

Technical Specification

Clam Bayou Box Culvert

Prepared For:
THE CITY OF SANIBEL
800 Dunlop Road
Sanibel, FL 33957-4096

Prepared By:

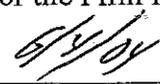
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Date

SCOPE OF WORK

Work includes construction of (3) box culvert with headwalls. Associated site work includes rip-rap placement, sodding, roadway restoration, utility relocations, and installation of guardrail.

The above work includes all the construction necessary to give a completed facility. The Contractor shall furnish all labor, materials, equipment, tools, transportation and supplies required to complete the work in accordance with the plans, specifications and terms of the Contract.

PERMITS AND CODES

The intent of this division of the specifications is that the Contractor's bid on the work covered herein shall be based upon the drawings and specifications, but that the work shall comply with all applicable codes and regulations as amended by any waiver. The Contractor shall obtain any building permit required by the City of Sanibel.

PROTECTION OF EXISTING IMPROVEMENTS

Prior to excavating any section of the work, the Contractor shall call the utility companies and inform them that work on the specific section is about to commence and request that they field locate their underground utilities.

When proceeding with the work, the Contractor shall exercise caution to protect all underground and overhead utilities and existing structures from damage. The Contractor shall provide all sheeting, shoring and bracing that may be required to properly protect adjacent property and structures. The Contractor shall repair, to the satisfaction of the Owner of the damaged improvement any surface or subsurface improvement damaged during the course of the work (unless such improvement is shown to be abandoned or removed) whether or not such improvement is shown on the drawings. Should any utilities be encountered that are not shown on the drawings, the Contractor shall immediately notify the Engineer and shall take whatever caution necessary to protect the utility. The Contractor will be responsible for maintaining existing residential facilities until the project is complete.

All public and private property (and associated structures) disturbed during construction are to be restored to the original condition. This item includes, but is not limited to, repair and replacement of any existing improvements, fencing, shrubbery, trees, grassing, utilities, driveways and any other materials damaged during construction. Furthermore, the Contractor is responsible for the survival of vegetation (or replacement of same) for a period of one year.

Prior to construction, photographs are to be taken by the Contractor in order to document existing vegetation and other improvements both within the immediate construction area and on adjacent private property. Vegetation and/or improvements which require removal during construction shall be replaced to the property owner's satisfaction.

Backfill will occur only after walls have been inspected. The excavation shall be backfilled with satisfactory soil material. In the event it is the Engineer's opinion that sufficient suitable material herein specified for backfill is not available from excavation for the project, he may require the Contractor to supply and place the requisite additional material. Backfill shall be placed in 12" layers and compacted to an average maximum density of 100% as determined by AASHTO method T-99 (Proctor). Compaction of roadbed material shall meet 98% AASHTO T180.

All construction areas will be cleared of material and debris and brought to uniform grade within 72 hours after the backfill has been placed unless additional time is obtained from the Engineer in writing. All construction areas will be restored to their original condition or better. All property improvements will be restored to the same or better condition that they were in prior to construction.

SHORING

Unless trench banks are cut back on a stable slope, sheet and brace trenches as necessary to prevent caving or sliding, to provide protection for workmen and to protect structures and facilities. Do not brace sheeting against structures, but brace it so that no concentrated loads of horizontal thrust are transmitted to the structure. Contractor to complete

the Trench Safety Requirements Form in the Bid Schedule. In addition, the Contractor shall comply with the Trench Safety Act (90-96, Laws of Fla.) effective October 1, 1990 along with any subsequent safety requirements.

EXCESS EXCAVATED MATERIAL

Unless otherwise specified, all excavated material in excess of the needs for backfill and area fill shall become the property of the Contractor and shall be removed from the job site. It is the responsibility of the Contractor to insure that excess excavated material hauled from the site is placed on upland sites.

TREE PROTECTION

Exercise care to protect the roots of trees to remain. Within 5' of the trunk of such trees, take care not to severely damage the root system of said trees. Use chain saws, pruning shears and clippers to prune injured roots completely, backfill as soon as possible.

INSPECTION AND TESTING

All soil and concrete tests will be made by a laboratory approved of by the Engineer. Costs of testing will be paid for by the Owner except all subsequent tests deemed necessary because the original test indicated that the work did not conform to specifications. These tests shall be paid for by the Contractor.

Inspections shall be made during and following completion of each phase of the work. Inspections and tests may include but not be limited to steel placement, concrete slump, concrete strength, grading, rip rap placement and sod placement. It is the responsibility of the Contractor to notify the Engineer and the City's inspection personnel when inspections will be necessary. It will be the Contractor's responsibility to secure approvals as necessary for acceptance of each phase of the project.

CONSTRUCTION EQUIPMENT - GENERAL REQUIREMENTS

The work specified in this section will conform to the F.D.O.T. Specifications as referenced below:

Reference F.D.O.T. Section 100.

MOBILIZATION

The work specified in this section consists of the preparatory work and operations in mobilizing for beginning construction on the project, including, but not limited to, those operations necessary for the movement of personnel, equipment, supplies and incidentals to the project site, and for the establishment of temporary offices, buildings, safety equipment and first-aid supplies, sanitary and other facilities as required by these specifications, the special provisions, and state and local laws and regulations. Mobilization involves the moving of all equipment, arrangements for on-site storage and maintenance of said equipment, as well as access to the site for all equipment.

The Contractor shall take all necessary precautions as not to disturb the existing wildlife habitat in the immediate construction area. In particular, any alligators in the area are not to be disturbed or fed. If any problems occur, the Contractor shall contact the Sanibel Police Department.

MAINTENANCE OF TRAFFIC

The work specified in this section will conform to the F.D.O.T. Specifications as referenced below:

Reference F.D.O.T. Section 102-1 through 102-7.1.

The Contractor shall not operate equipment or store excavated material on private property without written permission of the property owner. Access to all residences will remain open if applicable. The Contractor shall also have all available equipment, material and personnel necessary to provide immediate access to any temporarily blocked private property should an emergency arise.

Maintenance of traffic during construction of the Clam Bayou Road box culvert is the responsibility of the Contractor. Construction shall be performed in phases such that through traffic is maintained at all times. Bike path traffic shall also be maintained for the duration of the project. The Contractor is responsible for maintaining traffic signs, temporary roadway surfaces and all other facilities related to maintaining through traffic on Sanibel Captiva Road.

Temporary roadway surfaces will be necessary during box culvert construction. The Contractor is responsible for any shoring, stabilization, temporary pavement, pavement marking, safety precautions, barricades, signage and all other related facilities necessary to maintain through traffic in accordance with F.D.O.T. Section 102 and Index No. 609. At a minimum, temporary paving shall include 4" asphalt surface placed onto stabilized subgrade. This item includes any shoring, filling, stabilizing and compacting necessary to provide and maintain temporary roadway facilities. Upon completion of the project, the Contractor shall remove all temporary paving and restore shoulders to match existing conditions.

PREVENTION, CONTROL AND ABATEMENT OF EROSION AND WATER POLLUTION

The work specified in this section will conform to the F.D.O.T. Specifications as referenced below:

Reference F.D.O.T. Section 104-1 through 104-9.

The cost of constructing temporary berms to prevent erosion during grading and subsequent operations will not be paid for separately.

The Contractor shall be solely responsible for compliance with all permit requirements including dewatering operations and shall hold the Engineer and the Owner harmless from any liability arising out of non-compliance with permits.

Any tests or samples required by the permits or at any time during the duration of the project at the direction of a Federal or State governing agency shall be the responsibility of the Contractor.

Floating silt screens acceptable to the Engineer will be installed at any open channels or running ditches when required for pollution control by the Engineer. These screens shall be incidental to the item or work requiring them and shall be included in the unit prices for that item. Ineffective silt screens may be cause for suspension of work.

In case of repeated failure on the part of the Contractor to control erosion, pollution, or siltation, the Engineer reserves the right to employ outside assistance. Any such costs incurred, including engineering costs, will be charged to the Contractor and appropriate deductions made from one or more monthly progress estimates.

CLEARING AND GRUBBING

The work specified in this section will conform to the F.D.O.T. Specifications as referenced below:

Reference F.D.O.T. Section 110.

Work specified in this section consists of clearing and grubbing the site as necessary for the construction of the box culvert and other associated facilities. The limits of construction clearing are indicated on the construction plans. Prior to removal of any vegetation, a vegetation removal permit shall be obtained from the City, by the Contractor. Vegetation to be saved will be marked by the Owner.

Any exotic vegetation within the construction limits shall be cleared and removed from the construction site by the contractor. In particular, any Brazilian pepper located within project limits are to be cleared and disposed of by the contractor.

The Contractor shall take extreme care not to damage any existing improvements or vegetation outside of the clearing limits. Any damage to existing improvements and vegetation shall be repaired or replaced to pre-existing conditions or

better. Individual property owners adjacent to the project shall be made aware of all construction activities in the immediate area.

REMOVAL OF EXISTING STRUCTURES

The work specified in this section will conform to the F.D.O.T. Specifications as referenced below:

Reference F.D.O.T. Section 110-6.

The work specified in this section consists of removing and disposing of the existing Island Inn Road culvert and Tarpon Bay Road culvert where shown on the plans or ordered by the Engineer to be removed or where required to be removed because of the construction operations. Unusable material shall become property of the Contractor and shall be removed from the construction site.

Broken concrete remaining from removal of the existing headwalls may be utilized as rip rap downstream of the proposed box culvert, if the material is deemed suitable by the Engineer. This material may only be placed below elevation 0.0 ft. NGVD. Rip rap placed above 0.0 shall be hauled in and meet the requirements of Section 530.

Unless shown otherwise, all materials removed under this item shall be disposed of by the Contractor in areas provided by him and approved by the Engineer, in accordance with the applicable requirements of F.D.O.T. 110-9.

This section also consists of clearing and grubbing the site as necessary for the construction of the box culverts, water control structure and other associated facilities.

The limits of construction are shown on the construction plans. Any damage to existing improvements outside of the construction limits due to construction of this project shall be repaired at the Contractor's expense and to the satisfaction of the Owner.

EXCAVATION & EMBANKMENT

The work specified in this section will conform to the F.D.O.T. Specifications as referenced below:

Reference F.D.O.T. Section 120.

This item includes hauling in, placing and grading of suitable embankment material (if necessary) for box culvert walls, and other locations to match the grades indicated on the construction plans. Sand and other material excavated for box culvert construction deemed suitable by the Engineer will be used on site where applicable. Excess material remaining after filling operations, shall be disposed of off the premises by the Contractor. Contractor shall make every effort to separate and utilize on-site material.

Utilities are shown on the plans whenever the information has been obtained and are believed to be correct, but such locations are not so warranted to be correct or complete. It is the responsibility of the Contractor to contact all utility companies and all public works departments to determine detailed location of any underground utilities before beginning construction operations.

EXCAVATION FOR STRUCTURES

The work specified in this section will conform to the F.D.O.T. Specifications referenced below:

Reference F.D.O.T. Section 125.

Work specified in this section consists of grading, excavation, placement and removal of soil material in order to conform to lines and grades as shown on plans.

All excavation under this item will be unclassified. Material to be excavated hereunder for the box culvert and other improvements shall include earth, rock or any other material encountered in excavating to the depth and extent

indicated on the drawings and herein specified. No adjustment in the contract price will be made on the account of the absence or presence of rock, shale, masonry or other materials. In the case of any change ordered in writing by the engineer in the quantity of excavation, the excavation involved shall be unclassified; the value shall be determined and the contract price will be adjusted as provided in the general conditions. Rock excavation shall be carried a minimum of 6" below the bottom of structures unless otherwise shown. The excavation will be brought back to grade with crushed gravel or sandy backfill. Blasting will not be allowed.

Sand and other material excavated deemed suitable by the Engineer will be used on site where applicable. Excess material remaining after filling operations, shall be disposed of off the premises by the Contractor.

Excavation under proposed bottom slab, footing and rip-rap as shown on the drawings shall be to such depth as necessary to remove all unsuitable material and so that the structure will bear on firm unyielding soil. Backfill as necessary with clean sand and stabilize the top 1 foot as shown on the plans. Excavation by the Contractor for diking purposes shall be in a manner that will not be detrimental to the site or any adjacent property owner.

Excavation for the box culverts shall be a minimum of 6" below the bottom of the structure. If, however, the Engineer determines that the foundation below that grade is unsuitable, it shall be excavated to a depth satisfactory to the Engineer and brought back to grade using approved rock or gravel.

All monuments, benchmarks and other reference points will be maintained during excavating operations. If through carelessness or negligence, above points have been disturbed or destroyed, the Engineer shall replace the same and bill the Contractor for restoration costs.

Utilities are shown on the plans whenever the information has been obtained and are believed to be correct, but such locations are not so warranted to be correct or complete. It is the responsibility of the Contractor to contact all utility companies and all public works departments to determine detailed location of any underground utilities before beginning construction operations.

The Contractor(s) performing trench excavation on this Contract, in excess of five feet in depth, shall comply with the Occupational Safety and Health Administration's (OSHA) Trench Excavation Safety Standards, 29 C.F.R.'s. 1926-650, Subpart P, including all subsequent revisions or updates to these standards as adopted by the Department of Labor and Employment Security (DLES).

The Contractor also agrees that he has obtained or will obtain identical certification from his proposed subcontractors that will perform trench excavation prior to award of the subcontracts and that he will retain such certifications in his files for a period of not less than three years following final acceptance.

If applicable, the Contractor certifies that all trench excavation done within his control in excess of five feet in depth shall be in accordance with the Florida Department of Transportation's Special Provisions Article 125-1 and Sub article 125-4-1, (TRENCH EXCAVATION SAFETY SYSTEM AND SHORING, SPECIAL TRENCH EXCAVATION).

PORTLAND CEMENT CONCRETE

The work specified in this article will conform to the F.D.O.T. Specifications as referenced below:

Reference F.D.O.T. Sections 346 and 400.

All concrete is to be F.D.O.T. Class IV with a 28-day cylinder strength of 4,000 psi. An F.D.O.T. Class 2 finish will be required on all exposed concrete surfaces and must comply with F.D.O.T. Specifications Section 400-15.1. All other concrete surfaces are to have a smooth finish free from honeycombing and imperfection. Exposed cap corners are to be chamfered 3/4".

BOX CULVERT

The work specified in this section will conform to the F.D.O.T. Specifications as referenced below:

Reference F.D.O.T. Section 410.

Pre-cast box culvert sections shall be designed and certified to meet F.D.O.T. standards. Obtaining certification by a state registered professional engineer is the responsibility of the Contractor.

REINFORCING STEEL

The work specified in this article will conform to the F.D.O.T. Specifications as referenced below:

Reference F.D.O.T. Section 415 and Section 416.

All reinforcing steel shall be epoxy coated Grade 60 new billet steel with deformation in accordance with F.D.O.T. Specifications. All reinforcement, unless otherwise noted, shall be epoxy coated per F.D.O.T. Section 416; when required, damaged coating shall be repaired with material conforming to F.D.O.T. Section 416. All steel splices will be 36 bar diameters. Minimum cover on reinforcing steel shall be 2 inches of concrete unless otherwise specified.

RIP RAP (RUBBLE)

The work specified in this item will conform to F.D.O.T. Specifications referenced below:

Reference F.D.O.T. Section 530.

Rubble rip rap will be placed upstream and downstream of the box culvert as shown on the plans. Use of broken concrete from removal of the existing culvert will be permitted as said concrete meets the specified rip rap requirements. Size of rip rap is as shown on the plans. Payment for concrete used as rip rap will be on the same basis as for rip rap hauled onto the site.

Also included in this item is the placement of filter cloth underneath all rip rap areas as indicated on the construction plans.

GUARDRAIL

This item includes construction of a metal guardrail in accordance with the F.D.O.T. Specifications referenced below:

Reference F.D.O.T. Section 536.

Guardrail shall be constructed on each side of Sanibel Captiva Road as indicated on the construction plans. All guardrail posts shall be standard F.D.O.T. Section 536 including breakaway timber posts at both ends. Posts located overtop the box culvert shall be special steel type in accordance with Roadway and Traffic Design Standards Index 400.

SODDING

The work specified in this article will conform to the F.D.O.T. Specifications as referenced below:

Reference F.D.O.T. Section 575.

Sod shall be placed on all side slopes, roadsides and on any disturbed areas following construction, as directed by the Engineer. The sod type shall match that of pre-construction conditions. Areas disturbed due to maintenance of traffic procedures are also to be sodded.

All sod placed by the Contractor shall be maintained at his expense. At the completion of the job all sod shall be alive, well rooted and appear at least 80% green.

UTILITY RELOCATIONS

This item includes all labor, materials and incidentals necessary to relocate the existing utilities shown on the construction plans to be in conflict with the proposed box culvert construction.

Location and depth of all existing utilities shall be field verified by the contractor, in coordination with utility companies. All services are to be maintained and protected for the duration of this construction project unless written authorization from utility company is provided prior to construction. Relocation shall be to a location above the top of the box culvert and acceptable to the utility owner.

Location and depth of all existing water mains shall be field verified by the contractor, in coordination with the Island Water Association. All lines are to be projected and kept in service for the duration of this construction project. Relocation shall be completed using ductile iron pipe as indicated on the plans.

Fittings, bends and other accessory items necessary to complete the relocations are included in this item. All utilities are to be left in satisfactory working condition upon project completion.

This item also includes all necessary testing required for acceptance of the new line by the utility owner. The abandoned sections of existing waterlines are to be removed or adequately plugged by the contractor.

ROADWAY RESTORATION

The work specified in this section shall conform to the F.D.O.T. Specifications as referenced below:

Reference F.D.O.T. Sections 160, 234 and 334.

This item includes restoration of any sections of Sanibel Captiva Road either removed or damaged during construction of the box culvert. The limits of roadway to be restored shall be saw cut on both sides and the pavement completely removed within the area to be repaired. Restoration includes stabilized subgrade, asphalt base and surface course.

Stabilized subgrade shall meet the requirements of F.D.O.T. Section 160.

The base course shall meet the requirements of F.D.O.T. Section 234. Construction shall be to the line and grade shown on the construction plans. A tack coat shall be placed between successive 3" layers unless both layers are laid on the same day. A tack coat shall be applied to the base course prior to laying the final pavement course.

Type III asphaltic concrete pavement course shall meet the requirements of F.D.O.T. Section 334. Pavement shall be to the line and grade shown on the plans and shall match evenly with the existing pavement. Roadway marking and striping shall be done to match pre-existing conditions and is also included in this item.