

**COAL CREEK UTILITY DISTRICT
SIDE SEWER STANDARDS
Sewage Grinder Pumps**

All pump installations must meet all building, plumbing, and electrical codes, and shall have the District's approval prior to installation. Please refer to Standard Grinder Pump Details for minimum requirements located at the back of these Regulations.

PIPE

Unless otherwise called for, side sewer pipe shall be high-density polyethylene plastic pipe (HDPE SDR 11) or 200 psi poly pipe and meet the following specifications.

- 1) Base Resin: conform to all requirements of ASTM D 48, Type III, Class C, Category 5, Grade P34, with a PPI rating of PE 3408
- 2) Melt Index: Less than 0.25 grams/10 min. as determined by ASTM D 1238, Condition E.
- 3) Environmental Stress Check Resistance: No cracks after 192 hours at 100 C as determined by ASTM D 1693, Condition C.
- 4) Rating: Long-term hydrostatic strength of 1450 psi and hydrostatic design stress of 730 psi as determined by ASTM D 2837.
- 5) Working Pressure Rating: 145 psi.
- 6) Laboratory Test Requirements Withstand without failure a minimum burst pressure of 560 psi when applied in 60 to 70 seconds with water at 730 F. Test in accordance with ASTM D 1599. Test one percent but not more than three lengths.

FITTINGS AND JOINTS

Joints shall be by compression type couplings. Joints, in pipes with a diameter of 2-inch or less, shall be made only at pump basins, valves, fittings and changes in pipe diameter. For pipes larger than 2-inch in diameter, joints between pipe sections shall be thermal fusion butt-welded. All flanges and fittings on pipes larger than 2-inch in diameter shall be thermal fusion butt welded to the pipe. Operators of fusion welding equipment shall be trained by the pipe manufacturer, who shall certify that operators are qualified. All fittings will be HDPE SDR 11 or SCH 80 PVC where noted on District Standards.

LAYING OF PIPE BETWEEN GRINDER TANK AND STREET CONNECTION BOX

A pressure side sewer from the grinder valve box to the collector valve box shall have a minimum cover of 24-inches and shall be HDPE SDR 11 Pipe and shall be equipped with tracer wire for locating purposes. Tracer wire shall be insulated 12-gauge wire (solid core) wrapped around the pipe and looped through the valve box from the

collector valve to the grinder cleanout. "Sewer" warning tape shall also be placed in the trench 6 inches above the pipe. Refer to District Standards for current details. Unless otherwise indicated, pipe is to be bedded in sand.

CONNECTION INTO GRAVITY LINE

Where an HDPE pressure side sewer is connecting into a PVC or DI side sewer, the side sewer contractor shall install a sewer WAD (Wastewater Access Device) for multi-family or CSC (Cleanout Sampling Chamber) for single family at the property line and then make a connection into the WAD according to District standards.

BACKFILLING AROUND VAULTS AND VALVE BOXES

Vaults and Valve Boxes shall be backfilled with 5/8 minus gravel.

GRINDER PUMP INSTALLATION

The grinder sewer pump shall be an Environment One Model 2010 as supplied by Correct Equipment, Inc., 14576 NE 95th Street, Redmond, WA 98052, 425-869-1233.

Contact the District for a pre-construction meeting for pump tank and control panel locations before any installation. Contractor shall determine the depth of the existing building sewer discharge before any installation, to determine if a 58-inch, 74-inch or greater depth tank will be suitable.

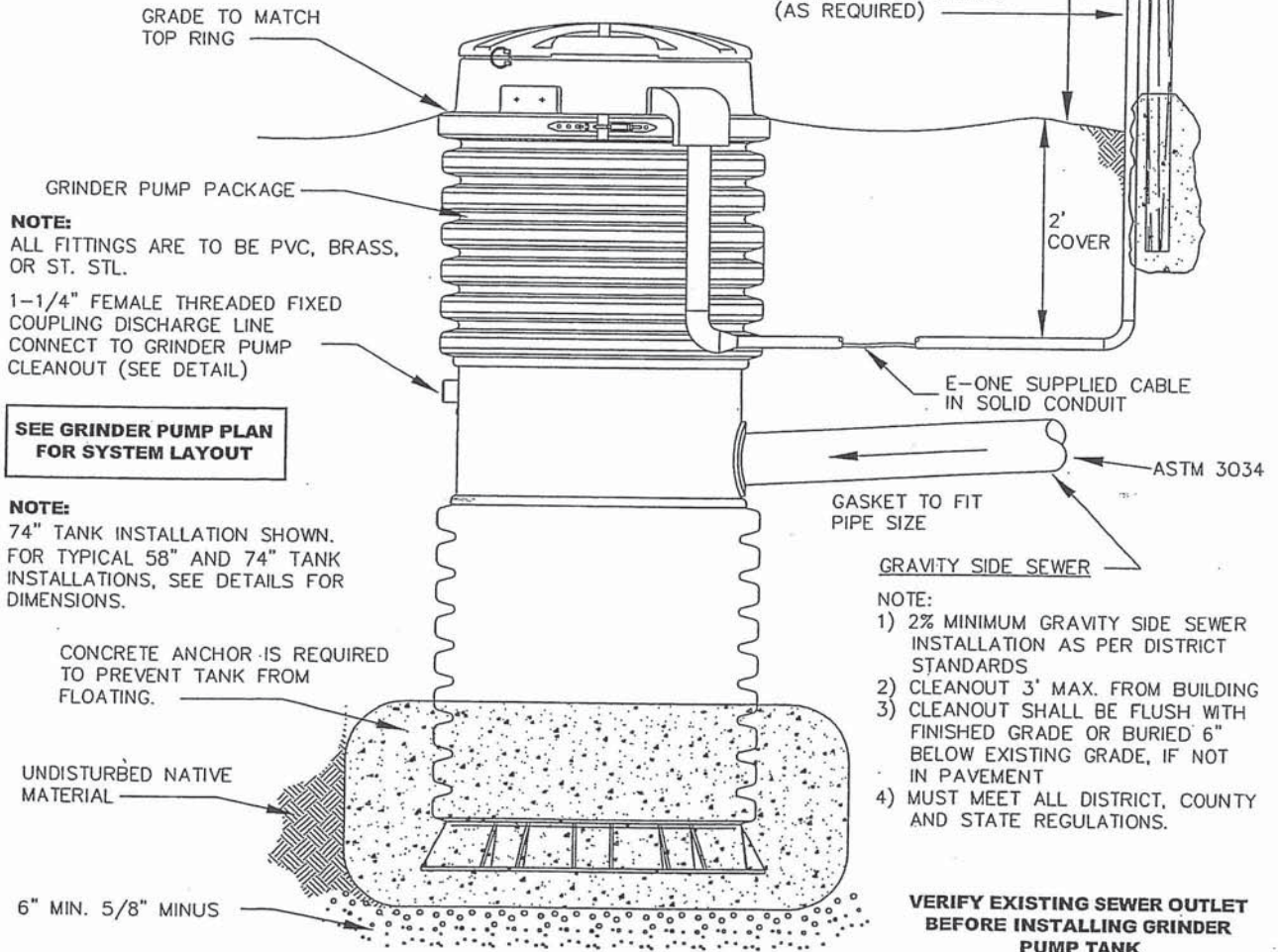
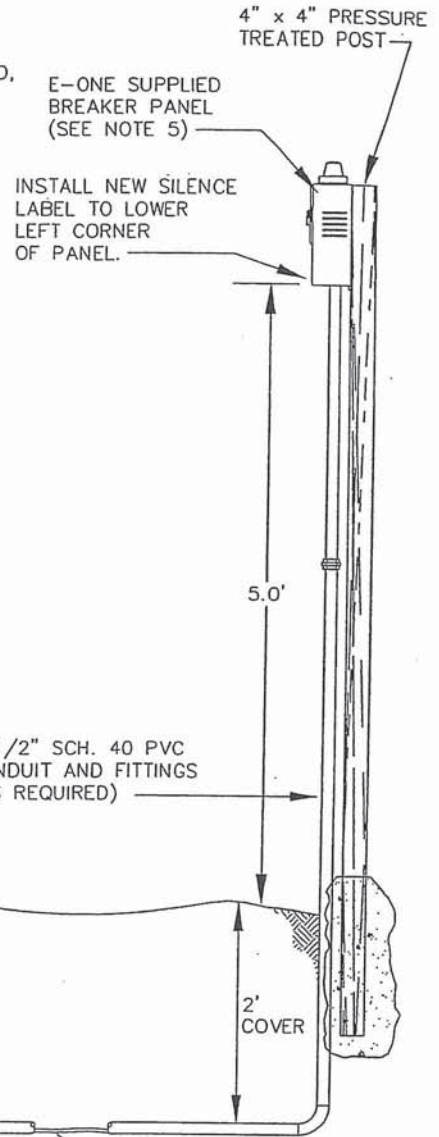
The grinder pump lift station package shall include the following items:

- a) Sewage grinder pump, semi-positive displacement type, equal to Environment One progressive cavity with a 1 HP, 1800 RPM motor.
- b) Corrugated HDPE tank with single complete pump unit, ready for installation. The tank will have a 1-1/4 NPT discharge connection and a 4-inch inlet grommet for DWV (Drain Waste and Vent) pipe.
- c) The tank shall include an internal check valve assembly.
- d) A breaker panel as supplied by Environment One, with two 15 amp breakers for pump operations, one 15 amp breaker for the alarm system, a *Push to Run* button, an audible alarm with *Silence Button*, and a red light alarm. All wires and connectors are to be color coded and labeled for ease of installation.
- e) A minimum of 25-feet of direct bury cable (Supply Cable) between the tank and breaker panel.
- f) The pump system operates on two pressure switches. One switch operates the pump on/off and the second operates the alarm.
- g) The package system shall meet the requirements of the Washington State Department of Labor & Industries, Division for Residential, grinder pump systems.

- h) The electrical supply to the breaker panel shall be 240-volt single-phase power.
- i) The tank location shall be accessible for maintenance and repair. The tank cover shall be approximately 3 inches above finished grade. Finish grade shall slope away from the station and the station shall not be installed within a "pot hole". No plants are to be located within 5 feet of the tank and the property owner shall maintain a 3-foot clear zone around the tank.
- j) The location of the breaker panel shall be:
 - Accessible for maintenance and repair,
 - In sight of the tank,
 - The bottom of the Panel must be 5 feet from finished grade, and the Alarm light shall be visible from 50 feet and must be visible in a 180-degree radius.
- k) The maximum distance between the Breaker Panel and the grinder tank shall be 25 feet, and within sight and easy access.
- l) The Breaker Panel shall be equipped with a knife-type lockout switch. The lockout switch shall be visible from the tank.
- m) Fences, bushes, or any other object shall not hide the alarm light or hinder in the maintenance and/or repair of the system.
- n) There shall be no additional junction boxes or splices made once the system has been inspected by District personnel.

GRINDER PUMP INSTALLATION NOTES:

1. PACKAGED GRINDER LIFT STATION SHALL BE ENVIRONMENT ONE MODEL 2010 AS SUPPLIED BY CORRECT EQUIPMENT, INC., 14576 NE 95TH STREET, REDMOND, WA 98052, (425) 869-1233.
2. PACKAGED STATION TO INCLUDE THE FOLLOWING:
 - A) SEWAGE GRINDER PUMP, SEMI-POSITIVE DISPLACEMENT TYPE, ENVIRONMENT ONE PROGRESSING CAVITY WITH A 1 HP, 1800 RPM MOTOR.
 - B) CORRUGATED HDPE TANK WITH SINGLE POSITION INSTALLATION. THE 2010 IS PACKAGED IN A SINGLE COMPLETE UNIT, READY FOR INSTALLATION. TANK WILL HAVE A 1-1/4" NPT DISCHARGE CONNECTION AND A 4 INCH INLET GROMMET FOR DWV PIPE.
 - C) INTERNAL CHECK VALVE ASSEMBLY
 - D) BREAKER PANEL SHALL INCLUDE TWO 15 AMP BREAKERS FOR THE PUMP SYSTEM AND ONE 15 AMP BREAKER FOR THE ALARM. PANEL FEATURES ARE PUSH TO RUN, AUDIBLE ALARM WITH SILENCE BUTTON, AND RED LIGHT ALARM. ALL WIRES AND CONNECTORS ARE COLOR CODED FOR EASE OF INSTALLATION
 - E) 25 FEET OF DIRECT BURY CABLE, (SUPPLY CABLE)
3. ELECTRICAL SERVICE REQUIREMENTS:
240 VOLTS SINGLE PHASE POWER WITH TWO POLE 30 AMP BREAKER
4. CONTROL PANEL SHALL BE ATTACHED TO THE OWNER'S HOUSE OR WITH THE DISTRICT'S APPROVAL, ATTACHED TO A 4" x 4" PRESSURE TREATED POST SET 3' INTO CONCRETE.
5. SEE TYPICAL CIRCUIT DIAGRAM FOR WIRING BETWEEN THE OWNER'S DISTRIBUTION PANEL AND THE BREAKER PANEL.



NOTE:
ALL FITTINGS ARE TO BE PVC, BRASS, OR ST. STL.

1-1/4" FEMALE THREADED FIXED COUPLING DISCHARGE LINE CONNECT TO GRINDER PUMP CLEANOUT (SEE DETAIL)

SEE GRINDER PUMP PLAN FOR SYSTEM LAYOUT

NOTE:
74" TANK INSTALLATION SHOWN. FOR TYPICAL 58" AND 74" TANK INSTALLATIONS, SEE DETAILS FOR DIMENSIONS.

CONCRETE ANCHOR IS REQUIRED TO PREVENT TANK FROM FLOATING.

UNDISTURBED NATIVE MATERIAL

6" MIN. 5/8" MINUS

- GRAVITY SIDE SEWER**
- NOTE:**
- 1) 2% MINIMUM GRAVITY SIDE SEWER INSTALLATION AS PER DISTRICT STANDARDS
 - 2) CLEANOUT 3' MAX. FROM BUILDING
 - 3) CLEANOUT SHALL BE FLUSH WITH FINISHED GRADE OR BURIED 6" BELOW EXISTING GRADE, IF NOT IN PAVEMENT
 - 4) MUST MEET ALL DISTRICT, COUNTY AND STATE REGULATIONS.

VERIFY EXISTING SEWER OUTLET BEFORE INSTALLING GRINDER PUMP TANK

PACE
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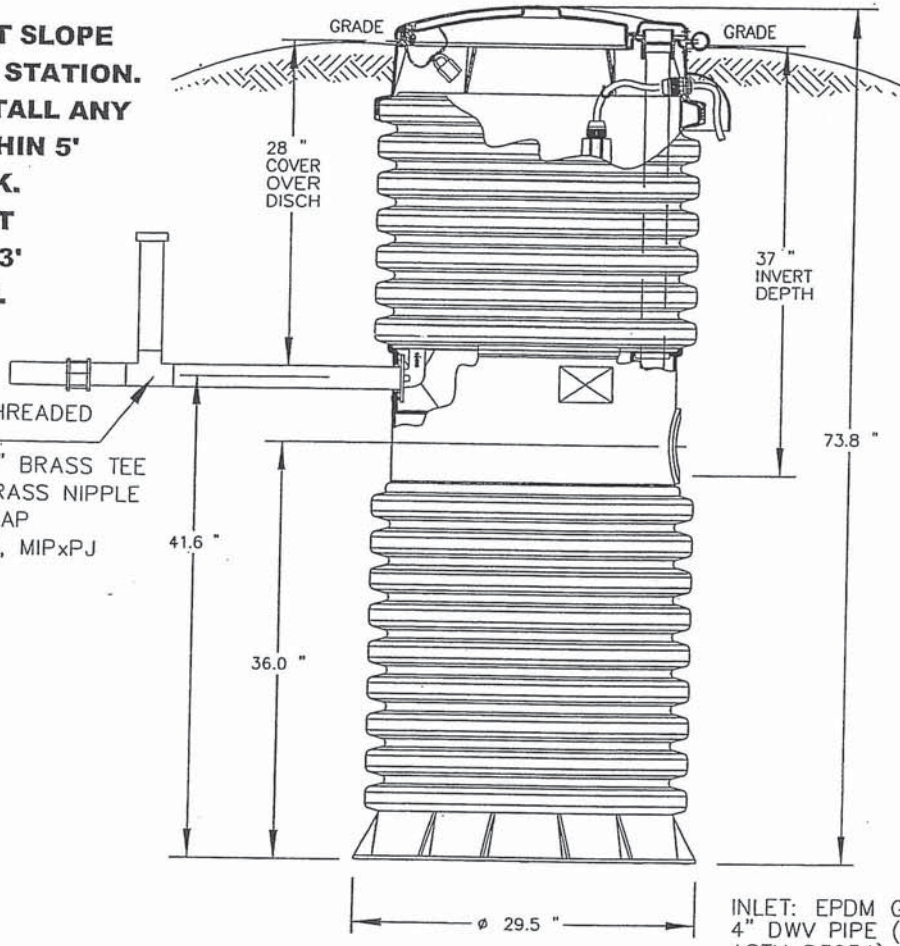
GRINDER PUMP INSTALLATION DETAIL

PLOT DATE	DRAWN	DESIGN	CHECKED	DISTRICT APPROVED
10/2/05	PH	DBH	DBH	
PLOT SCALE	FILE NAME			DATE APPROVED
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COAL CREEK
UTILITY DISTRICT

GRADE MUST SLOPE AWAY FROM STATION. DO NOT INSTALL ANY PLANTS WITHIN 5' OF THE TANK. OWNER MUST MAINTAIN A 3' CLEAR ZONE.

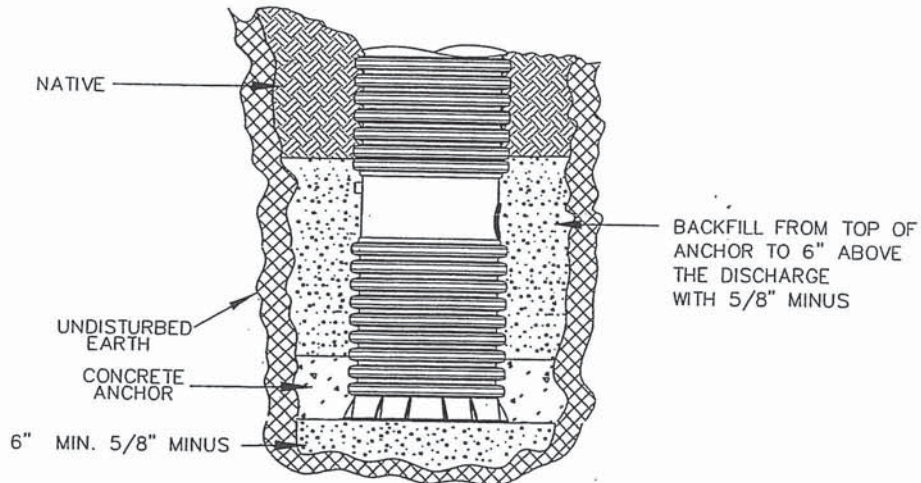
DISCHARGE:
 1-1/4" x 24" THREADED BRASS NIPPLE
 1-1/4" x 1-1/4" BRASS TEE
 1-1/4" x 24" BRASS NIPPLE
 1-1/4" BRASS CAP
 1-1/4" ADAPTER, MIPxPJ



**SEE E-ONE INSTALLATION INSTRUCTIONS FOR FURTHER DETAILS

NOTE: A CONCRETE ANCHOR IS REQUIRED WITH ALL INSTALLATIONS. SIZE OF ANCHOR IS THE CONTRACTOR'S RESPONSIBILITY. MINIMUM SIZE OF CONCRETE ANCHOR IS 4-6 CU.FT.

FILL TO GRADE WITH CLEAN, COMPACTABLE BACKFILL, SUCH AS NATIVE MATERIAL, OR IMPORTED BACKFILL. CLAY AND SILTS ARE NOT ACCEPTABLE BACKFILL



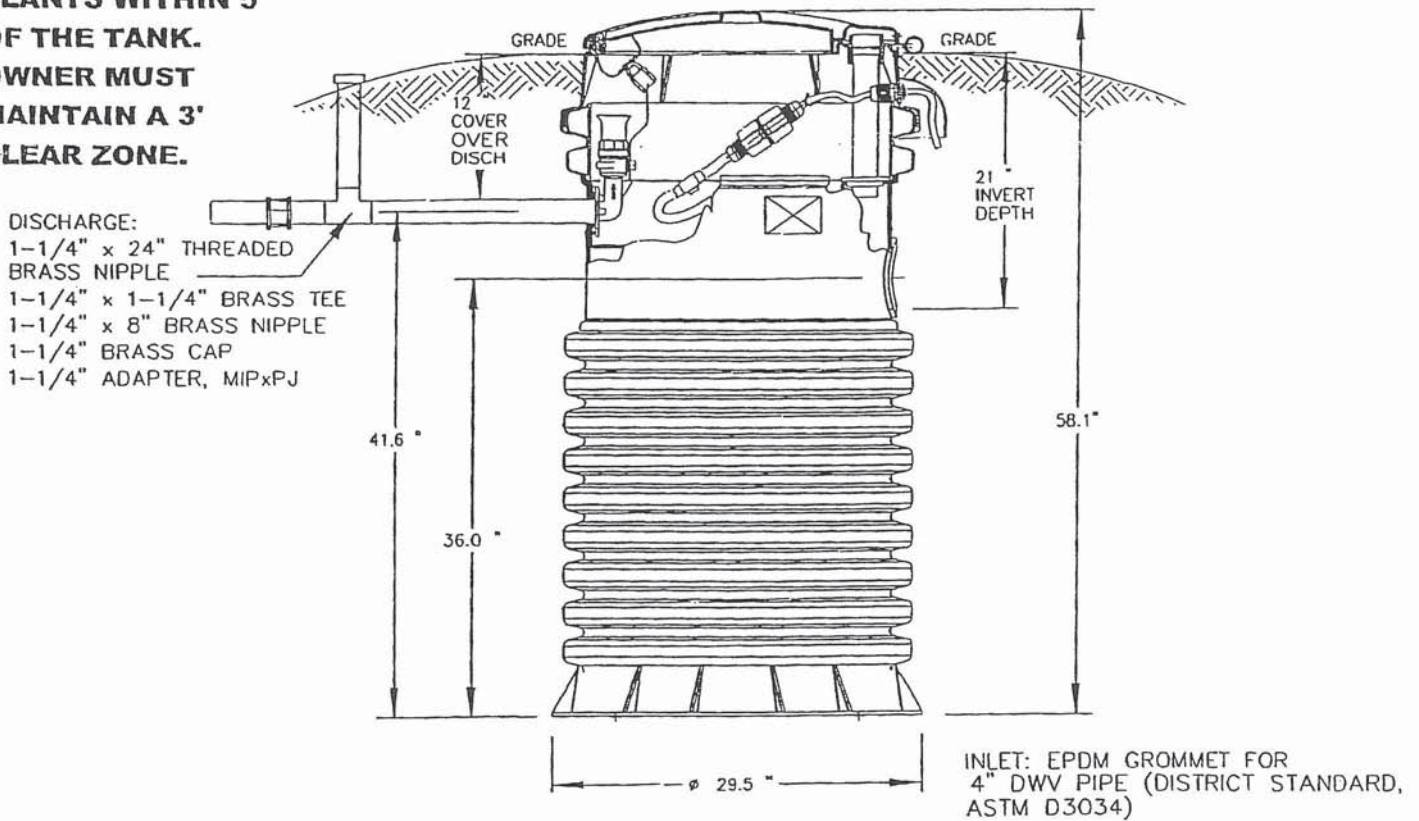
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E-ONE MODEL 2010 - 74" GRINDER PUMP SYSTEM

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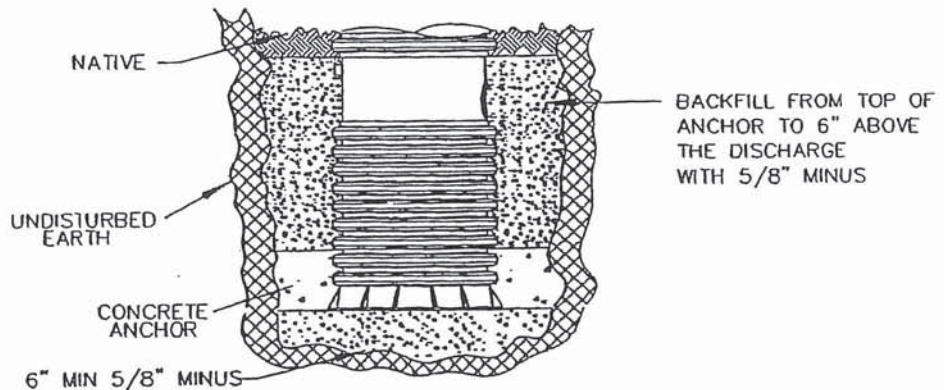
GRADE MUST SLOPE AWAY FROM STATION. DO NOT INSTALL ANY PLANTS WITHIN 5' OF THE TANK. OWNER MUST MAINTAIN A 3' CLEAR ZONE.



****SEE E-ONE INSTALLATION INSTRUCTIONS FOR FURTHER DETAILS**

NOTE: A CONCRETE ANCHOR IS REQUIRED WITH ALL INSTALLATIONS. SIZE OF ANCHOR IS THE CONTRACTOR'S RESPONSIBILITY. MINIMUM SIZE OF CONCRETE ANCHOR IS 4-6 CU.FT.

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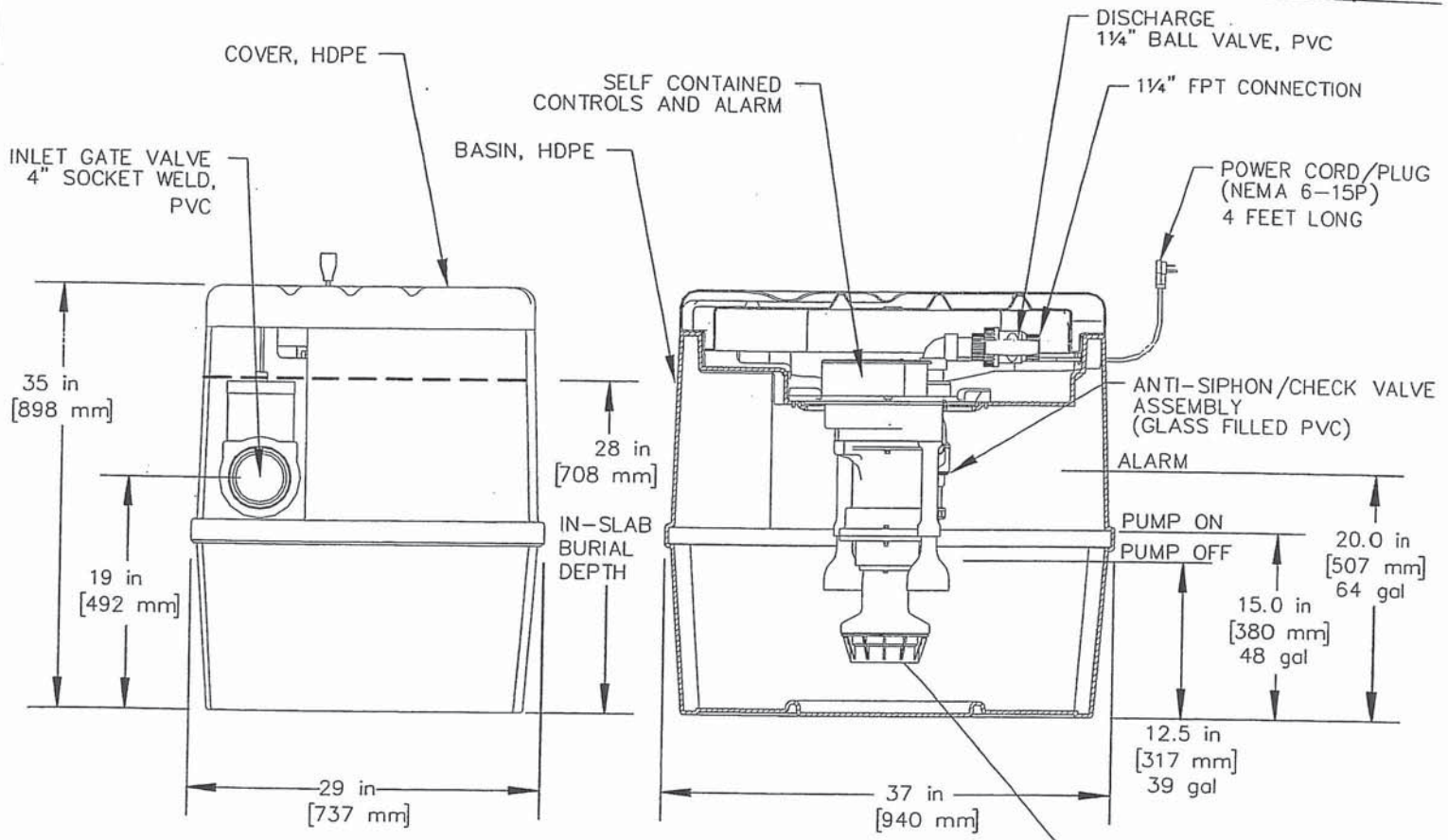


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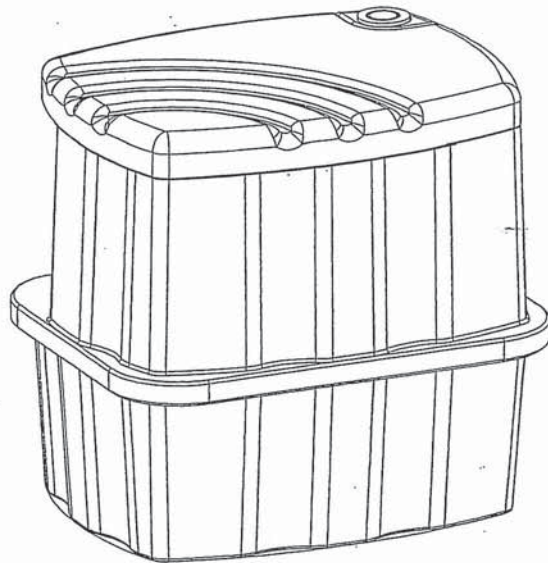
E-ONE MODEL 2010 - 58" GRINDER PUMP SYSTEM

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SEMI-POSITIVE DISPLACEMENT TYPE PUMP
DIRECTLY DRIVEN BY A 1 HP MOTOR
CAPABLE OF DELIVERING 9 gpm @ 138' T.D.H.
(34 lpm @ 42m T.D.H.)



BASIN CAPACITY = 91 GALLONS

UNIT RECOMMENDED BY
CCUD



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E-ONE MODEL 2010 IDU - INDOOR UNIT DETAIL

PLOT DATE	DRAWN	DESIGN	CHECKED	DISTRICT APPROVED
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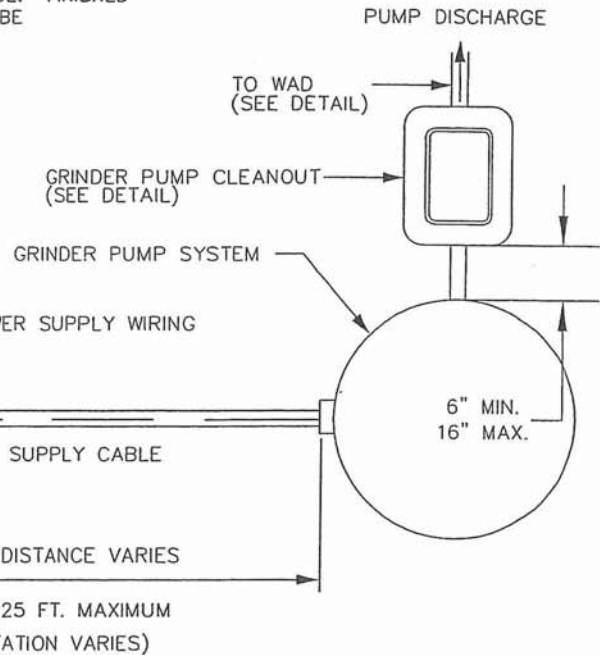
GRINDER PUMP INSTALLATION NOTES:

- 1) THE TANK LOCATION SHALL BE ACCESSIBLE FOR MAINTENANCE AND REPAIR. TANK COVERS SHALL BE APPROXIMATELY 3" ABOVE FINISHED GRADE. FINISHED GRADE SHALL SLOPE AWAY FROM THE STATION AND ARE NOT TO BE LOCATED WITHIN "POT HOLES".
- 2) NO PLANTS ARE TO BE LOCATED WITHIN 5 FEET OF THE TANK. THE PROPERTY OWNER SHALL MAINTAIN A 3' CLEAR ZONE AROUND THE TANK.
- 3) THE LOCATION OF THE BREAKER PANEL SHALL BE:
 - A) ACCESSIBLE FOR MAINTENANCE AND REPAIR
 - B) VISIBLE FROM THE TANK
 - C) THE BOTTOM OF THE PANEL MUST BE 5' FROM FINISHED GRADE, AND
 - D) THE ALARM LIGHT MUST BE VISIBLE FROM 50 FEET AND MUST BE VISIBLE IN A 180° RADIUS.
- 4) FENCES, BUSHES, OR ANY OTHER OBJECT SHALL NOT HIDE THE LIGHT OR HINDER IN THE MAINTENANCE AND/OR REPAIR OF THE SYSTEM.

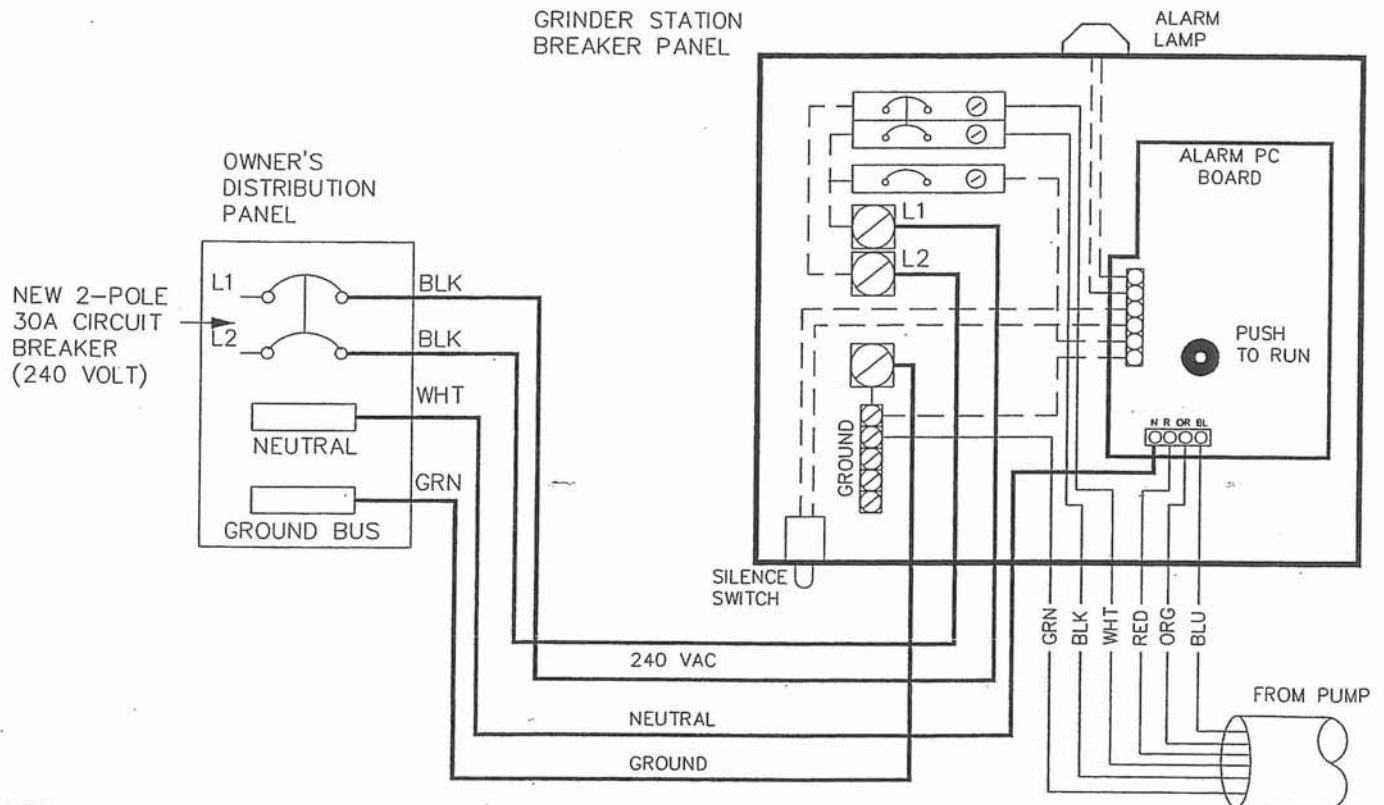
BREAKER PANEL, MOUNT ON HOUSE OR ON POST AS REQUIRED
BOTTOM 5'-0" ABOVE GROUND
OR AUTHORIZED BY C.C.U.D.

4" X 4" PRESSURE TREATED POLE,
SET 3'-0" INTO CONCRETE

240 VAC POWER
SUPPLY BY OTHERS



GRINDER PUMP PLAN



NOTE:
Installation must conform to the regulations of the Department of Labor and Industries, and the National Electric Code. A permit and inspections are required whether the work is performed by the Owner or a contractor.

TYPICAL CIRCUIT DIAGRAM



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GRINDER PUMP DETAILS

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10/2/05	PH	DBH	DBH	
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CLEANOUT/SAMPLING CHAMBER (CSC) FEATURES

Chamber Body

SINGLE FAMILY RESIDENTIAL

- Sturdy ¼" thick, one-piece construction – no welds
- Smooth interior improves the flow ($n = .009$) through molded inverts
- Sized to allow access of pressure cleaning equipment and push-rod CCTV equipment
- Riser spigot designed to utilize 12" SDR 35, as well as 12" Ultra-Rib pipe
- Inlets are 4" and 6" SDR 35 direct connections – no extra components required
- 6" outlet directly connected to SDR 35 pipe
- Designed as a "Crow Foot" to allow two services to be connected through one chamber, cutting main connections in half

Chamber Dimensions

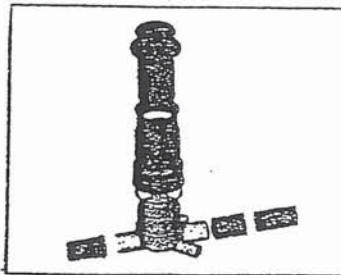
- Length – 26.425" +/- 0.50"
- Height – 14.50" +/- 0.50"
- Width – 21.00" +/- 0.50"
- Thickness – 0.250" average

12" Riser Pipe on CSC

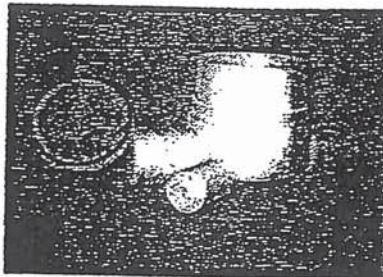
- Sized to keep opening large enough to accept standard pressure cleaning equipment and push-rod CCTV equipment
- Small enough to be installed in sidewalk, yard, or easement relatively inconspicuously
- Polyethylene lid with gasket installs in top of riser to provide water tight seal
- SDR 35 or Ultra-Rib may be used as a riser
- Surface opening may be reduced through use of rigid or flexible reducing couplings
- Riser is cut to proper length at job site by installer

Surface Treatment

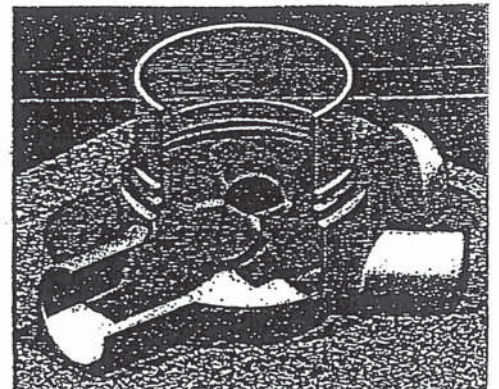
- Standard ring and cover set on a poured concrete pad may be used to gain access
- Smaller ring and covers are available for sidewalk, yard, or easement applications
- Sealed, Polyethylene lid may be buried without ring and cover where complete concealment is desired



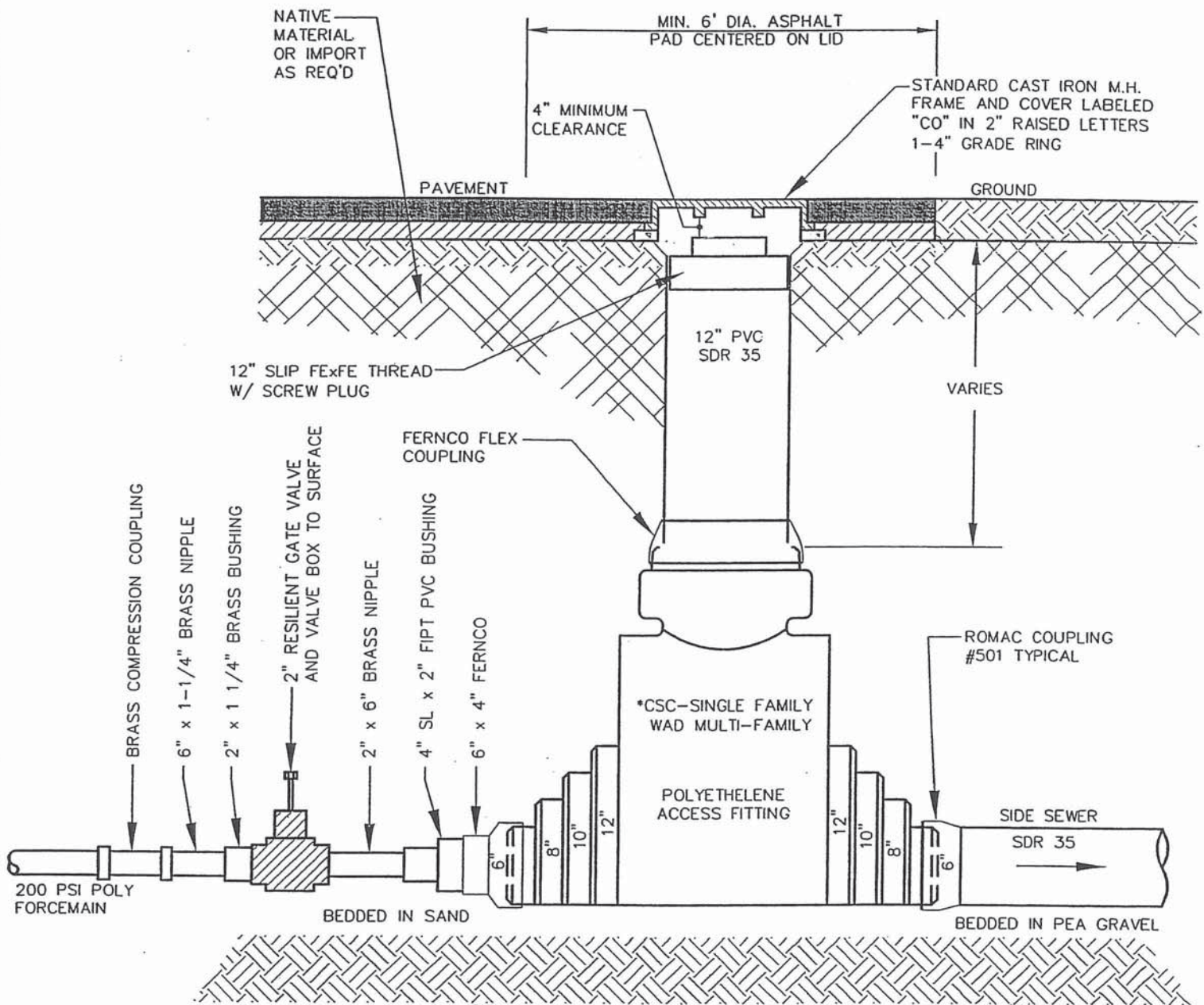
CSC Assembled Configuration



CSC With Lid



Cut-Away CSC



SINGLE FAMILY POLY FORCEMAIN 1-1/4"
 MULTI-FAMILY OR COMMERCIAL POLY FORCEMAIN 2"

ENTIRE DEVICE TO BE BEDDED
 IN SAND TO BOTTOM OF RISER PIPE

NOTE: PRIVATE FORCE MAIN TO BE
 PRESSURE TESTED TO 25 PSI.
 FITTING SIZES MAY VARY.



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***CLEANOUT/SAMPLING CHAMBER (CSC) -SINGLE FAMILY
 WASTEWATER ACCESS DEVICE (WAD)-MULTI FAMILY**

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