL
MAIN SERVICE DISCONNECT

UPC® ASME A112.3.4
LR28288
LISTED 506D

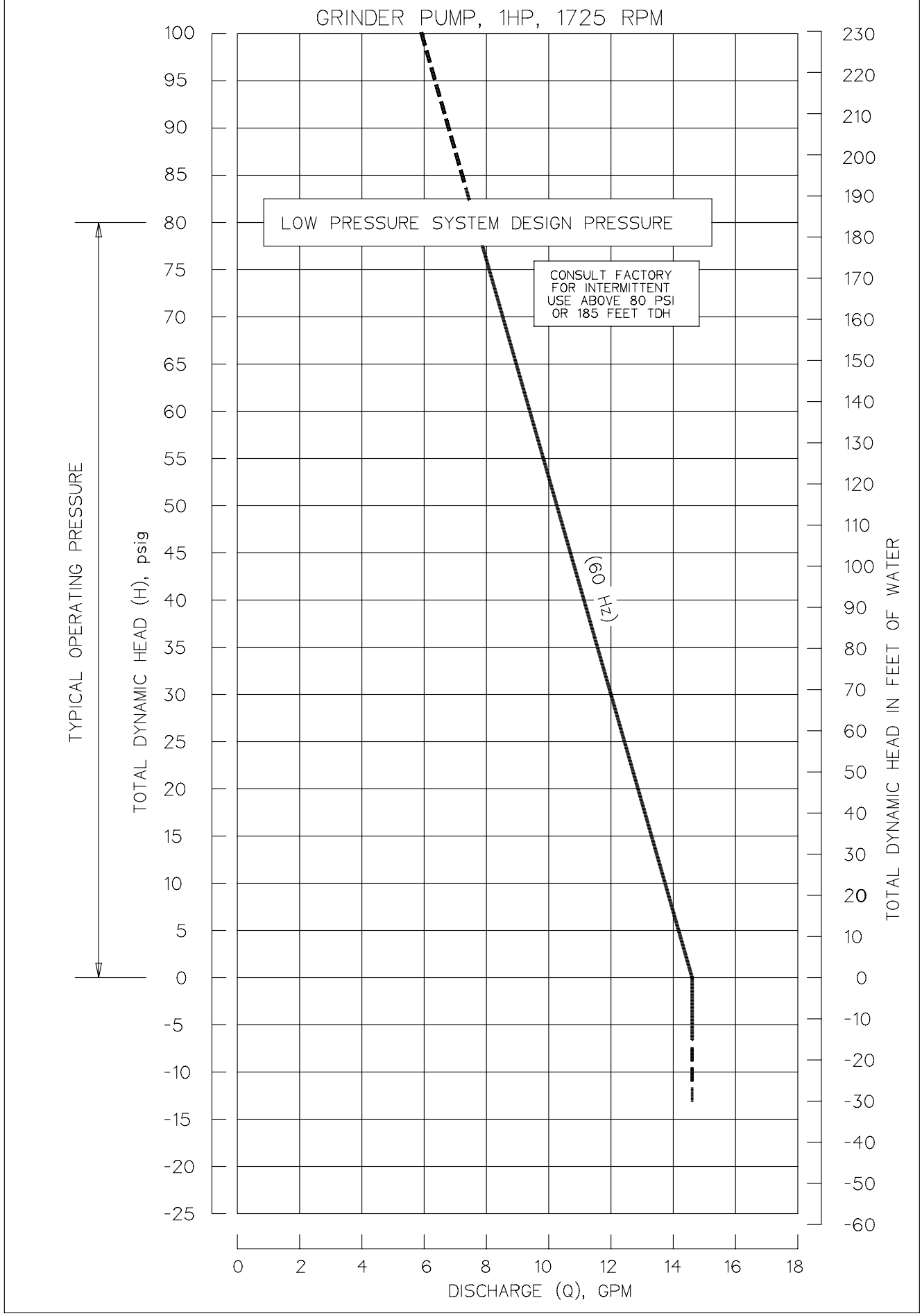
SGS	CH	01/30/08	1	N/A
DR BY	CHK'D	DATE	ISSUE	SCALE

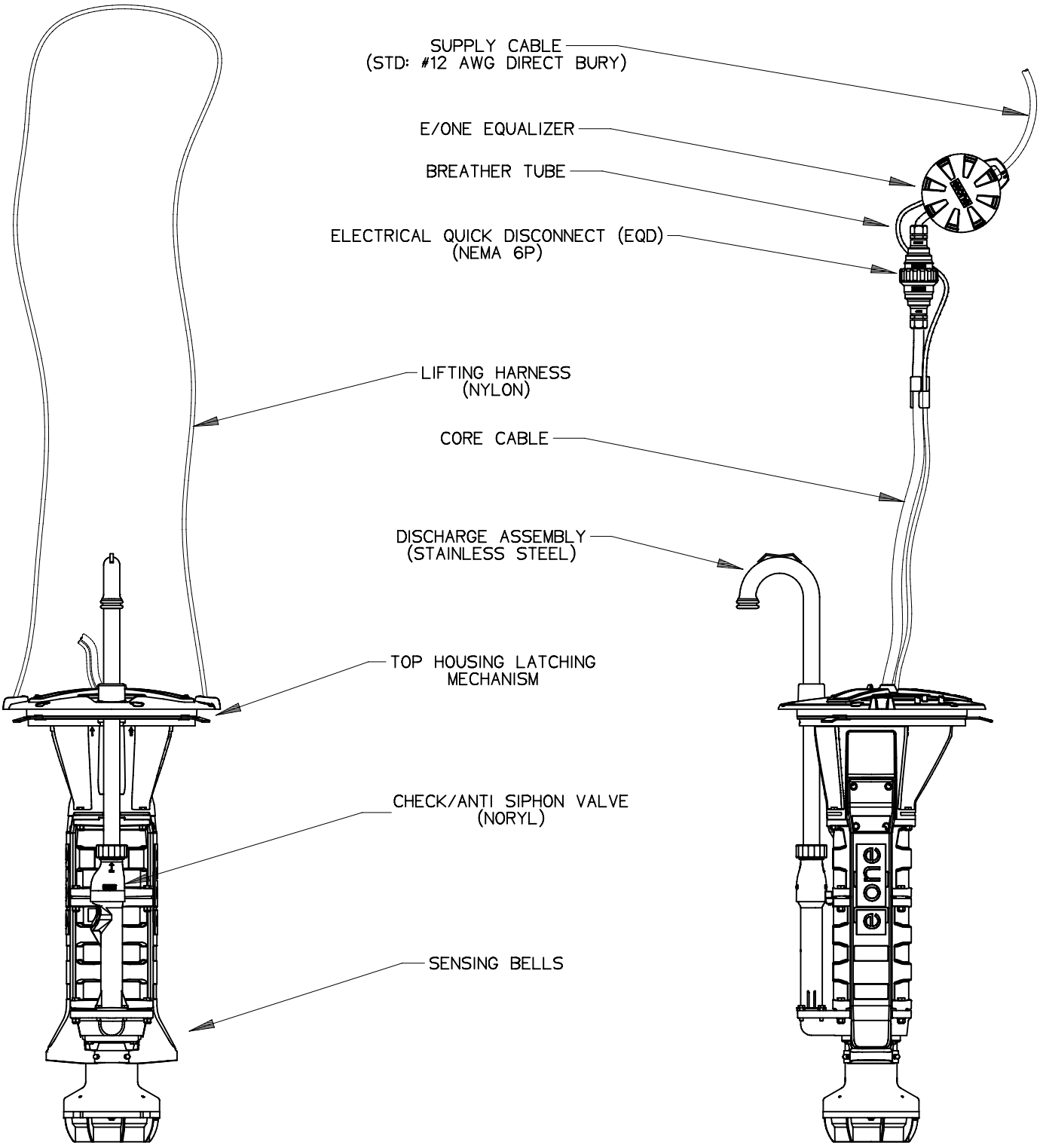
e/one SEWER SYSTEMS

SIMPLEX SENTRY, 240V 60Hz.
WITH OPTION WIRING

ESD 08-0024

E|ONE SPD PUMP PERFORMANCE CURVE

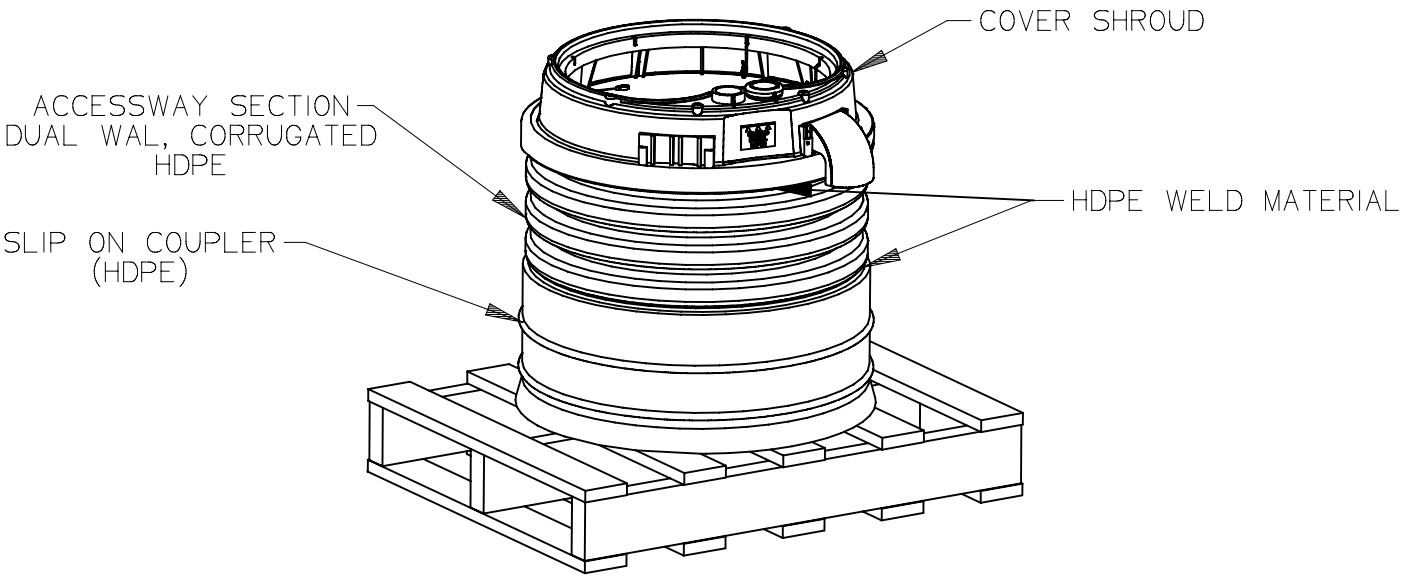




environment | one
CORPORATION

EXTREME D SERIES CORE

ESD 07-0101



NC0293G01	1' SLIP-ON, SIM,W SERIES, 1', WELDED

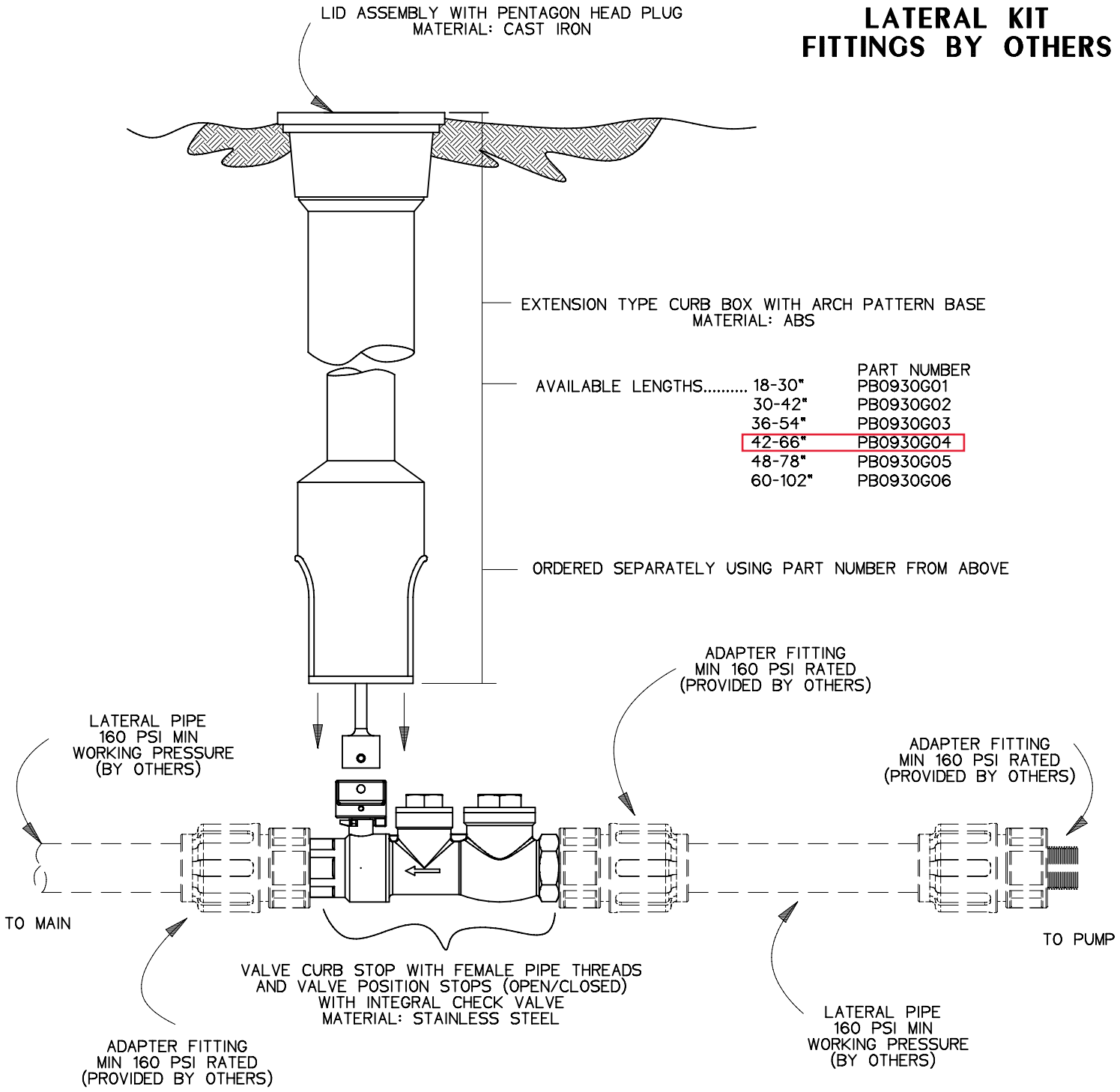
SGS		01/09/14	2	1/16
DR BY	CHK'D	DATE	ISSUE	SCALE

environment one
CORPORATION

AW EXTEN, SIM, 1',
WELDED, SLIP-ON

ESD 13-0139

STAINLESS STEEL LATERAL KIT FITTINGS BY OTHERS



ITEMS SHOWN WITH DASHED LINES ARE NOT INCLUDED

NOTES:

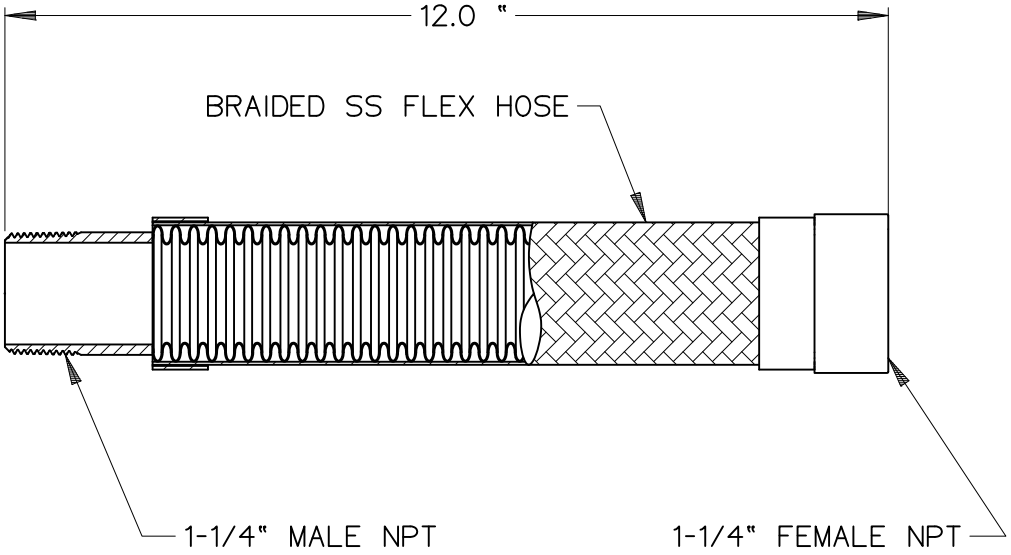
1. SS CURB STOP/CHECK VALVE AND CURB BOX ARE PROVIDED SEPARATELY, FITTINGS AND PIPE ARE TO BE SUPPLIED BY OTHERS
2. SS VALVE HAS 1-1/4" FEMALE NPT THREADS ON EACH END
3. TO ASSEMBLE, APPLY A DOUBLE LAYER OF TEFLON TAPE, AND A LAYER OF PIPE DOPE (SUPPLIED BY OTHERS) TO THE THREADS ON THE FITTINGS (SUPPLIED BY OTHERS) AND INSTALL PER THE MANUFACTURER'S INSTRUCTIONS
3. ASSEMBLY IS TO BE PRESSURE TESTED (BY OTHERS)
4. TO ORDER SS CURB STOP/CHECK VALVE, USE # NB0184P01
5. CURB BOX IS TO BE ORDERED SEPARATELY, SEE ABOVE

SGS		01/09/13	1	3/16
DR BY	CHK'D	DATE	ISSUE	SCALE

SEWER SYSTEMS

STAINLESS STEEL LATERAL KIT
FITTINGS BY OTHERS

ESD 13-0004



MATERIAL: 300 SERIES STAINLESS STEEL
WORKING PRESSURE: 150 PSI MIN.

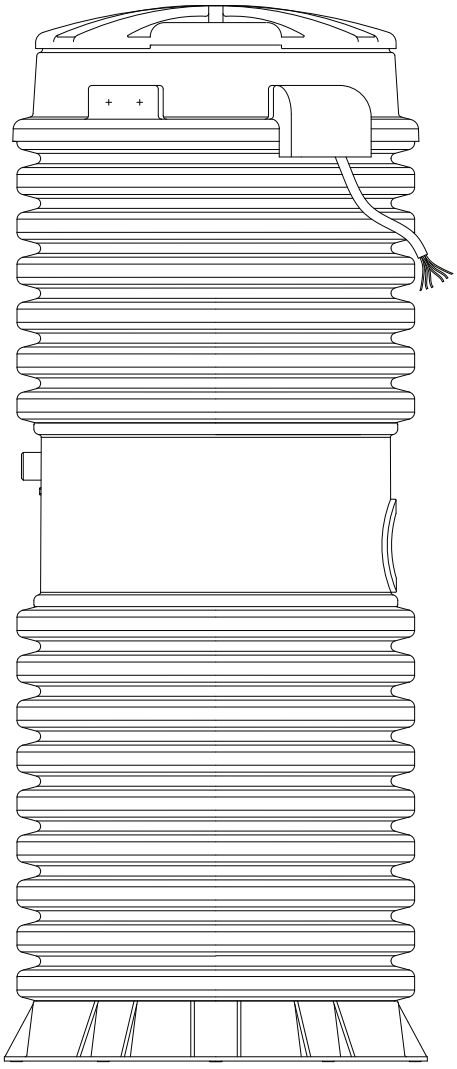
SGS		05/10/21	1	1/16
DR BY	CHK'D	DATE	ISSUE	SCALE

SEWER SYSTEMS

BRAIDED FLEX HOSE, SS

ESD 21-0034

E/ONE EXTREME SERIES



DH071 & DR071 Typical Installation Instructions & Warranty Information

Simplex Station
70-Gal. Capacity

Environment One Grinder Pump Feature Identification

1. GRINDER PUMP BASIN – High density polyethylene (HDPE).

2. ACCESSWAY COVER – HDPE

3. ELECTRICAL QUICK DISCONNECT (EQD) – Cable from pump core terminates here.

4. POWER AND ALARM CABLE – Circuits to be installed in accordance with local codes.

5. ALARM PANEL – NEMA 4X enclosure. Equipped with circuit breakers. Locate according to local codes.

6. ALARM DEVICE – Every installation is to have an alarm device to alert the homeowner of a potential malfunction. Visual devices should be placed in very conspicuous locations.

7. INLET – EPDM grommet (4.5” ID). For 4.5” OD DWV pipe.

8. WET WELL VENT – 2.0” tank vent, supplied by factory in units with accessways.

9. GRAVITY SERVICE LINE – 4” DWV, (4.5” OD). Supplied by others.

9a. STUB-OUT – 4” X 5’ Long **watertight** stub-out, to be installed at time of burial unless the gravity service line is connected during installation. Supplied by others.

10. DISCHARGE VALVE – 1-1/4” Female pipe thread.

11. DISCHARGE LINE – 1-1/4” Nominal pipe size. Supplied by others.

12. CONCRETE ANCHOR – See Ballast Calculations for specific weight for station height. Supplied by others.

13. BEDDING MATERIAL – 6” minimum depth, round aggregate, (gravel). Supplied by others.

14. FINISHED GRADE – Grade line to be 1” to 4” below removable lid and slope away from the station.

15. VENT – Indoor installation. See section 6, Venting, on page 6.

16. VALVE – Full ported ball valve. Recommended option; for use during service operations. Supplied by others.

17. CONDUIT – 1” or 1-1/4”, material and burial depth as required per national and local codes. Conduit must enter panel from bottom and be sealed per NEC section 300.5 & 300.7. Supplied by others.

18. UNION – 1-1/4” or compression type coupling. Supplied by others. (Do not use rubber sleeve and hose clamp type coupling.)

19. VALVE – Ball valve, must provide a full-ported 1-1/4” round passage when open. Supplied by others.

20. REBAR – Required to lift tank after ballast (concrete anchor) has been attached, 4 places, evenly spaced around tank.

Figure 1a

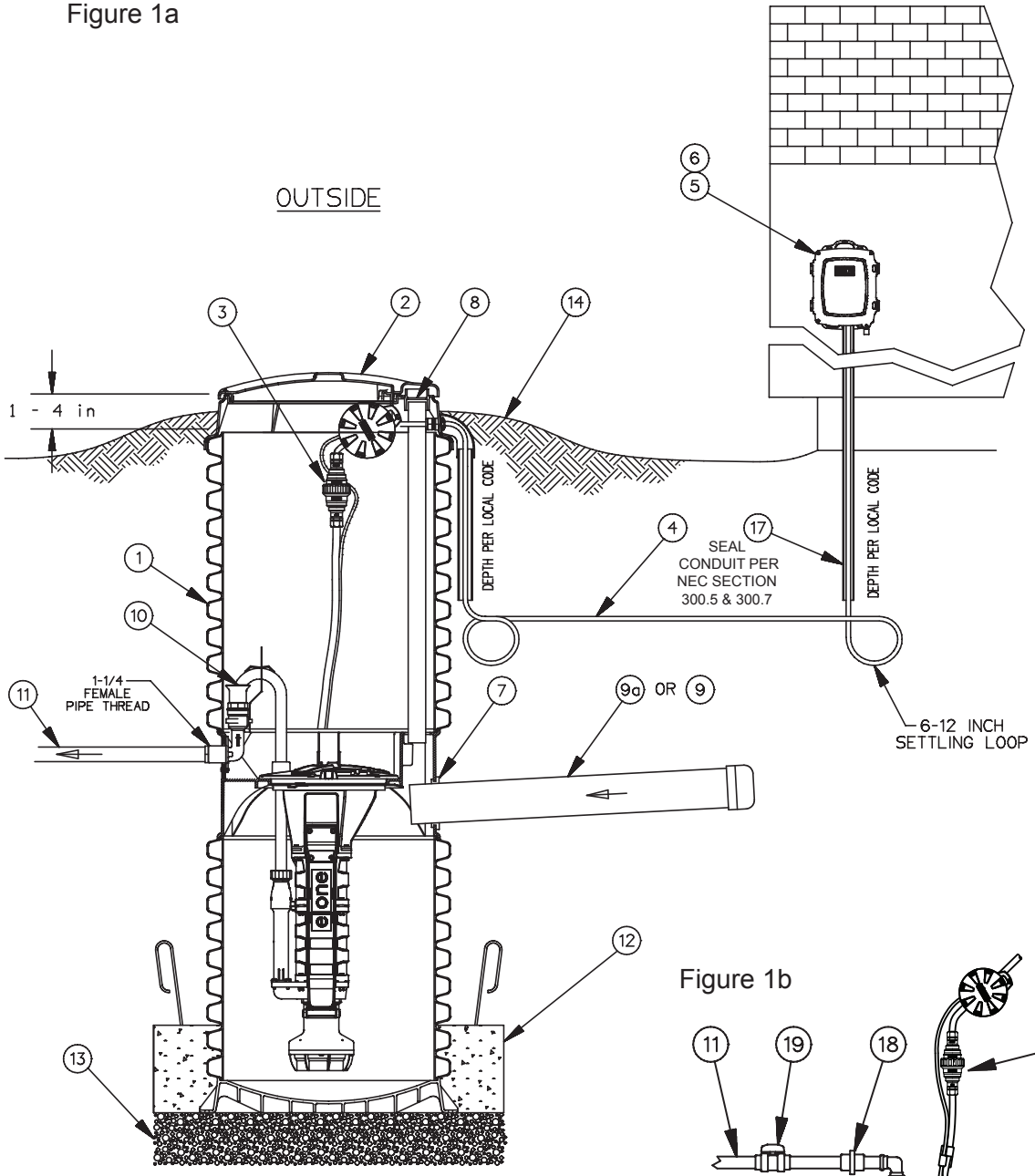
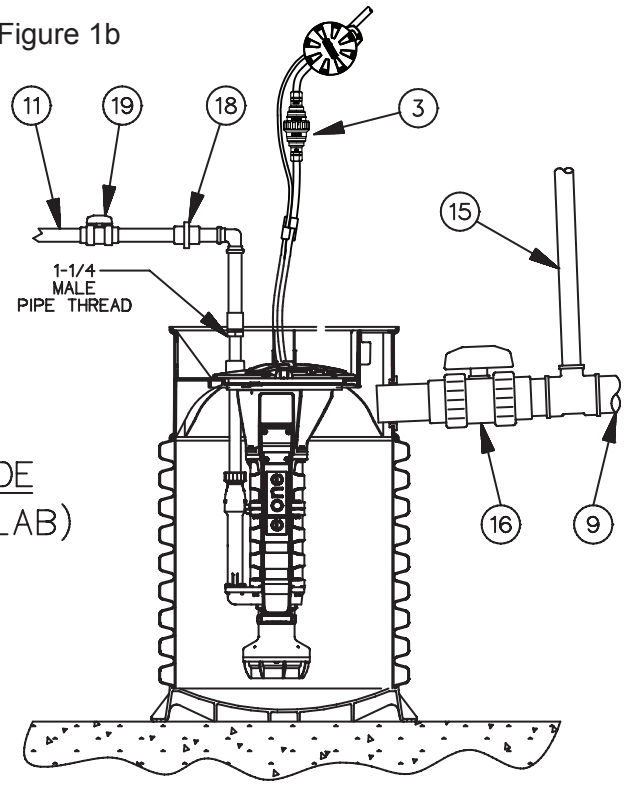


Figure 1b



FAILURE TO COMPLY WITH INSTALLATION INSTRUCTIONS WILL VOID WARRANTY

The Environment One grinder pump is a well-engineered, reliable and proven product; proper installation will assure years of trouble-free service. The following instructions define the recommended procedure for installing the grinder pump station. These instructions cover the installation of units with and without accessways.

This is a sewage handling pump and must be vented in accordance with local plumbing codes. This pump is not to be installed in locations classified as hazardous in accordance with National Electric Code, ANSI / NFPA 70. All piping and electrical systems must be in compliance with applicable local and state codes.

1. REMOVE PACKING MATERIAL: The User Instructions must be given to the homeowner. Hardware supplied with the unit, if any, will be used at installation.

2. TANK INSTALLATION: The tank is supplied with a standard grommet for connecting the 4” DWV (4.50” outside dia.) incoming sewer drain. Other inlet types and sizes are optional (Caution: 4” DR-35 pipe has a smaller diameter and won’t create a watertight joint with the standard grommet). Please confirm that you have the correct inlet before continuing. If concrete ballast is attached to the tank, lift only by the lifting eyes (rebar) embedded in the concrete. **Do not drop, roll, or lay tank on its side. This will damage the unit and void the warranty.**

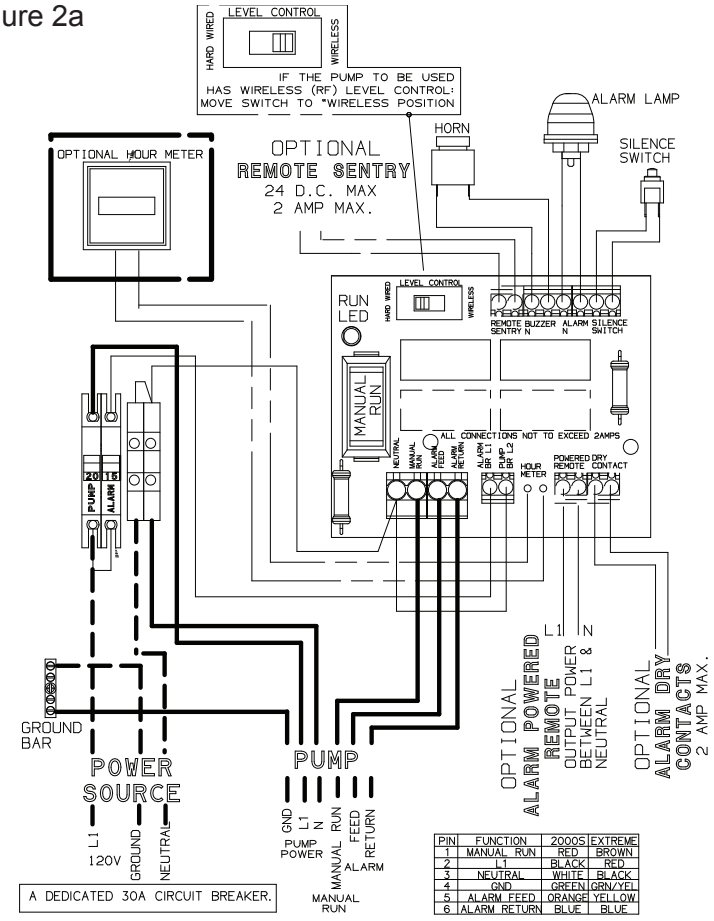
• If the tank has no accessway (Fig. 1b) (Indoor Installation): The pump may be installed on or in the basement floor (see Fig. 1b). If the tank is to be set on the floor, it must be a flat and level bearing surface. If the tank is to go into the basement floor, it must be anchored to prevent unit from floating due to high ground water (see Chart 1, page 13 for weight).

• If the tank is to go in the floor: A hole of the correct width and depth should be excavated. The tank must be placed on a 6” bed of gravel made up of naturally rounded aggregate, clean and free flowing, with particle size not less than 1/8” or more than 3/4” in diameter. The wetwell should be leveled and filled with water prior to pouring the concrete to prevent the tank from shifting. If it is necessary to pour the concrete to a level above the inlet, the inlet must be sleeved with an 8” tube before pouring.

There must be a minimum clearance of three feet directly above the tank to allow for removal of the pump.

• If the tank has an accessway (Fig. 1a): Excavate a hole to a depth so that the removable cover extends above the finished grade line. The grade should slope away from the unit. The diameter of the hole must be large enough to allow for a concrete anchor. Place the unit on a bed of gravel, naturally rounded aggregate, clean and free flowing, with particles not less than 1/8” or more than 3/4” in diameter. The concrete

Figure 2a



120 VOLT WIRING

anchor is not optional. (See Chart 1 on page 13 for specific requirements for your unit.)

The unit should be leveled and the wetwell filled with water to the bottom of the inlet to help prevent the unit from shifting while the concrete is being poured. The concrete must be vibrated to ensure there are no voids.

If it is necessary to pour the concrete to a higher level than the inlet, the inlet must be sleeved with an 8” tube before pouring.

If your unit is a model taller than 93” it may be shipped in two sections, requiring field assembly. See Field Joint Assembly Instructions on page 9 for additional information.

3. INLET PIPE INSTALLATION: Mark the inlet pipe 3-1/2” from the end to be inserted. Inlet pipe should be chamfered and lubricated with a soap solution. Lubricate the inlet grommet with soap solution as well. Insert the pipe into the grommet up to the 3-1/2” mark. Inspect to ensure the grommet has remained intact and in place.

4. DISCHARGE: The use of 1-1/4” PVC pressure pipe Schedule 40 and polyethylene pipe SDR 11 or SIDR 7 are recommended. If polyethylene is chosen, use compression-type fittings to provide a smooth inner passage. E/One requires that an E/One Uni-Lateral assembly (E/One part number NB0184PXX or NC0193GXX) or E/One Redundant Check Valve (E/One part number PC0051GXX) be installed in the pipe lateral outside the home between the pump discharge and the street main on all installations. Never use a ball-type valve as a check valve. E/One recommends the valve be installed as close to the public right-of-way as possible. Check local codes for applicable requirements.

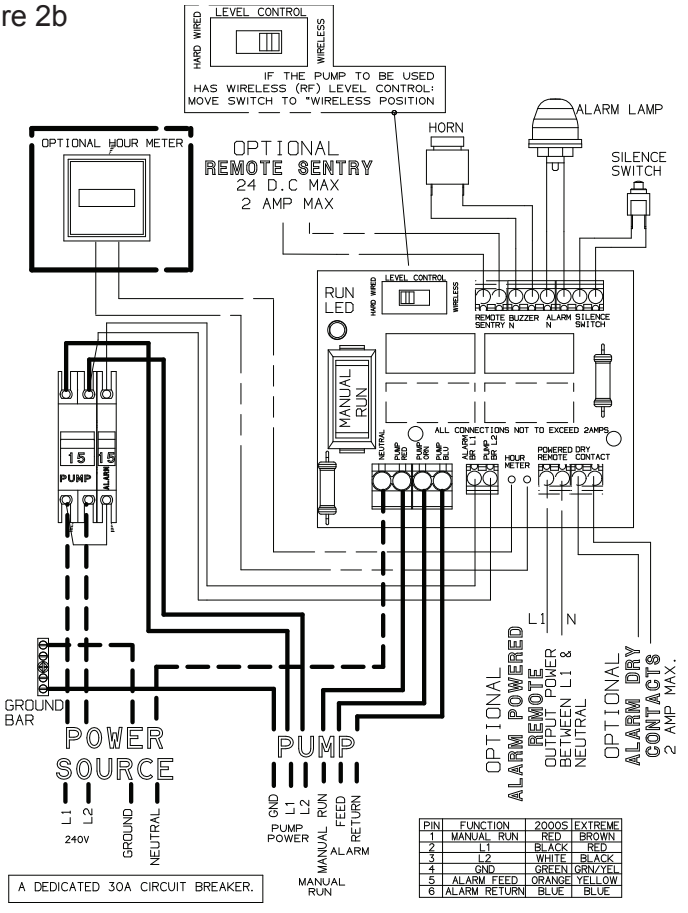
CAUTION: *Redundant check valves on station laterals and anti-siphon/check valve assemblies on grinder pump cores should not be used as system isolation valves during line tests.*

• If the tank has no accessway: (Indoor Installation) The discharge connection is 1-1/4” male NPT. The discharge piping must incorporate a shut-off valve and a union with a minimum pressure rating of 160 psi, or a suitable piping disconnect to allow for removal of the pump core. The valve should be of the type that provides a full-ported passage (i.e. a ball or gate valve). A standard 1-1/4” union or a compression type coupling should be used as a disconnect joint.

• If the tank has an accessway: There is a ball valve and a quick disconnect pre-installed in the accessway. There is a 1-1/4” female NPT discharge connection on the outside of the tank 41” above the bottom of the tank.

5. BACKFILL REQUIREMENTS: Proper backfill is essential to the long term reliability of any underground structure. Several methods of backfill are

Figure 2b



240 VOLT WIRING

available to produce favorable results with different native soil conditions.

The recommended method of backfilling is to surround the unit to grade using Class I or Class II backfill material as defined in ASTM 2321. Class 1A and Class 1B are recommended where frost heave is a concern; Class 1B is a better choice when the native soil is sand or if a high, fluctuating water table is expected. Class I, angular crushed stone, offers an added benefit in that it needs minimal compaction. Class II, naturally rounded stone, may require more compactive effort, or tamping, to achieve the proper density.

If the native soil condition consists of clean, compactible soil with less than 12% fines, free of ice, rocks, roots, and organic material, it may be an acceptable backfill. Such soil must be compacted in lifts not to exceed one foot to reach a final Proctor Density between 85% and 90%. Non-compactable clays and silts are **not** suitable backfill for this or any underground structure such as inlet or discharge lines. If you are unsure of the consistency of the native soil, it is recommended that a geotechnical evaluation of the material be obtained before specifying backfill.

Another option is the use of a flowable fill (i.e., low slump concrete). This is particularly attractive when installing grinder pump stations in augured holes where tight clearances make it difficult to assure proper backfilling and compaction with dry materials. Flowable fills should not be dropped with more than 4 feet between the discharge nozzle and the bottom of the hole because this can cause separation of the constituent materials.

6. VENTING: The unit must be properly vented to assure correct operation of the pump. If you have an indoor unit, it can be vented through the 2” port supplied at the top of the wetwell or through the incoming sewer line with a 2” pipe (the vent must be within 4 feet of the grinder pump, and before the first change of direction fitting).

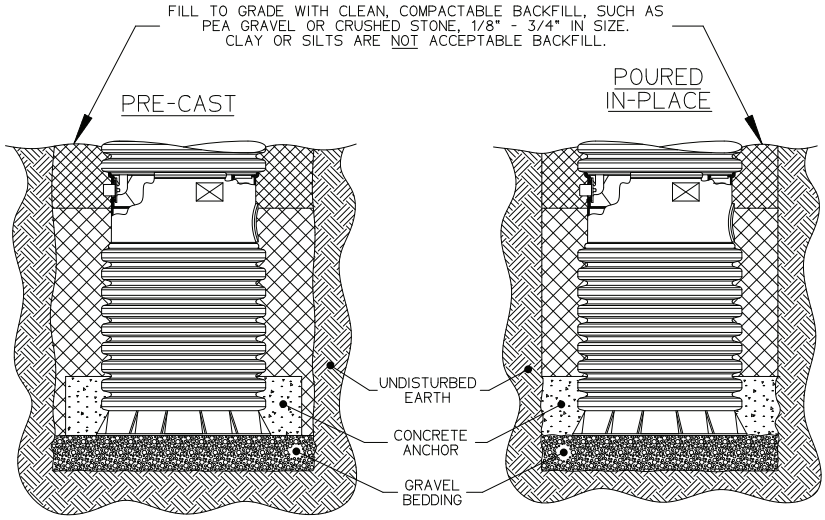
Outdoor units are supplied with a vent pipe from the wetwell to the top of the accessway. Failure to *properly vent* the tank will result in faulty operation and will void the warranty.

7. ELECTRICAL CONNECTION: (Supply panel to E/One Alarm Panel) Before proceeding, verify that the service voltage is the same as the motor voltage shown on the name plate. An alarm device is to be installed in a conspicuous location where it can be readily seen by the homeowner. An alarm device is required on every installation. There shall be no exceptions.

Wiring of supply panel and alarm panel shall be per Figures 2a and 2b, alarm panel wiring diagrams and local codes. A dedicated 30 amp breaker is required before all simplex alarm panels.

8. ELECTRICAL CONNECTION: (Pump to Panel) (Fig. 4) The grinder pump station is provided with a cable for connection between the station and the alarm panel (supply cable). The supply cable is shipped inside the station with a small portion fed through the cable connector mounted on the wall of the fiberglass shroud. The supply cable, a six conductor tray cable, meets NEC requirements for direct

Figure 3



TYPICAL IN-GROUND SECTION VIEW

burial as long as a minimum of 24” burial depth is maintained. Those portions of the cable which have less than 24” of cover must be contained in suitable conduit. This includes the vertical portion dropping to a 24” depth at the station and the length rising out of the ground at the control panel. *NOTE: Wiring must be installed per national and local codes. Conduit must enter panel from bottom and be sealed per NEC section 300.5 & 300.7.*

8a. Installing E/One supply cable:

1) Open the lid of the station. Locate the cable and the feed-thru connector on the wall of the shroud. If the station has a field joint and was delivered in two pieces, be sure both halves of the EQD are securely assembled together. Loosen the nut on the connector and pull the supply cable out through the connector until it hits the crimped-on stop feature on the cable, approximately 24” from the EQD. ****IMPORTANT:** *All but 24” of the cable must be pulled out of the station, and the EQD and Equalizer should be hung as high in the station as possible to ensure that the pump functions properly. Do <u>not</u> leave the excess cable in the station.*

2) Retighten the nut. This connection must be tight or ground water will enter the station.

3) Feed the wire through the length of conduit (contractor provided), which will protect it until it is below the 24” burial depth.

4) Position the conduit vertically below the cable connector along side of the station reaching down into the burial depth. Attach the small fiberglass guard (protective shroud) provided with the station to protect the exposed cable where it enters the station. Four self-tapping screws are provided.

5) Run the cable underground, in a trench or tunnel, to the location of the alarm panel. Leave a 6- to 12-inch loop of cable at each end to allow for shifting and settling. Connections made at the panel are shown in Figures 2a and 2b.

9. DEBRIS REMOVAL: Prior to start-up test procedure, the core must be removed and the incoming sewer line flushed to force all miscellaneous debris into the tank. Next, all liquid and debris must be removed. Once the tank is clean, re-install the pump and proceed with the test.

10. TEST PROCEDURE: When the system is complete and ready for use, the following steps should be taken to verify proper pump and high level alarm operation:

a) Make sure that the discharge shutoff valve is fully open. This valve must not be closed when the pump is operating. In some installations there may be a valve, or valves, at the street main that must also be open.

(Ignore all Trouble indications, LEDs and/or messages until the panel is reset at the end of this procedure.)

For model DH071:

b) Turn on the alarm breaker.

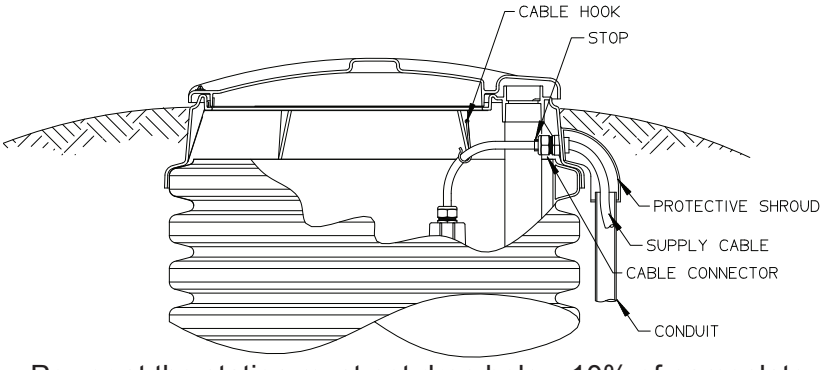
c) Fill tank with water until the high level alarm turns on. Shut off water.

d) Turn on pump breaker; the pump should turn on immediately. Verify that the high level alarm turns off and then the pump turns off. Proceed to Step E.

For model DR071:

b) Fill tank with 50 gallons of water.

Figure 4



<u>Power at the station must not drop below 10% of nameplate voltage. Maximum Recommended Length:</u>
120 Volt 60’ (min. voltage at pump — 108V)
240 Volt 150’ (min. voltage at pump — 216V)
Consult factory for longer lengths

TYPICAL SUPPLY CABLE CONFIGURATION

c) Turn on pump and alarm breakers; the pump and high level alarm should turn on immediately.

d) Verify that the high level alarm turns off and then the pump turns off.

e) Clear/Reset the alarm panel:

Sentry and T260 panels: Reset is not required.

Protect panel: Turn pump and alarm breakers off and back on simultaneously.

Protect Plus panels: Perform a “cold start” from the Initialize System menu. Any user setting that were previously chosen will not be reset.

f) If any Trouble or alarm conditions are indicated after the panel is reset, contact your local service provider.

Field Joint Assembly Instructions

IT IS EXTREMELY IMPORTANT THAT THE JOINT IS SEALED PROPERLY BEFORE BACKFILLING. EXCAVATING A UNIT FOR REPAIR IS VERY EXPENSIVE AND CAN BE EASILY AVOIDED BY USING PROPER CAUTION DURING THE FOLLOWING PROCEDURE.

Parts included in Field Joint Kit: Identify all parts before proceeding with installation.

(16) 3/8-16 x 1-1/2 long screws
(16) 3/8-16 Elastic Stop Nuts
(32) Flat Washers
(1) Length Sealant (Sika) Tape
(1) Hole Punch
(1) Vent Pipe Extension

1) Carefully clean and dry both accessway flanges with solvent. **IMPORTANT: Sealing surfaces must be dry to ensure the sealant adheres correctly.**

2) Starting at one hole of tank flange, apply two layers of Sika Tape around the inside half of the flange. Align the outside edge of the tape with the bolt circle. Move to the adjacent hole and apply one layer of Sika Tape around the outside of the flange. Align inside of tape with the bolt circle. Remove the backing paper as you lay the adhesive on the flange. **Do not stretch Sika tape during application; it may result in a leak.** The tape should overlap at the end by approximately 1/2 inch, as shown in Fig. 5a. If a section of Sika Tape is misapplied, the bad section may be cut out and replaced. Cut away the poorly laid portion cleanly with a knife and be sure to over lap the tape at each end about 1/2 inch.

3) Using the tool provided, punch a hole through the tape at each of the 16 existing bolt holes in the flange. **Be careful to keep the exposed sealant clean and dry.**

4) Insert three of the sixteen 3/8-16 x 1-1/2” long bolts, with a flat washer, into the flange attached to the upper part of the accessway. These will act as guides while aligning the bolt pattern of the two flanges.

5) Support the upper accessway section a few inches over the tank with the green stripes on each lined up. Once aligned, lower the upper section onto the mating flange using the three bolts to guide it to the proper position. See Fig. 5b.

6) Insert the remaining 13 bolts with flat washers into the flanges. Place a flat washer and elastic stop nut on the end of each bolt, turning the nut on just enough to hold the washer in place.

7) Tighten the bolts until the sealant begins to squeeze out from between the flanges. To ensure a consistent, sturdy seal, tighten them in the following sequence: 1, 9; 5, 13; 3, 11; 7, 15; 2, 10; 4, 12; 6, 14; 8, 16. Always be sure to tighten one bolt and then the bolt at the position 180° from it; see figure 1 for position numbers.

8) Using the same sequence as in Step 7, tighten each bolt to 60 in-lbs. Visually inspect the joint, each bolt and each nut should have a flat washer between it and the flange, and a uniform amount of sealant should be protruding from the seam along the entire perimeter.

In the event that there are any voids in the sealant, the joint may leak. Take corrective actions if necessary and be sure that the joint is leak free before continuing.

9) Install the vent pipe extension piece, which was shipped inside the upper piece of the accessway. Push the extension pipe into the bell mouth fitting on the pipe installed in the wet well tank. Be sure the pipe is seated correctly. Slide the top end of the extension pipe into the receptacle on the bottom of the lid.

Figure 5a

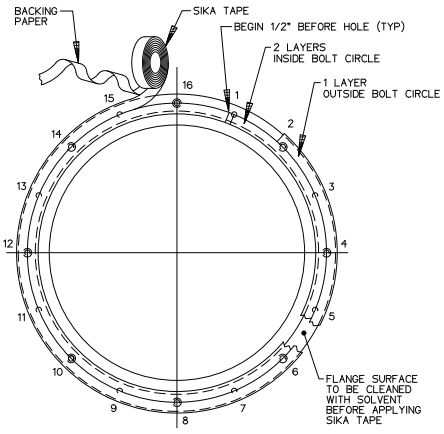
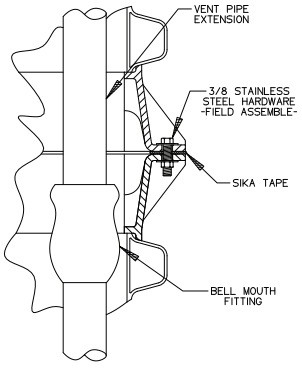


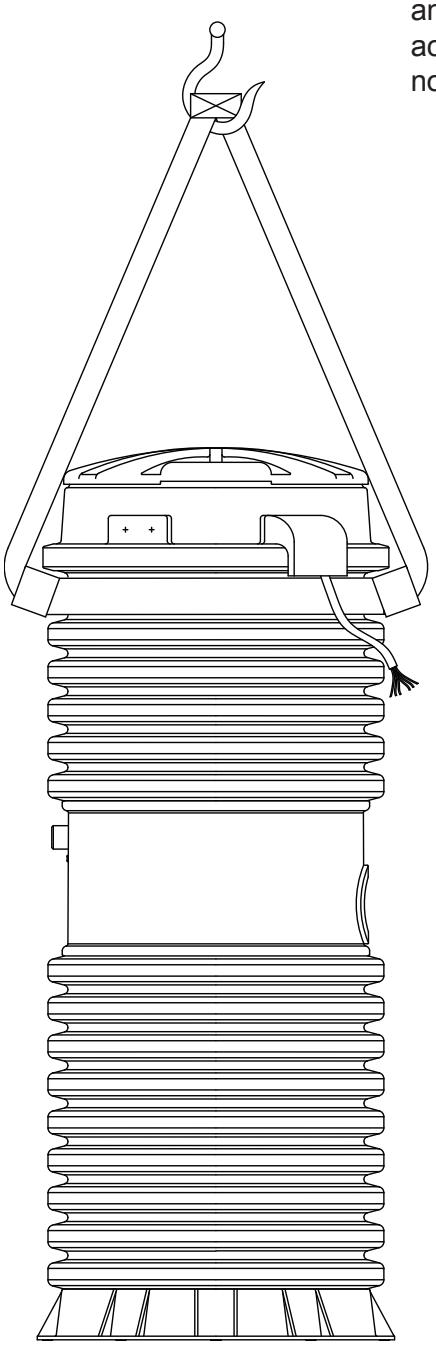
Figure 5b



Lifting Instructions

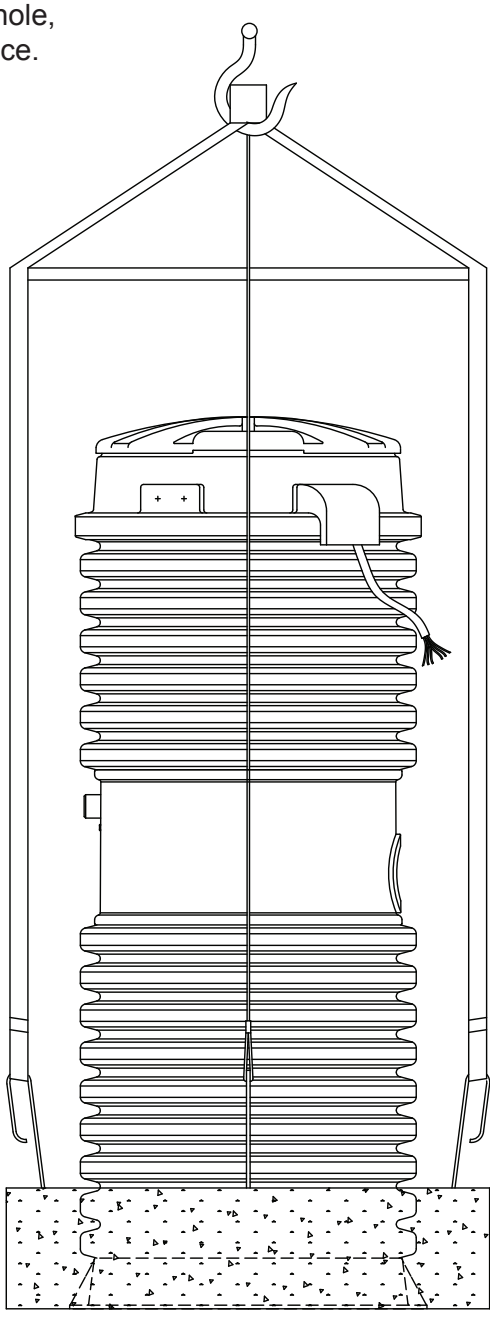
FAILURE TO FOLLOW THESE INSTRUCTIONS COMPLETELY WILL VOID THE WARRANTY.

1. Transporting unit to installation site: Always lift a unit from the bottom for the purpose of transportation. The station should be received attached to a pallet for this purpose. **Never roll a station or move it on its side.**



2. No Ballast (to be poured in place): If the concrete anchor is to be poured while the station is in place, lift the unit using 2 nylon straps wrapped around the accessway making a sling, as shown below. Keep station oriented vertically to avoid any damage. Only lift from the accessway to put unit in hole, not for moving any distance.

3. Precast Ballast: Never lift a station that has a ballast attached by any means except the rebar. The weight of the concrete will damage the station if you attempt to lift it from any part of the station.



E/One Grinder Pump Station Ballast Calculations

Any buried vessel that is submerged, or partially submerged, in water will be acted on by an upward buoyant force that attempts to return the vessel to a non-submerged state. The magnitude of this buoyant force is equal to the volume of the vessel that is submerged multiplied by the density of water. On most in-ground installations a ballast, or concrete anchor, of proper volume and weight is required to resist the buoyant force. The amount of ballast required for a given set of installation site conditions may be calculated as follows.

Installation Site Assumptions

1. Low water table – under worst case ground water or flood conditions only the wet well portions of the E/One grinder pump stations will be submerged.

2. Backfill materials are per these installation instructions.

3. The consulting engineer should perform a soil test to determine if the assumptions that have been made are valid for the specific installation site. If the site conditions differ from these assumptions, then the consulting engineer must revise the calculations as shown in this document.

Physical Constants

1. Density of Water = 62.4 lb/cu ft
2. Density of Concrete = 150 lb/cu ft (in air)
3. Density of Concrete = 87.6 lb/cu ft (in water)
4. Density of Dry Compacted Backfill = 110 lb/cu ft
5. Density of Saturated Backfill = 70 lb/cu ft

Procedure

A. Determine The Buoyant Force Exerted On The Station

1. Determine the buoyant force that acts on the grinder pump station when the wet well is submerged in water.
2. Subtract the weight of the station from the buoyant force due to the submerged wet well to determine the net buoyant force acting on the station.

B. Determine The Ballast Force Exerted On The Station

1. Determine the ballast force applied to the station from the concrete, saturated soil and dry soil.

C. Subtract The Ballast Force From the Buoyant Force.

1. Note – if the installation site conditions are different from those listed above, the consulting engineer should recalculate the concrete ballast.

Ballast Calculations

The following calculations are to outline the areas used to determine the volumes of the different materials for the ballast. All sections referred to in the calculations are marked on the accompanying drawing.

E/One Grinder Pump Station Ballast Calculations

Sample Calculation

Volume of Station Wet Well = 13.2 cu ft
Station Weight = 270 lb
Station Height = 91.8 in

A. Buoyant Force

1. The buoyant force acting on the submerged DH071-93 is equal to the weight of the displaced water for the section of the tank that is submerged (wet well).

$F_{buoyant}$ = (density of water)(volume of DH071-93 wet well)
= (62.4 lb/cu. ft)(13.2 cu. ft)
= 823.7 lb

2. The net buoyant force acting on the station ($F_{net\text{-}buoyant}$) is equal to the buoyant force ($F_{buoyant}$) minus the weight of the grinder pump station.

$F_{net\text{-}buoyant}$ = 823.7 lb – 270 lb
= 553.7 lb

B. Ballast Force

1. Determine the volume of concrete (if applicable) & soil (saturated and dry)

Section I: Used To Determine The Volume Of Concrete

Area = (Height)(Width)
= (10”)[(36” – 26.4”)/2]
= 48in^2

Volume= (Area)(Average Perimeter of the cylinder)
= (48in^2)(π)((36” + 26.4”)/2)
= (4704.8 in^3)(1/1728 ft^3/in^3)
= 2.7 ft^3

Section II: Used To Determine The Volume Of Saturated Soil

Area = (Height)(Width)
= (28.5”)[(36” – 26.4”)/2]
= 136.8in^2

Volume = (Area)(Average Perimeter of the cylinder)
= (136.8in^2)(π)((36” + 26.4”)/2)
= (13408.8in^3)(1/1728 ft^3/in^3)
= 7.8 ft^3

E/One Grinder Pump Station Ballast Calculations

Sample Calculation, Continued

Section III: Used To Determine The Volume Of Dry Soil

Area = (Height)(Width)
= (50.3in)[(36in – 26.4in)/2]
= 241.4in^2

Volume = (Area)(Average Perimeter of the cylinder)
= (241.4in^2)(π)((36” + 26.4”)/2)
= (23661.5 in^3)(1/1728 ft^3/in^3)
= 13.7 ft^3

2. Determine the combined ballast

Ballast (total) = Ballast (concrete) + Ballast (saturated soil) + Ballast (dry soil)

= ($V_{concrete}$)(density concrete in water) + (V_{soil})(density wet soil) + (V_{soil})(density dry soil)

= (2.7 cu ft)(87.6 lb/ft^3) + (7.8 cu ft)(70 lb/ft^3) + (13.7 cu ft)(110 lb/ft^3)

= 236.5 lb + 546.0 lb + 1507.0 lb

= 2289.5 lb

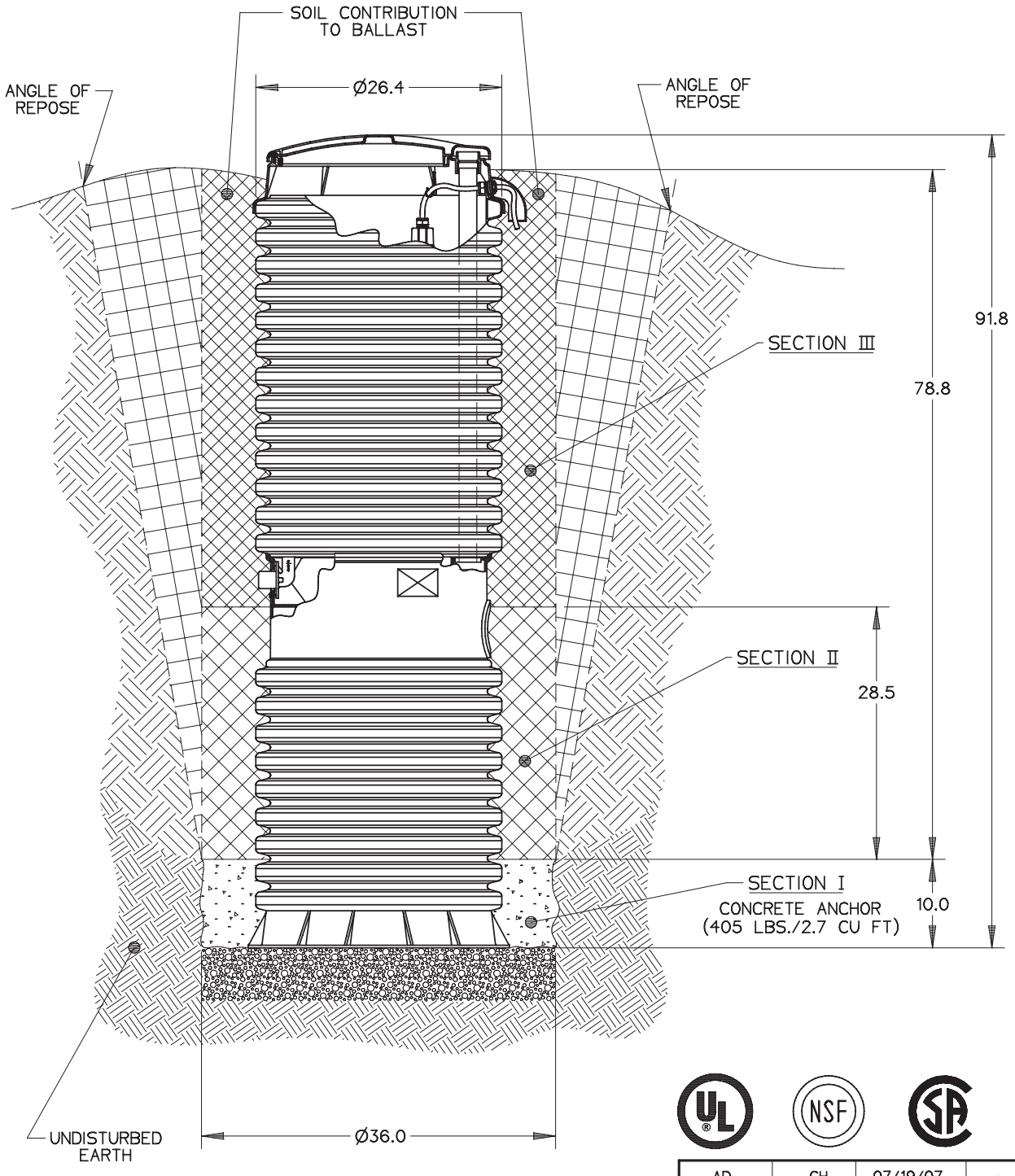
C. Subtract the buoyant force from the ballast force to determine the final condition

Final Condition = Ballast Force – Buoyant Force
= 2289.5 lb – 553.7 lb
= 1735.8 lb

The approach outlined above may be used to calculate the ballast requirements listed below.

Chart 1

Station Height (in)	Wetwell Volume (cu ft)	FNet-Buoyant (lb)	Station Weight (lb)	Fballast (lb)	Volume Concrete (cu ft)	Weight Concrete in Air (lb)
61 inches	13.2	582.7	241	1332.5	2.7	405
74 inches	13.2	569.7	254	1717.5	2.7	405
93 inches	13.2	553.7	270	2289.5	2.7	405
124 inches	13.2	543.7	280	3213.5	2.7	405
129 inches	13.2	523.7	300	3367.5	2.7	405
158 inches	13.2	498.7	325	4236.5	2.7	405
160 inches	13.2	494.7	329	4291.5	2.7	405



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SEWER SYSTEMS

BALLAST INFORMATION

SECTION III - DRY SOIL (ACCESS WAY)

SECTION II - SATURATED SOIL (WET WELL)

SECTION I - CONCRETE ANCHOR

ROUND AGGREGATE (GRAVEL)

Adjusting the Height of the Grinder Pump Station

TO INCREASE STATION HEIGHT 6 INCHES

1. Increasing station height can be done without cutting the station. Use the E/One Extender cover shroud kit (ND0082G01) and follow the instructions that are included with the kit.

TO INCREASE STATION HEIGHT MORE THAN 6 INCHES or TO REDUCE THE STATION HEIGHT:

REMOVE EXISTING COVER ASSEMBLY (Fig. 6)

If your existing station has a welded-on cover shroud you will need the appropriate replacement cover kit (see Table 2).

1. Turn off all power to the grinder pump station.
2. Remove the tank lid and the electrical shroud.
3. Unplug the electrical quick disconnect (EQD) and remove the EQD from the supply cable. *Note: DO NOT CUT CABLE*. Loosen liquid tight cable connector and pull the supply cable out through the connector on the side of tank.
4. Tape the pump breather cable to the vent pipe in the tank.
5. Remove the soil around the tank, exposing three of the tank corrugations below grade. Use caution not to damage buried cable.
6. Remove existing cover shroud.

6a. Welded-on shroud (standard) - Using a hand saw, cut the tank in the valley between the two corrugations at grade, discard existing welded-on shroud and attached corrugations *(shroud is not to be reused)*. *Caution: Be careful not to cut either the vent pipe or the pump breather cable.*

6b. Clamped-on shroud - Remove band clamp and cover shroud.

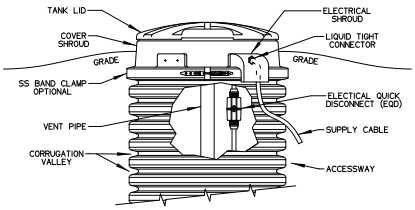

Figure 6

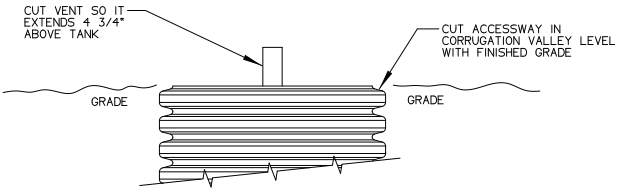

Figure 7

REDUCING STATION HEIGHT (Fig. 7)

7. Using a hand saw, cut the tank in the valley between the two corrugations at grade.
8. Cut vent pipe 4 ¾" above the cut made on the tank. *Proceed to step 16.*

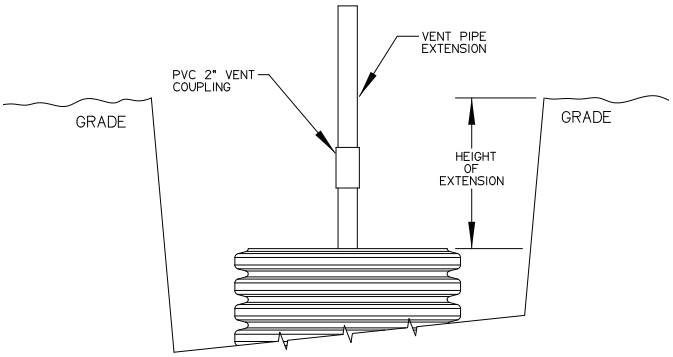

Figure 8

INCREASING STATION HEIGHT (Fig. 8 and Fig. 9)

9. Remove the soil around the tank exposing it 18" deeper than the extension being installed. For example, if you have a 2' extension (not including the coupler) you must dig down 3'6" minimum from grade; if you have a 4' extension (not including the coupler) you must dig down 5'6" minimum from grade. Use caution not to damage buried cable.
10. Measure from grade down 2' (for a 2' extension) or 4' (for a 4' extension) and mark accessway. Using a hand saw, cut the tank in the valley between the two corrugations that are closest to your mark. *Note: Make sure the welded-on shroud of the extension will be at grade level. Be sure you are not cutting into the wet well and you must have two corrugations below your cut, if there are less than two corrugations, this extension kit can not be used.*

Caution: *Be careful not to cut either the vent pipe or the pump breather cable.*

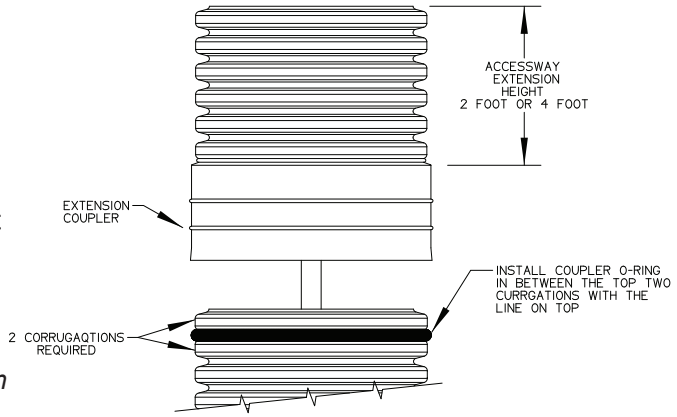

Figure 9

11. Attach the vent pipe extension with the 2” vent coupling, bringing the vent well above grade.

12. Clean all dirt and debris from top four corrugations on tank. Install the 24” coupler O-ring on the tank between the top two corrugations with the white or yellow line facing out and on top.

13. Lube extension coupler and coupler O-ring with pipe lube or dish soap.

14. Manually press coupling evenly over lubricated O-ring. If additional force is needed, place a plywood cover over the accessway and apply gentle mechanical pressure to the coupler. *Note: Care must be used when pushing down on the coupler. Excessive force or impact may result in damage and leakage.*

15. Frequent visual inspections during installation must be performed to determine when the tank has fully engage the coupler.

INSTALL REPLACEMENT COVER ASSEMBLY (Fig. 10)

16. Clean top corrugation on accessway extension and mating surface of replacement shroud with acetone.

17. Liberally apply the silicone sealer provided to the under side of the replacement shroud where it will come in contact with the accessway extension.

18. Lube wet well vent grommet and vent pipe extension with pipe lube, non-grit hand cleaner or dish soap and slide vent pipe through grommet until tank shroud seats to accessway.

19. Place SS band clamp around top corrugation and the replacement shroud. Tap with a mallet around clamp to help seat the clamp. Torque stud assembly on band clamp to a maximum 125 inlb.

20. Reinstall the supply cable, EQD**, tank lid and electrical shroud and tighten cable connector. (**See “EQD wiring order,” Table 1)

21. Follow start-up procedures to ensure proper pump operation (you will find the start-up instructions in our service manual or the station installation instruction guide).

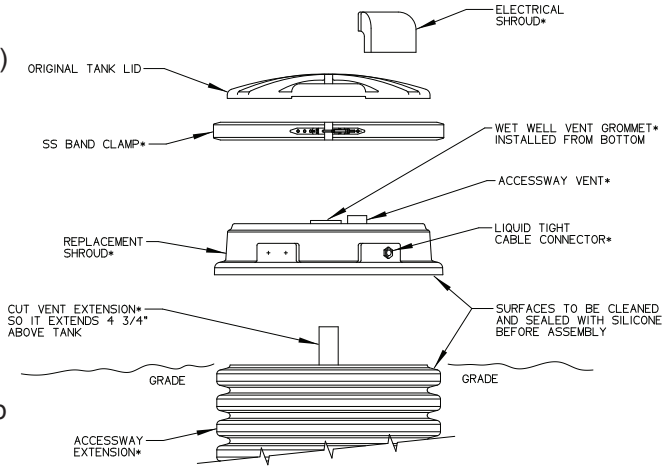

Figure 10

**EQD wiring order

PIN #	COLOR
1	Brown
2	Red
3	Black
4	Grn/Yellow
5	Yellow
6	Blue

Table 1

Table 2

DESCRIPTION	PART NO.
Simplex station	NC0022G15
Simplex, flood plain config	NC0022G16
Duplex station	NC0022G17
Duplex, flood plain config	NC0022G18

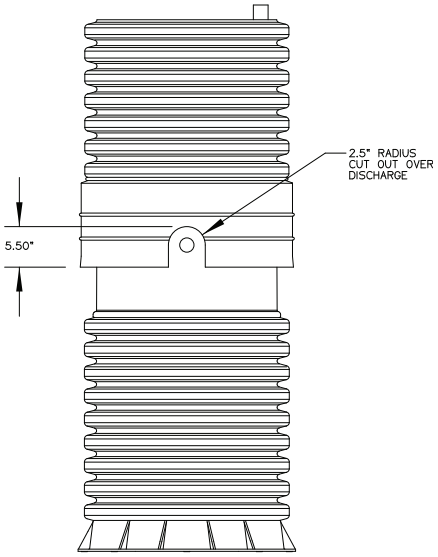

Figure 11

NOTE: IF EXISTING ACCESSWAY HAS ONLY 2 CORRUGATIONS (Fig. 11)

- If the coupler will not engage completely because the discharge piping is in the way, and it doesn’t have a cut out, you will need to cut a slot in the coupler.
- Using a hand, reciprocating or hole saw, cut an arch in the coupler; the cut-out is not to exceed 5.50” tall or 5.00” wide.

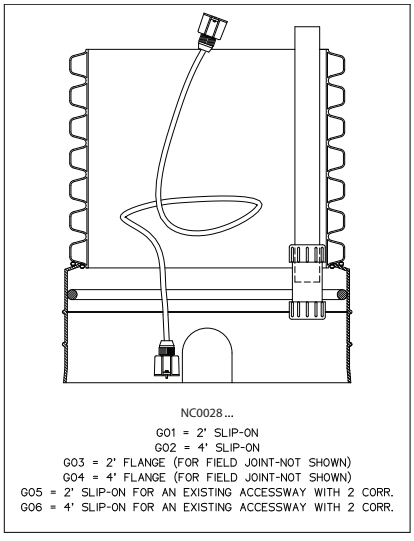

Figure 12

A Precision Castparts Company

Environment One Corporation
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www.eone.com

NA0061P01 Rev D
10/18

User Instructions for the Environment One Grinder Pump

General Information

Your home is served by a low pressure sewer system; the key element is an Environment One grinder pump. The tank collects all solid materials and wastewater from the house. The solid materials are then ground to a small size suitable for pumping as a slurry with the wastewater. The grinder pump generates sufficient pressure to pump this slurry from your home to the wastewater treatment receiving line and/or disposal plant.

This device complies with Part 15 of the FCC rules. Operation is subject to the following two conditions: 1) this device may not cause harmful interference; and 2) this device must accept any interference received, including interference that may cause undesired operation. Any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate this equipment.

Care and Use of your Grinder Pump

The Environment One grinder pump is capable of accepting and pumping a wide range of materials, and an extensive grind test is required in order to obtain NSF approval. However, regulatory agencies advise that the following items should not be introduced into any sewer, either directly or through a kitchen waste disposal unit:

Glass	Seafood shells	Diapers, socks, rags or cloth	Syringes
Cotton swabs	Personal/cleaning wipes & sponges	Disposable toothbrushes	Latex/vinyl items
Metal	Plastic objects (toys, utensils, etc.)	Kitty litter	Dental floss
Aquarium gravel	Sanitary napkins or tampons	Cigarette butts	

Caution: Kitchen garbage disposals do not keep grease/oil out of the plumbing system

In addition, you must **never** introduce into any sewer:

Explosives	Strong chemicals	Lubricating oil and/or grease
Flammable material	Gasoline	

Items introduced into the sewer system from your home can potentially impact the water environment. Proper disposal of household wastes such as window cleaners, unused/expired pharmaceuticals, paint thinners, fats, fruit labels, etc. is important. For more information, visit http://www.wef.org.

Periods of Disuse

If your home or building is left unoccupied for longer than a couple of weeks, perform the following procedure:

Purge the System. Run clean water into the unit until the pump activates. Immediately turn off the water and allow the grinder pump to run until it shuts off automatically.

Duplex Units. Special attention must be taken to ensure that both pumps turn on when clean water is added to the tank.

Caution: Do not disconnect power to the unit

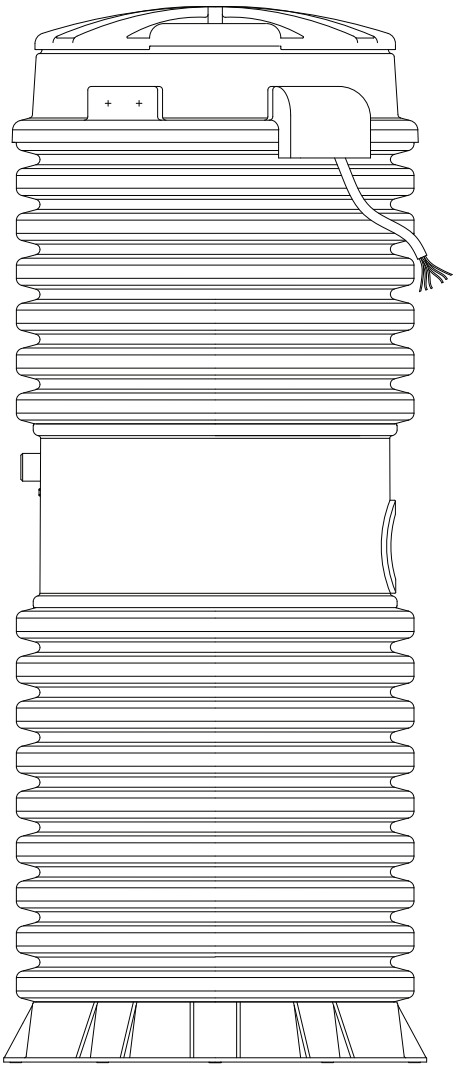
Power Failure

Your grinder pump cannot dispose of wastewater without electrical power. If electrical power service is interrupted, keep water usage to a minimum.

Pump Failure Alarm

Your Environment One grinder pump has been manufactured to produce an alarm signal (120 volt) in the event of a high water level in the basin. The installer must see that the alarm signal provided is connected to an audible and/or visual alarm in such a manner as to provide adequate warning to the user that service is required. During the interim prior to the arrival of an authorized service technician, water usage must be limited to the reserve capacity of the tank.

For service, please call your local distributor:



Limited Warranty

For E/One Extreme D-Series, W-Series & Upgrade

Environment One Corporation offers a limited warranty that guarantees its product to be free from defects in material and factory workmanship for a period of two years from the date of installation, or 27 months from the date of shipment, whichever occurs first, provided the product is properly installed, serviced and operated under normal conditions and according to manufacturer's instructions. Repair or parts replacement required as a result of such defect will be made free of charge during this period upon return of the defective parts or equipment to the manufacturer or its nearest authorized service center.

Model Number: _____

Serial Number:_____

Installation Date: _____

eone SEWER SYSTEMS

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