DRAINAGE RUSH DO IT NOW - DO IT RIGHT







In February 1982, Don and Susan Colclasure started their own tile manufacturing business to serve the needs of their growing company. Since that time, Don and his team have remained focused and driven by the needs of ag contractors and the farm drainage industry. These 35+ years' experience have led the Timewell leadership to develop an unmatched selection of products and services that are critical for drainage success.

Invest in Your Future – While You Still Can

The Drainage Rush is on! Now is the time to invest in your future - and do it right - while you still can. Pattern tiling is a #1 investment for farm families and Timewell offers a complete drainage solution:

- Our team of professionals who know the drainage market
- Largest network of experienced drainage contractors
- Full-line of water table management products to get your job done right

Exclusive Financing Opportunities

Timewell offers unique financing opportunities that aren't available anywhere else. This program, available through participating drainage contractors, makes pattern tiling for as little as \$120/acre a reality. Contact your local territory manager for program details.

Resources to Do It Right

We are dedicated to providing products and services that help you make the most of your business and do it right. Pre-planning for comprehensive drainage water management is the best way to maximize yields while minimizing our collective impact on the environment. Timewell offers tools for water management planning and Edge-of-Field practices.







Т





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We Ship Direct to You! Many items available via UPS Shipment!

Delivery Options Truckloads, and UPS

○ SINGLE WALL TUBING



SINGLE WALL Corrugated HDPE Tubing

Specifications, Configurations and Application Rates

Timewell high density polyethylene corrugated pipe is designed for a variety of uses ranging from farm drainage systems to numerous commercial and residential drainage applications.

SPECIFICATIONS Pipe shall comply with the test methods, dimensions and markings found in ASTM F405 and F667, SCS 606 and AASHTO M252.

| | Nominal Diameter | Inside Diameter (Average) | Outside Diameter (Average) | Minimum Pipe Stiffness at 5% Deflection | Weight (lbs./20ft.) |
|----|---------------------|---------------------------------|----------------------------------|---|-------------------------------|
| IS | 3" | 3.10" | 3.60" | 35 psi | 4.60 lbs |
| | 4" | 4.05" | 4.60" | 35 psi | 6.85 lbs |
| | 5" | 5.00" | 5.90" | 35 psi | 10.15 lbs |
| 1 | 6" | 6.05" | 6.90" | 35 psi | 15.40 lbs |
| | 8" | 8.15" | 9.50" | 35 psi | 27.40 lbs |
| | 10" | 10.05" | 11.60" | 35 psi | 40.75 lbs |
| | 12" | 12.05" | 14.20" | 35 psi | 50.70 lbs |
| | 15" | 14.95" | 17.70" | 35 psi | 66.10 lbs |

AVAILABLE CONFIGURATIONS

| Size | Small Pack | Maxi |
|------|-----------------|--------------|
| 3" | 10', 100' | 5600', 6200' |
| 4" | 10', 100', 250' | 3250' |
| 5" | 165' | 2300' |
| 6" | 100' | 1320', 1685' |
| 8" | 20', 405' | 920' |
| 10" | 20' | 625' |
| 12" | 20' | 370' |
| 15" | 20' | 220' |
| 18" | 20' | NA |
| | | |

DRAINAGE TUBING Requirements Per Acre

Exclusive of Collector Lines

| Exclusive of Collector Lines | | |
|------------------------------|------------|--|
| Spacing | Pipe/Acre* | |
| 15' | 2,900' | |
| 20' | 2,000' | |
| 30' | 1,450' | |
| 40' | 1,100' | |
| 50' | 900' | |
| 60' | 725' | |
| 70' | 638' | |
| 80' | 550' | |

*Estimated





OSINGLE WALL TUBING



SINGLE WALL Tubing Types

DRAINAGE PRODUCTS



PERFORATED/SLOTTED TUBING

Perforated Tubing is one of the most commonly used types of tile. This tubing has a variety of uses ranging from farm drainage systems to carrying water away from foundations. Available in sizes 3" to 18".

KNIFECUT TUBING (Sand)

Knifecut (Sand) Tubing works the same as perforated field tile, taking in equal amounts of water but restricts the sand and silt from passing through that can potentially plug the tubing. Available in sizes 3" to 15".

KNIT FILTER TUBING (Sock Tile)

Knit Filter Tubing or Sock Tile as it is more commonly referred to, is a polyester wrapped perforated tile. Commonly used in construction applications and sandy soils, Knit Filter Tubing provides maximum protection against soil infiltration. Most commonly used in sizes 3" through 6". Other sizes available upon request.

SOLID TUBING

Solid Tubing takes in water from one end of the pipe and carries it to the other end without taking water from the surrounding areas. Available in all sizes.

MUCK TUBING

Muck Tubing is designed for use in heavier "gumbo" type soils and soils high in organic content, which are typically not as susceptible to water breakdown. Muck tubing allows the largest water inlets with hole sizes of $\frac{1}{2}$ inch round. Available in sizes 3" – 6" only.

○ MAXFLEX FLEXIBLE DUAL WALL PIPE



MAXFLEX

Flexible Dual Wall

Exceptional flow characteristics coupled with a refreshing ease of use are key benefits for installers and landowners.



| Nominal Diameter | Inside Diameter (Average) | Outside Diameter (Average) | Weight (lbs./20ft.) | Maxi Length | des the |
|---------------------|---------------------------------|----------------------------------|-------------------------------|----------------|-----------------------------|
| 8" | 8.06" | 9.34" | 31 lbs | 690' | |
| 10" | 10.08" | 11.87" | 53 lbs | 455' | MaxFlex can be conveniently |
| 12" | 12.09" | 14.68" | 76 lbs | 380' | installed behind your |
| 15" | 15.12" | 17.65" | 86 lbs | 220' | trencher or tile plow. |

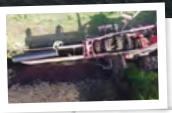
OMAXFLEX FLEXIBLE DUAL WALL PIPE

Flexible Dual Wall Pipe 8" | 10" | 12" | 15"

MaxFlex is manufactured under tight quality standards with specially engineered resin blends for the internal and external layers. The rugged, yet pliable inner liner is perfect for plowing or trenching in greater performance on any farm.

OMAXFLO DUAL WALL PIPE

Dual Wall 10' & 20' Sticks



HIGH PERFORMANCE | EASY AND SAFE HANDLING | LONG LASTING SOLUTION

MaXflo high density polyethylene corrugated pipe is a Smooth Lined Corrugated Plastic Pipe designed for gravity flow storm sewer, retention/ detention and high capacity farm drainage.

10' Sticks are available in 12", 15", 18" and 24". 30", 36" and 48" are available by special order.



SPECIFICATIONS

Pipe shall comply with requirements for test methods, dimensions and markings found in AASHTO designations M252 & M294 or ASTM 2648.

JOINTS

The MaXflo Bell-and-Spigot joint system provides superior load-bearing capability and improved hydraulics. When specified, MaXflo is supplied with an elastomeric gasket meeting the requirements of ASTM F477. The Bell-and-Spigot joint with gasket is tested to ASTM D3212 standards for watertight joint requirements. When applicable,

plain end pipe utilizing a wrap around coupler is available.

FITTINGS

Fittings conform to AASHTO M252 or M294. Fittings can be molded or fabricated. Common fittings are branch fittings such as wyes, tees, and end caps as well as in-line joint fittings like couplers and reducers. Couplers must provide adequate strength to maintain pipe alignment and prevent separation.

| | | 0, | • | |
|---------------------|---------------------------------|----------------------------------|---|-------------------------------|
| Nominal Diameter | Inside Diameter (Average) | Outside Diameter (Average) | Minimum Pipe Stiffness at 5% Deflection | Weight (lbs./20ft.) |
| 4" | 4.03" | 4.73" | 49.3 PSI | 9 lbs. |
| 6" | 6.05" | 6.89" | 49.3 PSI | 23.5 lbs. |
| 8" | 8.06" | 9.11" | 49.3 PSI | 31 lbs. |
| 10" | 10.08" | 11.34" | 49.3 PSI | 50 lbs. |
| 12" | 12.09" | 14.40" | 50 PSI | 71 lbs. |
| 15" | 15.12" | 17.50" | 42 PSI | 90 lbs. |
| 18" | 18.12" | 21.05" | 40 PSI | 133 lbs. |
| 24" | 24.07" | 27.65" | 34 PSI | 216 lbs. |
| 30" | 30.48" | 35.65" | 29 PSI | 315 lbs. |
| 36" | 36.02" | 41.30" | 22.5 PSI | 420 lbs. |
| 42" | 41.40" | 47.70" | 21 PSI | 528 lbs. |
| 48" | 48.39" | 53.60" | 20 PSI | 660 lbs. |
| 60" | 60.20" | 66.40" | 15 PSI | 1,075 lbs. |

MAXFLEX



○ MAXFLO DUAL WALL PIPE



DUAL WALL FEATURES:

- In-Line Bell Design
- Soil tight and water tight joints available on 20' sticks with ASTM F477 gaskets
- High performance bell/spigot design for superior connective strength
- All MaXflo bells cover a minimum of two ribs
- All pipe meets or exceeds ASTM 2648
- AASHTO pipe available

Bell/Spigot Connection



TIMEWELL MaXflo pipe meets or exceeds numerous industry standards including:

| AASHTO M252 | Requirements and testing for 3"-10" pipe, couplings and fittings for use in subsurface drainage systems, storm sewers, and in surface drainage |
|-------------|---|
| AASHTO M294 | Requirements and testing for 12"-60" pipe, couplings and fittings for use in surface and subsurface drainage applications Now with industry inclusion of recycled materials for sustainability and service life |
| ASTM F667 | Requirements and testing for 8"-24" pipe and fittings for materials, workmanship, dimensions, perforations, pipe stiffness, elongation, joint separation resistance, quality of extrusion, brittleness, bond, and markings |
| ASTM D3350 | Identification of pipe and fitting materials in accordance with a cell classification system |
| ASTM D2321 | Recommendations for the installation of pipe used in sewers and other gravity-flow applications |
| ASTM D3212 | Specifications for joints of pipe systems intended for drain, and gravity sewerage at internal or external pressures less than 25 ft head using flexible watertight elastomeric seals |
| ASTM F477 | Requirements for elastomeric seals (gaskets) used to seal the joints of pipe used for gravity, low-pressure, and high-pressure applications |
| ASTM F2306 | Requirements for non-pressure (gravity flow) 8"-60" annular corrugated profile-wall polyethylene (PE) pipe and fittings for gravity-flow storm sewer and subsurface drainage applications |
| NTPEP | National Transportation Product Evaluation Program Certified: Certification Program of AASHTO (4"-60") |





SINGLE WALL **Connecting Accessories**

Bag Qty

50 50

50

50

50

25 25

DRAINAGE PRODUCTS

DOWNSPOUT DOWNSPOUT ADAPTORS ADAPTORS CLAY TO PLASTI ADAPTOR



| 0 | CLAY TO PLASTIC ADAPTORS | |
|---|-----------------------------|--|
| C | 3" Clay to Plastic Adaptor | |
| S | 4" Clay to Plastic Adaptor | |
| | 5" Clay to Plastic Adaptor | |
| | 6" Clay to Plastic Adaptor | |
| | 8" Clay to Plastic Adaptor | |
| | 10" Clay to Plastic Adapter | |
| | 12" Clay to Plastic Adapter | |
| | | |
| | ELBOWS | |
| | 3" 90 Degree Tile Elbow | |
| | 4" 90 Degree Tile Elbow | |
| | | |
| _ | | |

2" x 3" x 3" Down Spout Adaptor

2" x 3" x 4" Down Spout Adaptor

3" x 4" x 4" Down Spout Adaptor

4" x 6" x 6" Down Spout Adaptor

EXTERNAL SPLIT





| EXTERNAL SPLIT COUPLERS | |
|----------------------------|-----|
| 3" External Split Coupler | 50 |
| 4" External Split Coupler | 50 |
| 5" External Split Coupler | 50 |
| 6" External Split Coupler | 50 |
| 8" External Split Coupler | 30 |
| 10" External Split Coupler | 30 |
| 12" External Split Coupler | 20 |
| 15" External Split Coupler | 5 |
| 18" External Split Coupler | ea. |
| 24" External Split Coupler | ea. |
| 30" External Split Coupler | ea. |
| 36" External Split Coupler | ea. |
| 42" External Split Coupler | ea. |
| 48" External Split Coupler | ea. |
| | |

EXTERNAL SNAP COUPLERS

| 4" External Snap Coupler | 50 |
|---------------------------|----|
| 6" External Snap Coupler | 20 |
| 8" External Snap Coupler | 5 |
| 10" External Snap Coupler | 5 |
| | |

Custom **Order:**

Additional downspout adaptor style's available! Just ask!









SINGLE WALL CONNECTING ACCESSORIES



SINGLE WALL Connecting Accessories

DRAINAGE PRODUCTS

TAP TEES

STRAIGHT TEES



BLIND REDUCING TEES



REDUCING TEES





| | Dugu |
|-----------------------------|------|
| TAP TEES | |
| З" Тар Тее | 50 |
| 4" Tap Tee - Long | 50 |
| 4" Tap Tee - Short | 50 |
| 4" Internal Tap Tee - Short | 50 |
| 4" Internal Tap Tee - Long | 50 |
| 5" Тар Тее | 25 |
| 6" Тар Тее | 25 |
| | |

STRAIGHT TEES

| 3" Straight Tile Tee (Injection Molded Only) | 25 |
|--|----|
| 4" Straight Tile Tee (Injection & Blow Molded) | 25 |
| 5" Straight Tile Tee (Blow Molded Only) | 10 |
| 6" Straight Tee (Blow Molded Only) | 10 |

BLIND REDUCING TEES

| 4" Blind Tee | 25 |
|---|----|
| 5" x 4" Blind Reducing Tee | 10 |
| 6" x 5" x 4" Blind Reducing Tee | 10 |
| 8" x 8" x 6" x 5" x 4" Blind Reducing Tee | 5 |
| 10" x 10" x 8" x 6" Blind Reducing Tee | З |
| 12" x 12" x 10" x 8" Blind Reducing Tee | З |
| 15" x 15" x 12" x 10" Blind Reducing Tee | 1 |
| | |

REDUCING TEES

| 4" x 3" Internal Reducing Tee | 10 |
|-------------------------------------|----|
| 5" x 4" Reducing Tee | |
| 5" x 4" Internal Reducing Tee | |
| 6" Cross Reducing Tee | 1 |
| 6" x 5" x 4" Reducing Tee | 10 |
| 8" x 8" x 6" x 5" x 4" Reducing Tee | 5 |
| 10" x 10" x 8" x 6" Reducing Tee | З |
| 12" x 12" x 10" x 8" Reducing Tee | З |
| 15" x 15" x 12" x 10" Reducing Tee | 1 |
| | |

| WYES | |
|----------------------------------|-----|
| 3" Wye | 25 |
| 4" Wye (Injection & Blow Molded) | 10 |
| 5" x 4" Reducing Wye | 5 |
| 6" x 5" x 4" Reducing Wye | 10 |
| 8" Wye | ea. |







○ SINGLE WALL CONNECTING ACCESSORIES

END CAPS 3" End Cap

4" End Cap

5" End Cap

6" End Cap

8" End Cap



SINGLE WALL Connecting Accessories

Bag Qty

50

25

50

50 10

10

10

5

ea.

ea.

ea.

DRAINAGE PRODUCTS

END CAPS





PLASTIC PLUGS PLUGS <u>3" Plastic Plug</u> <u>4" Plastic Plug</u>

INTERNAL COUPLERS

| 5 | 3" Plastic Plug | 100 |
|---|------------------------------|-----|
| | 4" Plastic Plug | 100 |
| | 4" Plastic Plug - Perforated | 100 |
| | 5" Plastic Plug | 100 |
| | 6" Plastic Plug | 100 |
| | | |

INTERNAL COUPLERS

| 3" Internal Coupler (Blow Molded) | 25 |
|---|----|
| 3" Internal Coupler (Injection Molded) | 50 |
| 4" Internal Coupler (Blow Molded) | 25 |
| 4" Internal Coupler (Injection Molded) | 50 |
| 5" Internal Coupler (Blow Molded) | 25 |
| 5" Internal Coupler (Injection Molded) | 25 |
| 6" Internal Coupler (Blow Molded) | 25 |
| 6" Internal Coupler (Injection Molded) | 20 |
| 8" Internal Coupler (Blow Molded Only) | 5 |
| 10" Internal Coupler (Blow Molded Only) | 5 |
| | |

REDUCERS REDUCERS



| REDUCERS | |
|-------------------------------|-----|
| 5" x 4" Internal Reducer | 9 |
| 6" x 5" Internal Reducer | 9 |
| 4" x 3" Reducer | 25 |
| 6" x 5" x 4" External Reducer | 10 |
| 8" x 6" Reducer | 5 |
| 10" x 8" Reducer | 5 |
| 12" x 10" Reducer | 5 |
| 15" x 12" Reducer | ea. |
| 15" x 12" x 10" Reducer | ea. |
| | |



MAR MAC RUBBER COUPLERS

| 4" |
|-----|
| 6" |
| 8" |
| 10" |
| 12" |
| 15" |
| 18" |
| 24" |
| 30" |
| 36" |
| 42" |
| 48" |
| |

Marmac Couplers are perfect for joining dissimilar pipe types!

All Marmac couplers come with stainless steel tightening bands.



• ACCESSORIES



DRAINAGE PRODUCTS

BAR GUARDS



*Hickenbottom Bar Guards are ideally sized for Hickenbottom Risers



ANIMAL GUARDS

BAR GUARDS

Accessories

| 4" Bar Guard |
|-----------------------------|
| 5" Bar Guard |
| 6" Bar Guard |
| 8" Bar Guard |
| 10" Bar Guard |
| 12" Bar Guard |
| 15" Bar Guard |
| 18" Bar Guard |
| 24" Bar Guard |
| 30" Bar Guard |
| 36" Bar Guard |
| 42" Bar Guard |
| 48" Bar Guard |
| *8" Hickenbottom Bar Guard |
| *10" Hickenbottom Bar Guard |
| *12" Hickenbottom Bar Guard |

ANIMAL GUARDS

4" Animal Guard 6" Animal Guard 8" Animal Guard 10" Animal Guard 12" Animal Guard 15" Animal Guard 18" Animal Guard 24" Animal Guard



DRAINAGE PRODUCTS

ACCESSORIES

11

• ACCESSORIES

ACCESSORIES



Accessories

DRAINAGE PRODUCTS

HDPE FLARED END SECTIONS



HDPE FLARED END SECTIONS

12"-15" HDPE Flared End Section 18" HDPE Flared End Section 24" HDPE Flared End Section 30" HDPE Flared End Section 36" HDPE Flared End Section

METAL FLARED END SECTIONS

12" Metal Flared End Section
15" Metal Flared End Section
18" Metal Flared End Section
24" Metal Flared End Section
30" Metal Flared End Section
36" Metal Flared End Section
48" Metal Flared End Section

METAL FLARED END SECTIONS







SUMP BASINS & LIDS

| 16" x 24" Sump Pit Liner | |
|----------------------------|--|
| 16" x 30" Sump Pit Liner | |
| 16" Heavy Duty Locking Lid | |
| 18" x 24" Sump Pit Liner | |
| 18" x 30" Sump Pit Liner | |
| 18" Heavy Duty Locking Lid | |



HINGED FLAP GATES

HINGED FLAP GATES

| 6" Hinged Flap Gate for Plastic |
|----------------------------------|
| 8" Hinged Flap Gate for Plastic |
| 10" Hinged Flap Gate for Plastic |
| 12" Hinged Flap Gate for Plastic |
| 15" Hinged Flap Gate for Plastic |
| 18" Hinged Flap Gate for Plastic |
| 24" Hinged Flap Gate for Plastic |
| |

Larger sizes available!



MAXFLO ACCESSORIES

DUAL WALL Accessories

MAXFLO ELBOWS



MAXFLO TEES

Elbows offered in all sizes 4"- 48" with bends offered in 22.5, 45 & 90 degrees. Custom bends are also available!

MAXFLO ELBOWS

MAXFLO TEES 4" x 4" MaXflo Tee

6" x 6" MaXflo Tee

8" x 8" MaXflo Tee 10" x 10" MaXflo Tee

12" x 12" MaXflo Tee

15" x 15" MaXflo Tee 18" x 18" MaXflo Tee 24" x 24" MaXflo Tee 30" x 30" MaXflo Tee 36" x 36" MaXflo Tee 42" x 42" MaXflo Tee 48" x 48" MaXflo Tee

MAXFLO REDUCING WYE Dual Wall Reducing Wyes

available in all sizes 4"- 48"

MAXFLO REDUCERS

Dual Wall Reducers available in all sizes 4"- 48"

MAXFLO REDUCING TEE

Dual Wall Reducing Tees available in all sizes 4"- 48"

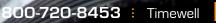




| MAXFLO WYES |
|----------------|
| |

4" MaXflo Wye

| 8" MaXflo Wye |
|----------------|
| 10" MaXflo Wye |
| 12" MaXflo Wye |
| 15" MaXflo Wye |
| 18" MaXflo Wye |
| 24" MaXflo Wye |
| 30" MaXflo Wye |
| 36" MaXflo Wye |
| 42" MaXflo Wye |
| 48" MaXflo Wye |



AINAGE

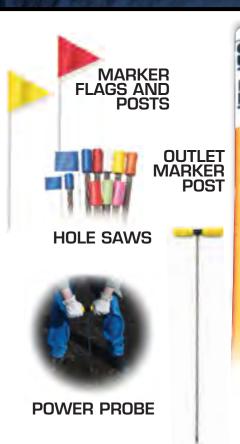
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OMISCELLANEOUS ITEMS



| MISCELLANEOUS ITEMS | Т | |
|-------------------------------|----|-----------|
| Timewell Tile Tape | 3 | |
| 4" x 5" T/T Marker Flag | | Munuan |
| Outlet Marker Post | 12 | |
| 7' 11" Red Intake Marker Flag | 77 | |
| | | |
| 3 1/8" Hole Saw | | |
| 4 1/8" Hole Saw | | |
| 5" Hole Saw | | |
| 6" Hole Saw | 58 | OVELS |
| S/S 5' x 5/16" Power Probe | 9 | 2 |
| Mud Slinger Shovel Flat Tip | | ANTI SEEP |
| Mud Slinger Shovel Round Tip | | COLLARS |
| Long Handle Shovel | | |
| Super Crummer Shovel | | |
| <u>.</u> | | |
| 2' x 2' Anti Seep Collar | | |
| 4' x 4' Anti Seep Collar | | |
| | | |

○ INLINE WATER CONTROL

Inline Water Control Structure:

- Rugged 1/2 " PVC structure
- Heavy steel lockable lid
- Stainless steel screws and custom anodized aluminum corner extrusions are used for strength and durability
- 5" X 7" Stoplogs for adjustability
- Flexible couplers allow PVC, plastic pipe, or other materials to be easily attached (please specify type of pipe when ordering)
- 5 year warranty on all parts

Call today for pricing on your custom structures!



OLIFT STATIONS



Lift Stations

DRAINAGE PRODUCTS

NO GRAVITY OUTLET AVAILABLE? NO PROBLEM!

You can still install a cost effective drainage system with a lift station from Timewell.

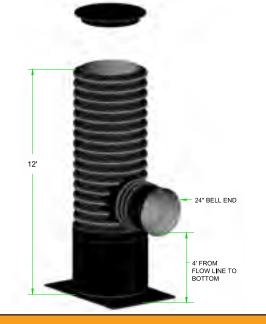
WITH A LIFT STATION, YOU CAN:

- Control the water table in the field
- Gain more grade on laterals

FEATURES & BENEFITS

- Manufactured from durable HDPE pipe
- No degradation or corrosion
- Jobsite ready
- Standard 4'x6' welded base reduces buoyancy
- Heavy-duty lid secures pump and discharge pipe







Standard 36" tank with 24" outlet in stock Custom sizes and designs available upon request Why buy from multiple places? Timewell offers a complete line of lift stations and accessories. Ask your sales representative for details.

Timewell 800-720-8453







DRAINAGE PRODUCTS

Timewell offers a complete line of submersible pumps to meet all your lift station projects.

The stainless steel, axial-flow construction provide an economical solution for high-volume, low-head flow applications. The stainless steel construction means that the pumps are corrosion resistant and will not rust, making them last longer than conventional cast iron pumps.



Standard applications cost just pennies a day to operate.

Pumps are available in vertical or horizontal versions, single or three phase, a variety of horsepower and voltages to meet the unique needs of your application.

FEATURES & BENEFITS

- Corrosion Resistant all Stainless Steel Construction
- High Volume: 50 to 1,450 GPM Low Head: 2' to 25' of Total Dynamic Head
- Fixed speed or variable-flow pumping
- Axial-Flow lift for smooth, low vibration
- and low pressure operation Water lubricated motors are

VARIETY OF SIZES **AVAILABLE**

- Single or Three Phase
- 1/2 to 15 Horsepower

environmentally safe

- 200, 230, 460 or 575 Volts
- Vertical or Horizontal Style

Single phase and three phase control panels are available to operate the pumps. Single phase panels contain the start and run capacitors. Three phase controls are used for three phase 200, 230, 460 and 575 volt pumps and contain a motor starter and transformer. Both are available with (deluxe) or without (standard) a switch.



PUMPS

INAGE

INSTALLATION PROCEDURES



An Overview of Agricultural **Drainage System Installation**

DRAINAGE PRODL

The following is a brief overview of the recommended steps taken to install a quality pipe system. Additional research is recommended for any unique installation.

Timewell's recommended installation procedures listed below are based on ASTM F449 [Underground Subsurface Installation of Corrugated Polyethylene Pipe for Agricultural Drainage or Water Table Control]

PIPE HANDLING

Certain steps should be taken for handling and storing pipe properly on jobsites so as to protect the pipe until ready for installation. Storage handling and care should be done so as not to damage the pipe. A flat, smooth surface is preferred. Additional considerations for site conditions, weather, seasonal elements, and animals should be considered when handling and storing. If pipe arrives in pallets, it should remain in pallets until installation. Dragging dropping or hitting pipe on the ground or other objects may cause damage. Coils of pipe should be stored on a flat, smooth surface and should be protected from fire hazards. Inspect all pipe and material before installation.

TRENCH SHAPE

The trench bottom should be shaped when pipe is installed at depths of 8 feet or less. The 90-degree "V" bottom shown in Figure 1 is the preferred shape for pipe less than 8 inches. For pipe 8 inches or greater, the circular or trapezoidal groove shown in Figure 2 should be used. The curve of the groove should closely fit the outside of the pipe, and can be made with a shaped trencher or backhoe with a shaped bucket known as a "spoon". Refer to Charts 1 and 2 for

recommended trench dimensions.

TRENCH DESIGN

Precautions should be taken to ensure conditions are suitable for pipe installation. Water, soft muck, rock or other material unable to provide longterm pipe support are unacceptable and should be removed and replaced with acceptable materials. If soft areas remain after excavation or in areas where native soil can migrate into backfill, a synthetic fabric or geotextile should be used to separate native soil from backfill.



Figure 2



Circular or Trapezoidal Trench

| Figure 1 | |
|----------|----------------|
| | ٬۷ |
| | Pipe Diamet |
| | 3" |
| | 4" |
| | 6" |
| (| 8" |

| • | art 1 Ich Depth |
|------------------|-----------------------|
| Pipe Diameter | Depth Figure 1 'A' |
| 3" | 5" |
| 4" | 6" |
| 6" | 8" |
| 8" | 11" |

Chant 1

'V' Trench

| Circular or ⁻ | Trapezoidal Trer | nch Dimensions |
|--------------------------|------------------|----------------|
| Pipe | Width | Depth |
| Diameter | Figure 2 'A' | Figure 2 'B' |

Chart 2

| Diameter | Figure 2 'A' | · Figure 2 'B' |
|----------|--------------|-------------------|
| 10" | 11.4" | 5.7" |
| 12" | 14.4" | 7.2" |
| 15" | 17.5" | 8.8" |
| 18" | 21.1" | 10.6" |
| 24" | 27.7" | 13.9" |
| 30" | 35.7" | 17.9" |
| 36" | 41.3" | 20.7" |
| 42" | 47.7" | 23.9" |
| 48" | 53.6" | 26.8" |
| 60" | 66.4" | 33.2" |



ALIGNMENT

Equipment operating on uneven ground surfaces should use a grade control system capable of maintaining the specified depth and grade. The pipe feeding system should hold the pipe in place in the bottom of the trench until secured by the bedding, blinding, or envelope material.

FITTINGS, COUPLERS & ENDCAPS

All fittings should be compatible with the pipe. Couplers should be used to connect pipe together, and end caps or end plugs must be installed on the termination of each line.

BACKFILLING

The trench should be backfilled as soon as possible. Material should be placed so that displacement or deflection of the pipe will be minimized and within acceptable limits. Most plow installations require a minimum of backfilling, yet care must be taken to ensure that the trench is filled and bridging does not occur. Open trenches should be overfilled to allow consolidation, or the backfill should be compacted to reduce the amount of settling.

MATERIAL SELECTION

Choosing proper backfill materials is essential to maintaining adequate pipe support. Non-cohesive soils such as sand or plastic clay will need to be compacted to remove voids. Class IVA materials may increase pipe deflection, therefore additional examination should be conducted before using Class IVA materials. Backfill material descriptions and guidelines can be found in Chart 3.

Chart 3 Acceptable Backfill Material and Compaction Requirements

| Description | Soil Class ASTM D2321 | sification ASTM D2487 | Minimum Compaction Standard Density % |
|--|-----------------------------|-----------------------------|---|
| Graded or crushed stone Crushed gravel | Class I | - | Dumped* |
| Well-graded sand, gravel, and gravel/sand mixtures; Poorly graded sand, gravel and gravel/sand mixtures; little or no fines | Class II | GW CP SW SP | 85% |
| Silty or clayey gravel, Gravel/sand/silt or gravel and/clay mixtures, silty or clayey sands, sand/clay or sand/silt mixtures | Class III | GM GC SM SC | 90% |
| Inorganic silts and low to medium plasticity clays; gravelly, sandy, or silty clays; some fine sands | Class IVA | ML CL | 90% |

*Material shall be "knifed" into the haunch area of the pipe by use of a shovel or similar means.

COMPACTION

Backfill materials should be installed and compacted in accordance with Chart 3 and ASTM F449. The minimum recommended cover needed to protect the pipe from crushing under live loads is 2 feet, except in organic soils where the minimum is 2.5 feet. These minimum depths are recommended to prevent crushing of the pipe by normal agricultural vehicle loads. Other drainage factors could require depths of up to 6 feet.

Maximum burial depths are determined by a number of factors including compaction, type of bedding, trench design and pipe stiffness. Contact your local Timewell representative for more information.

OUTLET CONSIDERATIONS

A length of rigid or semi-rigid nonperforated pipe should be used as an outfall of subsurface drains. Where backflow of surface water is possible, hinged gates should be used. The projection of the outlet pipe from the bank should be as little as possible and not more than one third the length, to provide the required support.

RODENT PROTECTION

The outlet should be equipped with an animal guard to protect the system from entry and damage by rodents or other animals. Where pipe is connected to old lines that may serve as animal runs, an animal guard should be installed within the line to restrict animal travel. ○ TILE TRAILERS

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| | 24" | |
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Screen Sock

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TRUCK LOAD WORKSHEET

| Description | Length | Truck Load Quantity | Unit | Point Value Per Unit | # Of Pieces Total Ordered = Point Value | Timewell |
|----------------------------|----------------|------------------------|--------|-------------------------|--|-----------------------------------|
| 3" | 100' | 220 | Rolls | 0.455 | | Delivery |
| | 5600' & 6200' | 6 | Rolls | 16.666 | | At Timewell we |
| 4" | 100' | 180 | Rolls | 0.5 | | guarantee next |
| | 250' | 76 | Rolls | 1.315 | | day delivery. |
| | 3250' | 6 | Rolls | 16.666 | | |
| 5" | 165' | 76 | Rolls | 1.315 | | Palletized |
| | 2300' | 6 | Rolls | 16.666 | | Load Quantity |
| 6" | 100' | 76 | Rolls | 1.315 | | for MaXflo |
| | 1685', & 1320' | 6 | Rolls | 16.666 | | |
| 8" | 20' | 240 | Sticks | 0.416 | | Number of |
| | 405' | 9 | Rolls | 11.111 | | Sticks per Pallet |
| | 920' | 6 | Rolls | 16.666 | | 4" 63 |
| 10" | 20' | 180 | Sticks | 0.555 | | 6" 33 |
| | 625' | 6 | Rolls | 16.666 | | 8" 23 |
| 12" | 10' | 288 | Sticks | 0.347 | | 10" 18 |
| 12" | 20' | 120 | Sticks | 0.833 | | |
| | 370' | 6 | Rolls | 16.666 | | Number of |
| 15" | 10' | 195 | Sticks | 0.526 | | Pallets per Truck |
| 15" | 20' | 80 | Sticks | 1.25 | | 4" 12 |
| | 220' | 6 | Rolls | 16.666 | | 6" 12 |
| 18" | 10' | 132 | Sticks | 0.735 | | 8" 8 |
| 18" | 20' | 56 | Sticks | 1.785 | | 10" 8 |
| 24" | 10' | 72 | Sticks | 1.388 | | |
| 24" | 20' | 30 | Sticks | 3.333 | | Number of 10' MaXflo Sticks on |
| 30" | 10' | 42 | Sticks | 2.38 | | Trailer Deck |
| 30" | 20' | 18 | Sticks | 5.555 | | |
| 36" | 10' | 28 | Sticks | 3.57 | | 12" 48 |
| 36" | 20' | 12 | Sticks | 8.333 | | 15" 35 |
| 42" | 10' | 22 | Sticks | 4.45 | | 18" 20 |
| 42" | 20' | 10 | Sticks | 10 | | 24" 12 |
| 48" | 10' | 14 | Sticks | 7.14 | | 30" 6 |
| 48" | 20' | 6 | Sticks | 16.666 | | 36" 4 |
| Total Point Value Of Order | | | | | | 48" 2 |

Total Point Value Of Order Divide By 100 TOTAL TRUCK LOAD FOR ORDER

100 Points per truck load



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