

TRENCH BACKFILL / BEDDING  
CLASS " B "

TRENCH BACKFILL / BEDDING  
CLASS " A "

ENGINEERING STANDARDS 2022			
REVISIONS		ENGINEERING DIVISION CITY OF POMPANO BEACH	TRENCH BACKFILL / BEDDING
BY	DATE		
S.S.	JUNE 2005		
SCALE: N.T.S.			DATE: JUNE 2022 DWG. NO. 203-1

TRENCH BACKFILL / BEDDING  
CLASS " C "

TRENCH BACKFILL / BEDDING  
CLASS "D"

ENGINEERING STANDARDS 2022			
REVISIONS		ENGINEERING DIVISION CITY OF POMPANO BEACH	TRENCH BACKFILL / BEDDING
BY	DATE		
S.S.	JUNE 2005		
SCALE: N.T.S.			DATE: JUNE 2022 DWG. NO. 203-2

1. OUTLINE OF TRENCH EXCAVATION IS FOR ILLUSTRATIVE PURPOSES ONLY. ACTUAL TRENCH WIDTH AND SHAPE WILL VARY WITH SOIL CONDITIONS. TRENCH EXCAVATION SHALL BE IN ACCORDANCE WITH THE "FLORIDA TRENCH SAFETY ACT" AND OSHA TRENCH SAFETY STANDARDS.
2. TYPICAL TRENCH BACKFILL/BEDDING FOR WATER MAIN AND FORCE MAIN INSTALLATIONS SHALL BE CLASS "A" AS SHOWN IN DETAIL.
3. TYPICAL TRENCH BACKFILL/BEDDING FOR GRAVITY SEWER INSTALLATION SHALL BE CLASS "B" AS SHOWN IN DETAIL.
4. TRENCH BACKFILL/BEDDING CLASS "C" AND CLASS "D" SHALL BE USED FOR PIPE INSTALLATIONS WHERE UNSUITABLE TRENCH MATERIALS ARE ENCOUNTERED.
5. TRENCH ZONE BACKFILL SHALL BE MATERIAL TYPE 1 OR TYPES A THRU H, OR ANY MIXTURE THEREOF, WHERE SURFACE RESTORATION TYPE 11 IS APPLICABLE, TRENCH ZONE BACKFILL SHALL BE PLACED IN 12" LIFTS, COMPACTED TO 90% OF THE MATERIAL'S MAXIMUM DENSITY AS DETERMINED BY ASTM D-697 (AASHTO T-99). WHERE SURFACE RESTORATION TYPES "2", "3" AND "4" ARE APPLICABLE, TRENCH BACKFILL SHALL BE PLACED IN 8" LIFTS COMPACTED TO 98% OF THE MATERIAL'S DENSITY AS DETERMINED BY ASTM D-698 (AASHTO T-99).
6. BEDDING MATERIAL FOR TYPICAL WATER MAIN AND FORCE MAIN INSTALLATION SHALL BE TYPE C. BEDDING SHALL BE COMPACTED TO 95% OF THE MATERIAL'S MAXIMUM DENSITY AS DETERMINED BY ASTM D-1557 (AASHTO T-180).
7. BEDDING MATERIAL FOR TYPICAL GRAVITY SEWER INSTALLATION AND ANY INSTALLATION WHERE UNSUITABLE TRENCH BOTTOM CONDITIONS ARE FOUND SHALL BE TYPE E. BEDDING SHALL BE PLACED IN LIFTS NOT TO EXCEED 6" AND COMPACTED TO 95% OF THE MATERIAL'S MAXIMUM DENSITY AS DETERMINED BY ASTM D-1557 (AASHTO T-180).
8. UNSUITABLE MATERIAL SHALL BE REMOVED TO UNDISTURBED ROCK OR SAND LIFT AS SPECIFIED BY ENGINEER. BACKFILL MATERIAL SHALL BE TYPE C. BACKFILL SHALL BE PLACED IN 8" LIFTS COMPACTED TO 95% OF THE MATERIAL'S MAXIMUM DENSITY AS DETERMINED BY ASTM D-1557 (AASHTO T-180).

TRENCH BACKFILL / BEDDING NOTES

ENGINEERING STANDARDS 2022			
REVISIONS		ENGINEERING DIVISION CITY OF POMPANO BEACH	TRENCH BACKFILL / BEDDING
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9. BEDDING TYPES — THE FOLLOWING TYPES OF SUITABLE MATERIALS ARE DESIGNATED AND DEFINED AS FOLLOWS:
- TYPE A: CRUSHED LIMESTOCK OR SAND WITH 100 PERCENT PASSING A 1 INCH SIEVE AND A SAND EQUIVALENT VALUE NOT LESS THAN 50.
- TYPE B: CRUSHED LIMESTOCK OR SAND WITH 100 PERCENT PASSING A 1/2 INCH SIEVE AND A SAND EQUIVALENT VALUE NOT LESS THAN 50.
- TYPE C: SAND WITH 100 PERCENT PASSING A 3/8 INCH SIEVE, AT LEAST 90 PERCENT PASSING A NUMBER 4 SIEVE, AND A SAND EQUIVALENT VALUE NOT LESS THAN 30.
- TYPE D: CRUSHED LIMESTOCK WITH 100 PERCENT PASSING A 1 INCH SIEVE AND NOT MORE THAN 10 PERCENT A NUMBER 4 SIEVE.
- TYPE E: CRUSHED LIMESTOCK OR SAND WITH 100 PERCENT PASSING A 3/4 INCH SIEVE AND NOT MORE THAN 10 PERCENT PASSING A NUMBER 4 SIEVE.
- TYPE F: CRUSHED LIMESTOCK MEETING THE FOLLOWING GRADATION REQUIREMENTS.

SIEVE SIZE	PERCENTAGE PASSING
2 INCH	100
1-1/2 INCH	90-100
1 INCH	20-55
3/4 INCH	0-15
NO. 200	0-3

TRENCH BACKFILL / BEDDING NOTES

ENGINEERING STANDARDS 2022			
REVISIONS		ENGINEERING DIVISION CITY OF POMPANO BEACH	TRENCH BACKFILL / BEDDING
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SCALE: N.T.S.		DATE: JUNE 2022 DWG. NO. 203-4	

## PIPE SUPPORT DETAIL

ENGINEERING STANDARDS 2022			
REVISIONS		ENGINEERING DIVISION CITY OF POMPANO BEACH	PIPE SUPPORT DETAIL
BY	DATE		
S.S.	JUNE 2005		
SCALE: N.T.S.		DATE: JUNE 2022 DWG. NO.	204-1

- NOTES:**
1. CONCRETE COLLAR IS NOT REQUIRED IN PAVED AREAS IF PAVEMENT SURFACE IS FINISHED PRIOR TO CONDITIONAL FINAL INSPECTION.
  2. WHEN OPERATING NUT IS DEEPER THAN 36" A ONE PIECE EXTENSION WILL BE REQUIRED TO BRING OPERATING NUT 20"-30" BELOW FINISHED GRADE. EXTENSION BOLTS & NUTS ARE TO BE STAYED WITH A HIGH STRENGTH STEEL CENTERING PLATE, WELDED TO THE EXTENSION, IS ALSO REQUIRED.
  3. VALVE BOXES SHALL HAVE COVERS MARKED "SEWER".
  4. EXTENSION VALVE BOX TO BE D.I.P. OR C-900 9" DR 18 (COLOR: GREEN)
  5. A CUT-IN INSTALLATION SHALL REQUIRE MELAGUSS OR EQUAL THROUGHOUT ASSEMBLY.

<u>GATE VALVE SIZE</u>	<u>MIN. COVER OVER PIPE</u>
16"	48"
20"	54"
24"	60"
30"	72"
36"	84"

## FORCE MAIN PLUG VALVE SETTING

ENGINEERING STANDARDS 2022			
REVISIONS		ENGINEERING DIVISION CITY OF POMPAN0 BEACH	PLUG VALVE SETTING
BY	DATE		
S.S.	01/27/12		
SCALE: N.T.S.		DATE: JUNE 2022 DWG. NO. <b>205-1</b>	

- NOTES:  
WHERE CONDITIONS PERMIT, PIPE DEFLECTION MAY BE USED  
INSTEAD OF BENDS TO OBTAIN THE MINIMUM CLEARANCE.  
FACTORY OFFSETS MAY BE USED.

### TYPICAL CONFLICT DETAIL

ENGINEERING STANDARDS 2022			
REVISIONS		ENGINEERING DIVISION CITY OF POMPANO BEACH	TYPICAL CONFLICT (SEWER)
BY	DATE		
S.S.	JUNE 2005		
S.S.	02/13/12		
SCALE: N.T.S.			DATE: JUNE 2022 DWG. NO. 206-1

GENERAL NOTES:

1. ALL UTILITY PIPE SHALL BE INSTALLED WITH 4"Ø MARKING BALLS PLACED EVERY 40' AND AT EVERY FITTING, FOR IDENTIFICATION AND WARNING PURPOSES, BURED ABOVE THE PIPE AT A MAXIMUM DEPTH OF 24 INCHES OR AS APPROVED BY THE OWNER. IT SHALL BE COLOR CODED AND WORDED AS FOLLOWS:  
  
SEWER SYSTEM  
A. COLOR: GREEN  
B. LETTERING: SANITARY SEWER  
C. FREQUENCY OF MARKER BALLS SHALL BE 121.6 Khz.  
D. THE MARKER BALLS CAN BE BURIED IN ANY ORIENTATION.  
  
THE MARKER BALLS SHALL BE DETECTABLE BY STANDARD METAL DETECTION EQUIPMENT AND SHALL BE MANUFACTURED BY TEMPO OR 3M LOCATOR SYSTEM OR EQUIVALENT (FREQUENCY 121.6 Khz )
2. FOR LARGE DIAMETER PIPE INSTALLED AT DEPTHS BELOW 4'-0"Ø MARKER BALLS SHALL BE PLACED AT A MAXIMUM DEPTH OF 4'-0"Ø BELOW GRADE \*.

## SEWER PIPE IDENTIFICATION

ENGINEERING STANDARDS 2022			
REVISIONS BY: DATE S.S. 01/30/12		ENGINEERING DIVISION CITY OF POMPANO BEACH	
		SEWER PIPE IDENTIFICATION	
		DATE: JUNE 2022 DWG. NO. 207-1	
SCALE: N.T.S.			

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**CAULFIELD & WHEELER, INC.**  
CIVIL ENGINEERING - LAND PLANNING  
LANDSCAPE ARCHITECTURE - SURVEYING  
7900 GLADES ROAD - SUITE 100  
BOCA RATON, FLORIDA 33434  
PHONE (561)-392-1991 / FAX (561)-750-1452

**OAKS @ PALM AIRE**  
WATER DISTRIBUTION & SANITARY SEWER DETAILS  
POMPANO BEACH, FLORIDA

DATE	06/12/23
DRAWN BY	RHT
F.B./ PG.	N/A
SCALE	n.t.s.

RYAN D. WHEELER  
PROFESSIONAL ENGINEER  
LICENSE NO. 71477  
STATE OF FLORIDA  
- FOR THE FIRM -  
DATE Apr 02, 2025

JOB #10326  
SHT.NO.  
**WS.06**  
OF 8 SHEETS