550.5 Payment

A. Backfill

Backfill will be paid for according to Section 207.

B. Pipe Installations

Pipe installations complete in place and accepted will be paid for at the Contract Pipe for each item.

This payment is full compensation for excavating, furnishing, and hauling materials; installing, cutting pipe where necessary; repairing or replacing damaged sections; making necessary connections; strutting, elongating, providing temporary drainage; joining an extension to an existing structure where required; and removing, disposing of, or using excavated material as directed by the Engineer.

1. Smooth Flow Pipe

   The quantity of each diameter and steel thickness of smooth flow pipe as measured will be paid for at the Contract Unit Price per linear foot (meter) bid for the various sizes. Payment is full compensation for furnishing labor, materials, tools, O-ring mechanical joints, equipment, and incidentals to complete this Item, including removing and disposing excavation material.

2. Flared-End Sections

   Flared-end sections, measured as specified above, will be paid for at the Contract Unit Price for each section of the specified size.

Payment will also include sawing, removing, and replacing existing pavement removed to install a new drainage structure.

Payment will be made under:

Item No. 550	Storm drain pipe___ in (mm), H=___	Per linear foot (meter)
Item No. 550	Side drain pipe___ in (mm), H=___	Per linear foot (meter)
Item No. 550	Pipe arch (span) ____in (mm) x (rise) ___in(mm)	Per linear foot (meter)
Item No. 550	Tapered pipe inlet ___ in (mm),	Per each
Item No. 550	Flared-end section ___ in (mm),	Per each
Item No. 550	Elliptical pipe___ in (mm) wide x ___ in (mm) high	Per linear foot (meter)

550.5.01 Adjustments

Excavation will not be paid for separately, but the other provisions of Section 205 and Section 208 shall govern.

Section 551—Pile Protection in Earth Walls

551.1 General Description

This work includes protecting bridge end bent piles located in the stabilized backfill of earth retaining walls.

551.1.01 Definitions

General Provisions 101 through 150.

551.1.02 Related References

A. Standard Specifications

Section 535—Painting Structures

Section 801—Fine Aggregate

Section 806—Aggregate for Drainage

B. Referenced Documents

ASTM A 123/A 123M

ASTM B 512

ASTM D 92

ASTM D 95

ASTM D 992

ASTM D 1241

ASTM D 1743

ASTM D 1621

ASTM D 1622

APHA 426 D

551.1.03 Submittals

General Provisions 101 through 150.

551.2 Materials

A. Cans

Place cans of smooth or corrugated steel pipe over piling. Use cans thick enough to prevent buckling while placing and compacting earth-stabilized embankment. Coat both inside and outside of the cans with either of the following:

Material	Section
2P Coating	535.3.03.D
Galvanizing	ASTM A 123/A 123M

B. Backfilling Cans

Use aggregate for the backfilling of cans according to Section 801 or Section 806.

C. Corrosion Inhibitor (Grease)

Use grease that conforms to the following requirements.

Drop point 350 °F (175 °C) minimum		ASTM D 1241
Flash point 350 °F (175 °C) minimum		ASTM D 92
Water content 0.1% maximum		ASTM D 95
Rust test		ASTM D 1743
Water soluble ions	Chlorides, 10 PPM maximum	ASTM B 512
	Nitrates, 10 PPM maximum	ASTM D 992
	Sulfides, 10 PPM maximum	APHA 426 D

D. Polyurethane Foam

Use foam approved for commercial use in Georgia that meets the following requirements:

Minimum density 1.5 lbs/ft^3 (24 kg/m^3)	ASTM D 1622
Compressive strength perpendicular 16 psi (110 kPa) @ 6 percent	ASTM D 1621

E. Polypropylene Fluted Sheets

Use “plastic cardboard” ultra-violet stabilized sheets that are at least 48 in (1.2 m) long. Score or grease sheets to fold around piling and into H-pile web. When adding sections, use at least a 3 in. (75 mm) (shingle style) overlap.

F. Duct Tape

Use duct tape to patch and secure plastic cardboard and polyurethane. Keep duct tape from grease or pile. Use duct tape in sandy backfill to seal overlaps and prevent sand infiltration.

551.2.01 Delivery, Storage, and Handling

General Provisions 101 through 150.

551.3 Construction Requirements

551.3.01 Personnel

General Provisions 101 through 150.

551.3.02 Equipment

General Provisions 101 through 150.

551.3.03 Preparation

General Provisions 101 through 150.

551.3.04 Fabrication

General Provisions 101 through 150.

551.3.05 Construction

When the Plans require, protect end bent piles from negative skin friction by using one of the following methods.

A. Method A

After driving the end bent piles and before installing the earth reinforcing elements:

1. Place a cylindrical can over each pile to prevent the earth wall backfill material from contacting the pile.
   Use a can large enough in diameter to give a 1in (25 mm) minimum clearance from the pile to the inside of the can.
2. Place a spacer between the pile and the can to prevent the can from contacting the pile during wall backfilling. Extend the cans from the bottom of the earth-stabilized backfill to the bottom of the bridge end bent cap.
3. After positioning the cans, seal them at the top while backfilling to keep rubbish or aggregate out of the can. Keep the cans sealed until fill settlement time has expired.
4. When the wall backfill has reached the bottom of the cap and fill settlement time has expired, fill the cans with aggregate.

B. Method B

Cover the piles with the following amounts of corrosion-inhibiting grease as follows:

- Steel piling = 1/16 in (2 mm) minimum
- Concrete piling = 1/4 in (6 mm) minimum

1. Apply grease only after driving the piles. Treat only the pile portion that will be in contact with the wall backfill.
2. In addition to the grease, install a urethane or polypropylene sleeve to protect the grease coating from the backfill.
3. Use spray-on or preformed sleeves. Replace portions of the sleeve damaged or removed by construction activities during backfill.

551.3.06 Quality Acceptance

General Provisions 101 through 150.

551.3.07 Contractor Warranty and Maintenance

General Provisions 101 through 150.

551.4 Measurement

No separate measurement for payment will be made of the materials and labor required to conform with this Specification.

551.4.01 Limits

General Provisions 101 through 150.

551.5 Payment

No separate payment will be made for pipe protection. Include all costs incurred in complying with this Specification in the price bid for the piling.

551.5.01 Adjustments

General Provisions 101 through 150.

Section 555—Tunnel Liner

555.1 General Description

This work includes:

- Driving a tunnel
- Furnishing and installing steel plates for tunnel liner
- Furnishing and erecting brick portals to close each end of the tunnel, when required
- Pressure grouting

Construct to Plan line, grade, and dimensions, according to the applicable Specifications.

555.1.01 Definitions

General Provisions 101 through 150.

555.1.02 Related References

A. Standard Specifications

Section 608—Brick Masonry

Section 615—Jacking or Boring Pipe

Section 645—Repair of Galvanized Coatings

Section 834—Masonry Materials

Section 844—Steel Pipe

B. Referenced Documents

AASHTO Design Specification for Tunneling

AASHTO Standard Specifications for Highway Bridges, Section 26

Manual on Uniform Traffic Control Devices

ASTM A 569/A 569M

555.1.03 Submittals

A. Special Permit Application

Before working with explosives, apply to the Department for a special permit. This permit will be in addition to a tunneling permit not involving explosives.

Special permits will be issued when the proposed operational procedures outlined in the permit form are submitted and approved.

B. Design Data

For Projects not under Contract to the Department but are being performed under permit, the owner shall submit complete design data including working or Shop Drawings for approval before receiving the permit. Include the following applicable design data:

- Design data as required by AASHTO design specification for tunneling
- Subsoil surveys, including the elevation of the water table and the classification and relative density of the soils from the ground line to 3 ft (1 m) below the tunnel liner