MODEL 500RTW

PRAIRIE DOG BORING MACHINE

OWNERS MANUAL & PARTS LIST

PRAIRIE DOG BORING EQUIPMENT, INC.

10006 AIRLINE DRIVE HOUSTON, TEXAS 77037 281-448-8442 FAX: 281-448-5553

Toll Free 866-631-3786

Prairie Dog Boring Equipment, Inc.

Limited Warranty

To the original purchaser for 1 year from purchase date we will repair or replace at our option and free of charge any parts found to be defective under normal use and service resulting from defects in material and/or workmanship after an examination at our factory in Houston, Texas.

All transportation charges, damages, and loss incurred in connection with the transportation of all parts for inspection, replacement, or repair under this warranty shall be borne by the purchaser.

The express warranty contained herein shall not be applied to any boring machine attachment or part which has been altered in any way, nor shall such express warranty apply to any damages resulting from accident, misuse, or abuse, nor shall such express warranty apply to any damages resulting from failure to follow the Prairie Dog Boring Equipment, Inc. instruction for operation and maintenance of boring machine attachments and parts. Also, the express warranty contained herein shall not apply to engines, clutches, gearboxes, etc., which are not of our manufacture as they are covered by the design and specification changes on future machines without notice and without obligation on our part to present owners.

The foregoing express warranty is in lieu of all other express warranties. Prairie Dog Boring Equipment, Inc. neither assumes nor authorizes any other person, natural or corporate, to assume for it any other obligation or liability in connection with or with respect to any boring machine attachments or parts.

Prairie Dog Boring Equipment ,Inc. hereby disclaims any and all implied warranties, including, but not limited to warranties of merchantability and fitness for any particular purpose, if and to the extent, but only if and to the extent, that such disclaimer is not forbidden by any applicable law and any implied warranties, including, but not limited to which Prairie Dog Boring Equipment ,Inc. is so forbidden to disclaim by any applicable law, are limited to the periods of the express warranty as defined in the first paragraph of this warranty. Prairie Dog Boring Equipment, Inc. shall in no event be liable for any consequential, incidental or special damages, and/or expenses.

PRAIRIE DOG BORING MACHINE

NO REGISTRATION (WARRANTY) CARD IS NECESSARY TO OBTAIN
WARRANTY ON PRAIRIE DOG BORING MACHINE. FILL IN THE REQUIRED INFORMATION AND REQUIRED INFORMATION AND RETAIN FOR YOUR RECORDS.

Prairie Dog Boring Machine: Serial No. _____ Model No. _____
Dealer Purchased from: _____ Date: _____

If warranty service is needed, contact your nearest authorized dealer or Prairie Dog Boring Equipment, Inc. For prompt attention our service department will need to know the trouble experienced and the total number of hours the boring machine has been operated. If you differ with the decision of our service department on warranty claim, ask your service department to submit all supporting facts for our review. If Prairie Dog Boring Equipment, Inc. decides that your claim is justified, you will be fully reimbursed for those items accepted as defective.
To avoid misunderstandings which might occur between boring machine owners and Prairie Dog Boring Equipment, Inc., we are listing causes of boring machine failures, where repair or replacement is NOT covered by Prairie Dog Boring Equipment, Inc. warranty.

ABUSE OR NEGLECT

1. Parts which are scored or broken because the machine was operated without sufficient lubricating oil or the power grade of oil are not covered by warranty. Check oil level at least every five hours, and refill when necessary. Change oil as recommended.

2. Damage or wear caused by dirt which enters the machine because of improper maintenance is not covered by warranty. Clean and re-oil regularly.

3. Warranty does not cover the adjustment of the machine unless the need for such repair is the result of defects in material or workmanship or both. Minor adjustment are NOT covered by warranty.

PRAIRIE DOG BORING MACHINE (Continued)

4. Broken parts which result from improper operation, over speeding, lugging or abuse in operation are not covered by warranty.

5. Repair or adjustment of associated parts which are not of Prairie Dog Boring Equipment, Inc. manufacture will not be covered by Prairie Dog Boring Equipment, Inc. warranty.

6. Only ORIGINAL PRAIRIE DOG BORING EQUIPMENT, INC. PART OR PARTS APPROVED PRAIRIE DOG BORING EQUIPMENT, INC. may be covered by warranty.

7. About improvements: Prairie Dog Boring Equipment, Inc. is continually striving to improve its products, therefore, we reserve the right to make improvements or changes when it becomes practical to do so, without incurring any obligations to make changes or additions to the equipment sold previously.

WARRANTY IS AVAILABLE ONLY THROUGH SERVICE CENTERS OR SERVICE DEPARTMENT WHICH HAVE BEEN APPROVED AND AUTHORIZED BY PRAIRIE DOG BORING EQUIPMENT, INC.

BORING MACHINES CAN BE DANGEROUS IF OPERATED IMPROPERLY SO FOLLOW THESE

SAFETY INSTRUCTIONS

1. **Only the OPERATOR should be allowed near the machine.**
2. **NEVER STAND or allow anyone else to stand near the boring machine when rotating.**
3. **KEEP ALL GUARDS and shields in place while machine is running.**
4. **SHUT OFF ENGINE before leaving machine.**
5. **ALWAYS STOP engine before servicing machine.**
6. **REMOVE KEY or spark plug wire when leaving machine unattended**
7. **ALLOW ENGINE TO COOL before refueling**
8. **WEAR TIGHT FITTING CLOTHES when using boring machines and keep your hands, feet, and clothing away from moving parts.**
9. **KNOW what is down there before you bore. If necessary, get clearance from the phone company, power company, community water and sewer departments. Call local locating services/811**
10. **MOVE SLOWLY when starting to bore.**
11. **USE THE BUDDY SYSTEM Do not work alone in isolated areas**
12. **ALWAYS be aware that internal combustion engines produce noxious fumes. Allow for proper ventilation of the work space.**

*** SPECIAL CAUTION ***
ALWAYS stay at the controls of the machine. You may have to stop suddenly to avoid danger.

PLEASE observe all instructions. They are considered common sense by professional boring contractors. There is just no substitute for careful, safety minded operators SERIOUS INJURY OR DEATH COULD RESULT FROM FAILURE TO FOLLOW THESE SUGGESTIONS.

PLEASE READ AND UNDERSTAND ANY ACCOMPANYING ENGINE OR TRANSMISSION OWNER'S MANUALS THAT COME WITH YOUR "PRAIRIE DOG" BORING MACHINE. THEY CONTAIN IMPORTANT SAFETY, OPERATION AND MAINTENANCE INFORMATION. IF YOU ARE UNSURE WHETHER YOU HAVE ALL OF THE CORRECT MANUALS PLEASE CALL OR EMAIL. BE SURE TO HAVE YOUR MODEL NUMBER HANDY.

PRAIRIE DOG SUGGESTED OPERATIONS & PROCEDURES FOR MODELS PDP500RTW AND PDP900RTW,

SOIL CONDITIONS CAN VARY TREMENDOUSLY AND MAY AFFECT LOCAL PROCEDURES. THESE PROCEDURES ARE GIVEN AS GUIDELINES. MANY USERS FIND IT EASIER TO USE OTHER METHODS OF THEIR OWN MAKING.

THE HOLE

MAKE A NARROW APPROACH TRENCH IN FRONT OF THE BORE ENTRY POINT THAT CAN BE STRADDLED BY THE MACHINE. IT SHOULD BE AT LEAST 30' LONG FOR A BORE 36" DEEP AND SHOULD BE PROPORTIONALLY LONGER FOR A DEEPER BORE. (Figure 1).

ON THE OPPOSITE END OF THE BORE FROM THE BORE ENTRY POINT, A COME-OUT HOLE IS NEEDED TO CHANGE THE TOOLING AFTER THE PILOT HOLE IS MADE. THE COME-OUT HOLE SHOULD BE ABOUT 3 FEET WIDE (PERPENDICULAR TO THE BORE DIRECTION) AND A LENGTH AND DEPTH SUFFICIENT FOR THE INSTALLATION OF YOUR PIPE, WIRE OR OTHER UNDERGROUND UTILITY EQUIPMENT.

THE LINE UP

SET THE MACHINE OVER THE TRENCH AND LEVEL IT WITH THE BOTTOM OF THE TRENCH OR WITH THE DRILL ROD GUIDES. (Figure 1). PLACE A LEVEL ON THE FIRST JOINT OF DRILL ROD INSTALLED IN THE DRILL ROD STRING. ALIGN THE MACHINE TO THE COME-OUT POINT USING TWO STAKES OR A STRING AND THE FIRST JOINT OF DRILL ROD IN THE MACHINE.

WATER

THE EASIEST APPLICATION IS OF COURSE FROM AN EXISTING WATER SOURCE USING A COMMON GARDEN HOSE. IF A WATER SUPPLY IS NOT AVAILABLE, TANKS AND DRUMS, WITH THE ADDITION OF A WATER PUMP THAT CAN MAINTAIN A WATER PRESSURE OF 50 TO 70 PSI IS ALL THAT IS NECESSARY. THE AMOUNT OF WATER NEEDED FOR YOUR SPECIFIC SOIL CONDITIONS CAN VARY, BUT IN NORMAL CONDITIONS A 55 GALLON DRUM OF WATER IS SUFFICIENT TO BORE 2" HOLE 30 FEET.

BORING

INSTALL THE PILOT BIT TO YOUR FIRST DRILL STEM, START THE MOTOR, ENGAGE THE CENTRIFUGAL CLUTCH BY INCREASING THE ENGINE THROTTLE AND TURN THE WATER ON TO ENSURE THE PILOT BIT IS FREE OF ANY OBSTRUCTIONS. PUSH THE MACHINE FORWARD WITH STEADY PRESSURE. ENOUGH PRESSURE SHOULD BE APPLIED TO ALLOW SMOOTH EASY OPERATION. IF TOO MUCH PRESSURE IS APPLIED, THE WATER WILL NOT BE ABLE TO MOVE THROUGH THE DRILL BIT EASILY AND CAUSE THE PILOT BIT TO BECOME CLOGGED. IF THIS HAPPENS STOP ADVANCING AND THE WATER SHOULD UNCLOG THE BIT MOMENTARILY. (Figure 3, Figure 4)

BEFORE SEPARATING THE RODS DISENGAGE THE ENGINE'S CENTRIFUGAL BY REDUCING THE ENGINE THROTTLE TO AN IDLE. PIPE WRENCHES MAY BE USED TO LOOSEN THE DRILL RODS FROM EACH OTHER OR FROM THE DRILL ROD ADAPTOR ON THE MACHINE. ONCE LOOSE THEY SHOULD UNTHREAD EASILY AND COMPLETELY DISENGAGE IN 1½ TURNS. ALWAYS TURN THE RODS THAT ARE EXPOSED IN THE BORE PIT NOT THE ONES IN THE BORE HOLE. TURNING RODS IN THE HOLE COULD CAUSE A BIT, BACK REAMER OR OTHER RODS TO UNTHREAD AND BE LOST.

IF WATER AND CUTTINGS ARE NOT COMING BACK OUT OF THE HOLE STOP AND INVESTIGATE THE REASON IMMEDIATELY. IT MAY ONLY TAKE SIMPLY BACKING OFF AND LETTING THE ROD TURN WHILE PUMPING WATER TO CLEAR THE PILOT HOLE OR IT MAY REQUIRE REMOVING THE DRILL RODS FROM THE HOLE COMPLETELY TO CHECK THE WATER JETS IN THE PILOT BIT. AT ANY RATE, CONTINUING TO PUSH ON WILL ONLY ALLOW THE CUTTINGS TO COLLECT AND BIND UP AROUND THE DRILL ROD AND LUG THE ENGINE. THE PROBLEM WILL GET WORSE IF IT IS NOT CORRECTED. EVEN AT OVER 100' THE DRILL ROD SHOULD TURN EASILY WITHOUT LUGGING THE ENGINE DOWN.

BACK REAMING

ONCE YOU'VE REACHED YOUR COME OUT HOLE YOU MAY NEED TO ENLARGE IT TO ACCOMMODATE PIPE OR CONDUIT.
REMOVE THE PILOT BIT AND INSTALL A BACK REAMER AND CABLE SWIVEL.(Figure 5) THE CABLE SWIVEL IS NECESSARY FOR PULLING BACK A CABLE FOR LATER USE IF YOU INTEND TO PULL THE WIRE, PIPE OR CONDUIT BACK THROUGH THE HOLE OR IF YOU NEED TO PULL BACK A PLUG TO SWAB THE HOLE BEFORE INSTALLATION OF THE UNDERGROUND UTILITY. IF YOU INTEND TO PUSH IT YOU STILL NEED THE CABLE SWIVEL ON THE END OF THE BACK REAMER TO CONTROL THE WATER FLOW.

BACKREAM A HOLE ROUGHLY 2" BIGGER THAN YOUR PIPE, OR OTHER UNDERGROUND UTILITY MATERIAL, WHICH WILL ALLOW FOR EASE OF INSTALLATION. (Figure 6) WHEN DRILLING BE SURE NOT TO FORCE THE MACHINE. A SINGLE OPERATOR SHOULD PROVIDE ALL THE POWER YOU NEED WITHOUT USING EXCESSIVE FORCE. A SIMPLE RULE TO USE IS THAT IF THE MACHINE IS TIRING THE OPERATOR HE NEEDS TO BACK OFF. THE BITS ARE DESIGNED TO CUT THE SOIL EASILY WITH CARBIDE INSERTS.

IT IS BEST TO BORE WITH SLOW STEADY FORCE. LISTENING TO THE ENGINE IS A GOOD INDICATOR OF PROPER FORCE. A COMMON NEW OPERATOR ERROR IS TO LET THE MACHINE REV UP AND THEN FORCE THE BIT INTO THE SOIL TOO HARD UNTIL THE ENGINE CAN'T TURN AT FULL SPEED THEN LIGHTENING THE PRESSURE TO LET THE ENGINE REV UP AGAIN. THIS LUGS THE ENGINE, SLOWS THE BACKREAMER AND PUTS UNNEEDED STRESS ON THE OPERATOR. STEADY PRESSURE WITH SOME GOVERNOR "KICKING IN" WILL ALWAYS WORK BETTER THAN FORCING AND RELEASING.
WITH THE ADDITION OF WATER, THE SOIL NEEDS TO BE SIMILAR TO THE CONSISTANCY OF A THICK MALT. THIS IS DESRABLE FOR TWO REASONS; THE MIXTURE KEEPS THE HOLE OPEN SO IT WILL NOT CAVE IN, AND ALLOWS THE PIPE, WIRE, OR PLUG TO BE PULLED BACK EASILY. ALWAYS TURN THE RODS THAT ARE EXPOSED IN THE BORE PIT NOT THE ONES IN THE BORE HOLE. TURNING RODS IN THE HOLE COULD CAUSE A BIT, BACK REAMER OR OTHER RODS TO UNTHREAD AND BE LOST. ATTACHING A CABLE TO THE CABLE SWIVEL WILL AT LEAST ENSURE YOU CAN RETRIEVE LOST BACK REAMERS OR RODS.

A WORD OF CAUTION

WHEN BORING, START EARLY AND TRY TO COMPLETE YOUR BORE THE SAME DAY. NEVER LEAVE A DRILL ROD N THE HOLE FOR MORE THAN A COUPLE OF HOURS WHEN YOU STOP DRILLING. YOU CAN SEIZE THE DRILL STEM IF YOU ATTEMPT THIS BECAUSE THE WATER LEECHES OUT OF THE SOIL AND MAKES IT BECOME STICKY OR HARD AGAIN. IF IT BECOMES NECESSARY TO LEAVE THE HOLE OVERNIGHT, DRILL THE PILOT HOLE FIRST AND THEN REMOVE THE DRILL ROD FROM THE HOLE. YOU MAY THEN RE-DRILL THE PILOT HOLE IN JUST A FEW MINUTES.

INSTALLING THE PIPE

WHEN BORING SMALL HOLES OF 2" AND 3" DIAMETER, IT IS NOT NECESSARY TO USE A PULL PLUG OR SWAB. THE PLUG IS PULLED BACK THROUGH THE HOLE WITH A CABLE ON EITHER SIDE, TO FORCE THE SLUDGE OUT OF THE HOLE. YOU CAN THEN ATTACH CABLE TO THE PIPE AND PULL IT THROUGH THE BORE PIT. THE JOB IS NOW COMPLETE.(Figure 8)

OPERATION IN EXTREMELY SANDY SOILS

WHEN BORING EXTREMELY SANDY SOILS THERE IS A POSSIBILITY OF THE SOIL BEING UNSTABLE AND CAVING IN. BENTONITE CLAY WILL HELP TO STABILIZE THE SOIL AND PREVENT THE HOLE FROM COLLAPSING BY LINING THE HOLE WITH THE CLAY MIXTURE MADE UP OF THIN PLATELETS THAT STICK TOGETHER. BENTONITE CLAY CAN BE MIXED IN A DRUM OR OTHER SUITABLE CONTAINER OF WATER. IT WILL RESEMBLE HEAVY CREAM AND CAN BE PUMPED INTO THE HOLE WITH ANY CENTRIFICAL PEUMP AT 50 TO 70 POUNDS OF PRESSURE.

DIFFICULT CLAY, GUMBO OR OTHER STICKY SOILS

WHEN DRILLING IN THESE SOILS THE CLAY MAY BE SO STICKY THAT IT DOES NOT WANT TO BREAK UP WITH PLAIN WATER TO FORM THAT PANCAKE BATTER CONSISTENCY WHICH ALLOWS IT TO RUN OUT OF THE HOLE. PLEASE SEE THE INSERT AT THE END OF THIS MANUAL FOR DETAILED INSTRUCTIONS REGARDING BORING IN REACTIVE SOIL.

BORING ROCK

MOST ROCK, SUCH AS SANDSTONE, CALICHE, SOFT LIMESTONE AND CONCRETE ARE FAIRLY EASY TO BORE THROUGH USING CARBIDE BITS. HOWEVER, PRAIRIE DOG BORING EQUIPMENT DOES NOT RECOMMEND THE USE OF RTW MACHINES FOR THIS TYPE OF BORING. OTHER ROCK SUCH AS FLINT AND GRANITE WOULD REQUIRE A BORING RIG THAT UTILIZES A LARGE CRANE FOR SET-UP. IF YOU HAVE DIFFICULTY ON A BORE, AND THERE SEEMS TO BE AN IMPOSSIBLE OBSTRUCTION, THE BEST OPTION IS TO ATTEMPT TO BORE ANOTHER ROUTE IF POSSIBLE. RE-ROUTING IS NOT COMMON BUT NOT UNHEARD OF. IT IS PART OF THE BUSINESS OF BORING.

ALTERNATE SET UP

AN ALTERNATIVE TO ABOVE GROUND BORING AS DESCRIBED ABOVE IS TO LOWER THE ENTIRE MACHINE INTO THE BORE PIT. THIS IS A DESIRABLE ALTERATIVE WHEN SPACE DOES NOT ALLOW FOR DIGGING A LONG TRENCH. IN THIS ALTERNATIVE A BORE PIT IS DUG APPROXIMATELY 4 FEET WIDE BY ABOUT 12 FEET LONG WHEN USING STANDARD 8' DRILL RODS. ADDITIONALLY, THE LENGTH OF THE BORE PIT CAN BE DECREASED TO ABOUT 9' LONG BY USING OPTIONAL 5 FOOT DRILL RODS USED SPECIFICALLY FOR PIT BORING WITH THE RTW MACHINES. WHEN PIT BORING THE DRILL ROD GUIDES ARE NOT USED. SIMPLY LEVEL

THE FIRST ROD WITH A 2 FOOT LEVEL OR LONGER AND ALIGN WITH THE COME-OUT HOLE AS DESCRIBED ABOVE. SEE FIGURE 2 FOR THE DIFFERENCES IN ABOVE GROUND LEVEL AND BELOW GROUND LEVEL BORING.

COUPLING AND UNCOUPLING DRILL RODS

WHEN COUPLING RODS IT IS RECOMMENDED TO RUN THE ENGINE AT OR JUST ABOVE AN IDLE SO THAT THE WATER SWIVEL SHAFTE IS TURNING SLOWLY AND THE CENTRIFUGAL CLUTCH IS NOT FULLY ENGAGED. SLOWLY ENGAGE THE DRILL ROD. ONCE FULLY ENGAGED THROTTLE THE ENGINE TO MAXIMUM RPN. THE MOTOR SHOULD ALWAYS BE RUN AT FULL RPM IN ORDER TO GET A GOOD MIXING ACTION WITH THE WATER AND SOIL. THIS WILL PRODUCE THE BEST POSSIBLE SLURRY THAT SHOULD RUN OUT OF THE HOLE. FAILURE TO START THE DRILL ROD TURNING IN THE HOLE BY THROTTLIN THE ENGINE UP AND PROPERLY ENGAGING THE CLUTCH RATHER THAN COUPLING UNDER POWER CAN RESULT IN THE WATER SWIVEL SHAFT SNAPPING OFF AT THE ADAPTOR. THIS IS DUE TO SHOCK LOAD FROM A SUDDEN INCREASE IN RPM, SLIGHT TWISTING OF THE DRILL ROD WHICH THEN SNAPS BACK.

WHEN BORING A PILOT HOLE RUN THE ROD IN AS FAR AS POSSIBLE THEN BACK IT OUT JUST ENOUGH TO BE ABLE TO PUT PIPE WRENCHES ON THE DRILL ROD. IDLE DOWN THE ENGINE AND ALLOW THE WATER TO RUN FOR A FEW SECONDS. THIS WILL CLEAR THE SOIL IN THE GAP YOU CREATED AND PREVENT THE PILOT BIT FROM GETTING CLOGGED. THE SAME PROCEDURE SHOULD BE USED IN BACKREAMING. THE POINT IS TO NOT STOP EITHER THE BIT OR BACKREAMER WHEN IT IS ENGAGED WITH THE SOIL. LEAVE JUST A LITTLE BUFFER GAP SO THAT RESTARTING THE ROD TURNING WILL BE EASIER.

WHEN UNCOUPLING THE DRILL ROD SIMPLY USE 2 PIPE WRENCHES TO BREAK THE DRILL ROD THREADS FREE. ONCE THE ROD IS LOOSE YOU SHOULD BE ABLE TO FINISH UNCOUPLING BY HAND OR WITH THE PIPE WRENCHES. THIS WILL BE NO MORE THAT 1 ½ TURNS.

A FINAL NOTE

WE, AT PRAIRIE DOG BORING EQUIPMENT, INC. ARE SURE YOU WILL GET MANY YEARS OF SERVICE AND PROFITABILITY WITH THE PURCHASE OF ONE OF OUR MACHINES. OUR "PRAIRIE DOG" HORIZONTAL BORING MACHINES WILL PUT A HOLE IN THE GROUND, AND NOT IN YOUR POCKET. FAMILY OWNED AND OPERATED FOR OVER 40 YEARS, WE TAKE PRIDE IN THE SERVICE AND CRAFTMANSHIP THAT GO INTO EVERY "PRAIRIE DOG" WE BUILD.

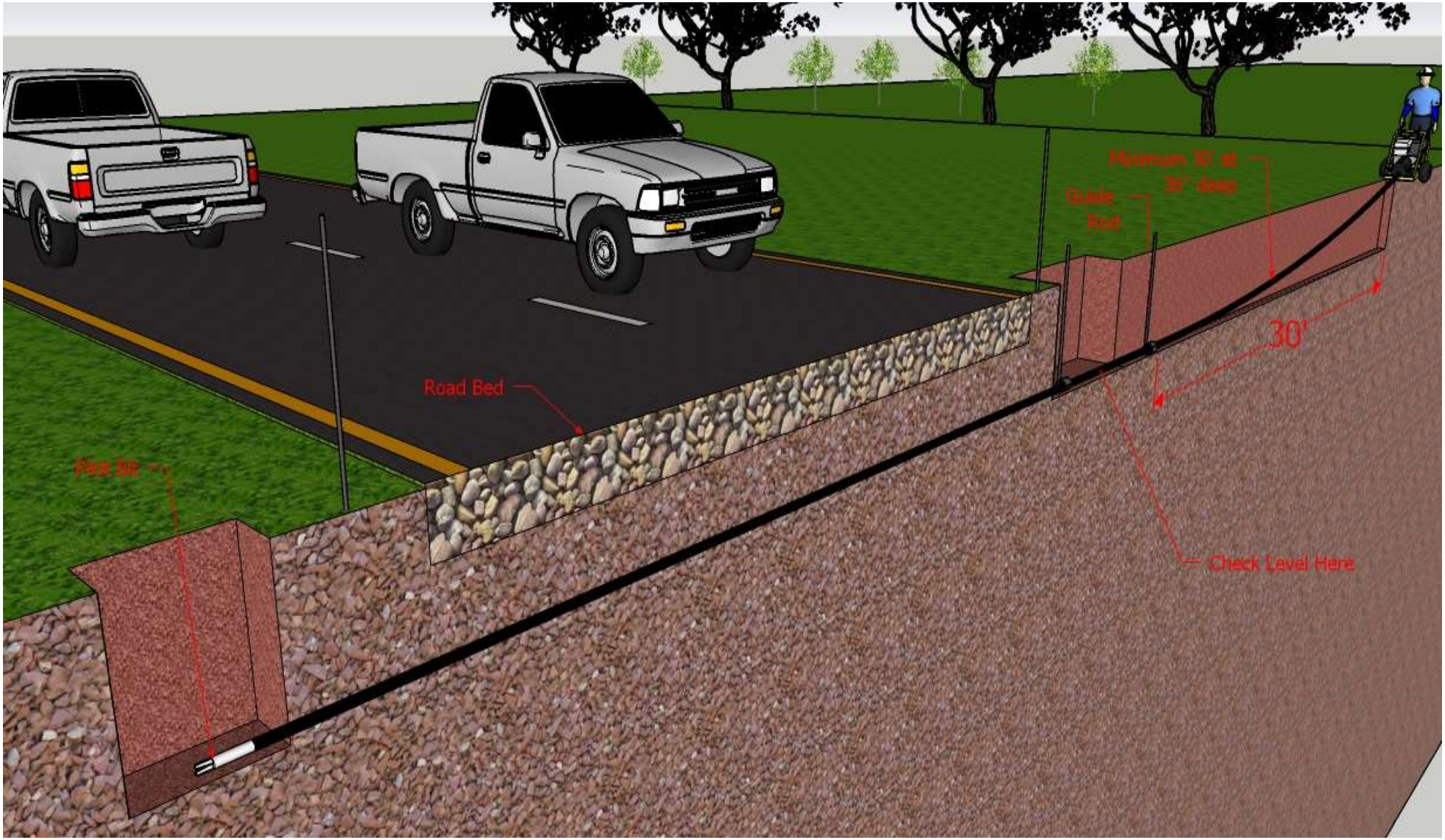


Figure 1

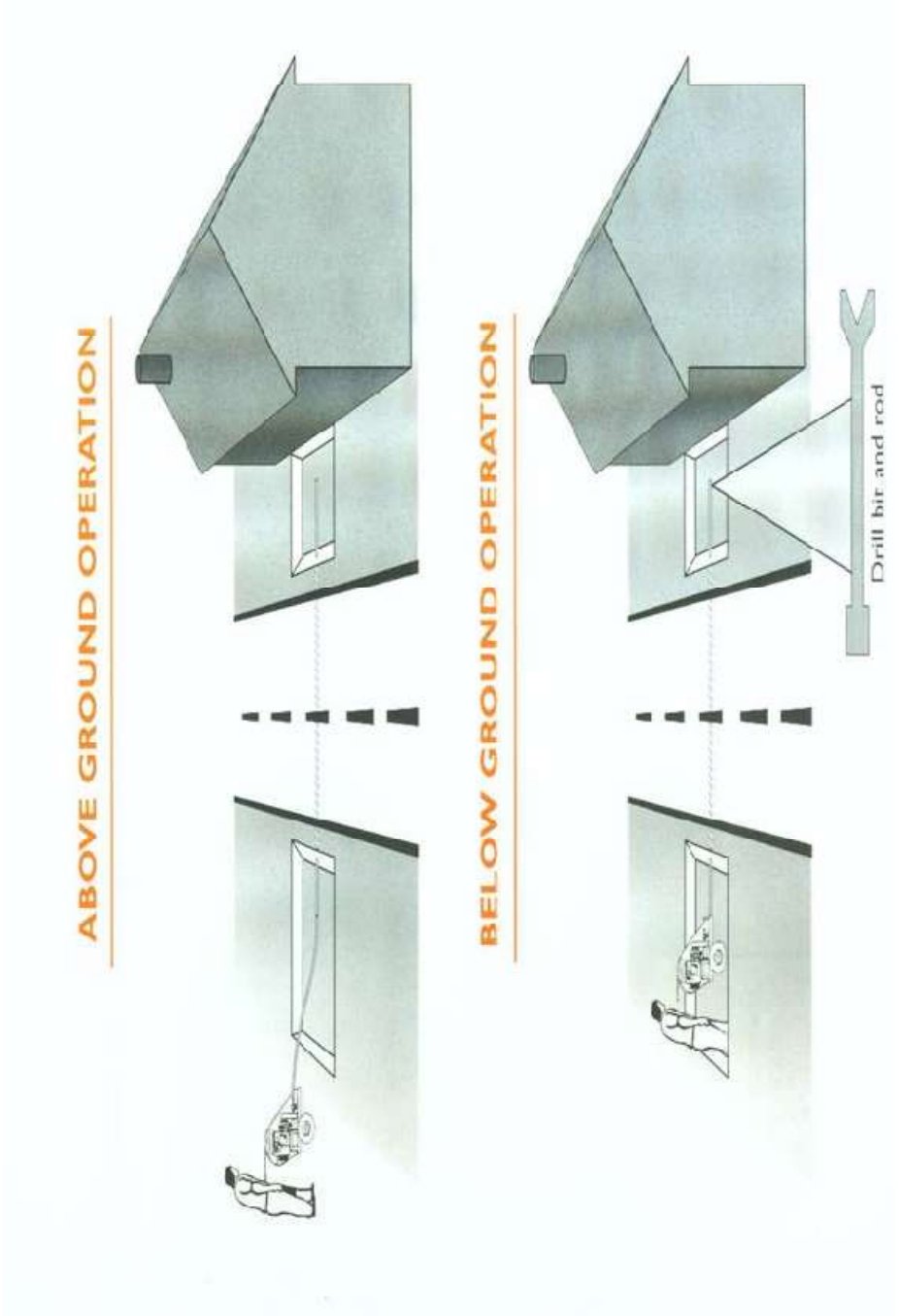

ABOVE GROUND OPERATION
BELOW GROUND OPERATION
Drill bit and rod

Figure 2

Parts List

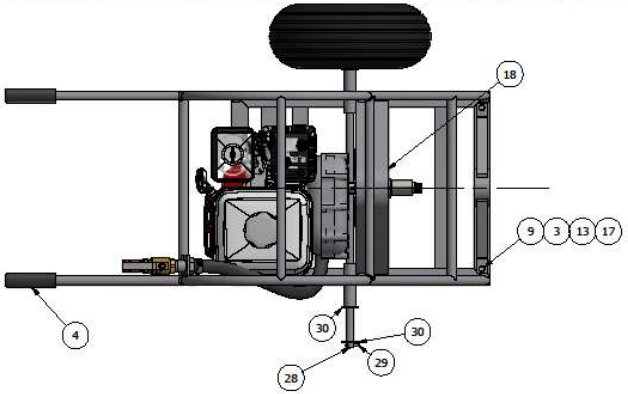
ITEM	QTY	PART NUMBER	DESCRIPTION
1	2	Flat Washer STL 1/2"	Flat Washer
2	4	Flat Washer STL 3/8"	Flat Washer
3	4	Flat Washer STL 5/16"	Flat Washer
4	2	GRIP	
5	1	GX160RH2	GX160RH2 With 2:1 Reducer
6	2	HHCS 1/2-13 UNCx2.75 Stl	HHCS Steel
7	3	HHCS 3/8-16 UNCx1.25 Stl	HHCS Steel
8	4	HHCS 3/8-16 UNCx1.75 Stl	HHCS Steel (EH6B1.75)
9	4	HHCS 5/16-18 UNCx1 Stl	HHCS Steel
10	1	Hex Jam Nut 7/8"	Hex Nut
11	2	HexNut 1/2-13 UNC-Stl	HexNut-Steel
12	7	HexNut 3/8-16 UNC-Stl	HexNut-Steel
13	4	HexNut 5/16-18 UNC-Stl	HexNut-Steel
14	1	Honda 90741-889-810	Bottom Sprocket Key 7x7x25
15	2	Lock Washer STL 1/2"	Lock Washer

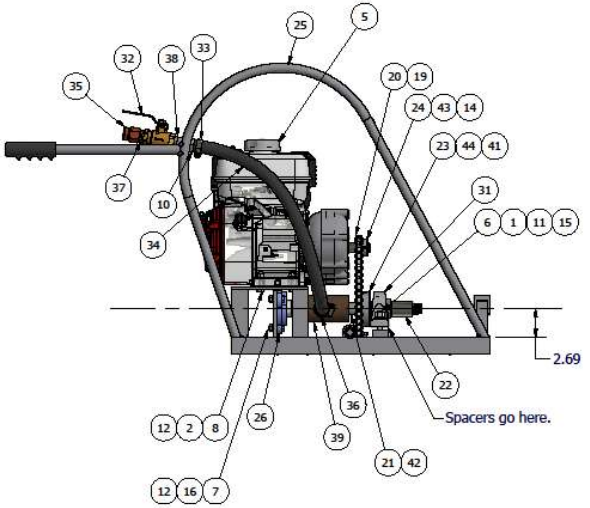
Parts List

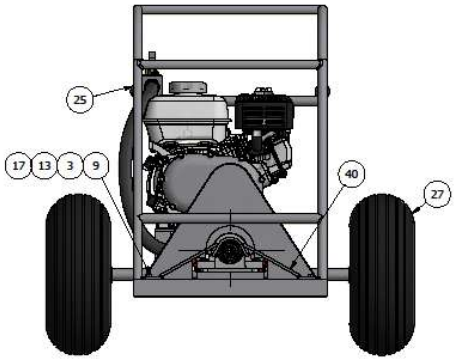
ITEM	QTY	PART NUMBER	DESCRIPTION
16	3	Lock Washer STL 3/8"	Lock Washer
17	4	Lock Washer STL 5/16"	Lock Washer
18	1	PDP1398	Drive Cover
19	1	PDP1413	Chain Link #50
20	1	PDP1414	#50 Chain
21	1	PDP1571	WATER SWIVEL SHAFT
22	1	PDP1571-1	PDP Adapter
23	1	PDP501	35 Tooth Sprocket
24	1	PDP516-1	Sprocket
25	1	PDP522	Engine Frame
26	1	PDP706	SATRD206-18G REAR BEARING
27	2	PDP736	Wheel
28	1	PDP738	SHAFT
29	2	PDP742	Cotter Pin 1/8x1-1/2 Lg Stl
30	4	PDP748	3/4" Washer

Parts List

ITEM	QTY	PART NUMBER	DESCRIPTION
31	1	PDP910	UCP206-18 Front Bearing
32	1	PDP913	3/4" NPTF Ball Valve
33	2	PDP914	Stainless Worm Drive Hose Clamp, Ø1.25
34	1	PDP914-1	3/4" Hose
35	1	PDP914-2	3/4" FGHT x 3/4" FNPT
36	1	PDP914-3	Hose Bib to 3/4 NPT Adapter
37	1	PDP914-6	3/4" Close Nipple
38	1	PDP914-8	3/4" NPTM x Hose Barb Bulkhead Nipple
39	1	PDP916	Water Swivel Assy
40	1	PDP923	Inverted Drill Rod Holder
41	1	PDP971-2	Bottom Sprocket Key 1/4x1/4x1
42	2	PDP971-3	Industrial External Retaining Rings, Series 3100
43	2	SetScrew 1/4-20 UNCx0.25	SetScrew Steel
44	2	SetScrew 1/4-20 UNCx0.375	SetScrew Steel







Third Angle Projection

TOLERANCES
.X = ± .030 inches
.XX = ± .015 inches
.XXX = ± .005 inches
X° = ±1/2
Conc = .005 TIR
Inside corner .015 Max
Debur .005-.015
Surfaces 63

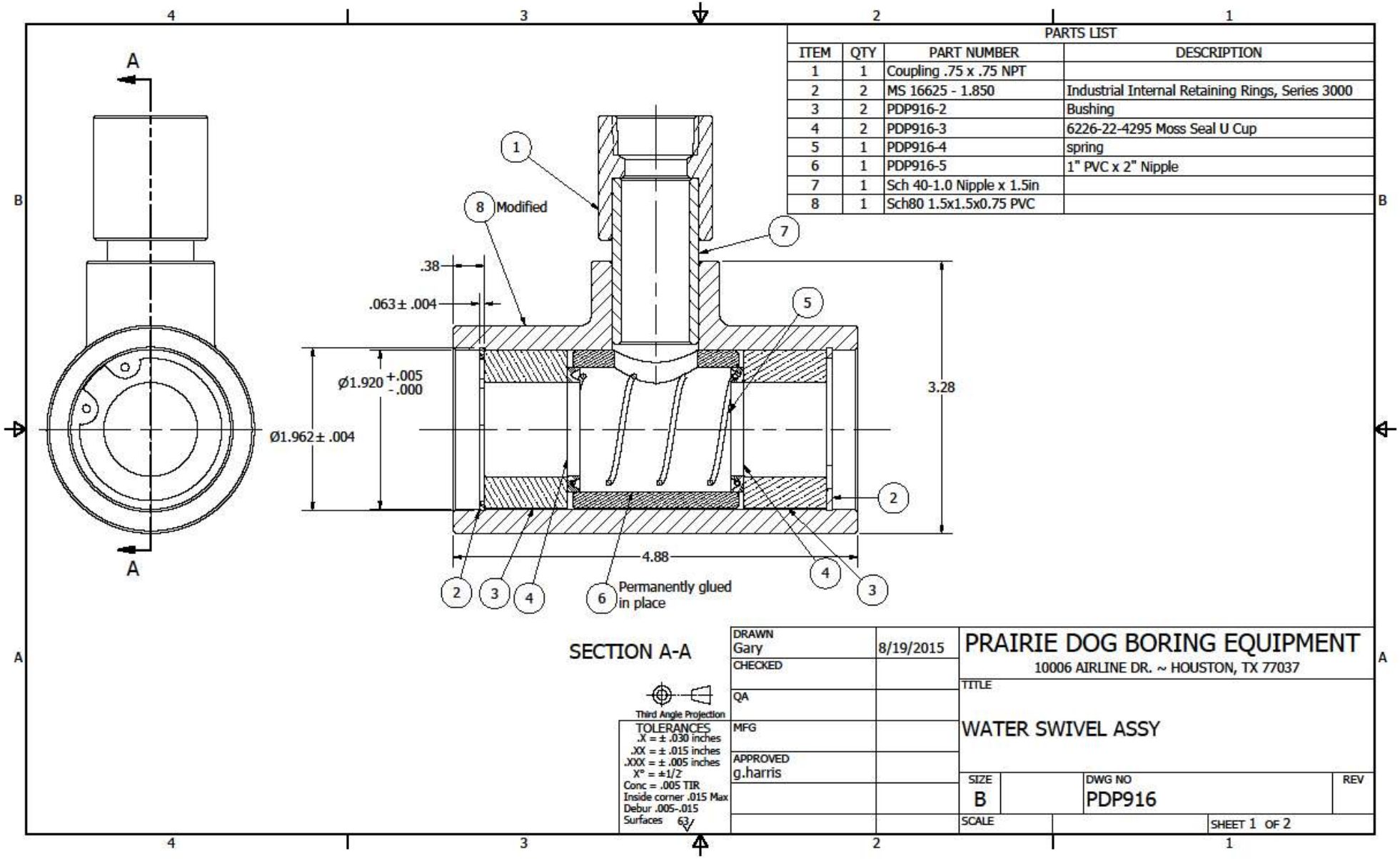
DRAWN	g.harris	8/18/2015
CHECKED		
QA		
MFG		
APPROVED		

PRAIRIE DOG EQUIPMENT
10006 Airline Dr. ~ Houston, TX 77037

TITLE
Prairie Dog Mod 500RTW

SIZE	DWG NO	REV
C	PDP500RTW	

SCALE | SHEET 1 OF 1


PARTS LIST
ITEM | QTY | PART NUMBER | DESCRIPTION
1 | 1 | Coupling .75 x .75 NPT |
2 | 2 | MS 16625 - 1.850 | Industrial Internal Retaining Rings, Series 3000
3 | 2 | PDP916-2 | Bushing
4 | 2 | PDP916-3 | 6226-22-4295 Moss Seal U Cup
5 | 1 | PDP916-4 | spring
6 | 1 | PDP916-5 | 1" PVC x 2" Nipple
7 | 1 | Sch 40-1.0 Nipple x 1.5in |
8 | 1 | Sch80 1.5x1.5x0.75 PVC |
8 Modified
.38
.063 ± .004
Ø1.920 +.005 -.000
Ø1.962 ± .004
3.28
4.88
Permanently glued in place
SECTION A-A
Third Angle Projection
TOLERANCES
.X = ± .030 inches
.XX = ± .015 inches
.XXX = ± .005 inches
X° = ±1/2
Conc = .005 TIR
Inside corner .015 Max
Debur .005-.015
Surfaces 63
DRAWN Gary 8/19/2015
CHECKED
QA
MFG
APPROVED g.harris
PRAIRIE DOG BORING EQUIPMENT
10006 AIRLINE DR. ~ HOUSTON, TX 77037
TITLE
WATER SWIVEL ASSY
SIZE B
DWG NO PDP916
REV
SCALE
SHEET 1 OF 2

NOTES:

Title: Mastering Boring in Reactive Clay Soil: Techniques and Solutions with Prairie Dog Underground Boring Equipment

Introduction: In the world of underground boring, working with reactive clay soil can be a daunting challenge for contractors. The swelling, stickiness, and balling up of clay when hydrated can cause significant disruptions to the boring process. However, with the right knowledge and equipment, contractors can overcome these obstacles and achieve successful outcomes. In this instructional guide, we will explore the techniques and solutions offered by Prairie Dog Boring Equipment, a reliable choice for tackling boring projects in reactive clay soil.

Understanding Reactive Clay Soil: Reactive clay soil, characterized by its small particle size and composition, poses unique challenges when it comes into contact with water. The high surface area per volume of clay particles allows for increased contact with water molecules, leading to expansion and other undesirable reactions. It is essential for contractors to understand the behavior of reactive clay soil to effectively address the issues it presents during boring operations.

Identifying Reactive Soil Conditions: Determining whether soil is reactive or non-reactive can be done through a simple test of dropping soil samples into water and observing their behavior. If the soil sticks to the stirring tool, swells up, or thickens the water, it is likely reactive clay soil. This identification is crucial for contractors to anticipate and prepare for potential challenges during the boring process.

The Role of Prairie Dog Underground Equipment: Prairie Dog Boring Equipment offers a range of powerful and reliable boring machines specifically designed to handle the complexities of boring in reactive clay soil. Contractors can benefit from features such as stability, durability, precise control, and accuracy, which are essential for navigating the demanding conditions of reactive clay soil.

Strategies for Successful Boring: To achieve successful outcomes in boring reactive clay soil, contractors should employ specific strategies:

1. **Thorough Site Evaluation:** Before starting a project, conducting a comprehensive evaluation of the site is crucial. Identifying potential obstacles, such as underground utilities or rock formations, allows for better planning and avoids costly delays.

2. **Moisture Control:** Reactive clay soil's sensitivity to moisture makes moisture control a vital aspect of successful boring. Monitoring and controlling water content ensures stable boring conditions and minimizes the risk of excessive swelling.

3. **Proper Bit Selection:** Choosing the appropriate boring bit is essential for efficient boring in reactive clay soil. Factors such as hardness, wear resistance, and cutting efficiency should be considered to optimize performance and extend equipment lifespan.

Safety and Productivity Considerations: Contractors must prioritize safety and productivity when working with Prairie Dog Underground Equipment in reactive clay soil. Key considerations include:

1. **Training:** Ensuring operators receive proper training in handling Prairie Dog equipment is essential. Familiarizing them with equipment features, controls, and safety protocols helps prevent accidents and promotes efficient operations.

2. **Regular Maintenance and Inspections:** Implementing regular maintenance checks and inspections helps ensure equipment remains in optimal condition. Timely addressing any issues minimizes unexpected downtime and maximizes productivity throughout the project.

3. **Protective Gear and Equipment:** Providing operators with appropriate personal protective equipment (PPE) is critical for their safety. Hard hats, safety glasses, gloves, and steel-toed boots are essential to protect against potential hazards while working with any Prairie Dog Boring Equipment.

Utilizing Clay Inhibitors and Detergents: In more challenging soil conditions, adding clay inhibitors and detergents to the water can significantly help mitigate sticky clay issues. Clay inhibitors modify the behavior of reactive clay particles by delaying hydration, while detergents reduce stickiness by reducing the surface tension between clay and water. Prairie Dog offers X-plore Clay Fix NV, a specially blended Clay inhibitor designed to work in conjunction with their machines.

Conclusion: With Prairie Dog Underground Equipment and the strategies outlined in this instructional guide, contractors can successfully navigate the complexities of boring in reactive clay soil. By understanding reactive soil conditions, utilizing proper techniques, and leveraging the benefits of Prairie Dog machines, contractors can achieve efficient and successful outcomes for their boring projects.

(Sources: The Driller, Prairie Dog Boring Equipment, Inc)