Engineered Concrete Products for Infrastructure, Water, Sewer and Duct Applications.
The Largest Infrastructure Product Manufacturer of Oman joins hands with Concrete Products Technology leader Munro of Canada.
Amiantit Oman Concrete Products (AOCP) is a company formed by Amiantit Oman Company LLC which was incorporated in 1974 by the Royal Decree of His Majesty Sultan Qaboos bin Said, and as of now is one of the largest manufacturing Companies in the private sector in the Sultanate of Oman.


Amiantit Oman Company manufactures Pipes in uPVC, High Density Polyethylene, Reinforced Concrete, Prestressed concrete cylinder Pipes, Reinforced Concrete Manholes and Reinforced Concrete Box Culverts, GRP & GRC Building Products and Roto-moulded products.

The Company’s quality and Environment Management system have been accredited with ISO 9001, ISO 14001 & OSHAS 18001 respectively by M/s. Det Norske Veritas. The Company implants quality into each stage of the manufacturing of its products. Each Division is committed to compliance with international standards and internal requirements through their Quality Assurance & Quality Control procedures. Amiantit Oman has been awarded the “OMANI QUALITY MARK” by Govt. of Oman.

Amiantit has always strived for quality and has tied up with Munro Limited of Canada for setting up Amiantit Oman Concrete Products. Originally founded in 1957, Munro Concrete Products Ltd. is a company continuously driven to produce the highest quality drainage and water transmission products. With 25,000 square meter manufacturing facility, located 75 kilometres north of Toronto, Munro is the largest single combined gravity and pressure pipe plant in North America.

Amiantit Oman belongs to the H.E. Dr. Omar Bin Abdul Muniem Al Zawawi Establishment and the Shaikh Suhail Bahwan & Saud Bahwan Groups, two leading business houses of Oman. The Company won His Majesty’s Award for being one of the best five factories in Oman for the years 1993, 2000, 2003 and 2004. It has also been selected by the Ministry of Commerce and Industry for the Best Industry Certificate for the years 1995,
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**Diagram:**
- Jacking Pipes
- RC Pipes
- Manhole Systems
- Chambers
- Concrete Barriers
- Pressure Pipes PCCP
- Box Culverts
AMIANIT TIMELINE AND PRODUCTS DEVELOPMENT

PVC PIPES:
- First to introduce PVC pipes in Oman (1977)
- UPVC pipes BS 3505 ½” to 8” up to class E (15 bar)
- BS 4514 Grey Soil pipe, BS 4660 & BS 5481 Golden Brown drain pipe, BS 5255 waste pipe Electrical conduits from DN 16mm to DN 50mm
- J series pipe & pipes as per DIN 8061 & ASTM
- Sizes range from 50 mm to 315 mm OD

GRP PRODUCTS:
- GRP Products Licensee of Yamaha (Japan)
- Designed and installed several landmarks in the region
- Product range includes architectural building components, modular housing, enclosures, storage tanks, etc.

GRC PRODUCTS:
- We are the first company to manufacture GRC products in Oman in 1983
- Furthered the cause of preserving local architecture and heritage
- Recognition from GRCA for dome on Sultan Qaboos Grand Mosque

ROTO MOULDING:
- State of the art facilities
- UV stabilized products with immense flexibility
- Extensive product range includes water tanks, refuse, handling systems, road barriers, road cones, planters, fertilizer and fish tanks, beverage containers etc.

PE LINERS:
- HDPE liners for CS pipeline for PDO
- HDPE liners up to 48”
- Total solution to mitigate corrosion

HDPE:
- Another first from Amiantit Oman HDPE pipes
- License and technical know-how from KWH, Finland
- Versatile, lightweight pipe technology diameters up to 1200mm for pressure pipes and up to 3500mm for non-pressure
- First in the world to make a PE pipe of 3.5 M diameter
- Offering range of PE Tanks and Manhole systems
FULLY AUTOMATED HIGH SPEED PRODUCTION LINES WITH CONTROL ON DESIGN MIX

CAPABILITY TO MANUFACTURE LARGE DIAMETER PRESSURE AND GRAVITY PIPES
STATE OF THE ART PIPE, MANHOLE AND BOX CULVERT PRECAST MOULDS AND MACHINES TO PRODUCE UNIFORM AND CONSISTENT PRODUCTS

GRP AND HDPE LINED MANHOLE AS PER HAYA AND MRME STANDARDS FOR SEWER APPLICATIONS
Amiantit Oman Concrete Products plant is strategically located in Rusayl Industrial Area close to The Sultanate’s vibrant and developed capital city MUSCAT, making it geographically advantageous to supply within Oman and also exporting into Gulf and other adjacent countries.

Our parent company’s humble and dedicated presence in the Sultanate’s infrastructure growth has given us the knowledge bank and work experience in the region which dates back to 1977. This giving Amiantit an edge in local and GCC markets where we already are a leader in PVC & HDPE pipes.

The Manufacturing Process is driven with cutting edge technology and aptly trained teams who form our core strength in delivering the right product to support your infrastructure needs. Established processes and systems which are integral part to parent company Amiantit Omans vision.

**TECHNOLOGY**

MBK Cage Welding Machine can make cages in diameters ranging from 300 millimeters to 3600 millimeters.

Our Skako Concrete Batch Plant can produce enough concrete to support the product demand not only in the Sultanate but also in the entire Gulf region.

Besser Packerhead vertical cast pipe equipment capable of making pipes up to 6 meters lay length.

We are equipped with world class Quality Control laboratory with installed testing machines like Hydrotest and D-Load testing machines.

Schlüsselbauer vertical cast equipment capable of making Pipes, Box Culverts & Manholes.
RC PIPE, RC JACKING PIPE, MANHOLE & BOX CULVERT MAKING PROCESS

STEEL REINFORCEMENT READY FOR CASTING

PIPE CASTING IN PROGRESS

DEMOLDED PIPE HANDLING SYSTEM

PIPES IN CURING

Pipes are manufactured confirming to approved standards in the state of the art moulds from Schlusselbauer Austria
REINFORCED CONCRETE PIPES AND CULVERTS

Reinforced Concrete Pipes are used commonly in systems like sewerage, drainage, culverts and other irrigational facilities involving low pressure water supply.

Lining of concrete pipes with various materials available in the market today, such as HDPE, PVC or GRP, make these the most suited pipes to withstand many kinds of aggressive fluid flows which even steel pipes may fail to offer in the longer run.

- Pipes produced in compliance to BS 5911- Part 100, BS EN 1916
- ASTM C76M for the Reinforced Concrete Culvert, storm drain & sewer pipe
- ASTM C316M for low head pressure pipes
- ASTM C443 M Joints for circular concrete sewer and culvert pipe using rubber gasket. Project specific requirements are complied on request

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<thead>
<tr>
<th>Inside Diameter ID (mm)</th>
<th>RCP Gravity Pipe</th>
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<tr>
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<td>3000</td>
<td></td>
</tr>
<tr>
<td>3600</td>
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</tbody>
</table>

RC PIPE ASSEMBLY TESTING

RC PIPE RUBBER RING JOINT WITH SELF LUBRICATING RING
PIPES ARE MANUFACTURED IN STANDARD SIZES

<table>
<thead>
<tr>
<th>Inner Diameter in millimeters</th>
<th>Outer Diameter in millimeters</th>
<th>Wall Thickness in millimeters</th>
<th>Approximate Weight in Kilograms *</th>
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<td>70</td>
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</tr>
<tr>
<td>1800</td>
<td>2160</td>
<td>180</td>
<td>7069</td>
</tr>
</tbody>
</table>

* Above data is subject to change, Pipe data for diameters above 1800mm upwards to 3600mm will be provided on project request.

* Weights are representative for 2.5 meters RC pipe.
REINFORCED CONCRETE JACKING PIPES
FOR MICRO TUNNELLING

Reinforced Concrete Jacking Pipes are used for Micro tunnelling. These pipes are available up to 3.6 meter in Dia and come with 3 variations - Unlined & Uncoated, HDPE Lined & GRP Lined for Sewer & Storm water applications with external coating if required. Self lubricated Rubber Rings provide ease of installation. Pipes are designed to fit the micro tunnelling machines commonly available.

* Loads Designed as per BS 5911
Factor of Safety =2.5 is representative.

Pipes are produced to comply BS and ASTM standards.

* AOCP offers Engineered solutions as per the project requirement, different pipe sizes with different jacking forces on request. Safety Factors above 2.5 can also be provided and pipes can be designed accordingly. Diameters above 2000mm are available based on project requirements.

### Reinforced Concrete Pipes

<table>
<thead>
<tr>
<th>Inner Diameter in millimeters</th>
<th>Allowable Jacking Load in tons*</th>
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</thead>
<tbody>
<tr>
<td>450</td>
<td>184</td>
</tr>
<tr>
<td>500</td>
<td>253</td>
</tr>
<tr>
<td>600</td>
<td>344</td>
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<tr>
<td>700</td>
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<td>900</td>
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<td>1000</td>
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<tr>
<td>1500</td>
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<td>1800</td>
<td>1944</td>
</tr>
<tr>
<td>2000</td>
<td>2436</td>
</tr>
</tbody>
</table>
AOCP MANHOLE SYSTEM

AOCP Manhole System includes a comprehensive range of diameters. Mono bases with benching, riser of different heights, reducer slabs, concrete top slab cover options, with accessories like step ladder, Stanchions, joint sealants & clamps. The joint interlocking profiles of the manhole make the installation quick and effective. The use of effective sealing material between the sections makes the system watertight.

Features
• Strength and durability
• Manufactured to local & international standards
• Reinforced & Modular precast system
• Ports like HDPE, GRP or PVC are provided for ease of installation
• HDPE, GRP or PVC liners can be provided

Benefits
• High resistance to infiltration and leaking
• Able to meet design requirements
• Economic overall compared to cast in-situ structure
• Reduced construction time with fewer traffic hold-ups, when compared to cast in-situ structure

Applications
• Storm water Manholes
• Sewer Manholes
• Pipeline junctions
• Pipeline direction changes
• Catch pitts
• House connection chambers

MH Monolithic Base*

<table>
<thead>
<tr>
<th>Inside Diameter ID (mm)</th>
<th>Outside Diameter OD (mm)</th>
<th>Wall Thickness (mm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1200</td>
<td>1470</td>
<td>135</td>
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<td>150</td>
</tr>
<tr>
<td>1800</td>
<td>2160</td>
<td>180</td>
</tr>
</tbody>
</table>

* Representative sizes, other sizes can be offered as per project requirements.

Manholes ranging from Small, medium & large sizes i.e. 1200, 1500 & 1800mm diameters. We cast manholes of different sizes as per the project requirement.
The riser system is a shaft made with various height sections depending on the requirement of depth to invert level, generally decided by the surveyor or the Engineer at site. AOCP ships the riser components, rubber ring and monobases as per the individual site requirements. Thus making it JUST In TIME for the project management teams.

Standards to which we can manufacture:

BS 5911-3
BS EN 1917: 2002
ASTM C 478

Precast manholes are preferred for greater depths due to their inherent strength, structural integrity and solution for buoyancy issues rises with water table.

Precast Manholes can be manufactured unlined, HDPE lined, GRP lined depending on project requirements.

Concrete Manholes come with cover slab which is not the case with other types of Manholes.

The joints are tested as per pressure requirements of the project.
AOCP MANHOLE SYSTEM

- **Safety & Economy:** Amiantit Manhole System offers safe construction environment by reducing the risk of working in confined spaces and you can avoid additional concrete surround which is a present practice. This reduces your overall excavation footprint and associated overhead.
- **Rapid Construction:** Precast system results in rapid construction by eradicating the need mobilization & deployment for wet cast on site jobs.
- **Manhole Designing:** Manholes are designed as per site requirement.
- **Joint System:** The entire system is made water tight by way of reinforced concrete wall's inherent property and provision of rubber ring at joints.
- **Reduces Risk:** No water admission into sewerage network reduces risk - The combination of a thick concrete wall and sealed rubber joint is sure to withstand ground water head pressure.
- **Joint Design:** Our joint design ensures perfect load distribution.
- **Lifting System:** Lifting system is included while casting which eases handling.

**WE CURRENTLY COMPLY TO:**
- Oman Wastewater Services Company Specification - HAYA
- MRME
- Salalah Sanitary Drainage Services Company Specifications
- MOTC
- BS EN 5911-3
- BS EN 1917: 2002
- ASTM C 478
- ADSSC Abu Dhabi
- ADWEA Abu Dhabi
- Ashghal Qatar
- Ministry of Work Bahrain
- Other Project specific guidelines are followed as directed
Keeping in mind the region’s infrastructure projects, Engineers at AOCP have come up with standard designs which meet the client body requirements, Oman highway design standards. Our engineering team can work with you to design the exact precast concrete culvert you need to achieve project objectives. In our state-of-the-art manufacturing facility, we manufacture all products under controlled conditions. You get consistent quality, long performance life and cost advantage on overheads and time.

**Application**
Conveyance of storm water from urban developments. Designed for gravity flow of fluids. Can be used as small bridges and culverts for stream crossings where natural stream bed does not have to be maintained

**The advantage** precast concrete culverts offers over the cast in site structure is due to quick delivery, consistency in quality and dimensions, reliability of the product.

Custom Sizes are made to order
Fittings are manufactured in-house on fully automated machines.

**WE CURRENTLY COMPLY TO:**
- Ministry of Transport & Communication specifications. (MOTC Oman) Oman Highway Design Standard
- Directorate General of Roads & Land Transport (DGR Oman)
- BS EN 14844: 2006
- ASTM C1433M-10
- Other Project specific guidelines are followed as directed

<table>
<thead>
<tr>
<th>Box Culvert</th>
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<tr>
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<td>Lay Length (mm)</td>
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<tr>
<td>2500x2500</td>
<td>2500</td>
<td>250</td>
</tr>
</tbody>
</table>

Representative sizes, other sizes are available on request.
AOCP embarks to bring economy in water and fluid transmission & distribution business replacing the age old and expensive Ductile Iron pipes with PCCP first time in the region. The pipe and its fittings manufactured right here in Oman.

**PRESTRESSED CONCRETE CYLINDER PIPES**

PRESTRESSED CONCRETE LINEAR CYLINDER PIPE
for sizes below 1400 mm

PRESTRESSED CONCRETE EMBEDDED CYLINDER PIPE
for sizes above 1400 mm
Prestressed Concrete Lined Cylinder Pipe is used for following applications:

- Treated Sewage Effluent Mains
- Transmission Mains
- Subaqueous Line
- Distribution Feeder mains
- Treatment plant piping
- Raw Water intake and Discharge lines
- Industrial Pressure Lines
- Cooling Water lines
- Gravity Sewer Mains

### Prestressed Concrete Lined Cylinder Pipe

<table>
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<tr>
<th>Pipe Diameter (mm)</th>
<th>Core Thickness (mm)</th>
<th>Joint Depth (mm)</th>
<th>Joint Diameter (mm)</th>
<th>Bell Outside Diameter (mm)</th>
<th>Barrel Outside Diameter (mm)</th>
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<td>1598.2</td>
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The pipes are used generally for pressure flow applications, a large variant of pressure ratings are offered. Standard pipes can be offered up to 25 Bar pressure and above that project specific details are provided on request.

Compliant with BS EN 642, BS EN 649 and AWWA C301 (L)
Joint depicted above shows Deep Joint Bell/Spigot. Restraint joints also available (Snap Ring Bell & Harness Joints)
PCCP - JOINTS

PCCP produced with flexible rubber-gasketed push-on joints
Mechanically restrained joints to resist pipeline thrust are available
C-Clamp, Snap-Ring and the Bell Bolt
Joints can be pressure tested with air immediately after field assembly to verify the gasket seal

PCCP STANDARDS

The manufacturing plant and the products are subject to standards.

Plant is certified to:
Lloyd’s Register Quality Assurance
Compliance Audit and Certification Program

Product meets standards:
American Water Works Association
AWWA C301 for manufacture
AWWA C304 for design
Major savings are achieved compared to Ductile Iron Pipes in large sizes
CASE STUDY
AOCP plans to actively participate in providing project solutions rather than just being your product supplier.

Burloak Water Purification Plant

Challenge
The construction of a water intake line 1.4km out into Lake Ontario composed of 1800mm diameter concrete pressure pipe was necessary. The pipe had to be connected at the shoreline to a tunnel and water had to be piped a further 1.3km inland to the Burloak Water purification plant in Oakville.

Solution
An alternative solution proposed by the design engineer combined a tunnel with a marine pipeline in the lake. The combination allowed for a shallower tunnel and reduced the depth of the access shafts. Munro supplied 1100m of 6 m long, 1800mm diameter C301 concrete pressure pipe and fittings.

Our Technology Partner Munro custom designed a chamber to connect the pressure pipe intake line to the tunnel. The chamber incorporated steel bell and spigot joints for a watertight fit. Munro worked with H & R Hydro-Pull to introduce Hydro-Pull technology. The Hydro-Pull used pressure differentials between the inside and outside of the pipes enabling the contractor to assemble the pipe with jointing times between 4 to 6 seconds.

Outcome
As a result of the alternative concept, the city saved more than 6 million dollars from the base bid. The work was completed on a tight schedule of 30 months.
PRECAST CONCRETE BOX CULVERT
Precast Boxes installed upright for storm sewer

Challenge
Cyclone damaged unleveled ground Construction of Box Culverts in best possible time to enable traffic back on the roads.

Solution
Amiantit’s team came up with precast Box Culverts ready to install while the site is made ready.

Outcome
Precast concrete Box Culvert installed in the site and contractor saved on time and cost.

Our commitment to process, quality, environment, health and safety are uncompared as we continuously focused on ways to improve and better our surroundings at work place.

Our Batching plant comes with controlled dust emission system which is a example of our commitment towards environment and our employees. The internal and external coatings are done under well supervised and safe condition.

The team at our plant ensure all the parameters and specifications are met even before sourcing the raw material and the product in this production cycle goes through various checks before being delivered to customer.

The parent company adheres to stipulated quality control norms and undergoes regular audits. It is certified with ISO Company has also bagged the Sultanate’s Best factory Award for several years.
IN HOUSE TESTING AND LABORATORY FACILITIES

AOCP follows ISO oriented systems and implements the same at every stage in the process to bring out the best product.

The process starts right from the material sourcing, identification of certified and long term regional suppliers. Segregation of the material is done to ensure proper transfer to production and record keeping. Areas are earmarked for each operational activity.

Tests are carried out as per the approved Inspection and Test Plans on the raw material as well as the casted concrete products before dispatch to sites. Inventory is stored and monitored to ensure the material is utilized as per its specified shelf life.

Fully equipped in-house laboratory services gives AOCP the edge to offer testing in sync with production cycle without causing delays and as well gives client and their consultant a reference point to perform tests and verify the results.

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<th>S. No.</th>
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<td>A</td>
<td>Concrete</td>
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<tr>
<td>1</td>
<td>Compressive strength of concrete cubes/cylinder</td>
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<td>B</td>
<td>Aggregates &amp; Raw Material tests</td>
</tr>
<tr>
<td>1</td>
<td>Wet sieve analysis</td>
</tr>
<tr>
<td>2</td>
<td>Dry sieve analysis</td>
</tr>
<tr>
<td>3</td>
<td>Clay, silt and dust/material passing 75 µm sieve</td>
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<td>4</td>
<td>Flakiness &amp; Elongation index</td>
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<td>5</td>
<td>Fineness modulus of aggregate (Including dry sieve analysis)</td>
</tr>
<tr>
<td>C</td>
<td>Pipe/Manhole</td>
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<tr>
<td>1</td>
<td>D-load test</td>
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<tr>
<td>2</td>
<td>Hydro static test</td>
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<tr>
<td>3</td>
<td>Pull out test</td>
</tr>
<tr>
<td>4</td>
<td>Concrete cover</td>
</tr>
</tbody>
</table>

HYDROSTATIC PRESSURE TEST FOR JOINTS

D LOAD TEST
LOADING & DELIVERY

Once the products curing period is completed, according to the loading sequence as per the site requirements the products will be loaded on trailers with overhead cranes using certified chain slings. Wooden supports are provided for the proper seating of the products on the trailer. All the products on the trailer are secured with lashings tightened to the trailer hooks. The tightened lashings coming in contact with the products will be protected to avoid damages. The loading foreman ensures that the products loaded are in accordance with the erection sequence and also in a safe manner. The driver will be provided with the delivery note and site permit if any.

After reaching the site, driver contacts the site-in-charge. Thereafter it is the responsibility of the contractor to take care for unloading & stacking.

For proper handling:
- Use lifting device
- Use of construction equipment should be monitored closely
- Stockpile pipe on site in accordance to manufacturer recommendations.
- Minimize pipe movement on site to avoid damage to pipe
- Store along trench whenever possible so as to ease in open cut installation
INSTALLATION GUIDE

This manual is intended as a guide and is not to supersede the project specifications.

1. Carefully clean all dirt and foreign substances from the joining surfaces of the bell or groove end of pipe.
2. Improperly prepared bell jointing surface may prevent homing of the pipe.
3. Lubricate bell jointing surface thoroughly before it is placed on the spigot or tongue.
4. A bell not lubricated or improperly lubricated may cause gasket to roll and possibly damage the bell.
5. Carefully clean spigot or tongue end of pipe, including the gasket recess.
6. Improperly prepared spigot and gasket recess may prevent gasket from sealing properly.
7. Lubricate the spigot of the pipe, including the gasket recess.
8. Gasket may twist out of recess if lubricant is insufficient.
9. Lubricate the o-ring gasket thoroughly before it is placed on the spigot or tongue.
10. Excessive force will be required to push the pipe to the home position if gasket is not well lubricated.
11. Fit the gasket carefully. Equalize the rubber gasket stretch by running a smooth, round object, inserted between gasket and spigot, around the entire circumference several times.
12. Unequal stretch could cause bunching of gasket and may cause leaks in the joint or crack the bell.
13. Align bell and spigot of pipes to be joined. Before homing the joint, check that the gasket is in contact with the entry taper around the entire circumference. Make sure pipe is aligned.
14. Improper alignment can dislodge gasket causing leaks or possibly break the bell.

Alternately we also provide self lubricating rubber gaskets.
Jointing Procedures

**Small Pipe**
- **Do**: Wedge bar against a wood block placed horizontally across the bell end of the pipe. Pressure on the bar pushes the pipe into the home position.

**Medium Pipe**
- **Mechanical pipe pullers** or “come-along” devices are anchored to an installed pipe section several sections back and connected by a cross beam to the section to be installed. By mechanical force, the joint is brought into the home position.

**Large Pipe**
- **Do**: Join by placing a dead man blocking inside the installed pipe several sections back from the last installed section. This is connected to a wooden cross beam placed across the bell end of the pipe section being installed by a chain or cable and mechanical pipe puller. By mechanical force, the joint is brought into home position.

**Backfilling**
- **Approved backfill material** should be placed carefully along the pipe and compacted under the haunches. Material should be brought up evenly in layers on both sides of the pipe.

**Backfilling Around Pipe**
- **Do**: Backfill material should not be bulldozed into the trench or dropped directly on the pipe. Material should be placed in such a manner so as not to displace or damage the installed pipe.

**Unloading**
- **Do**: Check line and grade as each section is installed. Use proper excavation techniques to adjust.

**Handling**
- **Do**: Don’t push, pound or rock installed pipe with excavator bucket to establish grade.

**Stockpiling**
- **Do**: Don’t operate heavy construction equipment over the pipe until adequate cover is in place.

**Alignment Line and Grade**
- **Do**: Remove pipe section.
- **Don’t**: Adjust pipe alignment or grade with pipe in the home position.

**Excavation and Foundation Preparation**
- **Do**: Trench too wide and shallow.
- **Don’t**: Operate heavy construction equipment over the pipe until adequate cover is in place.
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