VOLUME I

STANDARD SPECIFICATIONS FOR WATER AND SEWER CONSTRUCTION

PREPARED BY:
CITY OF VALDOSTA
UTILITIES DEPARTMENT
P. O. BOX 1125
VALDOSTA, GEORGIA 31603-1125
(229) 259-3592

Revised July 2012

N O T I C E

These specifications; Volume I, Standard Specifications for Water and Sewer Construction; along with GDOT Standards and Specifications; the Project plans; and issued Addenda make up the entire requirements for the specific project being constructed.

CITY OF VALDOSTA
VOLUME I
STANDARD SPECIFICATIONS
FOR
WATER AND SEWER CONSTRUCTION

TABLE OF CONTENTS

APPENDIX

Form	WSCM001	Shop Drawing/Sample Submittal Form
Table	WSCM104	Water Rate Schedule
Table	WSCM105	Sewer Rate Schedule
Table	WSCM110	Weights of Fittings – Compact Fittings
Table	WSCM111	Weights of Fittings – Standard Fittings
Table	WSCM112	Sewer Pipe Air Testing

DIVISION 470

GENERAL CONSTRUCTION

DIVISION 470

SECTION 473

WORK WITHIN RIGHTS OF WAY

SECTION 473-1
WORK WITHIN STATE OF GEORGIA RIGHT-OF-WAY

473.1.1 SCOPE

The work under this section includes the furnishing of all labor, material and equipment required to install the pipe under highways or roads or in rights-of-way or in properties as shown on the drawings that are under the jurisdiction of the State of Georgia Department of Transportation.

473.1.2 PERMITS

Permits for all work within the rights-of-way of a State roadway for a project designed by the **CITY** will be obtained by the **CITY**. Permits for all work designed by another Engineer for developers for all work within the rights-of-way of a State highway will be obtained by the Engineer. The **CONTRACTOR** shall, however, verify the existence of the permit before commencing work within this area. In some cases, the **CITY** may not have obtained the required State permits by the time the **CONTRACTOR** wishes to commence work on a portion of the project requiring such permits. In these cases, the **CONTRACTOR** shall be required to commence work on another portion of the project for which no such permits are required. No additional compensation shall be allowed to the **CONTRACTOR** in said cases.

473.1.3 INSTALLATION

473.1.3.1 All work related to State rights-of-way or property shall be in full compliance with all requirements of the permit and to the satisfaction of the State of Georgia Department of Transportation. Work within the rights-of-way of public thoroughfares, which are not under the jurisdiction of the State of Georgia Department of Transportation, shall conform to the requirements of the agency having jurisdiction. Installation shall include all the required work and necessary signs to provide the required traffic control, detours, and any other work to maintain traffic.

473.1.3.2 The **CONTRACTOR** shall notify the local Georgia Department of Transportation Maintenance Engineer at least 48 hours prior to commencing work within the State rights-of-way and shall pay for any additional tests the State may require.

473.1.3.3 All work related to construction within the State rights-of-way shall be in full compliance with the terms of the permit and in accordance with the State of Georgia Department of Transportation "Utility Accommodation Policy and Standards".

473.1.3.4 In the event of conflict between the requirements of the Specifications and Details, and those of the State of Georgia Department of Transportation, the more stringent requirements as determined by the **CITY ENGINEER,** shall govern.

473.1.3.5 The costs of any and all items of work required by the State of Georgia, payment for which is not specifically provided by bid items in the proposal, shall be included in the prices of bid items to which said items of work are related, incidental, or appurtenant. No additional compensation shall be allowed therefore.

SECTION 473-2
WORK WITHIN LOWNDES COUNTY RIGHT-OF-WAY

473.2.1 SCOPE

The work under this section includes the furnishing of all labor, material and equipment required to install the pipe under highways or roads or properties as shown on the drawings that are under the jurisdiction of Lowndes County.

473.2.2 PERMITS

Permits for all work within the rights-of-way of a County roadway for a project designed by the **CITY** will be obtained by the **CITY**. Permits for all work designed by another engineer for developers within the rights-of-way of a County highway will be obtained by the engineer. The **CONTRACTOR** shall, however, verify the existence of the permit before commencing work within this area. In some cases, the **CITY** may not have obtained the required County permits by the time the **CONTRACTOR** wishes to commence work on a portion of the project requiring such permits. In these cases, the **CONTRACTOR** shall be required to commence work on another portion of the project for which any and all required permits have been obtained or for which no such permits are required. No additional compensation shall be allowed to the **CONTRACTOR** in said cases.

473.2.3 INSTALLATION

473.2.3.1 All work in County right-of-way or property shall be in full compliance with all requirements of the permit and to the satisfaction of Lowndes County. Work within the rights-of-way of public thoroughfares which are not under the jurisdiction of Lowndes County shall conform to the requirements of the agency having jurisdiction. Installation shall include all the required work and necessary signs to provide the required traffic control, detours, and any other work to maintain traffic.

473.2.3.2 The **CONTRACTOR** shall notify the Lowndes County Public Works Department and County Engineer's Office at least 48 hours prior to commencing work within the County right-of-way, and shall pay for any additional tests that the County may require.

473.2.3.3 All work related to the County highway crossings and within County highway right-of-way shall be in full compliance with the terms of the permit and in accordance with the Lowndes County Utility Code.

473.2.3.4 In the event of conflict between the requirements of these Specifications and details and those of Lowndes County, the more stringent requirements as determined by the **CITY ENGINEER,** shall govern.

473.2.3.5 The costs of any and all items of work required by Lowndes County, payment for which is not specifically provided by bid items in the Proposal, shall be included in the prices of bid items to which said items of work are related, incidental, or appurtenant. No additional compensation shall be allowed therefore.

SECTION 473-3
WORK WITHIN RAILROAD RIGHT-OF-WAY

473.3.1 SCOPE

The work under this section includes the furnishing of all labor, material and equipment required to install the pipe under railroads or within Railroad rights-of-way as shown on the drawings.

473.3.2 PERMITS

Permits for all work within the rights-of-way of a railroad for a project designed by the **CITY** will be obtained by the **CITY**. Permits for all work designed by another engineer for developers within the rights-of-way of a railroad will be obtained by the engineer. The **CONTRACTOR** shall, however, verify the existence of the permit before commencing work within this area. In some cases, the **CITY** may not have obtained the required railroad permits by the time the **CONTRACTOR** wishes to commence work on a portion of the project requiring such permits. In these cases, the **CONTRACTOR** shall be required to commence work on another portion of the project for which any and all required permits have been obtained or for which no such permits are required. No additional compensation shall be allowed to the **CONTRACTOR** in said cases.

473.3.3 INSTALLATION

473.3.3.1 All work within railroad right-of-way shall be in full compliance with all requirements of the permit and to the satisfaction of the railroad. Installation shall include all the required work and necessary signs to provide the required traffic control, detours, and any other work to maintain traffic.

473.3.3.2 The **CONTRACTOR** shall notify the Railroad Company a minimum of fourteen (14) days prior to commencing work on Railroad property, and shall pay all charges for supervision by the Railroad Company during installation of the line work across or within said property.

473.3.3.3 All work related to the railroad crossings and within railroad right-of-way shall be in full compliance with the terms of the permit and in accordance with all requirements of the Railroad Company.

473.3.3.4 The costs of any and all items of work required by the railroad, payment for which is not specifically provided by bid items in the proposal, shall be included in the prices of bid items to which said items of work are related, incidental, or appurtenant. No additional compensation shall be allowed therefore.

473.3.3.5 In the event of conflict between the requirements of the railroad and these Contract Documents, the more stringent requirements as determined by the **CITY ENGINEER,** shall govern.

DIVISION 470

SECTION 474

BORING AND JACKING

SECTION 474
BORING AND JACKING OPERATIONS

474.1 SCOPE

The **CONTRACTOR** shall furnish and install steel casing pipe complete with carrier pipe and all materials and equipment shown on drawings and specified herein.

474.2 GENERAL REQUIREMENTS

474.2.1 Steel casing pipe shall be placed by boring, jacking or tunneling. Open cut will not be allowed unless authorized by the **CITY ENGINEER**. It shall be the responsibility of the **CONTRACTOR** to install the casing pipe so that the carrier pipe can be installed true to line and grade. Casing pipe sizes shown on the drawings are minimum sizes. Casing pipe shall be of the minimum length shown on the drawings and the ends shall be sealed around the carrier pipe as detailed.

474.3 MATERIALS

474.3.1 Steel Casing Pipe - Casing shall be Grade B steel pipe, minimum yield strength 35,000 psi, conforming to Specifications for Pipeline Crossings Under Railway Tracks for Non-Flammable Substances - latest, with allowance for corrosion; and shall conform to ASTM A-53 or AWWA C-202 for mill pipe and ASTM A-139 or AWWA C-201 for fabricated pipe. Diameter and thickness shall be as shown on the drawings.

474.3.1.1 Joints, where required, shall be electric-fusion (arc) welded by operators qualified in accordance with American Welding Society Standard Procedures or at the discretion of the **UTILITY DIRECTOR**.

474.3.1.2 Where required, on a case by case basis, casing vent pipe shall be two inch (2") Schedule 40 galvanized steel pipe conforming to ASTM Specification A120-73, with galvanized malleable iron screwed fittings conforming to ANSI B16.3 on a case by case basis per plans.

474.3.2 Ductile Iron Carrier Pipe – Carrier pipe shall be ductile iron restrained joint and conform to Material Specification 489-07-02-01 and 489-07-02-02 for water mains, and 499-07-15-01 and 489-07-15-02 for sanitary sewer force mains, and 509-07-02-01 and 509-07-02-02 for reuse mains. Restraints will be used at the end of the casing and will not be required inside the casing.

474.3.3 PVC Carrier Pipe – Carrier pipe shall be PVC for sewer gravity pipe and shall conform to Material Specification 499-07-06-02. Carrier pipe for PVC water mains shall be restrained joint conforming to Material Specifications 489-07-08-01 and 489-07-08-03. Carrier pipe for PVC sewer force mains should be restrained joint and shall conform to Material Specifications 499-07-99-05 and 499-07-99-06. Carrier pipe for PVC reuse mains shall be restrained joint conforming to Material

Specifications 509-07-08-01 and 509-07-08-03. Restraints will be used at the end of the casing and will not be required inside the casing.

474.4 CONSTRUCTION

474.4.1 Permits - Permits for work within State, County or Railroad rights-of-way shall be obtained by the **CITY ENGINEER** for **CITY** projects. The **CONTRACTOR** shall, however, verify the existence of the permit before commencing work within this area. All work within these rights-of-way shall conform to Section 473.

474.4.2 Installation

474.4.2.1 Crossings, unless otherwise indicated on the drawings, shall be made by use of steel casing pipe of the size shown on the drawings. Casing for gravity sewer pipes shall be installed to the grades and alignment indicated on the drawings. The **CONTRACTOR** shall make every effort to keep the casing on a true heading and grade.

474.4.2.2 Excavation and backfill for boring and jacking operations shall conform to the GDOT Utility Accommodation Policy and Standards manual.

474.4.2.3 Casing spacers shall be used, filling void between casing and pipe completely.

474.4.2.4 Rotation of carrier pipe inside the casing pipe will not be permitted. Restrained joint pipe shall be used to help prevent such rotation.

474.4.2.5 Where required, on a case by case basis, casings for crossing shall be provided with a two inch (2") vent pipe at one end extending not less than four feet (4') above ground surface and above maximum elevation of high water. Top of vent pipe shall be turned down 180° with elbow fittings and properly screened.

474.4.2.6 After installation of the carrier pipe, the ends of the casing pipe shall be sealed up with a minimum of six inches (6") thickness of concrete and concrete pre-cast bricks. Concrete can be mixed on site using Portland cement and sand mixture or grout mixture. A rubber connection boot can be used as an alternative.

474.4.2.7 Where carrier pipe other than ductile iron are to be connected to the installation, proper adaptors shall be installed and shall conform to Section 499-01.

474.4.2.8 If casing cannot achieve proper elevation, grade, or provide minimum carrier pipe slope, the casing shall be abandoned by filling with concrete on the ends. The bore and jack would then be relocated and re-bored at a new location determined by the **CITY ENGINEER,** whose decision shall be final. All re-bores, not bored properly, shall be at the **CONTRACTOR'S** expense.

DIVISION 470

SECTION 475

DIRECTIONAL BORE OPERATIONS

SECTION 475
DIRECTIONAL BORE OPERATIONS

475.1 SCOPE

The **CONTRACTOR** shall furnish and install specified pipe by directional boring as shown on drawings and specified herein.

475.2 GENERAL REQUIREMENTS

475.2.1 The pipe specified shall be installed by directional boring the pipe without damaging existing utilities, structures or pavement. Directional boring is a multi-stage process consisting of site preparation and restoration, equipment setup, drilling a pilot bore along the predetermined path and then pulling the product back through the drilled space.

475.2.2 Select or design drilling fluids for the site specific soil and conditions. Confine free flowing slurry or drilling fluids at the ground surface during pull back or drilling. Remove all residual slurry from the surface and restore the site to preconstruction conditions.

475.3 MATERIALS

475.3.1 Directional Bore in GDOT ROW and under GDOT roads – Refer to GDOT specifications.

475.3.2 Directional Bore in City ROWS and under City roads – Pipe shall be HDPE fusion pipe conforming to Material Specifications 489-07-05-01 and 489-07-05-02 for water mains, 499-07-20-01 for sewer mains, and 509-07-05-01 for reuse mains. Pipe shall be DIP restrained joint pipe conforming to 489-07-02-01 and 489-07-02-02 for water mains, 499-07-15-01 and 489-07-15-02 for sewer mains, and 509-07-02-01 and 509-07-02-02 for reuse mains. Pipe shall be PVC fusion pipe conforming to Material Specifications 489-07-08-05 for water mains, 499-07-99-04 for sewer mains and 509-07-08-04 for reuse mains. Pipe shall be PVC restrained joint Certa-Lok pipe, or equal, conforming to 489-07-08-01 and 489-07-08-03 for water mains, 499-07-99-05 and 499-07-99-06 for sewer mains, and 509-07-08-01 and 509-07-08-03 for reuse mains.

475.4 CONSTRUCTION

475.4.1 Excavate for entry, exit, recovery and slurry sump pits as required for proper boring operations.

475.4.2 Provide MOT in accordance with City of Valdosta requirements.

475.4.3 Restore any damage caused by heaving, settlement, separation of pavement, escaping drilling fluid from the boring operation at no additional cost to the **CITY**.

475.4.4 Ensure that the site is restored to original condition.

475.4.5 Pipe will be tested with the other pipes installed or separately in accordance with Section 481.5 for water mains, Section 492.5 for sewer mains and Section 501.5 for reuse mains.

475.4.6 Use a locating and tracking system for the boring to ensure that the proposed installation is installed as intended.

475.4.7 Ensure adequate removal of soil cuttings and stability of the bore hole by monitoring the drilling fluids, pumping rate, back reaming and pipe installation.

475.4.8 When there is any indication that the installed pipe has sustained damage, stop all work, notify the **ENGINEER** and investigate the damage. The **ENGINEER** will determine if the installation is in or not in compliance with the specifications. The **ENGINEER** may require non-compliant installations to be abandoned and capped on both ends or filled with flowable fill. The new location will be determined by the **ENGINEER** at the **CONTRACTOR'S** expense.

475.4.9 If the pipe is not bored properly the pipe may have to be abandoned by capping both ends or filled with flowable fill determined by the **ENGINEER**. The boring would then be relocated and rebored at a new location determined by the **ENGINEER**. All re-bores, not bored properly, shall be at the **CONTRACTOR'S** expense.

DIVISION 470

SECTION 477

GENERAL CONSTRUCTION

MEASUREMENT AND PAYMENT

SECTION 477

GENERAL CONSTRUCTION MEASUREMENT AND PAYMENT

477.1 GENERAL

477.1.1 All measurements and payment shall be based on completed work performed in strict accordance with the drawings and specifications and in accordance with the unit and lump sum prices in the Proposal.

477.1.2 The **CONTRACTOR** shall be responsible for any debris and foreign matter which is allowed to enter the system as a result of construction and shall be solely responsible for any damage resulting therefrom.

477.1.3 Whenever any authorized change or combination of changes in the plans results in an increase or decrease in the original contract quantities, and the work added or eliminated is of the same general character as that shown on the original plans, the **CONTRACTOR** shall accept payment in full at the original contract unit prices for actual quantities of work done, and no allowance will be made for any loss of anticipated profits because of increases or decreases in quantities; provided, however, that increased or decreased work covered by a supplemental agreement shall be paid for as stipulated in such agreement.

477.1.4 The **CITY ENGINEER** or **UTILITY DIRECTOR** shall have the right to make alterations in the plans or character of the work as may be considered necessary or desirable during the progress of the work for satisfactory completion of the proposed construction, provided that no alteration shall be made which will result in a substantial change in the general plan or character of the work such as to evade the competitive bidding statute. Alterations provided for herein shall not be considered as a waiver of any conditions of the contract or the bond, nor to invalidate any of the provisions thereof.

477.1.5 These specifications, the plans, special provisions, and all supplementary documents are integral parts of the contract, and a requirement occurring in one is as binding as though occurring in all. They are intended to be complementary and to describe and provide for a complete work. In addition to the work and materials specifically called for in the specifications as being included in any specific pay item, additional incidental work, not specifically mentioned, will be included in such pay item when so shown in the plans, or if indicated, or obvious and apparent, as being necessary for the proper completion of the work under such pay item and not stipulated as being covered under other pay items. No additional compensation shall be allowed for such incidental work. In case of discrepancy, computed dimensions shall govern over scaled dimensions, plans shall govern over standard specifications, and special provisions shall govern over both standard specifications and plans unless otherwise specified by the **CITY ENGINEER**.

477.1.6 Unless otherwise provided in the specifications for the particular items involved, all measurements shall be taken from "finished grades and elevations" for vertical measurements and from pipe end to pipe end horizontally for lineal measurements. The method or combination of methods or measurements shall be those which will reflect

with reasonable accuracy the actual areas of the finished work as determined by the **CITY ENGINEER**.

477.1.7 No additional payment shall be made for clean-up work. The cost thereof shall be included in the price for related items as set forth in the Proposal.

477.1.8 It is the intent of this contract that all pavement replacement including trench width, resurfacing, and full width to be done at the same time.

477.1.9 The term "finished grade" as used herein shall mean the final elevation of the accepted work as approved by the **CITY ENGINEER** and when located in GDOT right-of-way shall be the elevation required and approved by GDOT to conform to its work as proposed or later modified. It shall be the **CONTRACTOR'S** responsibility to determine the finished grade at any point as required by the **CITY ENGINEER** or GDOT

477.1.10 No additional payment shall be made for the furnishing and installing of locating wire(s) and locating tape. The cost thereof shall be included in the unit price of the particular pipe installation for which it is called.

477.2 DETAILED MEASUREMENT AND PAYMENT

477.2.1 For those pay items which were not included in the Schedule of Prices Bid, it shall be mutually understood that all items for payment shall be made from the master list of pay items set forth below. Items that are not specifically listed hereafter shall utilize the basic numbering system set forth.

477.2.2 RESERVED

477.2.3 STANDARD PAY ITEMS

GENERAL CONSTRUCTION

101 Mobilization

101-01	Mobilization	LS
101-01.01	General Conditions	LS
101-01.02	Bonds	%

Payment for these bid items shall be made at the unit price set forth in the bid schedule and shall constitute full compensation for work specified in the contract documents. Payments shall include all costs for mobilizing, general conditions for project divided by months to complete, field office, temporary facilities, and other items required to complete the project.

102 Maintenance of Traffic

102-01	Traffic Control	LS
102-01.01	Traffic Control	DAY
102-01.02	Traffic Control w/Signs and Barricades	DAY
102-01.03	Traffic Control w/Signs, Barricades and Flag	HR

Payment for these bid items shall be made at the unit price set forth in the bid schedule and shall constitute full compensation for work specified in the contract documents. Payment shall include all costs for traffic control, road closures, detours, and other items required by the **CITY** and GDOT, and other items required to complete the traffic control specified.

103 Runoff Protection

103-01	Silt Fence and Sediment Control	LS

Payment for this bid item shall be made at the unit price set forth in the bid schedule and shall constitute full compensation for work specified in the contract documents. Payment shall include all costs for tree protection, silt fence installation, protection of inlets and pipes, and other costs associated with runoff water protection.

110 Clearing and Grubbing

110-01	Clearing and Grubbing	LS
110-01.01	Clearing and Grubbing - Light	SY
110-01.02	Clearing and Grubbing - Heavy	SY

Payment for these bid items shall be made at the unit price set forth in the bid schedule and shall constitute full compensation for work specified in the contract documents. Payment shall include all costs for clearing and grubbing, disposal of materials, and other items required to complete the clearing and grubbing specified.

120 Excavation and Backfill

120-02.01	Excavation	CY
120-02.02	Borrow Excavation	CY
120-02.03	Backfill Material	LS
120-02.03.01	Backfill w/On-site Material	CY
120-02.03.02	Backfill w/Off-site Material	CY
120-02.04	Earthwork	LS
120-02.05	Ditch Excavation	LF
120-02.06	Excavate and Stockpile Select Material	CY
120-02.07	Construct Berm	LF

120-02.08	Construct Swale	LF
120-02.09	Backfill Washout Areas	CY
120-02.10	Grading	SY
120-02.11	Ditch Block, Soil	EA
120-02.12	Ditch Block, Concrete	LS
120-02.13	Dewatering	LS
120-02.14	On-site Hauling	LS
120-02.15	Remove and Replace Dirt Road	SY

Payment for these bid items shall be made at the unit price set forth in the bid schedule and shall constitute full compensation for work specified in the contract documents. Payment shall include all costs for excavation, backfill, grading, dewatering and other items required to complete the site work specified.

120-04 Unsuitable Material

120-04.01	Remove and Replace Unsuitable Material	CY
120-04.02	Remove Unsuitable Material	CY
120-04.03	Remove Rock Material	CY

Payment for these bid items shall be made at the unit price set forth in the bid schedule and shall constitute full compensation for work specified in the contract documents. Payment shall include all costs for excavation, removal of unsuitable material, replacement of backfill and other items required to complete the removal of unsuitable material specified.

160-04 Stabilized Subgrade

160-04.01	6” Stabilized Subgrade	SY
160-04.02	8” Stabilized Subgrade	SY
160-04.03	10” Stabilized Subgrade	SY
160-04.04	12” Stabilized Subgrade	SY

Payment for these bid items shall be made at the unit price set forth in the bid schedule and shall constitute full compensation for work specified in the contract documents. Payment shall include all costs for excavation, mixing, grading, compaction, and other items required to stabilize the road subgrade as specified.

200-01 Limerock Base

200-01.01	Limerock 6” Base	SY
200-01.02	Limerock 8” Base	SY
200-01.03	Limerock 10” Base	SY
200-01.04	Limerock 12” Base	SY
200-01.05	Limerock 14” Base	SY
200-01.06	Scarify Limerock and Compact	SY

Payment for these bid items shall be made at the unit price set forth in the bid schedule and shall constitute full compensation for work specified in the contract documents. Payment shall include

all costs for excavation, installation, grading, compaction, and other items required to complete the limerock base installation specified.

300 Tack and Prime Coat

300-01	Prime Coat	GAL
300-02	Crack Fill	GAL
300-03	Tack Coat	GAL

Payment for these bid items shall be made at the unit price set forth in the bid schedule and shall constitute full compensation for work specified in the contract documents. Payment shall include all costs for prime coat, tack coat, crack fill, sand, and other items required to complete the sealing of the limerock.

331 Asphalt Pavement

331-01.01	S-I Leveling Course	TON
331-01.02	S-III Leveling Course	TON
331-01.03	Superpave Leveling Course	TON
331-02.01	¾" Superpave Overlay	SY
331-02.02	1" Superpave Overlay	SY
331-02.03	1 ½" Superpave Overlay	SY
331-02.04	2" S-III Overlay	SY
331-72.01	Asphalt Pavement 1" Superpave	SY
331-72.02	Asphalt Pavement 1 ½" Superpave	SY
331-72.03	Asphalt Pavement 2" Superpave	SY
331-72.04	Asphalt Pavement 3" Superpave	SY
331-72.05	Asphalt Pavement 4 ½" Superpave	

Payment for these bid items shall be made at the unit price set forth in the bid schedule and shall constitute full compensation for work specified in the contract documents. Payment shall include all costs for asphalt installation, compaction, and other items required to complete the asphalt installation as specified.

425 Stormwater Structures

425-01.01	Type 1019 Stormwater Inlet, 0' – 6'	EA
425-01.02	Type 1019 Stormwater Inlet, 6' – 12'	EA
425-03.01	Type 1033 Stormwater Inlet, 0' – 6'	EA
425-03.02	Type 1033 Stormwater Inlet, 6' – 12'	EA
425-05.01	Type 1034 Catch Basin, 0' – 6'	EA
425-05.02	Type 1034 Catch Basin, 6' – 12'	EA
425-10.01	Stormwater Manhole, 0' – 6'	EA
425-10.02	Stormwater Manhole, 6' – 12'	EA
425-10.03	Stormwater Manhole, 12' – 18'	EA
425-10.04	Stormwater Manhole, 18' – 24'	EA
425-11.01	Remove and Replace Stormwater Manhole, 0' – 6'	EA
425-11.02	Remove and Replace Stormwater Manhole, 6' – 12'	EA
425-11.03	Remove and Replace Stormwater Manhole, 12' – 18'	EA
425-11.04	Remove and Replace Stormwater Manhole, 18' – 24'	EA

Payment for these pay items shall be made at the unit price set forth in the bid schedule and shall constitute full compensation for work specified in the contract documents. Payment shall include all costs for excavation, installation of structures, compaction, backfill, and other items required to complete the installation of the structures as specified.

430 Stormwater Piping

430-01.01	12” RCP Stormwater Pipe	LF
430-01.02	15” RCP Stormwater Pipe	LF
430-01.03	18” RCP Stormwater Pipe	LF
430-01.04	24” RCP Stormwater Pipe	LF
430-01.05	30” RCP Stormwater Pipe	LF
430-01.06	36” RCP Stormwater Pipe	LF
430-01.07	42” RCP Stormwater Pipe	LF
430-01.08	48” RCP Stormwater Pipe	LF
430-02.01	14” x 23” ERCP Stormwater Pipe	LF
430-02.02	19” x 30” ERCP Stormwater Pipe	LF
430-02.03	29” x 45” ERCP Stormwater Pipe	LF
430-02.04	34” x 53” ERCP Stormwater Pipe	LF
430-03.01	12” HDPE Stormwater Pipe	LF
430.03.02	15” HDPE Stormwater Pipe	LF
430-03.03	18” HDPE Stormwater Pipe	LF
430.03.04	24” HDPE Stormwater Pipe	LF
430-03.05	36” HDPE Stormwater Pipe	LF
430.03.06	42” HDPE Stormwater Pipe	LF
430.03.07	48” HDPE Stormwater Pipe	LF
430-19.01	Remove and Replace 12” RCP Storm Pipe	LF
430-19.02	Remove and Replace 18” RCP Storm Pipe	LF
430-19.03	Remove and Replace 24” RCP Storm Pipe	LF
430-19.04	Remove and Replace 30” RCP Storm Pipe	LF
430-19.05	Remove and Replace 36” RCP Storm Pipe	LF
430-19.06	Remove and Replace 48” RCP Storm Pipe	LF
430-19.07	Remove and Replace 54” RCP Storm Pipe	LF

Payment for these pay items shall be made at the unit price set forth in the bid schedule and shall constitute full compensation for work specified in the contract documents. Payment shall include all costs for excavation, installation of pipe, backfill, compaction, and other items required to complete the installation of the stormwater piping as specified.

430-22 Stormwater Concrete Mitered End

430-22.01	12” Concrete Mitered End	EA
430-22.02	15” Concrete Mitered End	EA
430-22.03	18” Concrete Mitered End	EA
430-22.04	24” Concrete Mitered End	EA

430-22.05	30” Concrete Mitered End	EA
430-22.06	36” Concrete Mitered End	EA
430-22.07	42” Concrete Mitered End	EA
430-22.08	48” Concrete Mitered End	EA
430-22.10	14” x 23” Concrete Mitered End	EA
430-22.11	19” x 30” Concrete Mitered End	EA
430-22.12	29” x 45” Concrete Mitered End	EA
430-22.13	34” x 53” Concrete Mitered End	EA

Payment for these pay items shall be made at the unit price set forth in the bid schedule and shall constitute full compensation for work specified in the contract documents. Payment shall include all costs for excavation, formwork, rebar, concrete, grading, and other items required to complete the installation of the concrete mitered ends as specified.

430-40 Stormwater Flared End Sections

430-40.01	12” HDPE Flared End Section	EA
430-40.02	15” HDPE Flared End Section	EA
430-40.03	18” HDPE Flared End Section	EA
430-40.04	24” HDPE Flared End Section	EA
430-40.05	30” HDPE Flared End Section	EA
430-40.06	36” HDPE Flared End Section	EA
430-40.07	42” HDPE Flared End Section	EA
430-40.08	48” HDPE Flared End Section	EA

Payment for these pay items shall be made at the unit price set forth in the bid schedule and shall constitute full compensation for work specified in the contract documents. Payment shall include all costs for connecting piping to flared end sections, and other items required to complete the connections as specified.

430-50 Existing Stormwater Pipe Removal

430-50.01	Remove Existing 8” Pipe	LF
430-50.02	Remove Existing 12” Pipe	LF
430-50.03	Remove Existing 18” Pipe	LF
430-50.04	Remove Existing 24” Pipe	LF
430-50.05	Remove Existing 30” Pipe	LF
430-50.06	Remove Existing 36” Pipe	LF
430-50.07	Remove Existing 42” Pipe	LF
430-50.08	Remove Existing 48” Pipe	LF
430-50.09	Remove Existing 54” Pipe	LF
430-50.10	Remove Existing 60” Pipe	LF

Payment for these pay items shall be made at the unit price set forth in the bid schedule and shall constitute full compensation for work specified in the contract documents. Payment shall include all costs for excavation, removal of pipe, disposal of pipe, backfill, compaction, and other items required to complete the removal of existing stormwater piping as specified.

430-70 Stormwater Connections

430-70.01	Connect 12” Pipe to Existing Piping	EA
430-70.02	Connect 15” Pipe to Existing Piping	EA
430-70.03	Connect 18” Pipe to Existing Piping	EA
430-70.04	Connect 24” Pipe to Existing Piping	EA
430-70.05	Connect 30” Pipe to Existing Piping	EA
430-70.06	Connect 36” Pipe to Existing Piping	EA
430-70.07	Connect 42” Pipe to Existing Piping	EA
430-70.08	Connect 48” Pipe to Existing Piping	EA
430-71.01	Connect 12” Pipe to Existing Structure	EA
430-71.02	Connect 15” Pipe to Existing Structure	EA
430-71.03	Connect 18” Pipe to Existing Structure	EA
430-71.04	Connect 24” Pipe to Existing Structure	EA
430-71.05	Connect 30” Pipe to Existing Structure	EA
430-71.06	Connect 36” Pipe to Existing Structure	EA
430-71.07	Connect 42” Pipe to Existing Structure	EA
430-71.08	Connect 48” Pipe to Existing Structure	EA
430-72.01	Connect 12” Pipe to New Structure	EA
430-72.02	Connect 15” Pipe to New Structure	EA
430-72.03	Connect 18” Pipe to New Structure	EA
430-72.04	Connect 24” Pipe to New Structure	EA
430-72.05	Connect 30” Pipe to New Structure	EA
430-72.06	Connect 36” Pipe to New Structure	EA
430-72.07	Connect 42” Pipe to New Structure	EA
430-72.08	Connect 48” Pipe to New Structure	EA

Payment for these pay items shall be made at the unit price set forth in the bid schedule and shall constitute full compensation for work specified in the contract documents. Payment shall include all costs for connecting piping to stormwater structures, and other items required to complete the connections as specified.

440-01 Stormwater Underdrain

440-01.01	6” Underdrain	LF

Payment for this pay item shall be made at the unit price set forth in the bid schedule and shall constitute full compensation for work specified in the contract documents. Payment shall include all costs for excavation, installation of underdrain piping, backfill, compaction, and other items required to complete the underdrain installation as specified.

477 Surveys

477-01	Construction Survey	LS
486-01	Water System Asbuilt	LS
496-01	Sanitary Sewer System Asbuilt	LS
506-01	Reclaimed Water System Asbuilt	LS
596-01	Stormwater System Asbuilt	LS

Payment for these pay items shall be made at the unit price set forth in the bid schedule and shall constitute full compensation for work specified in the contract documents. Payment shall include all costs for survey layout, survey asbuilts, and other items required to complete the survey requirements specified.

477-03 Power Poles

477-03	Hold Power Pole	EA

Payment for this pay item shall be made at the unit price set forth in the bid schedule and shall constitute full compensation for work specified in the contract documents. Payment shall include all costs for holding poles, and other items required to complete the work specified around existing power or traffic poles.

477-04.01 Asphalt Pavement Replacements

477-04.01.02	Asphalt Pavement Removal and Replacement	SY
477-04.01.03	Trench Width Asphalt Pavement Removal and Replacement	SY
477-04.01.04	Full Width Asphalt Pavement Removal and Replacement	SY
477-04.01.05	Asphalt Removal – Small Quantity	SY
477-04.01.06	Asphalt Removal – Large Quantity	SY
477-04.01.07	Asphalt Driveway Removal and Replacement	SY

Payment for these pay items shall be made at the unit price set forth in the bid schedule and shall constitute full compensation for work specified in the contract documents. Payment shall include all costs for asphalt removal, limerock base installation, grading, priming, asphalt installation, disposal, and other items required to complete the asphalt pavement replacements as specified.

477-06 Miscellaneous Concrete

477-06.01.01	Concrete Encasements	CY
477-06.02.02	Concrete Fill	CY
477-06.02.01	Concrete Thrust Blocks	CY
477-06.03.01	4” Bollards	EA
477-06.03.02	6” Bollards	EA
477-06.04.01	Remove and Replace Concrete Driveways	SY
477-06.04.02	Concrete Driveways	SY
477-06.05.01	Remove and Replace Concrete Sidewalks	SY
477-06.05.02	Concrete Sidewalks	SY
477-06.06.01	Remove and Replace Concrete Swales	SY
477-06.06.02	Concrete Swales	SY

Payment for these pay items shall be made at the unit price set forth in the bid schedule and shall constitute full compensation for work specified in the contract documents. Payment shall include all costs for excavation, formwork, rebar, concrete, installations, backfill, compaction, and other items required to complete the miscellaneous concrete installations as specified.

477-06 Pipe and Fitting Restraint

477-06.10.01	Pipe Rodded Thrust Restraint	FITTING
477-06.11.01	4" Mega-Lug Fitting Restraint	EA
477-06.11.02	4" Pipe Joint Restraint	EA
477-06.12.01	6" Mega-Lug Fitting Restraint	EA
477-06.12.02	6" Pipe Joint Restraint	EA
477-06.13.01	8" Mega-Lug Fitting Restraint	EA
477-06.13.02	8" Pipe Joint Restraint	EA
477-06.14.01	10" Mega-Lug Fitting Restraint	EA
477-06.14.02	10" Pipe Joint Restraint	EA
477-06.15.01	12" Mega-Lug Fitting Restraint	EA
477-06.15.02	12" Pipe Joint Restraint	EA
477-06.16.01	14" Mega-Lug Fitting Restraint	EA
477-06.16.02	14" Pipe Joint Restraint	EA
477-06.17.01	16" Mega-Lug Fitting Restraint	EA
477-06.17.02	16" Pipe Joint Restraint	EA
477-06.18.01	18" Mega-Lug Fitting Restraint	EA
477-06.18.02	18" Pipe Joint Restraint	EA
477-06.19.01	20" Mega-Lug Fitting Restraint	EA
477-06.19.02	20" Pipe Joint Restraint	EA
477-06.20.01	24" Mega-Lug Fitting Restraint	EA
477-06.20.02	24" Pipe Joint Restraint	EA
477-06.20.03	30" Mega-Lug Fitting Restraint	EA
477-06.20.04	30" Pipe Joint Restraint	EA

Payment for these pay items shall be made at the unit price set forth in the bid schedule and shall constitute full compensation for work specified in the contract documents. Payment shall include all costs for excavation, pipe restraint, installations, backfill, compaction, and other items required to complete the pipe restraints specified.

520 Concrete Curbs

520-01.01	Concrete Curb & Gutter Removal and Replacement	LF
520-01.02	Concrete Valley/Drop Curb and Gutter	LF
520-02.01	Concrete Curb Removal & Replacement	LF
520-02.02	Concrete Curb Type "2"	LF

Payment for these pay items shall be made at the unit price set forth in the bid schedule and shall constitute full compensation for work specified in the contract documents. Payment shall include all costs for removal, formwork, rebar, concrete, excavation, backfill, compaction, and other items required to complete the concrete curbs specified.

530 Miscellaneous Stormwater

530-01.01	Sand Cement Rip Rap	CY
530-02.01	Concrete Rubble 1' Thick	SY
530-02.02	Concrete Rubble 2' Thick	SY

530-03.01	Remove and Replace End Wall	LS
530-03.02	Remove and Replace Block Wall	LS
530-02.01	Stone Rip Rap	SY

Payment for these pay items shall be made at the unit price set forth in the bid schedule and shall constitute full compensation for work specified in the contract documents. Payment shall include all costs for excavation, installation, backfill, compaction, and other items required to complete the installations as specified.

550 Fencing

550-01.01	Farm Fencing Removal and Replacement	LF
550-01.02	Farm Fencing	LF
550-01.03	Farm Fencing Gate	EA
550-02.00	Chain Link Fencing	LF
550-02.01	Chain Link Fencing with PVC Coating	LF
550-02.02	Chain Link Fencing Removal and Replacement	LF
550-02.03	14’ Chain Link Fence Gate	EA
550-02.04	14’ Chain Link Fence Gate with PVC Coating	EA
550-02.05	16’ Chain Link Fence Gate	EA
550-02.06	16’ Chain Link Fence Gate with PVC Coating	EA
550-02.07	20’ Chain Link Fence Gate	EA
550-02.08	20’ Chain Link Fence Gate with PVC Coating	EA
550-02.09	30’ Chain Link Fence Gate	EA
550-02.10	30’ Chain Link Fence Gate with PVC Coating	EA

Payment for these pay items shall be made at the unit price set forth in the bid schedule and shall constitute full compensation for work specified in the contract documents. Payment shall include all costs for removal, fencing, barb wire, gates, posts, top rails, grading, concrete, and other items required to complete the fencing as specified.

570 Grassing

570-01.01	Seed and Mulch	SY
575-02.01	Sod – St. Augustine	SY
575-02.02	Sod – Bahia	SY
575-02.03	Sod – Tifton 419 Bermuda	SY
575-02.04	Sod – Centipede	SY
575-03.01	Install #57 Stone around Lift Station	SY

Payment for these pay items shall be made at the unit price set forth in the bid schedule and shall constitute full compensation for work specified in the contract documents. Payment shall include all costs for grading, grassing, watering, fertilizer, and other items required to complete the grassing as specified.

706 Miscellaneous Markers and Stops

706-01.AB	Reflective Pavement Markers	EA
708-01	Standard Wheel Stop	EA

Payment for these pay items shall be made at the unit price set forth in the bid schedule and shall constitute full compensation for work specified in the contract documents. Payment shall include all costs for reflective pavement marker installation, wheel stop installation, and other items required to complete the requirements specified.

710 Temporary Striping

710.02.01	Temporary Skip Traffic Stripe – 6” Yellow	LF
710-02.02	Temporary Skip Traffic Stripe – 6” White	LF
710-06.01	Temporary Solid Traffic Stripe – 6” Yellow	LF
710-06.02	Temporary Solid Traffic Stripe – 6” White	LF
710-06.03	Temporary Solid Double Yellow – 6”	LF
710-06.04	Temporary Stop Bar – 24”	EA

Payment for these pay items shall be made at the unit price set forth in the bid schedule and shall constitute full compensation for work specified in the contract documents. Payment shall include all costs for temporary striping, and other items required to complete the specified temporary striping.

711 Thermoplastic Striping

711-01	Stop Bar – 24”	EA
711-02	Skip Traffic Stripe – 6” Yellow	LF
711-03	Skip Traffic Stripe – 6” White	LF
711-04	Directional Arrows	EA
711-06.01	Solid Traffic Stripe – 6” Yellow	LF
711-06.02	Solid Traffic Stripe – 6” White	LF
711-06.03	Solid Double Yellow - 6”	LF
711-07.01	Crosswalk – 6” White	LF

Payment for these pay items shall be made at the unit price set forth in the bid schedule and shall constitute full compensation for work specified in the contract documents. Payment shall include all costs for thermoplastic striping, and other items required to complete the specified striping.

712 Traffic Loops and Signs

712-01	Traffic Control Signage Removal and Replacement	LS
712-02	Traffic Loops Removal and Replacement	LS
712-03	Traffic Loops	LS
712-04	Arrow Boards	LS

Payment for these pay items shall be made at the unit price set forth in the bid schedule and shall constitute full compensation for work specified in the contract documents. Payment shall include all costs for removal, repair, traffic loop installation, and other items required to complete the traffic loops as specified.

DIVISION 470

SECTION 478

GENERAL CONSTRUCTION

STANDARD DETAILS

SECTION 478

GENERAL CONSTRUCTION STANDARD DETAILS

TABLE OF CONTENTS

478-3.3 Concrete Encasements

A) Concrete Encasement

478-4 VALVE BOX INSTALLATION

478-4.1 Valve Box Installation

A) Valve Box Installation Traffic Area in Pavement
B) Valve Box Installation Traffic Area not in Pavement

478-4.2 Valve Box Installation for Fire Main

A) Valve Box Installation for Fire Main Traffic Area in Pavement
B) Valve Box Installation for Fire Main Traffic Area not in Pavement

478-5 TRENCH EXCAVATION

478-5.1 Trench Excavation

A) Trench Excavation-Unsuitable Material

478-5.2 Trench Backfill

A) Trench Backfill - Not within Street Rights of Way
B) Trench Backfill - Under Traveled Way for All Streets - Paved and Unpaved

478-6 PAVEMENT REPLACEMENT

478-6.1 Pavement Replacement

A) Full Width Pavement Replacement
B) Trench Width Pavement Replacement

478-7 LOCATING WIRE

478-7.1 Locating Wire

A) Locating Wire

478-8 BOLLARD INSTALLATION

478-8.1 Bollard Installation

A) Bollard Installation

478-8 RESERVED

ITEM	EXISTING	PROPOSED
TRAFFIC CONTROL BOX		
STREET SIGN		
LOOP DETECTOR		
PEDESTRIAN LIGHT		
DISABLED PARKING		

SPECIFICATION REVISIONS	DATE REVISED:	SECTION SHT. 1 OF 1
CITY OF VALDOSTA	CITY OF VALDOSTA STANDARD DETAIL	TRAFFIC LEGEND GENERAL
		A 478-1.1

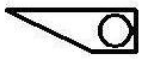
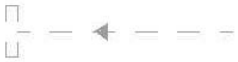
ITEM	EXISTING	PROPOSED
WATER MAIN	8"w 8"w	8 WM 8 WM 8 WM
BUTTERFLY VALVE	b.v.	
GATE VALVE	G.V.	
AIR RELEASE VALVE	air release valve	
SPRINKLER HEAD	sprinkler head	
FLUSH POINT	flush point	
SAMPLING POINT	sampling point	
FIRE HYDRANT	fire hydrant	
TEE		
PLUG OR CAP		
BEND		
CROSS		
PUMPING STATION	pumping station	
WATER METER	water meter	
CHECK VALVE	check valve	
REDUCER	reducer	
WATER SERVICE (SINGLE)	w.s.	
WATER SERVICE (DOUBLE)	w.s.	
BLOW OFF	w.s.	

SPECIFICATION	DATE REVISED:	SECTION
		SHT 1 OF 1

CITY OF VALDOSTA	CITY OF VALDOSTA STANDARD DETAIL	WATER SYSTEM LEGEND	B
		GENERAL	478-1.1

ITEM	EXISTING	PROPOSED
SEWER MAIN	8 SS — 8 SS	8 SS — 8 SS
FORCE MAIN	3 FM — 3 FM	3 FM — 3 FM
MANHOLE	san. m.h.	
DROP MANHOLE	san. m.h.	
MANHOLE STUB OUT	san. m.h.	
LIFT STATION (WET WELL)	lift station	
PLUG VALVE	p.v.	
GATE VALVE	g.v.	
BUTTERFLY VALVE	b.v.	
AIR RELEASE VALVE	air release valve	
REDUCER	reducer	
SEWER SERVICE (MANHOLE)	m.h. s/s	
SEWER SERVICE (MAIN LINE)	s/s	

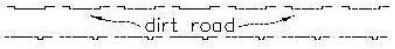
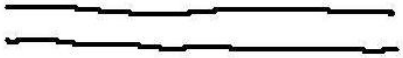
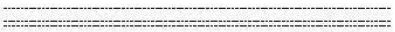
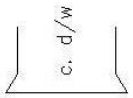
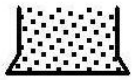
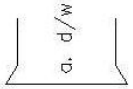
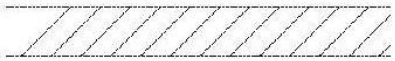
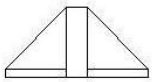
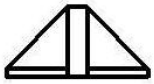
SPECIFICATION		DATE REVISED:	SECTION
			SHT 1 OF 1
CITY OF VALDOSTA	CITY OF VALDOSTA STANDARD DETAIL	SANITARY SYSTEM SEWER LEGEND	C
		GENERAL	478-1.1

ITEM	EXISTING	PROPOSED
DITCH BOTTOM INLET (1019)		
CURB INLET (1033)		
CURB INLET (1034)		
DRAINAGE FLOW		
SWALE		
STORM PIPE		
END WALL		

SPECIFICATION REVISIONS		DATE REVISED:	SECTION SHT 1 OF 1
CITY OF VALDOSTA	CITY OF VALDOSTA STANDARD DETAIL	STORM DRAINAGE SYSTEM LEGEND GENERAL	D 478-1.1

ITEM	EXISTING	PROPOSED
CENTERLINE		
BASELINE	B/L	B/L
RIGHT OF WAY PROPERTY LINE	P/L	P/L
EASEMENT LINE		
RIGHT OF WAY LINE		
STATIONING ALONG C/L OR B/L	3 B/L SURVEY	5 EVEN 500' DASH BOTH SIDES OF LINE
FENCE (CHAIN LINK)		
FENCE (WIRE)		
FENCE (WOOD)		
FENCE (BLOCK/ BRICK)		
FENCE (STONE)		
TREE	18" oak	NOTE: TREE TO BE REMOVED 18" oak (T.B.R.)
EDGE OF WOODED AREA		
HEDGE	hedge	hedge (T.B.R.)
POWER POLE (WOOD)		
POWER POLE (CONCRETE)		
POWER POLE (METAL)		
GUY WIRE & ANCHOR		
CONTOUR LINE	70'	70'
MAIL BOX	m.b.	
BUILDING		
RAILROAD TRACKS		

SPECIFICATION REVISIONS	DATE REVISED:	SECTION SHT 1 OF 3
CITY OF VALDOSTA	CITY OF VALDOSTA STANDARD DETAIL	STREET LEGEND GENERAL
		E 478-1.1

ITEM	EXISTING	PROPOSED
PAVED ROAD		
DIRT ROAD		
CURB & GUTTER		
DROP CURB & GUTTER		
DRIVEWAY (CONCRETE)		
DRIVEWAY (ASPHALT)		
DRIVEWAY (DIRT OR LIMEROCK)		
PAVEMENT REMOVAL & REPLACEMENT		
PAVEMENT REMOVAL		
HANDICAP RAMP		

SPECIFICATION REVISIONS		DATE REVISED:	SECTION SHT 2 OF 3
CITY OF VALDOSTA	CITY OF VALDOSTA STANDARD DETAIL	STREET LEGEND GENERAL	E 478-1.1

ITEM	EXISTING	PROPOSED
BURIED TELEPHONE CABLE	—— BT —— BT ——	— BT — BT —
GAS MAIN	—— GAS —— GAS ——	— GAS — GAS —
UNDERGROUND CABLE TELEVISION	—— B CATV ——	— B CATV —

SPECIFICATION REVISIONS	DATE REVISED:	SECTION SHT 3 OF 3
CITY OF VALDOSTA	CITY OF VALDOSTA STANDARD DETAIL	STREET LEGEND GENERAL
		E 478-1.1

A

ABD.	ABANDONED
AC.	ACRES
ACT.	ACTUAL
ADJ.	ADJUST
A.T.G.	ADJUST TO GRADE
A.R.V.	AIR RELEASE VALVE
ALT.	ALTERNATE
A.N.S.I.	AMERICAN NATIONAL STANDARDS INSTITUTE
A.S.T.M.	AMERICAN STANDARDS FOR TESTING & MATERIALS
A.W.W.A.	AMERICAN WATER WORKS ASSOCIATION
APPRH.	APPROACH
APPR.	APPROVE
APPROX.	APPROXIMATE
A.	AREA
A.C.P.	ASBESTOS CEMENT PIPE
ASPH.	ASPHALT
ASSEM.	ASSEMBLY
A.C.L.	ATLANTIC COASTLINE RAILROAD
AVE.	AVENUE
Asp. Dr.	ASPHALT DRIVEWAY

B

BK.	BACK
B. TO B.	BACK TO BACK
B.W.F.	BARBED WIRE FENCE
B/L	BASELINE
BRG.	BEARING
BEG.	BEGIN
B.M.	BENCH MARK
BIT.	BITUMINOUS
B.C.P.	BITUMINOUS COATED PIPE
BL.W	BLOCK WALL
B.O.V.	BLOW OFF VALVE
BOT.	BOTTOM
B. ELEV.	BOTTOM ELEVATION
BLVD.	BOULEVARD
BLKHD.	BULKHEAD
B.V.	BUTTERFLY VALVE
B.C.	BURIED CABLE
B.O.	BY OTHERS
B. & J.	BORE & JACK
B/C	BACK OF CURB

C

C.I.	CAST IRON
C.I.P.	CAST IRON PIPE
C.B.	CATCH BASIN
CTR.	CENTER
C/L	CENTERLINE
C. TO C.	CENTER TO CENTER
CH.	CHAIN
C.L.F.	CHAIN LINK FENCE
CHAN.	CHANNEL
C.V.	CHECK VALVE
CHD.	CHORD
CIR.	CIRCLE
CL.	CLEAR
COL.	COLUMN
CO.	COMPANY
CONC.	CONCRETE
C.B.S.	CONCRETE BLOCK STRUCTURE
C. & G.	CURB & GUTTER
Conc. Dr.	CONCRETE DRIVEWAY
C. HDW.	CONCRETE HEADWALL
C.M.	CONCRETE MONUMENT
C. P/L	CONCRETE PARKING LOT
C.P.	CONCRETE PIPE
CONC. P.	CONCRETE POLE
C. S/W	CONCRETE SIDEWALK
CONN.	CONNECTION
CONST.	CONSTRUCT/CONSTRUCTION
CONT.	CONTINUE/CONTINUOUS
CONTR.	CONTRACT/CONTRACTOR
COORD.	COORDINATE
COR.	CORNER
C.M.P.	CORRUGATED METAL PIPE
CT.	COURT
C.F.	CUBIC FEET
C.F.S.	CUBIC FEET PER SECOND
C.Y.	CUBIC YARD
CULV.	CULVERT
C.I.P.	CAST IN PLACE

SPECIFICATION	SECTION
REVISIONS	SHT 1 OF 5

CITY OF VALDOSTA	CITY OF VALDOSTA STANDARD DETAIL	ABBREVIATIONS	A
		ABBREVIATIONS	478-1.2

D

D	DEGREE OF CURVE
DEG.	DEGREES
DEPT.	DEPARTMENT
D.O.T.	DEPARTMENT OF TRANSPORTATION (GA.)
D.H.W.	DESIGN HIGH WATER
DIAG.	DIAGONAL
DIM.	DIMENSION
DIR.	DIRECTION
D.D/W	DIRT DRIVEWAY
D/R	DIRT ROAD
D.S/W	DIRT SIDEWALK
DIST.	DISTANCE
DIT.	DITCH
DBL.	DOUBLE
DR.	DRIVE
D/W	DRIVEWAY
DRN	DRAIN
D.R.A.	DRAINAGE RETENTION AREA
DWG.	DRAWING
D/IN.	DROP INLET
D/M.H.	DROP MANHOLE
D/C	DROP CONNECTION
D.I.P.	DUCTILE IRON PIPE

E

EA.	EACH
ESMT.	EASEMENT
E/L	EASEMENT LINE
E.	EAST
E.B.L.	EASTBOUND LANE
E/P	EDGE OF PAVEMENT
ELEC.	ELECTRIC
E.M.S.	ELECTRONIC MARKING SYSTEM
ELEV.	ELEVATION
ELLIP.	ELLIPTICAL
EMBK.	EMBANKMENT
EMUL.	EMULSIFIED
ENCL.	ENCLOSURE
E.O.S.	END OF SURVEY
E.W.	END WALL
E. TO E.	END TO END
ENG.	ENGINEER
ENT.	ENTRANCE
EQ.	EQUAL
EQUIP.	EQUIPMENT
EST.	ESTIMATE
ETC.	ETCETRA
EXC.	EXCAVATE
EXIST.	EXISTING
E.G.	EXISTING GRADE
EXP.	EXPANSION
EXP. JT.	EXPANSION JOINT
EXT.	EXTENSION
EA. W.	EACH WAY
E.G.	FOR EXAMPLE

F

F. TO F.	FACE TO FACE
FED.	FEDERAL
F.A.	FEDERAL AID
F.A.P.	FEDERAL AID PROJECT
F.H.W.A.	FEDERAL HIGHWAY ADMINISTRATION
FT.	FEET
F.PF	FEET PER FOOT
F.P.M.	FEET PER MINUTE
F.P.S.	FEET PER SECOND
F./FEN.	FENCE (HOGWIRE OR BARBED WIRE)
FERT.	FERTILIZE
F.B.	FIELD BOOK
FIN.	FINISH
F.F	FINISHED FLOOR
F.H.	FIRE HYDRANT
F.E.S.	FLARED END SECTION
FLEX.	FLEXIBLE
FLR.	FLOOR
FL.	FLOW
F.L.	FLOW LINE
F/H	FLUSH HEADER
F.P.	FLUSHING POINT
FTG.	FOOTING
F.M.	FORCE MAIN
F.C.M.	FOUND CONCRETE MONUMENT
FD.I.P.	FOUND IRON PIPE
FD. N&D	FOUND NAIL & DISK
FOUND.	FOUNDATION
FR.	FRAME
F. & G.	FRAME & GATE
FURN.	FURNISH
F. & I.	FURNISH & INSTALL
FUT.	FUTURE

G

GAL.	GALLON
GALV.	GALVANIZED
GDOT	GEORGIA DEPARTMENT OF TRANSPORTATION
G.I.P.	GALVANIZED IRON PIPE
G.M.	GAS MAIN
G.S.	GAS SERVICE
G.V.	GATE VALVE
GR.	GRADE
GRT.	GRATE
GRD.	GROUND
G.R.	GUARD RAIL
GUT.	GUTTER
G.W.	GUY WIRE
G.P.	GUY POLE
G.P.D.	GALLONS PER DAY
G.P.H.	GALLONS PER HOUR
G.P.M.	GALLONS PER MINUTE

H

HNDRL.	HANDRAIL
H.C.	HEADER CURB
HDWL.	HEADWALL
H.	HEIGHT
H.W.	HIGH WATER
HWY.	HIGHWAY
HORIZ.	HORIZONTAL
HR.	HOUR
HSE.	HOUSE
HYD.	HYDRANT
H.C.	HOUSE CONNECTION
HNDCP.	HANDICAPPED

I

IN.	INCH
IN/FT	INCHES PER FOOT
INC.	INCORPORATED
INCR.	INCREASER
I.D.	INSIDE DIAMETER
INSTL.	INSTALL
INV.	INVERT
I.P.	IRON PIPE
I.E.	THAT IS

J

JT.	JOINT
JCT.	JUNCTION
J.B.	JUNCTION BOX

L

L.B.	LIMEROCK BASE
L.B.R.	LIMEROCK BEARING RATIO
LR.D/W	LIMEROCK DRIVEWAY
LIN.	LINEAR
L.F.	LINEAR FOOT
LK.	LINK
L.C.	LONG CHORD
L.S.	LUMP SUM
LA.	LANE
L.S.	LIFT STATION
LT.	LEFT
LB.	POUND

M

MAINT.	MAINTENANCE
M.B.	MAILBOX
M.H.	MANHOLE
M.U.T.C.D.	MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES
MFG.	MANUFACTURING
MAT.	MATERIAL
MAX.	MAXIMUM
M.H.W.	MEAN HIGH WATER
M.L.W.	MEAN LOW WATER
M.S.L.	MEAN SEA LEVEL
MECH.	MECHANIC
MED.	MEDIAN
M.P.	MILE POST
M.P.H.	MILES PER HOUR
MIN.	MINIMUM
MISC.	MISCELLANEOUS
MOD.	MODIFY
MON.	MONUMENT
M/L	MORE OR LESS
M.J.	MECHANICAL

N

N. & R.	NAIL & RIBBON
N. & D.	NAIL & DISK
N.	NORTH
N.B.L.	NORTH BOUND LANE
N.E.	NORTH EAST
N.W.	NORTH WEST
N.I.C.	NOT IN CONTRACT
N.T.S.	NOT TO SCALE
NO.	NUMBER

O

O.C.	ON CENTER
OPT.	OPTION
ORG.	ORIGINAL
OZ.	OUNCE
O.D.	OUTSIDE DIAMETER
O. TO O.	OUTSIDE TO OUTSIDE
O.F.	OVERFLOW
O.H.	OVERHEAD
O.H./P.	OVERHEAD POWER
O.H./T.	OVERHEAD TELEPHONE
O.H.C.	OVERHEAD CABLE
O-PASS	OVERPASS

P

PVMT.	PAVEMENT
Q.	PEAK DISCHARGE
PED.	PEDESTRIAN
P.C.P.	PERMANENT CONTROL POINT
P.R.M.	PERMANENT REFERENCE MONUMENT
PH.	PHASE
PL.	PLACE
PT.	POINT
P.O.B.	POINT OF BEGINNING
P.C.C.	POINT OF COMPOUND CURVE
P.C.	POINT OF CURVATURE
P.O.C.	POINT OF CURVE
P.I.	POINT OF INTERSECTION
P.R.C.	POINT OF REVERSE CURVE
P.T.	POINT OF TANGENT
P.V.C.	POINT OF VERTICAL CURVE
P.V.I.	POINT OF VERTICAL INTERSECTION
P.V.T.	POINT OF VERTICAL TANGENCY
PBT.	POLYBUTYLENE TUBING
PET.	POLYETHYLENE TUBING
PVC.	POLYVINYLCHLORIDE
LB.	POUND
P.S.I.	POUNDS PER SQUARE INCH
P.P.	POWER POLE
PRCST.	PRECAST
PREST.	PRESTRESSED
P.G.	PROFILE GRADE
PROJ.	PROJECT
P/C	PROPERTY CORNER
P/L	PROPERTY LINE
PROP.	PROPOSED
P.S.	PUMP STATION

R

R. or RAD.	RADIUS
R.R.	RAILROAD
RGE.	RANGE
R.B.	RECORD BOOK
RED.	REDUCER
REF.	REFERENCE
R.M.	REFERENCE MONUMENT
R.P.	REFERENCE POINT
REINF.	REINFORCEMENT
R.C.P.	REINFORCED CONCRETE PIPE
RELOC.	RELOCATE
REM.	REMOVAL
R. & R.	REMOVAL & REPLACEMENT
REP.	REPLACEMENT
REQ.	REQUIRED
RES.	RESIDENCE
RET. W	RETAINING WALL
RT.	RIGHT
R/W	RIGHT OF WAY
RD.	ROAD
RDWY.	ROADWAY
RK.	ROCK
RTE.	ROUTE

S

S.P.	SAMPLING POINT
SAN.	SANITARY
S.C.L.	SEABOARD COASTLINE RAILROAD
SEC.	SECTION
SEC. COR.	SECTION CORNER
S. & M.	SEED & MULCH
SEP.	SEPARATOR
S/S	SEWER SERVICE
SHT.	SHEET
S/W	SIDE WALK
SL.	SLOPE
S.A.	SODDED AREA
S.	SOUTH
S.B.L.	SOUTHBOUND
S.E.	SOUTHEAST
S.W.	SOUTHWEST
SPCL.	SPECIAL
S.C.	SPECIAL TO CURVE
SPEC.	SPECIFICATION
S.T.	SPECIAL TO TANGENT
S.H.	SPRINKLER HEAD
SQ. FT.	SQUARE FEET
SQ. IN.	SQUARE INCH
SQ. YD.	SQUARE YARD
STD.	STANDARD
S.R.	STATE ROAD
STA.	STATION
S. D/W	STONE DRIVEWAY
STM. SEW.	STORM SEWER
ST.	STREET
S.P.	STREET POST
S.S.	STREET SIGN
STRUC.	STRUCTURE
SUBGR.	SUBGRADE
SUPPLE.	SUPPLEMENTAL
SURF.	SURFACE
SURV.	SURVEY
SWL.	SWALE
SYMM.	SYMMETRICAL
S.B.V.	SOIL BEARING VALVE

SPECIFICATION	SECTION
REVISIONS	SHT 4 OF 5

CITY OF VALDOSTA	CITY OF VALDOSTA STANDARD DETAIL	ABBREVIATIONS	A
		ABBREVIATIONS	478-1.2

T

TAB.	TABULATION
TAN.	TANGENT
T.L.C.	TANGENT LENGTH TO CURVE
T.T.C.	TANGENT TO CURVE
T.S.	TANGENT TO SPIRAL
T.B.	TELEPHONE BOX
TERR.	TERRACE
T.B.P.	TEST BORING POINT
T.B.A.	TO BE ABANDONED
T.B.R.	TO BE REMOVED
T.B.R.&RP.	TO BE REMOVED & REPLACED
T.B.R.&RL.	TO BE REMOVED & RELOCATED
T.B.S.	TO BE SALVAGED
T.EL.	TOP ELEVATION
T.C.	TOP OF CURVE
TOPO.	TOPOGRAPHY
T.S. & V.	TAPPING SLEEVE & VALVE
TWP.	TOWNSHIP
T.S.	TRAFFIC SIGN
T.S.B.	TRAFFIC SIGNAL BOX
TRANS.	TRANSITION
TYP.	TYPICAL
T.D.H.	TOTAL DYNAMIC HEAD
T.B.R.B.O.	TO BE REMOVED BY OTHERS

U

U.G.	UNDERGROUND
U.G./P.	UNDERGROUND POWER
U.G./T.	UNDERGROUND TELEPHONE CABLE
U.G./T.V.	UNDERGROUND TELEVISION CABLE
U.-PASS	UNDERPASS
UN.	UNIT
U.I.P.	USE IN PLACE
US C&GS	US COAST & GEODETIC SURVEY
US G.S.	US GEOLOGICAL SURVEY

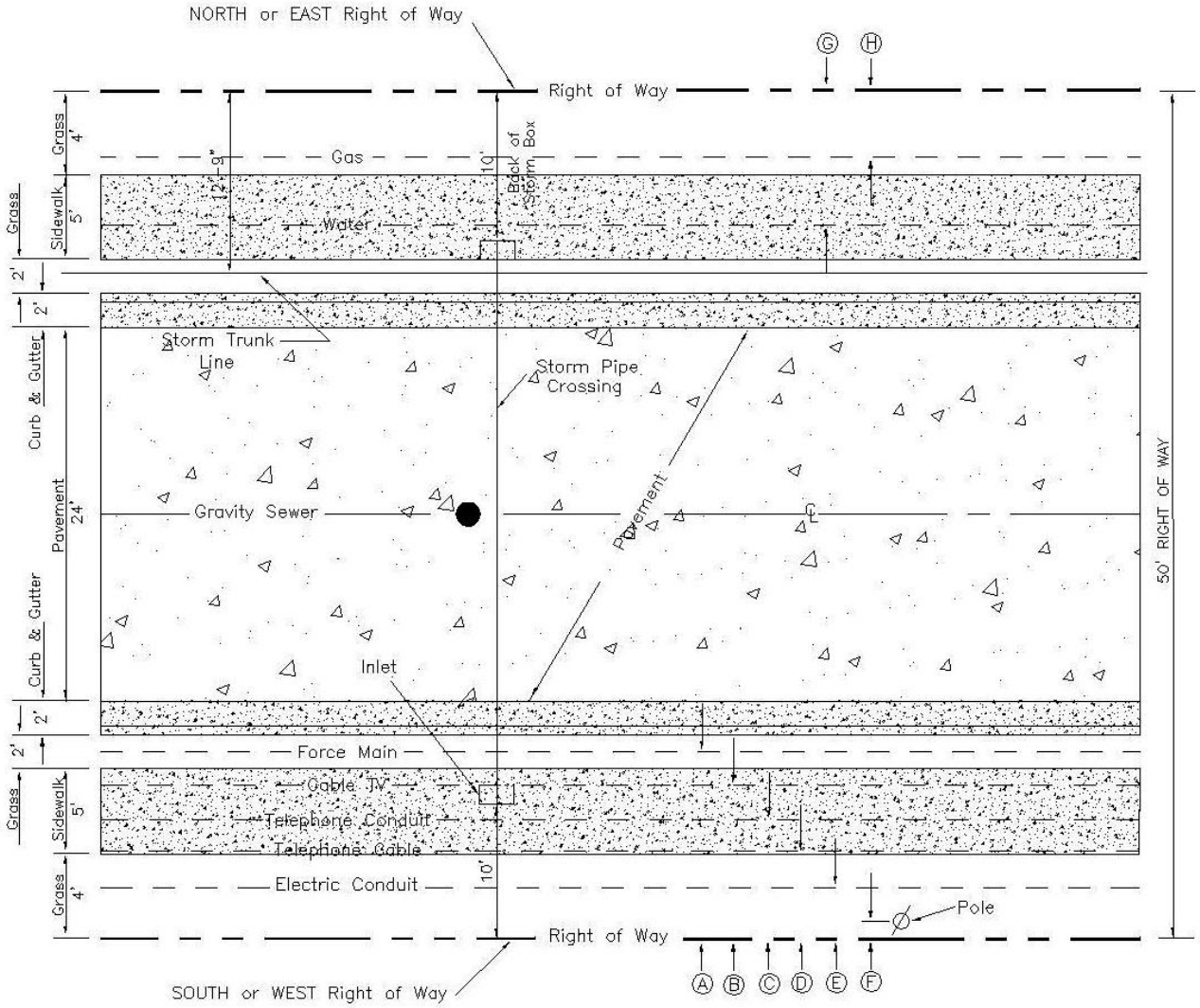
V

V.	VALVE
V.B.	VALVE BOX
VAR.	VARIABLE
VEH.	VEHICLE
VER.	VERTICAL
V.C.	VERTICAL CURVE
V.P.C.	VERTICAL POINT OF CURVE
V.P.I.	VERTICAL POINT OF INTERSECTION
V.P.T.	VERTICAL POINT OF TANGENCY
V.C.P.	VITRIFIED CLAY PIPE
VOL.	VOLUME

W

W/M	WATER MAIN
WM	WATER METER BOX
W.R.A.	WATER RETENTION AREA
W/S	WATER SERVICE
W.V.	WATER VALVE
WT.	WEIGHT
W.P.	WELL POINT
W.	WEST
W.B.L.	WESTBOUND LANE
WD.	WIDE/WIDTH
W.	WITH
W/OUT	WITHOUT
W.F.	WOODEN FENCE

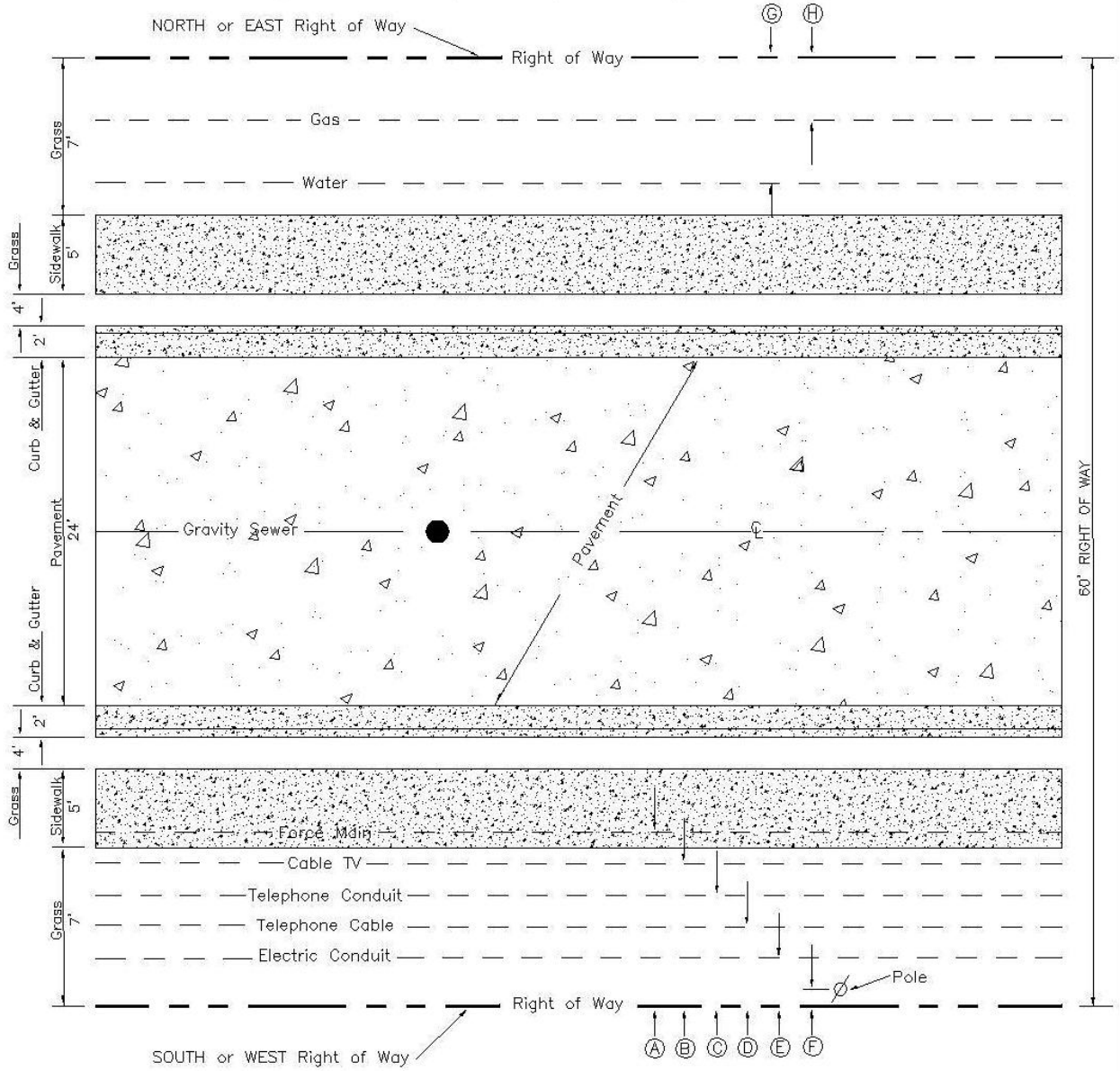
UTILITY	DIMENSION SYMBOL	LOCATION	UNDERGROUND DEPTH
Force Main	A	11'	48"
Cable TV	B	9'	24"
Telephone Conduit	C	7'	30"
Telephone Cable	D	5'	30"
Electric Conduit	E	3'	36"
Pole	F	1'	
Sanitary Sewer		CENTER	Varies
Water	G	8'	48"
Gas	H	4'	36"



SPECIFICATION		DATE REVISED:	SECTION
			SHT 1 OF 1

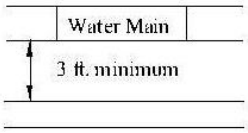
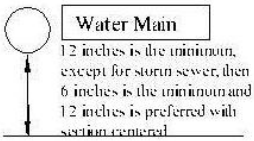
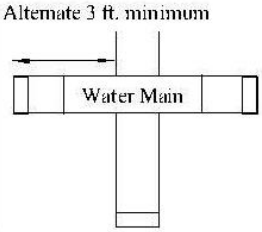
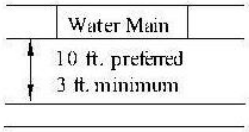
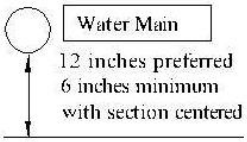
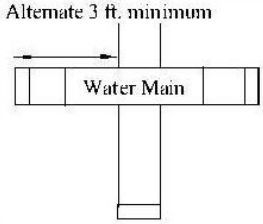
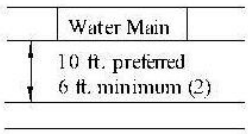
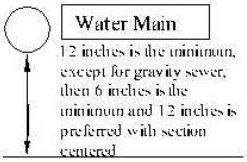
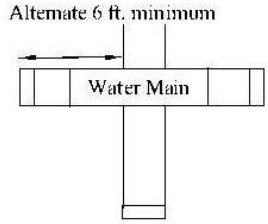
CITY OF VALDOSTA	CITY OF VALDOSTA STANDARD DETAIL	TYPICAL UTILITY LOCATIONS IN 50' RIGHT OF WAY WITH CURB & GUTTER	A
			478-1.3

UTILITY	DIMENSION SYMBOL	LOCATION	UNDERGROUND DEPTH
Force Main	A	11'	48"
Cable TV	B	9'	24"
Telephone Conduit	C	7'	30"
Telephone Cable	D	5'	30"
Electric Conduit	E	3'	36"
Pole	F	1'	
Sanitary Sewer		CENTER	Varies
Water	G	8'	48"
Gas	H	4'	36"



SPECIFICATION		DATE REVISED:	SECTION
			SHT 1 OF 1

CITY OF VALDOSTA	CITY OF VALDOSTA STANDARD DETAIL	TYPICAL UTILITY LOCATIONS IN 60' RIGHT OF WAY WITH CURB & GUTTER	B 478-1.3

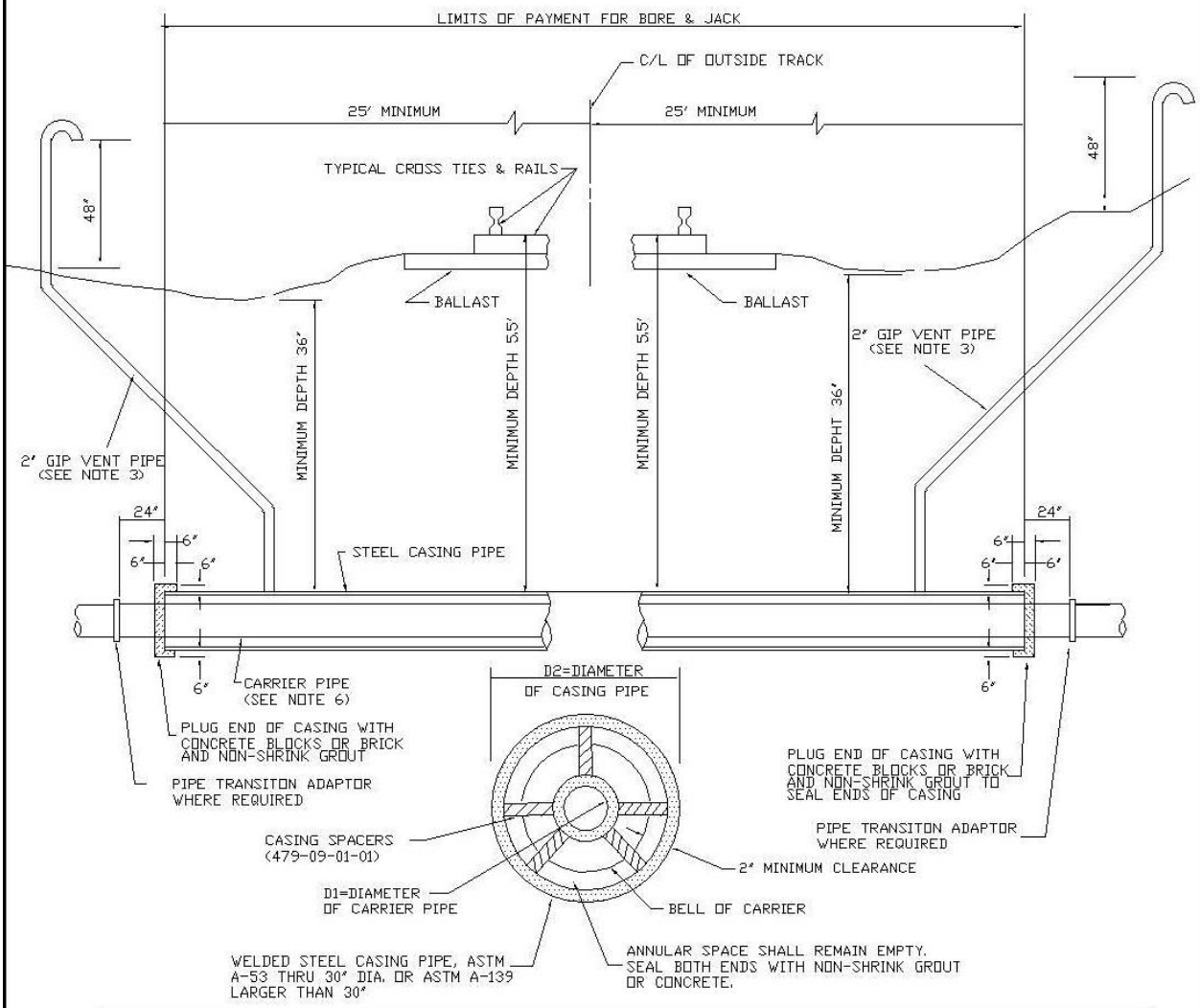
Other Pipe	Horizontal Separation	Crossings	Joint Spacing @ Crossing (Full Joint Centered)
Storm Sewer, Reclaim Water			
Vacuum Sanitary Sewer			
Gravity or Pressure Sanitary Sewer, Sanitary Sewer Force Main, Reclaimed Water			
On-Site Sewage Treatment & Disposal System	10 ft. minimum		

(1) Water main should cross above other pipe. When water main must be below other pipe, the minimum separation is 12 inches.

(2) 3 Ft. for gravity sanitary sewer where the bottom of the water main is laid at least 6 inches above the top of the gravity sanitary sewer.

SPECIFICATION		DATE REVISED:	SECTION
			SHT 1 OF 1

CITY OF VALDOSTA	CITY OF VALDOSTA STANDARD DETAIL	SEPARATION OF WATER MAINS	A
			478-1.4



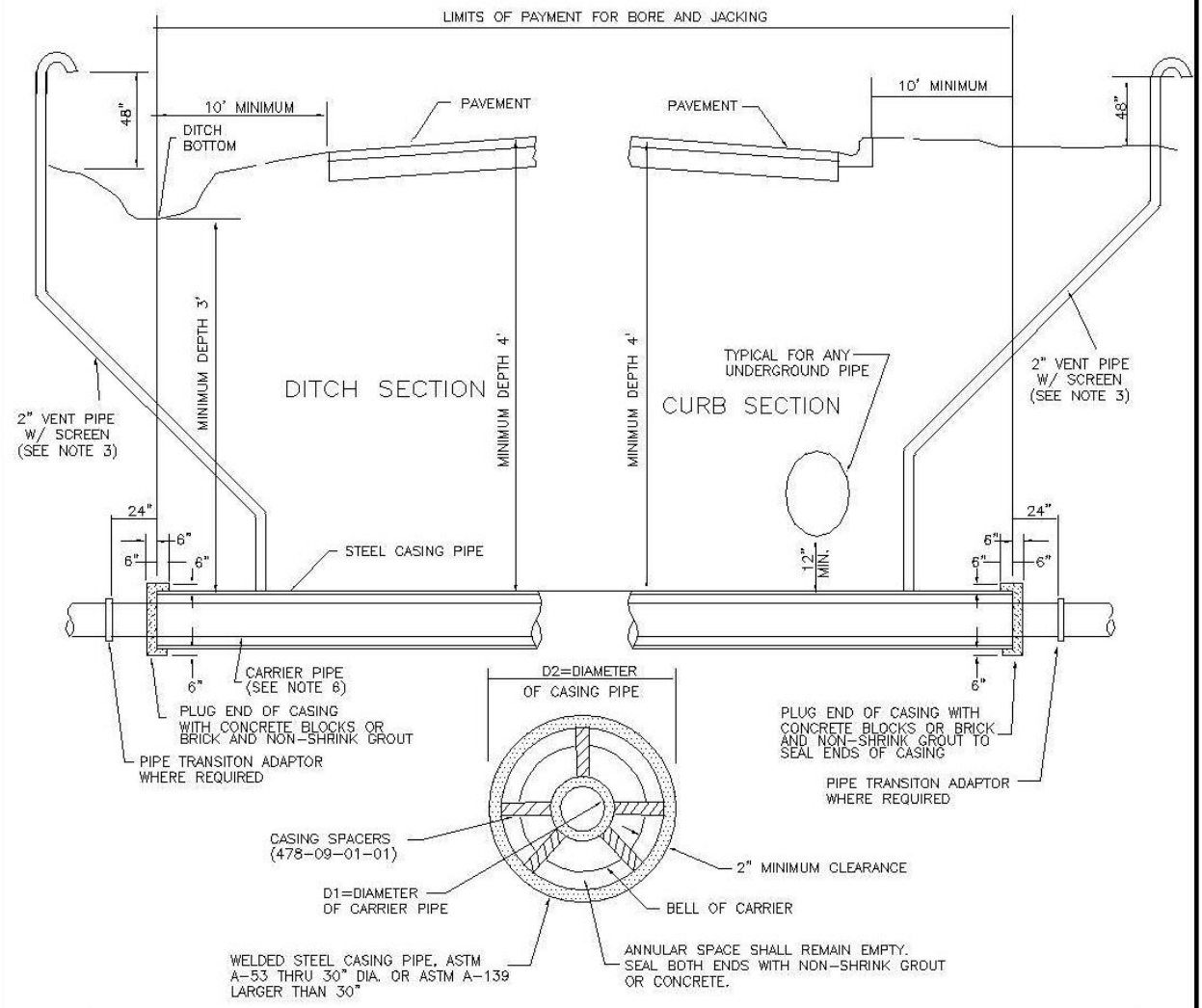
CARRIER PIPE AND CASING PIPE SIZES (MIN)													
CARRIER PIPE NOMINAL DIAMETER (D1)	4	6	8	10	12	14	16	18	20	24	30	36	42
CASING PIPE NOMINAL DIA (D2)	18	18	18	24	24	30	30	36	36	48	48	54	60
WALL THICKNESS-INCHES	0.31	0.31	0.31	0.33	0.33	0.38	0.38	0.42	0.42	0.52	0.52	0.58	0.61

NOTES

1. ALL REQUIREMENTS OF THE RAILROAD AS SPECIFIED BY THE AMERICAN RAILWAY ENGINEERING ASSOCIATION AND THE RAILROAD COMPANY SHALL BE ADHERED TO WHEN CROSSING RAILROADS. THE MORE STRINGENT REQUIREMENTS BETWEEN THE R/R AND THE CITY OF VALDOSTA SHALL GOVERN IN ALL CASES.
2. THE INSIDE DIAMETER OF THE CASING SHALL BE A MINIMUM OF 6" GREATER THAN THE OUTSIDE DIAMETER OF THE CARRIER PIPE BELL OR COUPLING.
3. CASING FOR THE FORCE MAIN AND GRAVITY SEWER SHALL BE INSTALLED WITH A 2" VENT PIPE, WHERE REQUIRED, AT ONE END EXTENDING NOT LESS THAN 4' ABOVE GROUND SURFACE, AND ABOVE THE MAXIMUM ELEVATION OF HIGH WATER. THE TOP OF THE VENT PIPE SHALL BE FITTED WITH DOWN TURNED ELBOW PROPERLY SCREENED. THE VENT PIPE SHALL BE SCHEDULE NO. 40 GALVANIZED STEEL. VENT PIPE FOR WATER MAIN AND REUSE MAIN CASING IS NOT REQUIRED.
4. PAYMENT FOR BORE AND JACK SHALL INCLUDE CASING, END ENCASEMENTS, CARRIER PIPE, TRANSITION ADAPTORS, VENT PIPES AND SPACERS.
5. INSTALL CASING SPACERS TO PROVIDE A MINIMUM OF THREE PER JOINT OF PIPE. INSTALL IN ACCORDANCE WITH THE MANUFACTURER'S WRITTEN INSTRUCTIONS.
6. WATER MAIN AND FORCE MAIN PIPING INSIDE CASING IS TO BE RESTRAINED JOINT PIPING AS SPECIFIED IN 489-07-02-02 AND 499-07-99-06.

SPECIFICATION		DATE REVISED	SECTION
			SHT 1 OF 1

CITY OF VALDOSTA	CITY OF VALDOSTA STANDARD DETAIL	RAILROAD BORING AND JACKING	A
		BORING & JACKING	478-2.1



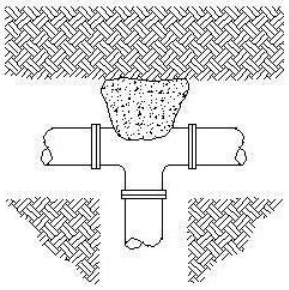
CARRIER PIPE AND CASING PIPE SIZES (MIN)													
CARRIER PIPE NOMINAL DIAMETER (D1)	4	6	8	10	12	14	16	18	20	24	30	36	42
CASING PIPE NOMINAL DIA (D2)	18	18	18	24	24	30	30	36	36	48	48	54	60
WALL THICKNESS-INCHES	0.31	0.31	0.31	0.33	0.33	0.38	0.38	0.42	0.42	0.52	0.52	0.58	0.61

NOTES

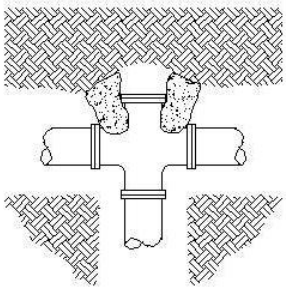
1. ALL REQUIREMENTS OF DOT AS SPECIFIED IN THE DOT "UTILITY ACCOMODATION GUIDE" SHALL BE ADHERED TO WHEN CROSSING HIGHWAYS. THE MORE STRINGENT REQUIREMENTS BETWEEN THE DOT AND THE CITY OF VALDOSTA SHALL GOVERN IN ALL CASES OF CONFLICT.
2. THE INSIDE DIAMETER OF THE CASING SHALL BE A MINIMUM OF 6" GREATER THAN THE OUTSIDE DIAMETER OF THE CARRIER PIPE BELL OR COUPLING.
3. CASING FOR THE FORCE MAIN & GRAVITY SEWER CROSSING SHALL BE INSTALLED WITH A 2" VENT PIPE, WHERE REQUIRED, AT ONE END EXTENDING NOT LESS THAN 4' ABOVE GROUND SURFACE, AND ABOVE THE MAXIMUM ELEVATION OF HIGH WATER. THE TOP OF THE VENT PIPE SHALL BE FITTED WITH DOWN TURNED ELBOW PROPERLY SCREENED. THE VENT PIPE SHALL BE SCHEDULE NO. 80 GALVANIZED STEEL. VENT PIPE FOR WATER MAIN AND REUSE MAIN CASINGS IS NOT REQUIRED.
4. PAYMENT FOR BORE AND JACK SHALL INCLUDE CASING, END ENCASEMENTS, CARRIER PIPE, TRANSITION ADAPTORS, VENT PIPE AND SPACERS.
5. INSTALL CASING SPACERS TO PROVIDE A MINIMUM OF THREE PER JOINT OF PIPE. INSTALL IN ACCORDANCE WITH MANUFACTURERS WRITTEN INSTRUCTIONS.
6. WATER MAIN AND FORCE MAIN PIPING INSIDE CASING IS TO BE RESTRAINED JOINT PIPING AS SPECIFIED IN DETAIL 489-07-02-02 AND 499-07-99-06.

SPECIFICATION	SECTION 473-1 AND 474	DATE REVISED:	SECTION
			SHT 1 OF 1

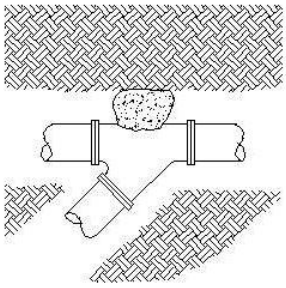
CITY OF VALDOSTA	CITY OF VALDOSTA STANDARD DETAIL	D.O.T. HIGHWAY BORING AND JACKING	B
		BORING & JACKING	478-2.1



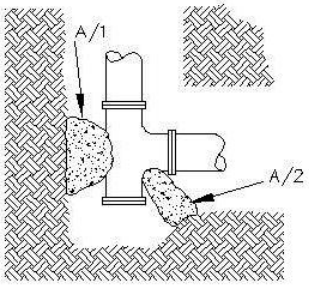
TEE



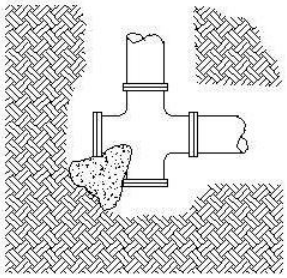
PLUGGED CROSS (1)



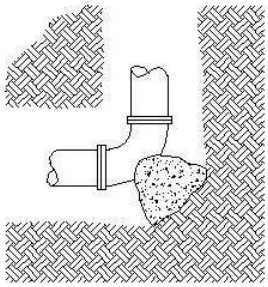
WYE



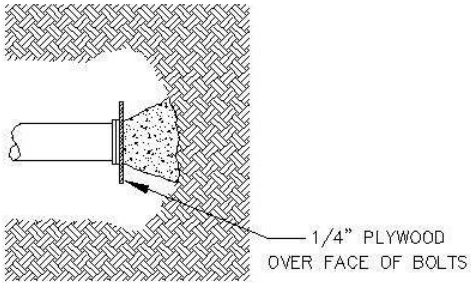
PLUGGED TEE



PLUGGED CROSS (2)



BEND

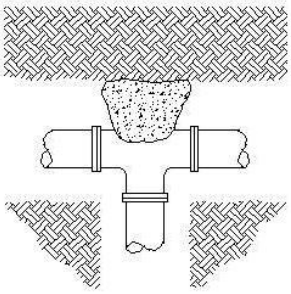


PLUG

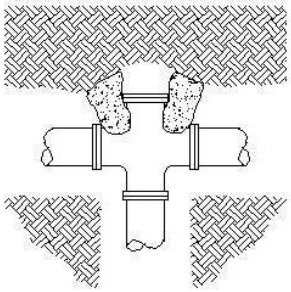
NOTES :

1. BEARING AREA OF THRUST BLOCK SHALL NOT BE LESS THAN 1.0 SQ. FT. BEARING AREA SHALL HAVE EQUAL HEIGHT AND WIDTH.
2. ALLOWABLE SOIL BEARING STRESS IS 2000 LBS./SQ. FT.
3. BEARING AREAS, VOLUMES, AND SPECIAL BLOCKING DETAILS SHOWN ON PLANS TAKE PRECEDENCE OVER THIS STANDARD. THRUST BLOCKS FOR VERTICAL BENDS HAVING DOWNWARD RESULTANT THRUSTS SHALL BE THE SAME AS FOR HORIZONTAL BENDS. BEARING AREAS FOR HORIZONTAL BEND THRUST BLOCKS ARE BASED ON TEST PRESSURE OF 150 PSIG, AND AN ALLOWABLE SOIL BEARING STRESS OF 2000 LBS./SQ. FT. TO COMPUTE BEARING AREAS FOR DIFFERENT TEST PRESSURES AND SOIL BEARING STRESSES, MULTIPLY TABLE VALUES BY THE FACTOR (P'/S'_g). WHERE: P'= ACTUAL TEST PRESSURE, PSIG S'_g = ACTUAL OR BEARING PRESSURE, PSF.

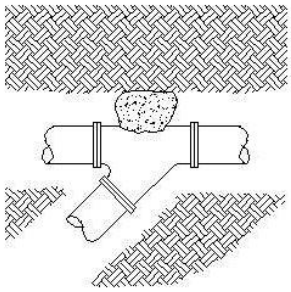
SPECIFICATION		DATE REVISED:	SECTION
			SHT 1 OF 2
CITY OF VALDOSTA	CITY OF VALDOSTA STANDARD DETAIL	THRUST BLOCKS CAST IN PLACE	A 478-3.1



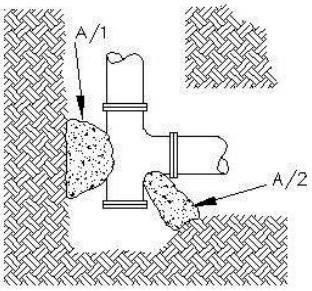
TEE



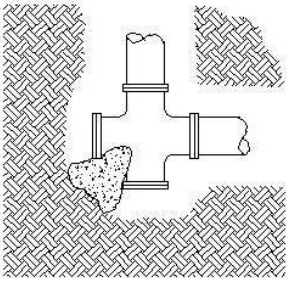
PLUGGED CROSS (1)



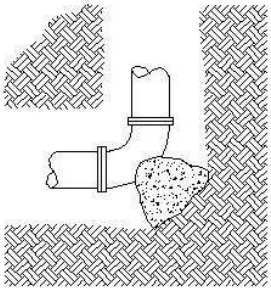
WYE



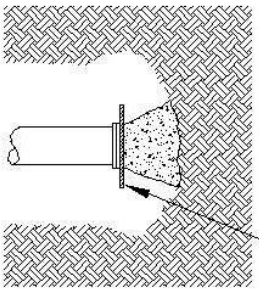
PLUGGED TEE



PLUGGED CROSS (2)



BEND



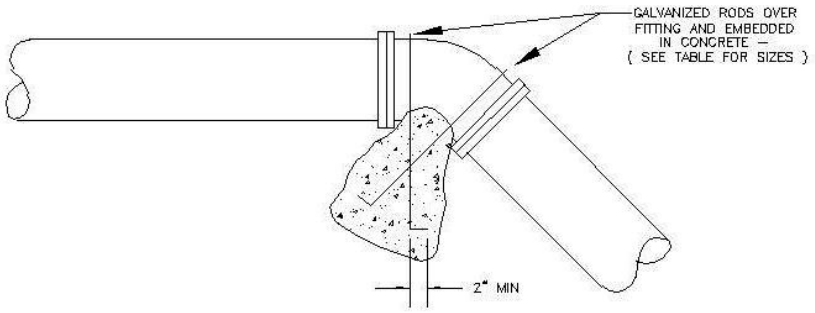
PLUG

NOTES :

1. BEARING AREA OF THRUST BLOCK SHALL NOT BE LESS THAN 1.0 SQ. FT. BEARING AREA SHALL HAVE EQUAL HEIGHT AND WIDTH.
2. ALLOWABLE SOIL BEARING STRESS IS 2000 LBS./SQ. FT.
3. BEARING AREAS, VOLUMES, AND SPECIAL BLOCKING DETAILS SHOWN ON PLANS TAKE PRECEDENCE OVER THIS STANDARD. THRUST BLOCKS FOR VERTICAL BENDS HAVING DOWNWARD RESULTANT THRUSTS SHALL BE THE SAME AS FOR HORIZONTAL BENDS. BEARING AREAS FOR HORIZONTAL BEND THRUST BLOCKS ARE BASED ON TEST PRESSURE OF 150 PSIG, AND AN ALLOWABLE SOIL BEARING STRESS OF 2000 LBS./SQ. FT. TO COMPUTE BEARING AREAS FOR DIFFERENT TEST PRESSURES AND SOIL BEARING STRESSES, MULTIPLY TABLE VALUES BY THE FACTOR (P'/S_g'). WHERE: P'= ACTUAL TEST PRESSURE, PSIG S_g' = ACTUAL OR BEARING PRESSURE, PSF.

SPECIFICATION		DATE REVISED:	SECTION
			SHT 1 OF 2

CITY OF VALDOSTA	CITY OF VALDOSTA STANDARD DETAIL	THRUST BLOCKS CAST IN PLACE	A 478-3.1



VOLUME OF THRUST BLOCK IN CUBIC FEET (VERTICAL BENDS)			
FITTING SIZE	BEND ANGLE		
	45˚	22½˚	11¼˚
4	1.1	0.4	0.2
6	2.7	1.0	0.4
8	4.0	1.5	0.6
10	6.0	2.3	0.9
12	8.5	3.2	1.3
14	11.5	4.3	1.8
16	14.8	5.6	2.3

ANCHOR ROD SIZES		
FITTING SIZE	ROD SIZE	EMBEDMENT
12" OR LESS	#6	30"
14" – 16"	#8	36"

NOTES :

1. THRUST BLOCK VOLUMES FOR VERTICAL BENDS HAVING UPWARD RESULTANT THRUSTS ARE BASED ON TEST PRESSURE OF 150 PSIG AND THE WEIGHT OF CONCRETE – 4050 LBS./ CU. YD. TO COMPUTE VOLUMES FOR DIFFERENT TEST PRESSURES, USE THE FOLLOWING EQUATION : VOLUME = (TEST PRESSURE / 150 x TABLE VALUE) .
2. KEEP CONCRETE CLEAR OF JOINT AND JOINT ACCESSORIES.
3. THRUST BLOCKS FOR VERTICAL BENDS HAVING DOWNWARD RESULTANT THRUSTS SHALL BE THE SAME AS FOR HORIZONTAL BENDS.
4. BEARING AREA VOLUMES, AND SPECIAL BLOCKING DETAILS SHOWN ON THE PLANS TAKE PRECEDENCE OVER THE STANDARD.

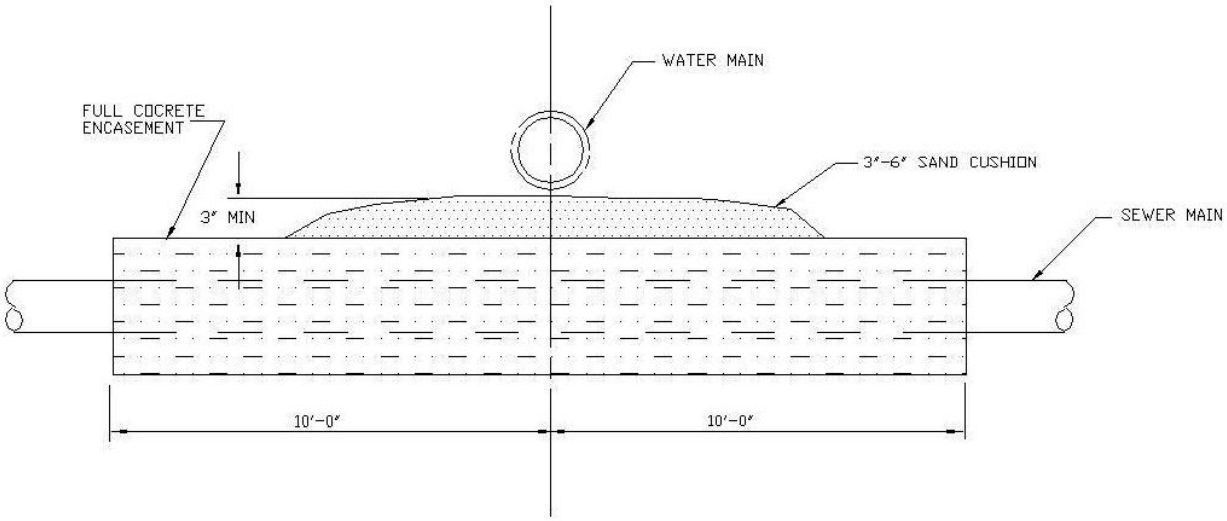
SPECIFICATION		DATE REVISED:	SECTION
			SHT 1 OF 1
CITY OF VALDOSTA	CITY OF VALDOSTA STANDARD DETAIL	THRUST BLOCKS ANCHORED	B 478–3.1

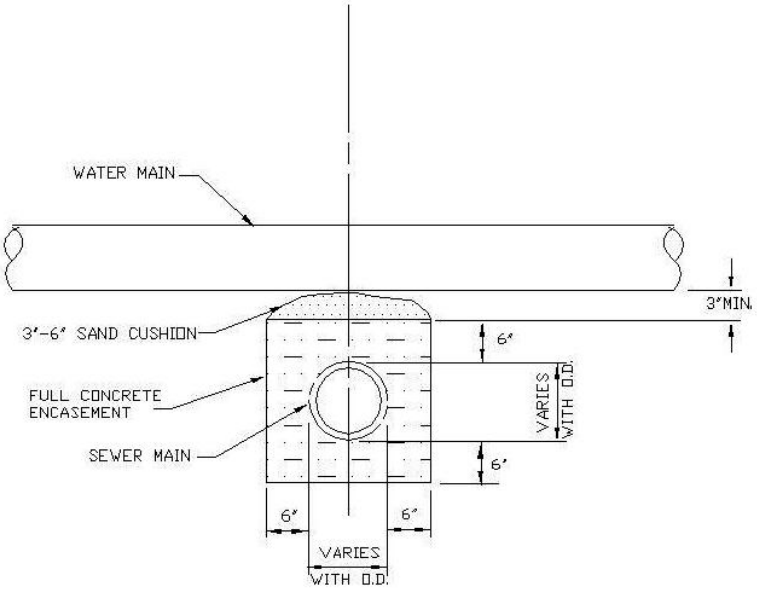
THRUST RESTRAINT TABLE FOR DIP HORIZONTAL FITTINGS					
NOMINAL PIPE DIAMETER	TEE, 90 BEND	45 BEND	22.5 BEND	11.25 BEND	PLUG
4–6	40'	20'	20'	20'	80'
8	60'	40'	20'	20'	100'
12	80'	40'	20'	20'	140'
16	120'	60'	40'	20'	180'
18	140'	80'	40'	20'	220'
24–30	160'	80'	40'	20'	300'
36	180'	80'	40'	20'	360'

NOTES

1. MINIMUM RESTRAINED LENGTH SHALL BE ALWAYS 20 FEET.
2. IN LINE VALVES AND THROUGH RUN OF TEES OUTSIDE LIMITS OF RESTRAINED JOINTS FRO OTHER FITTINGS NEED NOT BE RESTRAINED UNLESS OTHERWISE INDICATED ON THE DRAWINGS.
3. RESTRAINED JOINTS CAN BE USED IN LIEU OF THRUST BLOCKS.

SPECIFICATION		DATE REVISED:	SECTION
			SHT 1 OF 1
CITY OF VALDOSTA	CITY OF VALDOSTA STANDARD DETAIL	RESTRAINED JOINT SYSTEM	C 478-3.1

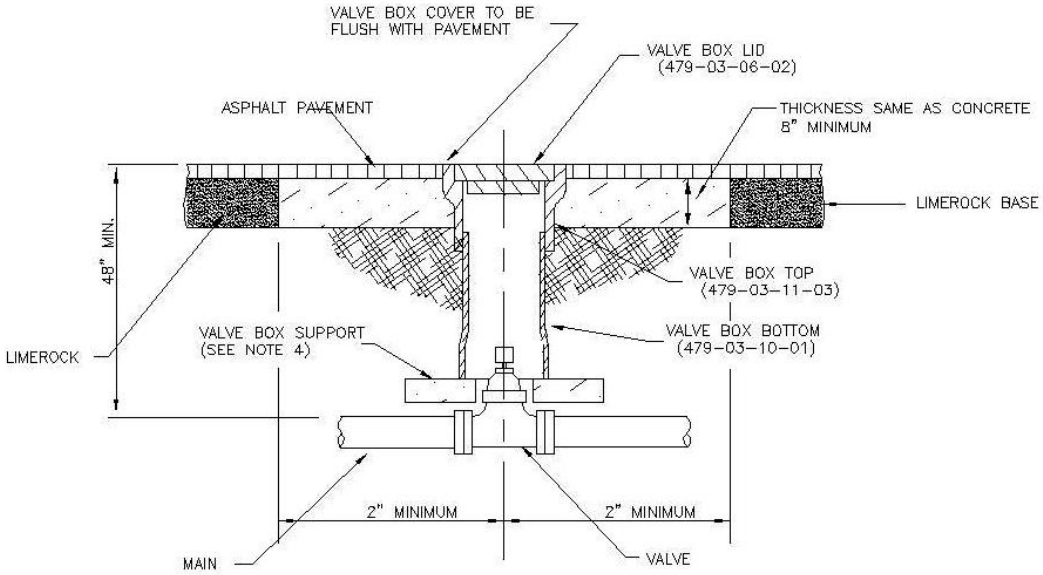




NOTES

1. USE CONCRETE ENCASEMENT WHERE VERTICAL CLEARANCE BETWEEN WATERMAIN AND SEWER IS 18" OR LESS.
2. WHEN CROSSING SEWER ONE FULL JOINT OF WATER MAIN SHALL BE CENTERED OVER THE SEWER MAIN.
3. CONCRETE FOR ENCASEMENT SHALL BE 3000 PSI.

SPECIFICATION		REVISED:	SECTION
			SHT 1 OF 1
CITY OF VALDOSTA	CITY OF VALDOSTA STANDARD DETAIL	CONCRETE ENCASEMENT CONCRETE ENCASEMENT	A 478-3.3

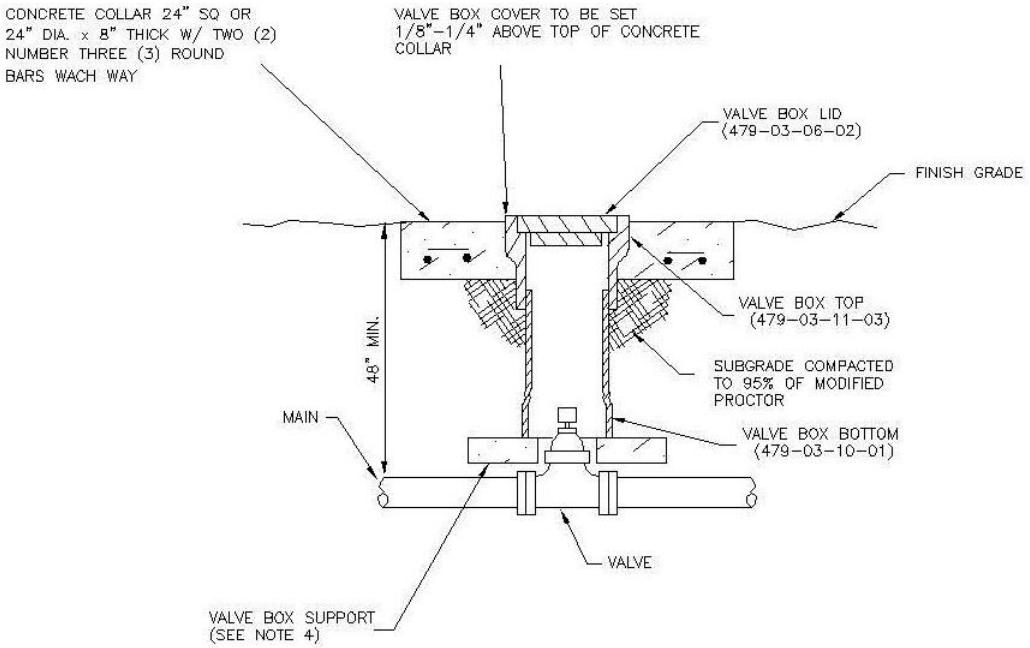


NOTES

1. WHERE ONE VALVE BOX EXTENSION IS REQUIRED USE STANDARD VALVE BOX EXTENSION 479-03-11-02.
2. WHERE MORE THAN ONE VALVE BOX EXTENSIONS ARE REQUIRED USE 6" D.I.P. CUT TO PROPER LENGTH SO VALVE BOX BOTTOM IS ONE CONTINUOUS SECTIONS.
3. VALVE BOX LID TO BE FURNISHED WITH THE WORD "WATER", FOR WATER MAIN INSTALLATION OR "SEWER" FORCE MAIN INSTALLATION OR "REUSE" FOR REUSE MAIN INSTALLATION.
4. FOR VALVES 4" AND ABOVE, USE FOUR (4) OR FIVE (5) SOLID COMMON BRICKS LAID FLAT. FOR 2" VALVES USE 4"x 8"x 16" SOLID PRECAST CONCRETE BLOCKS.
5. FLOWABLE FILL OR CONCRETE CAN BE USED IN LIEU OF LIMEROCK IF APPROVED BY THE CITY ENGINEER.

SPECIFICATION		DATE REVISED:	SECTION
			SHT 1 OF 1

CITY OF VALDOSTA	CITY OF VALDOSTA STANDARD DETAIL	VALVE BOX INSTALLATION TRAFFIC AREA IN PAVEMENT	A 478-4.1

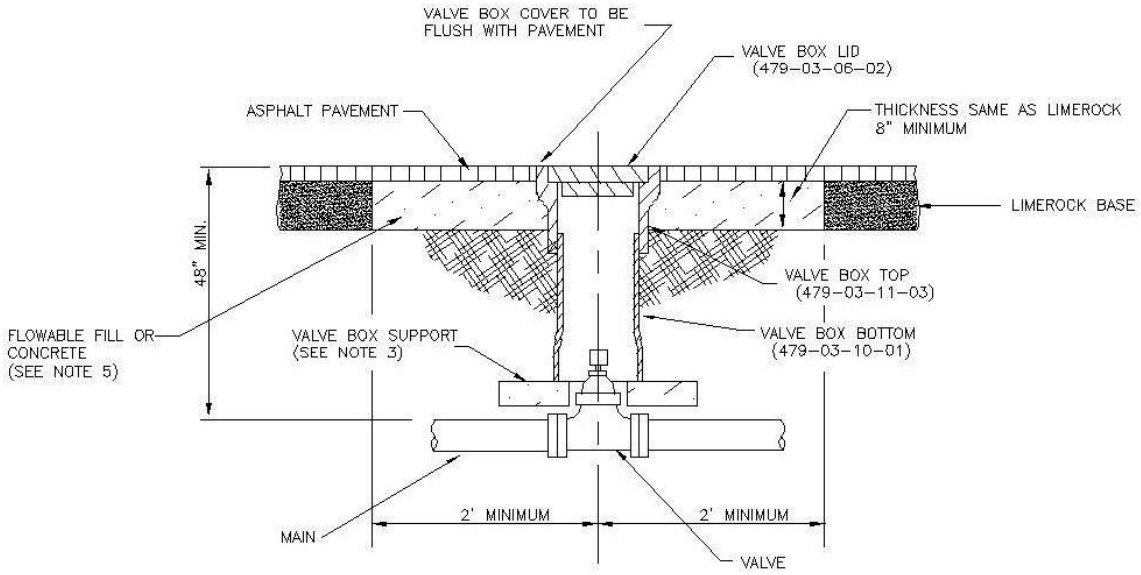


NOTES

1. WHERE ONE VALVE BOX EXTENSION IS REQUIRED USE STANDARD VALVE BOX EXTENSIONS 479-03-11-02.
2. WHERE MORE THAN ONE VALVE BOX EXTENSIONS ARE REQUIRED USE 6" D.I.P. CUT TO PROPER LENGTH SO VALVE BOX BOTTOM IS CONTINUOUS SECTION.
3. VALVE BOX LID TO BE FURNISHED WITH THE WORD "WATER". FOR WATER MAIN INSTALLATION OR "SEWER" FOR FORCE MAIN INSTALLATION. OR "REUSE" FOR REUSE MAIN INSTALLATION.
4. FOR VALVES 4" AND ABOVE USE FOUR (4) OR FIVE (5) SOLID COMMON BRICKS LAID FLAT. FOR 2" VALVES USE 4"x 8"x 16" SOLID PRECAST CONCRETE BLOCKS.

SPECIFICATION	DATE REVISED:	SECTION
		SHT 1 OF 1

CITY OF VALDOSTA	CITY OF VALDOSTA STANDARD DETAIL	VALVE BOX INSTALLATION TRAFFIC AREA NOT IN PAVEMENT	B 478-4.1

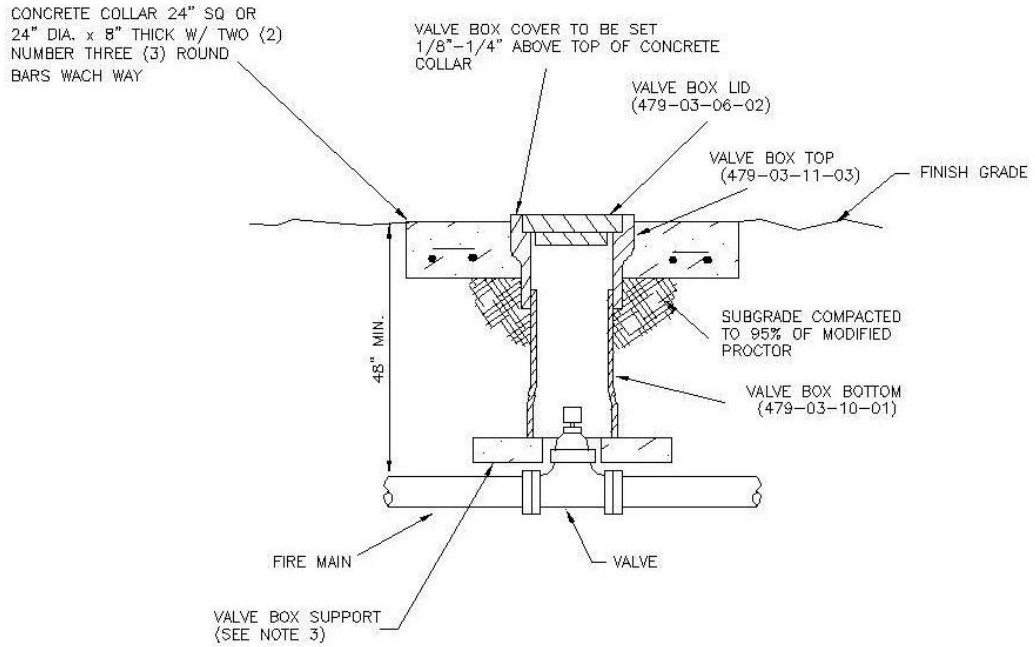


NOTES

1. WHERE ONE VALVE BOX EXTENSION IS REQUIRED USE STANDARD VALVE BOX EXTENSION 479-03-11-02.
2. WHERE MORE THAN ONE VALVE BOX EXTENSIONS ARE REQUIRED USE 6" D.I.P. CUT TO PROPER LENGTH SO VALVE BOX BOTTOM IS ONE CONTINUOUS SECTIONS.
3. VALVE BOX LID TO BE FURNISHED WITH THE WORD "WATER"
4. FOR VALVES 4" AND ABOVE, USE FOUR (4) OR FIVE (5) SOLID COMMON BRICKS LAID FLAT. FOR 2" VALVES USE 4"x 8"x 16" SOLID PRECAST CONCRETE BLOCKS.
5. FLOWABLE FILL CONCRETE WILL BE PLACED UP TO FINISH LIMEROCK ELEVATION, BOTTOM OF ASPHALT.
6. LIMEROCK CAN BE USED IN LIEU OF FLOWABLE FILL CONCRETE AS APPROVED BY THE CITY ENGINEER.

SPECIFICATION		DATE REVISED:	SECTION
			SHT. 1 OF 1

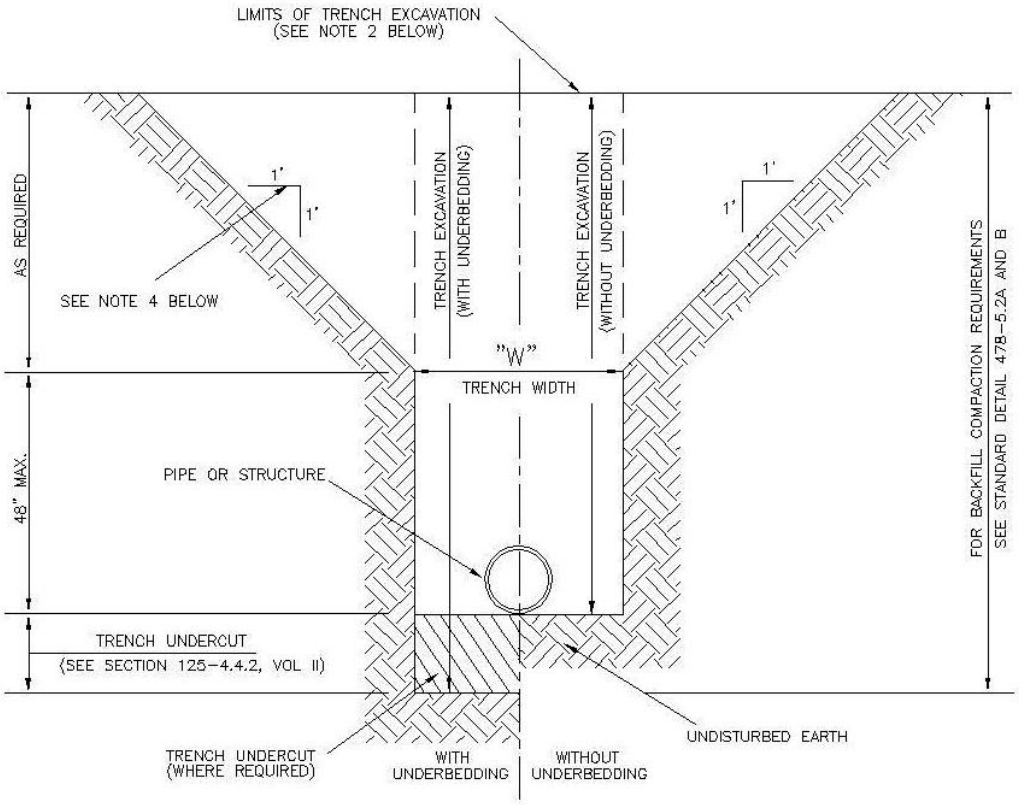
CITY OF VALDOSTA	CITY OF VALDOSTA STANDARD DETAIL	VALVE BOX INSTALLATION FOR FIRE MAIN TRAFFIC AREA IN PAVEMENT	A 478-4.2



NOTES

1. WHERE ONE VALVE BOX EXTENSION IS REQUIRED USE STANDARD VALVE BOX EXTENSIONS 479-03-11-02.
2. WHERE MORE THAN ONE VALVE BOX EXTENSIONS ARE REQUIRED USE 6" D.I.P. CUT TO PROPER LENGTH SO VALVE BOX BOTTOM IS CONTINUOUS SECTION.
3. VALVE BOX LID TO BE FURNISHED WITH THE WORD "WATER"
4. FOR VALVES 4" AND ABOVE USE FOUR (4) OR FIVE (5) SOLID COMMON BRICKS LAID FLAT. FOR 2" VALVES USE 4"x 8"x 16" SOLID PRECAST CONCRETE BLOCKS.

SPECIFICATION		DATE REVISED:	SECTION
			SHT 1 OF 1
CITY OF VALDOSTA	CITY OF VALDOSTA STANDARD DETAIL	VALVE BOX INSTALLATION FOR FIRE MAIN TRAFFIC AREA NOT IN PAVEMENT	B 478-4.2



PIPE INSTALLATION

PIPE DIAMETER	2"–7"	8"–16"	17" – 24"	OVER 24"
TRENCH WIDTH "W"	36"	48"	54"	60"

STRUCTURE INSTALLATION

DEPTH OF TRENCH	0' – 6'	6' – 12'	12' – 18'	OVER 18'
STRUCTURE WIDTH "SW"	VARIES	VARIES	VARIES	VARIES
TRENCH WIDTH "W"	SW + 36"	SW + 48"	SW + 54"	SW + 60"

NOTES

1. IN THE EVENT UNSTABLE OR UNSUITABLE BEDDING MATERIAL IS ENCOUNTERED AT OR BELOW THE LIMITS OF EXCAVATION NOTED ON THE DRAWINGS, SUCH MATERIAL SHALL BE REMOVED AND REPLACED WITH FILL APPROVED BY THE CITY ENGINEER.

2. UPPER LIMITS OF TRENCH EXCAVATION AND FOR CALCULATION OF UNSUITABLE MATERIAL REFERS TO ONE OF THE FOLLOWING CONDITIONS (REFER TO DETAIL 478-5.2):
   A. BOTTOM OF LIMEROCK BASE WHERE UNDER A PAVED ROADWAY EXCEPT WHERE A TWO FOOT UNDERCUT BELOW THE ROADWAY BASE IS REQUIRED. SEE "B" BELOW.
   B. BOTTOM OF TWO FOOT UNDERCUT BELOW THE ROADWAY SUBGRADE WHERE CALLED FOR IN THE CONTRACT DOCUMENTS.
   C. FINISH GRADE WHERE NOT UNDER A PAVED ROADWAY.

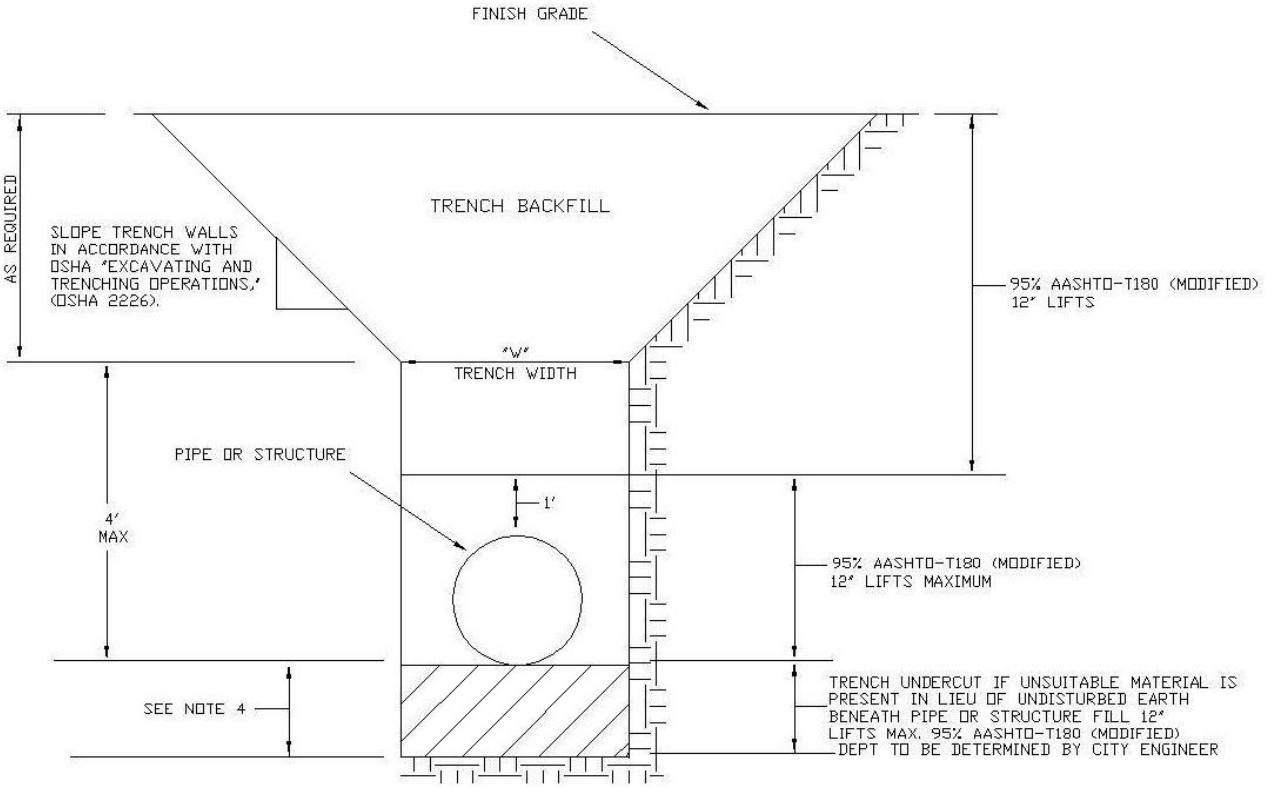
3. TRENCH WIDTH FOR CALCULATION OF UNSUITABLE MATERIAL IS THE TRENCH WIDTH, THE WIDTH "W" REQUIRED TO INSTALL THE PIPE, PLUS THE TWO TRIANGULAR AREAS BEGINNING FOUR FEET HIGHER THAN THE TRENCH BOTTOM, EXTENDING AWAY FROM THE TRENCH ON A ONE TO ONE SLOPE ON EITHER SIDE OF THE TRENCH TO THE UPPER LIMITS OF THE UNSUITABLE MATERIAL. UNSUITABLE MATERIAL TO BE REMOVED AS PART OF ROADWAY EXCAVATION WILL NOT BE INCLUDED IN THIS CALCULATION.

4. TYPICAL TRENCH SLOPES ARE 1:1 EXCEPT WHERE SOIL CONDITIONS WARRANT DEVIATIONS BUT SHALL BE SUBJECT TO THE DISCRETION OF THE CITY ENGINEER OR HIS REPRESENTATIVE. WHERE DEVIATION IS WARRANTED SLOPES ARE IN ACCORDANCE WITH OSHA REQUIREMENTS. FOR PURPOSES OF CALCULATING UNSUITABLE MATERIAL TRENCH SLOPES ARE ASSUMED TO BE 1:1 UNLESS OTHERWISE DIRECTED BY THE ENGINEER.

5. IN DEEP CUTS TRENCH SHORING OR TRENCH BOX SHALL BE USED AS DIRECTED BY THE CITY ENGINEER.

SPECIFICATION		DATE REVISED:	SECTION
			SHT 1 OF 1

CITY OF VALDOSTA	CITY OF VALDOSTA STANDARD DETAIL	TRENCH EXCAVATION UNSUITABLE MATERIAL	A 478-5.1

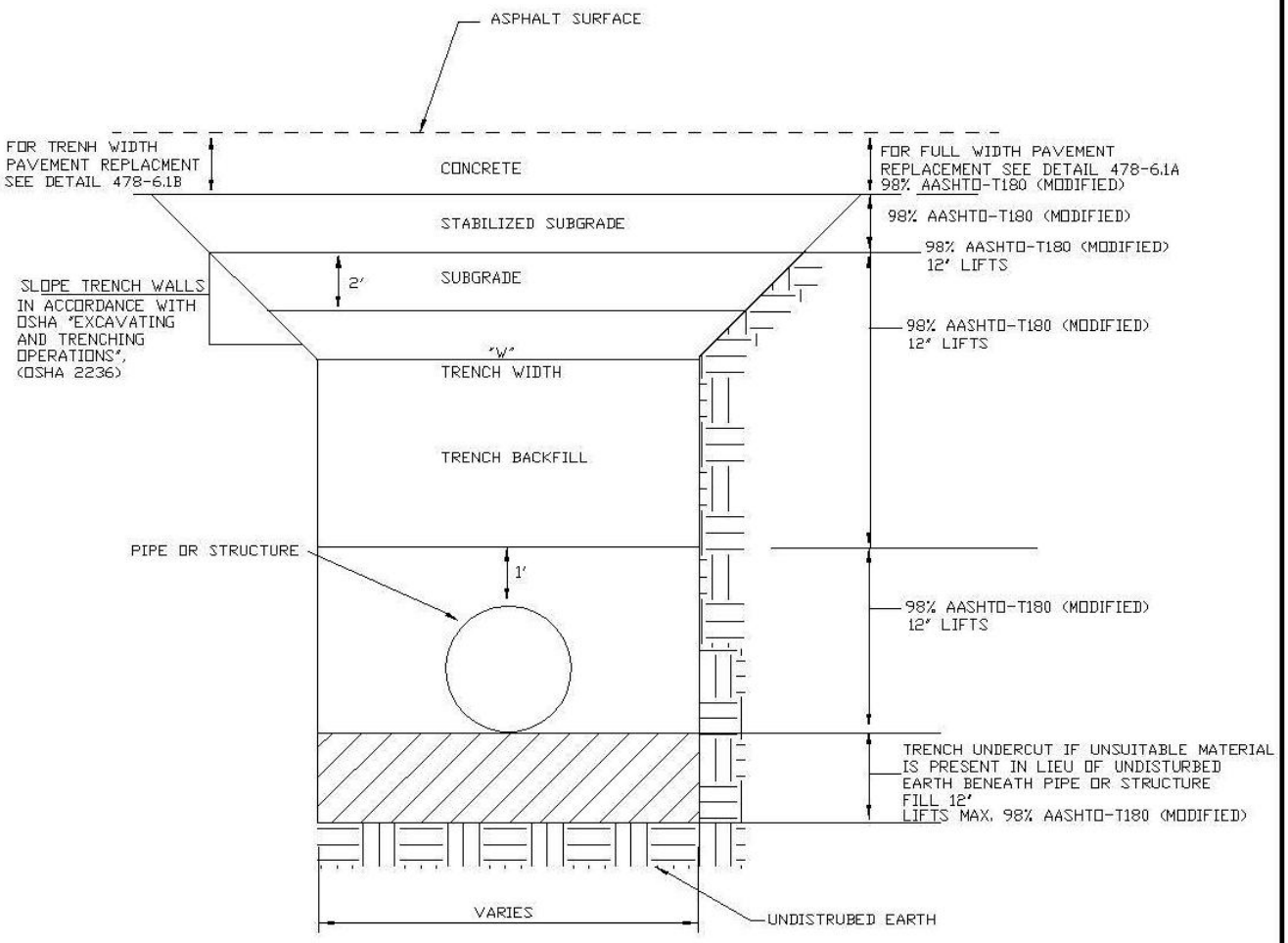


NOTES

1. DENSITY TESTS TO BE TAKEN AT EACH 12" OF COMPACTED FILL, NOT MORE THAN 500 FEET APART OR AS DIRECTED BY A GEOTECHNICAL ENGINEER.
2. IF THE CONTRACTOR HAS COMPACTION EQUIPMENT WITH WHICH THE REQUIRED DENSITY CAN BE OBTAINED IN THICKER LIFTS THAN PERMITTED ABOVE AND UPON SATISFACTORY EVIDENCE THAT THE PROPOSED EQUIPMENT WILL PRODUCE WORK EQUAL IN QUALITY TO THAT PRODUCED BY THE SPECIFIED METHODS, THE ENGINEER MAY PERMIT PLACEMENT OF GRANULAR MATERIAL SOIL GROUPS A-1, A-2, OR A-3 IN LIFTS UP TO A MAXIMUM OF TWO FOOT COMPACTED THICKNESS. THE CONTRACTOR WILL BE REQUIRED TO FURNISH EQUIPMENT AND LABOR TO EXCAVATE AND BACKFILL TEST PITS TO BE DUG FOR THE PERFORMANCE OF DENSITY TESTS.
3. USE OF THICK LIFT COMPACTION PROCEDURES WILL NOT BE ALLOWED FOR THE FIRST STAGE BACKFILLING (BENEATH THE HAUNCHES) OF PIPE AND ON SIDES OF PIPE.
4. REFER TO PROJECT PLANS AND SPECIFICATIONS AND GDOT STANDARD SPECIFICATIONS FOR ROAD CONSTRUCTION, UNSUITABLE MATERIAL FOR UNDERCUTTING REQUIREMENTS.
5. REFER TO PROJECT PLANS AND SPECIFICATIONS AND GDOT STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE REPLACEMENT.

SPECIFICATION		DATE REVISED:	SECTION
			SHT 1 OF 1

CITY OF VALDOSTA	CITY OF VALDOSTA STANDARD DETAIL	TRENCH BACKFILL NOT WITHIN STREET RIGHTS OF WAY	A 478-5.2

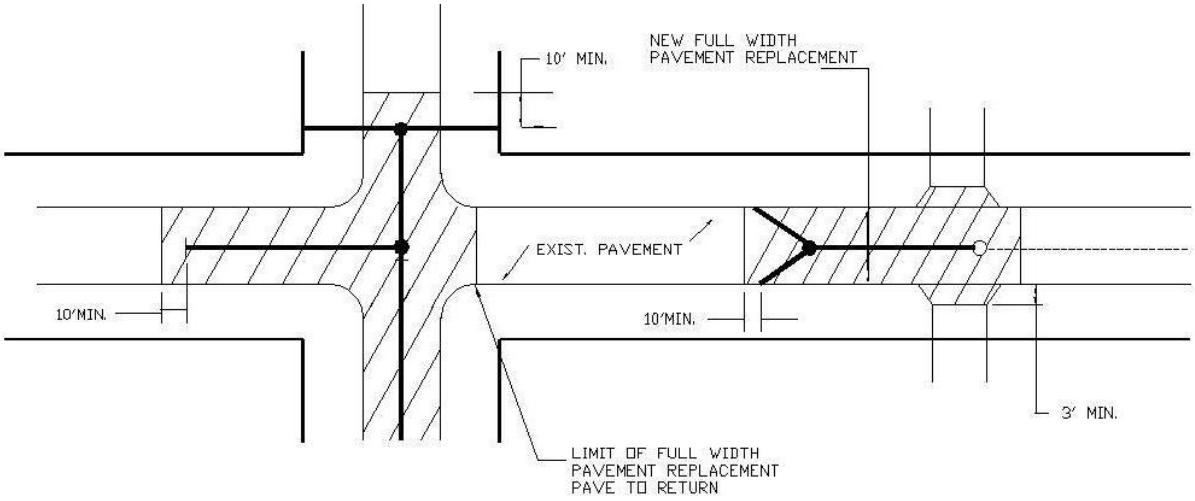


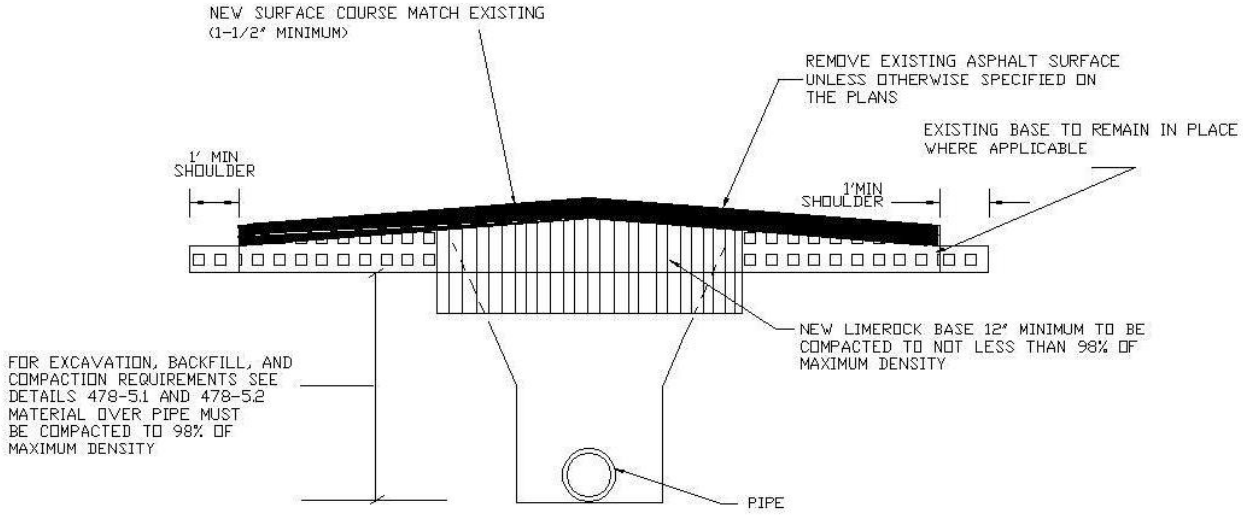
NOTES

1. DENSITY TESTS TO BE TAKEN AT EACH 12" OF COMPACTED FILL, NOT LESS THAN 500 FEET APART OR AS DIRECTED BY A GEOTECHNICAL ENGINEER.
2. IF THE CONTRACTOR HAS COMPACTION EQUIPMENT WITH WHICH THE REQUIRED DENSITY CAN BE OBTAINED IN THICKER LIFTS THAN PERMITTED ABOVE AND UPON SATISFACTORY EVIDENCE THAT THE PROPOSED EQUIPMENT WILL PRODUCE WORK EQUAL IN QUALITY TO THAT PRODUCED BY THE SPECIFIED METHODS, THE ENGINEER MAY PERMIT PLACEMENT OF GRANULAR MATERIAL SOIL GROUPS A-1, A-2, OR A-3 IN LIFTS UP TO A MAXIMUM OF TWO FOOT COMPACTED THICKNESS. THE CONTRACTOR WILL BE REQUIRED TO FURNISH EQUIPMENT AND LABOR TO EXCAVATE AND BACKFILL TEST PITS TO BE DUG FOR THE PERFORMANCE OF DENSITY TESTS.
3. USE OF THICK LIFT COMPACTION PROCEDURES WILL NOT BE ALLOWED FOR THE FIRST STAGE BACKFILLING (BENEATH THE HAUNCHES) OF PIPE AND ON SIDES OF PIPE.
4. REFER TO PROJECT PLANS AND SPECIFICATION AND GDOT STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION, UNSUITABLE MATERIAL FOR UNDERCUTTING REQUIREMENTS.
5. REFER TO PROJECT PLANS AND SPECIFICATIONS AND GDOT STANDARD SPECIFICATIONS FOR ROAD REPLACEMENT.
6. IN DEEP CUTS USE TRENCH SHORING OR TRENCH BOX AS DIRECTED BY THE CITY ENGINEER.
7. THE 2' SUBGRADE UNDER CONCRETE AND STABILIZED SUBGRADE BASES MUST BE CLEANFILL WITH NO PLASTICS PRESENT.

SPECIFICATION		DATE REVISED:	SECTION
			SHT 1 OF 1

CITY OF VALDOSTA	CITY OF VALDOSTA STANDARD DETAIL	TRENCH BACKFILL UNDER TRAVELED WAY FOR ALL STREETS - PAVED AND UNPAVED	B 478-5.2



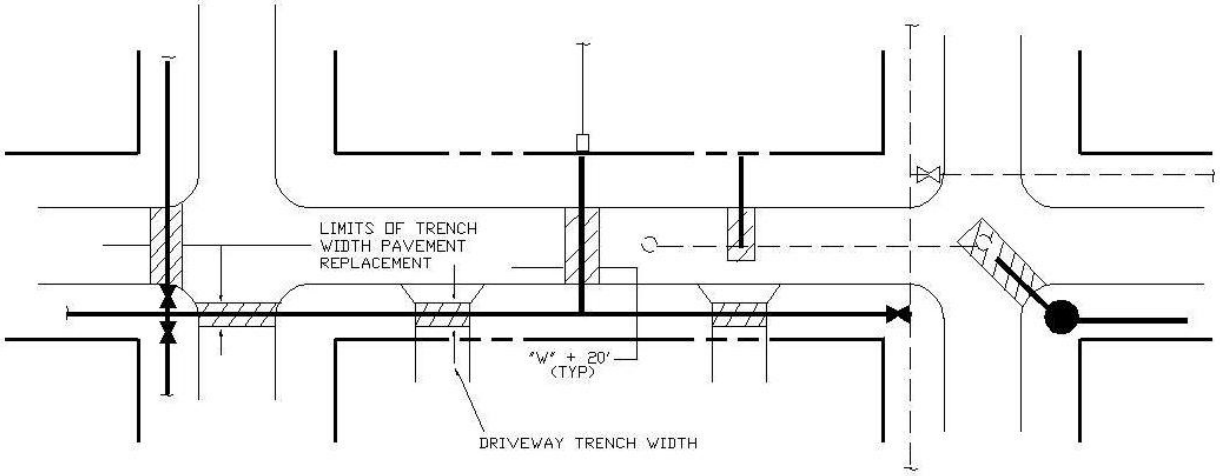


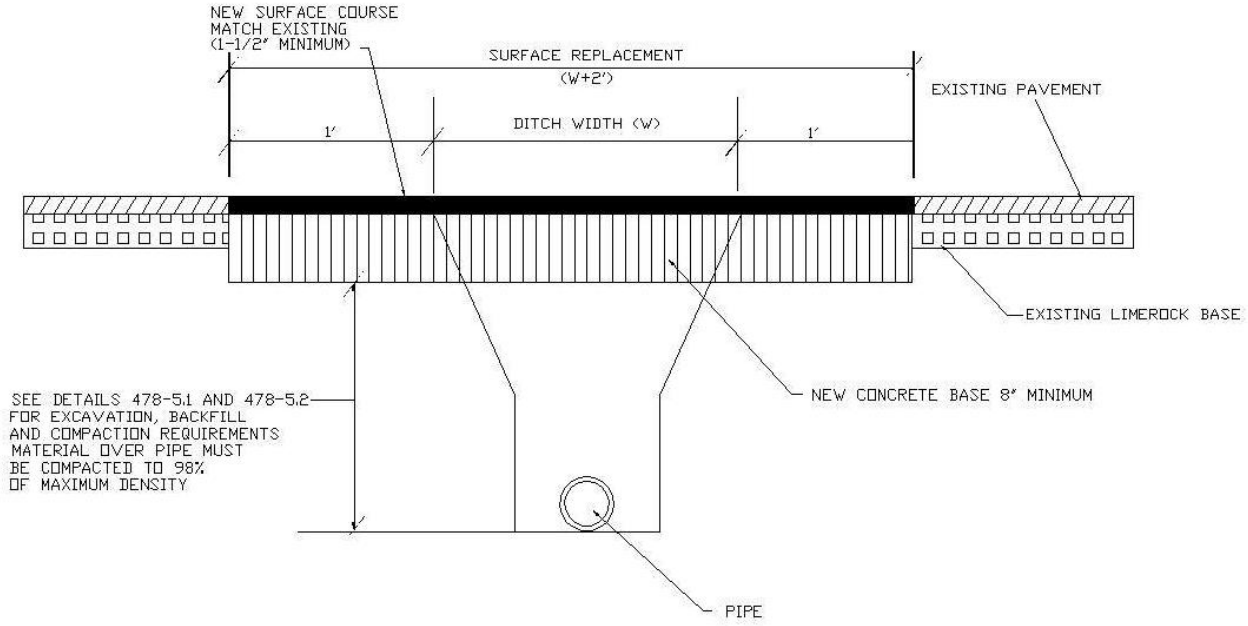
NOTES

1. UNLESS OTHERWISE SPECIFIED, MATERIALS AND METHODS OF OPERATION REQUIRED TO INSTALL NEW AND REPLACEMENT PAVEMENT SHALL BE IN ACCORDANCE WITH THE LATEST APPLICABLE REQUIREMENTS AND SPECIFICATIONS GDOT STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION.
2. ALL EXISTING DRIVEWAYS AND ROADWAYS SHALL HAVE PAVEMENT RETURNS PAVED DURING THE ROAD PAVING OPERATION.
3. THE TYPE AND THICKNESS OF THE NEW SURFACE MATERIAL SHALL BE CONSISTENT WITH THAT OF THE EXISTING SURFACE. TYPICAL STREETS VARY FROM 1" TO 4" THICK. BUT IN ALL CASES SHALL MEET THE MINIMUM STANDARDS ESTABLISHED BY THE PLANS AND SPECIFICATIONS. WHERE NO ASPHALT TYPE IS SPECIFIED THE REPLACEMENT PAVEMENT SHALL BE 1-1/2" OF SUPERPAVE ASPHALT.

SPECIFICATION		DATE REVISED:	SECTION
			SHT 1 OF 1

CITY OF VALDOSTA	CITY OF VALDOSTA STANDARD DETAIL	FULL WIDTH PAVEMENT REPLACEMENT	A
			478-6.1

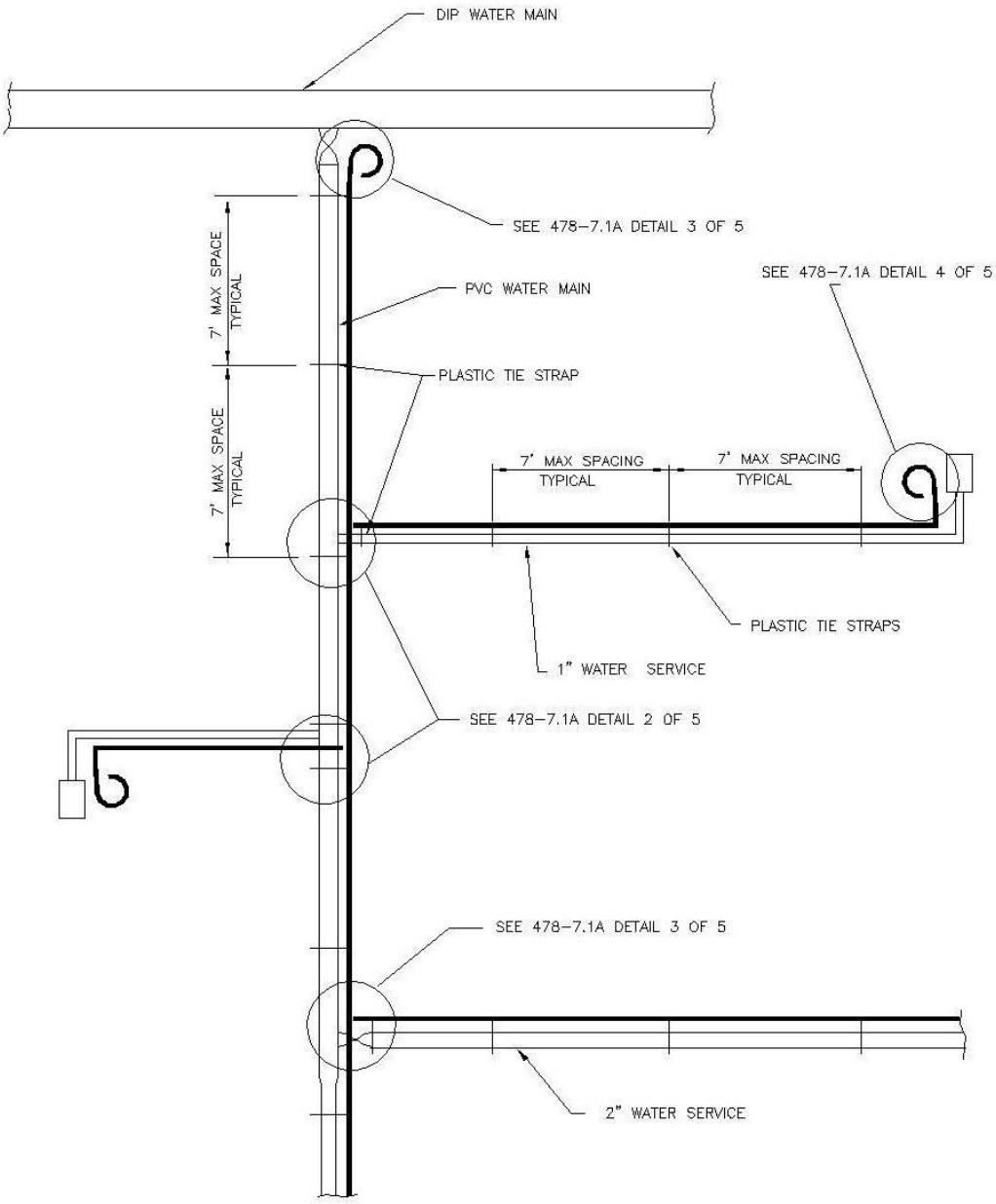




NOTES

1. UNLESS OTHERWISE SPECIFIED, MATERIALS AND METHODS OF OPERATION REQUIRED TO INSTALL NEW AND REPLACEMENT PAVEMENT SHALL BE IN ACCORDANCE WITH THE LATEST APPLICABLE REQUIREMENTS AND SPECIFICATIONS OF CITY OF VALDOSTA
2. PAVEMENT SHALL BE REMOVED TO NEATLY SAWED STRAIGHT EDGES. SAWCUTS SHALL BE MADE TO MIN DEPTH OF 1-1/2" (INCHES).
3. BACKFILL SHALL BE IN ACCORDANCE WITH SPECIFICATIONS AND GDOT STANDARD SPECIFICATIONS.
4. THE TYPE AND THICKNESS OF THE NEW SURFACE MATERIAL SHALL BE CONSISTANT WITH THAT OF THE EXISTING SURFACE. TYPICAL STREETS VARY FROM 1" TO 4" THICK.BUT IN ALL CASES SHALL MEET THE MINIMUM STANDARDS ESTABLISHED BY THE PLANS AND SPECIFICATIONS. WHERE MATERIAL TYPE IS NOT SPECIFIED THE REPLACEMENT PAVEMENT SHALL BE 1-1/2" OF SUPERPAVE ASPHALT.
5. MINIMUM 1' UNDISTURBED BRIDGE FOR THE CONCRETE BASE.

SPECIFICATION		DATE REVISED:	SECTION
			SHT 1 OF 1
CITY OF VALDOSTA	CITY OF VALDOSTA STANDARD DETAIL	TRENCH WIDTH PAVEMENT REPLACEMENT	B 478-6.1



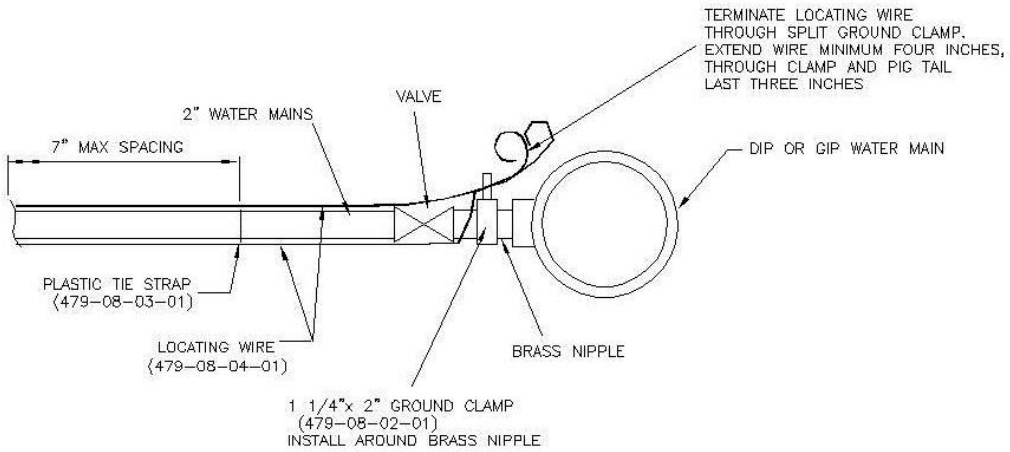
LOCATING WIRE SYSTEM

NOTES

1. LOCATING WIRE TO BE INSTALLED IN BOTH SIX AND TWELVE O'CLOCK POSITIONS OR AT JUST THE TWELVE O'CLOCK POSITION IF IT MEETS THE SPECIFICATIONS FOR A 'SINGLE WIRE' LOCATE WIRE.
2. SECURE LOCATING WIRES TO WATER MAIN BY USE OF PLASTIC TIE STRAPS SPACED AT A MAXIMUM DISTANCE OF SEVEN FEET (7').
3. THE ENTIRE LOCATING SYSTEM SHALL BE SUBJECTED TO TESTING TO DETERMINE ITS RELIABILITY. WHERE INSTALLED UNDER PAVEMENT AREAS, TESTING SHALL BE DONE PRIOR TO PLACEMENT OF ASPHALT BY THE CONTRACTOR.
4. AFTER WIRE INSTALLATION THROUGH GROUND CLAMPS WRAP ALL BARE WIRE WITH ELECTRICAL TAPE.

SPECIFICATION		DATE REVISED:	SECTION
			SHT 1 OF 6

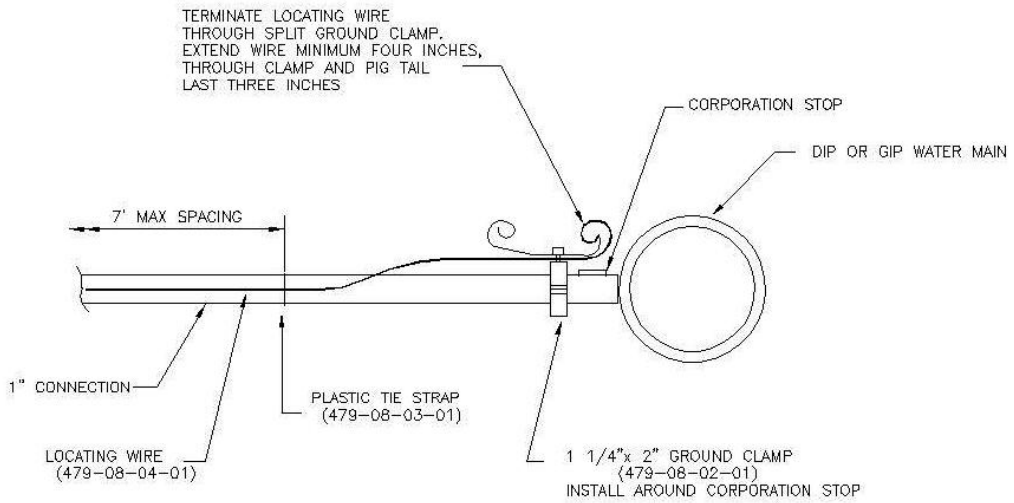
CITY OF VALDOSTA	CITY OF VALDOSTA STANDARD DETAIL	LOCATING WIRE	A
			478-7.1



2" CONNECTION TO DIP OR GIP MAINS

2" WATER SERVICE

(SEE STANDARD 488-2.1)



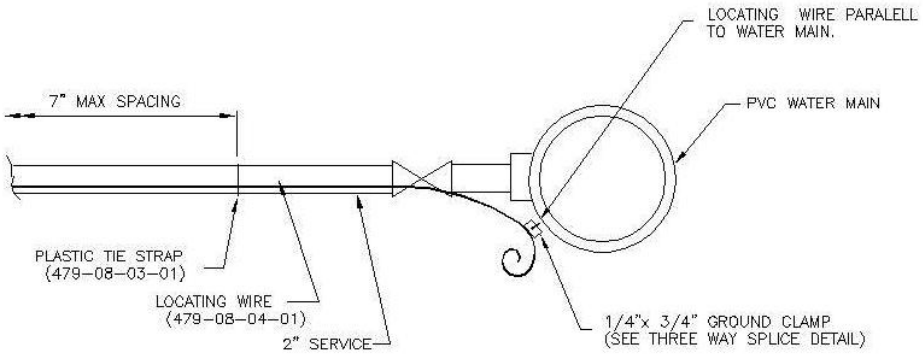
1" CONNECTION TO DIP OR GIP MAIN

SINGLE FAMILY WATER SERVICE

(SEE STANDARD DETAIL 488-2.1)

SPECIFICATION		DATE REVISED:	SECTION
			SHT. 2 OF 6

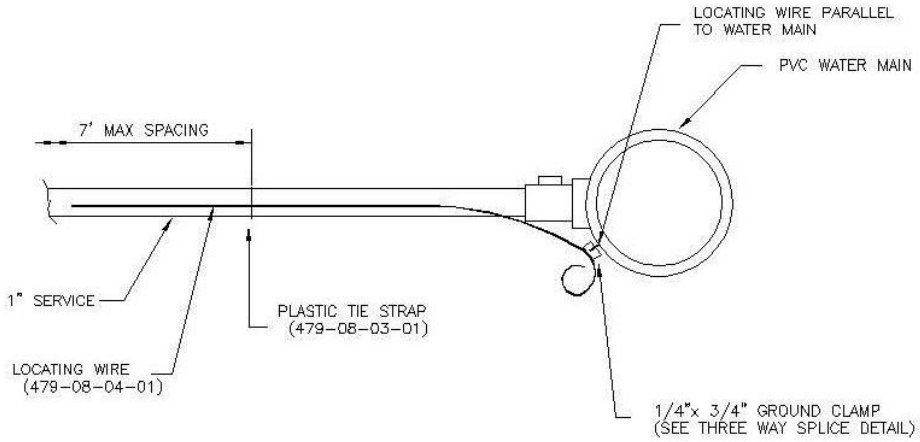
CITY OF VALDOSTA	CITY OF VALDOSTA STANDARD DETAIL	LOCATING WIRE CONNECTION TO DIP OR GIP MAIN	A 478-7.1



2" CONNECTION TO PVC WATER MAIN

MULTI FAMILY WATER SERVICE

(SEE STANDARD 488-2.2)

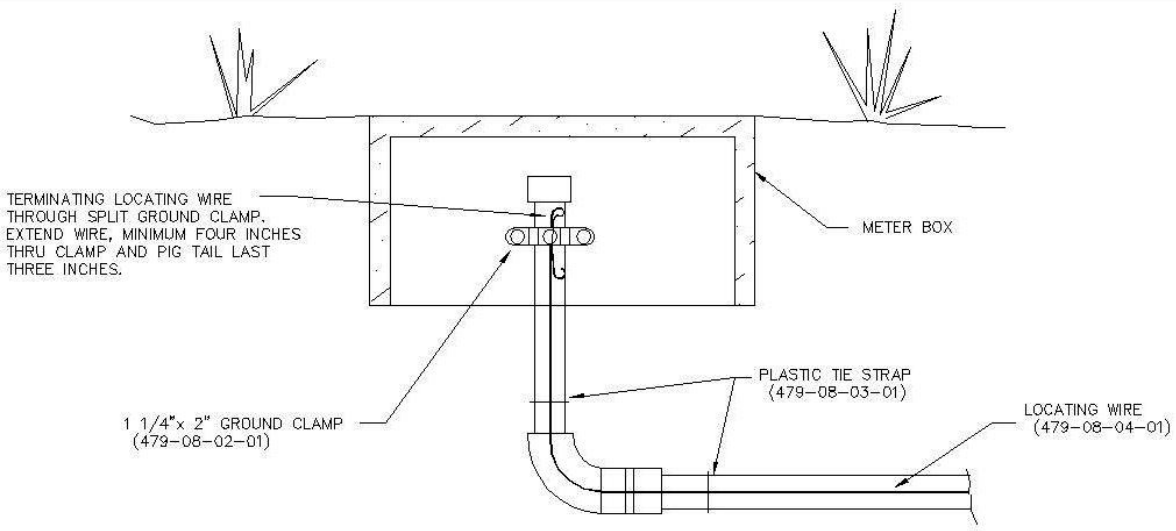


1" CONNECTION TO PVC WATER MAIN

SINGLE FAMILY WATER SERVICE

(SEE STANDARD DETAIL 488-2.1)

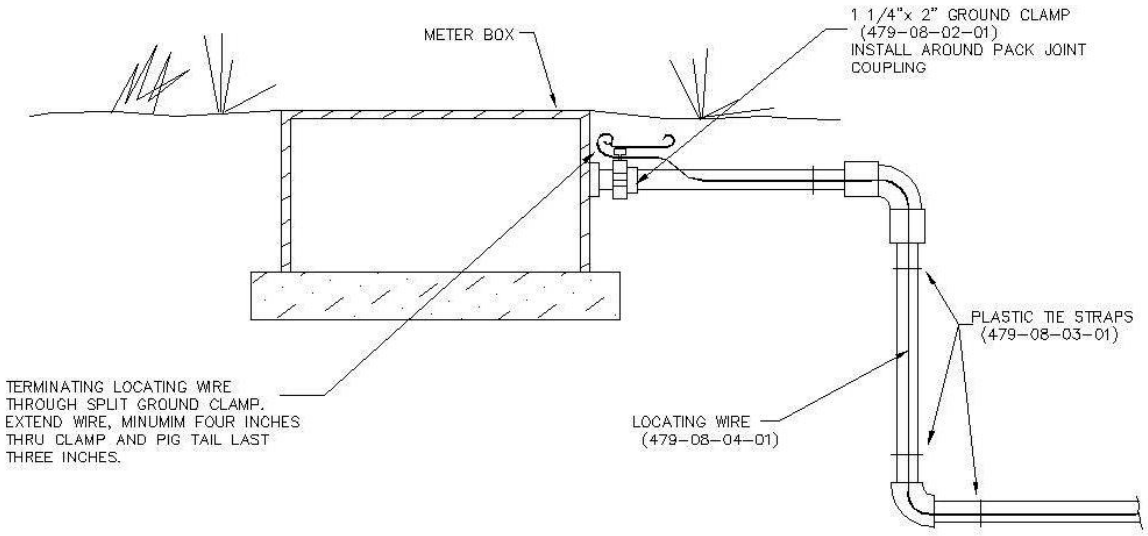
SPECIFICATION		DATE REVISED:	SECTION
			SHT 3 OF 6
CITY OF VALDOSTA	CITY OF VALDOSTA STANDARD DETAIL	LOCATING WIRE CONNECTION TO PVC MAIN	A 478-7.1



TERMINATION AT METER BOX

MULTIFAMILY WATER SERVICE

SEE STANDARD DETAIL 488-2.2



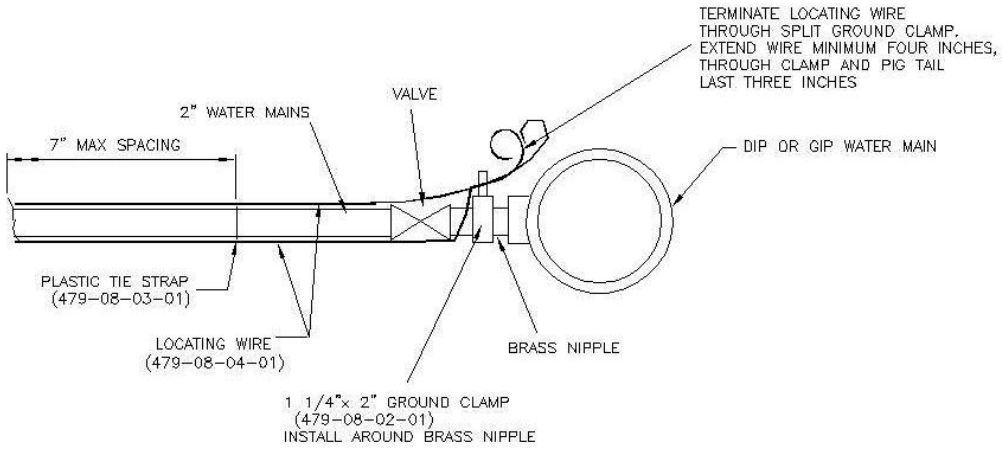
TERMINATION AT METER BOX

SINGLE FAMILY WATER SERVICE

SEE STANDARD DETAIL 488-2.1

SPECIFICATION		DATE REVISED:	SECTION
			SHT 4 OF 6

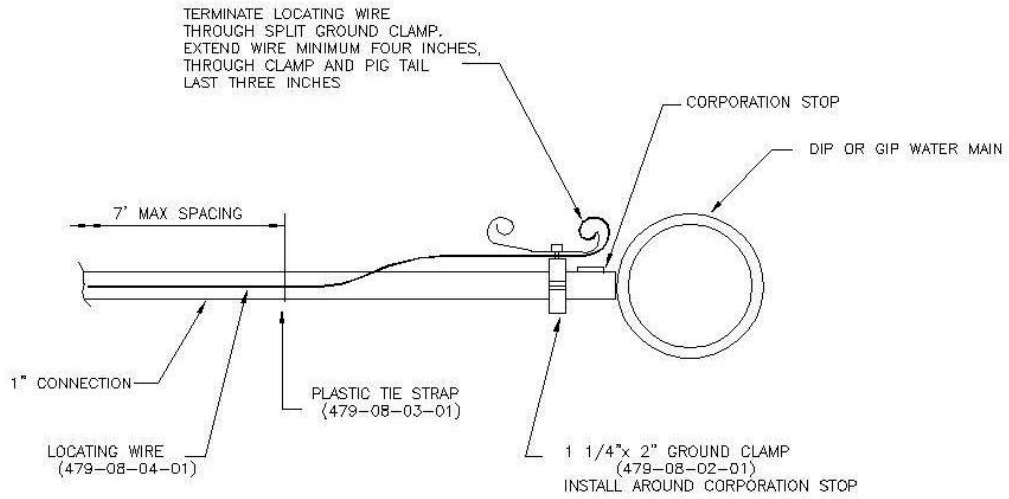
CITY OF VALDOSTA	CITY OF VALDOSTA STANDARD DETAIL	LOCATING WIRE TERMINATION AT METER BOX	A 478-7.1



2" CONNECTION TO DIP OR GIP MAINS

2" WATER SERVICE

(SEE STANDARD 488-2.1)



1" CONNECTION TO DIP OR GIP MAIN

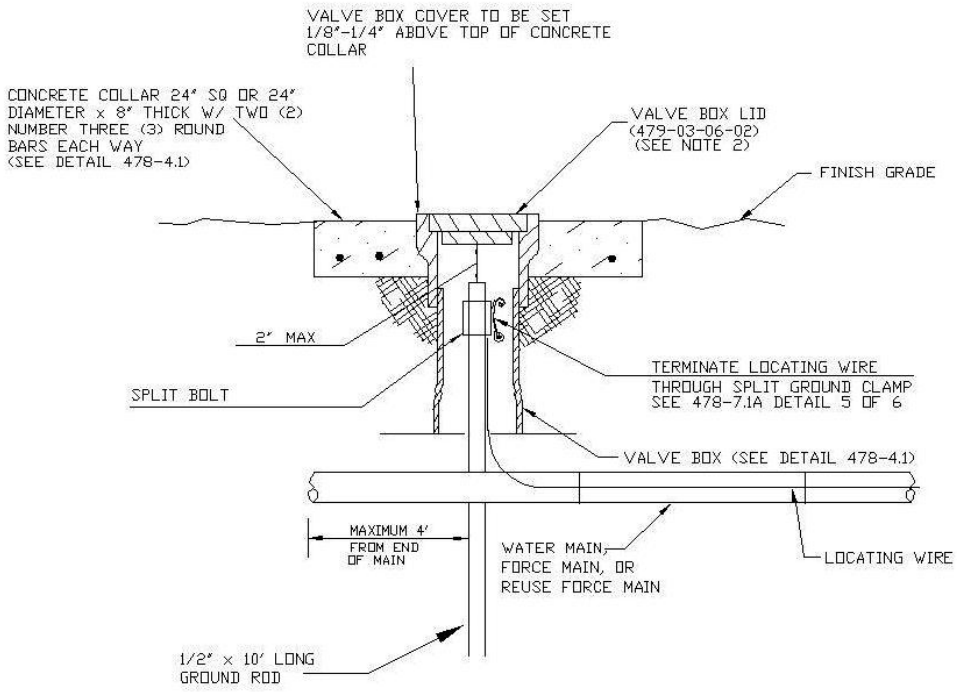
SINGLE FAMILY WATER SERVICE

(SEE STANDARD DETAIL 488-2.1)

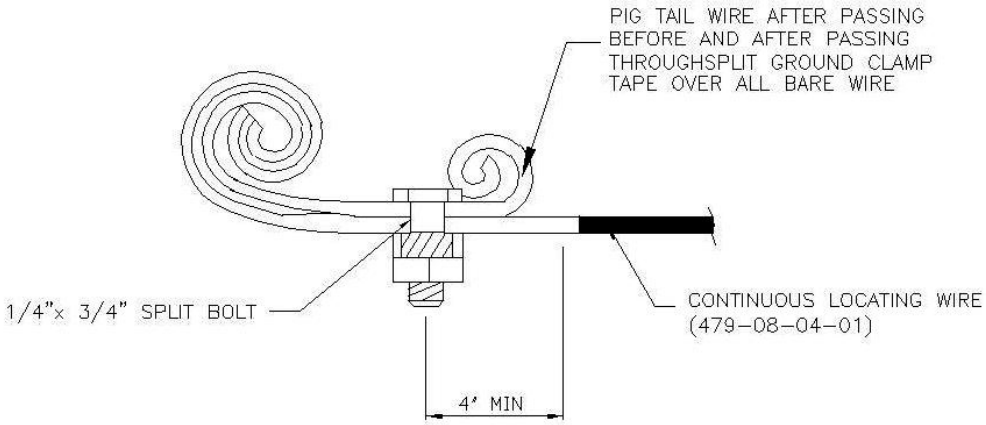
NOTE:
TRACE-SAFE(NEPTCO) CONNECTORS AND LOCATE CLIPS TO BE USED WITH SAFE-TRACE(NEPTCO) WIRE.

SPECIFICATION		DATE REVISED:	SECTION
			SHT 2 OF 6

CITY OF VALDOSTA	CITY OF VALDOSTA STANDARD DETAIL	LOCATING WIRE CONNECTION TO DIP OR GIP MAIN	A 478-7.1



GROUND ROD TERMINATION



END TERMINATION

NOTES

1. USE ONLY ONE STANDARD VALVE BOX EXTENSION 479-03-11-02.
2. VALVE BOX LID TO BE FURNISHED WITH THE WORD "WATER" FOR WATER MAIN INSTALLATION,\ "SEWER" FOR SEWER MAIN INSTALLATION OR "REUSE" FOR REUSE MAIN INSTALLATION.
3. MAXIMUM SPACING BETWEEN GROUNDING ROD IS 500 FEET.
4. TRACE-SAFE(NEPTCO) CONNECTORS AND LOCATE CLIPS SHALL BE USED WITH TRACE-SAFE(NEPTCO) WIRE.

SPECIFICATION		DATE REVISED:	SECTION
			SHT 6 OF 6

CITY OF VALDOSTA	CITY OF VALDOSTA STANDARD DETAIL	LOCATING WIRE END TERMINATION	A 478-7.1

DIVISION 470

SECTION 479

GENERAL CONSTRUCTION

STANDARD MATERIALS SPECIFICATIONS

SECTION 479

GENERAL CONSTRUCTION STANDARD MATERIALS SPECIFICATIONS

Following is a list of standard materials to be used in the installation of the water and sanitary sewer main systems. Shop drawings are to be submitted. Materials requiring the traditional "Shop Drawing Submittal" are identified by the words "Shop Drawing Required" at the bottom of the specification sheet. All materials must be submitted on Form WSCM001. A copy of form WSCM001 is provided in the Appendix section of this manual.

The Material Specification Number for each item is located in the upper right hand corner of the specification sheet.

LIST OF WATER AND SEWER STANDARD MATERIALS

479-01 RESERVED

479-02 RESERVED

479-03 BOXES & LIDS

479-03-06-02 Valve Box, Lid
479-03-06-03 Valve Box, Non-Pop Lid
479-03-10-01 Valve Box, Bottom
479-03-11-02 Valve Box, Extension
479-03-11-03 Valve Box, Top
479-03-99-01 Hatch, Aluminum Single Door Lightweight
479-03-99-02 Hatch, Aluminum Single Door Heavyweight
479-03-99-03 Hatch, Aluminum Double Door Lightweight
479-03-99-04 Hatch, Aluminum Double Door Heavyweight
479-03-99-20 Valve Box

479-04 CASINGS

479-04-01-01 Steel Casings
479-04.01.02 PVC and HDPE Casings

479-05 CARRIER PIPE

479-05-01-01 Carrier Pipe for Gravity Sewers
479-05-02-01 Carrier Pipe for Water Mains and Sewer Force Mains

479-06 RESERVED

479-07 RESERVED

479-08 WIRE AND HARDWARE

479-08-02-01 Ground Clamp
479-08-03-01 Tie Wire
479-08-04-01 Wire

479-09 MISCELLANEOUS

479-09-01-01 Casing Spacer
479-09-02-01 Marking Tape

MATERIAL SPECIFICATION: 479-03-06-02

NOMENCLATURE:

VALVE BOX, LID

DESCRIPTION:

Provide cast iron, ASTM A48, heavy duty, valve box, 5 ¼" shaft. Cover shall be marked "Water, "Sewer," or "Reuse" as called for on the plans.

APPROVED MANUFACTURING AND CATALOG NUMBERS

	MANUFACTURER			
SIZE	SIGMA	TYLER	OPELIKA FOUNDRY	STAR PIPE PRODUCTS
5 ¼"	VB261 or equal			

MATERIAL SPECIFICATION: 479-03-06-03

NOMENCLATURE:

VALVE BOX, NON-POP LID

DESCRIPTION:

Provide high tech molded polymer replacement lid for conventional cast iron lid. Cover shall be marked "Water, "Sewer," or "Reuse" as called for on the plans.

APPROVED MANUFACTURING AND CATALOG NUMBERS

MANUFACTURER

SIZE	SWS
5 ¼”	5 ¼” Non-Pop Lid

MATERIAL SPECIFICATION: 479-03-10-01

NOMENCLATURE:

VALVE BOX, BOTTOM

DESCRIPTION:

Cast iron, ASTM A48, heavy duty screw type as specified. Cast iron screw valve box will be only type allowed in asphalt pavement. Cast iron screw or sliding type valve box may be used in right of way as specified per project.

APPROVED MANUFACTURING AND CATALOG NUMBERS

	MANUFACTURER			
SIZE	TYLER	OPELIKA FOUNDRY	SIGMA	STAR PIPE PRODUCTS
24" – 36"			VB 261 or equal	

MATERIAL SPECIFICATION: 479-03-11-02

NOMENCLATURE:

VALVE BOX, EXTENSION

DESCRIPTION:

Cast iron, ASTM A48, heavy duty screw type extension. For deep valves use six inch (6") ductile or cast iron pipe cut to proper length so only one valve box extension is used.

APPROVED MANUFACTURING AND CATALOG NUMBERS

	MANUFACTURER			
SIZE	TYLER	OPELIKA FOUNDRY	SIGMA	STAR PIPE PRODUCTS
24" – 36"			VB302-18	

MATERIAL SPECIFICATION: 479-03-11-03

NOMENCLATURE:

VALVE BOX, TOP

DESCRIPTION:

Cast iron, ASTM A48, screw type.

APPROVED MANUFACTURING AND CATALOG NUMBERS

	MANUFACTURER			
SIZE	TYLER	OPELIKA FOUNDRY	SIGMA	STAR PIPE PRODUCTS
24” – 36”			VB261 or equal	

MATERIAL SPECIFICATION: 479-03-99-01

NOMENCLATURE:

HATCH, SINGLE DOOR, LIGHTWEIGHT, ALUMINUM

DESCRIPTION:

Shall be made of one-quarter inch (1/4") Floor Diamond Plate Aluminum with one-quarter inch (1/4") extruded aluminum angle frame with concrete anchors and integral neoprene gasket strip, single door, stainless steel hinges, stainless steel bolts and fasteners, hold open arm mechanism, cast aluminum drop handle and safety hasp. Cover shall be designed to withstand 300 lb/ft². Aluminum shall be mill finished with coal tar epoxy applied to surfaces to be in contact with concrete. All stainless steel is to be 316 grade stainless steel.

APPROVED MANUFACTURING AND CATALOG NUMBERS (or equal)

	MANUFACTURER	
SIZE	U. S. FOUNDRY	HALLIDAY
24” x 24”		
24” x 30”		
24” x 36”		
30” x 30”		
30” x 36”		
30” x 48”		
36” x 36”		
36” x 48”		
42” x 42”		

MATERIAL SPECIFICATION: 479-03-99-02

NOMENCLATURE:

HATCH, SINGLE DOOR, HEAVYWEIGHT, ALUMINUM

DESCRIPTION:

Shall be made of one-quarter inch (¼") Floor Diamond Plate Aluminum with one-quarter inch (¼") extruded aluminum angle frame with concrete anchors and integral neoprene gasket strip, single door, stainless steel hinges, stainless steel bolts and fasteners, hold open arm mechanism, cast aluminum drop handle and safety hasp. Cover shall be designed for H-20 wheel loading. Aluminum shall be mill finished with coal tar epoxy applied to surfaces to be in contact with concrete. All stainless steel is to be 316 grade stainless steel.

APPROVED MANUFACTURING AND CATALOG NUMBERS (or equal)

	MANUFACTURER	
SIZE	U. S. FOUNDRY	HALLIDAY
24" x 24"		
24" x 30"		
30" x 30"		
30" x 36"		
30" x 48"		
36" x 36"		

MATERIAL SPECIFICATION: 479-03-99-03

NOMENCLATURE:

HATCH, DOUBLE DOOR, LIGHTWEIGHT, ALUMINUM

DESCRIPTION:

Shall be made of one-quarter inch (¼") Floor Diamond Plate Aluminum with one-quarter inch (¼") extruded aluminum angle frame with concrete anchors and integral neoprene gasket strip, double doors, stainless steel hinges, stainless steel bolts and fasteners, hold open arm mechanism, cast aluminum drop handle and safety hasp. Cover shall be designed to withstand 300 lb/ft². Aluminum shall be mill finished with coal tar epoxy applied to surfaces to be in contact with concrete. All stainless steel is to be 316 grade stainless steel.

APPROVED MANUFACTURING AND CATALOG NUMBERS (or equal)

	MANUFACTURER	
SIZE	U. S. FOUNDRY	HALLIDAY
30" x 48"		
30" x 54"		
36" x 48"		
36" x 60"		
42" x 48"		
48" x 48"		
48" x 54"		
48" x 72"		
60" x 60"		

MATERIAL SPECIFICATION: 479-03-99-04

NOMENCLATURE:

HATCH, DOUBLE DOOR, HEAVYWEIGHT, ALUMINUM

DESCRIPTION:

Shall be made of one-quarter inch (¼") Floor Diamond Plate Aluminum with one-quarter inch (¼") extruded aluminum angle frame with concrete anchors and integral neoprene gasket strip, double doors, stainless steel hinges, stainless steel bolts and fasteners, hold open arm mechanism, cast aluminum drop handle and safety hasp. Cover shall be designed for H-20 wheel loading. Aluminum shall be mill finished with coal tar epoxy applied to surfaces to be in contact with concrete. All stainless steel is to be 316 grade stainless steel.

APPROVED MANUFACTURING AND CATALOG NUMBERS (or equal)

	MANUFACTURER	
SIZE	U. S. FOUNDRY	HALLIDAY
30" x 48"		
30" x 54"		
36" x 48"		
36" x 60"		
42" x 48"		
48" x 48"		
48" x 54"		
48" x 72"		

MATERIAL SPECIFICATION: 479-03-99-20

NOMENCLATURE:

VALVE BOX

DESCRIPTION:

Cast iron, ASTM A-48, heavy duty screw or sliding type valve box. Complete with bottom and top sections and lid. Lid to be marked "Water," "Sewer," or "Reuse" as called for on the plans.

APPROVED MANUFACTURING AND CATALOG NUMBERS (or equal)

	MANUFACTURER			
SIZE	TYLER	OPELIKA FOUNDRY	SIGMA	STAR PIPE PRODUCTS
24″ – 36″			VB261 or equal	

MATERIAL SPECIFICATION: 479-04-01-01

NOMENCLATURE:

STEEL CASINGS

DESCRIPTION:

Steel, ASTM A-53 or ASTM A-139, steel casing, welded joints

APPROVED MANUFACTURING AND CATALOG NUMBERS

MANUFACTURER

SIZE	THICKNESS
2”	0.25
4”	0.25
6”	0.25
8”	0.25
12”	0.28
18”	0.31
24”	0.33
30”	0.38
36”	0.42
48”	0.52
54”	0.58
60”	0.61

MATERIAL SPECIFICATION: 479-04-01-02

NOMENCLATURE:

CASINGS

DESCRIPTION:

PVC, SCH 80
PVC, C900
HDPE, C906

APPROVED MANUFACTURING AND CATALOG NUMBERS

SIZE	PVC	HDPE	MANUFACTURER
2”	PVC, SCH80, DR18	HDPE, C906	JM Eagle or equal
4”	PVC, C900, DR18	HDPE, C906	JM Eagle or equal
8”	PVC, C900, DR18	HDPE, C906	JM Eagle or equal
12”	PVC, C900, DR18	HDPE, C906	JM Eagle or equal

MATERIAL SPECIFICATION: 479-05-01-01

NOMENCLATURE:

CARRIER PIPE FOR GRAVITY SEWERS

DESCRIPTION:

PVC Gravity pipes, see Material Specification 499-07-06-02

MATERIAL SPECIFICATION: 479-05-02-01

NOMENCLATURE:

CARRIER PIPE FOR WATER MAINS & SEWER FORCE MAINS

DESCRIPTION:

PVC water and sewer Force Mains use Certa-Lok C900 restrained joint PVC piping system, Specifications 489-07-08-03 and 499-07-99-06

DIP Sewer Force Mains: See Material Specification 499-07-15-01, using restrained joints, Specification 499-07-15-02

DIP Water Mains: See Material Specification 489-07-02-01, using restrained joints, Specification 489-07-02-02

APPROVED MANUFACTURING AND CATALOG NUMBERS

SIZE	MANUFACTURER

MATERIAL SPECIFICATION: 479-08-02-01

NOMENCLATURE:

GROUND CLAMP

DESCRIPTION:

Ground clamp, bronze head with brass-bronze screws for use on locating wire terminations. Trace-Safe(Neptco) locate clip to be used with Trace-Safe wire at valve boxes and termination points.

APPROVED MANUFACTURING AND CATALOG NUMBERS (or equal)

SIZE	MANUFACTURER
1”	
2”	

MATERIAL SPECIFICATION: 479-08-03-01

NOMENCLATURE:

TIES, WIRE

DESCRIPTION:

Must be dielectric for fastening locating wire to PVC pipe.

APPROVED MANUFACTURING AND CATALOG NUMBERS

SIZE	MANUFACTURER
6”	
12”	

MATERIAL SPECIFICATION: 479-08-04-01

NOMENCLATURE:

WIRE

DESCRIPTION:

Wire, solid, TW, color – Water(blue), Sewer(green), Reclaim(purple) 300 volt for locating wire. Trace-Safe(Neptco) connectors must be used when using Trace-Safe(Neptco) locating wire.

APPROVED MANUFACTURING AND CATALOG NUMBERS

SIZE	No. of Wires	MANUFACTURER
#14	2	Service Wire Company
#19	1	Trace-Safe(Neptco) or approved equal

MATERIAL SPECIFICATION: 479-09-01-01

NOMENCLATURE:

CASING SPACERS

DESCRIPTION:

Casing spacers shall be bolt on style with a two (2) piece shell made of polymer or glass reinforced plastic or 304 stainless steel of a minimum 14-gauge thickness. Each shell section shall have bolt flanges and/or a hinged side, bolt flange shall be formed with ribs for added strength. Connecting side shall have a minimum of three (3) $^{5}/_{16}$" 304 stainless steel bolts. The shell shall be lined with ribbed PVC with a retaining section that overlaps the edge of the shell and prevents slippage. Bearing surfaces (runners) made from UHMW Polymer or glass reinforced plastic and attached to support structures (risers) at appropriate position to properly support the carrier within the casing and to ease installation. Runners shall be attached mechanically by 304 stainless steel threaded fasteners that are inserted through the riser section and TIG welded for strength. Risers shall be made of 304 stainless steel of a minimum 10-gauge. Risers shall be TIG welded to the shell. All metal surfaces shall be fully chemically passivated.

APPROVED MANUFACTURING AND CATALOG NUMBERS

Applications: For PVC carrier pipe, polymer, plastic or stainless steel spacers.
For DIP carrier pipe, stainless steel spacers only.

MANUFACTURER

CASCADE WATERWORKS MFG	PIPELINE SEAL & INSULATOR	RACI CASING SPACERS
THE BWM COMPANY		

MATERIAL SPECIFICATION: 479-09-02-01

NOMENCLATURE:

MARKING TAPE, DETECTABLE UNDERGROUND

DESCRIPTION:

Aluminum foil marking tape used in underground application to mark the location of water mains, sewage force mains, reuse mains and gravity sewers. Tape shall have a minimum 5 mil overall thickness with 0.35 mil solid aluminum foil core. Construction shall be 0.8 mil clear fiber, reverse print laminated to aluminum foil to 3.75 mil clear fiber, making a film permanently printed. Tape shall meet the thickness requirements of ASTM D2103, 5.0 mil, and tensile strength meeting requirements of ASTM D882, 15,000 psi. Color shall be blue for water, green for sewage force mains and gravity sewer, and purple for reuse mains, with "Potable Water", "Sewer Force Main", "Sewer", and "Reclaimed Water" written on the tape.

SIZE

4″
6″
12″