

MINIMUM RECOMMENDED COVER BASED ON LOADING CONDITION

PIPE DIAM.	MIN. COVER	HEAVY CONSTRUCTION (75T TIRE LOAD) *
12" - 48"	12"	18"
54" - 60"	18"	24"

\* VEHICLES IN EXCESSIVE WEIGHT REQUIRE ADDITIONAL COVER

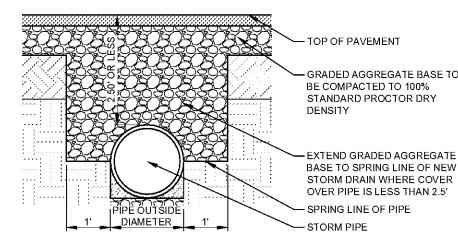
RECOMMENDED MINIMUM TRENCH WIDTHS

PIPE DIAM.	MIN. TRENCH WIDTH
4"	21"
6"	23"
8"	25"
10"	28"
12"	30"
15"	34"
18"	37"
24"	48"
30"	58"
36"	67"
42"	72"
48"	80"
60"	88"
72"	96"

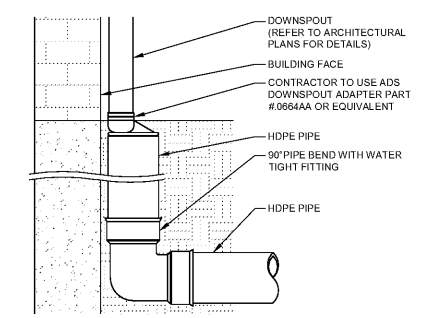
4" FOR 12"-24" PIPE  
8" FOR 30"-60" PIPE

- NOTES:
1. ALL PIPE SYSTEMS SHALL BE INSTALLED IN ACCORDANCE WITH ASTM D2321, "STANDARD PRACTICE FOR UNDERGROUND INSTALLATION OF THERMOPLASTIC PIPE FOR SEWERS AND OTHER GRAVITY FLOW APPLICATIONS", LATEST ADDITION
  2. MEASURES SHOULD BE TAKEN TO PREVENT MIGRATION OF NATIVE PINES INTO BACKFILL MATERIAL, WHEN REQUIRED.
  3. FOUNDATION: WHERE THE TRENCH BOTTOM IS UNSTABLE, THE CONTRACTOR SHALL EXCAVATE TO A DEPTH REQUIRED BY THE ENGINEER AND REPLACE WITH SUITABLE MATERIAL, AS SPECIFIED BY THE ENGINEER. AS AN ALTERNATIVE AND AT THE DISCRETION OF THE DESIGN ENGINEER, THE TRENCH BOTTOM MAY BE STABILIZED USING A GEOTEXTILE MATERIAL.
  4. BEDDING: SUITABLE MATERIAL SHALL BE CLASS I, II OR III. THE CONTRACTOR SHALL PROVIDE DOCUMENTATION FOR MATERIAL SPECIFICATION TO ENGINEER, UNLESS OTHERWISE NOTED BY THE ENGINEER. MINIMUM BEDDING THICKNESS SHALL BE 4" (100mm) FOR 4"-24" (100mm-600mm); 6" (150mm) FOR 30"-60" (750mm-900mm).
  5. INITIAL BACKFILL: SUITABLE MATERIAL SHALL BE CLASS I, II OR III IN THE PIPE ZONE EXTENDING NOT LESS THAN 6" ABOVE CROWN OF PIPE. THE CONTRACTOR SHALL PROVIDE DOCUMENTATION FOR MATERIAL SPECIFICATION TO ENGINEER. MATERIAL SHALL BE INSTALLED AS REQUIRED IN ASTM D2321, LATEST EDITION.
  6. MINIMUM COVER: MINIMUM COVER, H, IN NON-TRAFFIC APPLICATIONS (GRASS OR LANDSCAPE AREAS) IS 12" FROM THE TOP OF PIPE TO GROUND SURFACE. ADDITIONAL COVER MAY BE REQUIRED TO PREVENT FLOATION. FOR TRAFFIC APPLICATIONS, MINIMUM COVER, H, IS 12" UP TO 48" DIAMETER PIPE AND 24" OF COVER FOR 54"-60" DIAMETER PIPE, MEASURED FROM TOP OF PIPE TO BOTTOM OF FLEXIBLE PAVEMENT OR TO TOP OF RIGID PAVEMENT.

**HDPE PIPE BEDDING**  
NOT TO SCALE



C-21 STORM PIPE MINIMUM COVER  
NOT TO SCALE



C-21 DOWNSPOUT CONNECTION  
NOT TO SCALE

25-YR PIPE CHART

Line No.	Line ID	Drainage Area (ac)	Inlet Time (min)	Runoff Coeff (C)	Incr Q (cfs)	Line Length (ft)	Line Type	Line Slope (%)	n-value	HGL Up (ft)	HGL Dn (ft)	Vel Ave (ft/s)
1	33	0.00	0.0	0.00	0.00	10,739	Cir	17.60	0.012	1014.26	1014.26	3.82
2	15	0.31	5.0	0.67	1.65	16,950	Cir	4.53	0.012	1014.32	1014.29	2.53
3	17	0.00	0.0	0.00	0.00	4,555	Cir	1.10	0.012	1014.61	1014.45	5.15
4	19	0.11	5.0	0.52	0.45	94,555	Cir	1.00	0.012	1015.56	1014.61	4.75
5	21	0.29	5.0	0.51	1.17	39,885	Cir	1.13	0.012	1015.98	1015.50	4.98
6	23	0.02	5.0	0.50	0.10	39,982	Cir	1.30	0.012	1016.19	1015.98	2.32
7	25	0.02	5.0	0.50	0.07	30,251	Cir	1.32	0.012	1016.56	1016.19	2.86
8	27	0.08	5.0	0.95	0.80	5,334	Cir	0.94	0.012	1016.87	1016.82	3.41
9	29	0.08	5.0	0.95	0.90	5,147	Cir	0.97	0.012	1016.03	1015.98	3.07
10	37	0.00	0.0	0.00	0.00	5,332	Cir	0.94	0.012	1014.26	1014.26	0.23
11	5	0.11	5.0	0.85	0.75	17,155	Cir	0.99	0.012	1014.31	1014.26	2.22
12	35	0.00	0.0	0.00	0.00	5,286	Cir	0.95	0.012	1014.26	1014.26	0.45
13	11	0.23	5.0	0.78	1.43	16,547	Cir	1.03	0.012	1014.44	1014.26	3.24

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**GENERAL NOTES:**

1. PIPE LENGTHS REFLECT THE PIPES LINEAR LENGTH AND ARE SHOWN FROM CENTER OF STRUCTURE TO CENTER OF STRUCTURE.
2. EXISTING UTILITY DEPTHS ARE APPROXIMATED BASED ON 4 FT COVER FROM THE EXISTING GROUND SURFACE. PROPOSED UTILITY DEPTHS ARE BASED ON 4 FT OF COVER FROM THE PROPOSED GROUND SURFACE. CONTRACTOR SHALL FIELD VERIFY ALL UTILITY DEPTHS AT CROSSING AND CONTACT ENGINEER IMMEDIATELY IF CONFLICTS ARE ENCOUNTERED.
3. CONTRACTOR TO FIELD VERIFY EXISTING ELEVATIONS OF UTILITIES IN RIGHT OF WAY TO AVOID CONFLICTS. CONTACT ENGINEER IMMEDIATELY IF FIELD ELEVATIONS DIFFER FROM THE DESIGN DRAWINGS.
4. MAINTAIN MINIMUM 2' OF COVER OVER METAL AND PLASTIC PIPES DURING CONSTRUCTION ACTIVITIES.



ENGINEER

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REGISTERED PROFESSIONAL ENGINEER  
No. 34332  
C. BRANNON  
11/5/18

REVISIONS

REVISIONS	DATE
JURISDICTIONAL COMMENTS	2018-11-02
JURISDICTIONAL COMMENTS	2018-11-09
JURISDICTIONAL COMMENTS	2018-11-14
JURISDICTIONAL COMMENTS	2018-11-19
JURISDICTIONAL COMMENTS	2018-11-28

PROJECT MANAGER: JMJ

DRAWING BY: JAM

JURISDICTION: GREER, SC

DATE: 2018-09-21

SCALE: AS SHOWN

TITLE:

**STORM DRAINAGE PROFILES**

SHEET NUMBER: **C-2.1**

COMMENTS: PERMIT SET

JOB/FILE NUMBER: 814.026