

Garrett County Department of Public Works Utilities Division

Sewage Grinder Pump Installation and Inspection Requirements

Questions regarding sewage grinder pump installations or to schedule inspections or pump connections, are to be directed to the Utilities Division (DPU) at 301-334-6976. Please insure that the following requirements are satisfied prior to scheduling the inspection and/or connection. DPU personnel cannot enter dwellings for any reason.

PLUMBING REQUIREMENTS

1. All pipe and fittings should be purchased from the DPU Warehouse @ 200 Francis Sanders Drive, Oakland, to insure uniformity of all specifications and installations.
2. The grinder basin must be at least 10-feet from the building structure. The top of the basin must be at least 2-feet below any floor with plumbing (unless otherwise approved by DPU). The minimum slope is 2% (1/4" per foot). The bottom of the basin must be anchored in 1-yard of concrete in order to keep the basin from floating.
3. The top of the grinder basin must be level.
4. If a riser is installed, an extended rail assembly and junction box pipe extension must be added and the float bracket moved up. The materials are available at the DPU Warehouse.
5. The inlet from the building connection must be cut in away from the floats and rail assembly.
6. All discharge piping must be installed with a minimum of 3-feet of cover.
7. All discharge piping must be a minimum of 3-feet away from any other utility.
8. All discharge piping must be installed with the bell-end facing the basin.
9. Absolutely no DWV (draining waste and vent) fittings or glue joints can be used on the discharge piping (must be SDR-21 or 13.5).
10. A brass check valve must be installed on the discharge piping at the connection point to the main sewer line or when connecting to an existing discharge line via slip-tee.
11. All discharge piping must have a minimum of 6-inches of #10 stone (dust) under and 6-inches of #10 stone (dust) over the pipe.
12. All discharge piping must be marked with sewer line detection tape no deeper than 12-inches from finished grade.

13. All discharge piping must be inspected by a DPU employee prior to backfilling. The property owner/contractor must call 301-334-6976 in order to schedule an inspection. There are no exceptions to this requirement. If backfilling occurs prior to an inspection by DPU, the property owner/contractor will be required to excavate the piping for inspection by DPU at the property owner's/contractor's expense. Installations will not be accepted and/or allowed to connect to the main sewer system until the piping is inspected and accepted.
14. The grinder basin must be backfilled to finished grade before the pump can be installed and wired. The basin lid must be at least 2 to 3-inches above the finished grade so that surface water cannot enter the basin. IN NO INSTANCES CAN THE BASIN BE BELOW GROUND LEVEL AND FINISHED GRADE MUST BE SLOPED TO DIVERT SURFACE WATER AWAY FROM THE BASIN.
15. The grinder basin must be easily accessible at all times. Items including, but not limited to, decks, walkways, pavement, heavy objects, or any other type of structure cannot be constructed over or located on top of the basin or impede upon the operation and maintenance easement area. If access to the grinder basin is impeded, removal of the object is the full responsibility of the property owner. Maintenance on the system will not occur until the obstructing object is removed by the property owner.
16. For instances where a duplex grinder system is installed, a roadway must be constructed to the basin to allow for access by DPU utilizing a truck equipped with a lifting hoist for operation and maintenance purposes.

ELECTRICAL REQUIREMENTS

1. All electrical components should be purchased from the DPU Warehouse to insure uniformity of all specifications and installations.
2. All conduit and fittings must be rated for electrical use. Water piping cannot be substituted for electrical conduit.
3. All conduit installed must be a minimum of 1-inch in diameter for simplex grinder systems and a minimum of 1½ inches for duplex grinder systems. It is the responsibility of the contractor to size the conduit for the proper installation.
4. Conduit installed from the control panel to the basin must be buried in the ground and cannot be installed under crawl spaces or basements. Conduits that run between the control panel and basin must have an expansion joint coupling within 12-inches of the control panel.
5. All efforts should be taken to avoid crossing over or under the gravity sewer line from the structure to the grinder basin with the electrical conduit installed from the control panel to the basin. Conduit cannot cross over or under the discharge piping from the grinder basin to the main sewer line.
6. All conduit must be a minimum of 18-inches deep and have a minimum of 4-inches of #10 stone (dust) under and a minimum of 4-inches of #10 stone (dust) over the conduit.

7. All conduit must be marked with electrical marking tape no deeper than 12-inches from finished grade.
8. **All conduit must be inspected by a DPU employee prior to backfilling. The property owner/contractor must call 301-334-6976 in order to schedule an inspection. There are no exceptions to this requirement. If backfilling occurs prior to an inspection by DPU, the property owner/contractor will be required to excavate the conduit for inspection by DPU at the property owner's/contractor's expense. Installations will not be accepted and/or allowed to connect to the main sewer system until the conduit is inspected and accepted.**
9. The control panel must be mounted in plain view and located as close as possible to the grinder basin with a minimum of 6-inches clear around all sides of panel. If a control panel will be post-mounted, the entire supporting structure must be constructed of treated lumber or welded stainless steel unistrut. The minimum size allowable for supporting posts is 4-inches by 4-inches.
10. The voltage for 2hp simplex and 2hp duplex grinder pumps is 240 volt single phase. Where commercial voltage of 208 is present, the property owner/contractor is required to install a buck boost transformer in order to supply the correct voltage.
11. The wiring harness must be purchased from the DPU Warehouse and be installed by the contractor from the control panel to the grinder basin. It is the responsibility of the contractor to inform Warehouse personnel whether the wiring harness is for a simplex or duplex installation. DPU personnel will complete the connections.
12. Wiring from the load center in the building to the disconnect and from the disconnect to the control panel must be complete and energized. Electrical breakers in the disconnect box and control panel must be turned off prior to final inspection by DPU personnel.
13. A lightening arrestor must be wired to the top terminals of the disconnect breaker.
14. The disconnect must be grounded with green wires from the feed and control panel. The white wires from the lightening arrestor must be mounted to a bar and ground screw installed. The disconnect must be a Square D brand.
15. The neutral wire from the building and the neutral wire from the control panel must be connected with wire nuts. This isolates the neutral wire from the ground wire.
16. Install electrical potting in conduit to basin to keep out gases.
17. Flooded junction boxes in grinder basins will not be accepted. Flooding causes the liquid to enter the wiring harness which in turn allows moisture to enter the pump windings when the motor is connected and energized. This causes the pump to malfunction and burn up. In order to avoid flooding of the junction boxes the following precautions are recommended:
 - a. If the liquid level in the basin is within 36-inches from the top of the basin, the liquid must be removed by the property owner/contractor.
 - b. If the junction box becomes flooded, a new wiring harness must be installed.

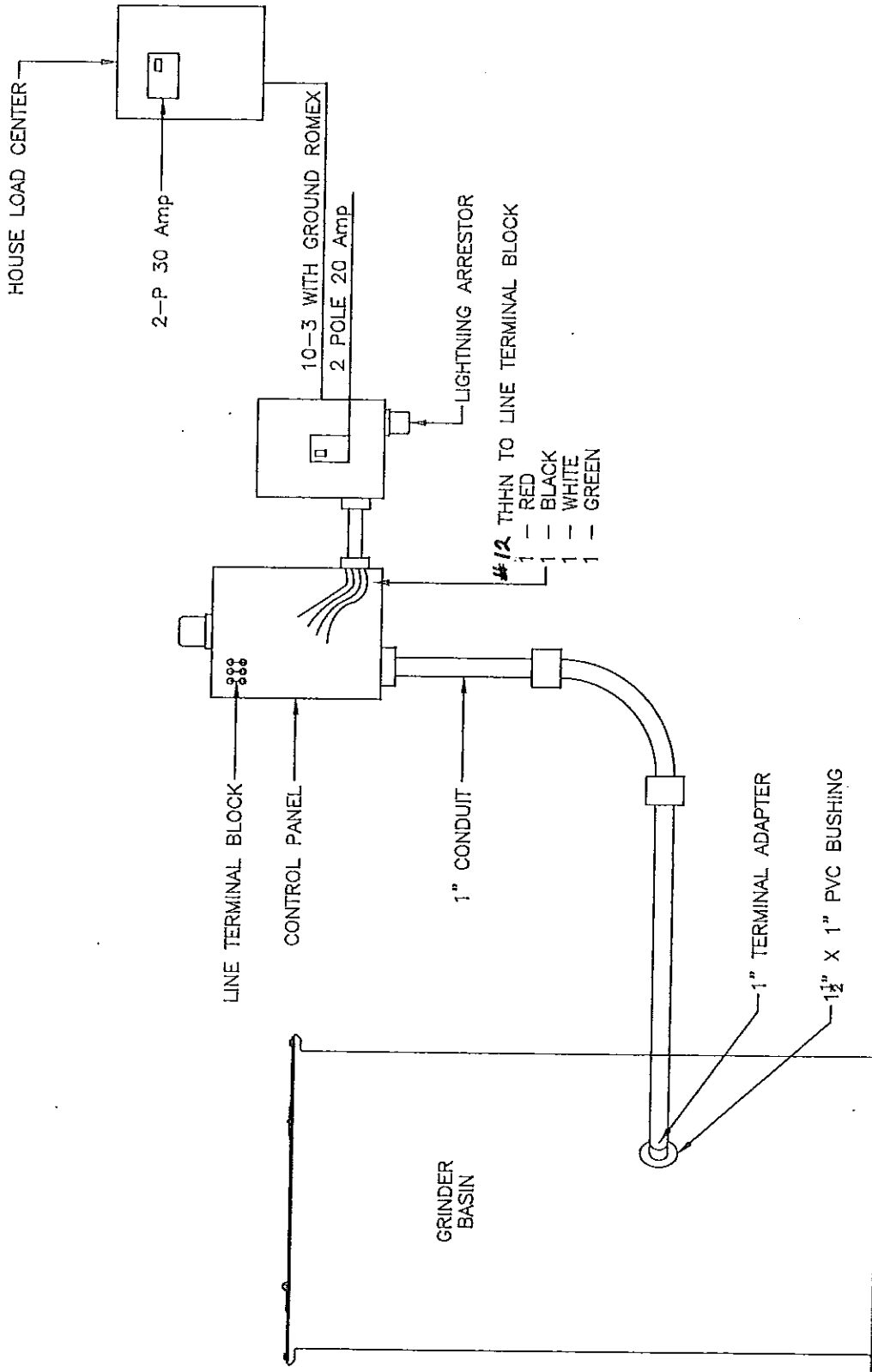
- c. The electrician should complete installation of the disconnect and control panel, contact DPU at 301-334-6976 to schedule the connection, and then pull the wiring harness the same day prior to the pump installation.
18. The pump will be installed and connected by DPU personnel. A \$100.00 fee per return trip will be assessed to the property owner/contractor if all requirements are not satisfied and a return trip(s) is required by DPU personnel.

INSPECTION REQUIREMENTS

1. Water must be available to the grinder basin.
2. There cannot be more than 2-feet of liquid in the basin.
3. Installation of the disconnect, control panel and wiring harness must be complete with power to the disconnect and breaker turned off in the control panel.
4. The road valve must be marked with a wooden stake or orange flag.
5. The grinder lid must be exposed.
6. The grinder basin must be backfilled to finished grade.
7. A fee of \$100.00 must be paid prior to any return trips by DPU that are required due to incomplete installations.

Example Installation Diagrams Attached

Revised 7/31/17



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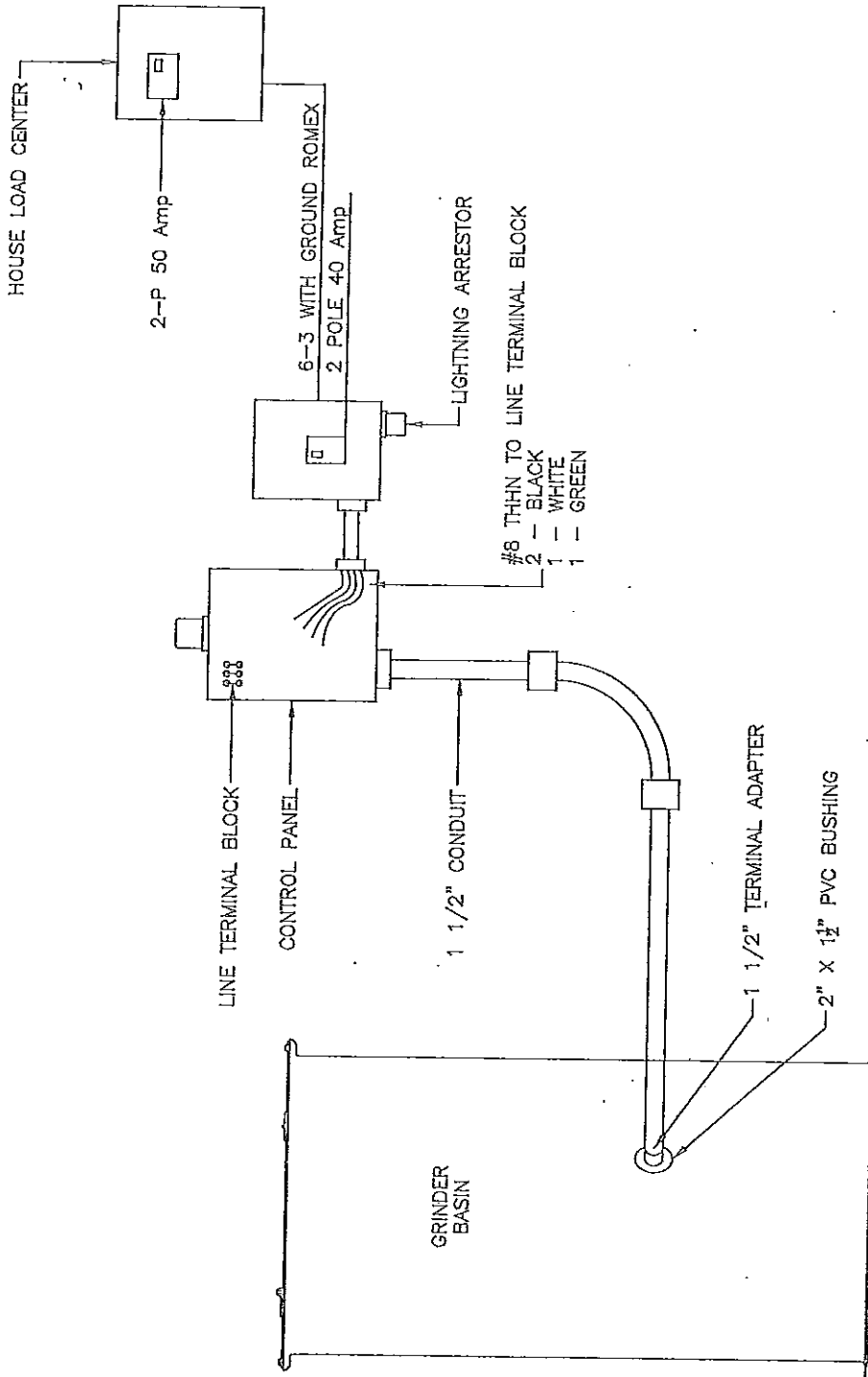
2HP SIMPLEX GRINDER APPLICATION

Standard Detail No.

STD.-12

NOT TO SCALE

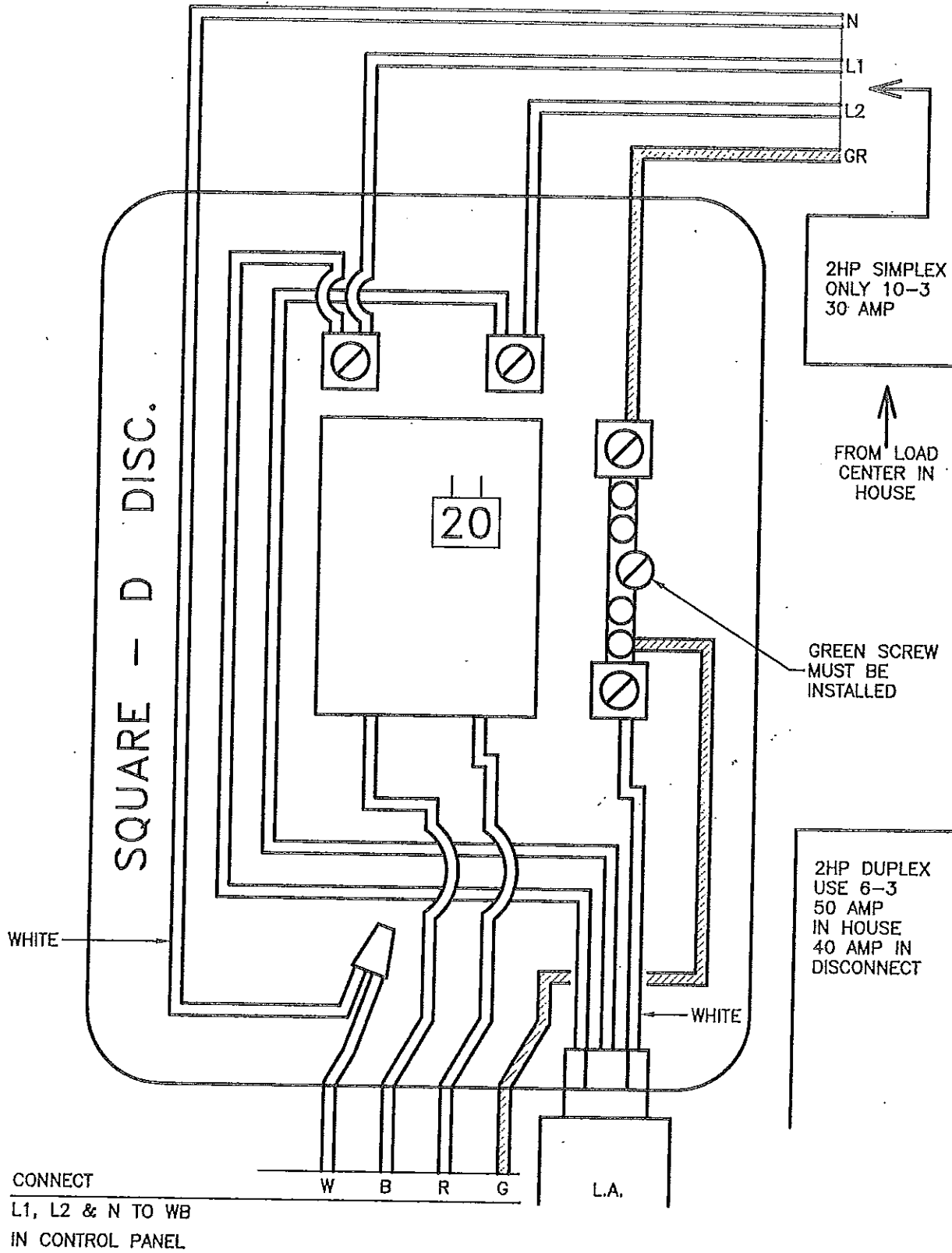
SEPTEMBER 2010



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2HP DUPLEX GRINDER
 APPLICATION

Standard Detail No.
STD.-13
 NOT TO SCALE
 SEPTEMBER 2010



SQUARE - D DISC.

2HP SIMPLEX
ONLY 10-3
30 AMP

FROM LOAD
CENTER IN
HOUSE

GREEN SCREW
MUST BE
INSTALLED

2HP DUPLEX
USE 6-3
50 AMP
IN HOUSE
40 AMP IN
DISCONNECT

WHITE

WHITE

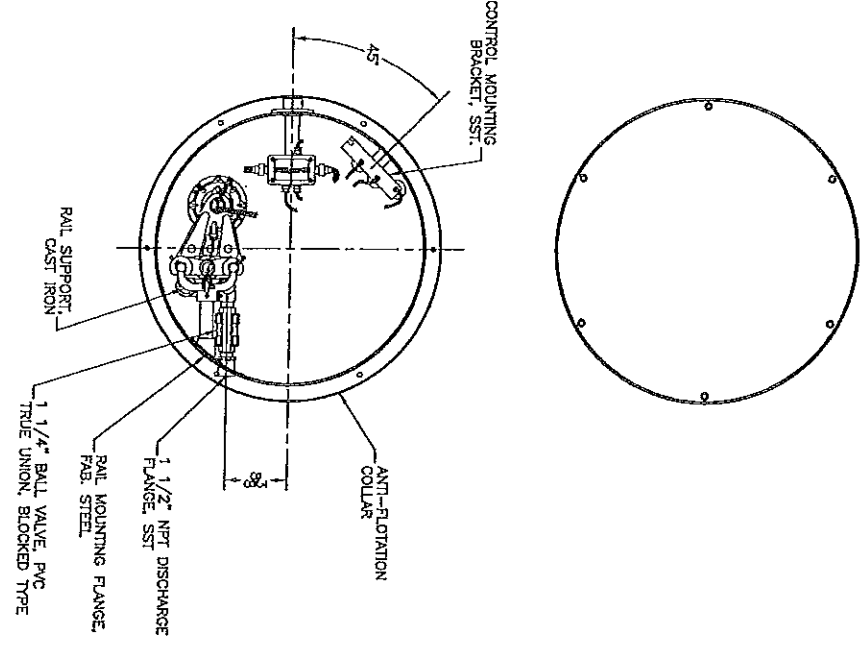
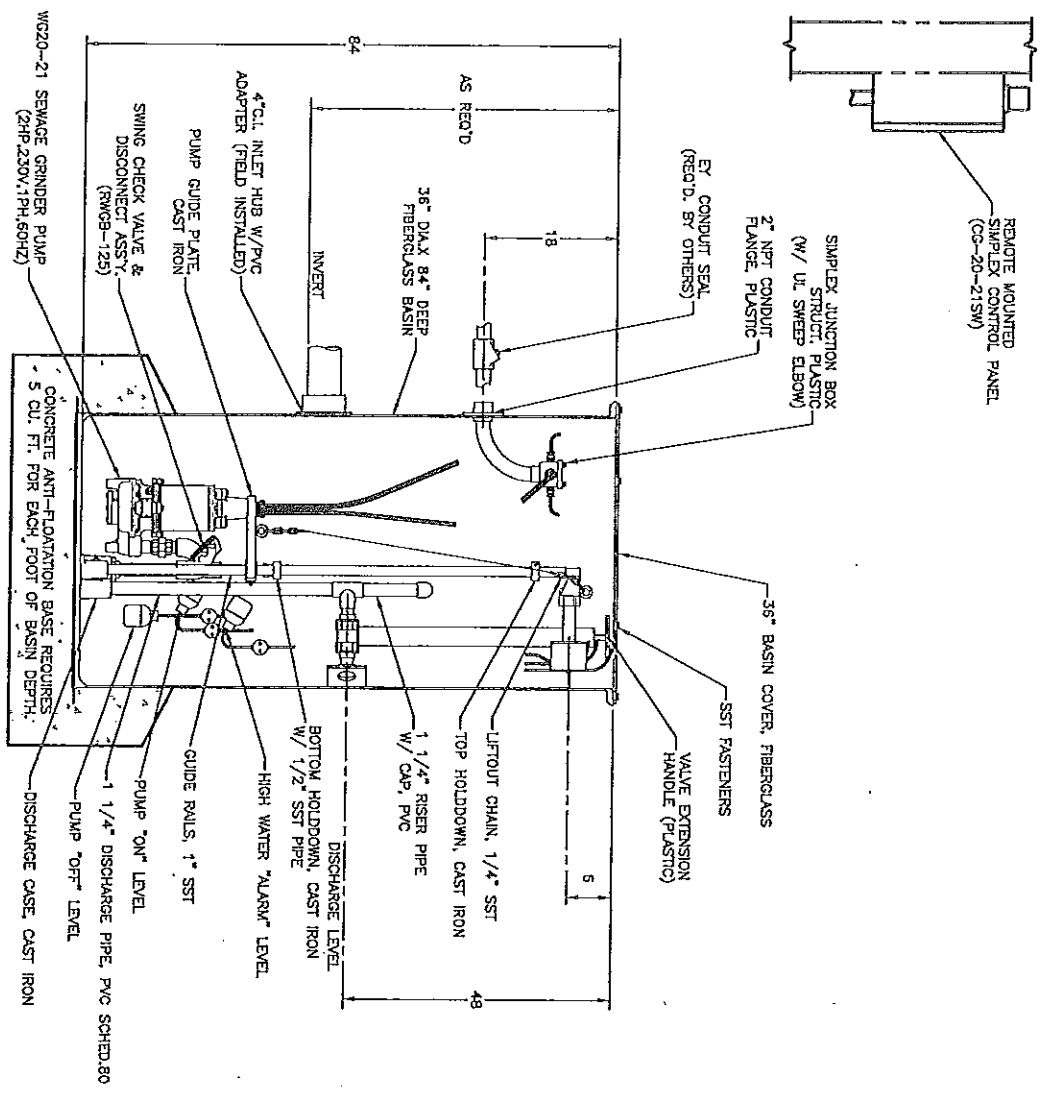
CONNECT
L1, L2 & N TO WB
IN CONTROL PANEL

W B R G L.A.

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CONTROL
PANEL

Standard Detail No.
STD.-14
NOT TO SCALE
SEPTEMBER 2010



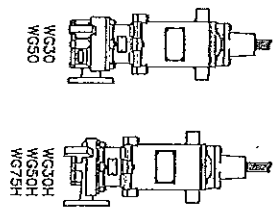
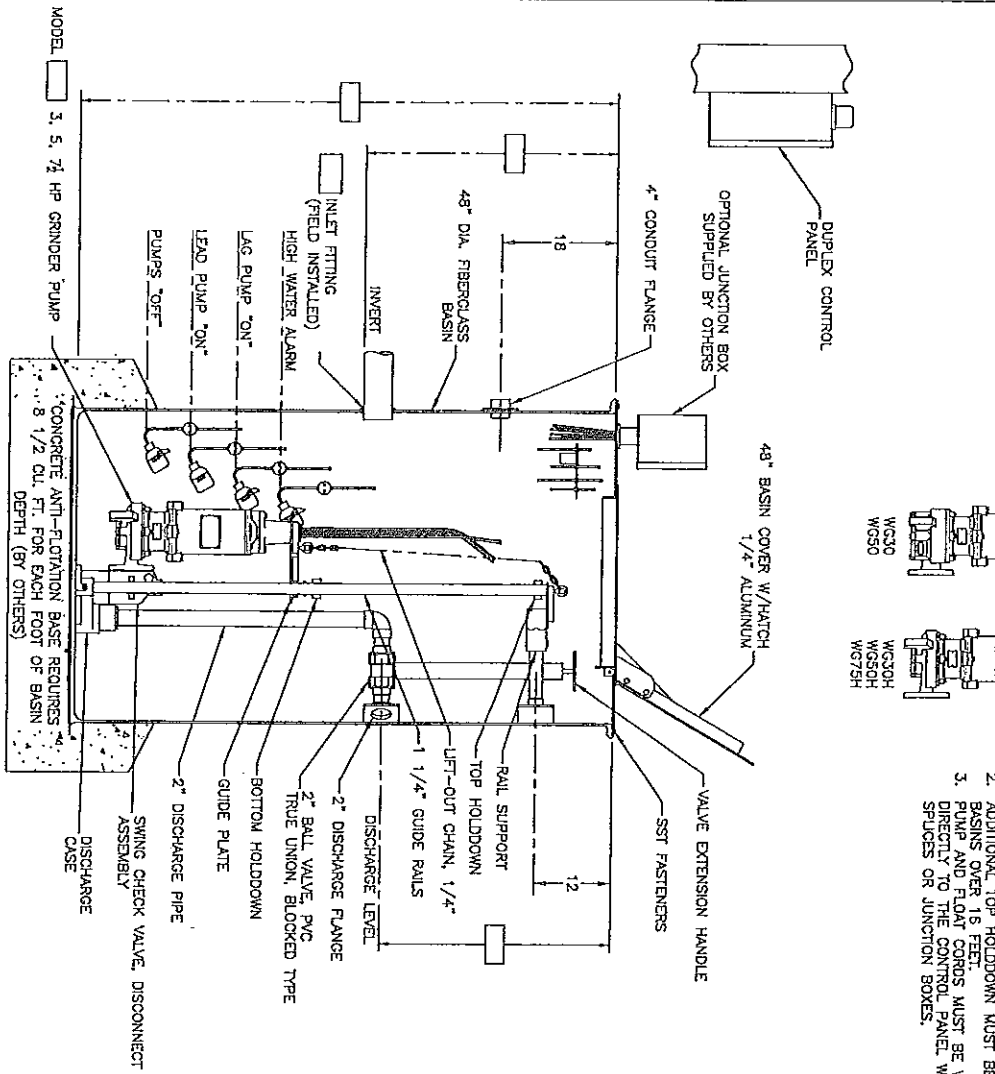
TYPICAL INSTALLATION
 36" SIMPLEX GRINDER PUMP PACKAGE
 WITH REMOTE MOUNTED CONTROL PANEL
 PUMP MODELS: WC20, WC120

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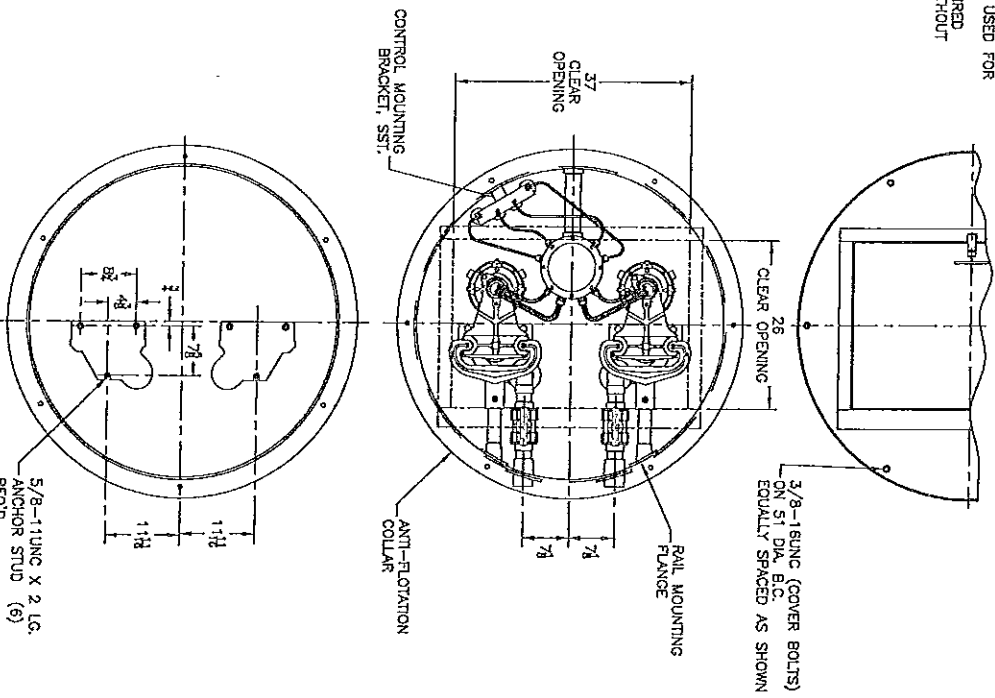
36" SIMPLEX GRINDER PUMP
 INSTALLATION DETAIL

Standard Detail No.
STD.-15
 NOT TO SCALE
 SEPTEMBER 2010

TYPICAL INSTALLATION
 48" DUPLEX GRINDER PUMP PACKAGE
 WITH REMOTE MOUNTED CONTROL PANEL
 (MODELS BZ0R0-4872 THRU BZ0R0-4819Z)
 PUMP MODELS: W630, W650,
 W630H, W650H, W675H,
 W675H



- NOTE:
1. INTERMEDIATE RAIL SUPPORT REQUIRED FOR BASINS OVER 16 FEET.
 2. ADDITIONAL TOP HOLDDOWN MUST BE USED FOR BASINS OVER 16 FEET.
 3. PUMP AND FLOAT CORDS MUST BE WIRED DIRECTLY TO THE CONTROL PANEL WITHOUT SPLICES OR JUNCTION BOXES.



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48" DUPLEX GRINDER PUMP PACKAGE 3-7.5hp
 INSTALLATION DETAIL

Standard Detail No.	STD.-16
	NOT TO SCALE
	SEPTEMBER 2010