Concrete, HDPE, & SRHDPE Pipe
Installation Considerations
For Owners and Engineers

Start

Do you want to install the pipe according to a nationally approved specification?

Yes

No

No*

*There is no nationally approved specification for installing or designing SRHDPE.

Do you want to require & pay for imported granular material for embedment?

Yes

No

Do you want to specify the choice to use in-situ soil material for embedment?

Yes

No

Do you want to require & pay for placement of the haunch materials by hand, and then compact to a minimum of 90% Standard Proctor?

Yes

No

Do you want to require compaction of the backfill in 6" lifts to 12" above the pipe?

Yes

No

Do you want to require compaction of the backfill in 8" lifts only to the springline of the pipe?

Yes

No

Do you want to be restricted to a 2' minimum cover?

Yes

No

Do you want to design the pipe to the minimum cover required on the project?

Yes

No

Choose SRHDPE manufactured to ASTM F 2562 and install at your own risk.

Choose HDPE manufactured to AASHTO M 294 or ASTM F 2306 and installed per AASHTO Section 30 or ASTM D 3231.

Choose RCP manufactured to AASHTO M 170 or ASTM C 76 and installed per AASHTO Section 27 or ASTM C 1479.

Do you want the trench width to be O.D. +16" or O.D. x 1.25 +12"?

Yes

No

No

No recommended pipe selection available. Go back to start.

Do you want the trench to be at a width of O.D. +16" or O.D. x 1.25 +12"?

Yes

No

Do you want the trench width to be O.D.+6 each side?

Yes

No

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Choose HDPE manufactured to AASHTO M 294 or ASTM F 2306 and installed per AASHTO Section 30 or ASTM D 3231.

Choose RCP manufactured to AASHTO M 170 or ASTM C 76 and installed per AASHTO Section 27 or ASTM C 1479.

Do you want to require & pay for imported granular material for embedment?

Yes

No

No

Do you want to specify the choice to use in-situ soil material for embedment?

Yes

No

Do you want to require no compaction effort or at most 85-95% Standard Proctor in the haunch?

Yes

No

Do you want to require & pay for placement of the haunch materials by hand, and then compact to a minimum of 90% Standard Proctor?

Yes

No

Do you want to require compaction of the backfill in 6" lifts to 12" above the pipe?

Yes

No

Do you want to design the pipe to the minimum cover required on the project?

Yes

No

Choose SRHDPE manufactured to ASTM F 2562 and install at your own risk.

Choose HDPE manufactured to AASHTO M 294 or ASTM F 2306 and installed per AASHTO Section 30 or ASTM D 3231.

Choose RCP manufactured to AASHTO M 170 or ASTM C 76 and installed per AASHTO Section 27 or ASTM C 1479.

Do you want to be restricted to a 2' minimum cover?

Yes

No

Choose SRHDPE manufactured to ASTM F 2562 and install at your own risk.

Choose HDPE manufactured to AASHTO M 294 or ASTM F 2306 and installed per AASHTO Section 30 or ASTM D 3231.

Choose RCP manufactured to AASHTO M 170 or ASTM C 76 and installed per AASHTO Section 27 or ASTM C 1479.

Do you want to be required to specify the choice to use in-situ soil material for embedment?

Yes

No

Do you want to require & pay for placement of the haunch materials by hand, and then compact to a minimum of 90% Standard Proctor?

Yes

No

Do you want to require compaction of the backfill in 6" lifts to 12" above the pipe?

Yes

No

Do you want to design the pipe to the minimum cover required on the project?

Yes

No

Choose SRHDPE manufactured to ASTM F 2562 and install at your own risk.

Choose HDPE manufactured to AASHTO M 294 or ASTM F 2306 and installed per AASHTO Section 30 or ASTM D 3231.

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PIPE INSTALLATION COMPARISON: CONCRETE / HDPE / SRHDPE

**Concrete Pipe**

- **Material**: reinforced concrete
- **AASHTO Standards**: Bridge Construction Specifications (Section 27)
- **Sample Calculations**:
  - **HDPE (AASHTO Sect. 30)**: O.D. + 12 = 54” minimum
  - **SRHDPE (AASHTO Sect. 30)**: O.D./12 min 6”

**Different Design Considerations**:
- **Rigid pipe (RCP)** can provide the majority of the structural load carrying component of the pipe/soil system. Designers must understand and select a proper pipe class for construction method.
- **Flexible pipe** structural embedment materials placed to a height of one foot above pipe.

**AASHTO - Concrete Pipe Standard Installation**

Different **Installation Methods**:
- **RCP installations (Type 1-3)** require structural embedment materials placed only up to springline.
- **RCR structural embedment materials** may be in-situ materials in many cases.
- **Placement of materials in haunch for RCP not as critical as flexible pipe**.
- **Flexible pipe structural embedment materials placed to a height of one foot above pipe**.

**Different Inspection Techniques**:
- **RCP - AASHTO Sect. 27.6.1)**: Inspect for structural damage/defects (cracks, spalling, etc)
  - **Cracks > 0.01” = no issue, no action**
  - **Cracks > 0.01” and ≤ 0.10” = evaluation by PE**
  - **Cracks > 0.10” = evaluation by PE for repair or replacement**
- **HDPE - AASHTO Sect. 30.5.6)**: Inspect for control of deflection = structural confirmation of system
  - **Deflection ≤ 5% = no issue, no action**
  - **Deflection > 5% but ≤ 7.5% = evaluation by PE**
  - **Deflection exceeding 7.5% = evaluation by PE for repair or replacement**
- **CMP (AASHTO Sect. 26.5.7)**: Inspect for control of deflection
  - **Deflection exceeding 7.5% evaluation for repair or replacement**

**Different Pipe Types Require**:
- **Rigid pipe (RCP)** can provide the majority of the structural load carrying component of the pipe/soil system. Designers must understand and select a proper pipe class for construction method.
- **Flexible pipe** structural embedment materials placed to a height of one foot above pipe.

**Plastic Pipe National Standards**