

Residential Grinder Pump Procedures  
(Requirements for JCSA Service Agreement)

JCSA established these procedures to provide guidance to James City County employees, contractors and homeowners for the proper installation and operation of Environment One type grinder pumps. It is not the intent of the JCSA to imply that grinder pumps are limited to the Environment One model DH071. However, coverage of other grinder pump types and functions is outside the scope and responsibility of the JCSA.

Whenever a Contractor files a "sewer service" application, the JCSA Customer Service Division will verify whether it is a grinder pump lot. If it is a designated grinder pump lot, Customer Service will then furnish the Contractor/Owner with a copy of all JCSA grinder pump standards/requirements and initiate a "Grinder Pump Acknowledgment Form." The Contractor will sign this acknowledgment to indicate they understand and have received JCSA grinder pump installation standards.

During installation, Environment One grinder pumps will be located as to allow reasonable access by repair crews and reduce footage of service line upkeep. All Environment One grinder pumps should be installed as close to the property line as engineering, design and Contractor requirements allow. Any questions concerning grinder pump basin and infrastructure location, and/or installation specifications, should be directed to the JCSA Engineering Division. JCSA's operational number, which is 757-229-7421, should be used for all related communications.

All Environment One model DH071 grinder pumps installed in James City County and obtained through Commonwealth Engineering and Sales 804-752-2959 will have the grinder pump basins delivered to the Contractor. Commonwealth Engineering and Sales then delivers the pump core to the JCSA Warehouse, who then stores it in a secure area and attaches a tag indicating its proper address.

James City County Building Safety and Permits (BS&P) inspectors, when inspecting new construction, will ensure that Contractors do not backfill the grinder pump basin and its associated piping until they have verified that the grinder pump basin is installed according to JCSA and manufacturer s standards. This would include the anchoring of the grinder pump basin with the appropriate interlocking ballast system, correct backfill materials, installation of force main piping, tracer wire, bypass/valve box, check and ball valves.

Once the contractor has completed all necessary installations according to the manufacturer and JCSA requirements, received electrical and plumbing releases from BS&P, has a water meter installed, electricity available to the grinder pump, and has ensured that the basin is empty, they will call 757-229-7421 for an inspection by the JCSA Operations Division. At this time Support Section personnel will inspect for correct grade, electrical and piping installations according to JCSA standards. If the installation meets all standards, the inspection crew will install the grinder pump core and perform current, voltage and pressure tests.

Once all Support Section inspection and test items are accepted, the approvals are forwarded to the JCSA's Wastewater Collection Section. This section will then perform a second inspection of the grinder pump installation as part of the Certificate of Occupancy (CO) inspection process. Once all items are satisfied, an approval is forwarded to the JCSA Customer Service Division. The Customer Service Division then mails a JCSA grinder pump service agreement application to the homeowner. Upon return of the application and payment of the service agreement fee, the grinder pump is then covered under the JCSA's service agreement plan.

## Grinder Pump Procedural Sheet (abbreviated)

1. Contractor/Owner fills out application for sewer service with the Customer Service Division. If the lot has been identified for grinder pump use, Contractor/Owner will be given an informational packet containing all JCSA grinder pump requirements. At that time the contractor shall sign an acknowledgment form, stating that we have provided him copies of JCSA specifications.
2. Grinder pump installation will be in accordance with JCSA specifications.
  - grinder pump assembly should be no closer than 10' to any structure
  - installed in a manner that maintains accessibility for personnel and equipment
  - force main routed to avoid landscaping, driveways and other inaccessible areas
  - grinder pump placed as close as practical to the connection point of the public system
  - maintain proper grading, do not cover access cover, ventilation orifice, bypass box, etc.
3. At the appropriate time in construction, the permit holder requests electrical temporary release and sewer line inspections by James City County Building Safety and Permits (BS&P).
4. Electrical temporary release and sewer line inspections approved by BS&P.
5. Must be an electric meter set on house and water service initiated.
6. After all JCSA installation requirements are met the permit holder calls the Utility Operations Division 757-229-7421, provides building permit number, and requests a pump core installation.
7. Utility Operations Division shall call BS&P at 253-6620 to confirm completion of electrical temporary release and sewer line inspections. The Customer Service Division then notifies the Support Section to perform their inspection. When JCSA requirements are met, the pump core is installed and an operational test performed. Inspection will be done in accordance with Appendix C.
8. Support Section then notifies the Wastewater Collection Section that a grinder pump is approved and operational.
9. Wastewater Collection Section performs CO inspection.
10. Once CO inspection is approved, the Wastewater Collection Section notifies Customer Service Division that a grinder pump is approved and operational.
11. Contractor/Owner calls BS&P 757-253-6620 for plumbing and electrical finals.
12. Upon approval of all JCSA inspections, the Customer Service Division 757-253-6800 mails a Grinder Pump Service Agreement application to the homeowner.
13. Upon approval by JCSA of grinder pump installation, and approval of all trade finals required by BS&P, the building's final inspection will be conducted. Once acceptable, BS&P will issue the Certificate of Occupancy.

Acknowledgment of Environment One Grinder Pump  
Specifications and Procedures

1. I have received a copy of the JCSA's specifications and procedures relating to the installation of Environment One grinder pumps.
2. I agree to read all applicable literature and to also provide the same to the appropriate owner.
  - a. JCSA to provide utility specifications.
  - b. Manufacturer provides requirements and warranty information with delivery of the grinder pump basin.
3. I will initiate contact with the JCSA's Engineering Division to coordinate the location of the grinder pump prior to its installation.
4. I agree to abide by the JCSA's and manufacturer's specifications.
  - a. Grinder pumps shall be properly anchored.
  - b. All electrical/plumbing shall be to specifications.
  - c. Will provide for bypass operations in accordance with specifications.
5. I will contact the Utility Operations Division should I have any questions relating to proper grinder pump installation or procedural difficulties.
6. I understand that a HRSD Flow Certificate, and VDH approval, is required for any grinder pump that discharges directly into a force main.
7. JCSA offers a grinder pump service agreement for Environment One pumps only. The Environment One pump will accommodate a wide range of pressures that are typically encountered in JCSA's and HRSD's pipelines. If a customer elects to use a grinder pump other than the environment one, an engineer or supplier should be consulted to ensure that a pump is selected that will deliver adequate flow at the site specific range of pressure that is expected to be encountered at the property. JCSA and HRSD can provide anticipated pressures in their respective pipes at the proposed connection points to assist in the pump selection. JCSA will not be responsible for an inadequately sized pumping system due to improper design.

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Signature

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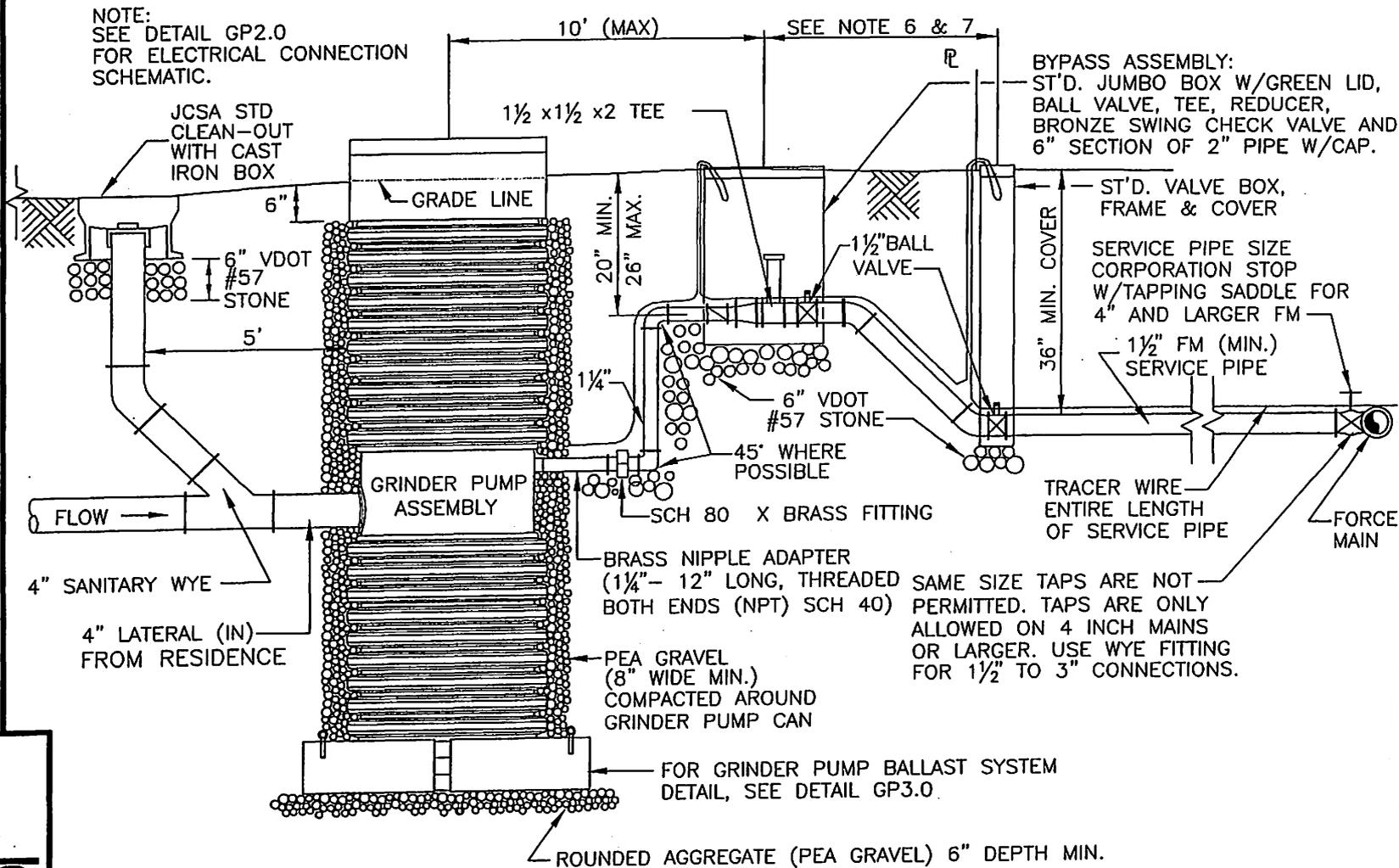
Date

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Title

REVISION DATE COMMENT

NOTE:  
SEE DETAIL GP2.0  
FOR ELECTRICAL CONNECTION  
SCHEMATIC.



SEE SHEET 2 OF 2 FOR NOTES.



RESIDENTIAL GRINDER PUMP  
INSTALLATION

1 OF 2

DWG NO. GP1.0

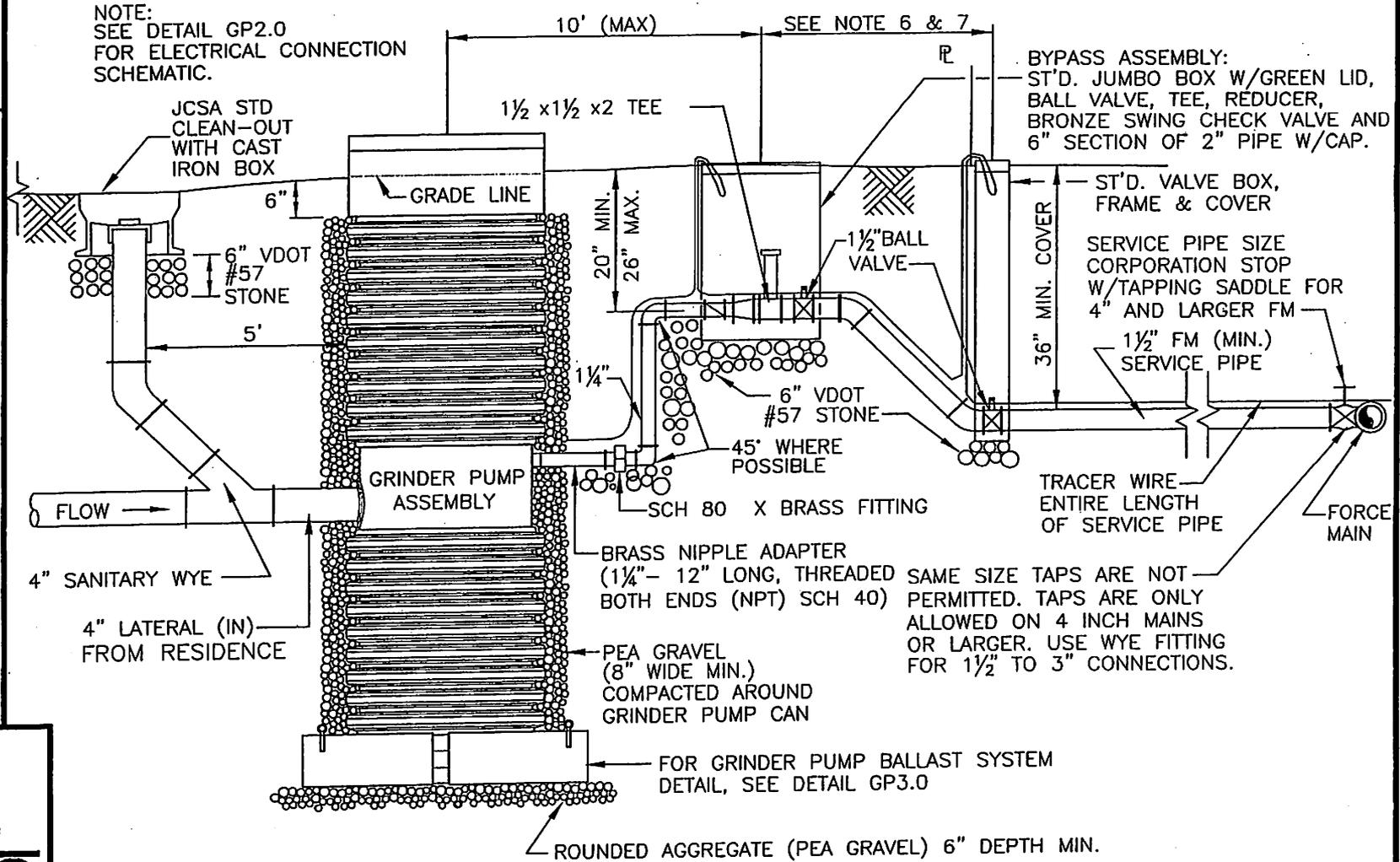
SCALE: NONE

DWN BY: DAW

DATE: 4-2017

REVISION DATE COMMENT

NOTE:  
SEE DETAIL GP2.0  
FOR ELECTRICAL CONNECTION  
SCHEMATIC.



SEE SHEET 2 OF 2 FOR NOTES.



RESIDENTIAL GRINDER PUMP  
INSTALLATION

1 OF 2

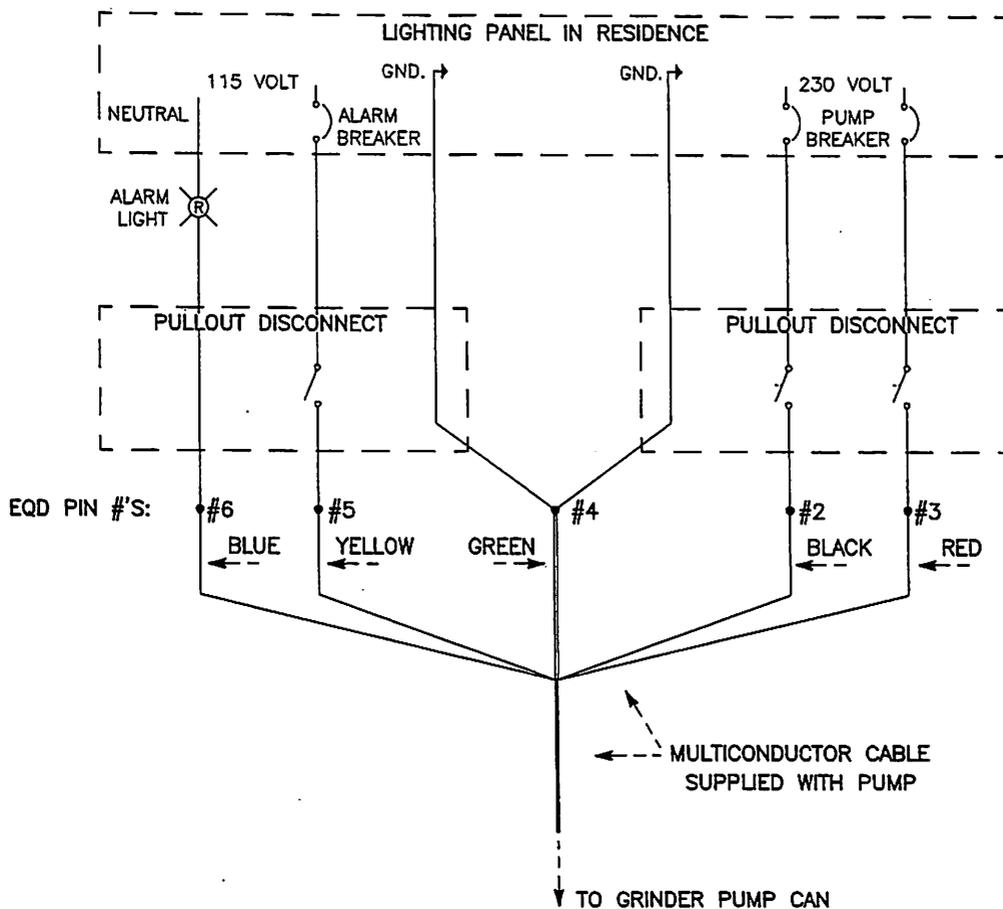
DWG NO. GP1.0  
DWN BY: DAW  
SCALE: NONE  
DATE: 4-2017

**NOTES:**

1. GRINDER PUMPS SHALL BE LOCATED ON EACH LOT/PARCEL AS AGREED BY JCSA AND THE OWNER/CONTRACTOR AND A MINIMUM OF 10 FEET AWAY FROM FOUNDATIONS & STRUCTURES (REFERENCE JCSA'S GRINDER PUMP PROCEDURAL SHEET).
2. GRINDER PUMP ASSEMBLIES SHALL BE "ENVIRONMENT-1" MODEL DH071 AS MANUFACTURED BY ENVIRONMENT ONE CORPORATION.
3. SADDLES MAY BE USED FOR CONNECTIONS TO GRAVITY SEWERS.
4. ALL MATERIALS AND INSTALLATION PROCEDURES SHALL BE IN ACCORDANCE WITH MANUFACTURER'S SPECIFICATIONS.
5. SHUT OFF VALVE SHALL BE LOCATED AT PROPERTY LINE.
6. SHUT OFF VALVE MAY BE DELETED WHEN BYPASS ASSEMBLY IS LOCATED ON/AT THE PROPERTY LINE.
7. THE LOCK AND PUMP WRENCH DELIVERED WITH THE GRINDER PUMP ARE TO BE LEFT IN THE CAN UNTIL JCSA PERSONNEL ARRIVE.
8. THE GRINDER PUMP FORCE MAIN SHALL BE TESTED AT 1½ TIMES THE WORKING PRESSURE OR 150 PSI WHICHEVER IS GREATER.
9. BALL VALVES SHALL BE USED ON PIPES SMALLER THAN 3-INCHES IN DIAMETER AND SHALL BE CAST BRASS, TEE HEAD, WITH THREADED CONNECTIONS. VALVES SHALL BE AS MANUFACTURED BY THE FORD METER BOX COMPANY, INC. B11, MUELLER COMPANY 300 BALL CURB VALVE B-20283, OR CAMBRIDGE PN #212NL-F6F6. HAND WHEEL ACTIVATED VALVES ARE NOT PERMITTED.
10. NO FORCE MAIN SHALL BE UNDER THE DRIVEWAY IF A MAINTENANCE AGREEMENT IS TO BE OBTAINED, EXCEPT ONE (1) PERPENDICULAR CROSSING OF A DRIVEWAY OR SIDEWALK. THE CROSSING SHALL BE IN A CASING WITH THE ENDS SEALED USING ELASTOMERIC MATERIAL.
11. TO BE ELIGIBLE FOR A GRINDER PUMP SERVICE AGREEMENT, THE GRINDER PUMP ASSEMBLY, PIPE AND APPURTENANCES SHALL CONFORM WITH JCSA DESIGN AND ACCEPTANCE CRITERIA, SECTION 2.05 "EASEMENTS" PARAGRAPH 3.

REVISION DATE	COMMENT

	
<b>RESIDENTIAL GRINDER PUMP INSTALLATION</b>	
2 OF 2	
DWG NO. GP1.0	SCALE: NONE
DWN BY: DAW	DATE: 4-2017



**NOTES:**

THE ELECTRICAL PORTION OF GRINDER PUMP INSTALLATIONS CONSISTS OF TWO CIRCUITS.

a) MOTOR CIRCUIT, 230 VOLT, FED FROM A DEDICATED 2 POLE 20 AMP BREAKER IN MAIN SERVICE PANEL TO 2 POLE LOCKABLE OUTDOOR NON-FUSED DISCONNECT, MODEL #U065P MANUFACTURED BY MIDWEST OR APPROVED EQUAL. DISCONNECT SHALL BE MOUNTED ON A SALT TREATED POST WITH BOTTOM OF DISCONNECT BOX A MINIMUM OF 6 INCHES ABOVE FINISHED GRADE OR ON THE NEAREST WALL OF THE DWELLING (50 FEET MAXIMUM) AND BE VISIBLE FROM THE GRINDER PUMP CAN. PUMP CABLE IS THEN ROUTED FROM DISCONNECT TO GRINDER PUMP CAN. SEE SCHEMATIC DIAGRAM ABOVE.

b) ALARM CIRCUIT, 115 VOLT, FED FROM A DEDICATED SINGLE POLE 15 AMP BREAKER IN MAIN SERVICE PANEL TO A 2 POLE LOCKABLE OUTDOOR NON-FUSED DISCONNECT, MODEL #U065P MANUFACTURED BY MIDWEST OR APPROVED EQUAL. DISCONNECT SHALL BE MOUNTED ON A SALT TREATED POST WITH THE BOTTOM OF THE DISCONNECT BOX AT LEAST 6 INCHES ABOVE FINISHED GRADE OR ON THE NEAREST WALL OF THE DWELLING (50 FEET MAXIMUM) AND BE VISIBLE FROM THE GRINDER PUMP CAN, THIS CIRCUIT IS A SWITCH LEG THROUGH AN ALARM CONTACT INTERNAL TO THE GRINDER PUMP CONTROLS. THE SUPPLY WIRE FEEDS FROM THE LIGHTING PANEL THROUGH THE DISCONNECT SWITCH AND INTO THE GRINDER PUMP. THE RETURN LEG LEAVES THE PUMP AND IS CONNECTED TO THE HOT SIDE OF THE ALARM LIGHT IN THE HOUSE. THE NEUTRAL CONDUCTOR IS FED DIRECTLY FROM THE LIGHTING PANEL TO THE ALARM LIGHT. THE RED ALARM LIGHT SUPPLIED WITH THE GRINDER PUMP SHOULD BE INSTALLED IN A CONSPICUOUS PLACE. SEE SCHEMATIC DIAGRAM ABOVE.

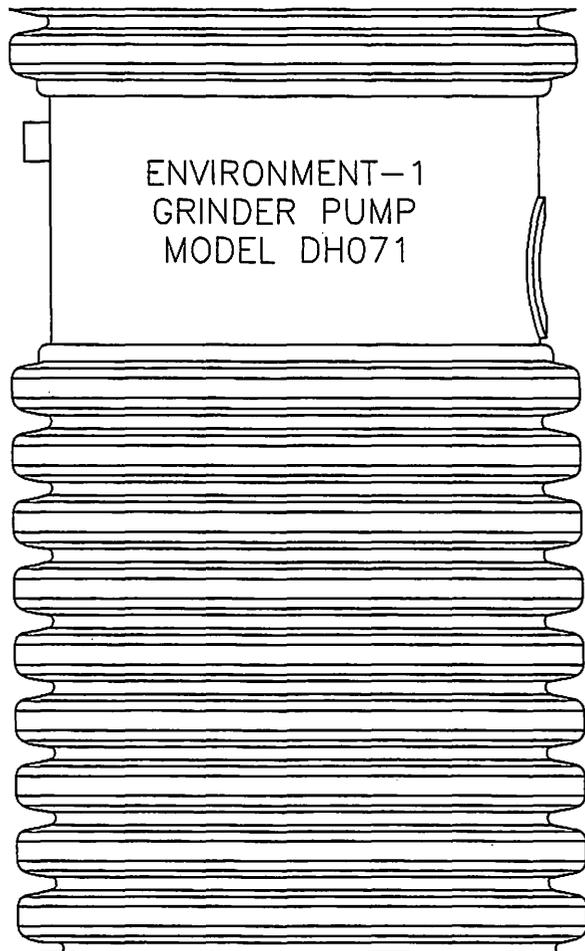
ALL BREAKERS AND SWITCHES SHALL BE CLEARLY MARKED.

THE LOCK AND PUMP WRENCH DELIVERED WITH THE GRINDER PUMP ARE TO BE LEFT IN THE CAN UNTIL JCSA PERSONNEL ARRIVE.

FOR QUESTIONS, CONTACT THE UTILITY MAINTENANCE SUPERINTENDANT AT JCSA OPERATIONS, 757-259-4096.

	
<b>GRINDER PUMP ELECTRICAL SCHEMATIC</b>	
DWG NO. GP2.0	SCALE: NONE
DWN BY: DAW	DATE: 4-2017

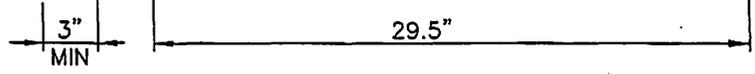
REVISION DATE	COMMENT



ENVIRONMENT-1  
GRINDER PUMP  
MODEL DH071

BAL-LAST INTERLOCKING  
BALLAST SYSTEM OR  
APPROVED EQUAL

STAINLESS STEEL  
STEEL EYE BOLT  
5/8" DIA. (TYP)  
4 REQ'D.



NOTES:

1. BALLAST ANCHOR LENGTH, WIDTH AND THICKNESS SHALL BE IN ACCORDANCE WITH MANUFACTURERS SPECIFICATIONS.
2. 5/8" DIA. STAINLESS STEEL EYE BOLTS ARE TO BE FULLY TIGHTENED INTO THREADED INSERT AT FOUR (4) POINTS OF EQUAL SPACING.
3. ONCE STATION IS FASTENED TO BALLAST, UNIT SHALL BE LIFTED INTO PLACE USING THE EYE BOLTS, NOT THE TANK.



REVISION DATE	COMMENT

<b>JCSA</b> JAMES CITY SERVICE AUTHORITY	
<b>GRINDER PUMP BALLAST MOUNTING DETAIL</b>	
DWG NO. GP3.0	SCALE: NONE
DWN BY: DAW	DATE: 4-2017