

Series 100 – Earthwork

Item No. 120S Channel Excavation

120S.4 Construction Methods (paragraph 3)

Unsuitable excavated materials or excavation in excess of that needed for construction shall be known as "Waste" and shall become the property of the Contractor. It shall become **his the Contractor's** sole responsibility to dispose of this material off the limits of the right of way in an environmentally sound manner at a permitted disposal site.

Series 200 – Subgrade and Base Construction

Item No. 203S Lime Treatment for Materials in Place

203S.4 Equipment (paragraph 2)

During the conduct of the Work all in-use machinery, tools and equipment shall be maintained in a satisfactory and **professional workmanlike** manner.

203S.5 Construction Methods

A. General (paragraph 3)

It is the primary requirement of this specification to secure a completed course of treated material, which contains a uniform lime mixture at the rate specified on the drawings or directed by the Engineer or designated representative, is free from loose or segregated areas, exhibits uniform density and moisture content, is well bound for its full depth and displays a smooth surface suitable for placement of subsequent courses. It shall be the responsibility of the Contractor to: regulate the sequence of **his the Contractor's** work, use the proper amount of lime, maintain the work and rework the courses as necessary to meet the above requirements.

Item No. 204S Portland Cement Treatment for Materials in Place

204S.3 Materials

B. Portland Cement

Portland cement shall be either Type 1, 1P or II and shall conform to TxDOT Standard Specifications for Construction and Maintenance of Highways, Streets, and Bridges Item No. 524.

The Contractor, **at his option,** may use bag or bulk cement.

204S.6 Construction Methods

D. Application of Cement (Roadmix)

It shall be the responsibility of the Contractor to (1) regulate the sequence of **his the Contractor's** work, (2) process a sufficient quantity of material to provide full depth as indicated on the Drawings, (3) use the proper amount of Portland cement, that is established by the approved job mix design or approved by the Engineer or designated representative and (4) maintain the work and rework the courses as necessary to meet the design strength requirements.

204S.7 Curing

A. Protection and Cover (*paragraph 4*)

If the Contractor elects to use this method, it shall be **his the Contractor's** responsibility to protect the asphalt membrane from being picked up by traffic by either sanding or dusting the membrane surface. The asphalt membrane may remain in place when the proposed surface or other base courses are placed.

204S.10 Maintenance

The Contractor shall be required, within the limits of **his the** contract, to maintain the cement treated course in good condition until all work has been completed and accepted. Maintenance shall include immediate repairs of any defects that may occur. This work shall be done by the Contractor at **his the Contractor's** own expense and repeated as often as may be necessary to keep the area continuously intact. Any improper, insufficient or faulty work shall be replaced to the full depth of treatment.

Item No. 206S Asphalt Stabilized Base

206S.7 Construction Methods

D. Density Control. (*paragraph 8*)

The Contractor is encouraged to perform supplemental nuclear density compaction testing for **his the Contractor's** own information to aid in developing rolling patterns.

Series 300 – Street Surface Courses

Item No. 302S Aggregates for Surface Treatments

302S.6 Equipment For Precoating Aggregate (paragraph 3)

If the Engineer or designated representative approves the use of emulsion as a precoat material, **he the Engineer or designated representative** may also waive the requirement for a dryer, as specified below, if it is demonstrated that a satisfactory coating can be obtained without drying or heating the aggregate.

Item No. 312S Seal Coat

312S.5 Construction Methods

F. Brooming and Rolling and Rolling

Rolling shall be started as soon as sufficient aggregate is spread to prevent pick-up and continued until no more aggregate can be worked into the surface. The surface shall be blanket rolled. The Contractor shall arrange **his the Contractor's** work so that all rolling of all cover aggregate applied that day is accomplished with a minimum of four complete coverages with pneumatic rollers prior to sundown.

Item No. 315S Milling Asphaltic Concrete Pavement and Non-Portland Cement Concrete Bases

315S.4 Construction Methods

A. General.

The pavement surface shall be removed for the length, depth and width and to the typical section shown on the Drawings, and to the lines and grades established by the Engineer or designated representative. The planed surface shall provide a satisfactory riding surface free from gouges, continuous longitudinal grooves, ridges, oil film and other imperfections **of workmanship** and shall have a uniform textured appearance.

Item No. 316S
Polymerized Asphalt Interlayer Seal

316S.5 Construction Methods

E. Brooming and Rolling

Rolling shall be started as soon as sufficient aggregate is spread to prevent pick-up and continued until no more aggregate can be worked into the surface. The surface shall be blanket rolled. The Contractor shall arrange ~~his~~ **the Contractor's** work so that all rolling of all cover aggregate applied that day is accomplished prior to sundown with a minimum of four complete coverages with pneumatic rollers.

Item No. 340S
Hot Mix Asphaltic Concrete Pavement

340S10 Construction Methods

B. Tack Coat: *(paragraph 2)*

During the application of tack coat, care shall be taken to prevent splattering of adjacent pavement, curb and gutter and structures. Before the Work can be accepted, all splatter shall be removed by the Contractor at ~~his own~~ **the Contractor's** expense.

340S.11 Sampling and Testing *(paragraph 6)*

The Engineer or designated representative may alter, increase or waive the testing schedule to ensure material and ~~workmanship compliance~~ **quality of work comply** with specification requirements. Acceptability of the completed pavement shall be based on the average of test results for the Project as defined in Section 340S.12, "Acceptance Plan" of this item.

Item No. 341S
Paving Fabric

341S.3 Material

C. Paving Fabric

Fabric shall be constructed exclusively of ~~man-made~~ thermoplastic fibers. These fibers may be oriented in the fabric in either a random or an aligned orientation and the fibers may be either continuous or discontinuous throughout the fabric.

360S.3 Materials

A. Cementitious Materials

Portland cement shall conform to ASTM C 150, Type I (General Purpose) and Type III (High Early Strength). Type III cement shall be used when high early strength concrete is indicated on the Drawings. If the use of high early cement is not specified and the Contractor desires to use it, **he the Contractor** shall obtain written permission from the Engineer or designated representative prior to its use and shall assume all additional costs incurred by the use of such cement. All cement shall be of the same type and from the same source for a project unless written permission is first received from the Engineer or designated representative.

360S.4 Equipment

C. Transit-mix Trucks (*paragraph 2*)

A portion of the mixing water, required by the batch design to produce the desired slump, may be withheld and added at the job site, but only with permission of the Engineer and under **his the Engineer's** supervision. When water is added at the job site, 25 revolutions (minimum) at mixing speed, will be required to flush down the blades after charging shall be accurately measured and included in the quantity of mixing water. The introduction of the initial mixing water, except blade wash down water and that permitted in this Article shall be prior to or simultaneous with the charging of the aggregates and cementitious material.

360S.5 Proportioning of Concrete

D. Mix Design

The Contractor shall perform at **his the Contractor's** own expense and be responsible for the design of the concrete mix. The mix design shall be prepared and sealed by a person qualified and experienced in such work. Establish proportions on the basis either of laboratory trial batches or of field experience with the materials to be employed.

360S.7 Concrete Mixing and Placing

C. Placement (*paragraph 3+4*)

When concrete is being placed in cold weather, the Contractor shall have available a sufficient supply of an approved covering material to immediately protect concrete if the air temperature falls to 32°F (0°C) or below, before concrete has been placed 4 hours. Such protection shall remain in place during the period the temperature continues below 32°F (0°C) or for a period of not more than 5 days. Neither salt nor other chemical admixtures shall be added to the concrete to prevent freezing. The Contractor shall be responsible for the quality and strength of concrete under cold weather conditions and any concrete damaged by freezing shall be removed and replaced at **his the Contractor's** expense.

Concrete shall not be placed before sunrise and shall not be placed later than will permit finishing of the pavement during sufficient natural light.

Concrete shall be placed only on approved subgrade or subbase and unless otherwise indicated on the drawings, the full width of the pavement shall be constructed monolithically. The concrete shall be deposited on the subgrade or subbase in such manner as to require as little rehandling as possible. Where hand spreading is necessary, concrete shall be distributed to the required depth by use of shovels. The use of rakes will not be permitted. ~~Workmen~~ **Workers** will not be permitted to walk in the concrete with any earth or foreign material on their boots or shoes. The placing of concrete shall be rapid and continuous.

E. Joints

1. General (paragraph 3)

~~Careful workmanship~~ **Care** shall be exercised ~~in~~ **during** the construction of all joints to insure that the concrete sections are completely separated by an open joint or by the joint materials and to insure that the joints will be true to the outline indicated on the drawings. The Contractor shall install joint materials, which will function as a compatible system. Joint sealer shall not be placed where a bond breaker is present.

I. Machine Finishing (*paragraph 12*)

After completion of texturing and about the time the concrete becomes hard, the edge of the slab and joints shall be carefully finished with an edger ~~in a workmanlike manner~~ and the pavement shall be left smooth and true to line.

J. Hand Finishing (*paragraph 3*)

~~Workmen~~ **Workers** shall operate the float from approved bridges riding on the forms and spanning the pavement. The longitudinal float shall be held in contact with the surface and parallel to the centerline and operated with short longitudinal strokes while being passed from one side of the pavement to the other. If contact with the pavement is not made at all points, additional concrete shall be placed, if required and screed and the float shall be used to produce a satisfactory surface. Care shall be exercised to keep the ends of the float from digging into the surface of the pavement. After a section has been smoothed so that the float maintains contact with the surface at all points in being passed from one side to the other, the bridges may be moved forward half the length of the float and the operations repeated.

L. Curing

1. Waterproofed Paper Curing (*paragraph 4*)

All tears or holes appearing in the paper during the curing period shall be immediately repaired by cementing patches over such defects. It shall be the Contractor's responsibility to prevent damage to paper blankets, which would affect their serviceability and effectiveness as a concrete curing method. Blankets may be

rejected by the Engineer or designated representative at any time ~~when, in his opinion,~~ **if it appears** they do not provide an airtight covering.

2. Polyethylene Film Curing (*paragraph 4*)

All tears or holes appearing in the polyethylene film during the curing period shall be immediately repaired by placing acceptable moisture proof patches over such defects or by replacing the blankets. It shall be the Contractor's responsibility to prevent damage to the film blankets, which would affect their serviceability and effectiveness as a concrete curing method. Blankets may be rejected by the Engineer at any time ~~when, in his opinion,~~ **if it appears** they do not provide an airtight covering.

N. Opening Pavement to Traffic

The pavement shall be closed to traffic, including vehicles of the Contractor, until the concrete is at least 14 days old and has attained an average compressive strength acceptable to the Engineer or designated representative. This period of closure to traffic may be extended if, in the opinion of the Engineer or designated representative, weather or other conditions make it advisable to provide an extension of the time of protection.

At the end of the 14 day period and as long thereafter as ordered by the Engineer or designated representative and if so desired by the Contractor, the pavement may be opened for use by vehicles of the Contractor provided the gross weight (vehicle plus load) of such vehicles does not exceed 14,000 pounds (6350 KGs). Such opening, however, shall in no manner relieve the Contractor from ~~his~~ responsibility for the **Contractor's** work. On those sections of the pavement thus opened to traffic, all joints shall first be sealed, the pavement cleaned and topsoil placed against the pavement edges or behind the curb where turf or vegetation is to be established before permitting vehicles thereon.

After the concrete in any section is 14 days old or as long thereafter as ordered by the Engineer, such section of pavement may be opened to all traffic indicated on the drawings or when so directed by the Engineer or designated representative. On those sections of the pavement thus opened to traffic, all joints shall first be sealed, the pavement cleaned and 4 inches (10 cms) of top soil placed against the pavement edges and all other work performed as required for the safety of traffic. Such opening, however, shall in no manner relieve the Contractor from ~~his~~ responsibility for the **Contractor's** work.

When High Early Strength Concrete, resulting from the use of Type III cement as indicated on the drawings is used, the pavement may be opened to all traffic after the concrete is 7 days old or as long thereafter as ordered by the Engineer or designated representative, subject to the same provisions governing the opening after 14 days as above indicated.

Where the Contractor desires to move any equipment not licensed for operation on public streets, on or across any pavement opened to traffic, ~~he~~ **the Contractor** shall protect the pavement from damage by means of 2 ply timber mats of 2 inch (5 cm) stock or runways of heavier material laid on a layer of earth, all as approved by the Engineer or designated representative.

1. Emergency Opening to Traffic

The Engineer or designated representative may require the opening of pavement to traffic prior to the minimum time specified above under conditions of emergency, which in **his the Engineer's or designated representative's** opinion require such action in the interest of the public. In no case will the Engineer or designated representative order opening of the pavement to traffic within less than 72 hours after the last concrete in the section is placed. The Contractor shall remove all obstructing materials, place earth against pavement edges and perform other work involved in providing for the safety of traffic as required by the Engineer or designated representative in ordering emergency opening. Orders for emergency opening of the pavement to traffic will be issued by the Engineer or designated representative in writing.

Series 400 – Concrete and Structures

Item No. 401S Structural Excavation and Backfill

401S.6 Cofferdams (paragraph 2)

It is the intent of this specification to require that a suitable cofferdam be provided, when necessary, to insure that the foundation may be placed in a dry condition, as to preclude sliding and caving of the walls of the excavation. The cofferdam shall conform with the requirements of Standard Specification Item No. 509S, "Excavation Safety Systems" and shall provide a safe work area with sufficient clearance for the construction, inspection and removal of required forms and, if necessary, sufficient room to allow pumping outside the forms. Where no ground or surface water is encountered, the cofferdam need be sufficient only to protect the **workmen workers** and to avoid cave-ins or slides beyond the excavation limits.

Item No. 403S Concrete for Structures

403S.3 Materials

B. Mixing Water (paragraph 2)

Water from the City of Austin will not require testing. Contractor may request approval of water from other sources. Contractor shall arrange for samples to be taken from the source and tested at **his the Contractor's** expense. When water from other sources is proposed, test reports shall be provided that indicates compliance with Table 1 before use.

403S.6 Mix Design (paragraph 5)

The Contractor shall perform, at **his the Contractor's own** expense, the work required to substantiate the design, including testing of strength specimens. Complete concrete design data shall be submitted to the Engineer or designated representative for approval. The mix design will be valid for a period of one (1) year provided that there are no changes to the component materials.

Item No. 404S
Pneumatically Placed Concrete

404S.2 Submittals

The submittal requirements of this specification item may include:

- A. Mix design of the class (Type I or Type II) of concrete required on the project (encasement, repair, rip-rap, ditch lining),
- B. Application process (wet or dry),
- C. Work experience of the **superintendent, and workers performing specialized tasks foremen, gunmen, nozzle men and rodmen** to be employed on the project, and
- D. Type of Expansion joint material to be used on the project.

404S.5 Construction Methods

- C. Placing of Pneumatically Placed Concrete (*paragraph 4*)

Any sag or other defects shall be corrected to proper section by the Contractor at **his own the Contractor's** expense and as directed by the Engineer or designated representative.

- J. **Workmen Workers**

Only experienced **superintendants and workers performing specialized tasks foremen, gunmen, nozzle men and rodmen** shall be employed and satisfactory written evidence of such experience shall be furnished the Engineer or **his designated** representative upon demand.

Item No. 406S
Reinforcing Steel

406S.7 Splices (*paragraph 8*)

Welding of reinforcing bars may be used only where indicated on the drawings or as permitted herein. All welding operations, processes, equipment, materials, **workmanship quality of work** and inspection shall conform to the requirements indicated on the drawings. All splices shall be of such dimension and character as to develop the full strength of the bar being spliced.

410S.4 General Requirements

Before starting work, the Contractor shall inform the Engineer or designated representative fully of the construction methods ~~he~~ **the Contractor** proposes to use, the adequacy of which shall be subject to the review by the Engineer or designated representative. Drawings for forms and falsework for piers and superstructure spans over 20 feet (6 meters) long, bracing systems for girders when the overhang exceeds 3 ft. 6 in. (1 meter) and for all bridge widening details shall be submitted to the Engineer or designated representative for review, if requested. Similar drawings shall be submitted for other units of the structure, if requested by the Engineer or designated representative. The drawings shall be prepared on standard 22 inch by 36-inch (550mm by 900 mm) sheets and shall show all essential details of the proposed forms, falsework and bracing to permit a structural analysis. Four sets of such drawings will be required.

Concurrence on the part of the Engineer or designated representative in any proposed construction methods, approval of equipment or of form and falsework drawings does not relieve the Contractor of the responsibility for the safety or correctness of ~~his~~ **the Contractor's** methods, ~~and~~ adequacy of ~~his~~ equipment or from carrying out the work in full accordance with the contract.

410S.8 Foundation and Substructure *(paragraphs 3+4)*

Where a concrete seal is indicated on the Drawings, the design will be based on the normal water elevation as indicated on the Drawings. If the foundation concrete can be placed in the dry at the time of construction, the seal will not be required. If additional seal is necessary for the conditions existing during the time of construction, its thickness shall be increased as deemed necessary by the Contractor and at ~~his~~ **the Contractor's** expense. If the conditions existing at the time of construction require a seal for placing the foundation concrete in the dry and none is indicated on the Drawings, the Contractor shall place an adequate seal at ~~his~~ **the Contractor's** expense.

The seal shall be allowed to set for at least 36 hours before the caisson or cofferdam is dewatered, after which the top of the seal shall be cleaned of all laitance or other soft material and all high spots exceeding the above limitation shall be cut off and removed.

410S.9 Falsework

The Contractor is totally responsible for all falsework. ~~He~~ **The Contractor** shall design and construct it to safely carry the maximum anticipated loads and to provide the necessary rigidity. Details of falsework construction shall be subject to review by the Engineer or designated representative, but Engineer's review shall in no way relieve the Contractor of responsibility of the adequacy and safety of the falsework design.

410S.22 Placing Survey Monuments

The Contractor shall obtain City Survey Monuments, for a fee of 10 dollars, from the Department of Public Works, Construction Inspection Division. Monuments shall be embedded in freshly poured concrete at locations indicated on the drawings and accessible to survey

equipment at the completion of the project. The monuments shall be installed flush with the adjacent concrete ~~in a workman like manner.~~

410S.26 Finishing Exposed Surfaces

B. Rubbed Finish (*last paragraph*)

If the Contractor elects to use epoxy paint in lieu of the second rubbings ~~he~~ **the Contractor** may do so upon approval of the Engineer or designated representative.

Item No. 420S Drilled Shaft Foundations

420S.4 Construction Methods

(1) Excavation (*paragraph 19*)

In order that the Engineer or designated representative may judge the adequacy of a proposed foundation, the Contractor, if requested, shall make soundings or take cores at ~~his~~ **the Contractor's** expense to determine the character of the supporting materials. The depth of such soundings or cores will not be required to exceed 5 feet (1.5 m) below the proposed footing grade. It is the intent of this provision that soundings shall be made or cores taken at the time the excavation in each foundation is approximately complete.

Item No. 424S Prestressed Concrete Planks

424S.5 Handling, Hauling and Erection

The Contractor ~~and his Fabricator~~ shall be responsible for proper handling, lifting, storing, hauling and erection of all members so that they may be placed in the structure without damage.

424S.7 Quality of Work ~~Workmanship~~

Concrete shall be placed in the forms and spaded, tamped or vibrated until thoroughly compacted and until it entirely covers the surface and has a monolithic finish. The top surface shall be floated and troweled to a uniform smooth surface, then finished with a camel hairbrush or wood float to a gritty texture. The outer edges and joints shall be rounded with approved tools to the radius indicated.

Item No. 425S
Prestressed Concrete Structures

425S.3 General (*paragraphs 7+8*)

- A. Casting Schedule shall be prepared on a form, approved by the Engineer or designated representative, and submitted to the Engineer or ~~his duly authorized~~ **designated representative**, prior to stressing.

The design of casting beds and facilities for pretensioned construction indicated in the drawings, shall be ~~done~~ **designed and sealed** by a Licensed Professional Engineer registered in the State of Texas ~~and shall bear his or her seal~~. The Contractor (Fabricator) shall furnish a certificate bearing his signature or that of a responsible Office of the Company, that the bed, facilities and hardware have been constructed in accordance with the above Drawings and specifications. The Contractor (Fabricator) shall specify the maximum loading for which the bed is to be used. Prior to approval for that loading, the facilities shall be proof-loaded to a minimum 10 percent overload for 8 hours. Additional proof loads shall be performed every 12 months at a 10 percent overload for 4 hours, if deemed necessary by the Engineer or designated representative. Minor changes in facilities will not require proofloading but will require submission of the details of changes accompanied with design calculations.

425S.8 Workmanship Quality of Work and Tolerance

Reinforcing steel shall not project above the top of the member more than 1/2 inch (12.7 mm) or less than 3/4 inch (19 mm) from plan dimension. In the plan of the steel parallel to the nearest surface of concrete, bars shall not vary from plan placement by more than 1/4 inch (6.4 mm) or 1/12 (2.1 mm) of the spacing between bars, whichever is greater. In the plane of the steel perpendicular to the nearest surface of concrete, bars shall not vary from plan placement by more than 1/4 inch (6.4 mm) .

Item No. 438S
Elastomeric Materials

438S.3 Materials

- (1) Elastomeric Bearings

- (c) Formulation Prequalification and Certification

All bearings furnished by the Contractor shall be produced by a bearing manufacturer who has previously submitted the required prequalification test samples and certification and whose elastomer formulation has been initially approved for use by the Engineer or designated representative. Each elastomer formulation produced by a manufacturer must be approved by the Engineer or designated representative prior to its first use on Department projects. To prequalify and obtain initial approval of a particular formulation, the bearing manufacturer shall submit to the Engineer or designated representative, well in advance of anticipated use of ~~his~~ **the manufacturer's** product, certified test results of actual test values

obtained when the physical properties of the elastomer to be furnished were tested for compliance with the pertinent specifications.

Series 500 – Pipe and Appurtenances

Item No. 501S Jacking or Boring Pipe

501S.4 Construction Methods

A. General (paragraph 6)

During construction operations, and until the work pits are backfilled and fill material compacted, traffic barricades and warning lights to safeguard traffic and pedestrians shall be furnished and maintained by the Contractor. The Contractor shall submit the proposed pit location and traffic control plan for review by the Engineer or designated representative. The Review by the Engineer or designated representative, however, will not relieve the Contractor ~~from his~~ **of the** responsibility to obtain specified results in a safe, ~~workmanlike~~ **professional** manner.

C. Boring

The boring shall proceed from a work pit provided for the boring equipment and **workers** ~~workmen~~. Excavation for the work pits and the installation of shoring shall be as outlined in the Trench Safety Plan. The location of the pit shall be approved by the Engineer or designated representative. The boring shall be done mechanically using either a pilot hole or the augur method.

Item No. 509S Excavation Safety Systems

509S.2 Definitions (paragraph 2)

An "Excavation" shall mean any ~~man-made~~ cut, cavity, trench, or depression in an earth surface, formed by earth removal ~~made by the Contractor~~. The Contractor shall provide an Excavation Safety System for all excavations except when 1) the excavation is in stable rock as determined by the Texas-licensed Professional Engineer who prepared the Contractor's Excavation Safety System Plan or 2) the excavation is less than 5 feet (1.52 m) in depth and examination of the ground by the Contractor's competent person provides no indication of a potential cave-in.

510.2 Materials

(8) Pipe

(o) Corrugated Metal Pipe

5. Additional Coatings or Linings

c. Cement Lined

(2) Causes for Rejection

Pipe shall be subject to rejection on account of failure to conform to any of the indications. Individual sections of pipe may be rejected because of any of the following:

Damaged ends, where such damage would prevent making satisfactory joint.

Defects that indicate poor quality of work ~~workmanship~~ and could not be easily repaired in the field.

Severe dents or bends in the metal itself.

If concrete lining is broken out, pipe may be rejected or at the discretion of the E/A, repaired in the field in accordance with the manufacturer's recommendation.

Hairline cracks or contraction cracks in the concrete lining are to be expected and does not constitute cause for rejection.

510.3 Construction Methods

(1) General (*paragraphs 2,3+7*)

The Contractor shall ~~conduct his~~ Work such that a reasonable minimum of disturbance to existing utilities will result. Particular care shall be exercised to avoid the cutting or breakage of all existing utilities. If at any time the Contractor's operations damages the utilities in place ~~through his operations~~, the Contractor shall immediately notify the owner of the utility to make the necessary repairs. When active wastewater sewer lines are cut in the trenching operations, temporary flumes shall be provided across the trench while open and the lines shall be restored when the backfilling has progressed to the original bedding lines of the sewer so cut.

The Contractor shall inform utility owners sufficiently in advance of the Contractor's operations to enable such utility owners to reroute, provide temporary detours or to make other adjustments to utility lines in order that the Contractor may ~~proceed with his~~ Work with a minimum of delay and expense. The Contractor shall cooperate with all utility owners concerned in effecting any utility adjustments necessary and shall not hold the City

liable for any expense due to delay or additional Work because of conflicts arising from existing utilities.

...

Adequate temporary support, protection and maintenance of all underground and surface utility structures, drains, sewers and other obstructions encountered in the progress of the Work shall be furnished by, and at the expense of, the Contractor, ~~at his expense~~ and as approved by the E/A.

(12) Lines and Grades (*paragraphs 2+3*)

The location of the lines and grades indicated may be changed only by direction of the E/A and it is understood that the Contractor will be paid for Work actually performed on the basis of his the unit Contract prices ~~bid for such Work actually performed~~ and shall make no claim for damages or loss of anticipated profits due to the change of location or grade.

~~The Contractor shall furnish and pay for, at his expense,~~ all necessary batter boards or electronic devices for controlling the Work shall be furnished by, and at the expense of, the Contractor. Batter boards shall be of adequate size material and shall be supported substantially. The boards and all location stakes must be protected from possible damage or change of location. The Contractor shall furnish good, sound twilled lines for use in achieving lines and grades and the necessary plummets and graduated poles.

(24) Potable or Reclaimed Water System Connections

~~The Contractor shall, at his expense, make~~ all necessary connections of new piping or accessories to the existing potable or reclaimed water system shall be made by, and at the expense of, the Contractor. To minimize any inconvenience from outages, the Contractor shall schedule all such connections in advance and such schedule must be approved by the E/A before beginning any Work.

(c) Pressure Taps to Existing Potable or Reclaimed Water System (*paragraph 2*)

Unless otherwise provided by the Contract, the Contractor shall, at the Contractor's ~~his~~ expense, perform all necessary excavation, furnish and install the tapping sleeve, valve and accessories, provide the tapping machine, drill the tap and shall block, anchor and backfill the piping, valve and all accessories, place the new piping in service and perform all site cleanup. When the City makes the tap, City forces are not obligated or expected to perform any Work except to provide tapping machine and drill the actual hole. If City crews are to make the tap, fiscal arrangements must be made in advance at the Taps Office, Waller Creek Center, 625 East 10th Street.

(e) Backfill in County Street or State Highway Right of Way

All Work within the right of way shall meet the requirements of (d) above, as a minimum and shall meet the requirements of the permit issued by the County when their requirements are more stringent. Prior to the start of construction, the Contractor shall be responsible for contacting the appropriate TxDOT office or

County Commissioner's Precinct Office and ~~using for coordinating his activities with~~ the operating procedures in effect for utility cut permits and pavement repair under their jurisdiction. Approval for all completed Work in the State or County right of way shall be obtained from the appropriate Official prior to final payment by the Owner.

(26) Quality Testing for Installed Pipe

(f) Deflection Test

Deflection tests shall be performed by the Contractor on all flexible and semi-rigid wastewater pipes. The tests shall be conducted after the final backfill has been in place at least 30 days. Testing for in-place deflection shall be with a pipe mandrel at 95% of the inside diameter of the pipe. A second test of flexible and semi-rigid wastewater pipes 18 inch size and larger, also with a pipe mandrel sized at 95% of the inside diameter of the pipe, shall be conducted by the Contractor 30 days ~~prior to expiration of his~~ **before the** warranty **expires** on the **Contractor's** Work.

Contractor shall submit **his** proposed pipe mandrels to the E/A or **the E/A's** **his** designated representative for concurrence prior to testing the line.

Test(s) must be performed without mechanical pulling devices and must be witnessed by the E/A or **the E/A's** **his** designated representative.

Any deficiencies noted shall be corrected by the Contractor and the test(s) shall be redone.

(27) Pressure Pipe Hydrostatic Testing

(a) Pressure Test

The entire project or each valved section shall be tested, at a constant pressure of 200 psi for a sufficient period (approximately 10 minutes) to discover defective materials or **substandard work** **workmanship**. The Contractor assumes all risks associated with testing against valves. Repairs shall be made by the Contractor to correct any defective materials or **substandard work** **workmanship**. The Contractor shall pre-test new lines before requesting pressure tests by City Forces. The Contractor shall have new lines pressurized to a minimum of 100 psi, on the date of testing, prior to arrival of City Forces.

(b) Leakage Test

(2) Location and Correction of Leakage

If such testing discloses leakage in excess of this specified allowable, the Contractor, at **his** **the Contractor's** expense, shall locate and correct all defects in the pipeline until the leakage is within the indicated allowance.

All visible leakage in pipe shall also be corrected by Contractor at **his** **own** **the Contractor's** expense.

(29) Disinfection of Potable Water Lines

(c) Procedure and Dosage (*paragraph 2*)

One connection to the existing system will be allowed with a valve arranged to prevent the strong disinfecting dosage from flowing back into the existing water supply piping. The valve shall be kept closed and locked in a valve box with the lid painted red. No other connection shall be made until the disinfection of the new line is complete and the water samples have met the established criteria. The valve shall remain closed at all times except when filling or flushing the line and must be **manned** **staffed** during these operations. Backflow prevention in the form of a reduced pressure backflow assembly must be provided if the valve is left unattended. The new pipeline shall be filled completely with disinfecting solution by feeding the concentrated chlorine and approved water from the existing system uniformly into the new piping in such proportions that every part of the line has a minimum concentration of 50 mg/liter available chlorine.

(30) Cleanup and Restoration (*paragraph 2*)

Materials at the site shall be stored in a neat and orderly manner so as not to obstruct pedestrian or vehicular traffic. All damaged material shall be removed from the construction site immediately and disposed of in a proper manner. All surplus excavated materials shall become the property of the Contractor for disposal at **the Contractor's** **his** expense. After trenching, the Contractor shall immediately remove all excavated materials unsuitable for or in excess of, backfill requirements. Immediately following the pipe laying Work as it progresses, the Contractor shall backfill, grade and compact all excavations as provided elsewhere. The backfill placed at that time shall meet all compaction test requirements. The Contractor shall immediately clean up and remove all unused soil, waste and debris and restore all surfaces and improvements to a condition equal or superior to that before construction began and to an appearance which complements the surroundings. The Contractor shall grade and dress the top 6 inches of earth surfaces with soil or other material similar and equal to the surrounding, fill and smooth any visible tracks or ruts, replace and re-establish all damaged or disturbed turf or other vegetation and otherwise make every effort to encourage the return of the entire surface and all improvements to a pleasant appearance and useful condition appropriate and complementary to the surroundings and equal or similar to that before construction began.

Item No. 511S
Water Valves

511S.2 Materials

B) Other Requirements:

Each submittal shall be accompanied by:

1) Complete data covering:

- a). the operator, including type and size, model number, etc.,

- b). the manufacturer's name and address of ~~his~~ the manufacturer's nearest service facility,
- c). the number of turns to fully open or close the valve.

Item No. 558
Structural Plate Structures

558.2 Materials and Manufacture

(1) Plates (*paragraph 5*)

Plates shall be formed to provide bolted lap joints. The bolt holes shall be so punched that all plates having like dimensions, curvature and the same number of bolts per foot of seam shall be interchangeable. Each plate shall be curved to the proper radius so that the cross sectional dimensions of the finished structure will be as indicated. Joints shall be staggered so that not more than 3 plates are jointed at any one point. Unless otherwise indicated, bolt holes along those edges of the plates that will form longitudinal seams in the finished structure shall be (a) staggered in rows 2 inches apart, with 1 row in the valley and 1 in the crest of the corrugations and not less than 4 bolts per foot for galvanized steel structures or (b) in rows 1 3/4 inches apart with 2 bolts in each valley and on each crest and not less than 16 bolts per 3 feet for aluminum alloy structures. Bolt holes along those edges of the plates that will form circumferential seams in the finished structure shall provide for a bolt spacing of not more than 12 inches. The minimum distance from center of hole to edge of the plate shall be not less than 1 3/4 times the diameter of the bolt. The diameter of the bolt holes in the longitudinal seams shall not exceed the diameter of the bolt by more than 1/8 inch. Plates for forming skewed or sloped ends shall be cut so as to give the angle of skew or slope specified. Burned edges shall be free from oxide and burrs, shall present a proper workmanlike finish and legible identification numerals shall be placed on each plate to designate its proper position in the finished structure.

558.3 Visual Inspection

The Contractor shall furnish an itemized statement of the number and size of plates in each shipment. From this list a visual inspection shall include an examination of the plates for deficiency in size, radius of curvature specified and any evidence of poor workmanship as outlined herein. The inspection may include the taking of samples for chemical analysis and determination of weight of spelter coating. The plates making up the shipment shall fully meet the requirements of these specifications. Any plates failing to do so will be rejected.

558.5 Quality of Work ~~Workmanship~~

Structural plates on which the spelter coating has been damaged or which show substandard work ~~defective workmanship~~, shall be rejected, except that damaged areas of spelter coating deemed by the Engineer to be of a minor nature may be repaired by painting with a zinc dust-zinc oxide paint conforming to individual plates but to the shipment as a whole. The following defects indicate substandard work ~~are considered to be poor workmanship. The~~ and their presence ~~of any or all of them~~ in any individual structure plate will be cause for rejection:

Item No. 591S
Riprap for Slope Protection

591S.4 Construction Methods *(paragraph 2)*

Unsuitable excavated materials or excavation in excess of that needed for construction shall be known as "Waste" and shall become **the Contractor's** the property **of the Contractor** and **it shall become his** sole responsibility to dispose of this material in an environmentally sound manner off the limits of the right of way at a permitted disposal site.

Specification Item No. 594S
Gabions and Revet Mattresses

594S.4 Quality of Work **Workmanship**

Wire of proper grade and quality, when fabricated and installed in the manner herein required, shall result in a strong, serviceable mesh-type product having substantially uniform openings. It shall be fabricated and finished **properly in a workmanlike manner**, as determined by visual inspection, and shall conform to this specification.

Series 600 – Environmental Enhancement

Item No. 608S
Planting

608S.3 General

B. License Requirements

1. Pesticide.

The Contractor shall be a licensed pesticide applicator or shall employ a licensed pesticide applicator for the treatment of insects, diseases, animals as required by the Texas Pesticide Laws and Regulations of the Texas Department of Agriculture. The Engineer or designated representative **can request** **may require** documentation of such certification **as necessary for his record**.

2. Herbicide.

The Contractor shall possess a permit or employ a person who possesses a permit to apply herbicide as required by the Texas Herbicide Law of the Texas Department

of Agriculture. The Engineer or designated representative **can request** ~~may require~~ documentation of such certification ~~as necessary for his records~~.

3. Irrigation.

The Contractor shall possess an irrigator's license issued by the State of Texas and the Texas Board of Irrigators or employ such a licensed irrigator to perform the irrigation system maintenance. The irrigation system shall be maintained under the supervision of the licensed irrigator who shall be available on the site as required by the Engineer or designated representative.

The Engineer **can request** ~~may require~~ documentation of such license ~~for his records~~. The Contractor shall verify and adhere to the requirements and codes of any controlling utility authorities.

608S.5 Construction Methods

H. Vegetative Watering

During the planting operations, the Contractor shall keep the ground and backfill material moist to at least 12 inches (300 mm) around the root ball. The Contractor shall be required to meet the minimum watering requirements shown on the Drawings for all circumstances by a method approved by the Engineer or designated representative. When an irrigation system is shown on the Drawings, the Contractor shall coordinate **all his** work to insure that the irrigation system is operational as the plants are installed.

P. Maintenance and Initial Plant Replacement (*paragraph 2*)

If the Contractor completes the initial planting prior to March 1 for balled and burlapped and bare root plants or April 1 for bag grown plants, **he the Contractor** will be required to replant all material found to be missing, damaged or dead during this time. This replanting shall be done between March 1 and March 15 for balled and burlapped and bare root plants, between April 1 and April 15 for bag grown plants or as directed by the Engineer or designated representative.

**Item No. 627S
Grass-Lined Swale**

627S.1 Description

This item governs natural or **constructed** ~~man-made~~ drainage ways of parabolic or trapezoidal cross section that are located below adjacent ground level and is stabilized by suitable vegetation (Environmental Criteria Manual Section 1.4.3.B). The flow is normally wide and shallow and conveys the runoff down the slope.

Item No. 646S
Tied Precast Concrete Revetment

646S.4 Construction Methods (*paragraph 6*)

Fabric shall be placed directly on the ground surface. Longitudinal and transverse joints shall be overlapped at least 3 feet (0.9 meter). ~~Workmen~~ **Workers** placing the fabric may walk on the fabric. However, equipment shall be prohibited from operating on it.

Series 700 – Incidental Construction

Item No. 700S
Mobilization

700S.3 Payment.

Partial payments of the "Initial Mobilization Payout" shall be as follows:

- B. The Mobilization of tunnel boring machines, batch plants or other similar facilities, along with supporting materials and equipment, to the work site or to the vicinity of the Work site will be considered as partial Mobilization under this contract. The Contractor shall provide a certified statement of ~~his~~ **the Contractor's** expenditure for the Mobilization and setup of the facility and supporting equipment. Upon approval by the Engineer or designated representative, the certified expenditure will be paid from the amount bid for the Specification Item, "Total Mobilization Payment". In no case shall the combined amount for all of these facilities be more than 10 percent of the Mobilization "Total Mobilization Payment" lump sum bid or one (1) percent of the total contract amount, whichever is less.

Item No. 701S
Fencing

701S.3 Materials

E. Metal Posts, Top Rails, Braces and Gates

11. Galvanizing (*paragraph 6*)

Damaged spelter coating shall be repaired by thoroughly wire brushing the damaged area and removing all loose, cracked or weld-burner spelter coating. The cleaned area shall be painted with 2 coats of zinc oxide-zinc dust paint conforming to the requirements of Federal Specification TT-P-641B. The paint shall be furnished at **the Contractor's** ~~his~~ expense.

**Item No. 704
Metal Beam Guard Railing**

704.1 Description

This item shall consist of furnishing metal beam guard railing consisting of 1 line of metal beam rail element supported on timber or steel posts. Metal beam guard railing shall be constructed ~~with~~ ~~of~~ materials and ~~work quality~~ ~~workmanship as~~ indicated or ~~as~~ approved by the Engineer.

**Item No. 710S
Bicycle Racks**

710S.2 Submittals

The submittal requirements of this specification item include:

- D. Complete manufacturer's warranty against defects ~~and workmanship~~ for a period not less than one year from date of installation.

**Item No. 720S
Metal for Structures**

720S.4 Miscellaneous Steel

- L. Pipe Rail (paragraph 2)

If cold pressed, the design of the press and dies shall result in a pipe of uniform section and free from die marks. After the pipe has been formed to the required section, it shall be cut to the lengths required. The end cuts and notches shall be made at such angles with the axis of the pipe as required to produce vertical end faces and plumb posts when indicated. Cutting and notching of pipe shall be done with a saw or machine guided torch or other means that will insure a neat and ~~workmanlike~~ **uniform** finish.

**Item No. 721S
Steel Structures**

721S.2 Submittals

- D. Product Data

- 2. Quality Control

- a. The Contractor shall provide, if requested, facilities ~~for the inspection of materials and workmanship~~ in the shop and ~~furnish~~ as many helpers as needed, **for the Inspector** to properly inspect the **materials and** work **quality**. The Inspector shall be allowed free access to the necessary parts of the work.

721S.3 Delivery, Storage, and Handling

- D. The handling of material, fabrication, blocking of partially completed members, and movement of completed members shall be done in such a manner that the safety of ~~workmen~~ workers and inspection personnel will not be impaired at any time.

721S.4 Quality of Work ~~Workmanship~~

721S.5 Execution

B. Repair of Defects

3. Occasional notches, gouges, or defects in oxygen cut edges of ASTM A514 (A514M) and A517 (A517M) steel may be repaired by welding when approved by the Engineer or designated representative under the following conditions:
 - b. Cutting defects not more than 3/16 inch (4.8 mm) deep in plate edges which will form a fillet-welded corner joint shall be repaired by welding only on the part of the edge which will become the faying surface for the joint and the fusion zone of the fillet weld. The part of the defect outside the toe of the completed fillet weld shall be removed by machining or grinding and faired to the oxygen cut surface with a slope not exceeding 1 in 10. If the actual net cross-sectional area which would remain after removal of the discontinuity is 98 percent or greater than the area of the plate based on nominal dimensions, weld repairs shall be made as specified above using E11018-M electrodes and grinding the completed weld smooth and flush with the adjacent surface to produce a ~~workmanlike~~ proper finish.

721S.7 Welded Members

A. General

1. All welding operations, processes, equipment, materials, qualifications of welders, quality of work ~~workmanship~~, nondestructive testing, and inspection shall conform to Item No. 723S – “Structural Welding”, AWS D1.1 (D1.1M), AWS D1.5 (D1.5M), and the Shop Drawings.
2. Unless otherwise indicated, nondestructive testing (magnetic particle and radiographic) required in the shop will be done by, and at the expense of, the Contractor ~~and at his expense~~. This will include furnishing all materials, equipment, tools, labor and incidentals necessary to perform the required testing.
3. All magnetic particle inspection and all radiographic inspection shall be done in the presence of and at the locations selected by the Engineer or ~~his~~ authorized designated representative. The Engineer or designated representative shall examine and interpret all tests made.

722S.6 Application of Protective Coatings

C. Application

13. If, in the opinion of the Engineer or designated representative, construction traffic produces an objectionable amount of dust, the Contractor shall, at ~~his own~~ **the Contractor's** expense, take precautions necessary to prevent dust and dirt from coming in contact with freshly coated surfaces or with surfaces before the coating is applied.

D. Improperly Applied Protective Coatings

2. All protective coatings which have been applied improperly, applied to improperly cleaned surfaces, fail to dry and harden properly, fail to adhere tightly to underlying material or other parts of the coating system, or do not evidence a normal **workmanlike** appearance in conformance with these specifications, shall be repaired or completely removed and replaced ~~at~~.

722S.9 Failure Modes – Causes, Identification, and Repair

Refer to Table A for identification, cause, and repair of common protective coatings failure modes.

TABLE A			
Failure Mode	Identification	Cause	Repair
Biological failure	Softening or slime reaction, blotchy brown or black spots on coating surface causing poor/dirty appearance	Biodegradation of the coating by bacteria or fungi, coating is used as a source of nourishment	Use coatings that contain permanent fungicides, bactericides, or non-biodegradable modifiers
Brush marks	Linear hills and valleys with considerable difference in thickness from hills to valleys, rusting in valleys	Peer workmanship, Application of a very heavy-bodied coating	Brush coating out well, finishing by light brushing in one direction
Chalking	Surface soft and powdery, easily removed by wiping surface	Surface disintegration by the sun, improper pigmentation	Use coatings formulated with radiation-resistant resins and non-catalytic, non-chalking pigments

723.2 General (paragraphs 4+5)

The welder shall identify groove welds made by ~~him~~ the welder with paint or indelible ink.

Welding will not be allowed when air temperature is lower than 20 F, surfaces are wet or exposed to rain, snow or wind or when operators are exposed to inclement conditions that will hamper their performance ~~good workmanship~~.

723.7 Corrections

When ~~welding~~ the weld quality is unsatisfactory ~~or indicates substandard work inferior workmanship~~, the following corrective measures will be required by the Engineer whose specific approval shall be obtained for making each correction.

723.13 Welder Qualification (paragraphs 1,14-18)

All welders shall be certified before working on any material which is to be incorporated into a City project, except for miscellaneous welds as defined below. Each welder must have certification papers conforming to TXDOT Bulletin C-6, showing the type of work ~~for which he the welder~~ is certified to perform ~~conforming to TXDOT Bulletin C-6 and~~ The welder will ~~not only~~ be permitted to do ~~any type of~~ work ~~not~~ covered by such papers.

...

Before welding on ASTM A 514/517 steel, ~~each a~~ welder must present evidence, satisfactory to the Engineer, ~~that he has had~~ of at least 3 months satisfactory experience welding this type of steel over 1 inch thick. In lieu of such experience, ~~each a~~ welder, ~~providing he has~~ previously qualified for welding with low-hydrogen electrodes or has used the proposed welding process, shall have completed a training course in welding ASTM A 514/517 steel prior to taking the welder qualification test.

Tests for certification of welders for manual shielded metal-arc welding shall conform to TXDOT Bulletin C-6. Tests shall be given by an approved laboratory. For field welding, certification by an approved laboratory will be accepted for a period of 1 month from the time of certification. During this period, the welder will be permitted to work on City projects provided his the welder's work is satisfactory. If his the welder's work is satisfactory during this period, the City will issue ~~him~~ certification papers, which will permit the welder to work on City projects, as long as he the welder continues to do satisfactory work.

A welder must have passed the Basic Qualification Test for Structural Welding in the vertical (3G) and overhead position (4G) conforming to TXDOT Bulletin C-6 prior to welding on any load carrying members. Also, he the welder must demonstrate to a City welding

inspector a thorough knowledge of, and ability to consistently implement, the required welding procedures ~~together with his ability and desire to follow them~~ and make welds of sound quality and good appearance. Quality of the welds will be checked by radiography.

To work on field splices of beams and girders, a welder must be certified for and be capable of making groove welds in both the vertical and overhead position when using the manual shielded metal-arc process.

For manual (semiautomatic) gas metal-arc welding or flux cored arc welding, welder qualification tests for certification shall qualify conforming to TXDOT Bulletin C-5 and tested conforming to TXDOT Bulletin C-6 as follows:

1. Basic Test Certification for groove welds for unlimited thickness material will also qualify a welder for any equal or lower strength steel or for fillet welding in the position in which ~~he~~ the welder is certified, using the same electrode and combination of shielding used for the test.

**Item No. 725S
Survey Markers**

725S.6 Payment

This item shall be paid for at the unit bid price per each type of Survey Marker, installed complete in place. The unit bid prices shall include full compensation for all materials, p.c. concrete, labor, workmanship, equipment and incidentals necessary to complete the work, including excavation for installation of the survey marker and p.c. concrete and restoration of the site to the condition necessary for construction of sidewalk or other structures around the survey marker.

Series 800 – Urban Transportation

**Item No. 802S
Project Signs**

802S.3 Installation (paragraph 7)

The Contractor may install, at his the Contractor's own expense, company signs to identify the Contractor, architectural firm, etc. Signs are to be securely attached to the posts at locations indicated on the Drawings and shall not be larger than 18 x 36 inches (0.45 x 0.90 meter).

Item No. 827S
Designated Bicycle Lane Signing

827S.5 Construction Methods

Signs will be installed as indicated on the Drawings or as directed by the Engineer or designated representative. The installation as a whole shall be carried out in conformance with requirements herein stated and with details and dimensions indicated on the Drawings. Upon completion, the work shall present a neat and **uniform workmanlike** appearance.

Item No. 830S
Traffic Signal Controller Foundation

830S.4 Construction Methods (paragraph 3)

Any damage to utilities and/or structures, that occurs as a result of any construction activity performed by the Contractor, shall be repaired by the Contractor's at **his the Contractor's** sole expense. Foundations shall only be paid for once, regardless of extra work caused by obstructions and/or Contractor damage.

Item No. 831S
Traffic Signal Drilled Shaft Foundations

831S.4 Construction Methods

D. Construction Requirements.

3. Any damage to utilities and/or structures, that occurs as a result of any construction activity performed by the Contractor, shall be repaired by the Contractor's at **his the Contractor's** sole expense. Foundations shall only be paid for once, regardless of extra work caused by obstructions and/or Contractor damage.

Item No.832S
Vehicular Traffic Signal Installation

832S.3 Materials

B. LED Lenses

7. WARRANTY (paragraphs 1+4)

The LED traffic signal lamp unit shall be warranted against any failure due to **substandard work workmanship**, material defects or intensity within the first 60 months of field operation. The LED signal shall meet or exceed minimum luminous intensity values (2.3.3) during the 60 months of field operation.

...

The manufacturer shall provide a written warranty against **substandard work and defects in** materials **defects and workmanship** for LED signal modules for a period of 60 months after installation of LED signal modules. Replacement LED signal modules shall be provided within 5 days after receipt of failed LED signal modules at no cost to the State, except the cost of shipping the failed modules.

E. Other Requirements (*paragraph 2*)

The Contractor will include a certificate with **his the Contractor's** bid indicating that the materials and the equipment to be supplied conform to the above specifications.

Item No. 834S
Traffic Signal Pull Boxes

834S.4 Construction Methods (*paragraph 4*)

Any damage to utilities and/or structures, that occurs as a result of any construction activity performed by the Contractor, shall be repaired by the Contractor's at **his the Contractor's** sole expense. Pull boxes shall only be paid for once, regardless of extra work caused by obstructions and/or Contractor damage.

Item No. 835S
Traffic Signal Conduit

835S.4 Construction Methods (*paragraph 6*)

Any damage to utilities and/or structures, that occurs as a result of any construction activity performed by the Contractor, shall be repaired by the Contractor's at **his the Contractor's** sole expense. Conduits shall be paid for once, regardless of extra work caused by obstructions and/or Contractor damage.

835S.5 Trenching, Boring and Backfill (*paragraph 3*)

The work shall be executed in a safe and orderly fashion and in accordance with applicable Federal, State, and local laws, rules, and regulations. All work shall be performed in a competent, **workmanlike** manner consistent with the best modern practices, notwithstanding any omissions from the plans or these specifications.

Item No. 836S
Traffic Signal Risers

836S.4 Installation (*paragraph 3*)

Any damage to utilities and/or structures, that occurs as a result of any construction activity performed by the Contractor, shall be repaired by the Contractor's at **his the Contractor's** sole

expense. Risers shall be paid for once, regardless of extra work caused by obstructions and/or Contractor damage.

Item No. 837S
Traffic Signal Loop Detectors

837S.3 Materials (*paragraph 3*)

Loop detector sealant shall be TA-500 asphaltic compound or an approved equal as determined by the Engineer or designated representative. Samples of the loop detector sealant that shall be submitted to the Engineer or designated representative for **his** approval before the initiation of any detector installation.

Item No. 838S
Pedestrian Signal Installation

838S.3 Materials

L. Warranty

The entire pedestrian signal including eggcrate visor, message lens, single piece double parabolic reflector, lamp sockets, case, and door shall be warranted against defects in **work performed workmanship** and/or materials for two (2) years from the date of original shipment.

Item No. 840S
Installation of Traffic Signals

840S.6 Contractor Obligations (*paragraphs 5,8,12,13+16*)

The Contractor's responsibility for correcting any substandard **work workmanship** and/or materials shall extend for a period of twelve months from the date the work is accepted by the City.

...

The Contractor shall give the Owner 48 hours notice of **his the Contractor's** intention to establish the final location of these items and shall acquire approval for the locations on the ground by the Owner representative, or the Owner's inspector.

...

After installation, but prior to final acceptance of the work, the Contractor shall be responsible for damages or losses to installed City-furnished material that are caused by **his the Contractor's** own negligent act(s) or omission(s). The Contractor agrees to replace materials

furnished by the City that are lost, damaged or destroyed due to the Contractor's negligence, at ~~his~~ the Contractor's sole cost, or reimburse the City for replacement cost of such material.

The Contractor agrees to defend, indemnify, and hold harmless the City, its officers, agents, and employees, from any and all claims, judgments, lawsuits, fines, penalties, liens, costs, and other damages, whether suffered by third persons or by the Contractor, arising out of the transportation, storage, installation, or use of the City's material during performance of the work. The City will not be responsible for storage rental charges of any kind, and no lien shall be attached to the materials as a result of Contractor's failure to pay rental charges or other charges. The Contractor agrees to prevent liens and encumbrances of any nature from attaching to the material while it is in ~~his~~ the Contractor's possession.

...

The Contractor shall assume full responsibility for the preservation of existing landscaping (sod, shrubbery, trees, and etc.), sprinkler systems, and other private property at the job site during the installation of items covered by this specification item. Damaged landscaping, sprinkler systems, and other private property shall be replaced and/or repaired to the satisfaction of the Owner within a reasonable time, by the Contractor at ~~his~~ the Contractor's own expense.

Item No. 841S
Removal of Traffic Signals

841S.4 Removal, Preparation and Delivery of Items (*paragraph 7*)

The Engineer or designated representative will inspect and identify existing damage to salvaged material and mark any damaged items in the field. The Contractor will not be held responsible for existing damage or damage that was not produced by the Contractor. If damage to material is the fault of the Contractor, ~~he~~ the Contractor will have three working days to make repairs or supply equal items at ~~his~~ the Contractor's expense. If the Contractor fails to repair or replace damaged items in this time period, the City will charge the Contractor an assessed value of the damage as determined by the Engineer or designated representative.

Item No. 844S
Trench Excavation and Backfill
For Traffic Signal Conduit

844S.4 Construction Methods (*paragraphs 1+ 6*)

The work shall be executed in a safe and orderly fashion and in accordance with applicable Federal, State, and local laws, rules, and regulations. All work shall be performed in a ~~competent, workmanlike~~ manner consistent with the best modern practices, notwithstanding any omissions from the Drawings or these specifications

Any damage to utilities and/or structures, that occurs as a result of any construction activity performed by the Contractor, shall be repaired by the Contractor at ~~his~~ the Contractor's sole

expense. Conduit shall be paid for only one time, regardless of any extra work caused by obstructions and/or Contractor damage.

**Item No. 860S
Pavement Marking Paint**

860S.4 Construction Methods *(paragraph 4)*

When deemed necessary by the Engineer or designated representative, the Contractor, at **his** **the Contractor's** expense, shall place any additional pilot markings required to facilitate the placement of the permanent markings in the alignment specified. Any and all additional markings placed on the roadway for alignment purposes shall be temporary in nature and shall not establish a permanent marking on the roadway.

**Item No. 863S
Reflectorized Pavement Markers**

863S.6 Construction Methods *(paragraph 8)*

When deemed necessary by the Engineer or designated representative, the Contractor, at **his** **the Contractor's** expense, shall place any additional pilot markings required to facilitate the placement of the permanent markings in the alignment specified. Any and all additional markings placed on the roadway for alignment purposes shall be temporary in nature and shall not establish a permanent marking on the roadway. Materials used for pilot markings and equipment used to place such markings shall be approved by the Engineer or designated representative.

**Item No. 866S
Jiggle Bar Tile**

866S.4 Construction Methods *(paragraph 5)*

When deemed necessary by the Engineer or designated representative, the Contractor, at **his** **the Contractor's** expense, shall place any additional pilot markings required to facilitate the placement of the permanent markings in the alignment specified. Any and all additional markings placed on the roadway for alignment purposes shall be temporary in nature and shall not establish a permanent marking on the roadway. Materials used for pilot markings and equipment used to place such markings shall be approved by the Engineer or designated representative.

Series 1800 – Private Development

Series 1800 Private Development Section 1801S Contents

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Series 1800S - Private Development 1802S Definition of Terms

1802S.5 The Director

The Director of the Managing Department of the City of Austin or ~~his/her~~ **the Director's** duly authorized representative, who makes all decisions as to quality of the project and conformance of the Work for final acceptance by the City.

1802S.6 The Construction Engineer

The Director's representative in responsible charge of a group of projects. ~~He/she~~ **The Construction Engineer** shall be a Licensed Professional Engineer Registered in the State of Texas.

1802S.20 The Inspector

The authorized representative of the Director of the Managing Department assigned to inspect and test any or all parts of the Work and materials used therein. ~~He/she~~ **The Inspector** is also a member of the Construction Inspection team under the direction of the Construction Engineer.

**Series 1800S Private Development
Section 1803S
Responsibilities of the Owner/Developer and Engineer**

1803S.1 The Owner/Developer - Engineer Relationship

The Owner/Developer shall specify in writing **his the Owner/Developer's** representative(s) for the Work who will be responsible for all communications with the City. Once the Contract Documents have been approved by the appropriate plan review department, properly executed and submitted to the Construction Inspection Division of the Department of Public Works for inspection, the Work must not deviate from the Contract Documents, unless supported by a Change Order submitted by the Consulting Engineer and approved as a correction or plan revision by the appropriate plan review department. Minor field adjustments, which do not effect project integrity, cost or construction time; are consistent with the intent of the design and are approved by the Construction Engineer or Director may be allowed by the Inspector. The Owner/Developer may effect changes through the appropriate plan review department, which will forward approved changes to the Construction Inspection Division.

1803S.3 Authority and Duties of the Inspectors (paragraph 2)

In case of any dispute arising between the Contractor and the Inspector concerning materials furnished or the performance of the Work, the Inspector will issue to the Owner/Developer and the Contractor a Notice of Unacceptable Work, which will remain in effect until the Work is corrected or the question at issue can be resolved by the Owner/Developer under item 1803S.14, Objections. The Inspector will not be authorized: (1) to revoke, alter, enlarge or release any requirement of the Contract Documents; (2) to approve or accept any portion of the Work or (3) to issue instructions contrary to the Contract Documents. The Inspector will in no case: act as **superintendent foreman** of the Work; perform other duties for the Contractor or interfere with the management of the Work.

1803S.4 Pre-construction Conference (paragraphs 2+3)

In those cases where the Owner/Developer of a Project is allowed to amend **his the Owner/Developer's** Work to undertake rough-cut or rough-cut/utility work on a portion of the Project, a pre-construction conference shall be held for the rough-cut or rough cut/utility and associated work and an additional pre-construction conference must be held after a full development permit has been obtained. Inspection fees, development permit, Drawings and executed contracts must be delivered at both the rough-cut and full development phases.

The date and the time for the Pre-construction Conference will be established by the Inspector with the concurrence of the Owner/Developer but in no case more than seven (7) days after request and receipt from the Owner/**Developer** of the Drawings, Development Permit, Contracts and confirmation of Payment of Inspection Fees. An agenda will be prepared by the Inspector and will include, as a minimum, discussion of the following items:

1803S.11 Preliminary Approval

The Director and the Owner/Developer shall not have the power to waive: any obligations of the Work; the furnishing of good material by the Contractor; or the performance of good work as

herein described. The Work shall be in complete accordance with the Contract Documents. The failure or omission on the part of the Director to discover, identify or condemn any defective work or material shall not release the **Owner** Owner/Developer from the obligations to fully and properly complete the Work including without limitations, the obligation upon the discovery of said defective work or material to at once remove and properly replace the defective work or material at any time prior to final acceptance. The Director shall, upon request of the Contractor or **Owner** Owner/Developer, inspect and accept or reject any material furnished for the Work. Once the material has been accepted by the Director, the acceptance shall be binding on the City of Austin, unless it can clearly be shown that the identified material has changed in character to the extent that it does not meet the specifications for the Work.

1803S.13 Initial Determinations

The Consulting Engineer and/or the Owner/Developer shall determine all claims, disputes and other matters in question between the Contractors and the Owner/Developer relating to the execution or progress of the Work or the interpretation of the Contract Documents. If, in the opinion of the Consulting Engineer, the resolution results in a proposed change in the Contract Documents, appropriate revisions will be submitted to the appropriate plan review department for review and approval and delivered to the Inspector before the Work proceeds.

The Director or **his/her** **the Director's** authorized representative will be the final authority for the interpretation of the Technical Construction Specifications.

1803S.14 Objections

In the event the Director or **his** **the Director's authorized** representative renders any decision which in the opinion of the Owner/Developer or the Consulting Engineer is not in accordance with the meaning and intent of the Contract Documents, and the Owner/Developer or the Consulting Engineer is unable to resolve the matter with the Inspector assigned to the Work, the Inspector's Supervisor or the Construction Inspection Division Manager, then the Owner/Developer may submit a written objection to the decision explaining why the decision is not in accordance with the Contract Documents to:

End

<u>SPECIFIC CROSS REFERENCE MATERIALS</u>
Specification 1803S, "Responsibilities of the Owner/ Developer and Engineer"

<u>SPECIFIC CROSS REFERENCE MATERIALS (Continued)</u>
Specification 1803S, "Responsibilities of the Owner/ Developer and Engineer"

<u>RELATED CROSS REFERENCE MATERIALS</u>
Specification 1803S, "Responsibilities of the Owner/ Developer and Engineer"

**Series 1800S - Private Development
General Obligations and Responsibilities
Section 1804S**

1804S.2 Adequacy of Design and Construction

It is understood that the Owner/Developer ~~believes that he has~~ **will** employed ~~ed~~ competent Consulting Engineers. The ~~Owner~~ Owner/Developer, therefore, shall be responsible for the adequacy of the design, compatibility of the Contract Documents, safety of all structures and construction procedures, and the practicability of operations of the completed Work. The burden of proof ~~of such compliance~~ shall be the responsibility of the ~~Owner~~ Owner/Developer ~~by demonstrating that he/she has complied~~ to **demonstrate compliance** with all requirements of the Contract Documents, along with all approved additions and alterations to the Contract Documents.

If during the Warranty Period following final acceptance by the City of Austin, the Work exhibits: (a) damage, deterioration, distress and/or failures; (b) requires excessive maintenance or rehabilitation work due to defects in materials, ~~or products,~~ or **from substandard work, workmanship** including utility backfill; and/or (c) design inadequacies are uncovered and identified, the Department of Watershed Protection and Development Services and the ~~Owner~~ Owner/Developer shall be notified of these conditions by the Director or designated representative. The Owner/Developer shall take the corrective action(s) within 10 calendar days, which is (are) accepted by the Director or designated representative and approved by the Department of Watershed Protection and Development Services. Upon written request of the Director, the Department of Watershed Protection and Development Services will suspend or revoke any new development or building permits by the Owner/**Developer**, until the deficiency (or deficiencies) of the Work is (are) satisfactorily corrected (The City of Austin Code of Ordinances Volume II, Land Development Code Sections 25-1-417 and 25-1-418).

1804S.3 Materials and Quality of Work ~~Workmanship~~ (paragraph 3)

The City of Austin Standard Specification Item 340S, "Hot Mix Asphaltic Concrete Pavement" and Specification Item 360, "Concrete Pavement", provide for the option of possible acceptance of pavements, which do not fully meet all specified requirements. If the reduced-standard pavements are otherwise acceptable in accordance with Standard Specifications 340S or 360 and to the Director or designated representative, then the ~~Owner~~ Owner/Developer or the Contractor may, with the concurrence of the Director, request that the Work be made acceptable by providing a cash payment to the applicable street maintenance entity for deposit in the annual street maintenance fund. The dollar amount shall be calculated by reducing the base value of standard pavements by the percentages established by factors incorporated in Standard Specification items 340S for asphalt pavements and 360 for concrete pavements. The base values for standard pavements shall be determined by the Director from the average costs for concrete or asphalt pavement construction, respectively, in previous years under contract to the Department of Public Works. The amount of cash payment shall be the amount of the dollar reduction.

1804S.4 Testing of Materials

Unless otherwise specified, all on site testing to establish the quality of material to be incorporated in the Work will be as required by the Director or designated representative. The frequency, time, locations and testing procedures will be coordinated and approved by the Inspector. The testing shall be accomplished by City of Austin personnel or an independent laboratory, which is designated by the Director and certified in accordance with ASTM E-329, "Standard Recommended Practice for Inspection and Testing Agencies for Concrete, Steel, and Bituminous Materials Used in Construction". Payment for all initial testing will be the responsibility of the City. All retesting of unacceptable material shall be the responsibility of the **Owner** Owner/Developer. Restoration or patching required as a result of the testing shall be at no expense to the City.

The extent of investigations and retesting, related to unacceptable and/or failed tests shall be determined by the Director. The Director may require a minimum of two passing retests for each failure before acceptance will be made by the City.

The manufactured materials to be incorporated in the Work shall meet the requirements of the Contract Documents (e.g., reinforcing steel, expansion joint materials, concrete pipe, cement, miscellaneous steel, cast iron materials, flexible base, etc.). The **Owner** Owner/Developer may be required to furnish a manufacturer's certificate stating that material meets the requirements specified for the Work.

1804S.5 Sidewalk Variance

If grading for sidewalks during construction will damage, adversely impact or remove desirable natural features, trees etc., the **Owner** Owner/Developer may request a variance from the Department of Watershed Protection and Development Services for the realignment of the sidewalk. The Consulting Engineer shall submit a plan which includes detailed grading, elevation and alignment information in the vicinity of natural features, shall certify that no utility lines, inlets, meters or castings will be affected and request an appropriate change in the Work.

1804S.7 Street Signs

The street name signs at signalized intersections shall be provided to the City by the Owner/**Developer**. All street name signs at unsignalized intersections within and abutting the subdivision shall be installed by the Owner/Developer in accordance with Article 25-4-156 (City of Austin Code of Ordinances, Volume II, Land Development Code, Chapter 25-4: Subdivision Regulation). The sign locations shall be based on guidelines provided in the most recent version of the State of Texas Manual on Uniform Traffic Control Devices

1804S.13 Force Majeure

If the Owner/Developer, the Contractor or the City is prevented from performing all or a part of the Work or any duties related thereto: (a) as a result of fire or other calamity; (b) by order of a governmental authority at the Federal, State or Local level; (c) by acts of God, strikes, lockouts or other industrial disturbances; (d) by acts of public enemies, material or labor restrictions by governmental authority; (e) by civil riot, flood as determined by the appropriate governmental authorities or (f) by acts of the **Owner** Owner/Developer or any cause beyond the reasonable control of the **Owner** Owner/Developer, the Contractor and/or the City; then the party suffering

the "Force Majeure" shall notify the City of Austin in writing within five days of the onset of the condition of the "Force Majeure", excusing said performance and indicating the nature, extent, and probable duration of the "Force Majeure" condition. The suffering party shall then take all steps, reasonable, to resolve the condition during its pendency and shall notify the other parties immediately upon the resolution of the condition of "Force Majeure".

If the condition of "Force Majeure" extends to 20 calendar days of endurance, the **Owner** Owner/Developer, the Contractor and the City of Austin shall agree to meet and discuss a resolution to preserve the interests of the respective parties in the Work. However if all respective parties agree, a resolution meeting may be scheduled for any time less than twenty (20) days.

**Series 1800 Private Development
Protection of Persons and Property
Section 1805S**

1805S.5 Location and Protection of Utilities (*paragraph 3*)

Upon request, the utility owners shall provide information on the location and grade of water, wastewater, gas, storm sewer, and telephone and electric lines and other utilities in the work area. The availability of such information, however, shall not relieve the Owner/Developer or the Contractor of the obligations hereunder, which shall be primary and non-delegatable. Any such lines damaged by Contractor's operations shall be immediately repaired by the Contractor upon the concurrence of the repair of the utility; or the Owner/Developer shall cause such damage to be repaired at **his the Contractor's** expense.

**Series 1800S -- Private Development
Section 1806S Final Acceptance**

1806S.2 Final Inspection (*paragraph 4*)

The Construction Inspection Supervisor will review and sign the Report of Private Development Inspection when all items entered are completed or satisfied by the above described Re-vegetation Letter. A meeting for the Final Inspection may then be scheduled by the Inspector at a time convenient to the Owner/**Developer** and the Director, as outlined in Section 1806S.3.

1806S.3 Acceptance by the City of Austin (*paragraph 5+6*)

The Final Acceptance Letter will be signed by the City when the City of Austin has received the following:

1. Construction Summary Report. This summary is required 10 days in advance of the anticipated issuance of a Final Acceptance Letter,

2. Consulting Engineer Concurrence Letter,
3. Reproducible Drawings certified by the Consulting Engineer as "Record Drawings",
4. Bond or Bonds for the period of one year warranty as described in sections 1806S.4 and 1806S.5, and
5. Cash or a Cashiers Check for any money due as required under Section 1804S.3, "Materials and Quality of Work Workmanship."
6. Written verification of final cost and final quantities of the Work.
7. Final payment of any additional inspection fees due as results of item 6 above.

If the re-establishment of vegetation is the sole remaining item of work and the Owner/Developer has executed a re-vegetation letter, then a Conditional Acceptance Letter will be issued. When the permanent erosion control has been established, the City will initiate a Final Acceptance letter.

1806S.4 Guarantee Against Defective Work

The Owner/Developer and the Contractor shall warrant the Work for a period of one year from the date of the Letter of Conditional or Final Acceptance of the completed Work, unless the period is extended by mutual agreement between the City and the Owner/Developer or the Contractor, as described below. This warranty shall bind the Owner/Developer to correct any and all defective materials, substandard work workmanship (including utility backfill) and/or design inadequacies, which may be discovered within the warranty period. The Owner/Developer shall correct or cause the Contractor to correct at his the Contractor's own expense, such defects no later than 30 calendar days after receipt of a Written Notice from the Director of such defects. If the Owner/Developer or the Contractor fail or refuse to correct such defects within the 30 calendar day period or fail to provide adequate assurances that such work will be completed within a reasonable time thereafter, the City of Austin may correct, or cause to be corrected, any such defects at the expense of the Contractor's bond.