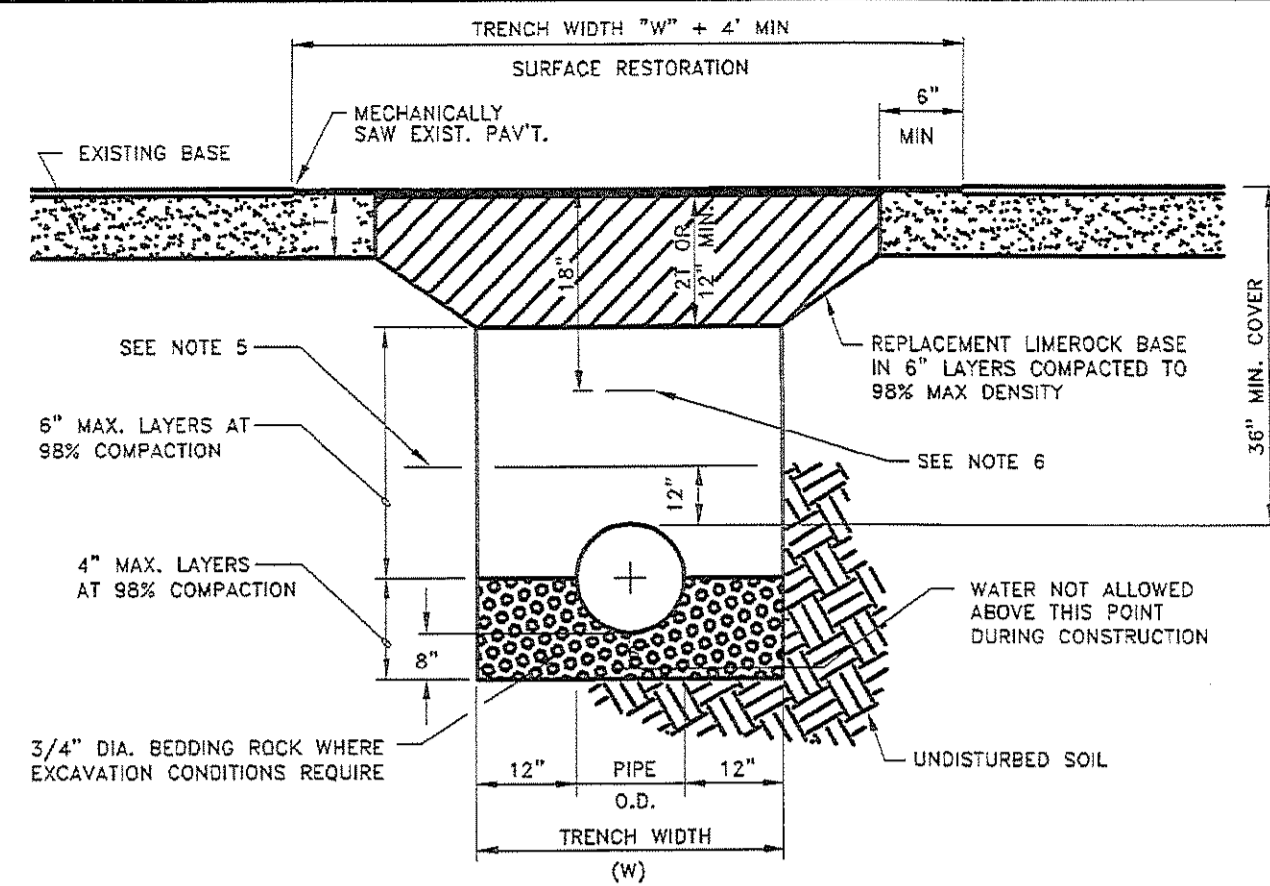
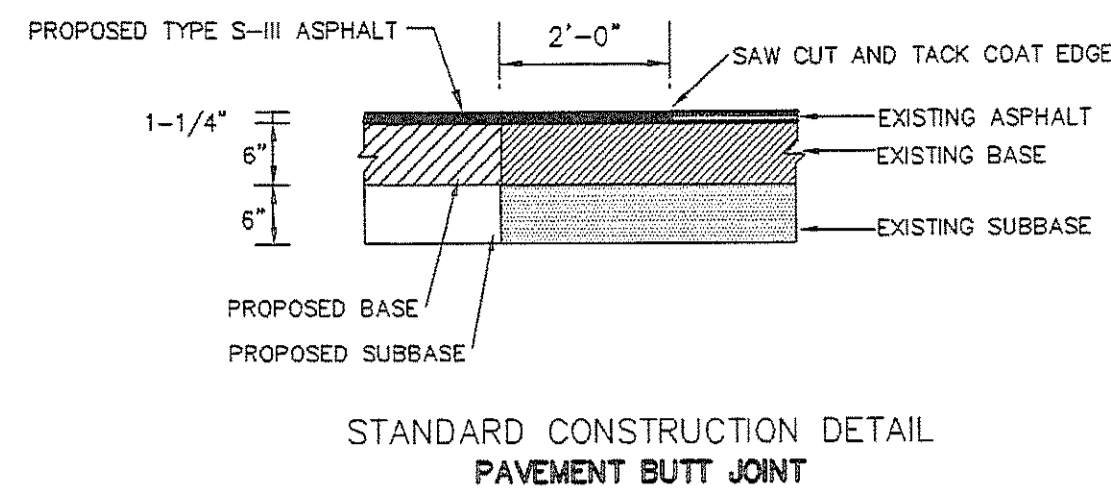


SCHEDULE OF LENGTHS OF RESTRAINED DIP (FT.)					
FITTING	90° BEND	45° BEND	22.5° BEND	11.25° BEND	TEE OR DEAD END
4"	21 (26)	18 (18)	18 (18)	18 (18)	37 (55)
6"	30 (36)	18 (18)	18 (18)	18 (18)	58 (78)
8"	38 (45)	18 (18)	18 (18)	18 (18)	67 (100)
10"	45 (54)	18 (22)	18 (18)	18 (18)	81 (122)
12"	52 (63)	22 (26)	18 (18)	18 (18)	94 (141)
14"	60 (72)	25 (30)	18 (18)	18 (18)	107 (160)
16"	66 (80)	27 (33)	18 (18)	18 (18)	120 (180)
18"	74 (87)	31 (36)	18 (18)	18 (18)	132 (198)
20"	80 (94)	33 (39)	18 (18)	18 (18)	144 (216)
24"	92 (108)	38 (45)	18 (22)	18 (18)	167 (250)
30"	106 (128)	44 (53)	21 (25)	18 (18)	199 (298)
36"	122 (147)	51 (61)	24 (29)	18 (18)	235 (354)
42"	138 (166)	58 (70)	27 (33)	18 (18)	273 (414)
48"	156 (187)	66 (79)	30 (36)	18 (18)	315 (474)

LENGTHS BETWEEN HEAVY LINES INDICATE ONE FULL LENGTH (18' MIN) OF PIPE TO BE RESTRAINED.  
 TABLE SHOWS MINIMUM LENGTH OF PIPE EACH WAY FROM FITTING FOR WHICH RESTRAINT IS REQUIRED.  
 TABLE APPLIES TO DUCTILE IRON PIPE FOR THE FOLLOWING CONDITIONS:  
 TEST PRESSURE: 150 PSIG  
 SOIL TYPE: SP  
 COVER DEPTH: 3 FEET (MIN)  
 SAFETY FACTOR: 1.5  
 TRENCH TYPE: 2  
 VALUES IN PARENTHESIS (X) ARE FOR PIPE ENCASED IN POLYETHYLENE.  
 \* VALUES APPLY TO DUCTILE IRON PIPE AT 50 PSI TEST PRESSURE.

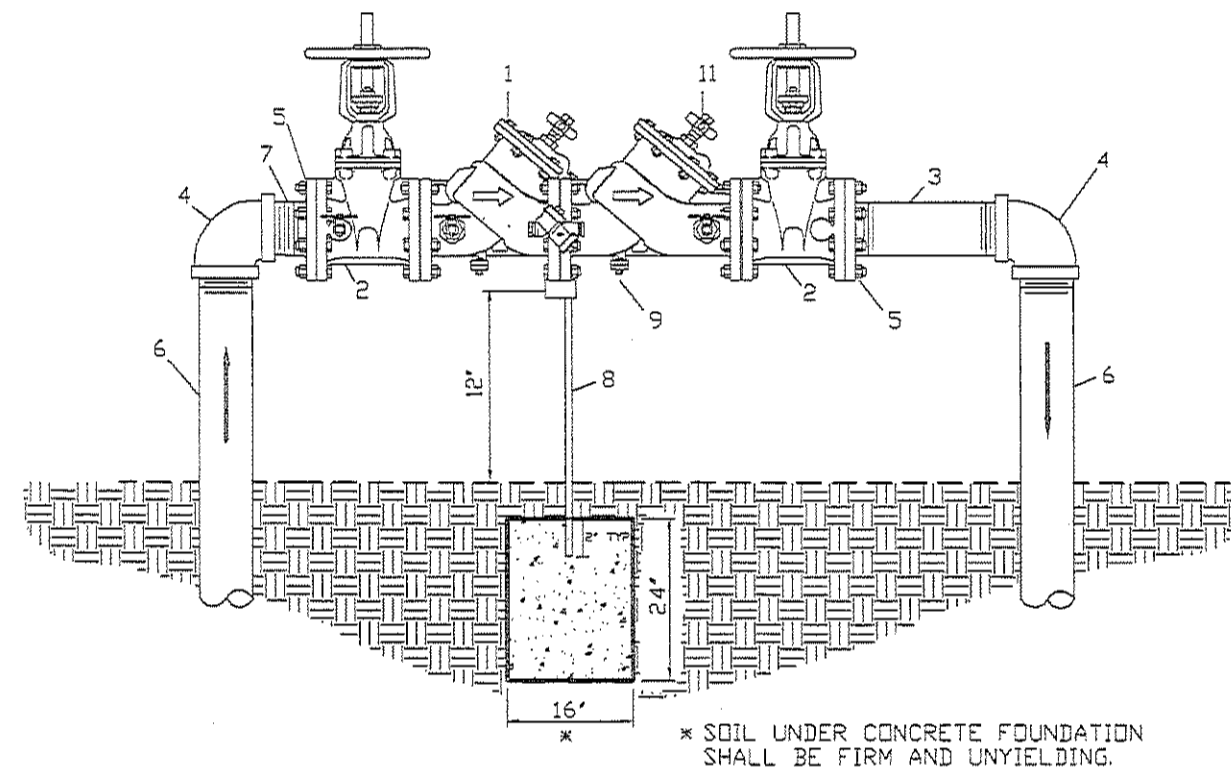


- NOTES:**
- WHERE SOIL CONDITIONS CAN NOT BE MAINTAINED AS SHOWN ABOVE, PROVIDE APPROVED METHOD OF CONSTRUCTION.
  - SHEETING WILL BE REQUIRED AS DETERMINED IN THE FIELD.
  - NEW SURFACING MATERIALS SHALL BE CONSISTENT WITH EXISTING AND SHALL HAVE LAPPED & FEATHERED JOINTS (1 1/2" MIN. THK.)
  - COMPACTION PERCENTAGES SHOWN REFER TO A.A.S.H.T.O. T-180. PROVIDE COMPACTION TEST REPORTS TO CITY INSPECTOR.
  - MECHANICAL COMPACTION NOT ALLOWED BELOW THIS LEVEL.
  - FOR PVC PIPE ONLY - INSTALL METALLIC TAPE AND UF #14 INSULATED COPPER WIRE OVER FULL LENGTH OF PIPE.
  - HIGH EARLY STRENGTH CONCRETE MAY BE SUBSTITUTED FOR LIME ROCK UPON APPROVAL BY CITY ENGINEER.
  - THE CONTRACTOR SHALL, UNLESS OTHERWISE NOTED, RESTORE ALL STRIPING, PAVEMENT MARKINGS, DELINEATORS, SIGNAGE AND TRAFFIC SIGNAL SYSTEM COMPONENTS DISTURBED DURING CONSTRUCTION ACTIVITIES. COST OF ALL WORK AND MATERIALS WILL BE CONSIDERED INCIDENTAL TO PATCH MATERIAL ITEMS.



**DIP RESTRAINED JOINT TABLE (W-7)**

**PAVEMENT CUT AND PATCH DETAIL (ST-15)**



The City of Daytona Beach Utilities Department  
 List of Approved Products

- Gate Valves - general (resilient seat)**  
 AWWA C509 and C515
- |                           |                  |
|---------------------------|------------------|
| 1. American Flow Control  | 1. C509 and C515 |
| 2. Mueller                | 2. C509 (only)   |
| 3. Clow                   | 3. C509 (only)   |
| 4. Kennedy                | 4. C509 (only)   |
| 5. US Pipe                | 5. C509 (only)   |
| 6. American AVK           | 6. C509 (only)   |
| 7. East Jordan Iron Works | 7. C509 and C515 |
- Gate Valves 12" and Smaller (resilient seated only)**
- |                          |                  |
|--------------------------|------------------|
| 1. American Flow Control | 1. Series 2500   |
| 2. American R/D          | 2. Series 2000   |
| 3. AVK                   | 3. Series 25     |
| 4. Clow                  | 4. Series F-6100 |
| 5. Kennedy               | 5. Series 4371   |
| 6. M&H                   | 6. Series 4067   |
| 7. Mueller               | 7. Series A2360  |
| 8. US Pipe               | 8. Metrosal 250  |
| 9. Watrous               | 9. Series 500    |

- Tapping Valves (resilient seated only)**
- |                          |                  |
|--------------------------|------------------|
| 1. American Flow Control | 1. Series 2500   |
| 2. AVK                   | 2. Series 25     |
| 3. Clow                  | 3. Series F-6114 |
| 4. Kennedy               | 4. Series 4950   |
| 5. M&H                   | 5. Series 4751   |
| 6. Mueller               | 6. T2360 & A2361 |
| 7. US Pipe               | 7. Metrosal 250  |
| 8. Watrous               | 8. Series 500    |

- Tapping Sleeves - Mechanical joint for all taps on cast iron, ductile iron, all taps including size on size**
- |                          |                               |
|--------------------------|-------------------------------|
| 1. American Flow Control | 1. Series 2800                |
| 2. Clow                  | 2. Series F-5205, F-5207      |
| 3. Mueller               | 3. Series H-615, H-616, H-619 |
| 4. US Pipe               | 4. Series T-9                 |

- Tapping Sleeves - Fabricated steel, mechanical joint, fusion bonded epoxy coated**
- |                |              |
|----------------|--------------|
| 1. Smith Blair | 1. Style 623 |
| 2. JCM         | 2. Style 414 |

**Water Category 6 of 6: Reduced Pressure Zone Backflow Preventer**

- Approved RPZBP - Single service 3", 4"**
- |             |                   |
|-------------|-------------------|
| 1. Fobco    | 1. 825 Y          |
| 2. Watts    | 2. Model 909 OS&Y |
| 3. Conbraco | 3. 40-200         |
| 4. Cla-Val  | 4. RP-1           |

**Water Category 4 of 6: PIPE FITTINGS**

- Restrained Joints - DIP**
- |                   |                                                                           |
|-------------------|---------------------------------------------------------------------------|
| 1. American       | 1. Fast Grip Gasket                                                       |
| 2. EBAA Iron Inc. | 2. Mega-lug series 1100, series 1700 restraint, series RS-3800 restrainer |
| 3. Ford           | 3. UFR-1400, 1300C series                                                 |
| 4. Star           | 4. Star Grip series 3000, All Grip series 3600                            |
| 5. US Pipe        | 5. Field Loc Gasket                                                       |
| 6. Sigma          | 6. One-LOK SLD (3-36")                                                    |
| 7. Mueller        | 7. Aquagrip Restraint System                                              |
| 8. One Bolt Inc.  | 8. One Bolt                                                               |

MATERIALS		
ITEM	QUANT.	DESCRIPTION
1	1	6" VALVE, DOUBLE CHECK BACKFLOW PREVENTER
2	2	6" VALVE, GATE, C.I., F-F
3	1	6" NIPPLE (2", & 4" GALV.) (DIP FOR ALL OTHER SIZES) (18" LONG) (DPT.)
4	2	6" ELBOW 90° (2", & 4" GALV.) (DIP FOR ALL OTHER SIZES)
5	2	6" FLANGE, STEEL PIPE, SCREW-TYPE
6	2	6" PIPE, (2", & 4" GALV.) (DIP FOR ALL OTHER SIZES) (42" LONG)
7	1	6" NIPPLE (2", & 4" GALV.) (DIP FOR ALL OTHER SIZES) (6" LONG)
8	1	2" GALV. IRON PIPE/CONCRETE FOUNDATION (16"x16"x24" MIN)
9	*	TEST PORTS (QUANTITY/LOCATIONS DEPENDING ON MANUFACTURER)

NOTE - FIELD ADJUST AND CUT ITEM 6 & ITEM 8 (PIPE SUPPORT) TO THE PROPER LENGTH.  
 - DIP 6" AND GREATER SHALL BE DIP.  
 ACCEPTABLE MANUFACTURERS: (SEE CDD'S APPROVED PRODUCT LIST)

**DOUBLE CHECK DETECTOR BACKFLOW PREVENTER  
 DEDICATED 6" FIRE LINE**

CITY APPROVAL  
 STAMP  
 DEV2010-051

NO.	DATE	DESCRIPTION
1	5-21-10	SUBMIT TO SURVIVED
2	5-20-10	SUBMIT TO CITY
3	6-17-10	RESUBMIT TO CITY
5	7-29-10	ADD NO. PARING PER CITY
6	7-9-10	REBET

5531 SOUTH RIDGEWOOD AVENUE  
 UNIT 1  
 PORT ORANGE, FLORIDA 32127  
 (386)756-8676  
 CERTIFICATE OF AUTHORIZATION NUMBER 8081  
 ENGINEERING@FINLEYENGINEERS.COM

**FINLEY  
 ENGINEERING  
 GROUP**

**DAYTONA BEACH  
 NEWS JOURNAL  
 WAREHOUSE ADDITION**

PROJECT NUMBER  
 FEG# 1018

JERRY K. FINLEY, P.E.  
 P.E. # 29909

SHAWN P. FINLEY  
 P.E. # 57446

SHEET TITLE  
 STANDARD  
 DETAILS

SHEET  
**C-5**