Town of James Island, Regular Town Council Meeting
August 15, 2024; 7:00 PM; 1122 Dills Bluff Road, James Island, SC 29412

IN-PERSON MEETING

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Notice of this meeting was published and posted in accordance with the Freedom of Information Act and the requirements of the Town of James Island.

The Town encourages the public to provide comments prior to its Town Council meeting. Residents wishing to address the Council will be limited to three (3) minutes and must sign in to speak. Comments may also be sent ahead of the meeting by emailing to: info@jamesislandsc.us, mail to P.O. Box 12240, Charleston, SC 29422, or placed inside the drop box outside of Town Hall at 1122 Dills Bluff Rd.

1) Opening Exercises: (Councilman Mullinax)

2) Public Comment:

3) Consent Agenda:

   a) Minutes: Town Council Regular Meeting, July 18, 2024

   b) Minutes: Town Council Special Meeting, August 5, 2024

   c) Minutes: Town Council Special Meeting, August 9, 2024

4) Information Reports:

   a) Finance Report

   b) Island Sheriff's Patrol Report

   c) Public Works Report

5) Requests for Consideration by Staff:

6) Requests for Consideration by Council:

   - Thomas & Hutton: Additional Services Agreement for Piping of Oceanview Ditches
   - Landscape Pavers: Oceanview Rd. Drainage Ditch Enclosure
   - Request to Consider Purchase of New Town Vehicles

7) Committee Reports:

a) Land Use Committee

Reappointment to Planning Commission:

- Deborah Bidwell (Councilman Dodson)
- Patrick Broderick (Councilwoman Mignano)
- Kelly Hall (Councilman Mullinax)

Reappointment to Board of Zoning Appeals:

- David Savage (Mayor Lyon)
- Massey Yannitelli (Councilman Boles)
- Joshua Hayes (Councilman Mullinax)

b) Environment and Beautification Committee

c) Children's Committee

d) Public Safety Committee/Neighborhood Council

Appointment to Neighborhood Council:

- Lindsey Henderson

e) History Committee

f) Rethink Folly Road

g) Drainage Committee

h) Business Development Committee

i) Trees Advisory Committee

j) James Island Intergovernmental Council

k) Accommodations Tax Committee

8) Proclamations and Resolutions: None

9) Ordinances up for First Reading:

Ordinance #2024-07: An Ordinance Amending the Town of James Island Existing Supplemental Stormwater Design Standards

Exhibit "A"

Exhibit "B"

10) Ordinances up for Second/Final Reading:

11) Old Business: None

12) New Business:

13) Executive Session: The Town Council may enter into an Executive Session in accordance with Code of Laws of South Carolina 30-4-70 (A) (2) regarding discussion of proposed contractual matters and the proposed purchase of the Mill Point property, TMS #428-010-0048, and the receipt of legal advice regarding litigation matters, including KEBO v. Town

of James Island & Charleston County, and KT Properties, LLC vs. Town of James Island. Upon returning to Open Session the Council may act on matters discussed in the Executive Session.

14) Return to Regular Session:

15) Announcements/Closing Comments:

16) Adjournment:

***Public Hearing on the proposed zoning map amendment (rezoning) on property located at 849 Harbor View Road (TMS#454-09-00-018) has been rescheduled to the September 19th Town Council Meeting**

The Town of James Island held its regularly scheduled meeting on Thursday, July 18, 2024, at 7:01 p.m. in person at the Town Hall, 1122 Dills Bluff Rd., James Island, SC. This meeting was also live-streamed on the Town's website: www.jamesislandsc.us/livestream-townmeetings and was held in accordance with the SC Freedom of Information Act and the requirements of the Town of James Island.

The following members of Council were present: Dodson, Mignano, Mullinax, and Mayor Lyon who presided. Absent: Councilman Boles (gave notice). Also, Michael Hemmer, Town Administrator, Becky Heath, Finance Officer, Keith LaDeaux, PW Coordinator/Project Manager, Deputy Chris King, Island Sheriff's Patrol (Lt. Shawn James), Brian Quisenberry, Town Attorney, and Frances Simmons, Town Clerk.

Opening Exercises: Mayor Lyon called the meeting to order at 7:01 p.m. and called upon Councilman Dodson to perform the opening exercises followed by the Pledge of Allegiance.

Mayor Lyon introduced the members of Town Council and the Town Attorney. She announced that Councilman Boles gave notice that he would be absent at tonight's meeting.

Public Comment: No citizens signed up to speak during the Public Comment portion of this meeting.

Consent Agenda:
Minutes of Town Council Regular Meeting of June 20, 2024: A motion to approve the minutes of June 20, 2024, was made by Councilwoman Mignano, seconded by Councilman Dodson and passed unanimously.

Information Reports:
Finance Report: Finance Officer, Becky Heath, provided the financial report for the period ending June 30, 2024 that represents the end of fiscal year 2024. Councilwoman Mignano complimented Ms. Heath for the detailed report that allows these meetings to be shortened because it contains all of the information that they would have questions about.

Town Administrator Report: Town Administrator, Mike Hemmer presented the monthly Administrator's report. He pointed out that the Regatta Road Sidewalk project is scheduled to begin the end of the month and that a virtual meeting was held with the County. Councilwoman Mignano commented that Regatta has a number of sloped yards and asked if we are addressing this to make sure there would be no yard erosion. Mr. Hemmer said that the contractor is speaking with the residents as they were concerned about a couple of yards but confirmed that bracing would be done to make sure those front yards do not erode.

Island Sheriff's Patrol Report: Deputy Chris King reported an increase in phone scams sharing what happened to several individuals who were caught in that situation. He said the scammer identifies as an officer in the Sheriff's Office; however, there are no officer titles at the Sheriff's Office. They have deputies. He asked everyone to spread the word and to be aware that this is happening. Deputy King also gave a summary of crimes and incidences that occurred in the Town the end of June to date. Councilwoman Mignano thanked Deputy King and all of the deputies for taking care of our island.

Public Works Report: Public Works Coordinator/Project Manager, Keith LaDeaux provided an overview of projects that included Quail Run, Woodhaven, and Oceanview that was presented to Council. He also shared that the Trees Advisory Council had requested assistance with some equipment which is available when they need it. An update on the Public Works shed was also provided. Mr. LaDeaux distributed to Council a copy of the Pipeline Drainage Consultant's report for the work done on Peregrine Drive. He stressed satisfaction with the before and after pictures and noted a warranty of the service for 50 years.

Councilwoman Mignano solicited support from Public Works for supplies/equipment for the James Island Pride cleanup scheduled on Saturday, July 27 at Washington Park. She also asked Mr. LaDeaux to look into

replacing the street sign at Peregrine Drive and Chicory that is bleached out. He stated the street sign on Knotty Pine as well as some others needing replacement. Councilwoman Mignano thanked him for all of his hard work.

Mayor Lyon said we have received information regarding piping the ditches on Oceanview and that Laura Cabiness, the Town's Engineer, is looking to obtain a letter of approval from the project engineer. The Town will price the concrete and the HDPE (the thick plastic that is less expensive but is harder to set); the concrete is heavier and more substantial. She said the problem is getting the SC Department of Transportation to agree to allow the Town to pipe the ditches. However, approval is being worked on at this time by the engineers and contractor. She thanked Mr. LaDeaux for staying on top of the project and for being responsive to the citizens.

Requests for Consideration by Staff: None.

Requests for Consideration by Council:
Donation to Pet Helpers, $5,000 for Animal Intake Assistance: Mayor Lyon made a request to donate $5,000 to Pet Helpers for its animal intake assistance. She said that there has been an overabundance of animals at the shelter, many of which are from the James Island community. Pet Helpers tries to not turn any animal away and to be a no-kill shelter. A motion to approve the request was made by Councilman Mullinax, seconded by Councilman Dodson. No discussion.
Vote:

Councilman Dodson	aye
Councilwoman Mignano	aye
Councilman Mullinax	aye
Mayor Lyon	aye

Passed unanimously

Committee Reports:
Land Use Committee: Mayor Lyon announced that no Planning or BZA meetings were held this month. We are working on the Supplemental Stormwater Ordinance and are making changes to help our citizens so they are not flooded when surrounding properties build new construction or renovate. We hope that great ideas will come forth from the Drainage Workshop scheduled for Wednesday, August 7. Laura Cabiness will do a presentation and we will also have hurricane preparedness information from Councilman Mullinax. Mayor Lyon also shared that the Town will have a Community Rating System (CRS) visit in October.

Environment and Beautification Committee: Councilwoman Mignano reported that James Island Pride met on Wednesday, July 17. She noted that last Saturday, seven yards were cleaned and two more during the week. She thanked them for doing a great job with this initiative. A cleanup will be held on Saturday, July 27 at Washington Park. Keith LaDeaux will look into providing supplies and some equipment for the cleanup. Helping Hands will meet this Saturday (July 20) at Pinckney Park at 9:00 a.m. for a trash pickup event. Pizza will be provided at the Town Hall after the event.

Children's Committee: No Report.

Public Safety Committee/Neighborhood Council: Councilman Mullinax reported for Councilman Boles. He said at the last meeting new members were introduced and a request went out for volunteers for hurricane preparation. Councilman Mullinax recalled that when he chaired this committee in 2012 the number of neighborhoods was 26. He said the committee asked for a map of the neighborhood to give residents a better understanding of how their neighborhood is laid out. The property on Dills Bluff was discussed.

Councilman Boles indicated that Marilyn Clifford with the PSD was there and could perhaps address. A report on public safety was given.

Appointment to Neighborhood Council: Councilman Mullinax moved for the appointment of Sherry Ivery Moore (representing Lynwood s/d); seconded by Mayor Lyon. No discussion. Passed unanimously. Mayor Lyon mentioned that Sherry Ivery Moore is the great, great, granddaughter of Simeon Pinckney (the name sake of Pinckney Park).

Mayor Lyon said we do not have a second representative from Harbor Woods and she met with a lady yesterday who is interested in serving. Mayor Lyon moved to amend the agenda in order to make the appointment of Georgia Gruber; seconded by Councilman Mullinax. There was no discussion on amending the agenda and it passed unanimously.

Mayor Lyon moved for the appointment of Georgia Gruber as the second representative from Harbor Woods on the Neighborhood Council committee, seconded by Councilman Dodson. No discussion. Passed unanimously. There will be no meeting in July. Next meeting is scheduled for August 22 at 6:00 p.m.

History Committee: Mr. Hemmer reported that the committee did not meet this month. Instructions for the History Driving Tour were finalized today. He has reviewed it and intends to drive the course sites. Comments on the information are due to Wendy Shelton in ten days.

ReThink Folly Road: No Report. No meeting was held this month.

Drainage Committee: Councilman Mullinax reiterated that the Drainage Workshop will be held at the Town Hall on Wednesday, August 7 at 6:00 p.m. In addition to discussion on revisions to the Stormwater Supplemental changes, information will be had on hurricane preparedness/drainage issues. This meeting will be very information and he looks forward to the public's participation.

Business Development Committee: No Report.

Trees Advisory Committee: No Report.

James Island Intergovernmental Council: Mayor Lyon announced that the next meeting is Wednesday, July 31 at 7:00 p.m. at the Town Hall.

Accommodations Tax Committee: Councilman Dodson reported that the committee is compliant thanks to the efforts of Becky Heath. All documents have been filed with the State in order for the committee to move forward.

Proclamations and Resolutions: None.

Ordinances up for First Reading: None.

Ordinances up for Second/Final Reading:
Ordinance #2024-05: Amending the Fiscal Year 2023-2024 Budget for the Town of James Island: Councilman Dodson moved for the approval of Ordinance #2024-02, seconded by Councilwoman Mignano. No discussion.
Vote:

Councilman Dodson	aye
Councilwoman Mignano	aye
Councilman Mullinax	aye

Mayor Lyon aye
Passed unanimously

Old Business: Mayor Lyon gave an update on the Flock Cameras. She said it has been a "nightmare" for Lt. James trying to get them placed. She explained that the SCDOT no longer allows them on their right-of-way. The City and other municipalities that have them in place are grandfathered. The Town was told that we would have to place them on private property and find the locations for them and get their approval. Lt. James has spent a great deal of time visiting churches and businesses in order to accomplish this but has faced difficulty because no one wanted to sign for legal reasons. The representative who came to Council is no longer with the company. She thanked Attorney Quisenberry for revising the contract and now all matters have been settled. It is her understanding that Flock is now taking the lead in getting the cameras placed. She thanked Lt. James for all that he's done to resolve this situation and looks forward to having the cameras installed because they will be so helpful for the deputies in the Town.

Mayor Lyon announced that the Town Market is a huge success. The next Market is the First Friday, August 2 at 6:00 p.m. at the Town Hall. She thanked staff and encouraged everyone to attend.

New Business: None.

Executive Session: Mayor Lyon asked for a motion to enter into an Executive Session in accordance with Code of Laws of South Carolina 30-4-70 (A)(1) (2) regarding discussion of proposed contractual matters, employment/personnel matters, proposed purchase of properties, including property at 1335 Sea Aire Drive, (TMS#s 4280100052, and 4280100054), potential condemnation litigation, and legal advice relating to Town Ordinance Section 153.212. Upon returning to Open Session the Council may act on matters discussed in the Executive Session. The motion to enter was made by Councilman Dodson, seconded by Councilwoman Mignano. No discussion. Passed unanimously. Council entered the Executive Session at 7:34 p.m.

Return to Regular Session: Mayor Lyon asked for a motion to return to Regular Session. Councilman Dodson moved to return at 8:26 p.m., seconded by Councilwoman Mignano. No discussion. Passed unanimously.

Mayor Lyon asked if there were motions to come forth from the Executive Session: The following motions were made:

Councilwoman Mignano moved to eliminate the job position of Town Administrator and create a job position of Executive Assistant to the Mayor with the primary job responsibility of the new position to assist the Mayor; seconded by Councilman Dodson. No discussion.
Vote:
Councilman Dodson aye
Councilwoman Mignano aye
Councilman Mullinax aye
Mayor Lyon aye
Passed unanimously

Councilman Dodson moved to authorize the Mayor to execute the right to terminate the purchase of the Sea Aire properties under the inspection period provisions of the relevant contracts; seconded by Councilwoman Mignano. No discussion.
Vote:
Councilman Dodson aye
Councilwoman Mignano aye
Councilman Mullinax aye
Mayor Lyon aye

Passed unanimously

Councilman Dodson moved to authorize the Mayor to continue to pursue options for greenspace and parks; seconded by Councilwoman Mignano. No discussion.
Vote:

Councilman Dodson	aye
Councilwoman Mignano	aye
Councilman Mullinax	aye
Mayor Lyon	aye

Passed unanimously

Announcements/Closing Comments:
Councilman Dodson encouraged everyone to drink lots of water during the heat. He thanked the Island Sheriffs Patrol for their service, staff and the citizens.

Councilwoman Mignano encouraged everyone to stay safe and hydrate during the heat.

Councilman Mullinax shared comments about Thomas Gelwicks, who passed away last week, He was a 97 year old veteran of WWII that saw action at Iwo Jima, Okinawa. He was also stationed at Nagasaki, two weeks after the drop of the atomic bomb as a part of the Occupation Force. Councilman Mullinax said he knew Mr. Gelwicks well; he would have breakfast with him at the American Legion. He loved to tell stories about WWII and would tell told these stories every time you saw him. After the war he was a 31 year postal carrier and then went back to duty in his middle age in the Coast Guard for 24 years becoming the Sr. Chief Petty Officer. He was an extraordinary gentleman, a good man and a good friend. Councilman Mullinax said he wanted to share with everyone because it is a great loss to the community.

Mayor Lyon thanked the staff for their support and the dedication to our citizens.

Adjournment: There being no further business to come before the body, the meeting adjourned at 8:30 p.m.

Respectfully submitted:

Frances Simmons
Town Clerk `

The Town of James Island held a Special Emergency Meeting on Monday, August 5, 2024, at 11:00 a.m. in person at the Town Hall, 1122 Dills Bluff Rd., James Island, SC. This meeting was also live-streamed on the Town's website: www.jamesislandsc.us/livestream-townmeetings and held in accordance with the SC Freedom of Information Act and the requirements of the Town of James Island.

The following members of Council were present: Boles, Dodson, Mignano (via conference call), Mullinax, and Mayor Lyon who presided. Also, Brian Quisenberry, Town Attorney, and Frances Simmons, Town Clerk. A quorum was present to conduct business.

Call to Order/Opening Exercises: Mayor Lyon called the meeting to order at 11:00 a.m. She led Council in prayer and followed with the Pledge of Allegiance.

Declaration of State of Emergency - Tropical Storm Debby: Mayor Lyon announced that this special emergency meeting is being held to declare a state of emergency because of the effects of Tropical Storm Debby in the Town of James Island. She called for a motion to accept the declaration giving the Mayor executive powers to declare an emergency. The motion was made by Councilman Mullinax, seconded by Councilman Boles.

During discussion, Mayor Lyon stated that the rainfall expected from Tropical Storm Debby could be as much as 20-30 inches, along with the impacts of surge, it would be more than we have ever seen in our area.

Councilman Boles asked when the state of emergency would be lifted. Mayor Lyon replied that it could be lifted on Friday and there would have to be another meeting of Council to do so.

Vote

Councilman Boles	Aye
Councilman Dodson	Aye
Councilwoman Mignano	Aye
Councilman Mullinax	Aye
Mayor Lyon	Aye

Passed Unanimous.

Adjournment: There being no further business to come before the body, the meeting adjourned at 11:05 a.m.

Respectfully submitted,

Frances Simmons
Town Clerk

The Town of James Island held a Special Emergency Meeting on Friday, August 9, 2024, at 11:00 a.m. in person at the Town Hall, 1122 Dills Bluff Rd., James Island, SC. This meeting was also live-streamed on the Town's website: www.jamesislandsc.us/livestream-townmeetings and held in accordance with the SC Freedom of Information Act and the requirements of the Town of James Island.

The following members of Council were present: Boles (via conference call), Mullinax, Mignano, and Mayor Lyon, who presided. Absent: Councilman Dodson, gave notice. Also, Brian Quisenberry, Town Attorney, and Frances Simmons, Town Clerk. A quorum was present to conduct business.

Call to Order/Opening Exercises: Mayor Lyon called the meeting to order at 11:00 a.m. She led Council in prayer and followed with the Pledge of Allegiance.

Request to Lift Declaration of State of Emergency for Tropical Storm Debby: Mayor Lyon announced the purpose of this special emergency meeting is the lift the State of Emergency for Tropical Storm Debby and called for a motion. Councilman Mullinax moved, seconded by Councilwoman Mignano.

During discussion, Mayor Lyon stated that we had some flooding in the Town but fared as well as we could. She complimented the staff, volunteers, and the citizens for doing a great job pulling together through the events of this storm. She thanked Councilman Boles who helped with the sandbag operation on Sunday to help the citizens. All in all, the Town fared well.

Councilman Mullinax thanked the volunteers, especially Stan Kozikowski, who handled traffic control. He complimented staff for working hard, commenting that it is difficult to work in the heat, but also working in the rain. He thanked Mayor Lyon for her hard work during this storm event.

Councilwoman Mignano thanked everyone who participated for their hard work and asked that we remember those that had suffered loss in Berkeley and Dorchester County.

Mayor Lyon added that she hopes we will not have another storm, but unfortunately we live in a hurricane prone area and we will be ready for the next one.

The roll was called and votes were recorded as follows to lift the State of Emergency:

Councilman Boles	Aye
Councilwoman Mignano	Aye
Councilman Mullinax	Aye
Mayor Lyon	Aye

Passed unanimously

Adjournment: There being no further business to come before the body, the meeting was adjourned at 11:04 a.m.

Respectfully submitted:

Frances Simmons
Town Clerk

Town of James Island

% FY Complete **8%**

Monthly Budget Report

Fiscal Year 2025

	1st Quarter			2nd Quarter			3rd Quarter			4th Quarter				
	July	August	September	October	November	December	January	February	March	April	May	June	TOTAL	BUDGET
GENERAL FUND REVENUE														
Accommodations Tax (allowable percentage)													-	27,500
Brokers & Insurance Tax													-	765,000
Building Permit Fees	1,238												1,238	26,000
Business Licenses	33,727												33,727	480,000
Contributions/Donations-Park/Community Programs	25												25	
Grants	9,600												9,600	17,192
Filing Fees													-	500
Franchise Fees													-	320,000
Interest Income													-	187,000
Alcohol Licenses -LOP	3,000												3,000	6,000
Local Assessment Fees	46,147												46,147	2,700
Local Option Sales Tax (PTCF)	115,948												115,948	1,360,000
Local Option Sales Tax (MUNI)	48,601												48,601	580,000
Miscellaneous													-	100
Planning & Zoning Fees	1,081												1,081	16,200
State Aid to Subdivisions													-	300,266
Telecommunications													-	16,000
Homestead Exemption Tax Receipts													-	48,000
Facility Rentals	150												150	7,500
Stormwater Fees													-	8,000
	259,516	-	-	-	-	-	-	-	-	-	-	-	259,516	4,167,958
												% of Budget		6%

	1st Quarter			2nd Quarter			3rd Quarter			4th Quarter				
	July	August	September	October	November	December	January	February	March	April	May	June	TOTAL	BUDGET
ADMINISTRATION														
Salaries	27,067												27,067	353,000
Benefits, Taxes & Fees	11,582												11,582	155,500
Copier	707												707	4,500
Supplies	1,144												1,144	5,500
Postage	233												233	7,000
Information Services	6,326												6,326	116,680
Equipment/Software/Maintenance													-	400
MASC Membership													-	5,400
Insurance	23,217												23,217	70,000
Legal & Professional Services	45,833												45,833	75,000
Legal Settlement													-	
Election Expenses													-	-
Town Codification													-	1,000
Advertising													-	3,500
Audit													-	13,500
Mileage Reimbursement	32												32	800
Employee Screening													-	149
Employee Training & Wellness	154												154	5,600
Dues and Subcriptions													-	1,000
Training & Travel													-	2,400
Grant Writing Services													-	4,000
Employee Appreciation	70												70	2,800
Mobile Devices	114												114	1,500
Credit card (Square)	73												73	1,500
Bank Charges (Other)	86												115	300
Payroll Processing	487												487	6,000
	117,125	-	-	-	-	-	-	-	-	-	-	-	117,154	837,029
												% of Budget		14%
ELECTED OFFICIALS														
Salaries	5,385												5,385	70,000
Benefit, Taxes & Fees	5,695												5,695	80,092
Mayor Expense	318												318	1,000
Council Expense													-	2,000
Mobile Devices													-	
	11,398	-	-	-	-	-	-	-	-	-	-	-	11,398	153,092
												% of Budget		7%

	1st Quarter			2nd Quarter			3rd Quarter			4th Quarter				
	July	August	September	October	November	December	January	February	March	April	May	June	TOTAL	BUDGET
GENERAL OPERATIONS														
Salaries	38,576												38,576	478,000
Benefits, Taxes & Fees	15,194												15,194	1,910,000
													53,770	2,388,000
												% of Budget		2%
PLANNING														
Supplies	16												16	400
Advertising													-	1,500
Mileage Reimbursement													-	200
Dues and Subcriptions													-	725
Training & Travel													-	1,600
Mobile Devices													-	
Equipment/Software	178												178	4,500
Uniform / PPE													-	500
Planning Commission													-	3,800
Board of Zoning Appeals													-	3,800
	194	-	-	-	-	-	-	-	-	-	-	-	194	17,025
												% of Budget		1%
BUILDING SERVICES														
County Contract													-	30,000
Mobile Devices													-	600
Dues and Subscriptions													-	800
Equipment/Software													-	300
Mileage Reibursement													-	-
Supplies													-	300
Travel and Training													-	500
Uniform/PPE													-	200
Community Outreach													-	200
	-	-	-	-	-	-	-	-	-	-	-	Total	-	32,900
												% of Budget		0%

	1st Quarter			2nd Quarter			3rd Quarter			4th Quarter				
	July	August	September	October	November	December	January	February	March	April	May	June	TOTAL	BUDGET
PUBLIC WORKS														
Mileage Reimbursement													-	100
Training & Travel													-	1,500
Public Outreach													-	300
Projects													-	68,000
Signage	413												413	4,000
Mobile Devices													-	-
Uniform / PPE	547												547	1,200
Stormwater expenses													-	
Stormwater Professional Fees													-	5,000
Supplies	93												93	6,000
Emergency Management	381												381	20,000
Dues and Subscriptions	39												39	725
Asset Management	15,000												15,000	30,000
Tree Maintenance and Care	3,400												3,400	10,000
Groundskeeping	4,153												4,153	45,000
	24,026	-	-	-	-	-	-	-	-	-	-	-	24,026	191,825
												% of Budget		13%
CODES & SAFETY														
Mileage Reimbursement													-	-
Equipment													-	1,000
Radio Contract													-	3,200
Training													-	800
Supplies	65												65	250
Uniform / PPE													-	250
Unsafe Buildings Demolition													-	8,000
Overgrown Lot Clearing													-	750
Inoperable Vehicle Towing														200
Animal Control													-	2,500
Crime Watch Materials													-	200
Mobile Devices													-	-
Membership/Dues													-	250
	65	-	-	-	-	-	-	-	-	-	-	Total	65	17,400
												% of Budget		0%
ISLAND SHERIFF'S PATROL														
ISP Dedicated Officer Annual Expense													-	$ 86,254
ISP Programs & Supplies	119												119	$ 46,575
ISP Salaries	27,555												27,555	$ 270,967
Benefits, Taxes & Fees-ISP	7,961												7,961	$ 78,282
													35,634	$ 482,078
												% of Budget		7%

	1st Quarter			2nd Quarter			3rd Quarter			4th Quarter				
	July	August	September	October	November	December	January	February	March	April	May	June	TOTAL	BUDGET
PARKS & RECREATION														
Dock Street Park Maintenance													-	1,000
Pinckney Park Maintenance														1,000
Park Maintenance	141												141	18,000
Special Events	52												52	2,000
Youth Sports Program													-	12,000
	193	-	-	-	-	-	-	-	-	-	-	Total	193	34,000
												% of Budget		1%
FACILITIES & EQUIPMENT														
Utilities	3,776												3,776	42,000
Security Monitoring	458												458	1,500
Janitorial	3,549												3,549	15,000
Equipment / Furniture	4,637												4,637	4,000
Facilities Maintenance	3,557												3,557	16,000
Vehicle Maintenance Expense	1,713												1,713	12,000
Generator Maintenance													-	2,000
Street Lights	24,982												24,982	145,000
	42,674	-	-	-	-	-	-	-	-	-	-	-	42,674	237,500
												% of Budget		18%
COMMUNITY SERVICES														
Repair Care Program													-	40,000
Drainage Council													-	500
History Council													-	17,000
Neighborhood Council													-	2,800
Business Development Council													-	500
James Island Pride													-	5,000
Helping Hands													-	1,500
Tree Council													-	5,000
Community Tutoring Programs													-	12,000
Community Service Contributions													-	50,000
	-	-	-	-	-	-	-	-	-	-	-	-	-	134,300
												% of Budget		0%

	1st Quarter			2nd Quarter			3rd Quarter			4th Quarter				
	July	August	September	October	November	December	January	February	March	April	May	June	TOTAL	BUDGET
CAPITAL PROJECTS														
INFRASTRUCTURE													-	
Dills Bluff Sidewalk Phase III-Seaside to Winborn													-	
Dills Bluff Sidewalk, Phase IV-Winborn to HBVR													-	
Regatta Road Sidewalk													-	125,000
Seaside Lane Sidewalk Design													-	
Camp and Riverland Sidewalk (match)														
Town Hall 2nd Floor													-	
1129 Hillman													-	
Hillman Street Property													-	
Capital Improvement Projects													-	
Secessionville to Ft. Johnson Sidewalk Connector													-	
Honey Hill Road Paving														58,800
Nabors Phase I													-	235,000
Underground Power Lines													-	
Traffic Calming Projects	132												132	30,000
Septic Tank Testing													-	10,000
RIA Sewer Project (Connections)														1,000,000
James Island Creek Septic and Sewer Projects													-	444,000
Total Infrastructure		0	0	0	0	0	0	0	0	66	0		132	*1,902,800*
OTHER CAPITAL EXPENSES														
Audio Visual Upgrades													-	1,000
Public Works Equipment													-	1,000
Dock Street Park Improvements													-	130,000
Pinckney Park Improvements													-	10,000
Park Projects													-	
Park Acquisitions													-	370,000
Total Other Capital Projects	0	0	0	0	0	0	0	0	0	0	0	0	-	*512,000*
DRAINAGE PROJECTS														
Greenhill/Honey Hill Drainage Phase I-II													-	
Oceanview Stonepost Drainage Basin -I-II													-	
Drainage Outflow Valve Devices													-	
Drainage Improvement Projects													-	15,000
James Island Creek Basin Drainage Improvements													-	15,000
Woodhaven Drainage Improvements													-	
Quail Run Drainage Improvements													-	5,000
Total Drainage Projects	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	-	-	*35,000*
		0	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**66**	**0**	**66**	**132**	**2,449,800**
												% of Budget		**0%**

HOSPITALITY TAX

	1st Quarter			2nd Quarter			3rd Quarter			4th Quarter			TOTAL	BUDGET
	July	August	September	October	November	December	January	February	March	April	May	June		
Hospitality Tax Revenue	83,084												83,084	680,000
Hospitality Tax Transfer In													-	
TOTAL		-	-	-		-	-		-	-	-	-	83,084	680,000
														12%
GENERAL														
The Town Market	343												343	6,000
Rethink Folly - Staff Cost-Sharing													-	18,000
Santee Street Public Parking Lot	2,600												2,600	34,000
James Island Arts & Cultural Center Ops	2,138												2,138	170,000
JIACC Projects & Events	870												870	15,000
Promotional Grants													-	10,000
Public Safety of Tourism Areas													-	166,243
Camp and Folly Landscaping Maintenance													-	5,000
Entrepreneur and Small Business Support													-	
Guide to Historic James Island														1,000
Brantley Park OPS	14												14	2,400
Community Events	598												598	6,000
Total Non-Capital Expense	*6,563*	-	-	-	-	-	-	-	-	-	-	-	6,563	*433,643*
PROJECTS														
Camp/Folly Bus Shelter													-	25,000
Rethink Folly Road Phase 1													-	400,000
Camp and Folly Signage													-	35,000
Folly Road Beautification													-	5,000
Pinckney Park													-	12,500
James Island Arts & Cultural Center													-	150,000
Historic Ft. Johnson-MUSC NOA													-	
Holiday Decorations													-	2,000
Park Projects	141												141	20,000
ISP Dedicated Officer Initial Expense														
Folly Road Multi Use Path Wilton-Ft. Johnson													-	42,000
Other Tourism-Related Projects													-	50,000
Total Projects	141	-	-	-	-	-	-	-	-	-	-	-	141	*741,500*
	6,704	-	-	-	-	-	-	-				**HT Total**	6,704	1,175,143
												% of Budget		1%

	1st Quarter			2nd Quarter			3rd Quarter			4th Quarter				
	July	August	September	October	November	December	January	February	March	April	May	June	TOTAL	BUDGET
ACCOMMODATIONS TAX FUND														
Atax Revenue	26,170.65												26,171	
Transfer out to General Fund													-	
Advertising and Promotions													0	
Tourism Related Expenditures													0	
												Total		
TREE MITIGATION FUND														
Tree Mitigation revenue														500
Tree Mitigation expense													-	1,200
	-	-	-	-	-		-	-	-	-	-	Total	-	
JIPSD FIRE & SOLID WASTE SERVICES														
JIPSD Tax Relief													-	1,360,000
Auditor Expense													-	1,000
												Total	-	1,361,000
												% of Budget		0%

Monthly Financial Report
July 2024

This monthly financial summary report is for the period ending July 31, 2024. This represents 1 month into FY25 and 8% of the total budget for this fiscal year.
Most expense accounts are on target or below.

Highlighted items within the associated monthly table:

Administration

- Supplies – Above average due to printer replacement expense.
- Insurance – First of three payments for the fiscal year, not a monthly expense.
- Legal & Professional Services – Additional real estate related costs.

Public Works

- Asset Management – Annual subscription.

Facilities & Equipment

- Equipment/Furniture – Picnic table replacement and air purifier for Council Chambers and Town Hall offices.
- Facilities Maintenance – Generator preventative maintenance and fueling. Mini-split AC unit repair.

JIPSD Tax Relief – Payments pending JIPSD approval

We will have some FY25 Budget amendments to present at the September meeting. The recent storm brought about some needed changes to some expense allocations.

Additional details can be provided upon request.
Becky Heath
Finance Officer

Report date: 8/9/2024

Public Works Report for Town Council Meeting August 15, 2024

Quail Run Project: IPW Contractor (No changes since last meeting)

- We are still having issues with cable company burying their cables
- Have had to have contractor re-stabilize outfall at the townhomes
- Other than the outstanding punch list items project is complete

Woodhaven Project: IPW Contractor

- All pipe and boxes have been laid, and major excavation has been completed.
- There was time lost due to the storm
- We are moving into restoration and clean up mode
- A tree was compromised at 659 Cornerstone Court and must be removed, the Town will be responsible for costs related to removal. We are in the process of getting proposals for removal and stump grinding. (This tree will be taken down this week)
- During the storm the new system appeared to be working as designed

Oceanview Project: Landscape Pavers Contractor (No changes since last meeting)

- The engineers have recommended the acceptance of the request for Substantial Completion as of June 13, 2024
- The contractor now has 30 days to complete the punch list
- We will be exercising our rights per the contract to assess Liquidated Damages
- We are now looking at having the ditches on Oceanview "piped" as a change order to make the completed project safer for our citizens

General Information:

- Melissa and I are continuing to answer citizen calls and requests
- Improvements to the "Public Works Yard" are moving along, the extension to the shed has been completed and the concrete has been placed. I will continue to keep you posted as to our progress. The lot has now had the gravel placed and is complete. (I encourage council to stop by and take a look)
- The sandbag operation for Tropical storm Debby was a success! In the two days that we were in full operation we pumped out roughly 17,000 bags to our citizens and others. We would not have been as successful as we were without the out pouring of volunteerism from our citizens!! With out them we would not have been able to do what we did.

August 5, 2024

Mrs. Brook Lyon
Mayor
Town of James Island
1122 Dills Bluff Road
James Island, SC 29412

Re: Stone Post/Ocean View Roads
Drainage Improvements
Town of James Island, South Carolina
T&H J-28073.0001
Letter Agreement for Additional Services

Dear Mayor Lyon:

Pursuant to our recent communications, the Town of James Island requested Thomas & Hutton (T&H) to perform Additional Services for the General Consulting, Design, Permitting, and Construction Administration of the Oceanview Drainage Improvements Project. As you are aware, this Project has reached Substantial Completion based on its original Design, including the Oceanview Road roadside ditches. These ditches were permitted by the South Carolina Department of Transportation (SCDOT), and T&H obtained SCDOT Encroachment Permits for the work. The Town wishes the roadside ditches along Ocean View Road to be piped. To proceed with the proposed alternative General Consulting, Design, Permitting, and Construction Administration, Thomas & Hutton requests the following changes, which are outlined in Exhibit A – Scope of Services:

Oceanview Drainage Improvements - Additional Services

Thomas & Hutton would continue to provide the Services as indicated in our original Scope in addition to the additional items outlined in Exhibit A. To address this, T&H requests a modification of our Contract. Our fee to perform the Additional Services is:

Phase	Fee Structure	Fee or Time & Expense Budget
General Consulting	Time & Expense	$ 1,000.00
Design	Time & Expense	$ 7,500.00
Permitting	Time & Expense	$ 5,000.00
Construction Administration	Time & Expense	$ 7,500.00
Reimbursables Expenses	Time & Expense	$ 300.00

_____ **CLIENT'S INITIALS**

_____ **CONSULTANT'S INITIALS**

If acceptable, please indicate your Authorization to Proceed with this additional work by signing and initialing where designated below and returning a copy to us for our files. This Proposal will be open for acceptance until August 30, 2024, unless changed by us in writing. Please note that no work will be performed without prior written Authorization to Proceed. This additional work is subject to the Terms and Conditions of the Contract executed for this Project dated August 22, 2019.

This Proposal between the Town of James Island ("Owner") and Thomas & Hutton Engineering Co. ("Consultant"), consisting of this letter, Exhibit A - Additional Scope of Services, and the Consulting Services on a Time & Expense Basis Rate Sheet represent the entire understanding between the Owner and Consultant with respect to the Scope change. This agreement may only be modified in writing if signed by both of us.

We appreciate this opportunity to be of service to you on this Project. Should you have any questions or need further information, please do not hesitate to call us.

Very truly yours,

THOMAS & HUTTON ENGINEERING CO.

By _____
Richard Karkowski, PE
Project Manager / Principal

RPK/dtb

Enclosures: Additional Services Proposal
Rate Sheet

TOWN OF JAMES ISLAND

ACCEPTED: _____, 2024

By _____

_____
TITLE

_____ **CLIENT'S INITIALS**

_____ **CONSULTANT'S INITIALS**

SCOPE OF SERVICES

1. SCOPE OF SERVICES

A. Design Phase

Oceanview Drainage Design – Additional Services

Under the Design Phase, additional services will be provided for the development, assessment, evaluation, and recommendation of a piped design to replace the roadside swales/ditches for the Oceanview Road drainage system. Plans, sections, etc. will be developed. Cost estimates will be prepared. Miscellaneous meetings and coordination will be conducted.

The proposed pipe system will be designed and modeled, and the Hydraulic report will be revised to include the proposed system.

To complete the design of the new alternative structure, the following Construction Plan set will be completed. The Construction Plan set will generally consist of the following sheets:

- Cover Sheet
- Legend and Abbreviations Sheet
- General Notes and Pay Items (this sheet will include "Summary of Estimated Quantities" referencing standard pay items)
- Demolition Plan Sheet(s)
- Plan and Profile Sheet(s)
- Stormwater Pollution Prevention Plan (SWPPP) Sheets
- Erosion & Sediment Control (E&SC) Detail Sheets
- Paving, Grading, and Drainage Detail Sheet(s)

Draft Construction Plans, Design Field Review, Final Construction Plans, and Final Opinion of Probable Construction Cost will be prepared.

B. Permitting Phase

Oceanview Drainage Permitting – Additional Services

Under the Permitting Phase, Thomas & Hutton will coordinate, submit, and address questions and comments from the South Carolina Department of Transportation (SCDOT) regarding the addition of the designed pipes included in the Design Phase.

C. Construction Phase

Oceanview Drainage Construction – Additional Services

Thomas & Hutton will continue to provide Construction Services as outlined in Additional Services agreement signed August 22, 2022. The following services will be provided:

- Review material data, shop drawings, and construction schedules provided by the Contractor.
- Address Contractor's request for information (RFI).
- Provide Construction Observation and Monitoring to ascertain that the work is in substantial conformance with the Contract documents and with the design intent.
- Issuing field orders and change orders (if required).
- Evaluating field test data for compliance.
- Reviewing and recommending payment requests including partial and final requests.
- Coordinate Project activities with the Owner.
- Participate in substantial completion and prepare a punch list of deficiencies.

Construction Observation and Monitoring does not include exhaustive or continuous on-site inspections to check the quality or quantity of the Contractor's work. However, it does include visits to the Project site at intervals appropriate to the various stages of construction to review general compliance with approved plans and specifications. Such visits and observations shall not require Thomas & Hutton to assume responsibilities for the means and methods of construction, not for safety measures or conditions on the job site. It is anticipated that the construction schedule shall be approximately two (2) months.

D. Exclusions

Items **not** included in the Scope of Services are as follows:

- Full-time construction observation
- Record Drawings
- Accessibility construction compliance verification
- Archaeological survey and report
- Phase One or Phase Two environmental assessments
- Endangered species survey and report
- Traffic Control plans
- Off–site work unless specifically covered in the Scope of Services
- Approvals or permits other than those related to the Scope of Work covered by this Contract
- Landscape and landscape buffering design
- Construction staking
- Easement plats, property or easement acquisition, or appraisal services
- Community meetings or presentations
- Post-construction video inspection services
- Tree impact permitting or mitigation plans
- Act as an expert witness for legal activities
- Telephones, cable television, gas, and power distribution systems

These items can be coordinated or provided, if requested by the Owner in writing.

2. PERIODS OF SERVICE

The Consultant will provide the above services per a schedule mutually agreed to by the Consultant and the Town of James Island. The schedule may be affected by the timely review by permitting agencies. The Additional Services schedule is anticipated to require approximately three (3) months.

CONSULTANT'S INITIALS

CLIENT'S INITIALS

THOMAS & HUTTON

2024 CONSULTING SERVICES RATE SHEET

Thomas & Hutton provides services on a time and expense basis as follows:

1. This basis includes allowance for direct salary expenses and for direct non–salary expenses. It also provides for services we may subcontract to others.
2. Direct salary expenses are generally based upon our payroll costs. The payroll costs include the cost of salaries and wages (including sick leave, vacation, and holiday pay) for time directly chargeable to the project; plus, unemployment, excise, payroll taxes, and contributions for social security, employment compensation insurance, retirement benefits, and medical and insurance benefits.

   The current hourly rate charges for each skill position for 2024 are as follows:

Hourly Rate	Engineer	Survey	Landscape	GIS	Quality Control	Business/ Administrative
$ 305.00	Consultant	Consultant	Consultant	Consultant	Consultant	
$ 280.00	Senior Manager	Senior Manager Survey Party (3–Men)	Senior Manager	Senior Manager	Senior Manager	Senior Manager
$ 255.00	Project Manager V Project Engineer V	Survey Manager V Project Surveyor V	Landscape Architect V LA Project Manager V	GIS Manager V		
$ 230.00	Project Manager IV Project Engineer IV	Survey Manager IV Project Surveyor IV	Landscape Architect IV LA Project Manager IV	GIS Manager IV		Senior Application Developer IV, Software/Computer Consultant IV
$ 220.00	Project Manager III Project Engineer III	Survey Manager III Project Surveyor III	Landscape Architect III LA Project Manager III	GIS Manager III		Senior Application Developer III, Software/Computer Consultant III
$ 205.00	Project Manager II Project Engineer II	Survey Manager II Project Surveyor II Survey Party (2–Men)	Landscape Architect II LA Project Manager II	GIS Manager II	Construction Administrator II	Senior Application Developer II, Software/Computer Consultant II
$ 190.00	Project Manager I Project Engineer I	Survey Manager I Project Surveyor I	Landscape Architect I LA Project Manager I	GIS Manager I	Construction Administrator I	Grant Administrator, Senior Application Developer I, Software/Computer Consultant I
$ 175.00	Designer IV Engineering Technician IV	Staff Surveyor V Survey Field Supervisor	Landscape Designer IV	GIS Analyst IV	Field Representative V	Application Developer IV
$ 165.00	Designer III Engineering Technician III	Staff Surveyor IV	Landscape Designer III	GIS Analyst III	Field Representative IV	Application Developer III
$ 150.00	Designer II Engineering Technician II	Staff Surveyor III Survey Party (1–Man)	Landscape Designer II	GIS Analyst II		Permit Coordinator III Application Developer II
$ 135.00	Designer I Engineering Technician I	Staff Surveyor II	Landscape Designer I	GIS Analyst I	Field Representative III	Application Developer I, Permit Coordinator II, Admin IV
$ 120.00	CADD Technician III	Staff Surveyor I Survey Technician III	Landscape Technician III	GIS Technician III	Field Representative II	Permit Coordinator I
$ 110.00	CADD Technician II	Survey Technician II	Landscape Technician II	GIS Technician II		
$ 105.00	CADD Technician I	Survey Technician I	Landscape Technician I	GIS Technician I		Admin III
$ 100.00					Field Representative I	Admin II
$ 95.00						Admin I
$ 465.00	Expert Witness					

3. When warranted, overtime will be charged for any non–salary employees. Overtime hours will be billed at 1.5 times the individual's charge rate.
4. Direct non–salary (reimbursable) expenses, including printing, reproduction, air travel, lodging, and meals are billed at cost. Travel in company or private vehicles will be billed at the IRS Standard Mileage Rate and may be revised based on fuel pricing. Outside consultant fees will be billed at 1.15 times the cost.
5. All rates and charges are effective through December 31st, 2023, including printing, reproductions, materials, and travel and are subject to change at that time. New rates and costs will become immediately effective to contracts in effect at the time of rate changes.

LANDSCAPE PAVERS, L.L.C.

TELEPHONE 843/766-2363 FACSIMILE 843/766-2226
www.landscapepavers.com

POST OFFICE BOX 31832
CHARLESTON, S.C. 29417

- PAVING
- GRADING
- LANDSCAPE CONSTRUCTION

July 17, 2024

The Honorable Brook Lyon, Mayor
The Town of James Island
1122 Dills Bluff Rd.
James Island, SC 29412

Re: Oceanview Drainage Improvements - Oceanview Rd. Ditch Enclosure

Mayor Lyon,

We appreciate the opportunity to continue to work with you and the Town of James Island on the above referenced project.

As has been discussed with the project engineer, your staff and our company, we feel that there is a manageable solution to the concerns of the open ditch embankments on Oceanview Rd. to enhance the substantial improvements already in place and provide a safer environment for your constituents in the immediate area of recently completed work.

We would propose a closed drainage system to the existing new drainage canal on Oceanview Rd.. Typically, these systems are Reinforced Concrete Pipe (RCP) which meets all required SCDOT standards for roadside construction. While costly, this is the preferred SCDOT solution.

In order to mitigate this cost, Landscape Pavers, LLC will endeavor to work with the SCDOT to obtain approval to use High Density Polyethylene (HDPE) pipe in lieu of RCP to help offset some of the cost of this proposed and necessary improvement to the overall project.

Our proposal is presented for approval as a change order to the original contract for the Oceanview Drainage Improvements as follows:

General Conditions:

- This change order is subject the following conditions:
- This proposal will be presented to the SCDOT for approval with the assistance of the project engineering team, Thomas and Hutton, Inc., the Owner (Town of James Island and its appropriate representatives). All parties should agree on the elements of the proposal as per stipulations or exceptions as presented by the approving authorities at the Department of South Carolina Highway Department.

- This proposal, once accepted and in force, will negate any assessment of liquidated damages as presented by the Owner as of May 18, 2024, or from the earliest date of the Owner's assessment.
- All work will be in accordance with the installation of HDPE, ASTM D2321-14, attached as Exhibit B, as well as standards for installing storm drainage structures as per SCDOT minimum standards and Supplemental Conditions.
- The warranty for the work as specified will be extended from the SCDOT required two (2) year standard warranty period to an additional two (2) year warranty for a total of four (4) years on all workmanship, materials and labor as related to work installed and from the final acceptance of the drainage change order.
- The above pricing includes all SWPPP and BMPs as necessary to be compliant with the MS-4 requirements to include catch basin erosion control devices and slope protection for new finished elevations in the right of way
- All areas that are to be piped and backfilled must be approved by the Owner and its engineering consultants to include the current project engineering design firm, Thomas and Hutton, Inc.
- All monies owed to Landscape Pavers, LLC, on original contract amount to include retainage and contingency monies remaining on the contract are payable upon final acceptance of work in place, including but not limited to, the submission and approval of as-built drawings and any remedial corrections by LPLLC, as noted by the Owner, its engineering consultant and the project engineers, Thomas and Hutton, Inc..

To aid the Town of James Island in this decision, we are including a cost breakdown of both alternatives for your consideration. (Exhibit A)

Our experience and reputation with the SCDOT will allow us to present the HDPE alternative with a high degree of confidence of approval.

We look forward to continuing our professional relationship with the Town of James Island and we are available at your request to answer any questions you may have as they may pertain to this additional scope of work.

Sincerely,

Arthur B. Schirmer, III EIT
Member
Landscape Pavers, LLC

Attchs.

EXHIBIT A

BACKFILL EXISTING DITCHES WITH HDPE				
Description	**Quantity**	**Unit**	**Unit Price**	**Total**
Mobilization	1	LS	$ 1,570.40	$ 1,570.40
15" HDPE	20	LF	$ 63.85	$ 1,276.94
18" HDPE	20	LF	$ 82.44	$ 1,648.86
24" HDPE	160	LF	$ 141.97	$ 22,715.77
30" HDPE	240	LF	$ 211.94	$ 50,864.46
36" HDPE	120	LF	$ 262.90	$ 31,548.57
Drainage Boxes	7	EA	$ 4,125.00	$ 28,875.00
				$ 138,500.00

BACKFILL EXISTING DITCHES WITH RCP				
Description	**Quantity**	**Unit**	**Unit Price**	**Total**
Mobilization	1	LS	$ 1,616.75	$ 1,616.75
15" RCP	8	LF	$ 116.87	$ 934.93
18" RCP	8	LF	$ 132.41	$ 1,059.24
24" RCP	149	LF	$ 212.08	$ 31,599.79
30" RCP	239	LF	$ 315.10	$ 75,308.23
36" RCP	105	LF	$ 420.06	$ 44,106.05
Drainage Boxes	7	EA	$ 4,125.00	$ 28,875.00
				$ 183,500.00

EXHIBIT B

Designation: D2321 – 14ε1

An American National Standard

Standard Practice for Underground Installation of Thermoplastic Pipe for Sewers and Other Gravity-Flow Applications[1]

This standard is issued under the fixed designation D2321; the number immediately following the designation indicates the year of original adoption or, in the case of revision, the year of last revision. A number in parentheses indicates the year of last reapproval. A superscript epsilon (ε) indicates an editorial change since the last revision or reapproval.

This standard has been approved for use by agencies of the U.S. Department of Defense.

ε[1] NOTE—X2.4 was editorially corrected in September 2014.

1. Scope*

1.1 This practice provides recommendations for the installation of buried thermoplastic pipe used in sewers and other gravity-flow applications. These recommendations are intended to ensure a stable underground environment for thermoplastic pipe under a wide range of service conditions. However, because of the numerous flexible plastic pipe products available and the inherent variability of natural ground conditions, achieving satisfactory performance of any one product may require modification to provisions contained herein to meet specific project requirements.

1.2 The scope of this practice necessarily excludes product performance criteria such as minimum pipe stiffness, maximum service deflection, or long term strength. Thus, it is incumbent upon the product manufacturer, specifier, or project engineer to verify and assure that the pipe specified for an intended application, when installed according to procedures outlined in this practice, will provide a long term, satisfactory performance according to criteria established for that application. A commentary on factors important in achieving a satisfactory installation is included in Appendix X1.

NOTE 1—Specific paragraphs in the appendix are referenced in the body of this practice for informational purposes.

NOTE 2—The following ASTM standards may be found useful in connection with this practice: Practice D420, Test Method D1556, Method D2216, Specification D2235, Test Method D2412, Specification D2564, Practice D2657, Practice D2855, Test Methods D2922, Test Method D3017, Practice F402, Specification F477, Specification F545, and Specification F913.

NOTE 3—Most Plumbing Codes and some Building Codes have provisions for the installation of underground "building drains and building sewers." See them for plumbing piping applications.

1.3 *Units*—The values stated in inch-pound units are to be regarded as standard. The values given in parentheses are mathematical conversions to SI units that are provided for information only and are not considered standard.

1.4 *This standard does not purport to address all of the safety concerns, if any, associated with its use. It is the responsibility of the user of this standard to establish appropriate safety and health practices and determine the applicability of regulatory limitations prior to use.*

2. Referenced Documents

2.1 *ASTM Standards:*[2]

D8 Terminology Relating to Materials for Roads and Pavements

D420 Guide to Site Characterization for Engineering Design and Construction Purposes (Withdrawn 2011)[3]

D653 Terminology Relating to Soil, Rock, and Contained Fluids

D698 Test Methods for Laboratory Compaction Characteristics of Soil Using Standard Effort (12 400 ft-lbf/ft^3 (600 kN-m/m^3))

D1556 Test Method for Density and Unit Weight of Soil in Place by Sand-Cone Method

D2216 Test Methods for Laboratory Determination of Water (Moisture) Content of Soil and Rock by Mass

D2235 Specification for Solvent Cement for Acrylonitrile-Butadiene-Styrene (ABS) Plastic Pipe and Fittings

D2412 Test Method for Determination of External Loading Characteristics of Plastic Pipe by Parallel-Plate Loading

D2487 Practice for Classification of Soils for Engineering Purposes (Unified Soil Classification System)

D2488 Practice for Description and Identification of Soils (Visual-Manual Procedure)

D2564 Specification for Solvent Cements for Poly(Vinyl Chloride) (PVC) Plastic Piping Systems

[1] This practice is under the jurisdiction of ASTM Committee F17 on Plastic Piping Systems and is the direct responsibility of Subcommittee F17.62 on Sewer.

Current edition approved Aug. 1, 2014. Published September 2014. Originally approved in 1989. Last previous edition approved in 2011 as D2321 – 11. DOI: 10.1520/D2321-14E01.

[2] For referenced ASTM standards, visit the ASTM website, www.astm.org, or contact ASTM Customer Service at service@astm.org. For *Annual Book of ASTM Standards* volume information, refer to the standard's Document Summary page on the ASTM website.

[3] The last approved version of this historical standard is referenced on www.astm.org.

***A Summary of Changes section appears at the end of this standard**

D2657 Practice for Heat Fusion Joining of Polyolefin Pipe and Fittings
D2855 Practice for Making Solvent-Cemented Joints with Poly(Vinyl Chloride) (PVC) Pipe and Fittings
D2922 Test Methods for Density of Soil and Soil-Aggregate in Place by Nuclear Methods (Shallow Depth) (Withdrawn 2007)[3]
D3017 Test Method for Water Content of Soil and Rock in Place by Nuclear Methods (Shallow Depth)
D3839 Guide for Underground Installation of "Fiberglass" (Glass-Fiber Reinforced Thermosetting-Resin) Pipe
D4318 Test Methods for Liquid Limit, Plastic Limit, and Plasticity Index of Soils
F402 Practice for Safe Handling of Solvent Cements, Primers, and Cleaners Used for Joining Thermoplastic Pipe and Fittings
F412 Terminology Relating to Plastic Piping Systems
F477 Specification for Elastomeric Seals (Gaskets) for Joining Plastic Pipe
F545 Specification for PVC and ABS Injected Solvent Cemented Plastic Pipe Joints (Withdrawn 2001)[3]
F913 Specification for Thermoplastic Elastomeric Seals (Gaskets) for Joining Plastic Pipe
F1668 Guide for Construction Procedures for Buried Plastic Pipe

2.2 *AASHTO Standard:*[4]
AASHTO M145 Classification of Soils and Soil Aggregate Mixtures

3. Terminology

3.1 *General*—Definitions used in this practice are in accordance with Terminologies F412 and D8 and Terminology D653 unless otherwise indicated.

3.2 *Definitions:*

3.2.1 Terminology D653 definitions used in this standard:

3.2.2 *compaction curve (Proctor curve) (moisture-density curve)*—the curve showing the relationship between the dry unit weight (density) and the water content of a soil for a given compactive effort.

3.2.3 *maximum unit weight*—the dry unit weight defined by the peak of a compaction curve.

3.2.4 *optimum water content*—the water content at which a soil can be compacted to a maximum dry unit weight by a given compactive effort.

3.2.5 *percent compaction*—the ratio, expressed as a percentage, of: *(1)* dry unit weight of a soil, to *(2)* maximum unit weight obtained in a laboratory compaction test.

3.3 *Definitions of Terms Specific to This Standard:*

3.3.1 *aggregate*—a granular material of mineral composition such as sand, gravel, shell, slag or crushed stone (see Terminology D8).

3.3.2 *deflection*—any change in the inside diameter of the pipe resulting from installation and imposed loads. Deflection may be either vertical or horizontal and is usually reported as a percentage of the base (undeflected) inside pipe diameter.

3.3.3 *engineer*—the engineer in responsible charge of the work or his duly recognized or authorized representative.

3.3.4 *foundation, bedding, haunching, initial backfill, final backfill, pipe zone, excavated trench width*—See Fig. 1 for meaning and limits, and trench terminology.

3.3.5 *manufactured aggregates*—aggregates such as slag that are products or byproducts of a manufacturing process, or natural aggregates that are reduced to their final form by a manufacturing process such as crushing.

3.3.6 *modulus of soil reaction (E')*—an empirical value used in the Iowa deflection formula that defines the stiffness of the soil embedment around a buried pipe

3.3.7 *open-graded aggregate*—an aggregate that has a particle size distribution such that, when it is compacted, the voids between the aggregate particles, expressed as a percentage of the total space occupied by the material, are relatively large.

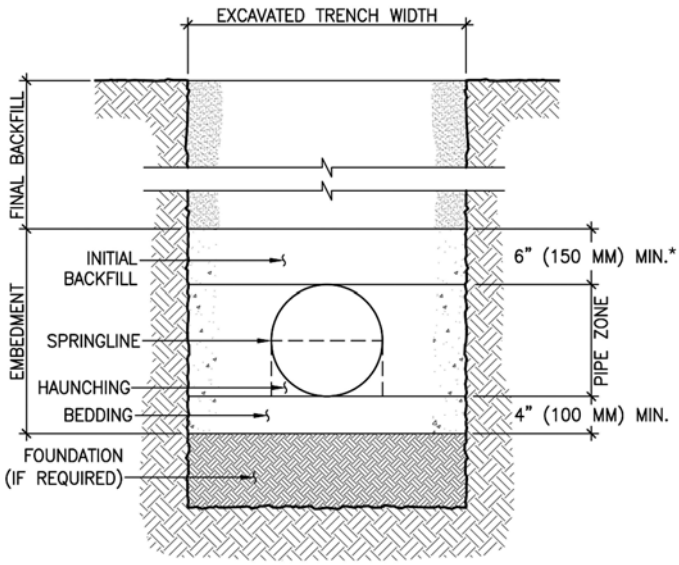
3.3.8 *processed aggregates*—aggregates that are screened, washed, mixed, or blended to produce a specific particle size distribution.

3.3.9 *secant constrained soil modulus (M_s)*—- a value for soil stiffness determined as the secant slope of the stress-strain curve of a one-dimensional compression test; M_s can be used in place of *E'* in the Iowa deflection formula.

3.3.10 *standard proctor density*—the maximum dry unit weight of soil compacted at optimum moisture content, as obtained by laboratory test in accordance with Test Methods D698.

4. Significance and Use

4.1 This practice is for use by designers and specifiers, installation contractors, regulatory agencies, owners, and inspection organizations who are involved in the construction of



* See 7.6 Minimum Cover

FIG. 1 Trench Cross Section

[4] Available from American Association of State Highway and Transportation Officials (AASHTO), 444 N. Capitol St., NW, Suite 249, Washington, DC 20001, http://www.transportation.org.

sewers and other gravity-flow applications that utilize flexible thermoplastic pipe. As with any standard practice, modifications may be required for specific job conditions or for special local or regional conditions. Recommendations for inclusion of this practice in contract documents for a specific project are given in Appendix X2.

5. Materials

5.1 *Classification*—Soil types used or encountered in burying pipes include those classified in Table 1 and natural, manufactured, and processed aggregates. The soil classifications are grouped into soil classifications in Table 2 based on the typical soil stiffness when compacted. Class I indicates a soil that generally provides the highest soil stiffness at any given percent compaction, and provides a given soil stiffness with the least compactive effort. Each higher-number soil class provides successively less soil stiffness at a given percent compaction and requires greater compactive effort to provide a given level of soil stiffness

NOTE 4—See Practices D2487 and D2488 for laboratory and field visual-manual procedures for identification of soils.

NOTE 5—Processed materials produced for highway construction, including coarse aggregate, base, subbase, and surface coarse materials, when used for foundation, embedment, and backfill, should be categorized in accordance with this section and Table 1 in accordance with particle size and gradation.

5.2 *Installation and Use*—Table 3 provides recommendations on installation and use based on soil classification and location in the trench. Soil Classes I to IV should be used as recommended in Table 3. Soil Class V, including clays and silts with liquid limits greater than 50, organic soils, and frozen soils, shall be excluded from the pipe-zone embedment.

5.2.1 *Class I*—Class I materials provide maximum stability and pipe support for a given percent compaction due to the low content of sand and fines. With minimum effort these materials can be installed at relatively high-soil stiffnesses over a wide range of moisture contents. In addition, the high permeability of Class I materials may aid in the control of water, and these materials are often desirable for embedment in rock cuts where water is frequently encountered. However, when ground-water flow is anticipated, consideration should be given to the potential for migration of fines from adjacent materials into the open-graded Class I materials. (See X1.8.)

5.2.2 *Class II*—Class II materials, when compacted, provide a relatively high level of pipe support; however, open-graded groups may allow migration and the sizes should be checked for compatibility with adjacent material. (See X1.8.)

5.2.3 *Class III*—Class III materials provide less support for a given percent compaction than Class I or Class II materials. Higher levels of compactive effort are required and moisture content must be near optimum to minimize compactive effort and achieve the required percent compaction. These materials provide reasonable levels of pipe support once proper percent compaction is achieved.

5.2.4 *Class IV*—Class IV materials require a geotechnical evaluation prior to use. Moisture content must be near optimum to minimize compactive effort and achieve the required percent compaction. Properly placed and compacted, Class IV materials can provide reasonable levels of pipe support; however, these materials may not be suitable under high fills, surface-applied wheel loads, or under high-energy-level vibratory compactors and tampers. Do not use where water conditions in the trench may prevent proper placement and compaction.

NOTE 6—The term "high energy level vibratory compactors and tampers" refers to compaction equipment that might deflect or distort the pipe more than permitted by the specifications or the manufacturer.

5.2.5 *Class V*—Class V materials should be excluded from pipe-zone embedment.

5.3 *Moisture Content of Embedment Materials*—The moisture content of embedment materials must be controlled to permit placement and compaction to required levels. For soils with low permeability (that is, Class III and Class IV and some borderline Class II soils), moisture content is normally controlled to ± 3 % of optimum (see Test Method D698). The practicality of obtaining and maintaining the required limits on moisture content is an important criterion for selecting materials, since failure to achieve required percent compaction, especially in the pipe zone embedment, may result in excessive deflection.

5.4 *Maximum Particle Size*—Maximum particle size for embedment is limited to material passing a 1½-in. (37.5-mm) sieve (see Table 2). To enhance placement around small diameter pipe and to prevent damage to the pipe wall, a smaller maximum size may be required (see X1.9). When final backfill contains rocks, cobbles, etc., the engineer may require greater initial backfill cover levels (see Fig. 1).

6. Trench Excavation

6.1 *General*—Procedures for trench excavation that are especially important in flexible thermoplastic pipe installations are given herein.

6.1.1 *Excavation*—Excavate trenches to ensure that sides will be stable under all working conditions. Slope trench walls or provide supports in conformance with all local and national standards for safety. Open only as much trench as can be safely maintained by available equipment. Backfill all trenches as soon as practicable, but not later than the end of each working day.

6.2 *Water Control*—Do not lay or embed pipe in standing or running water. At all times prevent runoff and surface water from entering the trench.

6.2.1 *Ground Water*—When groundwater is present in the work area, dewater to maintain stability of in-situ and imported materials. Maintain water level below pipe bedding and foundation to provide a stable trench bottom. Use, as appropriate, sump pumps, well points, deep wells, geofabrics, perforated underdrains, or stone blankets of sufficient thickness to remove and control water in the trench. When excavating while depressing ground water, ensure the ground water is below the bottom of cut at all times to prevent washout from behind sheeting or sloughing of exposed trench walls. Maintain

TABLE 1 Soil Classification Chart (see Classification D2487)

Criteria for Assigning Group Symbols and Group Names Using Laboratory Tests[A]					Soil Classification	
					Group Symbol	Group Name[B]
Coarse-Grained Soils	gravels	clean gravels	$C \geq 4$ and $1 \leq Cc \leq 3$[C]		GW	well-graded gravel[D]
More than 50% retained on No. 200 sieve	more than 50% of coarse fraction retained on No. 4 sieve	less than 5% of fines[E]	Cu < 4 and/or 1> Cc> 3[C]		GP	poorly graded gravel[D]
		gravels with more than 12 % fines[E]	Fines classify as ML or MH		GM	silty gravel[DFG]
			Fines classify as CL or CH		GC	clayey gravel[DFG]
	sands	clean sands	$Cu \geq 6$ and $1 \leq Cc \leq 3$[C]		SW	well-graded sand[H]
	50% or more of coarse fraction passes on No. 4 sieve	less than 5% fines[I]	Cu < 6 and/or 1 > Cc > 3[C]		SP	poorly graded sand[H]
		sand with fines	Fines cLassify as ML or MH		SM	silty sand[FGH]
		more than 12 % fines[I]	Fines classify as CL or CH		SC	clayey sand-[FGH]
Fine-Grained Soils	silts and clays	inorganic	PI > 7 and plots on or above "A" line[J]		CL	lean clay[KLM]
50% or more passes the No. 200 sieve	liquid limit less than 50		PI < 4 and plots below "A" line[J]		ML	silt[KLM]
		organic	Liquid Limit-Oven dried / Liquid Limit-Not dried	<0.75	OL	organic clay[KLMN] organic silt-[KLMO]
	silts and clays	inorganic	PI plots on or above "A" line		CH	fat clay[KLM]
	liquid limit 50 or more		Plots below "A" line		MH	elastic silt[KLM]
		organic	Liquid Limit-Oven Dried / Liquid Limit-Not Dried	<0.75	OH	organic clay[KLMP] organic silt-[KLMQ]
Highly organic soils	primarily organic matter, dark in color, and organic odor				PT	peat

[A] Based on the material passing the 3-in. (75-mm) sieve.
[B] If field sample contained cobbles or boulders, or both, add "with cobbles or boulders, or both" to group name.
[C]

$$Cu = D_{60}/D_{10}$$

$$Cc = \frac{(D_{30})^2}{D_{10} \times D_{60}}$$

[D] If soil contains ≥15 % sand, add "with sand" to group name.
[E] Gravels with 5 to 12 % fines require dual symbols:
GW-GM well-graded gravel with silt:
GW-GC well-graded gravel with clay
GP-GM poorly graded gravel with silt
GP-GC poorly graded gravel with clay
[F] If fines classify as CL-ML, use dual symbol GC-GM, or SC-SM.
[G] If fines are organic, add "with organic fines" to group name.
[H] If soil contains ≥15 % gravel, add "with gravel" to group name.
[I] Sands with 5 to 12 % fines require dual symbols:
SW-SM well-graded sand with silt
SW-SC well-graded sand with clay
SP-SM poorly graded sand with silt
SP-SC poorly graded sand with clay
[J] If Atterberg limits plot in hatched area, soil is a CL-ML, silty clay (see Test Method D4318).
[K] If soil contains 15 to 29 % plus No. 200, add "with sand" or "with gravel," whichever is predominant.
[L] If soil contains ≥ 30 % plus No. 200, predominantly sand, add "sandy" to group name.
[M] If soil contains ≥ 30 % plus No. 200, predominantly gravel, add "gravelly" to group name.
[N] PI ≥ 4 and plots on or above "A" line.
[O] PI < 4 or plots below "A" line.
[P] PI plots on or above "A" line.
[Q] PI plots below "A" line.

control of water in the trench before, during, and after pipe installation, and until embedment is installed and sufficient backfill has been placed to prevent flotation of the pipe. To preclude loss of soil support, employ dewatering methods that minimize removal of fines and the creation of voids in in-situ materials.

TABLE 2 Soil Classes

Soil Group[A,B]	Soil Class	American Association of State Highway and Transportation Officials (AASHTO) Soil Groups[C]
Crushed rock, angular[D]: 100% passing 1-1/2in. sieve, </=15 % passing #4 sieve, </= 25 % passing 3/8in. sieve and </= 12 % passing #200 sieve	Class I	...
Clean, coarse grained soils: SW, SP, GW, GP or any soil beginning with one of these symbols with </=12 % passing #200 sieve[E,F]	Class II	A1,A3
Coarse grained soils with fines: GM, GC, SM, SC, or any soil beginning with one of these symbols, containing > 12 % passing #200 sieve; Sandy or gravelly fine-grained soils: CL, ML, or any soil beginning with one of these symbols, with >/= 30 % retained on #200 sieve	Class III	A-2-4, A-2-5, A-2-6, or A-4 or A-6 soils with more than 30% retained on #200 sieve
Fine-grained soils: CL, ML, or any soil beginning with one of these symbols, with <30 % retained on #200 sieve	Class IV	A-2-7, or A-4, or A-6 soils with 30% or less retained on #200 sieve
MH, CH, OL, OH, PT	Class V Not for use as embedment	A5, A7

[A] See Classification D2487, Standard Classification of Soils for Engineering Purposes (Unified Soil Classification System).
[B] Limits may be imposed on the soil group to meet project or local requirements if the specified soil remains within the group. For example, some project applications require a Class I material with minimal fines to address specific structural or hydraulic conditions and the specification may read "Use Class I soil with a maximum of 5% passing the #200 sieve."
[C] AASHTO M145, Classification of Soils and Soil Aggregate Mixtures.
[D] All particle faces shall be fractured.
[E] Materials such as broken coral, shells, and recycled concrete, with ≤ =12% passing a No. 200 sieve, are considered to be Class II materials. These materials should only be used when evaluated and approved by the Engineer
[F] Uniform fine sands (SP) with more than 50% passing a No. 100 sieve (0.006 in., 0.15 mm) are very sensitive to moisture and should not be used as backfill unless specifically allowed in the contract documents. If use of these materials is allowed, compaction and handling procedures should follow the guidelines for Class III materials.

6.2.2 *Running Water*—Control running water emanating from drainage of surface or ground water to preclude undermining of the trench bottom or walls, the foundation, or other zones of embedment. Provide dams, cutoffs or other barriers periodically along the installation to preclude transport of water along the trench bottom. Backfill all trenches after the pipe is installed to prevent disturbance of pipe and embedment.

6.2.3 *Materials for Water Control*—Use suitably graded materials in foundation or bedding layers or as drainage blankets for transport of running water to sump pits or other drains. Use well graded materials, along with perforated underdrains, to enhance transport of running water, as required. Select the gradation of the drainage materials to minimize migration of fines from surrounding materials (see X1.8).

6.3 *Minimum Trench Width*—Where trench walls are stable or supported, provide a width sufficient, but no greater than necessary, to ensure working room to properly and safely place and compact haunching and other embedment materials. The space between the pipe and trench wall must be wider than the compaction equipment used in the pipe zone. Minimum width shall be not less than the greater of either the pipe outside diameter plus 16 in. (400 mm) or the pipe outside diameter times 1.25, plus 12 in. (300 mm). In addition to safety considerations, trench width in unsupported, unstable soils will depend on the size and stiffness of the pipe, stiffness of the embedment and in-situ soil, and depth of cover (see X1.10). Specially designed equipment may enable the satisfactory installation and embedment of pipe in trenches narrower than specified above. If it is determined that the use of such equipment provides an installation consistent with the requirements of this standard, minimum trench widths may be reduced, as approved by the engineer.

6.4 *Support of Trench Walls*—When supports such as trench sheeting, trench jacks, trench shields or boxes are used, ensure that support of the pipe and its embedment is maintained throughout installation. Ensure that sheeting is sufficiently tight to prevent washing out of the trench wall from behind the sheeting. Provide tight support of trench walls below viaducts, existing utilities, or other obstructions that restrict driving of sheeting.

6.4.1 *Supports Left in Place*—Unless otherwise directed by the engineer, sheeting driven into or below the pipe zone should be left in place to preclude loss of support of foundation and embedment materials. When top of sheeting is to be cut off, make cut 1.5 ft (0.5 m) or more above the crown of the pipe. Leave rangers, whalers, and braces in place as required to support cutoff sheeting and the trench wall in the vicinity of the pipe zone. Timber sheeting to be left in place is considered a permanent structural member and should be treated against biological degradation (for example, attack by insects or other biological forms) as necessary, and against decay if above ground water.

NOTE 7—Certain preservative and protective compounds may react

TABLE 3 Recommendations for Installation and Use of Soils and Aggregates for Foundation and Pipe-Zone Embedment

Soil Class[A]	Class I[B]	Class II	Class III	Class IV
General Recommendations and Restrictions	Acceptable and common where no migration is probable or when combined with a geotextile filter media. Suitable for use as a drainage blanket and under drain where adjacent material is suitably graded or when used with a geotextile filter fabric (see X1.8).	Where hydraulic gradient exists check gradation to minimize migration. Clean groups are suitable for use as a drainage blanket and underdrain (see Table 2). Uniform fine sands (SP) with more than 50 % passing a #100 sieve (0.006 in., 0.15 mm) behave like silts and should be treated as Class III soils.	Do not use where water conditions in trench prevent proper placement and compaction. Not recommended for use with pipes with stiffness of 9 psi or less	Difficult to achieve high-soil stiffness. Do not use where water conditions in trench prevent proper placement and compaction. Not recommended for use with pipes with stiffness of 9 psi or less
Foundation	Suitable as foundation and for replacing over-excavated and unstable trench bottom as restricted above.	Suitable as foundation and for replacing over-excavated and unstable trench bottom as restricted above. Install and compact in 12 in. (300 mm) maximum layers	Suitable for replacing over-excavated trench bottom as restricted above. Install and compact in 6 in. (150 mm) maximum layers	Suitable for replacing over-excavated trench bottom for depths up to 12 in. (300 mm) as restricted above. Use only where uniform longitudinal support of the pipe can be maintained, as approved by the engineer. Install and compact in 6-in (150 mm) maximum layers
Pipe Embedment	Suitable as restricted above. Work material under pipe to provide uniform haunch support.	Suitable as restricted above. Work material under pipe to provide uniform haunch support.	Suitable as restricted above. Difficult to place and compact in the haunch zone.	Suitable as restricted above. Difficult to place and compact in the haunch zone.
Minimum Recommended Percent Compaction, SPD[D]	See Note[C]	85 % (SW and SP soils) For GW and GP soils see Note[E]	90 %	95 %
Relative Compactive Effort Required to Achieve Minimum Percent Compaction	low	moderate	high	very high
Compaction Methods	vibration or impact	vibration or impact	impact	impact
Required Moisture Control	none	none	Maintain near optimum to minimize compactive effort	Maintain near optimum to minimize compactive effort

[A] Class V materials are unsuitable as embedment. They may be used as final backfill as permitted by the engineer.
[B] Class I materials have higher stiffness than Class II materials, but data on specific soil stiffness values are not available at the current time. Until such data are available the soil stiffness of placed, uncompacted Class I materials can be taken equivalent to Class II materials compacted to 95% of maximum standard Proctor density (SPD95), and the soil stiffness of compacted Class I materials can be taken equivalent to Class II materials compacted to 100% of maximum standard Proctor density (SPD100). Even if placed uncompacted (that is, dumped), Class I materials should always be worked into the haunch zone to assure complete placement.
[C] Suitable compaction typically achieved by dumped placement (that is, uncompacted but worked into haunch zone to ensure complete placement).
[D] SPD is standard Proctor density as determined by Test Method D698.
[E] Place and compact GW and GP soils with at least two passes of compaction equipment.

adversely with some types of thermoplastics, and their use should be avoided in proximity of the pipe material.

6.4.2 *Movable Trench Wall Supports*—Do not disturb the installed pipe and its embedment when using movable trench boxes and shields. Movable supports should not be used below the top of the pipe zone unless approved methods are used for maintaining the integrity of embedment material. Before moving supports, place and compact embedment to sufficient depths to ensure protection of the pipe. As supports are moved, finish placing and compacting embedment.

6.4.3 *Removal of Trench Wall Support*—If the engineer permits the use of sheeting or other trench wall supports below the pipe zone, ensure that pipe and foundation and embedment materials are not disturbed by support removal. Fill voids left on removal of supports and compact all material as required.

6.5 *Rock or Unyielding Materials in Trench Bottom*—If ledge rock, hard pan, shale, or other unyielding material, cobbles, rubble or debris, boulders, or stones larger than 1.5 in. (40 mm) are encountered in the trench bottom, excavate a

minimum depth of 6 in. (150 mm) below the pipe bottom and replace with proper embedment material (see 7.2.1).

7. Installation

7.1 *General*—Recommendations for use of the various types of materials classified in Section 5 and Table 2 for foundation, bedding, haunching and backfills, are given in Table 3.

NOTE 8—Installation of pipe in areas where significant settlement may be anticipated, such as in backfill adjacent to building foundations, and in sanitary landfills, or in other highly unstable soils, require special engineering and are outside the scope of this practice.

7.2 *Trench Bottom*—Install foundation and bedding as required by the engineer according to conditions in the trench bottom. Provide a firm, stable, and uniform bedding for the pipe barrel and any protruding features of its joint. Provide a minimum of 4 in. (100 mm) of bedding unless otherwise specified.

7.2.1 *Rock and Unyielding Materials*—When rock or unyielding material is present in the trench bottom, install a cushion of bedding, of 6 in. (150 mm) minimum thickness, below the bottom of the pipe.

7.2.2 *Unstable Trench Bottom*—Where the trench bottom is unstable or shows a "quick'' tendency, excavate to a depth as required by the engineer and replace with a foundation of Class I or Class II material. Use a suitably graded material where conditions may cause migration of fines and loss of pipe support (see X1.8). Place and compact foundation material in accordance with Table 3. For severe conditions, the engineer may require a special foundation such as piles or sheeting capped with a concrete mat. Control of quick and unstable trench bottom conditions may be accomplished with the use of appropriate geofabrics.

7.2.3 *Localized Loadings*—Minimize localized loadings and differential settlement wherever the pipe crosses other utilities or subsurface structures, or whenever there are special foundations such as concrete capped piles or sheeting. Provide a cushion of bedding between the pipe and any such point of localized loading.

7.2.4 *Over-Excavation*—If the trench bottom is over-excavated below intended grade, fill the over-excavation with compatible foundation or bedding material and compact as recommended in Table 3.

7.2.5 *Sloughing*—If trench sidewalls slough off during any part of excavating or installing the pipe, remove all sloughed and loose material from the trench.

7.3 *Location and Alignment*—Place pipe and fittings in the trench with the invert conforming to the required elevations, slopes, and alignment. Provide bell holes in pipe bedding, no larger than necessary, in order to ensure uniform pipe support. Fill all voids under the bell by working in bedding material. In special cases where the pipe is to be installed to a curved alignment, maintain angular "joint deflection'' (axial alignment) or pipe bending radius, or both, within acceptable design limits.

7.4 *Jointing*—Comply with manufacturer's recommendations for assembly of joint components, lubrication, and making of joints. When pipe laying is interrupted, secure piping against movement and seal open ends to prevent the entrance of water, mud, or foreign material.

7.4.1 *Elastomeric Seal Joints*—Protect gaskets from harmful substances such as dust and grit, solvents, and petroleum-based greases and oils. Do not store gaskets close to electrical equipment that produces ozone. Some gaskets may need to be protected from sunlight (consult the manufacturer). Mark, or verify that pipe ends are marked, to indicate insertion stop position, and ensure that pipe is inserted into pipe or fitting bells to this mark. Push spigot into bell using methods recommended by the manufacturer, keeping pipe true to line and grade. Protect the end of the pipe while inserting the spigot into the bell and do not use excessive force that may result in over-assembled joints or dislodged gaskets. If full entry to the specified insertion depth is not achieved, disassemble and clean the joint and reassemble. Use only lubricant supplied or recommended for use by the pipe manufacturer. Do not exceed manufacturer's recommendations for angular "joint deflection'' (axial alignment).

7.4.2 *Solvent Cement Joints*—When making solvent cement joints, follow recommendations of both the pipe and solvent cement manufacturer. If full entry is not achieved, disassemble or remove and replace the joint. Allow freshly made joints to set for the recommended time before moving, burying, or otherwise disturbing the pipe.

7.4.3 *Heat Fusion Joints*—Make heat fusion joints in conformance with the recommendations of the pipe manufacturer. Pipe may be joined at ground surface and then lowered into position, provided it is supported and handled in a manner that precludes damage.

7.5 *Placing and Compacting Pipe Embedment*—Place embedment materials by methods that will not disturb or damage the pipe. Work in and tamp the haunching material in the area between the bedding and the underside of the pipe before placing and compacting the remainder of the embedment in the pipe zone. Follow recommendations for compaction given in Table 2. Do not permit compaction equipment to contact and damage the pipe. Use compaction equipment and techniques that are compatible with materials used and location in the trench (see X1.7). Before using heavy compaction or construction equipment directly over the pipe, place sufficient backfill to prevent damage, excessive deflections, or other disturbance of the pipe. See 7.6 for minimum cover.

7.5.1 *Percent Compaction of Embedment*— The Soil Class (from Table 2) and the required percent compaction of the embedment should be established by the engineer based on an evaluation of specific project conditions (see X1.6.2). The information in Table 3 will provide satisfactory embedment stiffness and is based on achieving an average modulus of soil reaction, E', of 1000 psi (or an appropriate equivalent constrained modulus, M_s).

7.5.2 *Consolidation by Watering*—Consolidation of cohesionless material by using water (jetting or puddling) should only be used under controlled conditions when approved by the engineer. At all times conform to the lift thicknesses and the compaction requirements given in Table 3.

7.6 *Minimum Cover*—To preclude damage to the pipe and disturbance to pipe embedment, a minimum depth of backfill

above the pipe should be maintained before allowing vehicles or heavy construction equipment to traverse the pipe trench. The minimum depth of cover should be established by the engineer based on an evaluation of specific project conditions. In the absence of an engineering evaluation, the following minimum cover requirements should be used. For embedment materials installed in accordance with Table 3, provide cover (that is, depth of backfill above top of pipe) of at least 24 in. (0.6 m) or one pipe diameter (whichever is larger) for Class I embedment, and a cover of at least 36 in. (0.9 m) or one pipe diameter (whichever is larger) for Class II, III, and IV embedment, before allowing vehicles or construction equipment to traffic the trench surface, and at least 48 in. (1.2 m) of cover before using a hydrohammer for compaction. Do not use hydrohammer-type compactors unless approved by the engineer. Where construction loads may be excessive (for example, cranes, earth moving equipment, etc.), minimum cover shall be increased as determined by the engineer.

7.7 *Vertical Risers*—Provide support for vertical risers as commonly found at service connections, cleanouts, and drop manholes to preclude vertical or lateral movement. Prevent the direct transfer of thrust due to surface loads and settlement, and ensure adequate support at points of connection to main lines.

7.8 *Exposing Pipe for Making Service Line Connections*—When excavating for a service line connection, excavate material from above the top of the existing pipe before removing material from the sides of the pipe. Materials and percent compaction of service line embedment should conform to the specifications for the existing line, or with this practice, whichever is more stringent.

NOTE 9—Special construction techniques and considerations are required when more than one pipe is installed in the same or adjacent trenches, to ensure that the integrity of the embedment is maintained.

7.9 *Pipe Caps and Plugs*—Secure caps and plugs to the pipe to prevent movement and resulting leakage under test and service pressures.

7.10 *Manhole Connections*—Use flexible water stops, resilient connectors, or other flexible systems approved by the engineer to make watertight connections to manholes and other structures.

7.11 *Field Monitoring*—Compliance with contract documents with respect to pipe installation, including trench depth, grade, water conditions, foundation, embedment and backfill materials, joints, density of materials in place, and safety, should be monitored by the engineer at a frequency appropriate to project requirements. Leakage testing specifications, while not within the scope of this practice, should be made part of the specifications for plastic pipe installations, when applicable.

8. Inspection, Handling, and Storage

8.1 *Inspection*—Upon receipt, inspect each shipment of pipe and fittings for conformance to product specifications and contract documents, and check for damage. Reject nonconforming or damaged pipe, and remove from the job. If not returned to supplier, dispose of legally.

8.2 *Handling and Storage*—Handle and store pipe and fittings in accordance with recommendations of the manufacturer.

9. Keywords

9.1 backfill; bedding; compaction; embedment; haunching; migration; sewer pipe; soil stiffness; thermoplastic; underground installation

APPENDIXES

(Nonmandatory Information)

X1. COMMENTARY

X1.1 Those concerned with the service performance of a buried flexible pipe should understand factors that can affect this performance. Accordingly, key considerations in the design and execution of a satisfactory installation of buried flexible thermoplastic pipe that provided a basis for the development of this practice are given in this Appendix.

X1.2 *General*—Sub-surface conditions should be adequately investigated prior to construction, in accordance with Practice D420, as a basis for establishing requirements for foundation, embedment and backfill materials and construction methods. The type of pipe selected should be suited for the job conditions.

X1.3 *Load/Deflection Performance*—The thermoplastic pipes considered in this practice are classified as flexible conduits since in carrying load they deform (deflect) to develop support from the surrounding embedment. This interaction of pipe and soil provides a pipe-soil structure capable of supporting earth fills and surface live loads of considerable magnitude. The design, specification and construction of the buried flexible pipe system should recognize that embedment materials must be selected, placed and compacted so that pipe and soil act in concert to carry the applied loads without excessive strains from deflections or localized pipe wall distortions.

X1.4 *Pipe Deflection*—Pipe deflection is the diametral change in the pipe-soil system resulting from the process of installing the pipe (construction deflection), static and live loads applied to the pipe (load-induced deflection), and time dependent soil response (deflection lag). Construction and load induced deflections together constitute initial pipe deflection. Additional time dependent deflections are attributed primarily to changes in embedment and in-situ soils, and trench settlement. The sum of initial and time dependent deflections

constitutes total deflection.

X1.4.1 *Construction Deflection*—Construction deflections are induced during the process of installing and embedding flexible pipe, even before significant earth and surface loads are applied. The magnitude of construction deflections depends on such factors as the method and extent of compaction of the embedment materials, type of embedment, water conditions in the trench, pipe stiffness, uniformity of embedment support, pipe out-of-roundness, and installation workmanship in general. These deflections may exceed the subsequent load-induced deflections. Compaction of the side fill may result in negative vertical deflections (that is, increases in pipe vertical diameter and decreases in horizontal diameter).

X1.4.2 *Load-Induced Deflection*—Load-induced deflections result from backfill loads and other superimposed loads that are applied after the pipe is embedded. Traditionally, typical soil-structure interaction equations such as the "Iowa Formula'', attributed to Spangler, or other methods have been used to calculate deflections resulting from these loads.

X1.4.3 *Initial Deflection*—Initial deflection is the deflection in the installed and backfilled pipe. It is the total of construction deflections and load-induced deflections.

X1.4.4 *Time Dependent Factors*—Time dependent factors include changes in soil stiffness in the pipe embedment zone and native trench soils, as well as loading changes due to trench settlement over time. These changes typically add to initial deflections; the time involved varies from a few days to several years depending on soil types, their placement, and initial compaction. Time dependent factors are traditionally accounted for by adjusting load-induced deflections by a deflection lag factor. Selection of a deflection lag factor is considered in design guides for buried flexible pipe.

X1.4.5 *Final Deflection*—Final deflection is the total long term deflection of the pipe. It consists of initial deflection adjusted for time dependent factors.

X1.5 *Deflection Criteria*—Deflection criteria are often set as limits for the design and acceptance of buried flexible pipe installation. Deflection limits for specific pipe systems may be derived from both structural and practical considerations. Structural considerations include pipe cracking, yielding, strength, strain, and local distortion. Practical considerations include such factors as flow requirements, clearance for inspection and cleaning, and maintenance of joint seals. Initial and final deflection limits should be based on available structural properties with suitable factors of safety applied.

NOTE X1.1—Some ASTM standard specifications for thermoplastic pipe, such as Specifications D3034, F679, F714, and F949, provide recommended limits for installed deflections.

NOTE X1.2—Deflections may not be indicative of strain levels arising from local distortions caused by non-uniform embedment stiffness or localized loadings. When local distortions may be significant, the engineer needs to establish methods for controlling and monitoring distortion levels.

X1.6 *Deflection Control*—Embedment materials should be selected, placed, and compacted so as to minimize total deflections and, in any event, to maintain installed deflections within specific limits. Methods of placement, compaction, and moisture control should be selected based on soil types given in Table 1 and Table 2 and on recommendations given in Table 3. The amount of load-induced deflection is primarily a function of the stiffness of the pipe and soil embedment system. Other factors that are important in obtaining deflection control are outlined below.

X1.6.1 *Embedment at Pipe Haunches*—Lack of adequate compaction of embedment material in the haunch zone can result in excessive deflection, since it is this material that supports the vertical loads applied to the pipe. A key objective during installation of flexible thermoplastic pipe (or any pipe) is to work in and compact embedment material under pipe haunches, to ensure complete contact with the pipe bottom, and to fill voids below the pipe.

X1.6.2 *Embedment Compaction*—Embedment compaction requirements should be determined by the engineer based on deflection limits established for the pipe, pipe stiffness, and installation quality control, as well as the characteristics of the in-situ soil and compactibility characteristics of the embedment materials used. The compaction requirements given in Table 3 are based on attaining an average modulus of soil reaction (E') of 1000 psi[5] (or an appropriate equivalent constrained modulus, M_s), which relates soil stiffness to soil type and degree of compaction. For particular installations, the project engineer should verify that the percent compaction specified meets performance requirements.

X1.7 *Compaction Methods*—Achieving desired compaction for specific types of materials depends on the methods used to impart compactive energy. Coarse-grained, clean materials such as crushed stone, gravels, and sand are more readily compacted using vibratory equipment, whereas fine materials with high plasticity require kneading and impact force along with controlled water content to achieve acceptable compaction (see 5.3). In pipe trenches, small, hand-held or walk-behind compactors are required, not only to preclude damage to the pipe, but to ensure thorough compaction in the confined areas around the pipe and along the trench wall. As examples, vibratory plate tampers work well for coarse grained materials of Class I and Class II, whereas hand tampers or air driven hand-held impact rammers are suitable for the fine-grained, plastic groups of Class III and IV. Gas or diesel powered jumping jacks or small, walk-behind vibratory rollers impart both vibratory and kneading or impact force, and hence are suitable for most classes of embedment and backfill material.

X1.8 *Migration*—When coarse and open-graded material is placed adjacent to a finer material, fines may migrate into the coarser material under the action of hydraulic gradient from ground water flow. Significant hydraulic gradients may arise in the pipeline trench during construction when water levels are being controlled by various pumping or well-pointing methods, or after construction when permeable underdrain or embedment materials act as a "french'' drain under high ground water

[5] Howard, Amster, "Modulus of Soil Reaction Values for Buried Flexible Pipe," *Journal of Geotechnical Engineering*, ASCE, Vol. 103, No. GT1, 1977.

levels. Field experience shows that migration can result in significant loss of pipe support and continuing deflections that may exceed design limits. The gradation and relative size of the embedment and adjacent materials must be compatible in order to minimize migration (see X1.8.1 below). In general, where significant ground water flow is anticipated, avoid placing coarse, open-graded Class I materials above, below, or adjacent to finer materials, unless methods are employed to impede migration such as the use of an appropriate stone filter or filter fabric along the boundary of the incompatible materials. To guard against loss of pipe support from lateral migration of fines from the trench wall into open-graded embedment materials, it is sufficient to follow the minimum embedment width guidelines in X1.10.

X1.8.1 The following filter gradation criteria may be used to restrict migration of fines into the voids of coarser material under a hydraulic gradient:

X1.8.1.1 $D_{15} / d_{85} < 5$ where D_{15} is the sieve opening size passing 15 % by weight of the coarser material and d_{85} is the sieve opening size passing 85 % by weight of the finer material, and

X1.8.1.2 $D_{50}/d_{50} < 25$ where D_{50} is the sieve opening size passing 50 % by weight of the coarser material and d_{50} is the sieve opening size passing 50 % by weight of the finer material. This criterion need not apply if the coarser material is well-graded (see Test Method D2487).

X1.8.1.3 If the finer material is a fine-grained soil (CL, CH, ML, or MH), then the following criterion may be used in lieu of X1.8.1.1: $D_{15} < 0.02$ in. (0.5 mm) where D_{15} is the sieve opening size passing 15 % by weight of the coarser material.

NOTE X1.3—Materials selected for use based on filter gradation criteria, such as in X1.8.1, should be handled and placed in a manner that will minimize segregation.

X1.9 *Maximum Particle Size*—Limiting particle size to ¾ in. (20 mm) or less enhances placement of embedment material for nominal pipe sizes 8 in. (200 mm) through 15 in. (380 mm). For smaller pipe, a particle size of about 10 % of the nominal pipe diameter is recommended.

X1.10 *Embedment Width for Adequate Support*—In certain conditions, a minimum width of embedment material is required to ensure that adequate embedment stiffness is developed to support the pipe. These conditions arise where in-situ lateral soil resistance is negligible, such as in very poor native soils or along highway embankments. Examples of poor native soils include poorly compacted soils with blow counts of five or less, peat, muck, or highly expansive soils. Under these conditions, if the native soil is able to sustain a vertical cut, the minimum embedment width shall be 0.5 pipe diameters on either side of the pipe as shown in Fig. X1.1. Under these conditions, if the native soil cannot sustain a vertical cut or if it is an embankment situation, the minimum embedment width shall be one pipe diameter on either side of the pipe as shown in Fig. X1.2. In either case, the embedment material shall be a Class II granular material or a Class I crushed rock as specified in Section 5 of this standard. If other embedment materials are used, the engineer should establish the minimum embedment width based on an evaluation of parameters such as pipe stiffness, embedment stiffness, nature of in-situ soil, and magnitude of construction and service loads. Regardless of the trench width required for adequate support, the trench must be of sufficient width to allow the proper placement of embedment in accordance with 6.3.

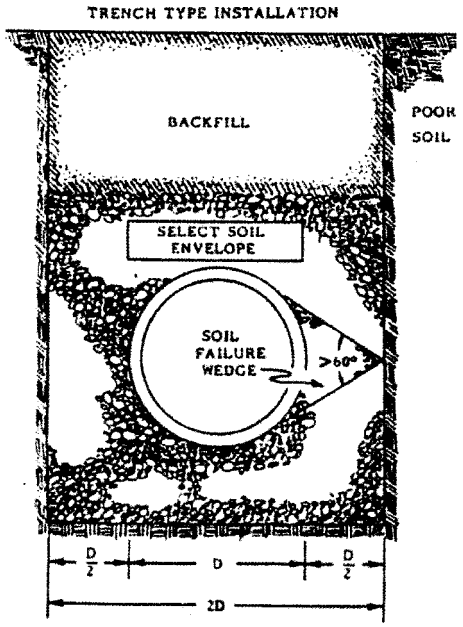


FIG. X1.1 Minimum Embedment Width When Trench and Native Soil Can Sustain a Vertical Cut

NOTE X1.4—Installation in very poor soil conditions may require additional treatment, for example, soil stabilization or permanent sheeting.

NOTE X1.5—The embedment over the top of the pipe shown in Fig. X1.1 and Fig. X1.2 represent minimum cover for impact protection, not for pipe support. Regardless of the minimum cover shown, the requirements of 7.6 must be met.

NOTE X1.6—Refer to X1.6 for backfill material and compaction requirements to control deflection.

X1.11 *Lumps, Clods and Boulders*—Backfill materials should be free of lumps, clods, boulders, frozen matter, and debris. The presence of such material in the embedment may preclude uniform compaction and result in excessive localized deflections.

X1.12 *Other Design and Construction Criteria*—The design and construction of the pipe system should recognize conditions that may induce excessive shear, longitudinal bending, or compression loading in the pipe. Live loads applied by construction and service traffic may result in large, cumulative pipe deflections if the pipe is installed with a low density embedment and shallow cover. Other sources of loads on buried pipes are: freezing and thawing of the ground in the vicinity of the pipe, rising and falling of the ground water table, hydrostatic pressure due to ground water, and localized differential settlement loads occurring next to structures such as manholes and foundations. Where external loads are deemed to be excessive, the pipe should be installed in casing pipe or other load limiting structures.

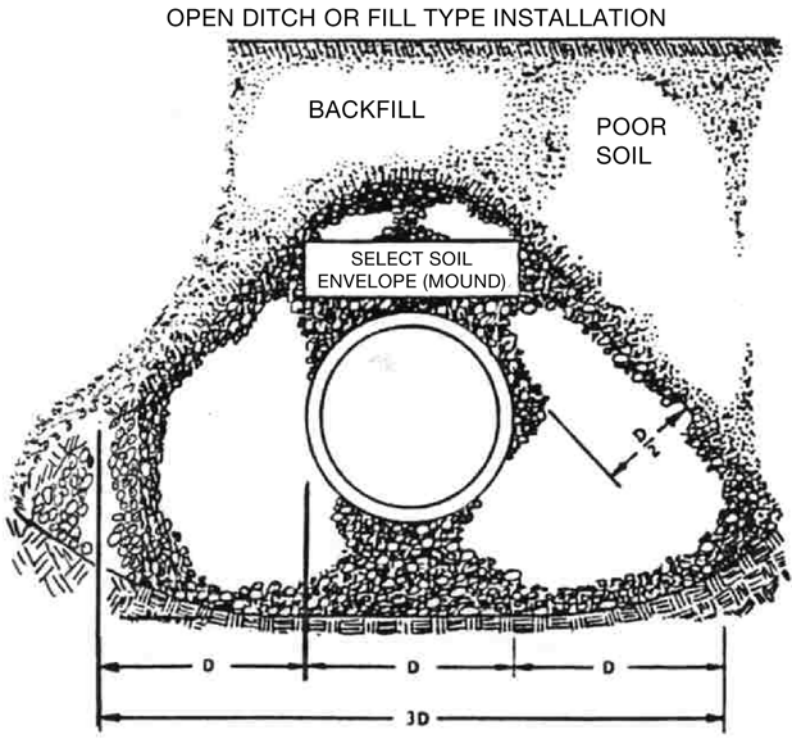


FIG. X1.2 Minimum Embedment Width When Native Soil Can Not Sustain a Vertical Cut or When Installed in the Embankment Condition

X1.13 *Deflection Testing*—To ensure specified deflection limits are not exceeded, the engineer may require deflection testing of the pipe using specified measuring devices. To allow for stabilization of the pipe soil system, deflection tests should be performed at least 30 days after installation. However, as a quality control measure, periodic checks of deflection may be made during installation.

X1.13.1 Optional devices for deflection testing include electronic deflectometers, calibrated television or video cameras, or a properly sized "go, no-go'' mandrel. Deflection measurements can be made directly with extension rulers or tape measures in lines that permit safe entry. To ensure accurate measurements, clean the lines before testing.

X1.14 *Additional Installation Information*–Supplemental information useful for buried pipe installation can be found in Practice F1668.

X2. RECOMMENDATIONS FOR INCORPORATION IN CONTRACT DOCUMENTS

X2.1 This practice may be incorporated, by referral, into contract documents for a specific project to cover requirements for installation of flexible thermoplastic pipe in sewers and other gravity-flow applications. Application to a particular project should be made by means of a list of supplemental requirements. Suggested modifications to specific sections are listed below (the list is keyed to applicable section numbers of this practice):

X2.2 *Sections 5.1, 5.2, and* Table 3—Further restrictions on use of Classes of embedment and backfill materials.

X2.3 *Section 5*—Specific gradations of embedment materials for resistance to migration.

X2.4 *Section 5.4*—Maximum particle size, if different from Table 2.

X2.5 *Section 6.2*—Restrictions on mode of dewatering; design of underdrains.

X2.6 *Section 6.3*—Requirements on minimum trench width.

X2.7 *Section 6.4*—Restrictions or details for support of trench walls.

X2.8 *Section 7.5*—Specific restrictions on methods of compaction.

X2.9 *Section 7.5.1 and* Table 3—Minimum embedment percent compaction if different from these recommendations; specific compaction requirements for backfill (for example, for pavement subgrade).

X2.10 *Section 7.6*—Minimum cover requirements if different from this paragraph.

X2.11 *Section 7.7*—Detailed requirements for support of vertical risers, standpipes, and stacks to accommodate anticipated relative movements between pipe and such appurtenances. Detailing to accommodate thermal movements, particularly at risers.

X2.12 *Section 7.10*—Detailed requirements for manhole connections.

X2.13 *Section 7.11*—Requirements on methods of testing compaction and leakage.

X2.14 *Section X1.13*—Requirements on deflection and deflection measurements, including method and time of testing.

SUMMARY OF CHANGES

Committee F17 has identified the location of selected changes to this standard since the last issue (D2321–11) that may impact the use of this standard. (Approved August 1, 2014.)

(1) Table 3 was revised.

TOWN OF JAMES ISLAND

ORDINANCE NO. 2024-07

AN ORDINANCE AMENDING THE TOWN OF JAMES ISLAND EXISTING SUPPLEMENTAL STORMWATER DESIGN STANDARDS

WHEREAS, the Town Council of the Town of James Island, approved Ordinance 2020-05 on May 21, 2020 to adopt the Town's Supplemental Stormwater Design Standards Manual and incorporated the Manual within Title V: Public Works of the Town Code of Ordinances; and

WHEREAS, the Town Council of the Town of James Island desires to amend the Supplemental Stormwater Design Standards Manual to reflect necessary changes to help protect the health and general welfare of the residents of James Island; and,

WHEREAS, it is the finding of the Town Council of the Town of James Island that the existing Manual as found in Exhibit "A" be replaced with the proposed changes as found in Exhibit "B".

NOW BE IT ORDAINED that the Town Council of the Town of James Island accepts this Supplemental Stormwater Design Standards Manual and hereby incorporates the Manual by reference.

INTRODUCTION AND FIRST READING: August 15, 2024
SECOND AND FINAL READING: September 19, 2024

ADOPTED this _____ day of _____, 2024 at James Island, South Carolina.

_____
Brook Lyon, Mayor

ATTEST:

_____
Franes Simmons
Town Clerk

1.0 INTRODUCTION

As a coastal community, the Town of James Island is acutely cognizant of and sensitive to the effects of stormwater management. Within recent years, the Town has experienced an increase in both widespread flooding due to storm surge, tidal events, and historical rainfall as well as reported nuisance flooding during smaller common storm events. Stormwater management has never been more important to communities like the Town of James Island than it is now. The effects of future climate change ensure that the sea level will rise, and the frequency and intensity of rain events will increase. The future vitality of the Town's growth, development, and economy depends on its ability to effectively manage stormwater today for the future.

Within James Island there are three governing authorities, the Town of James Island, Charleston County, and the City of Charleston. The Town of James Island has adopted the Charleston County Stormwater Design Manual. The City of Charleston has its own Stormwater Design Manual, which is being updated and expected to be effective in July 2020. The County is in the process of updating its stormwater design manual, however, the future effective date has not been established. The Town of James Island, in an effort to ensure the best stormwater management practices are being implemented in a timeframe commensurate with its needs, has developed supplemental stormwater design standards. As an incorporated town, the Town has ordinances governing stormwater management within its jurisdiction and employs staff to implement, review, and enforce its Stormwater Management Program. While, the Town will continue to follow the Charleston County Stormwater Design Manual, the supplemental stormwater design standards in the following sections are to be incorporated in all construction projects within the Town's jurisdiction and applied to all construction activities applying for a permit starting on its effective date. Where there is conflict between the County design manual and these supplemental standards, the Town's stormwater design standards will supersede.

The Town of James Island Supplemental Stormwater Design Standards provide design requirements directly affecting stormwater quantity control. The standards are to be implemented for both single family residence and non-single-family residence sites. These standards have been coordinated between the County and City to ensure stormwater management on James Island is well-coordinated and effective between the three governing entities.

2.0 TOWN OF JAMES ISLAND REQUIREMENTS

2.1 Construction Activity Approval Process

All development within the Town of James Island shall have a preliminary planning meeting with the Town's Public Works Director to ensure the proposed site improvements are coordinated with the Town's stormwater master plan.

3.0 STORMWATER QUANTITY CONTROL DESIGN STANDARDS

3.1 Rainfall and Design Storms

The 24-hour precipitation depths/intensities corresponding to various probabilities for exceedance in any given year are shown in Table 1 and are to be used for projects within the Town. These values contain a 10 percent safety factor to account for uncertainties in the design process and the increasing intensity of future storms.

Table 1: 24-hour design storm precipitation data for Town of James Island, South Carolina

	100%	50%	20%	10%	4%	2%	1%
Return Frequency (Year)	1-yr	2-yr	5-yr	10-yr	25-yr	50-yr	100-yr
Precipitation (Inches)	3.8	4.6	6.1	7.2	8.7	9.9	11.3

3.2 Single Family Residence (SFR) Design Standards

Impervious area for individual residential lots, to include those within a larger planned community, shall not exceed 40% of the total property area. If the impervious area exceeds 40%, the runoff volume from a 25-year, 24-hour storm event shall be retained on site for the impervious area above 40%. For example, if the impervious area for a new home site is 52% of the total property, the site must retain the 25-year, 24-hour storm runoff volume for 12% of the total property area on site. Reference the Low Impact Development in Coastal South Carolina: A Planning and Design Guide for recommended best management practices.

3.3 Redevelopment Design Standards

Redevelopment shall be defined as a change to previously existing, improved property, where the impervious surface exceeds 20% of the total site and proposed improvements to the property exceed 50% of the total site value. Redevelopment design will apply to SFR and non-SFR site improvements. Improvements may include, but are not limited to, the demolition or construction of structures, filling, grading, paving, excavating, exterior improvements, interior remodeling, and resurfacing of paved areas. Improvement activities excluded from redevelopment include ordinary maintenance activities that do

not materially increase or concentrate stormwater runoff or cause additional nonpoint source pollution.

To improve stormwater management on existing developed sites, redevelopment activities for single family residence (SFR) and non-single-family residence sites shall implement at least one of the following performance standards:

a. Reduce Impervious Cover: Reduce impervious cover to ensure it does not exceed 40% of the total lot area or retain runoff from 25-yr, 24-hour storm from the impervious area in excess of 40%. Confirm the post-development peak discharge rate does not exceed the pre-development peak discharge rate for the 50% AEP storm event. Confirm the post-development volume does not exceed the pre-development volume for the 10% and 4% AEP storm events.
b. Reduce Runoff Volume: Achieve a 10% reduction in the total volume of runoff generated from the site by a 50% annual exceedance probability (AEP) storm event (2-year storm). Runoff calculations shall be based on a comparison of existing site conditions at the time of submittal of a Construction Activity Application to the post-development site conditions. Confirm the post-development peak discharge rate does not exceed the pre-development peak discharge rate for the 50% AEP storm event.
c. Reduce Peak Discharge Rates: Achieve a 20% reduction of the existing peak discharge rates at the time of submittal of a CAA for the 10% and 4% AEP storm events (10-year and 25-year storms) based on a comparison of existing round cover at the time of submittal of a CAA to post-development site conditions. Confirm the post-development volume does not exceed the pre-development volume for the 10% and 4% AEP storm events.
d. Combination of Measures: A combination of (a), (b), or (c) above that is acceptable to the Town.

3.4 Runoff Reduction Requirements

All SFR and non-SFR sites of less than a half-acre with an increase of 500 square feet or more of impervious area, shall offset the increase in runoff through implementation of runoff reduction practices. Runoff reduction practices include disconnected downspouts, rain garden, infiltration trench, rain barrels, etc. See Table 2 for a list of accepted runoff reduction practices.

Table 2: Runoff Reduction Practices

Reduction Practice	Requirement
Disconnect Downspouts from Impervious Areas or Piped Systems	500 sf of impervious area allowed per 500 sf of roof area disconnected
Install Rain Barrel	500 sf of impervious area per 50-gallon rain barrel installed at downspout
Install Rain Garden	500 sf of impervious area allowed per 50 sf of rain garden installed
Install Infiltration Trench	1' deep x 2' wide trench filled with clean coarse sand along each side of surface features such as driveways or patios with no more than 15 feet of linear unit area flowing to the feature
Remove and Replace	500 sf of impervious area allowed per 500 sf of existing impervious area removed and replaced with approved permeable material

Per Low Impact Development in Coastal South Carolina: A Planning and Design Guide, rain barrels should be used where there is a direct corollary reuse demand. In absence of such, an orifice outlet should be used to slowly drain to permeable surfaces.

3.5 Site Grading Requirements

Site fill is to be limited to the greatest extent possible to prevent disruption of existing overland stormwater flow patterns. If fill is required to elevate the site above existing grade, the following buffer requirements shall be met:

a. 3H:1V slopes 1 foot in height or more above adjoining property shall maintain a 5-foot-wide vegetated buffer area for every additional 1 foot of height. (e.g., a 4-foot embankment would equate to a 15-foot buffer.)
b. 4H:1V slopes 1 foot in height or more above adjoining property shall maintain a 3-foot-wide vegetated buffer area for every additional 1 foot of height. (e.g., a 4-foot embankment would equate to a 9-foot buffer.)
c. 5H:1V slopes 1 foot in height or more above adjoining property shall maintain a 1-foot-wide vegetated buffer area for every additional 1 foot of height. (e.g., a 4-foot embankment would equate to a 3-foot buffer.)

The buffer may overlay other vegetated buffers and may contain stormwater features designed to manage stormwater generated by the fill slope. For grades between listed slopes, the necessary buffer shall be interpolated. Grading shall prevent runoff onto adjacent property.

Compaction of non-structural fill shall be minimized during construction. Soils in landscaping areas should be protected and amended as needed. Disturbed soils in areas of fill or heavy equipment operation that will be vegetated in the final site stabilization shall be scarified or treated as directed by the designer to improve infiltration and water retention prior to final establishment of vegetation.

3.6 Soil Infiltration

Any non-structural fill brought on-site shall have adequate permeability to allow water to infiltrate. Soils must have an infiltration rate of a minimum of 0.3 inches per hour as determined by a soil scientist or geotechnical engineer. The permeability test results must be submitted and approved prior to scheduling a certificate of occupancy or certificate of construction completion inspection. Soil infiltration best management practices (BMPs) shall be incorporated into the site design. Infiltration BMPs must be consistent with the most current version of the Low Impact Development in Coastal South Carolina: Planning and Design Guide.

3.7 Floodplain Storage

Construction activities that reduce storage within the floodplain, commonly known as “fill and build”, shall be prevented. The floodplain will be the 1% AEP floodplain as established by Federal Emergency Management Agency (FEMA) plus 2.5 feet elevation. The 100-year floodplain is defined by Special Hazard Area Zones A, AE, AH, AO, A99, V, and VE. The 2.5 ft will be added to the elevation of the 100-year flood plain. In cases where floodplain storage impacts are proposed, impacts shall be mitigated with a minimum 1.25:1 replacement based upon total storage volume to prevent deterioration of basin stormwater storage capacity over time. Mitigation shall be within the same basin effecting the same water surface elevations and hydraulics as the proposed impact.

Exhibit "B"

DRAFT REVISED SUPPPLEMENTAL STOMWATER DESIGN STANDARDS

August 2, 2024

1. INTRODUCTION

As a coastal community, the Town of James Island is acutely cognizant of and sensitive to the effects of stormwater management. Within recent years, the Town has experienced an increase in both widespread flooding due to storm surge, tidal events, and historical rainfall as well as reported nuisance flooding during smaller common storm events. Stormwater management has never been more important to communities like the Town of James Island than it is now. The effects of future climate change ensure that the sea level will rise, and the frequency and intensity of rain events will increase. The future vitality of the Town's growth, development, and economy depends on its ability to effectively manage stormwater today for the future.

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The Town of James Island Supplemental Stormwater Design Standards provide design requirements directly affecting stormwater quantity control. The standards are to be implemented for both single family residence and non-single-family residence sites. These standards have been coordinated between the County and City to ensure stormwater management on James Island is well-coordinated and effective between the three governing entities.

2. TOWN OF JAMES ISLAND PRELIMINARY PLANNING MEETING

All development within the Town of James Island shall have a preliminary planning meeting with the Town's Public Works Director to ensure the proposed site improvements are coordinated with the Town's stormwater master plan
STORMWATER QUANTITY CONTROL DESIGN STANDARDS

3. STORMWATER QUANTITY CONTROL DESIGN STANDARDS

3.1. Rainfall and Design Storms

The 24-hour precipitation depths/intensities corresponding to various probabilities for exceedance in any given year are shown in Table 1 and are to be used for projects within the Town. These values contain a 10 percent safety factor to account for uncertainties in the design process and the increasing intensity of future storms.

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Precipitation (Inches)	3.8	4.6	6.1	7.2	8.7	9.9	11.3

3.2. Single Family Residence (SFR) design Standards

Single Family Residence for the purpose of these design standards means a single lot zoned for construction of a detached single family residence.

3.2.1. Impervious Area for SFR Lots

An impervious surface is a monolithic surface made of non-porous material that prevents water from infiltrating. Examples of impervious surfaces include structures, concrete or asphalt slab, driveway, sidewalk, patio, pools, rooftop, street, curbing, and elevated decks constructed to prevent water from passing through to underlying soil.

Impervious area for individual residential lots, including those within a larger planned community, shall not exceed 40% of the total property area.

3.2.2. Fill

Fill or filling means placement of natural sands, dirt, soil or rock above the natural grade to raise the elevation of the ground, and may also include concrete, cement, soil cement, brick or similar material as approved on a case-by-case basis. Large quantities of fill can alter drainage, may lessen rainfall infiltration, accelerate runoff and/or displace water onto neighboring properties and downstream communities.

Projects that will alter drainage patterns, increase stormwater runoff shall provide a topographic grading and drainage plan prepared by a design professional which demonstrates compliance with these standards. The grading and drainage plan shall be accompanied with a statement or letter signed by the design professional which states that the proposed project and associated activity will not adversely impact on offsite properties or rights-of-way. Upon completion of the project the property owner shall produce a letter signed by the design professional that states that the project has been completed in accordance with the approved plan and that it does not adversely impact offsite properties.

Property owners shall not impede the natural flow of runoff from their neighbors, and they shall not dispel their runoff in a manner that will negatively impact their neighbors. The fill material shall not be higher than the lowest elevation along the perimeter of the adjacent tracts, parcels or platted lots however may be placed within the footprint of the foundation but shall not exceed that amount required to prevent accumulation of water beneath the structure.

The slope of fill material outside the foundation perimeter shall not be greater than 1 ft vertical to 6 feet horizontal.

Drainage swales must be created to provide positive drainage to the existing drainage system in accordance with an approved grading and drainage plan.

3.2.3. Foundation Types

Slab-on-grade foundations are difficult to elevate, and water can flood buildings through cracked or settled slab-on-grade foundations. Sea levels are expected to rise, which will increase flood risk in the special flood hazard areas (SFHA) and expand the extent of the SFHA. In order to address increasing flood levels, flood hazards, and the associated damage caused by the importation of fill, the following shall apply within the SFHA of the town limits.

Beginning _____(the "effective date"), the permitting of certain foundation types shall be prohibited for all new single-family dwellings, including attached single-family dwellings.

The most current version of Appendix B to the Federal Emergency Management Agency's National Flood Insurance Program (NFIP) Flood Insurance Manual (the "appendix") is hereby incorporated by reference and shall govern acceptable foundation types, as may be supplemented and amended by the town's stormwater design standards.

The foundations depicted in Diagrams 1A, 1B, 2A, 2B, and 3 of the appendix are prohibited for detached single-family dwellings.

The floodplain manager or his/her duly authorized agent shall review elevation certificates to ensure the proper type of foundation has been used pursuant to this section.

3.3.

3.3. Redevelopment Design Standards for Non SFR Development

Redevelopment shall be defined as a change to previously existing, improved property, where the impervious surface exceeds 20% of the total site and proposed improvements to the property exceed 50% of the total site value. Redevelopment design will apply to non-SFR site improvements. Improvements may include, but are not limited to, the demolition or construction of structures, filling, grading, paving, excavating, exterior improvements, interior remodeling, and resurfacing of paved areas. Improvement activities excluded from redevelopment include ordinary maintenance activities that do not materially increase or concentrate stormwater runoff or cause additional nonpoint source pollution.

To improve stormwater management on existing developed sites, redevelopment activities for and non-single-family residence sites shall implement at least one of the following performance standards:

a. Reduce the impervious cover on the site by at least 20 percent, based on a comparison of existing impervious cover at the time of submittal of a Construction Activity Application.
b. Reduce Runoff Volume: Achieve a 10% reduction in the total volume of runoff generated from the site by a 50% annual exceedance probability (AEP) storm event (2-year storm). Runoff calculations shall be based on a comparison of existing site conditions at the time of submittal of a Construction Activity Application to the post-development site conditions. Confirm the post development peak discharge rate does not exceed the pre-development peak discharge rate for the 50% AEP storm event.
c. Reduce Peak Discharge Rates: Achieve a 20% reduction of the existing peak discharge rates at the time of submittal of a CAA for the 10% and 4% AEP storm events (10-year and 25-year storms) based on a comparison of existing round cover at the time of submittal of a CAA to post-development site conditions. Confirm the post-development volume does not exceed the predevelopment volume for the 10% and 4% AEP storm events.
d. Combination of Measures: A combination of (a), (b), or (c) above that is acceptable to the Town.

3.4. Soil Infiltration

Any non-structural fill brought on-site shall have adequate permeability to allow water to infiltrate. Soils must have an infiltration rate of a minimum of 0.3 inches per hour as determined by a soil scientist or geotechnical engineer. The permeability test results must be submitted and approved prior to scheduling a certificate of occupancy or certificate of construction completion inspection. Soil infiltration best management practices (BMPs) shall be incorporated into the site design. Infiltration BMPs must be consistent with the most current version of the Low Impact Development in Coastal South Carolina: Planning and Design Guide.

Compaction of non-structural fill shall be minimized during construction. Soils in landscaping areas should be protected and amended as needed. Disturbed soils in areas of fill or heavy equipment operation that will be vegetated in the final site stabilization shall be scarified or treated as directed by the designer to improve infiltration and water retention prior to final establishment of vegetation.

3.5. Floodplain Storage

Non-SFR construction activities that reduce storage within the floodplain, shall be prevented. The floodplain will be the 1% AEP floodplain as established by Federal Emergency Management Agency (FEMA). The 100-year floodplain is defined by Special Hazard Area Zones A, AE, AH, AO, A99, V, and VE. In cases where floodplain storage impacts are proposed, impacts shall be mitigated with a minimum 1:1 replacement based upon total storage volume to prevent deterioration of basin stormwater storage capacity over time. Mitigation shall be within the same basin effecting the same water surface elevations and hydraulics as the proposed impact.

Planning Commission and BZA Appointments
August 15, 2024 Town Council Meeting

Planning Commissioners up for Re-Appointment:

Commissioner	Current Term Expires	Council Appointment	Serves until
Deborah Bidwell	8/20/2024	Lewis Dodson	8/20/2028
Patrick Broderick	8/20/2024	Cynthia Mignano	8/20/2028
Kelly Hall	8/20/2024	Troy Mullinax	8/20/2028

Board of Zoning Appeals up for Re-Appointment:

David Savage	8/20/2024	Mayor Brook Lyon	8/20/2028
Massey Yannitelli	8/20/2024	Dan Boles	8/20/2028
Joshua Hayes	8/20/2024	Troy Mullinax	8/20/2028